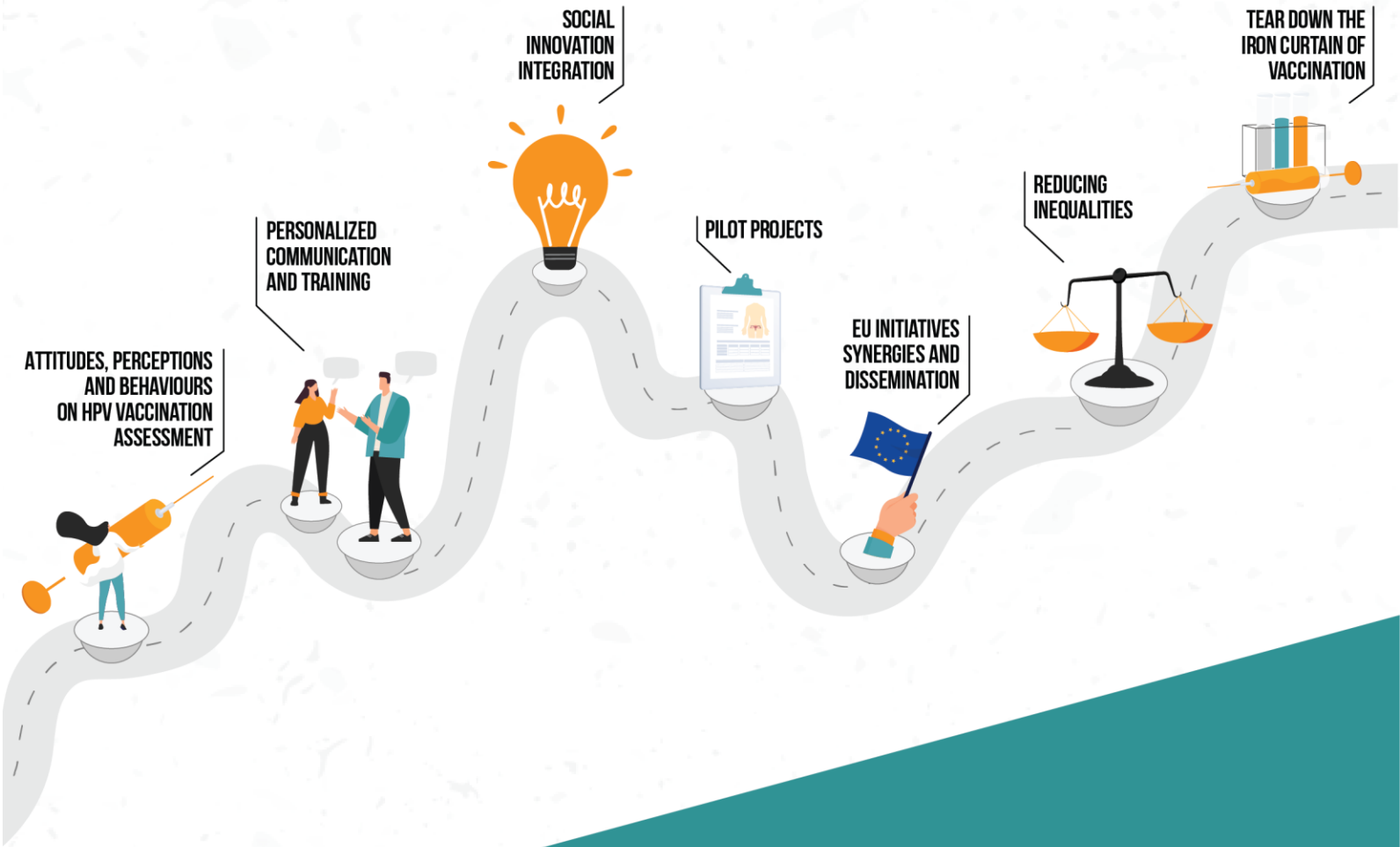
Rethink and Reduce inequalities in HPV vaccination through personalized communication and training, based on social innovation and behavioural determinants of health

D4.1. TRAINING CURRICULUM

RETHINK HPV: WE SAVE LIVES THROUGH INFORMATION, EDUCATION AND VACCINATION

MAY, 2024



Co-funded by the European Union through the EU4Health programme 2022

Project name: Rethink and Reduce inequalities in HPV vaccination through personalized communication and training, based on social innovation and behavioural determinants of health

Project acronym: ReThinkHPVaccination

Call: EU4Health

Version number	
Status	Final version
Dissemination level	Public
Due date of deliverable	31.12.2023
Actual submission date	20.05.2024
Project officer	ALIBERTI Alfonso
Work package	Work Package 4: Designing HPV vaccination communication trainings
Lead partner	Renasterea Foundation
Partner(s) contributing	INOMED, EUROC
Authors	
Main author name	Medic One - Subcontracted (Renasterea Foundation)
Reviewers	
Reviewer name	Claudia Oancea (Renasterea Foundation)
	Cătălina Negară (Renasterea Foundation)
	Alexandra Hosszu (Renasterea Foundation)

Co-funded by the European Union through the EU4Health programme 2022

Table of contents

Co-funded by the European Union through the EU4Health programme 2022

Introduction

The human papillomavirus (HPV) is responsible for the most common sexually transmitted infection in the world, and it causes nearly 1800 deaths annually from cervical cancer in Romania. Cervical cancer is the third most common type of cancer in women in Romania, ranking our country first in the European Union in terms of number of cases.

However, the suffering caused by HPV-linked cancers is avoidable - the HPV vaccine has proven to be an effective form of prevention, and countries that introduced it in their national immunization schemes are seeing significantly lower infection rates as well as lower incidence of cervical and other HPV-related cancers in both women and men. Cervical cancer is currently one of the most preventable cancers through vaccination.

The vaccination rate in Romania is extremely low - according to a study conducted within the ReThink HPV project, more than 90% of Romanian adults and children are not vaccinated, although the vaccine has been available in Romania since 2008. One can blame the extremely unfortunate initial introduction of the HPV vaccine into the immunization scheme without adequate communication to the general public, followed by its withdrawal from the national program. The lack of education, controversy and misinformation, probably unavoidable when it comes to a vaccine against a sexually transmitted disease that is also recommended for children, has certainly not helped.

But we have a chance for the better now. The reintroduction of the vaccine into the free immunization scheme for children (both girls and boys) and on a 50% reimbursed for adult women, as well as the simplification of the prescriptions - now with a simple prescription from the family doctor, gynaecologist or any other medical practitioner - should make it significantly easier for the population to get vaccinated. However, there remains a need for education and demystification, based on scientifically based information, but at the same time with care on its delivery method, so that it is easy to understand and assimilate even by those without a scientific background.

This is the aim of the ReThink HPV project - *Rethinking and Reducing Inequalities in HPV Vaccination through Tailored Communication and Training, based on Social Innovations and Behavioural Determinants of Health.* We hope this outreach effort will enable us to reduce the burden of cervical cancer and other HPV-related cancers in Romania.

Co-funded by the European Union through the EU4Health programme 2022

Summary

- HPV infection is very common and easily contracted and transmitted; 8 out of 10 of us will become infected at some point in our lives.
- HPV infection is not transmitted only by sexual intercourse. Human papillomavirus is spread through direct contact with the affected areas of skin, or an infected surface. This is why condoms do not offer enough protection against this virus.
- Persistent infection with certain high-risk HPV strains can cause cancer and other health problems in both women and men:
    - Over 99% of all cervical cancer cases diagnosed;
    - 90% of all anal cancers;
    - 72% of all oropharyngeal cancers (affecting the mouth, throat, base of the tongue, tonsils, and even the oesophagus);
    - Between 60% and 75% of vulvar, vaginal or penile cancers;
    - Almost all warts and genital warts are caused by HPV.
- In Romania, HPV infections are responsible for almost 3 400 new cases of cervical cancer every year. Nearly 1800 die from this disease every year. HPV is also responsible for 500 cases of other cancers (penile, vulvar, vaginal, anal, but also of the oropharyngeal region, i.e. mouth, vocal cords, etc.) diagnosed annually in Romania.
- In our country, cervical cancer is the 3rd most commonly diagnosed cancer in women, after breast and colorectal cancer, and Romania ranks first in the European Union in terms of mortality from this type of cancer.
- HPV vaccination is currently the most effective method to prevent cancers caused by HPV infections.
- HPV vaccines are proven to be safe, with rare and mild side effects (generally soreness or redness at the injection site); no evidence of causal association between HPV vaccine and serious disease was found.
- The countries where HPV vaccination was introduced into national immunization schemes at least 10 years ago are already experiencing significant declines in HPV infections and associated conditions: genital warts, pre-cancerous lesions, invasive cancers.
- HPV vaccination does not cause infertility and has not been shown to influence sexual behaviour.
- Vaccination produces a stronger, more comprehensive, and long-lasting immune response when given in adolescence, before becoming sexually active.

