



Investing in Global Cervical Cancer Prevention: Resources for Low-Income and Lower Middle-Income Countries in 2019

Cervical cancer kills over 311,000 women worldwide every year – with 90% of these deaths occurring in poor and developing countries.ⁱ Cervical cancer is the leading cause of cancer death in the World Health Organization's African (AFRO) region, and the third-highest cause of cancer death in the South-East Asia (SEARO) region.ⁱⁱ Women living with HIV are four to ten times more likely to develop cervical cancer than their HIV-negative peers.ⁱⁱⁱ

In August of 2020, member states of the World Health Organization adopted the WHO Global Strategy Towards Elimination of Cervical Cancer as a Public Health Problem.^{iv} The Strategy sets specific 10-year targets (e.g., '90-70-90 targets') for scaling up the low-cost, effective cervical cancer prevention tools available:

- Vaccinating 90% of girls against human papillomavirus (HPV) by age 15;
- Screening 70% of women at ages 35 and 45 for precancerous cervical lesions; and
- Ensuring that 90% of those women in need receive treatment for cervical disease.

Significant increases in funding for vaccines, screening, and treatment will be required to transform this strategy into the end of cervical cancer deaths. For the second year, TogetHER has compiled data on investments in cervical cancer programs in low-income countries (LICs) and lower middle-income countries (LMICs) to inform decision-makers and provide a basis for advocacy for increased financial and political support. All reported figures are in US Dollars (\$).

HPV vaccination

Vaccines to prevent infection by strains of the human papillomavirus (HPV) that cause cervical cancer are safe and effective, and affordable for countries eligible for negotiated discounts. Most country guidelines recommend that girls between the ages of 9 and 14 receive the two-dose course of HPV vaccine. The World Health Organization estimates that only 15% of girls globally have access to the vaccine, in part due to high vaccine cost and insufficient supply.^v And fewer than half of all countries have introduced the HPV vaccine into national immunization programs.^{vi} Total funding for HPV vaccination programs in LICs and LMICs for 2019 – including both vaccine procurement and vaccine delivery – is estimated at \$65.1 million, an increase of 61.5% from 2018 primarily driven by increased support for HPV vaccination programs by Gavi, the Vaccine Alliance.

HPV vaccines for public program use in low-income countries and some lower-middle income countries are funded by Gavi, the Vaccine Alliance, and procured through the services of UNICEF.^{vii,viii} Gavi expenditures for HPV vaccination in 2019 – including country demonstration projects, national routine immunization programmes, and operational costs for multi-age cohorts – totalled around \$54.1 million,^{ix} with per-dose purchase prices (currently around \$4.50) set through manufacturer offers during the last UNICEF tender exercise. Gavi is funded from a diverse group of donors – prominently the United Kingdom, Norway, the United States, the Bill & Melinda Gates Foundation (BMGF) and the International Finance Facility for Immunisation (IFFIm). Most Gavi-eligible countries must provide co-funding for routine HPV vaccination programs, with such country contributions totaling \$3.0 million in 2019.^x Under Gavi 5.0, HPV vaccine supply is expected to increase from both existing (MSD and GSK) and new manufacturers (Innovax, Serum Institute

of India, and Walvax). If these supply expectations materialize and the impact of COVID-19 on demand and country uptake is minimized, Gavi's HPV program can reach up to 84 million girls from 2021-2025.^{xi}

Figure 1. Support for HPV Vaccine Programs in LICs and LMICs totaled \$65.1 million in 2019.

