

Investing in Global Cervical Cancer Prevention:

Resources for Low-Income and Lower Middle-Income Countries in 2022

- In 2022, a total of US\$58.9 million was invested in HPV vaccine programming in low- and lower middle-income countries, a year-to-year reduction of 44.2% largely attributed to use of vaccine stocks not dispensed during the COVID-19 pandemic.
- US\$67.1 million was invested in cervical cancer screen-and-treat programs in 2022, a slight year-to-year increase of 0.7%.
- Estimated five-year funding for HPV vaccination (2018-2022) totaled \$345.3 million, an annual average of \$69.1 million.
- Estimated five-year funding for cervical cancer screening and treatment (2018-2022) totaled \$257.8 million, averaging \$51.6 million per year.
- Funding remains grossly insufficient to achieve World Health Organization targets for the scale-up of cervical cancer elimination targets by 2030.



The most recent available global estimates for cervical cancer incidence and mortality report over 604,000 newly diagnosed cases and over 342,000 deaths in 2020. Cervical cancer is highly preventable and treatable when detected early, so its persistent high burden – especially in low- and middle-income countries, where 90% of cervical cancer deaths occur – can be rightly interpreted as resulting from a lack of access to effective interventions in low-resource settings.¹ Insufficient educational resources, gender-based stigma, and misinformation further hinder uptake of cervical cancer prevention in many parts of the world, regardless of country income level.²

Mortality rates from cervical cancer in low-resource countries are 18 times higher than in high-income countries, and more years of life were lost to cervical cancer in countries ranking as low in the Human Development Index than from any other preventable cancer.^{3,4} Cervical cancer is the leading cause of cancer death among women in 36 countries, all of which are low- or lower-middle-income countries. These rates underscore large gaps in equitable and accessible healthcare for those most affected by the disease. The risk of developing cervical cancer for women living with

HIV is six times higher than their HIV-negative peers.⁵ A recent analysis published in *The Lancet Global Health* estimates that only 8% of women in lower middle-income countries (LMICs) and 11% of women in low-income countries (LICs) have ever been screened for cervical cancer.⁶ These disparities are simply unacceptable when the technologies already exist to significantly reduce disease burden with proven interventions.

To address rising rates of cervical cancer cases and related deaths, the World Health Organization (WHO) launched its Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem in November 2020.⁷ The Strategy sets specific 10-year targets (e.g., “90-70-90 targets”) for scaling up coverage of evidence-based cervical cancer interventions:

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

ⁱ NB: These data do not include research funding or funds allocated for the treatment of cervical cancer. It does include funds allocated for prevention: HPV vaccination, cervical screening, and treatment of pre-cancerous lesions.

This report, published annually by TogetHER for Health, provides a snapshot of global funding for implementation of cervical cancer prevention activities conducted in LICs and LMICs, omitting domestic investments in screening and treatment by countries themselves due to a lack of publicly available data.¹ Cervical cancer elimination is only possible with sufficient investment toward these effective interventions. Annual data on investments in cervical cancer prevention programs in LICs and LMICs can inform decision-makers and highlight areas of focus for advocates seeking to increase financial and political support for global elimination efforts. All reported figures are in US Dollars (\$).

Cervical Cancer Screening and Pre-Cancer Treatment

Early detection of cervical abnormalities through screening is a critical component of cervical cancer elimination. The second pillar of WHO's Elimination Strategy holds that women be screened twice, ideally at ages 35 and 45 years, with a high-performance test. The WHO's most recent guidelines recommend primary screening for the HPV virus, which is more accurate than more widely available methods involving cytology or visual inspection. Notably, HPV testing offers the potential to accurately screen women for high-risk HPV without requiring physical visits to clinics, provided women are given the opportunity to collect and submit vaginal samples (i.e., self-sampling).⁸ If women test positive for high-risk HPV and/or pre-cancerous lesions are detected on the cervix, these lesions can be treated using either 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). Diagnosed invasive disease should be treated in medical facilities with appropriate cancer treatment capabilities.

Programs enabling access to these services have expanded in recent years, but only around one out of ten women in LICs/LMICs has ever been screened for cervical cancer. Estimated funding for cervical cancer screening and preventive treatment in LICs and LMICs totaled \$67.1 million in 2022, a slight increase of 0.7% from 2021. Funding in 2022 was 40.8% above the \$47.7 million four-

year funding average for cervical cancer screening and treatment in LICs/LMICs from 2018 to 2021.

