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Reporting on the human papillomavirus (HPV) Vaccine to prevent Cervical Cancer

Cervical cancer is the fourth most common cancer to affect women worldwide, but, unlike most cancers, it is preventable by vaccination.

Cervical cancer is the **fourth most prevalent form of cancer** among women across the globe and the leading cause of cancer-related deaths for women in 36 countries across Africa, Asia and Latin America. **A recent WHO overview** shows the year 2020 saw 604,000 new cases of cervical cancer reported globally, with a devastating 342,000 women succumbing to the disease – a staggering 90% of new cases and deaths having occurred in low- and middle-income countries.

Between nations, **cervical cancer death rates vary by a factor of 50**, from fewer than 2 per 100,000 women in some high-income nations to more than 40 per 100,000 in poor African nations.

The human papillomavirus, also known as HPV, is the virus that causes most cases of cervical cancer and is responsible for the majority of cases of sexually transmitted infections of the reproductive system.

The HPV vaccine has been shown to prevent up to 90% of HPV-related cancers and precancerous lesions.

An essential step toward eradicating cervical cancer is to reach an HPV vaccination coverage rate of 90% among girls by the age of 15 – the **target set by the World Health Organization (WHO)**. The vaccination protects against HPV infection that causes most cervical cancer cases including other malignancies such as anal, vaginal, vulvar, and oropharyngeal cancer. By achieving this target, countries can ensure that girls are protected from HPV infection and are far less likely to develop cervical cancer in the future. However, already low vaccination coverage dipped even lower during the COVID-19 pandemic, **with only 12% of the targeted population receiving vaccination**.

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Global Cancer Patterns

The maps below show how cancer differs between genders. Prostate cancer is the most commonly diagnosed for men, followed by lung cancer. The most commonly diagnosed cancer in women is dominated by two cancer sites: breast cancer and cervical cancer. See: **Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries**.

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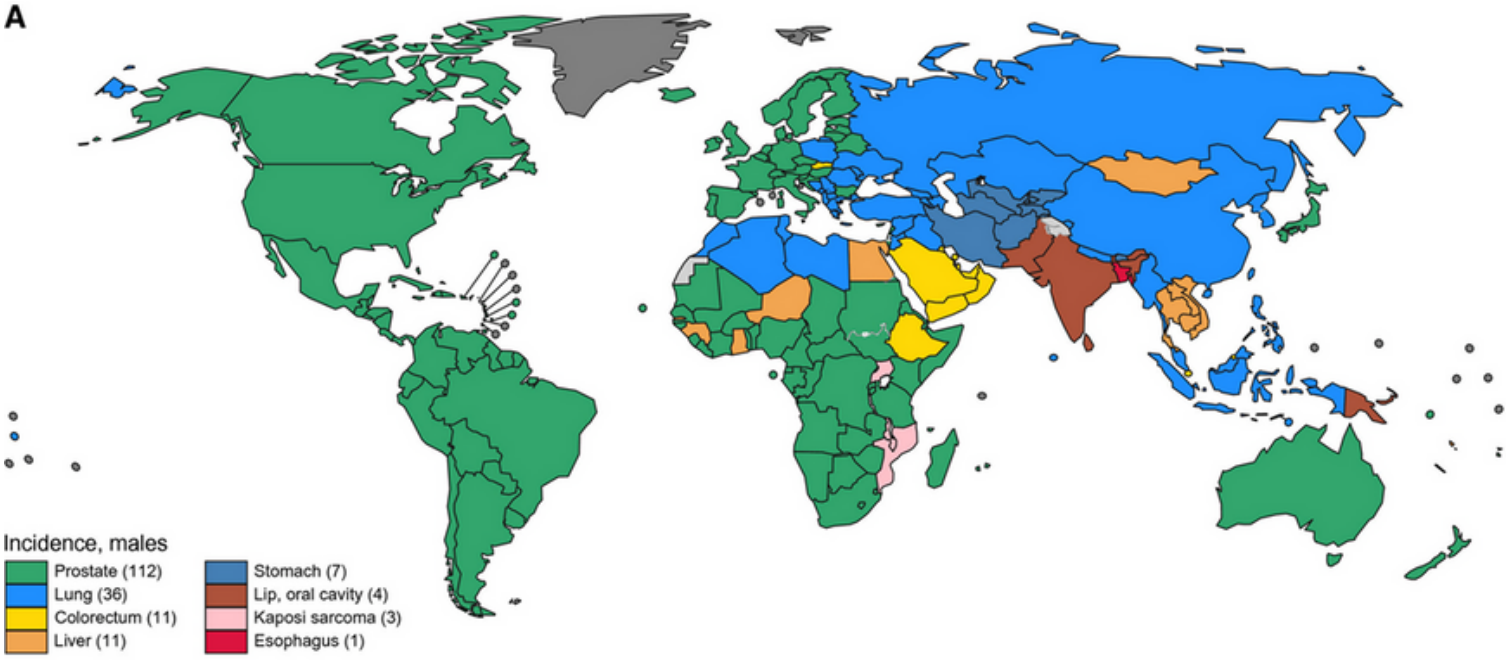