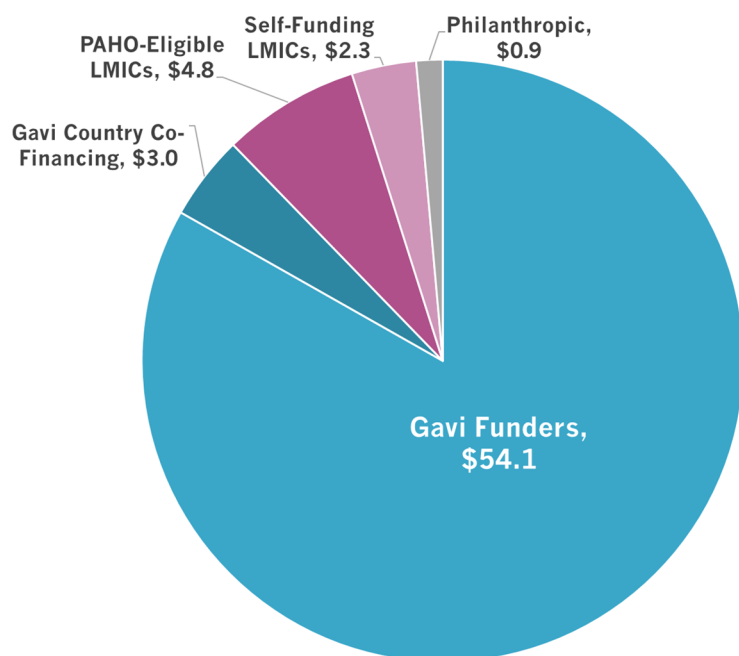
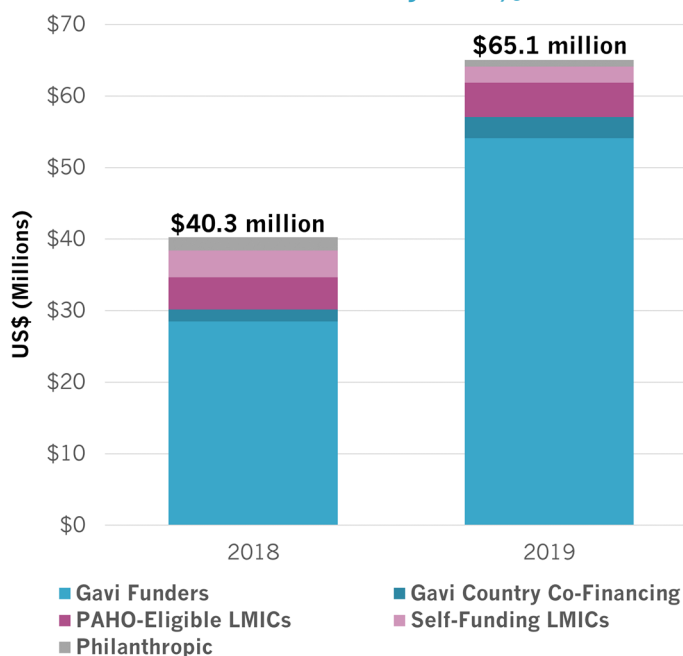


Figure 2. Support for HPV Vaccine Programs in LICs and LMICs increased by 61.5% in 2019.



Middle-income countries (MICs) are ineligible for Gavi support, and must procure HPV vaccines via other mechanisms. MICs in the Americas that are members of the Pan-American Health Organization (PAHO) can purchase discounted HPV vaccines from suppliers through PAHO's Revolving Fund.^{xii} In 2019, lower middle-income PAHO members supported domestic HPV vaccination programs totaling an estimated \$4.8 million, with an estimated purchase price of \$9.98 per dose.^{xiii} While HPV vaccines were omitted from PAHO's 2019 vaccine pricing list, raising concerns about HPV vaccine access and affordability, they have since been added back in 2020.^{xiv}

While MICs outside the Americas are sometimes eligible for discount vaccines from UNICEF, such vaccines are still up to three times the Gavi price. Otherwise, MICs can purchase directly from suppliers, although prices may be quoted as high as the \$150 per dose price paid in high-income countries. Such pricing significantly limits the ability of MICs to purchase HPV vaccines.^{xv} Self-purchasing LMICs spent an estimated \$2.3 million in 2019 on HPV vaccination programs.^{xvi}

Cervical cancer screening and treatment

Cervical cancer screening and early detection is a critical component of cervical cancer elimination. Women may be tested for the HPV virus or screened through a visual method to detect precancerous lesions. If precancerous lesions are found, they can be ablated with cryotherapy or thermal ablation. Women above the age of 50 and those with large lesions are generally referred for colposcopy and/or LEEP (Loop Electrosurgical Excision Procedure), and women with invasive cancers must be treated in hospitals with cancer treatment. While programs to expand these services have grown in recent years, many women in LICs and LMICs continue to lack adequate access. Estimated total funding for cervical cancer screening and treatment in LICs and LMICs totaled \$56.2 million in 2019.