The United States government (USG) invests in cervical cancer screening and preventive treatment in LICs and LMICs, primarily through the U.S. Agency for International Development (USAID) and the Centers for Disease Control and Prevention (CDC) as implementing agencies of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). Starting in May of 2018, PEPFAR investments in cervical cancer screening and treatment for women living with HIV were substantially 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), Merck, and Roche.⁹

In 2022, the Go Further program was active in twelve African countries of high HIV burden (Botswana, Eswatini, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Tanzania, Uganda, Zambia, and Zimbabwe), aiming to screen women ages 25-49 living with HIV and accessing antiretroviral drugs and, where necessary, treat all precancerous lesions found or refer

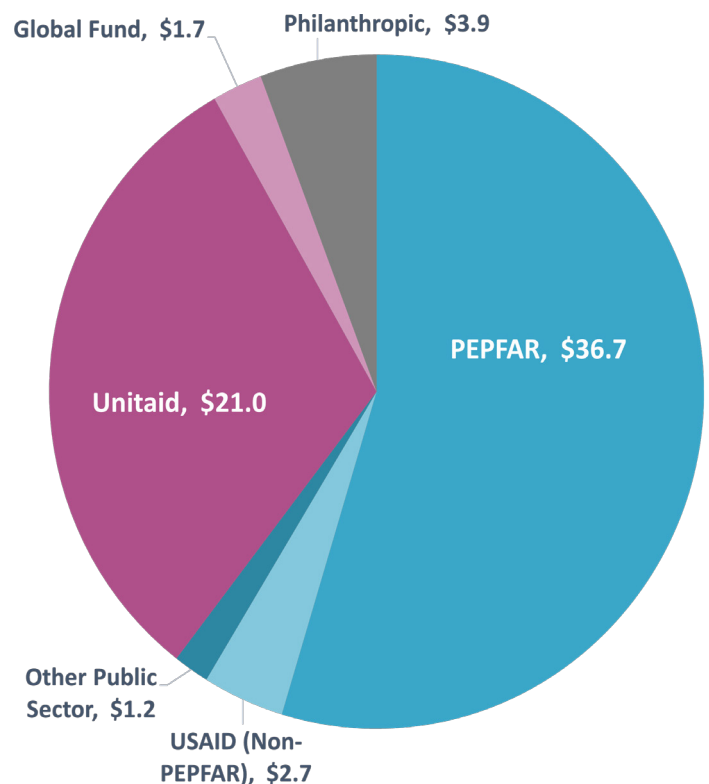


Figure 1. Support for Cervical Cancer Screen-and-Treat in LICs and LMICs totaled \$67.1 million in 2022.

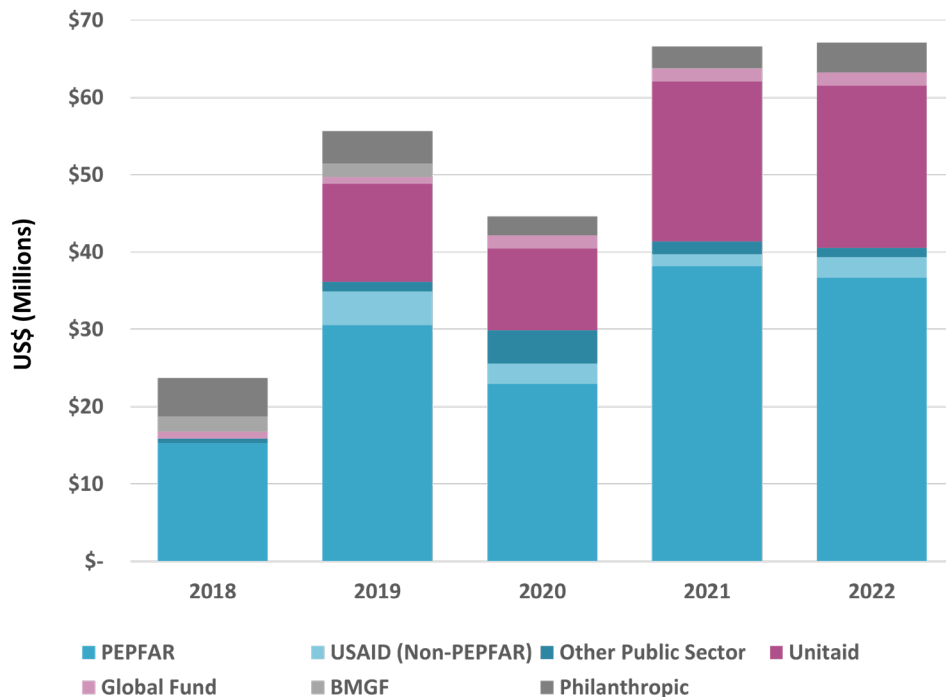


Figure 2. Support for Cervical Cancer Screen-and- Treat in LICs and LMICs increased by 0.7% between 2021 and 2022.

suspected cancers for further management. In 2022, PEPFAR investments through the Go Further program totaled \$36.7 million, a year-to-year decrease of 3.9%.

