

Global Partnerships for HPV Vaccine Must Look Beyond National Income

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A global strategy aimed at eliminating cervical cancer by 2030 was released by WHO and was recently adopted by many countries and partners. However, few diseases reflect global inequities as much as cervical cancer. Despite high mortality rates, cancer still receives low priority for health care services across most low- and middle-income countries (LMICs). Approximately 85% of the disease burden occurs in LMICs, and almost 90% of the 311,000 global cervical cancer deaths in 2018 occurred in LMICs.¹

In Africa, most women with cancer are diagnosed at an advanced stage, which is associated with poor outcomes. It is widely accepted that trends in the incidence of cervical cancer are increasing in sub-Saharan Africa.² Given the epidemiologic trend of cervical cancer in Africa, it is hard to fathom that an effective vaccine has existed since 2006. The human papillomavirus (HPV) vaccine protects against more than 90% of the strains that cause cervical cancer and prevents precancerous changes to the cervix when administered to girls before the onset of sexual activity.² Vaccination programs targeting girls age 9 to 14 years have been available since 2007 and are now part of most routine immunization programs in high-income countries (HICs).^{1,3}

The HPV vaccine has been a game-changer in advancing progress against cervical cancer. However, this progress has been limited to HICs. In fact, between 2006 and 2017, more than 100 million adolescent girls received an HPV vaccine dose.¹ Not surprisingly, 95% of recipients were in HICs. Researchers from the Université Laval in Canada compared infection rates before and after introduction of the vaccine for both teens and young adults.⁴ They found that HPV infections fell by 83% for teenage girls and 66% for young women 5 to 8 years after the vaccine was introduced.⁵ The researchers also found the greatest benefits of vaccination were seen in countries in which more than 50% of the targeted population was vaccinated, and in which girls were offered vaccination at multiple ages to catch up with the older girls who had missed the introduction of the vaccine. They concluded that if vaccination programs can lead to the eradication of HPV in the same way they did for smallpox, then this could result in a subsequent elimination of cervical cancer.⁶

In 2018, the WHO Director General called for global action to eliminate cervical cancer in all countries by 2030. The draft global strategy calls for 90% of girls to be fully vaccinated against HPV by 15 years of age, 70% of eligible women to be screened, and 90% of diagnosed women to receive treatment and care (90-70-90). The strategy highlights the need for coordinated action across global partners such as Gavi (The Vaccine Alliance), the Global Fund, Unitaid, Union for International Cancer Control (UICC), and the World Bank, in addition to collaboration with private sector manufacturers of vaccines, diagnostics, and treatment.

Global partnerships have played a key role in accelerating access to HPV vaccines in LMICs. Vaccines, once as high as \$100 per dose in the public sector, can now be obtained for \$4.50 thanks to Gavi, a partnership that includes the pharmaceutical industry, national governments, WHO, the World Bank, the Bill and Melinda Gates Foundation, and other public health institutions.⁷ Gavi recently announced that five manufacturers (Merck Sharp & Dohme, GlaxoSmithKline, Inovax, Serum Institute of India, and Walvax) are committing to increasing production and prioritizing HPV vaccine supply to Gavi-eligible countries with the potential to vaccinate up to 84 million girls over the next 5 years.⁸

Although we acknowledge this huge milestone, none of these 84 million girls are from LMICs classified as Gavi-eligible countries. Gavi eligibility is determined on the basis of gross national income per capita (<US\$1,580), and the funding model effectively excludes the most vulnerable regions from accessing a sustainable supply of HPV vaccines on the basis of a metric that does not reflect their economic realities and capacities. These countries constitute a “missing middle,” unable to afford negotiated vaccine prices yet ineligible for support. In Africa, Nigeria has the highest number of deaths on the continent as a result of cervical cancer, but it is ineligible for support. Even at \$4.50 per dose, the HPV vaccine is expensive, unsustainable, and liable to sink already stretched health budgets. Moreover, the “Covidization” of health systems has resulted in derailing underfunded cancer programs in LMICs and undermining efforts to eliminate cervical cancer. In Kenya, more than 400,000

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girls missed the HPV vaccinations because of school closures and Covid-19 safety precautions.⁹ With approximately 15 million Nigerian girls between age 9 and 14 years, the costs required to achieve 90% vaccine coverage are more than 10% of the available Nigerian health budget.¹⁰ It is imperative for global partners to help all LMICs, including those no longer eligible for subsidies, to access lower prices and strategic funding arrangements if they are to have any chance of achieving prevention targets.