Figure 3. Support for Cervical Cancer Screen-and-Treat in LICs and LMICs totaled \$56.2 million in 2019.

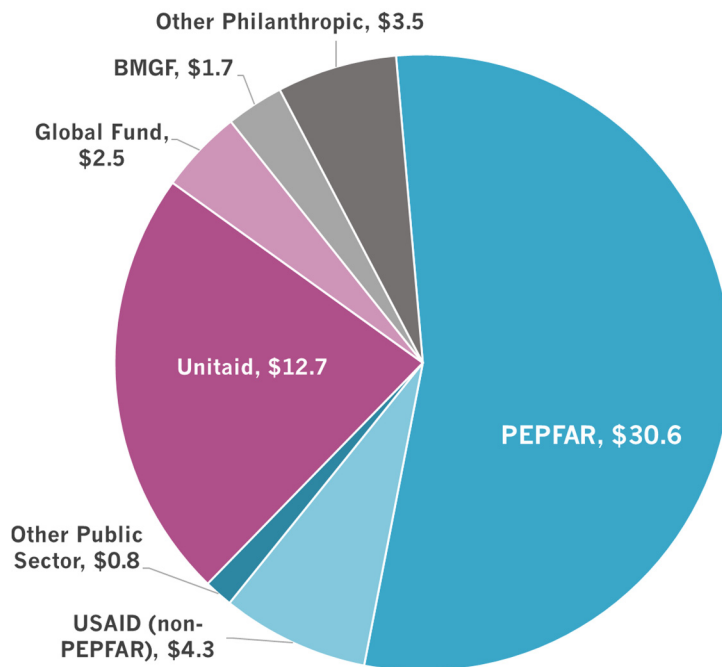
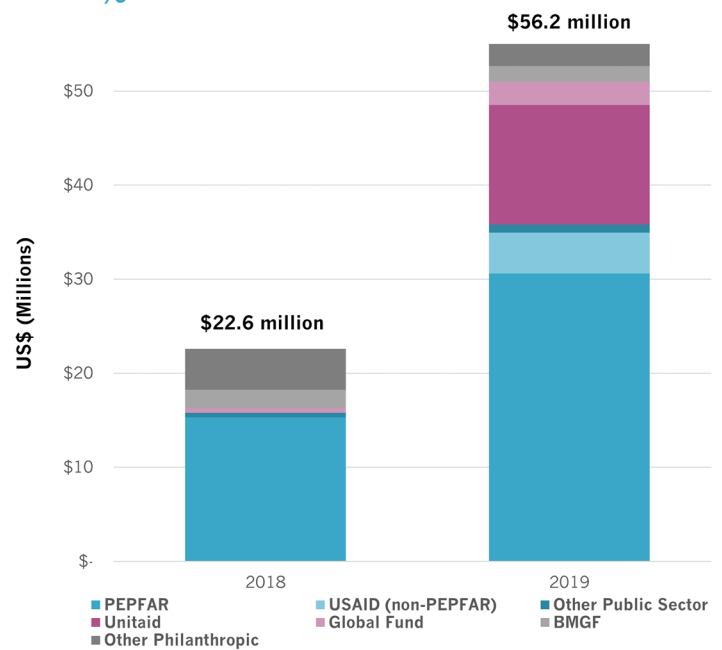


Figure 4. Support for Cervical Cancer Screen-and-Treat in LICs and LMICs increased by 148.7% in 2019.