Other USG investments in cervical cancer screening and preventive treatment in 2022 included \$2.7 million spent in support from USAID and the National Academies of Sciences, Engineering & Medicine, toward the integration of innovative cervical cancer screen-and-treat services into voluntary family planning programs in Malawi and Mozambique under the Partnerships for Enhanced Engagement in Research (PEER) award, which was completed in December, 2022.

The multilateral partnership, Unitaid, provided \$21.0 million in 2022, a 1.4% increase of its support for introduction of innovative tools for screening and treatment of pre-cancerous lesions, including innovative service delivery models, HPV self-sampling, HPV testing, and expansion of portable thermal ablation devices, as well as developing an artificial intelligence-based screening tool. Unitaid’s investments are implemented in collaboration with the Clinton Health Access Initiative (CHAI) in sub-Saharan Africa and India, and with Expertise France, the Union for International Cancer

Control (UICC) and Jhpiego in Côte d’Ivoire, Burkina Faso, Guatemala, and the Philippines.

The Global Fund to Fight AIDS, TB, and Malaria supports programs to integrate HIV treatment and cervical cancer services. 2022 represented the third year in the Global Fund’s current three-year funding cycle. A total of 20 countries received Global Fund support for cervical cancer prevention services within their HIV prevention programs in 2022, totaling an estimated \$1.7 million for the year. Public sector contributions to screen-and-treat programs from non-U.S. contributors – including the United Kingdom’s Foreign, Commonwealth & Development Office and Scotland’s International Development Fund – fell to an estimated \$1.2 million in 2022. Philanthropic contributions to screen-and-treat programs totaled \$3.9 million in 2022.

HPV Vaccination

Infection by high-risk types of human papillomavirus (HPV), the virus that causes over 99% of cervical cancers, can be prevented by safe and effective vaccines, first introduced in 2006. Most current country guidelines

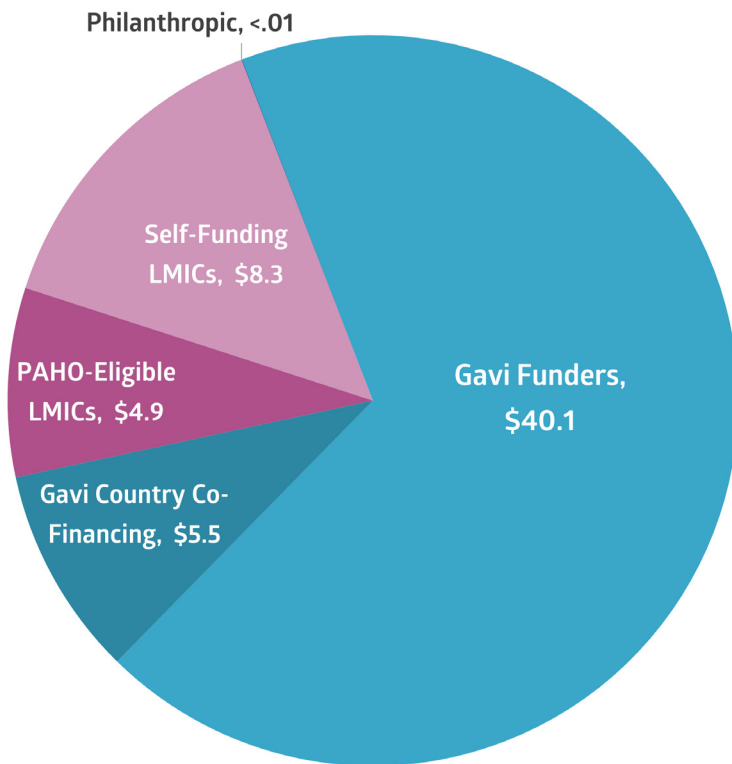


Figure 3. Support for HPV Vaccine Programs in LICs and LMICs Totaled \$58.9 Million in 2022.

recommend that girls between 9-14 years of age receive two doses of HPV vaccine, although guidance from the WHO Strategic Advisory Group of Experts (SAGE) is being updated based on a review of evidence showing comparable preventive effects from just a single dose of HPV vaccine.¹⁰ (Notably, the same guidance continues to recommend three doses for people living with HIV and other immunocompromised individuals.) Negotiated prices have made HPV vaccines more affordable to programs in low- and lower middle-income countries, but the lowest available price of \$4.50 per dose is significantly higher than most other vaccines. Only 39% of low- and lower middle-income countries have introduced the HPV vaccine into national immunization programs, compared to more than 90% of high-income countries.¹¹ 57% of cervical cancer cases occur in countries that have yet to introduce HPV vaccines.¹²