Vaccination is crucial to the cervical cancer elimination strategy in LMICs because existing barriers to screening and poor treatment are contributing to the preventable death rate. Both screening and treatment require specialized skills and infrastructure, including surgery, radiation, and chemotherapy, which places an increased burden on already fragile health systems in which trained personnel and radiotherapy machines are in short supply. Reports suggest that patients can wait up to 12 months for screening, a death sentence for a disease in which delay reduces the odds of survival. Moreover, cost of treatment remains prohibitive to the majority of affected people in LMICs. In Nigeria and South Africa, the treatment costs are about \$4,000 to \$5,000^{11,12} per patient compared with average costs of \$45 to \$200 for HPV vaccination (neither country is Gavi eligible). Considering that 85% of Africans live on less than \$5.50 per day,¹³ the prevention that offers the best approach for large-scale reductions in disease burden and eventually elimination must be prioritized. In addition, studies have repeatedly demonstrated that prevention of cervical cancer with vaccination is cost-effective.

African leaders and global partnerships must invest in scaling up HPV vaccine coverage. In addition to costs incurred by the health system, cancer causes immeasurable indirect costs to society. Cervical cancer perpetuates the cycle of poverty because it affects the young, working-age women who are often the head of the household, economic contributors, and caregivers, which increases the household risk of financial hardship. Aside from losing income when cervical cancer strikes, families have to sell their farms and basic property to access treatment. Even if countries possessed the required funds, production and unprecedented increase in global HPV vaccine demand would limit the availability of vaccines, creating an additional challenge for LMICs looking to expand HPV coverage. Without strategic purchasing partnerships to ensure a sustainable supply of affordable vaccines, availability is not guaranteed. Prioritizing vaccine supply for eligible countries only creates a potential additional barrier to access for noneligible countries.

Gains in HPV immunization programs have hinged on successful global partnerships. In 2011, Rwanda became the first low-income country to implement a national HPV vaccination program. Since then, the country has achieved high coverage rates that exceed those of many HICs and is on track to becoming the first country to eliminate cervical cancer.¹⁴ One visible factor in Rwanda's success are high levels of government commitment, local ownership, and strategic global partnerships, which have ensured reliable vaccine supply at affordable prices. In 2011, the government signed an agreement with Merck that guaranteed 3 years of vaccinations at no cost and concessional prices for future doses.¹⁵ As one of the world's largest pharmaceutical companies, Merck wanted to demonstrate that it was feasible to introduce the vaccine in LMICs in the hope that Gavi would take note and get on board. In the absence of relevant global partnerships, including strategic funding and supply agreements to guarantee affordable prices and reliable vaccine supply, global elimination of cervical cancer by 2030 is impossible. Perhaps African leaders and multilateral organizations can borrow a page from the Pan American Health Organization (PAHO) revolving fund, which provides a mechanism for Gavi-ineligible Latin American and Caribbean countries to access HPV vaccines. Pooled procurement and discounted pricing strategies allow member states to purchase the vaccine at a reduced price.¹⁶ African organizations such as the African Union (AU), the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC) should consider similar cooperative strategies to reduce prices, especially for Gavi-ineligible member states.

The elimination of cervical cancer requires coalition between governments and global partners, including all relevant multilaterals and suppliers. Current funding mechanisms that exclude LMICs on the basis of economic criteria risk leaving women behind, particularly in states with a high burden of cervical cancer. It is unacceptable that a woman's likelihood of dying from cervical cancer depends largely on where she was born and where she lives. Without adequate support for an HPV vaccine scale-up in line with the global strategy, the death toll will continue to rise, plunging African households and communities into increased financial straits. In the face of rising cancer prevalence in Africa, a failure to actively invest in access to vaccines threatens not only Africa's quest for better health but also threatens efforts toward economic prosperity as cervical cancer continues to cut down African women in their prime.

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Open Payments is a public database containing information reported by companies about payments made to US-licensed physicians (Open Payments).

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