The United States government invests in cervical cancer screening and treatment in LICs and LMICs, most notably through the Centers for Disease Control (CDC) and U.S. Agency for International Development (USAID) as implementing agencies of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). In 2019 PEPFAR investments in cervical cancer screening were drastically increased under the Go Further program, a public-private partnership organized with the George W. Bush Institute, the Joint United Nations Programme on HIV/AIDS (UNAIDS), and Merck. Go Further is currently active in eight African countries (Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe), aiming to screen all women ages 25-49 living with HIV on antiretroviral drugs and, where necessary, refer them to treatment. In 2019, PEPFAR Investments through the Go-Further program totaled \$30.6 million, almost double the program funding during 2018.

New funders invested in cervical cancer screening and treatment in LICs and LMICs in 2019. A new \$12 million commitment by USAID to integrate innovative cervical cancer screening and treatment services into voluntary family planning programs resulted in expenditures of \$4.3 million in 2019 to support projects in Malawi and Mozambique. The multilateral partnership Unitaid provided \$12.7 million in 2019 to two new projects: a collaborative program with the Clinton Health Access Initiative (CHAI) supporting innovative screening methods and portable treatment devices for cervical pre-cancers sub-Saharan Africa and Southeast Asia, and a collaboration with Expertise France to strengthen screening and secondary prevention in Côte d'Ivoire, Burkina Faso, Guatemala and the Philippines.

The Global Fund to Fight AIDS, TB, and Malaria supports programs in Zambia, Malawi, and Tanzania, and provided an estimated \$2.5 million in 2019 for the integration of HIV treatment and cervical cancer services. Public sector contributions to screen-and-treat programs from non-U.S. countries – including the United Kingdom, Germany, Australia, and Japan – totaled an estimated \$0.8 million in 2019. Philanthropic contributions to screen-and-treat programs totaled \$5.2 million in 2019, of which \$1.7 million came from the Bill & Melinda Gates Foundation.

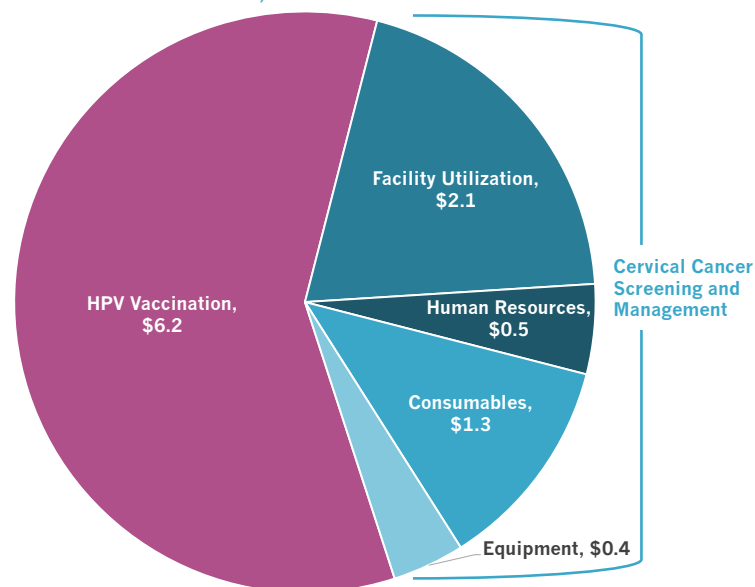
Current challenges and opportunities on the horizon

As of the publication of this report, programs to address cervical cancer are being challenged by the COVID-19 pandemic, which has disrupted every aspect of global healthcare. In the near term, innovation and resilience in a variety of settings have enabled cervical cancer screenings to continue, albeit in reduced numbers. The Institute for Health Metrics and Evaluation noted immunization levels dropping to rates last seen in the 1990s, or as the Bill and Melinda Gates restated, “we’ve been set back about 25 years in about 25 weeks.”^{xvii}. Reduced vaccination rates put hundreds of thousands of women at increased risk for HPV infection and in turn raising their risk for developing cervical cancer.^{xviii} Women around the world are also less likely to be screened and treated for cancer in 2020, as compared to 2019. Underpinning these challenges is the global financial crisis catalyzed by COVID-19, which is likely to have major ramifications across the budgets of cervical cancer prevention funders. Further, the development and eventual delivery of a COVID-19 vaccine may compete with other routine vaccines for cold-chain and delivery resources.