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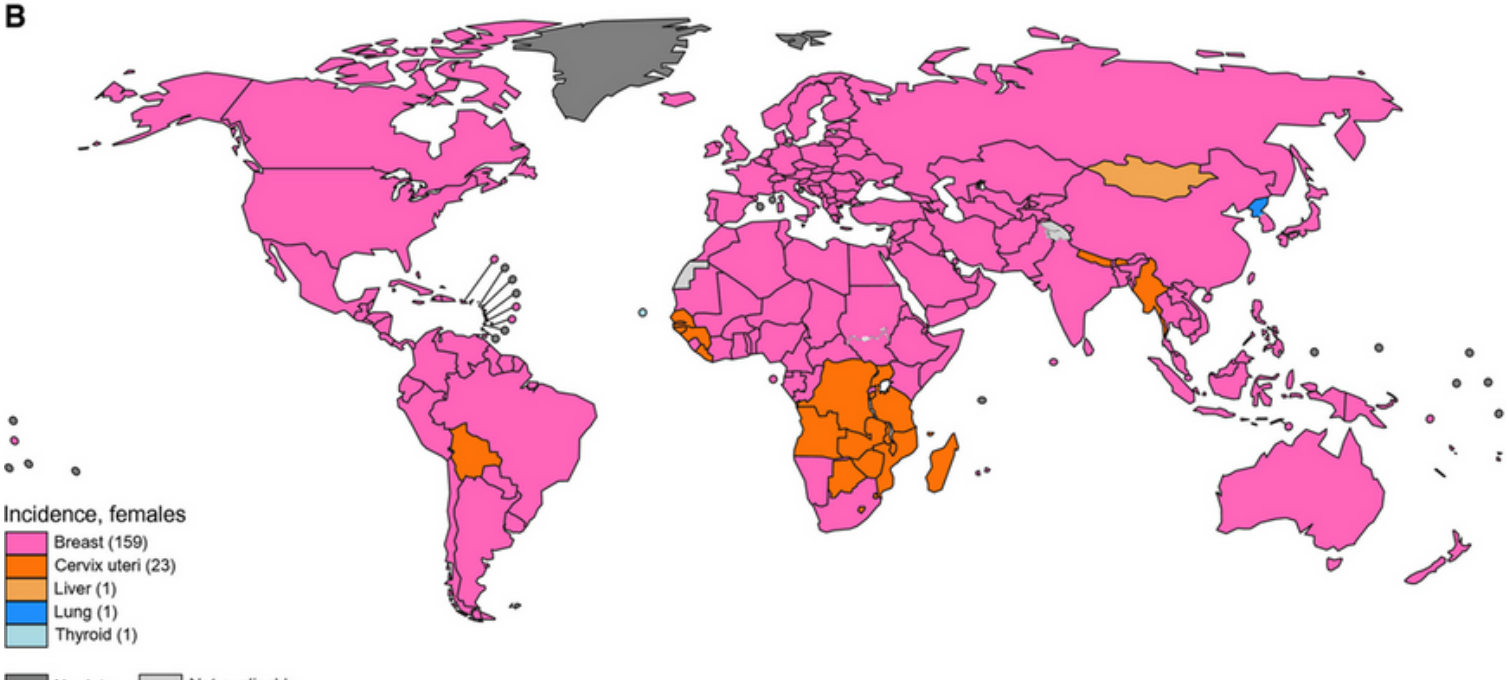

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data source: Globocan 2020
Map production: IARC
World Health Organization

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Cervical cancer in low- and middle-income countries (LMICs)

Sub-Saharan Africa is the part of the world where cervical cancer is most common and causes the most deaths. In this region, the percentage of women with cervical cancer is the highest in the world. Of these, the largest proportion also die from it. With 32 cases per 100,000 women, South Africa has the highest age-adjusted rate of cervical cancer in the world.