Total funding for HPV vaccination programs in LICs and LMICs for 2022 – including both vaccine procurement and vaccine delivery – is estimated at \$58.9 million, a significant decrease of 44.2% under 2021, driven by a \$38.0 million decrease in funding for HPV vaccination programs by Gavi, the Vaccine Alliance, alongside a

correlating decrease in investment by Gavi-eligible countries co-financing their domestic programs and a reduction in support from middle-income self-financing their HPV vaccine programs and purchasing doses through the Pan-American Health Organization’s (PAHO) Revolving Fund. Funding for HPV vaccination in LICs/ LMICs in 2022 was 17.8% below the \$71.6 million four-year funding average from 2018 to 2021.

HPV vaccines for public program use in LICs and in some LMICs are funded by Gavi, the Vaccine Alliance, and procured through the services of UNICEF. Gavi expenditures for HPV vaccination in 2022 – including national routine immunization programs, and operational costs for multi-age cohorts – totaled 78.1 million, with per-dose purchase prices (currently \$4.50 for Merck’s Gardasil and \$4.60 for GlaxoSmithKline Biologicals’ Cervarix) set through manufacturer offers during the most recent UNICEF tender exercise. HPV vaccine supply is expected to increase in the Gavi 5.0 program from both existing manufacturers and companies entering the market (Innovax, Serum Institute of India, and Walvax).¹³ Provided additional supplies are available and the impact of COVID-19 on demand and country uptake is minimized, Gavi aims to have vaccinated 86 million girls against HPV through its programs by 2025.

In reporting the decrease in 2022 financial support, Gavi noted a sizable reduction in the number of HPV vaccine doses procured owing to many countries having retained unused vaccines during COVID 19-related school closures. Gavi’s Board approved a revitalization initiative in 2022 to provide new country resources for HPV vaccine introduction and to strengthen routine immunization programs.¹⁴

Gavi is funded from a diverse group of donors – including the United Kingdom, Norway, the United States, the Bill & Melinda Gates Foundation (BMGF) and the International Finance Facility for Immunisation (IFFIm). Gavi-eligible countries are also required to provide co-funding for routine HPV vaccination programs, with such country contributions totaling \$5.5 million in 2022, a decrease of \$0.7 million (-11.1%) from 2021 that correlates to the decrease by Gavi itself.

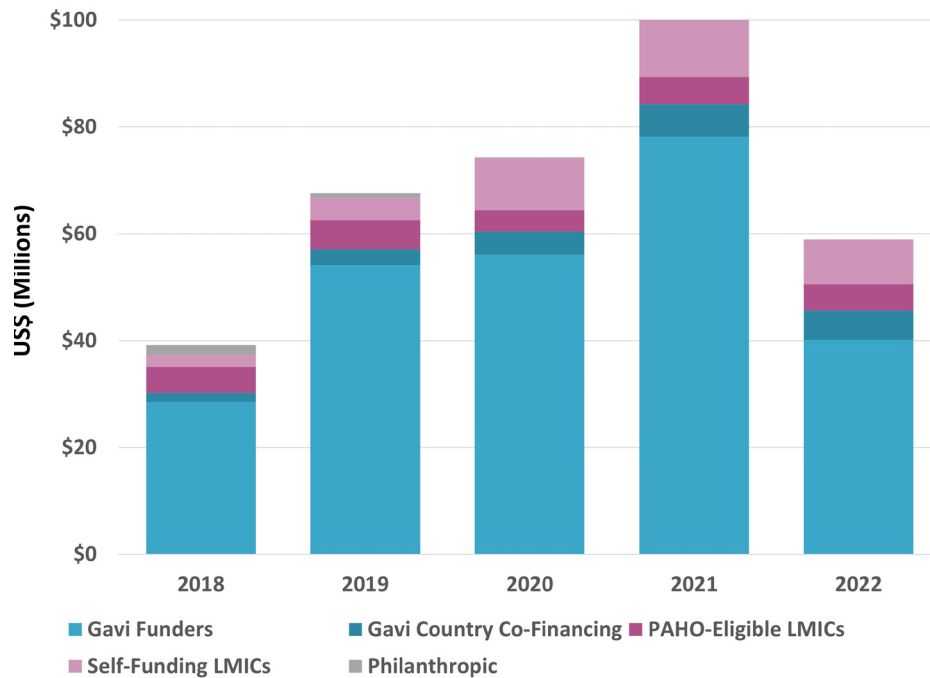


Figure 4. Support for HPV Vaccine Programs in LICs and LMICs Decreased by 44.2% between 2021 and 2022.