However, within the challenge of COVID-19 lies opportunities. Notably, an increased emphasis on self-sampling and testing for HPV has provided programs a means to screen women without requiring physical visits to clinics. Viral testing technology – notably Cepheid’s GeneXpert platform – scaled globally for COVID-19 will also be applicable for HPV DNA testing. And potential mass vaccination campaigns for COVID-19 could provide a platform to reach adolescent girls with catch-up HPV immunization programs.

With a view to the long term, the WHO’s Elimination Strategy hinges on the scale-up of existing tools. However, research and development toward more efficient and effective interventions presents an opportunity to broaden the toolkit available to programs and accelerate elimination efforts. Ongoing studies seek to determine whether a single dose of the HPV vaccine provides sufficient protection against infection, allowing for a massive increase in the number of potential immunizations. Cutting-edge screening techniques using artificial intelligence to identify precancerous lesions are being tested in low-resource settings, as are lower-cost HPV DNA tests and less expensive, easier-to-use treatments. Policy Cures Research’s G-FINDER project – which tracks R&D funding for new sexual and reproductive health technologies – estimated that US \$52 million was invested in new cervical cancer prevention strategies in 2018.^{xix}

Figure 5. Cost Components (in \$ Billions) of Estimated \$10.5 Billion Resource Need for Cervical Cancer Elimination in Low- and Lower Middle-Income Countries, 2019-2030



The Case for Investing in Cervical Cancer Prevention

The WHO elimination strategy notes that fully funding the cervical cancer elimination agenda in low- and lower middle-income countries will require an estimated \$10.5 billion by 2030, an average of \$875 million annually, although investments would need to be heavily front-loaded.^{xx} The total \$121.3 million spent on

cervical cancer prevention in these countries in 2019 is less than one-seventh of the necessary investment.

Support for cervical cancer prevention and control doesn't just save lives – it sustains families and boosts societies. Every dollar invested in cervical cancer prevention and treatment will return at least \$3.20 to the economy through 2050. Investing to meet the 90-70-90 targets could keep an estimated 250,000 women across the world productive in their societies, injecting an estimated \$28 billion into the world's economy through 2050.^{xxi}

Investment today is necessary not only to achieve elimination, but more immediately to alter the trajectory of rising deaths from this preventable disease, particularly among LMICs. Unfortunately, without enhanced political and financial support, the number of women dying from cervical cancer is projected to rise almost 50% by the year 2040.^{xxii} International donors can catalyze investment in cervical cancer, but countries themselves must also provide support from national budgets.

Recommendations

2019 data outlined in this report supports recommendations to critical stakeholders that can better enable the global response against cervical cancer:

- **Funders** – including public sector agencies and private foundations – must sustain investments in programs during this uncertain global health environment. Renewed and increased commitments to Gavi and the Global Fund will be necessary to ensure increased access to HPV vaccination and cervical cancer screening and treatment as health systems adapt to new health realities. Such investments should promote the inclusion of cervical cancer prevention in primary health care programs and universal health coverage (UHC), in support of Sustainable Development Goal #3 as well as the WHO's UHC framework.^{xxiii}
- **Governments in low- and middle-income countries** should continue to expand HPV vaccine and screen-and-treat programs, and develop budgeted national cancer control plans that incorporate cervical cancer prevention programs and enhance disease surveillance through national cancer registries. Catch-up programs should be put in place to ensure that girls who have missed HPV immunization and women who have missed routine cervical screenings due to COVID-19 distancing measures are provided those services as soon as they are safe. Governments should also consider expanding HPV vaccine programs to target boys, where feasible.
- **Vaccine suppliers** should continue to increase investments in manufacturing capacity to ensure sufficient supply, and work with procurers to support fair pricing for procurement and distribution of HPV vaccines in LICs and LMICs. **Donors and partners** should encourage the entry of new vaccine suppliers, including generics, to increase supply and reduce prices.
- **Multisectoral partnerships** between donors, countries, and the commercial sector should prepare to invest in the rapid deployment of new approaches to preventing, screening and treatment of cervical cancer as their effectiveness is demonstrated in low-resource settings and as programs to address COVID-19 offer opportunities to enhance systems more broadly.
- **Implementers** – including nongovernmental organizations and private sector partners - should focus on integrating cervical cancer screening and treatment into existing HIV and reproductive health programs, while ensuring that services are provided in settings that follow protocols to limit the spread of COVID-19.