Co-funded by the European Union through the EU4Health programme 2022

- Vaccination is also effective when given to adults because it provides protection against future infections.
- Irrespective of age and gender, everyone benefits from HPV vaccination.
- HPV vaccination does not eliminate the need for regular screening and medical consultation.
- In Romania, HPV vaccination is currently offered:
  - free of charge to girls and boys over 11 and under 19 years of age, based on an electronic prescription from a physician;
  - on a 50% reimbursed basis for women between 19 and 45 years of age, based on an electronic prescription from a physician.
- 67% of Romanians have not received any advice on HPV vaccination and the majority of adults (93%) and children (95%) are not vaccinated against HPV.
- Beyond the absence of medical recommendations (at least so far), HPV vaccination is a sensitive area, on the one hand because it aims to prevent a sexually transmitted disease as it is recommended especially to pre-teens who are not yet sexually active; and on the other hand, because it faces many myths and misinformation that cause reluctance from parents. Accurate and audience-friendly education and information are therefore essential to overcome such barriers.

Co-funded by the European Union through the EU4Health programme 2022

Chapter 1. Human Papilloma virus- responsible for many cancers in both women and men

HPV (Human Papilloma Virus) is the virus responsible for the development of many cancers[1], i.e. 5% of all cancers in women and men[2].

Potentially dangerous virus types

There are more than 200 types of this virus known to affect the genital and anal areas, as well as other large areas of the skin, mouth and throat (oropharyngeal area), which are present in both women and men.[3]
Most of these are naturally discarded by the immune system, without any intervention, within a period ranging from a few months to two years after infection[4]. There are however several strains of HPV that, if they persist in the body, can cause health problems, including several cancers in both women and men.[5]. Strains 16 and 18 in particular are responsible for 70% of cervical cancers.[3]

How is the infection transmitted

HPV infection is most commonly transmitted through vaginal, anal or oral intercourse. Human papillomavirus is spread through direct contact with affected areas of skin, or an infected surface. This is why condoms do not offer enough protection against this virus.[2]
People infected with HPV have no visible or easily detectable symptoms or signs of the virus. Therefore, infected people can easily transmit it to others without even realizing it[6,7]. Most of the time, it is only after HPV infection advances to precancerous lesions that symptoms start to show.[2]
Rarely, the virus can also be transmitted from the mother to her newborn, that can later develop into a rare but serious disease called Recurrent Respiratory Papillomatosis (RRP)[8].

Factors that favor infection persistence

Co-funded by the European Union through the EU4Health programme 2022

It is not currently known why some people infected with HPV develop cancers and others do not, but we do know that the persistence of HPV infection is favoured by:[9]

- Smoking, which generally affects the immune system's ability to fight infections;
- Becoming sexually active at an early age, which increases the risk of infection and re-infection during youth;
- High number of births;
- Co-existing sexually transmitted infections;
- Immunosuppression by medication or pre-existing disease;
- Prolonged use of oral contraceptives.

Incidence and prevalence of HPV infections

At a global level, it is estimated 80% of all sexually active women and men become infected with HPV at some point in their lives, even if they only had sexual relations with one person.[3] Most infections heal on their own, but persistent infections increase the risk of health problems later on.[4]

The symptoms can occur even several years after becoming infected. It is therefore very difficult to know when the infection first occurred, making it impossible to estimate the prevalence of infections over a specific period of time.[4]

No population-specific incidence statistics for HPV infection have been collected so far in Romania. However, there are statistics on cancers caused by persistent infection, which we will discuss later.

Conditions caused by infection

Although HPV infection is generally associated in speaking with cervical cancer, this is not the only type of cancer caused by HPV. The virus is responsible for several types of cancers and precancerous lesions that affect both women and men:

- Over 99% of all cervical cancer cases diagnosed [2]
- 90% of all anal cancers [2]
- 72% of all oropharyngeal cancers (affecting the mouth, throat, base of the tongue, tonsils, and even the oesophagus [10]
- Between 60% and 75% of vulvar, vaginal or penile cancers [2]

Warts or genital warts is also a condition caused almost exclusively by HPV infections. [11]

REFERENCES

Co-funded by the European Union through the EU4Health programme 2022

1. Guide on HPV vaccination in EU countries. https://www.ecdc.europa.eu/en/publications-data/guidance-hpv-vaccination-eu-focus-boys-people-living-hiv-9vHPV-vaccine

2. HPV and cancer. The National Cancer Institute. https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-and-cancer.

3. Meites E, Gee J, Unger E, Markowitz L. Epid. Epidemiology and prevention of vaccine-preventable diseases. Cartea Roz, Edition 14. Chapter 11: Human Papilloma Virus. Centers for Disease Control and Prevention (CDC) https://www.cdc.gov/vaccines/pubs/pinkbook/hpv.html

4. Robert A. Bednarczyk. Dispelling myths about HPV vaccines: practical information for health professionals. Human Vaccines and Immunotherapeutic, 2019, VOL. 15, NOS. 7–8, 1628–1638

5. Centers for Disease Control and Prevention (CDC). Genital HPV infection - Basic Fact Sheet. https://www.cdc.gov/std/hpv/stdfact-hpv.htm.

6. Bradley J. Monk, Ali Mahdavi. HPV vaccine: A New Chance To Prevent Cervical Cancer - Recent Findings In Cancer Research. © Springer-Verlag Berlin Heidelberg, 2007. Vol. 174, p. 1.

7. Hai Ha Long Le, Xiuqiong Bi, Azumi Ishizaki, Hung Van Le, Trung Vu Nguyen, Hiroshi Ichimura. Low concordance of oral and genital HPV infections among male patients with sexually transmitted infections in Vietnam. BMC Infectious Diseases, 2019, 19:578.

8. International Agency for Research on Cancer (IARC). Monographs on the Identification of Carcinogenic Hazards to Humans HPV. IARC Press, 2007. Vol. 90, pag 115.

9. H. Chesson, E. F. Dunne. The Estimated Lifetime Probability of Acquiring Human Papillomavirus in the United States. Sex. Transm. Dis. 2014, November. 41(11): 660–664. doi:10.1097/OLQ.0000000000000193.

10. HPV and oropharyngeal cancer. https://www.cdc.gov/cancer/hpv/basic_info/hpv_oropharyngeal.htm.

11. Bonnez W. Papillomaviruses, Chap. 143. In: Bennett JE, Dolin R, Blaser MJ. Mandell, Douglas. Bennett's principles and practice in infectious diseases. Ed. 9, Elsevier Philadelphia, 2020.

Co-funded by the European Union through the EU4Health programme 2022

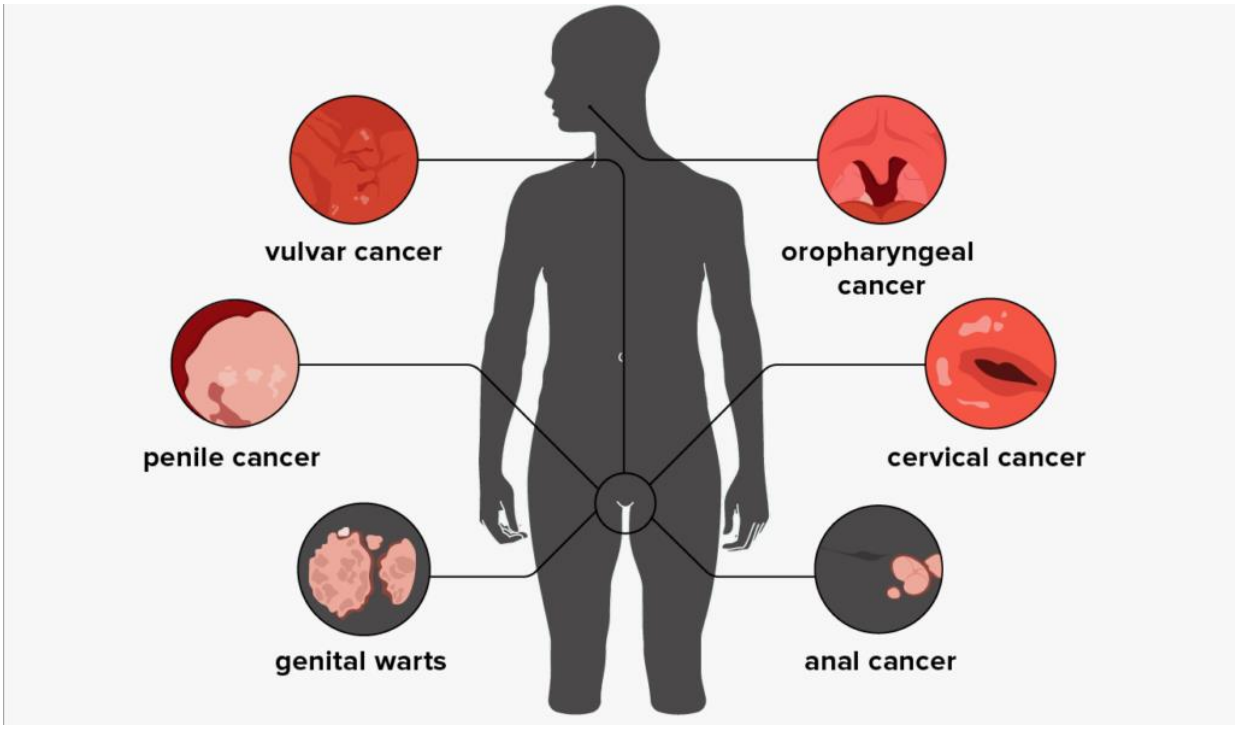
Chapter 2. The burden of Human Papilloma virus infections and the conditions they cause