Eswatini, formerly called Swaziland, has the highest total risk of cervical cancer. About 6.5% of women there get cervical cancer before they turn 75.

With 51.5 deaths per 100,000 women, Malawi has the highest number of deaths per capita from cervical cancer in the world. In addition to HPV infection, the high rate of human immunodeficiency virus (HIV) among 15-49-year-old women in Malawi also adds to the high rates of cervical cancer and death from the disease.

Paraguay in Latin America has the highest number of new cases of cervical cancer in the world, with a rate of over 34 cases per 100,000 women. When rates were adjusted for age, Kiribati, Somalia, Eritrea, and the Central African Republic had the most new cases and **disability-adjusted life years (DALYs)** from cervical cancer.

In 2020, there were around 69,000 new cases of cervical cancer reported **in Southeast Asia**, with 38,000 deaths. The projections for 2040 indicate a worrying trend, with an anticipated increase of over 44% in new cases and over 63% in deaths. The burden of cervical cancer in Asia is significant, with **China and India** accounting for over one-third of global cases. According to a study published in **The Lancet**, China and India account for 39% of all global cervical cancer cases in 2020, with 18% of cases in India and 21% of cases in China. In 2020, these two nations account for almost 40% of overall cervical cancer deaths (17% in China and 23% in India).

Can scaled-up HPV vaccination lower cervical cancer rates in LMICs?

In low- and middle-income countries (LMICs), cervical cancer rates can be dramatically reduced if HPV vaccines coverage is increased. **Girls-only HPV vaccine** was thought to cut the rate of cervical cancer in LMICs by 89.4% over the next century, from 19.8 cases per 100,000 to 2.1 cases per 100,000, and to prevent 61.0 million cases during this time. When compared to the HPV vaccination alone, adding screening could prevent more than twice as many cases of cervical cancer in LMICs.

As of mid-2020, **56 countries** which represent 41% of all LMICs, have initiated national HPV vaccination programs. Supply constraints, delivery system weaknesses and inadequate access to screening, and treatment and trained and supported workforce constraints and societal and cultural factors have all been cited as limitations to expanded national HPV vaccination programs.

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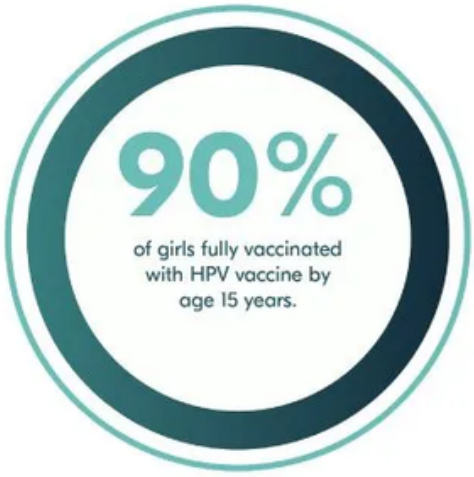
There are renewed calls for LMICs to overcome obstacles to HPV vaccination and to commit to getting rid of cervical cancer.

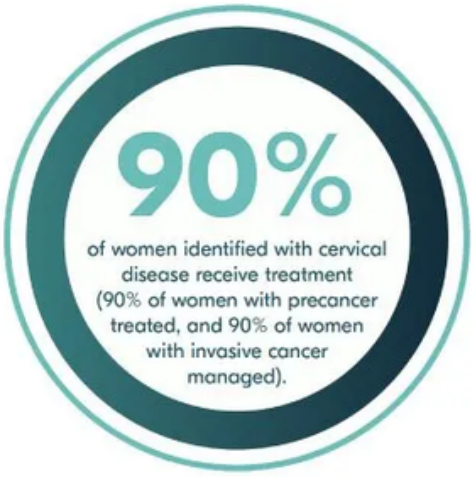
Global health role-players, including WHO, Gavi, the Vaccine Alliance, UNICEF, the **Sabin Vaccine Institute**, and others, have prioritized HPV vaccination in a catch-up effort after an analysis revealed that HPV vaccination programs were among the immunization campaigns severely impacted by COVID-19.

