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Cervical Cancer Brief #2 for Global Fund programs
February 2020

HPV Vaccination

This brief is the second part of a five-part guide for countries seeking Global Fund funding to address cervical cancer. For an explanation of the value of cervical cancer prevention among women living with and vulnerable to HIV, please see “Brief #1: Overview.”

Almost all cases of cervical cancer are caused by human papillomavirus (HPV). Persistent HPV infection can cause cervical cell abnormalities (precancers) that may lead to invasive cervical cancer if left untreated.

Vaccination against HPV is a proven strategy for primary prevention of cervical cancer. All three WHO-prequalified HPV vaccines are safe and effective at preventing cervical cancer and precancer. Additional vaccines are in development but are not yet pre-qualified by WHO.

Using Global Fund resources for HPV vaccination programs is a means to prevent HIV/HPV co-infection and co-morbidity, and to prevent cervical cancer, which has a disproportionate impact on women living with HIV.

However, following increased support from Gavi and governments around the world, the demand for HPV vaccine has increased dramatically in recent years. This has led to current supply shortages that countries must consider when planning vaccination activities.

Target Population

WHO guidelines recommend two vaccine doses for girls age 9-14, but for people living with HIV, a three-dose schedule is recommended.

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Although the HPV vaccine is effective for both girls and boys, [WHO guidance](#) states that HPV vaccination of boys is less cost-effective for cervical cancer reduction than vaccination of girls only. Due to cost limitations, low- and middle-income countries typically prioritize the vaccination of girls.

While many countries choose to vaccinate girls through school-based programs, this presents country officials and implementers with challenges in reaching girls who are not in school, and providing a third dose of the vaccine to HIV-positive girls in an anonymous manner.

Vaccines and Delivery Strategies

There are three HPV vaccines on [WHO's prequalified list](#):

- Cervarix (Bivalent) by GlaxoSmithKline
- Gardasil 4 (Quadrivalent) by Merck Vaccines
- Gardasil 9 (Nonavalent) by Merck Vaccines

All three vaccines prevent infection against HPV 16 and HPV 18, the two highest-risk HPV sub-types, known to contribute to at least 70% of cervical cancer. Gardasil 4 and Cervarix are generally considered to be equivalent, because they protect against HPV 16 and 18, and the additional two subtypes included in Gardasil are not oncogenic. Gardasil 9, which is newer and provides protection against nine types of HPV, is considerably more expensive. [WHO notes that the licensed bivalent, quadrivalent, and nonavalent HPV vaccines all “have excellent safety, efficacy and effectiveness profiles.”](#) Gavi offers Gardasil 4 and Cervarix.

[WHO](#), [PATH](#), and [UNFPA](#) have offered recommendations for the successful implementation and sustainability of a vaccine delivery strategy, including: planning requirements; overcoming vaccine hesitancy based on misinformation; and addressing the social, cultural, societal and other barriers that may affect vaccine acceptance and uptake.

WHO has a [Cervical Cancer Prevention and Control Costing Tool](#) with an HPV vaccination module available online. The high costs of both the vaccine and delivery are often a barrier for middle-income countries (MICs) that are not Gavi-eligible. [According to WHO](#), MICs face vaccine prices ranging from \$7.64 to \$115.40 per dose of Gardasil 4 or Cervarix, with a median reported price of \$11.59. The Gavi price is \$4.50 per dose, and in recent years, PAHO has negotiated a price of \$9.58.

In addition to the cost of the vaccine, countries should budget for training, supportive supervision, community mobilization, counseling and educational materials, health information systems, transportation for staff and supplies, staff time per patient, and quality assurance and M&E.

Global Fund proposals for HIV and health systems may include co-funding to support integration of the HPV vaccine into programs for sexual and reproductive health or cervical cancer prevention and treatment.

Further Reading

Guidance

- [Comprehensive cervical cancer control: a guide to essential practice](#). WHO (2014)
- [Comprehensive Cervical Cancer Prevention and Control Programme Guidance for Countries](#). UNFPA (2012)
- [Human papillomavirus vaccines](#). WHO position paper (2017)

Research

- Bloem, Paul. [HPV Vaccines Uptake and Barriers](#). (2019)
- Ghebre, Rahel G. et al. [Cervical cancer control in HIV-infected women: Past, present and future](#). Gynecologic Oncology Reports 21 (2017)
- [HPV Vaccine Lessons Learnt](#). London School of Tropical Hygiene and PATH (2016)
- [HPV, HIV, and Cervical Cancer: Leveraging synergies to save women's lives](#). UNAIDS (2016)
- Lockett, Rebecca, and Sarah Feldman. [Impact of 2-, 4- and 9-valent HPV vaccines on morbidity and mortality from cervical cancer](#). Human Vaccines & Immunotherapeutics 12:6 (2016)