HPV cancers

Persistent HPV infection is associated with:

- Over 99% of all diagnosed cervical cancer cases [1]
- 90% of anal cancer cases[1]
- 72% of all oropharyngeal cancers[2]
- Between 60% and 75% of vulvar, vaginal or penile cancers [1]
- Almost all cases of genital warts/verrucas

LOCATION OF HPV-RELATED CONDITIONS



Co-funded by the European Union through the EU4Health programme 2022

Burden of these cancers in Romania3

According to GLOBOCAN, HPV infections are responsible for almost 3 400 new cases of cervical cancer every year. In other words, these statistics would reveal 9 women diagnosed with cervical cancer every day in Romania. 5 of them die every day - almost 1800 every year.
HPV is also responsible for 500 cases of other cancers (penile, vulvar, vaginal, anal, but also of the oropharyngeal region, i.e. mouth, vocal cords, etc.) diagnosed annually in Romania.
In our country, cervical cancer is the third most frequently diagnosed cancer in women, after breast cancer and colorectal cancer, and Romania ranks first in the European Union in terms of mortality caused by it, a statistic that is all the more painful given that this is one of the few cancers that could be almost entirely prevented through vaccination.

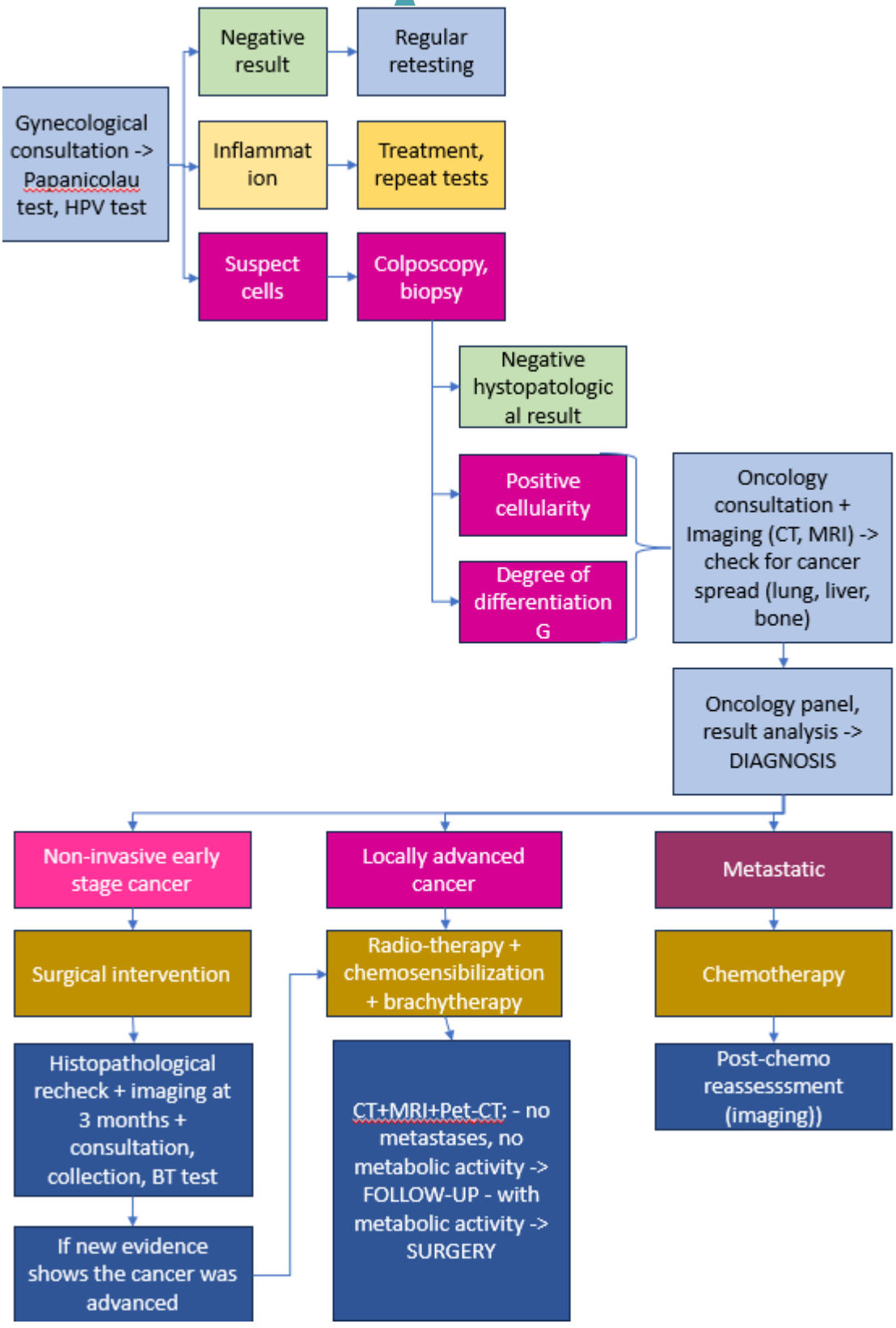
Fighting cervical cancer in Romania

A patient's pathway through the Romanian medical system, from the first gynaecological consultation to the diagnosis and treatment of cervical cancer, is quite long and intricate. The scheme below summarizes the main steps the patient has to go through as per standard medical procedures in Romania. It should be noted, however, that the course of a patient with cervical neoplasm through the medical system depends on the characteristics and stage of the disease, sometimes requiring revisiting some steps even 3-4 times, as the medical team always refers to the guidelines.

Co-funded by the European Union through the EU4Health programme 2022

THE CERVICAL CANCER PATIENT PATHWAY

Co-funded by the European Union through the EU4Health programme 2022



Co-funded by the European Union through the EU4Health programme 2022

On average, this pathway takes 2-3 months, but it can vary greatly, as the patient's level of access to specialist services varies quite a lot, depending on:

- GEOGRAPHICAL LOCATION: Comprehensive medical imaging and consultation services, including specialized services, tend to exist only in large cities; in smaller towns or rural areas they are either not available at all or only partially available, forcing patients to travel to other locations, at additional financial costs and possibly missing work;
- COSTS: not all providers of imaging and consultation services maintain contracts with the National Health Insurance House, which can pose access problems for patients if reimbursement alternatives are not available in their location; even for reimbursed services, if funds run out too quickly, many patients will have to individually bear the costs or wait until funds are replenished;
- AVAILABILITY OF APPOINTMENTS: in situations where the number of patients far exceeds the capacity for medical and imaging services in the area, appointments may need to be made months in advance, which delays the diagnosis and/or treatment for cervical cancer.

To make it easier for cervical cancer patients (and cancer patients in general in Romania) to go through this complex route, The Association for the Prevention and Fight against Cancer "Amazonia" has been running the only Patient Navigator program in Romania between 2009 and 2019, within the Prof. Dr. Alexandru Trestioreanu Oncological Institute of Bucharest. The Patient Navigator job was introduced in the Romanian Classification of Occupations in 2018.
Patient navigation in the Cancer Care Environment refers to the individualized assistance and guidance provided to patients, families and caregivers to help overcome barriers to the health care system and facilitate timely access to quality medical and psychosocial care, from pre-diagnosis through all phases of the cancer pathway. The Navigator's mission is to practically integrate Romania's highly fragmented health care system - primary care, secondary care, advanced medical investigations, alternative medicine, home care, experimental medical trials - so that every cancer patient can get the care they need, when they need it.

REFERENCES

1. HPV and cancer. The National Cancer Institute. https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-and-cancer.

2. HPV and oropharyngeal cancer. https://www.cdc.gov/cancer/hpv/basic_info/hpv_oropharyngeal.htm.

3. Global Cancer Observatory, GLOBOCAN 2022. https://gco.iarc.who.int/media/globocan/factsheets/populations/642-romania-fact-sheet.pdf

Co-funded by the European Union through the EU4Health programme 2022

Chapter 3. Human Papilloma virus vaccination

How does vaccination work?

The vaccines currently used to protect against HPV infections do not contain live viruses, but virus-like particles similar to certain components of the virus structure. Thus, vaccines cannot cause an infection, but they do elicit an immune response.[1]

Vaccination is recommended for both women and men, as both genders can transmit the virus and suffer from the illnesses caused by it.[2]

HPV vaccines prevent most, but not all, of the cancers mentioned in the previous chapters**.** Thus, vaccination is not a substitute for regular screening or tests**.** In the case of cervical cancer, it has been shown that vaccination and screening programmes together provide more effective protection against the disease.[3]

The screening tests that help identify early changes that can lead to cervical cancer include:

- The Papanicolau cervical smear test, which detects precancerous cells and cellular alterations in the cervix;
- The HPV DNA test, which allows identification of infection with high-risk HPV types.[4]

There are no standardised screening recommendations for the other cancers caused by HPV infection.[3] In such situations, the main protective strategy available is HPV vaccination, accompanied by regular checks and medical examinations.[5.]