The April 2023 report on the **State of the World's Children** by UNICEF reveals the largest decline in childhood vaccinations, including HPV vaccination, in 30 years.

In 2023, **52 countries will receive HPV vaccines from UNICEF**, with seven countries introducing the vaccine for the first time. Gavi, the Vaccine Alliance, and their partners will concentrate their efforts over the next several years on reviving access to the HPV vaccine to reach **86 million teenage girls**, fast recovering and improving coverage, and contributing to the development of sustainable immunization programs.

Bold efforts are needed to meet a **90-70-90 target** set by the WHO in 2020: 90% of girls should be fully vaccinated with HPV vaccine by age 15, 70% of women should be screened with a high-performance test by age 35 and again by age 45, and 90% of women with cervical cancer should get treatment. A 2020 study found that if HPV vaccination goals were met, cervical cancer cases could **drop by 89% in the next 100 years.**





What can we learn about cervical cancer from its natural history?

Sexual transmission is the main way that the HPV is spread. This infection is extremely common and frequently develops soon after the start of sexual activity. According to the United States Centers for Disease Control and Prevention (CDC), HPV is spread through intimate skin-to-skin contact, including having vaginal, anal, or oral sex with someone who has the virus. It most commonly spreads during anal or vaginal sex but can also spread through close skin-to-skin touching during sex.

By getting vaccinated against HPV, males can also help protect their sexual partners from being infected with the virus, reduce the risk of cervical cancer and vastly decrease risk of developing gential warts, according to **CDC.**

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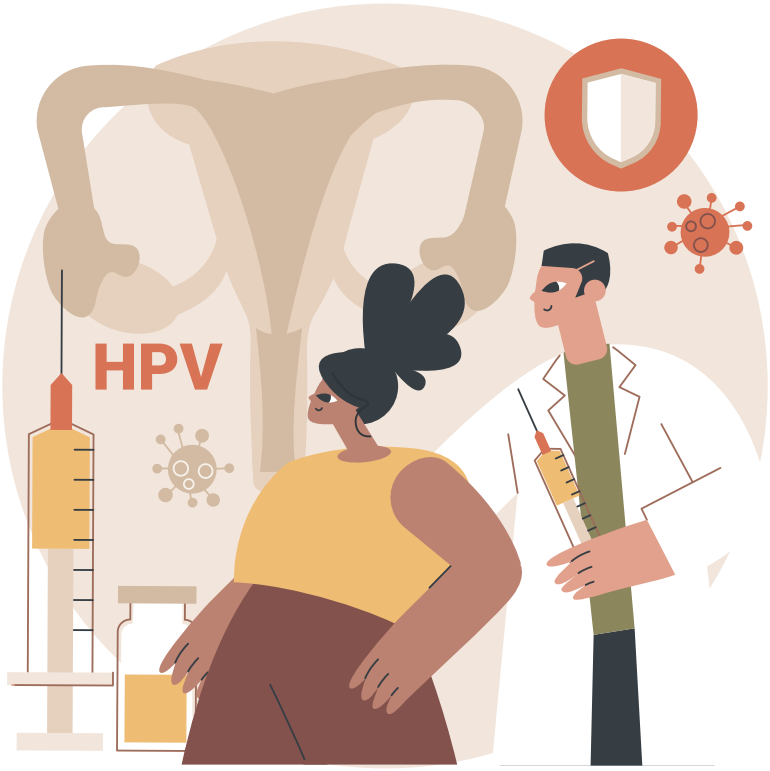
What is the HPV vaccine and what types of vaccines are available?

The HPV vaccine helps protect against certain types of HPV. HPV types 16 and 18 cause about 70% of cervical cancers, but the bivalent HPV vaccine protects against them. The quadrivalent HPV vaccine protects against HPV types 6, 11, 16, and 18, which are responsible for about 90% of vaginal warts and about 70% of cervical cancers. The 9-valent HPV vaccine protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58, which are responsible for about 90% of vaginal warts and about 90% of cervical cancers.