About TogetHER

TogetHER focuses on one issue - cervical cancer - to prevent and treat the disease across the globe. We are bringing together implementers, advocates, donors, governments and policymakers to make rapid progress on preventing cervical cancer. We are coordinating partners, mobilizing critical resources for implementers, and ensuring that cervical cancer receives the attention needed to prevent unnecessary deaths.

Methodology and Request for Further Data

Compiled data for this brief is derived from a mixture of limited available sources and represents an estimate combining documented budgets, data on HPV vaccine administration, disbursements, and information obtained from donors and implementers. Updates to 2018 data were collected in the process of gathering 2019 data. TogetHER seeks feedback and contributions from donors, experts and advocates to expand our sources and to improve future iterations of this analysis. Please contact us at info@togetherforhealth.org.

This brief was written by Tom Harmon with Heather White of TogetHER.

ⁱ https://www.who.int/health-topics/cervical-cancer#tab=tab_1

ⁱⁱ <https://www.who.int/cancer/country-profiles/en/>

ⁱⁱⁱ <https://infectagentscancer.biomedcentral.com/track/pdf/10.1186/1750-9378-5-S1-A9>

^{iv} <https://www.who.int/news-room/detail/07-08-2020-73rd-world-health-assembly-decisions>

^v <https://www.who.int/news-room/fact-sheets/detail/immunization-coverage>

^{vi} <https://www.unicef.org/supply/media/3231/file/VIC-2019-Session-7-Pre-tender-HPV.pdf>

^{vii} <https://www.who.int/news-room/feature-stories/detail/protecting-adolescents-with-hpv-vaccine>

^{viii} <https://www.gavi.org/about/mission/facts-and-figures>

^{ix} Provided by Gavi, the Vaccine Alliance.

^x Ibid

^{xi} <https://www.unicef.org/press-releases/hpv-vaccine-manufacturers-commit-provide-enough-supply-immunize-least-84-million>

^{xii} <http://www.paho.org/immunization/toolkit/vaccine-procurement-fund.html>

^{xiii} Author calculation based data on doses administered reported to WHO, utilizing published 2020 price. See http://www.who.int/immunization/monitoring_surveillance/data/HPVadmin.xls; <https://www.paho.org/en/documents/paho-revolving-fund-vaccine-prices-2020>

^{xiv} https://www.paho.org/hq/index.php?option=com_docman&view=download&category_slug=revolving-fund-2625&alias=25038-revolving-fund-vaccine-prices-038&Itemid=270&lang=en

^{xv} https://www.unicef.org/supply/index_67101.html

^{xvi} Author calculation based data on doses administered reported to WHO.

^{xvii} <https://www.gatesfoundation.org/goalkeepers/report/2020-report/#GlobalPerspective>

^{xviii} <https://www.who.int/news-room/detail/15-07-2020-who-and-unicef-warn-of-a-decline-in-vaccinations-during-covid-19>

^{xix} <https://www.policycuresresearch.org/press-release-gfinder-srh-2020>

^{xx} Bertram et al. The investment case of the cervical cancer elimination strategy in low and lower-middle income countries. In publication

^{xxi} <https://cervicalcanceraction.org/cervical-cancer-elimination/>

^{xxii} https://gco.iarc.fr/tomorrow/graphic-bar?type=1&population=900&mode=population&sex=2&cancer=39&age_group=value&apc_male=0&apc_female=0

^{xxiii} <https://www.ippf.org/sites/default/files/2020-08/IPPF%20Cervial%20Cancer%20Strategy%202020-2024.pdf>