Why is vaccination recommended for teenagers?

Studies show that vaccination is most beneficial when given before becoming sexually active, i.e. before infection is acquired.[6] Therefore, it is recommended that HPV vaccination of both girls and boys should be carried out during adolescence or preadolescence,[1] optimally between 9 to 14 years of age.[7]

Depending on the age at which vaccination is given, the vaccination schedule may consist of two or three doses.

Co-funded by the European Union through the EU4Health programme 2022

What about adults?

Most sexually active adults will become infected with HPV at some point in their life.[8] It is estimated that in women, 50% of infections are acquired around the age of 20, and 75% of infections or reinfections occur at ages over 30.[9]

Vaccination can also provide protection against HPV infection if given after adolescence or after becoming sexually active.[10] It is worth noting that natural infection does not provide sufficient protection so even people already infected with HPV remain susceptible to infection with the types of viruses to which they have or have not yet been exposed to.[11] Therefore, vaccination can be an effective method of protection for adults as well.

Currently available studies show that vaccination produces the immune response that protects against HPV even when given to adults, both men and women.[12,13] Protection has been maintained at a relatively constant level, with no booster doses needed once the vaccination schedule has been fully administered.[14]

Are there associated risks? What do we need to watch out for?

The vaccine is generally well tolerated, and the safety profile is similar for 16–26-year-olds compared to 27–45-year-olds.[15] Several international organizations reported and continue to report that HPV vaccines have a good tolerability profile and no serious long-term side effects.[16]

Like any vaccine, the HPV vaccine can have side effects, but these are usually mild:[17]

- Soreness, redness or swelling at the puncture site
- Fever
- Dizziness or fainting (fainting after any vaccine, including the HPV vaccine, is more common in children and adolescents; therefore, it is recommended that they sit or lie down during vaccination and for 15 minutes thereafter)
- Headaches or tiredness
- Nausea
- Muscle or joint pain

Very rarely, severe allergic (anaphylactic) reactions can occur after vaccination. That is why people with severe allergies to any component of a vaccine should avoid taking it and rely on other methods of protection such as regular screening tests, but also on the herd immunity conferred by a high vaccination rate in the community. [17]

Co-funded by the European Union through the EU4Health programme 2022

Because they do not contain live viruses, vaccines cannot cause HPV infection.[1]
Studies have shown that HPV vaccination does not affect fertility, regardless of the sex of the vaccinated person.[18] On the contrary, HPV vaccines protect against cancers that adversely affect the reproductive function.

It has also been shown that HPV-vaccinated girls do not start their sex lives earlier or have more sexual partners than unvaccinated girls. Several studies, including surveys of parents and adolescents/young adults, provide consistent evidence that HPV vaccination is not associated with increased sexual activity. [19]

A report published by the WHO's Global Advisory Committee on Vaccine Safety (GACVS) in 2013 states that the information published by the Indian Parliament about the deaths of 7 HPV-vaccinated girls is incorrect. In the report, the WHO states that the safety of the HPV vaccine has been reassessed and that there is no link between the vaccination and those 7 deaths.[20]

The safety of HPV vaccines is strictly monitored and regularly reviewed by several international organisations, including the World Health Organisation (WHO) International Advisory Committee on Vaccine Safety, the European Medicines Agency (EMA) and the US Food and Drug Administration (FDA).[21]

However, it is important to remember that vaccination is not a substitute for regular screening or medical consultation.

Vaccination outcomes: examples from other countries with vaccination schemes

With the introduction of HPV vaccines on the market in 2006, several countries progressively introduced them into their national immunisation programmes. In 2009, the World Health Organization recommended a three-dose vaccination scheme for girls aged 9 to 14 years.[22] In 2014, this recommendation changed to a two-dose scheme for the same age group, later to include more cohorts of different ages with two- or three-dose schemes.[23]

By 2022, 60% of WHO Member States had introduced HPV vaccine into national immunisation schemes (Figure 1). Most of these are developed countries with significant health budgets, while many of the world's most populated countries are yet to introduce free nation-wide HPV vaccination schemes.[24]

Co-funded by the European Union through the EU4Health programme 2022

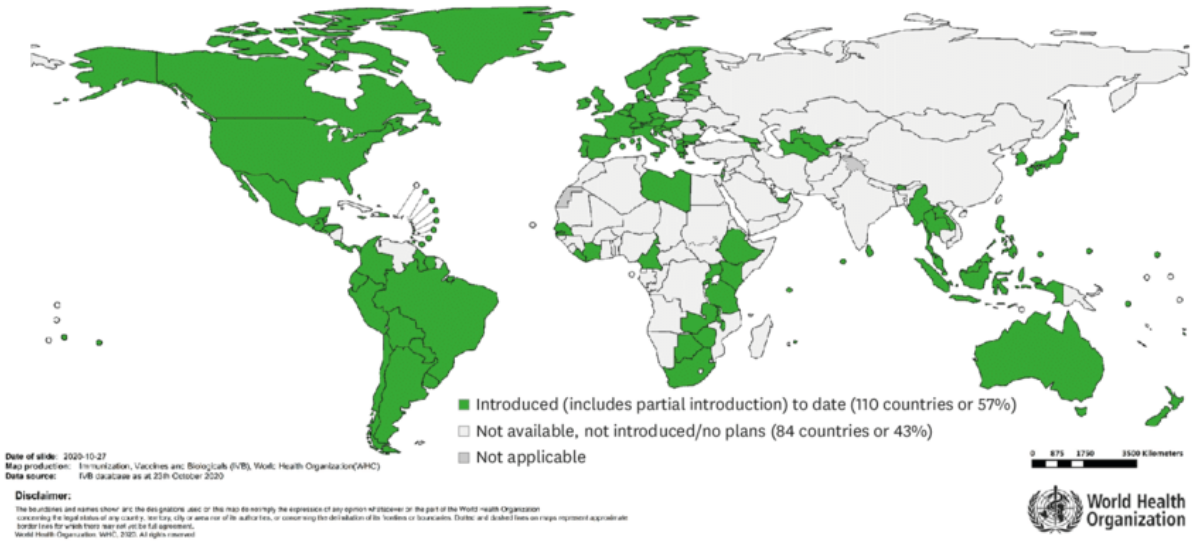


Figure 1: Countries that included HPV vaccination in national immunisation schemes in 2022

The countries where the HPV vaccine has been introduced into national immunisation schemes witnessed a considerable decrease in the number of HPV infections and associated conditions: genital warts, precancerous lesions, invasive forms of cancer.[25]

Observational studies show that when more than half of the female population is vaccinated, the burden of HPV infections, precancerous lesions and associated genital warts decreases significantly, with the potential to be eliminated altogether. The herd immunity effect extends to include the unvaccinated heterosexual male population, resulting in a significant risk reduction for men as well.[26]

In the UK, the bivalent vaccine was introduced into the immunisation programme available in England in 2008 and data on its effectiveness against cervical cancer was published in 2021. They showed an 87% reduction in the incidence of this type of cancer in women vaccinated at 12 to 13 years of age, a 62% reduction in those vaccinated at 14 to 16 years of age, and a 34% reduction in women vaccinated at 16 to 18 years of age.[27]

A very recent study from Scotland, published in January 2024 and conducted by the health system in Scotland in collaboration with the Universities of Strathclyde and Edinburgh, shows that no cases of cervical cancer have been detected in fully vaccinated women after being immunised against HPV at the age of 12-13. The programme started in Scotland in 2008. The study concludes that the HPV vaccine is highly effective in preventing the development of cervical cancer.[28]

Co-funded by the European Union through the EU4Health programme 2022

Sweden introduced the tetravalent vaccine into its national immunisation scheme in 2009, and was then one of the first countries to report the impact of vaccination on cervical cancer incidence in 2020. Reported data show a remarkable 88% reduction in the annual incidence of this cancer in women vaccinated before their 17th birthday, and a 53% reduction in women vaccinated between the ages of 17 and 30.[29]

In Denmark, where the vaccine was introduced in 2009 in the national immunisation scheme for children, the 2021 data showed an 86% decrease in the incidence rate of cervical cancer in women vaccinated by the age of 17, and 68% in those vaccinated between 17 and 20 as compared to unvaccinated women.[30]

In Romania, the HPV vaccine was offered free of charge for the first time in 2008, to girls aged 9-11. Faced with great reluctance, largely due to an inadequate, insufficient response from the state and the medical community in response to a series of highly publicized misinformation, the vaccination scheme was relaunched in 2009 with an awareness campaign, but the results remained very modest.[31]

The vaccine has not been offered free of charge for almost 10 years, and the initiative was resumed in 2019, this time for girls aged 11-14 and later 11-18. They could receive the vaccine free of charge in family doctors' offices, based on a written request from the parents.[31]

Currently, by MoH Order No 3.120 of 12 September 2023 (31), the population tier eligible for HPV vaccination have been extended. Vaccination is now 100% reimbursed for girls and boys over 11 and under 19 years of age, and on a 50% reimbursed basis for women between 19 and 45 years of age, based on a prescription from the family doctor or any physician under contract with the health insurance house.[31]