The HPV vaccine is licenced for both males and females. As of December 2022, 125 countries (64%) have introduced the HPV vaccine in their national immunization program for girls, and 47 countries (24%) also for boys. After receiving advice based on the latest data from **WHO Strategic Advisory Group of Experts on Immunization (SAGE)**, the WHO in 2022 updated its recommendations for the HPV vaccination schedule:

- A one or two-dose schedule for girls aged 9-14
- A one or two-dose schedule for girls and women aged 15-20
- Two doses with a 6-month interval for women older than 21



One-dose HPV vaccines are also being studied. This would simplify program management, saving low- and middle-income countries money. The WHO 2022 SAGE report recommended that **a single-dose HPV vaccination protects against HPV-related cervical cancers** as well as a two-dose schedule. These findings may help vaccine more females worldwide.

Merck and GlaxoSmithKline (GSK) are the only two companies that are currently producing HPV vaccinations that have received prequalification from the WHO. Despite this, a number of other pharmaceutical companies, such as Innovax, Walvax, and the Serum Institute of India, are working on creating HPV vaccines.

In September 2022, the **Serum Institute of India launched Cervavac**, a quadrivalent HPV vaccine that it developed in partnership with the Indian government. It will be priced at INR 200 – 400 per dose, around $2 – $5, considerably less than available HPV vaccines.

In the United States, the standard cost for a two or three-dose schedule of the Merck-manufactured Gardasil-9 HPV vaccine, is slightly above $250 as per the list price. In 2010, the manufacturer's list price of GSK's Cervarix was $90.00 per dose, and three doses are required for full vaccination.

The cost of HPV vaccines in LMICs may be reduced due to subsidies from organizations like Gavi, the Vaccine Alliance. This is a significant factor to consider.

Cervavac offers protection against **four strains of HPV – 16, 18, 6, and 11**. Adar Poonawalla, Chief Executive Officer of the Serum Institute, says the first 2 years of production should yield approximately **200 million doses of Cervavac**. The government of India has made an **announcement** that it will begin a nationwide immunization effort with Cervavac in mid-2023 targeting young women between the ages of 9 and 14.

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What is a gender-neutral HPV vaccination approach and why do the majority of LMICs have female-only vaccination programs?

A gender-neutral HPV vaccination approach is one where both girls and boys get the vaccine, advancing the health of both male and female populations. The International Papillomavirus Society **said in a statement** in **March 2020** that gender-neutral HPV vaccine programs and vaccinations for mature age women should be put on hold for now. This is because there is a shortage of HPV vaccines around the world, made worse by the COVID-19 pandemic. The pandemic had disrupted global supply chains, making it difficult for some countries to obtain vaccines.

During the supply shortage, the statement recommends the HPV vaccine should only be given to girls between the ages of 9 and 15. The **Royal College of Obstetricians and Gynecologists** published a study indicating that vaccinating boys in low-resource settings may not offer significant advantages compared to vaccinating girls exclusively. According to a study published in **The Lancet**, girls-only HPV vaccination can lead to cervical cancer elimination in most LMICs by the end of the century, which can help guide policymakers in implementing vaccination programs.

What types of screening are there for cervical cancer?

There are a few different ways to check for cervical cancer in women. Cervical cytology, also called the Pap test or Pap smear, and testing for human papillomavirus, or both, are the most popular screening tests. The Pap test checks the cells of the cervix for changes that could lead to cervical cancer if they are not treated. The HPV test looks for the virus itself, which is responsible for cell changes in the cervix. Cells from the cervix are used in both tests, and the screening process is easy, quick and painless.

The **US Preventive Services Task Force** suggests that women ages 21 to 29 get cervical cytology testing every 3 years to check for cervical cancer. For women ages 30 to 65, they should get cervical cytology testing every 3 years, high-risk HPV testing every 5 years, or both every 5 years.

The medical procedure of high-risk HPV testing is designed to identify the existence of high-risk strains of human papillomavirus. Doctors worry more about cell changes and pre-cancers caused by these high-risk HPV strains since they are more likely to become malignancies when abnormal cells divide without control and can invade nearby tissues. Additionally, these malignant cells can travel through the body via the circulatory and lymphatic systems. High-risk HPV strains include 16 and 18.

Women over 65 who have already been screened enough and are not at high risk in other ways may not need to be checked again.