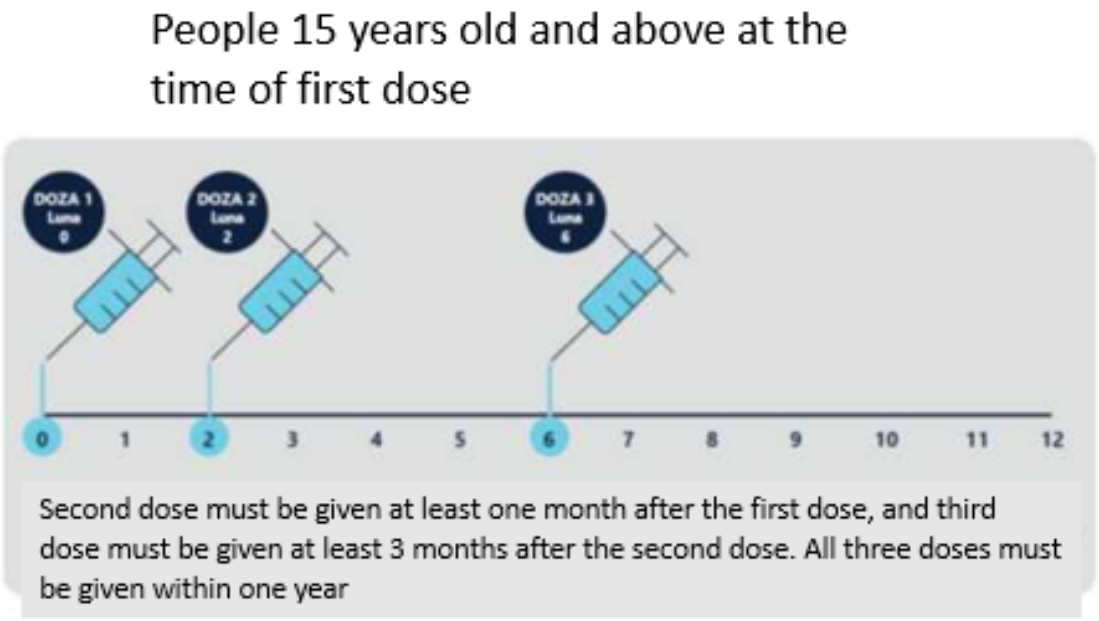
Co-funded by the European Union through the EU4Health programme 2022

BOYS AND GIRLS **11-18 years old:**	WOMEN **19-45 years old:**
100% REIMBURSSED PRESCRIPTION from a physician	50% REIMBURSSED PRESCRIPTION from a physician

It is recommended that the first dose of the vaccine be given by the age of 14, and the number and timing of vaccine doses should follow the therapeutic protocol summarised in the schedules below.[32]

People aged up between 11 to 14 years old at the time of first dose

Co-funded by the European Union through the EU4Health programme 2022



For the population between 18 and 19 years of age at the time of the first prescription, the prescription will include from the beginning all 3 doses required to complete the full 100% reimbursement scheme.[32]

REFERENCES

1. HPV vaccines. The National Cancer Institute. https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-vaccine-fact-sheet.

2. Global Cancer Observatory, GLOBOCAN 2022. https://gco.iarc.who.int/media/globocan/factsheets/populations/642-romania-fact-sheet.pdf

3. HPV and cancer. The National Cancer Institute. https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-and-cancer.

4. Cervical cancer. https://www.cdc.gov/cancer/cervical/basic_info/screening.htm.

5. Childers N, Kadenbach K. Public policy recommendations: HPV vaccination of boys and girls. European Parliament, 2017. https://www.europarl.europa.eu/doceo/document/E-8-2018-000138_EN.pdf

6. Robert A. Bednarczyk. Dispelling myths about HPV vaccines: practical information for health professionals. Human Vaccines and Immunotherapeutics, 2019, VOL. 15, NOS. 7–8, 1628–1638

Co-funded by the European Union through the EU4Health programme 2022

7. World Health Organization (WHO). Human Papilloma Virus (HPV) and cervical cancer. https://www.who.int/news-room/factsheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer.

8. H. Chesson, E. F. Dunne. The Estimated Lifetime Probability of Acquiring Human Papillomavirus in the United States. Sex. Transm. Dis. 2014, November. 41(11): 660–664. doi:10.1097/OLQ.0000000000000193.

9. Burger EA, Kim JJ, Sy S, Castle PE. Age of HPV infection acquisition: leveraging simulation models to explore the natural history of HPV-induced cervical cancer. Clin. Inf. Dis. 15 Sep 2017; 65(6):893-9.

10. Jiayao L., Ploner A., Elfström M. et al. HPV vaccination and the risk of invasive cervical cancer. N. Eng. J. Med. Oct. 2020. 1340–1348.

11. Ferris DG, Brown DR, Giuliano AR, Myers E, Joura EA, Garland SM, Kjaer SK, Perez G, Saah A, Luxembourg A, Velicer C. Prevalence, incidence, and natural history of HPV infections in adult women aged 24 to 45 years participating in a vaccination study. Papillomavirus Res. 1 Dec 2020; 10:100202.

12. Goldstone SE, Giuliano AR, Palefsky JM, et al. Efficacy, immunogenicity and safety of tetravalent vaccines in men: results from the open-label, long-term extension of a randomized, placebo-controlled phase 3 trial. Lancet Infect. Dis. 2022;22(3):413-425.

13. Castellsagué X, Muñoz N, Pitisuttithum P, et al. Safety, immunogenicity and efficacy of recombinant tetravalent (types 6, 11, 16, 18) HPV vaccines in adult women aged 24 to 45 years at the end of the study. Br J Cancer. 2011;105(1):28-37.

14. Naud PS, Roteli-Martins CM, De Carvalho NS, Teixeira JC, de Borba PC, Sanchez N, et al. Sustained efficacy, immunogenicity, and safety of the HPV-16/18 AS04-adjuvanted vaccine: final analysis of a long-term follow-up study up to 9.4 years post-vaccination Hum. Vaccin. Immunother. 2014;10(8):2147-62.

15. Joura EA, Ulied A, Vandermeulen C, Figueroa MR, Seppa I, Aguado JJ, Ahonen A, Reich O, Virta M, Perino A, Tuser MP. Immunogenicity and safety of a nine-valent human papillomavirus vaccine in women 24-45 years of age compared to women 16-26 years of age: An open-label phase 3 study Vaccine. 2021 May 12; 39(20):2800-9.

16. World Health Organization (WHO). Report of the GACVS meeting on 7-8 June 2017, published in the WHO Weekly Epidemiological Record of 14 July 2017.

17. Centers for Disease Control and Prevention (CDC). HPV vaccination: What we should know. https://www.cdc.gov/vaccines/vpd/hpv/public/index.html#:~:text=HPV%20vaccines%20can%20be%20given,series%20also%20need%20HPV%20vaccination.

18. World Health Organization (WHO). HPV vaccines and infertility (who.int).

19. Robert A. Bednarczyk. Dispelling myths about HPV vaccines: practical information for health professionals. Human Vaccines and Immunotherapeutics, 2019, VOL. 15, NOS. 7–8, 1628–1638

20. LaMontagne, DS, Sherris, JD. Addressing questions about the HPV vaccine project in India. https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(13)70476-5

Co-funded by the European Union through the EU4Health programme 2022

21. World Health Organization (WHO). Report of the GACVS meeting on 7-8 June 2017, published in the WHO Weekly Epidemiological Record of 14 July 2017.

22. World Health Organization (WHO). HPV vaccines. Position paper, 2009 (who.int).

23. World Health Organization (WHO). HPV vaccines. Position paper, 2017 (who.int).

24. WHO: Global HPV Vaccines Market Study, 2022. https://www.who.int/publications/m/item/who-hpv-vaccine-global-market-study-april-2022

25. Tapio Luostarinen, Dan Apter 3, Joakim Dillner 2, Tiina Eriksson 4, Katja Harjula, Kari Natunen 4, Jorma Paavonen 5, Eero Pukkala, Matti Lehtinen. Vaccination protects against HPV-associated invasive cancers. Int. J. Cancer, 2017

26. Human papillomavirus vaccine disease impact beyond expectations. https://www.sciencedirect.com/science/article/pii/S1879625719300434

27. Falcaro M., Castañon A., Ndlela B., Checchi M., Soldan K., Lopez-Bernal J., Elliss-Brookes L., Sasieni P. The effects of the national HPV vaccination programme in England, UK, on cervical cancer and grade 3 cervical intraepithelial neoplasia incidence: A register-based observational study. Lancet. 2021; 398:2084–2092. doi: 10.1016/S0140-6736(21)02178-4.

28. Public Health Scotland. (2024, January 22). No cervical cancer cases detected in vaccinated women following HPV immunisation. https://publichealthscotland.scot/news/2024/january/no-cervical-cancer-cases-detected-in-vaccinated-women-following-hpv-immunisation/

29. Lei J., Ploner A., Elfström K.M., Wang J., Roth A., Fang F., Sundström K., Dillner J., Sparén P. HPV vaccination and the risk of invasive cervical cancer. N. Engl. J. Med. 2020;383:1340–1348. doi: 10.1056/NEJMoa1917338.

30. Kjaer S.K., Dehlendorff C., Belmonte F., Baandrup L. Real-world effectiveness of human papillomavirus vaccination against cervical cancer. J. Natl. Cancer Inst. 2021;113:1329–1335. doi: 10.1093/jnci/djab080.

31. National Institute of Public Health. https://insp.gov.ro/2024/01/03/ianuarie-2024-campanie-de-prevenire-a-cancerului-de-col-uterin/#:~:text=%C3%8En%20prezent%2C%20prin%20Ordinul%20MS,%C8%99i%20%E2%89%A4%2045%20de%20ani.

32. Official Journal of Romania, PART I, No. 1082/29.XI.2023, Therapeutic protocol corresponding to heading No 355 code (J07BM03): DCI PAPILLOMAVIRUS VACCINE

Chapter 4. The physician's role

What information about vaccination should we ask the physician?

Co-funded by the European Union through the EU4Health programme 2022

When it comes to health, it is very important to get information from valid sources and ensure we have all the facts before making a decision that can affect the rest of our lives or our loved ones. This information process should involve both personal self-education effort and also advice from the treating physician.

Thus, beyond the general information and recommendations of the World Health Organisation and other institutions on HPV vaccination, it is important that everyone who wants to be vaccinated - or vaccinate their children - discuss their personal situation with their physician and understand the benefits and possible risks associated with HPV vaccination in their own case.

Some important questions to raise with your physician:

- Does my medical history/ my child's medical history indicate any potential risk associated with HPV vaccination?
- Does my current health status (e.g. if there is a cold/fever) impact the administration of the vaccine? Is there any danger of amplification of the post-vaccine reaction or, on the contrary, of its effectiveness being altered for this reason?
- What are the chances for me/ my child to already have an HPV infection? What is the impact of infection on vaccine effectiveness?
- Apart from HPV infection, what other health factors or lifestyle can increase the risk of developing cancer?
- Apart from HPV vaccination, what other protective measures can I take?
- How often and at what age should I get screened? Is a Babeș-Papanicolau test enough, or are other specific procedures recommended for me / my child's health condition?
- What regular checks and medical tests should I do in order to find out about any other potential cancer other than cervical cancer?

What should be the decision criteria for vaccination?

Age[1]

HPV vaccines can be administered from the age of 9, but in our country, they can be prescribed free of charge from the age of 11. HPV vaccination is recommended for all pre-teens, teenagers and young adults to protect them from HPV infections that can later in life cause cancer.

Some adults up to the age of 46 who are not already vaccinated may decide to get vaccinated against HPV after discussing with their physician about their risk for new HPV infections and the possible benefits of vaccination for them. HPV vaccination in this age group offers less benefits than for children and teenagers, because more people in this age group have already been exposed to HPV. However, the vaccine may protect against future infections with potentially oncogenic strains of the virus.

Co-funded by the European Union through the EU4Health programme 2022

Health status[1]

Like any other vaccine, the HPV vaccine is not recommended for people with a former severe life-threatening allergic reaction to any ingredient in the vaccine, or to a previous dose of HPV vaccine.

The vaccine is also not recommended during pregnancy.

HPV vaccines are not contraindicated for children who are mildly ill, such as those with a low fever (below 38 degrees Celsius), a cold, a stuffy or runny nose, or a cough. People with moderate or severe disease should wait until their condition improves.

Like any medicine, vaccines can have side effects. Most people who receive the HPV vaccine have no side effects at all, while a few reports very mild reactions, such as a soreness at the puncture site.

How do we get vaccinated? What is the procedure in 2024?

In Romania, vaccination is now offered free of charge to girls and boys over 11 and under 19 years of age, and on a 50% reimbursed for women between 19 and 45 years of age, based on a prescription from the family doctor or any physician under contract with the health insurance house.[2]

HPV vaccination consists of a series of two or three intramuscular injections. The number of doses depends on the age at the time of administration, according to the therapeutic protocol summarised in the schedules above.[3]

Which medical specialties do we turn to for a diagnosis of HPV infection or related disease?

I Asymptomatic persons

Women aged 25 to 65 will be screened every 5 years for HPV infection or precancerous lesions or cervical cancer.

1. The family doctor offers counselling and makes the recommendation for testing.
2. The collection will be carried out by the family doctor or gynaecologist.
3. The collected samples will be taken to an accredited laboratory.

The screening tests are:

Co-funded by the European Union through the EU4Health programme 2022

1. The Papanicolau cervical smear test
2. The HPV DNA test

II Symptomatic persons

Clinical consultation[4]

The presence of HPV infection cannot be determined with a blood test. If there are symptoms or visible lesions on the skin or mucous membranes, the diagnosis can be made based on a clinical consultation, possibly followed by further investigations. For example, if the patient experiences symptoms or the physician observes lesions in the genital or anal area of a patient, they may recommend a Babes -Papanicolau test, colposcopy, or histopathological examination.

In the case of women, gynaecology or family medicine are the most suitable specialties for an initial physical examination that can start the investigation and diagnosis process. In the case of men, the family doctor, dermatologist (especially if warts are present) or ENT specialist can initiate this process.

Available investigations for gynaecological diagnosis[4]

The Babes Papanicolau test can detect changes in cells (dysplasia) even in the absence of other signs or symptoms. This test involves taking a sample of cellular material from the cervix for microscopic examination. Usually, the collection is done by the gynaecologist but also by family doctors

Colposcopy is another test performed by the gynaecologist using an instrument (colposcope) that allows the surface of the cervix to be viewed after being tinged with an acetic acid solution that produces a staining effect on HPV-infected cells.
Cervical biopsy is an additional investigation that may be recommended following suspicions revealed following other examinations. A biopsy can determine with certainty the existence of precancerous or cancerous cells.

HPV DNA test

For women, this test involves the gynaecologist taking a sample of secretions, similar to the Babes - Papanicolau test (often both tests are made at the same time). However, analysis of the sample requires identification of viral genetic material to determine the presence of oncogenic risk HPV strains.[4]

Co-funded by the European Union through the EU4Health programme 2022

For men, there is currently no standard procedure for taking biological samples for HPV genotyping tests.[5]

Oncological diagnosis[4]

The results of clinical examination, biopsy and other potentially recommended investigations (X-ray, CT scan, nuclear magnetic resonance, cystoscopy and others) determine the presence, type and stage of cancer.

Depending on the type, location and stage of the diagnosed cancer, the treatment involves surgery, radiotherapy and drug therapy prescribed by the oncologist. The order in which interventions are prescribed depends on several factors and will be decided on a case-by-case basis according to specific guidelines.

REFERENCES

1. Centers for Disease Control and Prevention (CDC). HPV vaccination: What we should know. https://www.cdc.gov/vaccines/vpd/hpv/public/index.html#:~:text=HPV%20vaccines%20can%20be%20given,series%20also%20need%20HPV%20vaccination.

2. National Institute of Public Health. https://insp.gov.ro/2024/01/03/ianuarie-2024-campanie-de-prevenire-a-cancerului-de-col-uterin/#:~:text=%C3%8En%20prezent%2C%20prin%20Ordinul%20MS,%C8%99i%20%E2%89%A4%2045%20de%20ani.

3. Official Journal of Romania, PART I, No. 1082/29.XI.2023, Therapeutic protocol corresponding to heading No 355 code (J07BM03): DCI PAPILLOMAVIRUS VACCINE

4. Cleveland Clinic. HPV. https://my.clevelandclinic.org/health/diseases/11901-hpv-human-papilloma-virus

5. Sarier M. Importance of human papillomavirus genotyping and standardized sampling in men. Rev Assoc Med Bras (1992). 2023 Sep 18;69(10):e20230452. doi: 10.1590/1806-9282.20230452. PMID: 37729227; PMCID: PMC10511279.

Co-funded by the European Union through the EU4Health programme 2022

Chapter 5. What we know and don't know about Human Papilloma Virus and vaccination

Outcome of the latest survey of Romanians' knowledge, perceptions and attitudes about HPV and HPV vaccination1

79% of Romanians have heard about HPV, with no significant differences between women and men, urban and rural or age groups, except for the over 65 age group which heard significantly less about HPV (73%); higher education increases the chances of having heard about HPV (70% of those with only primary school education versus 86% of those with postgraduate education).

Co-funded by the European Union through the EU4Health programme 2022

The self-rated awareness of HPV infection is rather low: 50% of respondents consider themselves very or not at all informed, while only 28% consider themselves rather well or very well informed. There were no significant differences by gender or age, but residence and monthly income do matter: a higher percentage of people in rural areas and with lower incomes reported no or less information, while urban areas and higher incomes correlated with higher levels of information.

The results already indicate a strong - and recognised - need for public information and education on HPV infection and vaccination.