How often and what kinds of tests a woman should have depend on her **age and health history**. Aside from the Pap test and the HPV test, there are also the visual inspection with acetic acid (VIA) and the visual inspection with Lugol's iodine (VILI) tests for cervical cancer.

According to several studies, VIA and VILI tests are accurate enough for cervical cancer screening, especially in **low-resource settings**. However, it is important to note that these tests are not as accurate as the Pap test or HPV test.

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What are the main risk factors for cervical cancer in women?

Infection with HPV is the main risk factor for cervical cancer. Also women with weakened immune systems, including those with HIV, might be more likely to develop health problems if they contract the virus.

According to WHO, **women living with HIV are 6 times** more likely to develop cervical cancer compared to women without HIV.

This is because HIV weakens the immune system, making it more difficult for the body to fight off infections. Human papillomavirus (HPV) is a sexually transmitted infection that is the most common cause of cervical cancer. Women with HIV are more likely to be infected with HPV and those with untreated HIV are more likely to have active HPV infections and to develop precancerous cervical lesions that can lead to cancer.

There are a number of things that women living with HIV can do to reduce their risk of developing cervical cancer, including:

- Getting regular cervical cancer screenings
- Getting vaccinated against HPV
- Practicing safe sex
- Taking antiretroviral therapy (ART)

A **study published in The Lancet HIV** found that antiretroviral therapy was linked to a lower rate of high-risk human papillomavirus and cervical lesions. ART could lower the chance of getting invasive cervical cancer, stop cervical lesions from getting worse, and stop them from happening over the course of a long treatment process.

How can journalists report on HPV vaccinations and cervical cancer prevention?

Journalists can do in-depth stories on HPV vaccinations and cervical cancer by first asking what's missing from the public conversation. Is there awareness of the issues?

Your story should be clear, concise, and well-supported by evidence. It should also be fair and balanced, and it should avoid sensationalizing the issue to avoid stigma and discrimination. You may proceed in the following manner:

1: Frame the vaccine goal as cervical cancer prevention

By emphasizing the link between HPV and cervical cancer, journalists can help shift the focus away from the stigma associated with sexually transmitted infections and towards the importance of cancer prevention. **Research has shown** that this can increase vaccine uptake.

A **study** also found that men may be more open to the HPV vaccine if it is presented as a way to avoid cancer, no matter which of the three most common cancers in men caused by HPV is highlighted.

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2) Address concerns about the HPV vaccine promoting sexual activity

Journalists can dispel fears that the HPV vaccine encourages sexual activity by highlighting the fact that studies have found it does not hasten sexual debut or increase sexual engagement in teens and young adults. The CDC suggests getting vaccinated against HPV (from age 11 or 12 (or as early as age 9) and continuing to do so until age 26.

In addition, the **CDC recommends** that girls and young women get the vaccine before they start engaging in sexual activity, when they are less likely to be exposed to HPV.

The key message is: Studies have shown HPV vaccine does not increase sexual activity or accelerate sexual debut but rather protects against cancer.

3) Highlight the challenges girls in poor countries face when it comes to getting HPV vaccinations. Some of the problems that they face could include:

Lack of Access: Many girls in low-income countries live in urban poor or remote and rural areas where health facilities are less available and the HPV vaccination might not be available in the immunization schedule.

High Cost: The HPV vaccination can be expensive and unaffordable for many families where the vaccination is not available at little or no cost.

Lack of Information: Many families in may not be informed about availability of HPV vaccines or the lifesaving preventative impact they can have. **Increased poverty and a lesser level of education** have been linked to a higher prevalence of cervical cancer.

Cultural and Religious Factors: Researchers have been studying the impact of cultural and religious factors that could be barriers to vaccination for some communities.

Trust in health workforce and systems: Levels of trust in health workers and systems providing essential health services including HPV vaccinations has been shown in research to be crucial in many cases for uptake.

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4: Highlight how male partners and spouses can help to reduce stigma around HPV and cervical cancer screening and encourage their daughters to receive the HPV vaccine. Here are some of the ways they can help:

- Fighting the stigma associated with HPV and cervical cancer: By educating themselves and others about the causes and risk factors of HPV and cervical cancer, male partners and spouses can contribute to the reduction of stigma.