A detailed analysis of the accuracy of basic knowledge on this subject reveal that:

- 57% of respondents correctly believe that vaccination should be carried out primarily in children aged 10 to 15; 28% believe that vaccination should only be carried out in adolescents and young adults aged 16 to 20.
- 53% of respondents believe that vaccination is only for girls, while 46% say it is for both girls and boys.
- Vaccination is considered rather safe or very safe by only 57% of respondents; 6% of those who have heard about HPV consider vaccination against the virus not safe at all.
- 68% of Romanians link HPV infection to cervical cancer, while less than 10% link HPV infection to other cancers (penile, anal, head and throat); 19% do not believe that HPV infection is involved in any type of cancer.
- 73% of respondents know that HPV vaccination can prevent cervical cancer.

A little over half (54%) of respondents say that vaccination against HPV should be mandatory, with the opinion being stronger in the 18-34 age group (56%) and among men (56% compared to 52% of women). It is also interesting that 91% of respondents with children followed the mandatory vaccination scheme to the letter for their children. In fact, more than half of the parents who have at least one minor child in their care believe to a great or very great extent that HPV vaccination is safe and should be mandatory in Romania. In general, higher self-reported awareness of HPV infection correlates directly with both the view that vaccination should be mandatory and that vaccination is safe.

This is where higher levels of information - even self-assessed - produce positive results in terms of understanding the risks of infection and openness to HPV vaccination.

However, 67% of respondents did not receive any advice on HPV vaccination. Only 25% received recommendations from their family doctor, who is also the top choice of respondents as their primary source of trusted health opinions (42%), followed closely by their gynaecologist (38%), who is also more trusted overall (88% vs. 84% for family doctors).

Co-funded by the European Union through the EU4Health programme 2022

The overwhelming majority of both respondents (93%) and their children (95%) are not vaccinated against this virus. This extremely low vaccination rate reflects both the lack of referral from physicians and the difficulties of access to vaccination (at least until the legislative change in 2023): 86% of the unvaccinated say that the reason is precisely that no one advised them to get vaccinated, while 5% say they did not know how to get the vaccine.

Although almost three-quarters of respondents agree that most doctors believe vaccination is necessary, half say they lack enough information and do not understand why HPV vaccination is necessary.

Those vaccinated against HPV are more likely to be young (18-34 years), highly educated, urban women. In terms of income, most respondents who say they are vaccinated against HPV are either those with a net income of over RON 10 000 or those with no income (probably still enrolled in some form of education). In the case of respondents who vaccinated their children, they are more likely to be urban, university-educated, with a monthly income of over RON 10 000, aged between 50 and 64. The percentage of children vaccinated increases for parents who consider themselves informed, again emphasizing the importance of educational campaigns on the subject. 83% of vaccinated children are girls.
There is a clear need to educate and inform the general public, both directly, through media campaigns, and through doctors, especially family doctors, who are also the main prescribers of HPV vaccination under the new mechanism of reimbursed immunisation.

How do we tell truth from fiction in our daily consumption of media and social media content?

The expression "fake news" is becoming increasingly common, sometimes used to describe false or exaggerated information, sometimes to denigrate and portray any criticism as false.
Fake news is not a new phenomenon. Tabloids have been profiting from false stories for decades, but "serious" media channels have also been peddling biased editorial opinions and "facts" published without a sound verification. What is different today is that we are faced with an overwhelming flow of information that never stops. It is much harder for us to distinguish fact from fiction, especially since social media has become one of the main sources of news for many of us.

When it comes to health, the impact of misinformation can literally be fatal. In a society like Romania - where access to healthcare is not always easy, and consultation time is often too short to accommodate education; where "Dr. Internet" is ubiquitous and seemingly omniscient, and social media platforms are venues where completely unsubstantiated opinions receive equal, if not greater, exposure and attention than scientifically-validated information - how do we

Co-funded by the European Union through the EU4Health programme 2022

maintain a critical thinking? How do we decide which information, news and stories are real and which are fake? Here are some tips for properly analysing online news and sources.

1. **Check the credentials**

A sign that the published information is valid is that the author and/or source's credentials are clear and relevant to the topic at hand. If we can easily determine who is presenting the information and what organisation they represent, and if the person's qualifications validate them as an expert in the field, we have reason to consider the information as published.

This does not mean that only physicians are allowed to publish medical information. However, if the author is not a health professional or researcher and is not based on a discussion or interview with an expert, then the sources of the information they present must be validated by the medical and/or scientific community and clearly presented as references. Otherwise, they are just personal opinions - allowed, but not necessarily accurate.

2. **Check the source**

We have already mentioned above the importance of clearly presenting the sources from which the information was obtained. People who are genuinely interested in posting accurate information online or otherwise will include references to their sources, especially when quoting statistics or demonstrable facts. If their sources are of the following types, they are probably reliable:

- Studies conducted or published by reputable colleges and universities, research institutes, medical organizations and societies, or government agencies;
- Quotes and comments from qualified health professionals;
- Stories posted in newspapers, magazines and other publications that are known to check their sources;
- Information verified by eyewitnesses.

The following situations should raise questions about the validity of published information:

- Data and facts are included that make no reference to any source, or that mention "researchers", "experts" or "studies" generically without explaining by whom, where, when and how the data was obtained;
- Previous posts or web pages offered as "evidence", although no valid sources for the information are given there either;
- Links to so-called "studies" sponsored by companies that have a business interest in supporting the truth of that information;
- Involving "experts" who are in no way qualified to speak on the subject;

Co-funded by the European Union through the EU4Health programme 2022

- Links to fake websites.

3. Read beyond the headlines

Most of us do this at least occasionally: you scroll through Facebook posts and see that your friend has shared a news story claiming that the HPV vaccine appears to have killed seven girls in India, but the World Health Organization continues to advocate vaccination. The post has already received several angry reactions. You trust your friend to be a smart person, so you click share and add an angry comment of your own. Then other people in your circle of friends share your post, and rage begins to snowball.

What neither you nor the other angry people in the comments section did was read the news beyond the headline. Apparently, the evidence linking deaths in India to vaccination has already been invalidated by several independent teams of researchers, which is why the WHO continues to claim that the vaccine is safe.[2] Unfortunately, sharing news stories without reading them has become all too common, fuelling sensationalism that tends to be louder and more visible than demonstrable facts.

4. Critically analyse your own opinions

Sometimes we find an article or post that seems perfectly legitimate. It checks all the criteria for credentials and sources, and the information presented fits neatly into our set of opinions on the subject, confirming their validity.

It is important, however, to question, at least occasionally, our own assumptions and biases. It is very easy to isolate ourselves in an information "bubble" that makes us vulnerable to manipulation, giving us bits of information that we deem accurate combined with other information that we will automatically accept because it comes bundled with what we already "know".

At best, what enters our "bubble" confirms what we already know, without giving us any new information.
Information bubbles are not necessarily the result of disinformation conspiracies. The algorithms of information and social media platforms base their recommendations on the content we have already consumed, because the purpose of these platforms is to make us spend more time there, not to learn valuable information. And our need for validation and confirmation makes us particularly vulnerable to isolating ourselves in social bubbles - larger or smaller communities of people who "think alike" on a given topic, leaving little room for differences of opinion. That's how huge groups of people get to argue loud and clear that the Earth is flat, on technology platforms transmitting streams of information that orbit the planet.

Co-funded by the European Union through the EU4Health programme 2022

5. Consider different opinions

The key to getting out of the information and social bubble comes from diversity and dialogue. Social media platforms are, or should be, a space for dialogue and sharing diverse experiences. Dialogue involves an exchange of information and opinions, arguments and counter-arguments, which leads to a better knowledge and understanding of the subject under discussion. Unfortunately, all too often genuine dialogue is replaced by a series of monologues emphatically asserting an opinion, presented from the outset as the only true one. Any criticism or different angle is attacked immediately and without reflection, because the goal is not to learn, but to be right.

We should remember more often that differences of perspective and opinion are a value, not an issue. Of course, not every opinion is automatically valid and correct (often the "right to opinion" is thought as automatically validating any opinion, regardless of objective reality), but the different nuances in which each of us interprets reality can produce a much richer and more valuable picture of it.

Widely circulated myths and ignored truths

MYTH: If a child is too young to have sex, they should not be vaccinated against an STD.

FACT: Children who are vaccinated before becoming sexually active show a stronger immune response to the vaccine than those vaccinated at older ages or after exposure to HPV (the strongest immune responses are seen in girls aged 9-14 years). The vaccine gives them better and longer protection, ideally for life. Studies indicate strong protection against disease for at least up to 10 years after vaccination, with no evidence that vaccine effectiveness decreases over time.[3]

MYTH: HPV vaccination promotes earlier sexual debut precisely because it offers protection against an STD.

FACT: It has also been shown that HPV-vaccinated girls do not start their sex lives earlier or have more sexual partners than unvaccinated girls. Several studies, including surveys of parents and adolescents/young adults, provide consistent evidence that HPV vaccination is not associated with increased sexual activity. [3]
Furthermore, HPV is not only transmitted through sexual intercourse, but also by touching infected skin and mucous membranes. So, contracting an infection is not necessarily related to sexual activity.[4]

Co-funded by the European Union through the EU4Health programme 2022

MYTH: HPV vaccination has been linked to Guillain-Barré syndrome and other serious diseases that can affect fertility.

FACT: The WHO Global Advisory Committee on Vaccine Safety (GACVS) collected country-level data from several countries to review vaccine safety in relation to the following conditions: Bell's palsy, complex regional pain syndrome (CRPS), postural orthostatic tachycardia syndrome (POTS), premature ovarian failure, primary ovarian failure and venous thromboembolism. No evidence of a causal link between the HPV vaccine and any of these conditions has been found.[5]

MYTH: Most people naturally clear HPV infections, vaccination is really only necessary for those who have other health problems that make them more vulnerable.

FACT: It is true that 90% of these infections are cleared naturally. But HPV can evade the body's defence mechanisms,[6] and persistent infections can turn into cancer. Because the factors favouring the development of cancer are not yet fully known and it is not possible to identify individuals predisposed to such a development, HPV vaccination is recommended for all, both girls and boys, especially in the pre-adolescent period, before the becoming sexually active and be exposed to HPV.[3] Furthermore, as with any vaccine, the herd immunity effect can also protect those who, for health reasons, cannot be vaccinated or will not have a sufficient immune response - i.e. precisely those most vulnerable.

MYTH: Since it is so important that vaccination is given before becoming sexually active, it makes no sense to vaccinate later as adults.

FACT: It is estimated that in females, 50% of infections are acquired around the age 20, and 75% of infections or reinfections occur at ages over 30.[7]

Vaccination is effective even in older age,[8] because it protects against high-risk/oncogenic virus types to which there has been no exposure prior to vaccination.[9]

MYTH: Cervical cancer only affects women, so only women should be vaccinated against HPV.

FACT: The risk of HPV infection is as high for men as for women, and persistent HPV infection is associated in men with several cancers, including penile, anal and oropharyngeal, as well as the development of genital warts.[4]

Co-funded by the European Union through the EU4Health programme 2022

REFERENCES

1. Behaviour, attitudes and perception of HPV vaccination in Romania. Quantitative study (sample of 1110 people, nationally representative) from November 2023, within the ReThinkHPVaccination project, implemented by the Renaissance Foundation, in partnership with the Center for Innovation in Medicine and the Eurocomunicare Association.

2. LaMontagne, DS, Sherris, JD. Addressing questions about the HPV vaccine project in India. https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(13)70476-5

3. Robert A. Bednarczyk. Dispelling myths about HPV vaccines: practical information for health professionals. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6746482/.

4. HPV and cancer. The National Cancer Institute. https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-and-cancer.

5. Pan American Health Organization. Frequently asked questions about HPV. https://www3.paho.org/hq/index.php?option=com_docman&view=download&alias=47695-frequently-asked-questions-on-hpv&category_slug=faqs-on-vaccine-preventable-disases&Itemid=270&lang=en

6. Margaret Stanley. Immune responses to HPV. Vaccine, Vol. 24, Suppl. 1, 30 Mar 2006, p. S16-S22

7. Burger EA, Kim JJ, Sy S, Castle PE. Age of HPV infection acquisition: leveraging simulation models to explore the natural history of HPV-induced cervical cancer. Clin. Inf. Dis. 15 Sep 2017; 65(6):893-9.

8. Jiayao L., Ploner A., Elfström M. et al. HPV vaccination and the risk of invasive cervical cancer. N. Eng. J. Med. Oct. 2020. 1340–1348.

9. Ferris DG, Brown DR, Giuliano AR, Myers E, Joura EA, Garland SM, Kjaer SK, Perez G, Saah A, Luxembourg A, Velicer C. Prevalence, incidence, and natural history of HPV infections in adult women aged 24 to 45 years participating in a vaccination study. Papillomavirus Res. 1 Dec 2020; 10:100202.

Chapter 6. The role of trainers and opinion leaders

How we approach vaccination and what information we provide

Co-funded by the European Union through the EU4Health programme 2022

HPV vaccination can be a sensitive subject, especially if the recipients are children. Although clinical data and expert recommendations are clearly in favour of the safety and efficacy of the vaccine in the fight against cervical cancer and other cancers in both women and men, past experiences in Romania show that statistics and studies are not enough for the general public.

Of course, the first step is to ensure that the data is presented in a clear, structured and understandable way for people who are not necessarily specialised in processing this type of information. We need to use common terms and be prepared to answer more or less relevant questions, always using valid information supported by reputable sources.

Key messages about HPV vaccination:

- HPV infection is very common and easily contracted and transmitted; 8 out of 10 of us become infected at some point in our lives;
- Persistent infection with certain high-risk HPV strains can cause cervical cancer (almost all cervical cancers are caused by HPV), as well as other cancers and health problems affecting both women and men;
- HPV vaccination is currently the most effective method to prevent cancers caused by this virus;
- HPV vaccines are proven to be safe, with rare and mild adverse effects (generally soreness or redness at the injection site); no evidence of causal association between HPV vaccine and serious disease was;
- HPV vaccination does not cause infertility and has not been shown to influence sexual behaviour;
- Vaccination produces a stronger, more comprehensive and longer-lasting immune response when given in adolescence, before becoming sexually active;
- Vaccination is also effective when given to adults because it provides protection against future HPV infections;
- Girls, women, as well as boys and men benefit from HPV vaccination;
- HPV vaccination does not eliminate the need for regular screening and medical checks;
- HPV vaccination is now offered free of charge to girls and boys over 11 and under 19 years of age, and on a 50% reimbursed basis for women between 19 and 45 years of age, based on a prescription from the family doctor or any physician under contract with the health insurance funds.

Personalised approach to communication

Beyond the factual content of the communication, we must also consider the form in which we approach this content, aware of the psychological impact that different approaches can have in

Co-funded by the European Union through the EU4Health programme 2022

an effort to persuade others. Standard information materials are helpful, but interpersonal communication - direct, or via online platforms - is also important in the effort to change attitudes across society.

The persuasiveness of a communication can depend on many factors, but a particularly relevant aspect in this case is the perception of the "power status" of the communicator in relation to that of the auditor. Power can arise both from structural differences such as socio-economic status,[1] and from situational factors such as one's social role (e.g. boss vs. employee[2]).

In the case of vaccination, the physician tends to be perceived as having more 'authority' in relation to the patient, on the one hand because they have and understand more information about the health situation in question, and on the other hand because they have a level of control over access to treatment (in the case of the HPV vaccine, by issuing a reimbursable prescription). A parent who has vaccinated their child, on the other hand, is on a similar 'authority' level to another parent who did not seek vaccination.

Several psychosocial studies have indicated that a higher self-assessed power status leads communicators to favour the use of competence arguments (based on data, expertise, logical reasoning). Similarly, an audience with a high power status tends to rely more on information in the same competence category when forming their attitudes.

In contrast, low power psychological states lead communicators to favour emotional approaches (based on personal experience and the formation of close interpersonal bonds), and low power audiences also tend to rely more on the emotional connection with the communicator to reach a conclusion and shape an attitude.

So, the success of a persuasive message can depend on the interaction between the power of the communicator and the audience. High-power communicators generate messages that are more likely to persuade high-power audiences; low-power communicators generate messages that are more likely to persuade low-power audiences. The psychological explanation is quite simple: those who perceive themselves as strong feel less dependent on others, so they can pursue their own goals and interests with fewer constraints, and do not necessarily feel the need to form emotional bonds to communicate effectively. In contrast, the dependency of those who feel less powerful forces them to include others in order to achieve their goals, which involves forming interpersonal bonds.

Thus, a discussion between physicians or other specialists may be based strictly on clinical data and official recommendations, but a parent who wants to persuade another parent to vaccinate their child is likely to stand a better chance if they use personal experience and empathy to

Co-funded by the European Union through the EU4Health programme 2022

encourage a sense of belonging to those who seek HPV vaccinations for their children (without excluding scientific data, which may support the newly formed pro-vaccination attitude).

What is the best solution in a situation where the communicator is an expert and the audience is not? A combination of the two approaches is most likely to succeed - the emotional/empathic first, to stimulate openness, followed by the rational/competent, for credibility.

Public resources for better information

The website https://rethink-hpv.eu/ro/ brings together scientifically developed and validated information and materials on the importance of vaccination, as well as news about HPV and vaccination, in Romanian.

Another useful resource in Romanian is the ENGAGe booklet called "Everything you need to know about HPV vaccination", available at https://engage.esgo.org/media/2021/03/HPV-vaccination_Romanian_final.pdf

Not least, the European Code Against Cancer contains a comprehensive list of questions and answers about HPV and HPV vaccination: https://cancer-code-europe.iarc.fr/index.php/ro/12-modalitati/vaccinare-si-infectii/papilomavirusul-uman-hpv

REFERENCES

1. Kraus, M.W., Piff, K.P., Dacher, K. Social class, sense of control, and social explanations. Journal of Personality and Social Psychology, 2009, 97 (6), 992-1004.

2. Anderson, C. , Galinsky, A.D. Strength, optimism and risk-taking. European Journal of Social Psychology, 2006, 36 (4), 511–36.

3. Dubois, D. Rucker, D.D. Galinsky, A.D. Dynamics of Communicator and Audience Power: The Persuasiveness of Competence versus Warmth Journal of Consumer Research, 2016, 43, 68-85.

Co-funded by the European Union through the EU4Health programme 2022