- Supporting their daughters' HPV vaccinations: Male partners and spouses can promote their daughters' HPV vaccinations by outlining the advantages of the vaccine and dispelling any doubts or misunderstandings their daughters may have. Men exhibited a desire to support their daughters' HPV vaccination, according to a **study done in Uganda**. However, several males were unaware of the recommended age range for HPV vaccination, and there were misunderstandings regarding the causes of cervical cancer and the role that vaccination plays in preventing the disease. Several males also cited their fear that the vaccine might make their daughters infertile. According to the study, including males in spreading knowledge about the HPV vaccine and cervical cancer prevention can boost program enrollment and support.

- Advising their spouses and partners to get screened for cervical cancer: Many women in low- and middle-income countries encounter resistance from their spouses and family to get screened for cervical cancer. By encouraging their spouses and partners to participate in cervical screening and addressing any worries or misconceptions they may have, male partners can assist to lower barriers to screening.

- Understanding the role of men in HPV transmission: Male partners and spouses can educate themselves and others about the role of men in HPV transmission and the importance of male involvement in cervical cancer screening education.

5: Don't forget to highlight the positives to demonstrate the success of HPV vaccination programs in low-income countries and their potential to prevent cervical cancer and save lives.

Because the problems scream, but the solutions whisper, we often overlook them. So here are some positive stories:

In Rwanda, the HPV vaccine was introduced in 2011 and has since been administered to more than 93% of girls aged 11-15. **Rwanda was the first country in Africa** to provide a complete preventative program for cervical cancer that included vaccinations against four strains of HPV. This made Rwanda a frontrunner in the fight against this deadly disease. In Rwanda, cervical cancer is the second most common kind of cancer found in females, and it is the most common form of cancer seen in young to middle-aged women (between 15 and 44 years old).

In **Bhutan**, approximately 90% of girls and women between the ages of 12 and 18 have received the HPV vaccine. Thimphu, the country's capital, has seen a 93% drop in the prevalence of HPV kinds that the vaccine was designed to prevent.

A nationwide HPV vaccination program for girls aged 12–18 was launched in 2010. This, along with the country's dedication to ensuring equal access to healthcare, has been credited with the program's effectiveness.

The HPV vaccine was launched in **Uganda** in 2015, however it was greeted with hostility from some communities at first. Concerns that vaccination would foster promiscuity, earlier sexual debut in young girls, and risky sexual activity were among the challenges to HPV vaccination acceptance. However, a successful public awareness campaign was initiated, and by 2019, more than 80% of females aged 10 to 14 had been immunized.

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Nine top tips for journalists reporting on the HPV vaccine:

Don't forget to say the vaccine is safe and effective - and use efficacy figures for the particular vaccines used in your country.

Focus your stories on finding solutions to the problem areas. If supply is the problem, study the procurement or finance obstacles. If there is insufficient demand, focus your stories on ways to achieve better awareness of and desire for the vaccine.

Make regional or country-to-country comparisons to urge policymakers to deliver better and faster, e.g. if your neighbouring country has faster roll-out, report on reforms, solutions or innovations to inspire introduction in your country.

Find out about vaccine delivery logistics in your country. Are there efforts to improve the health system or to introduce transport innovations and improvements in the cold chain to ensure everyone, even those in remote areas, can be reached?

Remember your audience is ordinary people, many of whom do not have a voice and cannot ask the questions you can as they are unlikely to have the same access to authorities. Know the questions they have and find answers for them.

Find religious leaders and elders who are supportive of vaccination and ask them to outline the strategies they use to overcome barriers and find women's voices and youth influencers to share their experiences in support of HPV vaccination.

Find out what government projects are in place to inform people about the HPV vaccine. It could be a good idea to visit one of these projects to report on.

Find out when the next roll out is for the HPV vaccine in your country. Report on it and gather quotes from parents who are supportive or teens taking the vaccine. Their voices can help save lives.

Find out about cervical cancer and what a terrible disease it is. If you can, interview a person who has cervical cancer (if they agree) and report on their cancer journey. Then find a sensitive way to indicate that such suffering is avoided when people have access to the vaccine.

Resources:

1. WHO Cervical Cancer Initiative: From Call to Action to Global Movement
2. Resources, Education & References for HPV Vaccination, Centers for Disease Control and Prevention
3. HPV vaccine: Who needs it, how it works. Mayo Clinic
4. Cervical Cancer Toolkit. UNICEF