Many LMICs are ineligible for Gavi support, and thus must procure HPV vaccines via alternate mechanisms. Middle-income countries (MICs) in the Americas that are Members of PAHO can purchase HPV vaccines at a negotiated purchase price of \$10.48 per dose from suppliers through PAHO’s Revolving Fund.¹⁵ In 2022, lower middle-income PAHO Members supported their domestic HPV vaccination programs at an estimated \$4.9 million, a \$0.2 (4.1%) decrease from 2021.

LMICs outside the Americas are eligible to purchase vaccines for national use from UNICEF Supply Division at more affordable prices, and in some specific cases at the same price as Gavi-eligible countries. Estimated support by non-PAHO/non-Gavi LMICs funding their own HPV vaccination programs totaled \$8.3 million in 2022, a 48% decrease (-\$7.7 million).¹⁶

Opportunities for impact and scale

Despite inconsistencies in annual funding for cervical cancer prevention in LICs and LMICs, the opportunities to scale HPV vaccination, high-performance cervical cancer screening, and effective preventive treatment have never been so promising. Since TogetHER’s initial

analysis of funding focused on 2018, the landscape for cervical cancer prevention has been fundamentally changed, not only by the launch of the WHO strategy but by multiple developments across vaccination, screening, and treatment.

The 2022 announcement by the WHO’s SAGE that a single dose of HPV vaccine provides protection comparable to two- or three-dose regimens represents a paradigm shift in global cervical cancer prevention. Moving to single-dose regimens holds the potential to significantly expand the number of individuals that can be immunized while reducing – and even eliminating – the logistical and financial burden of administering follow-up doses. A number of countries - including high-burden countries in Sub-Saharan Africa - have announced plans to update their guidelines to single-dose HPV regimens.¹⁷

The global HPV vaccine supply is undergoing an expansion, thanks to the entry of new manufacturers. Notably, UNICEF projects that by 2024 the supply of HPV vaccines will for the first time meet the organization’s demand.¹⁸ The new Cervavac HPV vaccine produced by the Serum Institute of India was made available to

private Indian hospitals in 2023 at a cost of 2,000 Indian rupees (around US \$24.00) per two-dose course, with plans to expand to public facilities.¹⁹ The 2022 addition of the Chinese-manufactured Inovax HPV vaccine to UNICEF’s vaccine price list at the per-dose price of \$2.90 represented the first new HPV vaccine option for country programs since the original MSD and GSK vaccines. And a licensing agreement will allow Indonesia’s public sector vaccine manufacturer Bio Farma to manufacture MSD’s Gardasil in its own facilities for the domestic market, offering another pathway for increased supply to help countries improve existing coverage levels.²⁰

Challenges and remaining questions around global HPV vaccination require further attention. The onset of COVID-19 disrupted vaccination programs around the world - most notably those in school-based settings - and only recently have programs in low- and middle-income countries surpassed pre-COVID HPV coverage, while a number of countries were forced to delay the introduction of HPV vaccines through national programs.²¹ Only Cervarix and Gardasil have been evaluated for single-dose efficacy, meaning that vaccines produced by newer entries to the market will need to undergo similar studies to determine whether they are also eligible for reduced-dose regimens. And

vaccine hesitancy, already a frustrating roadblock in wealthy and resource-challenged countries alike, has reached new highs in recent years.²² In Uganda, for example, general vaccine confidence dropped from 84.7% in June of 2020 to 72.2% in January of 2022 before rebounding slightly later in 2022.²³

In 2022, the WHO updated its global guidance for screening and treatment of cervical pre-cancer lesions to emphasize HPV viral testing as the preferred screening method.²⁴ Evidence has continued to mount that HPV testing is effective and acceptable in low-resource settings, providing superior accuracy compared to cytology (Pap smears) and visual inspection with acetic acid (VIA).²⁵ Another benefit of HPV testing is the reduced burden on health systems, as tests can be administered in private without the use of specula for cervical inspection by health workers. HPV testing through self-sampling has been shown to be an effective and highly popular screening approach for women in a number of low-resource contexts, as samples can be collected outside of a clinic by the woman herself, giving her more control and agency over the screening experience.²⁶ Promising studies in low-resource settings are also evaluating the utilization of artificial intelligence in the identification of precancerous lesions.²⁷

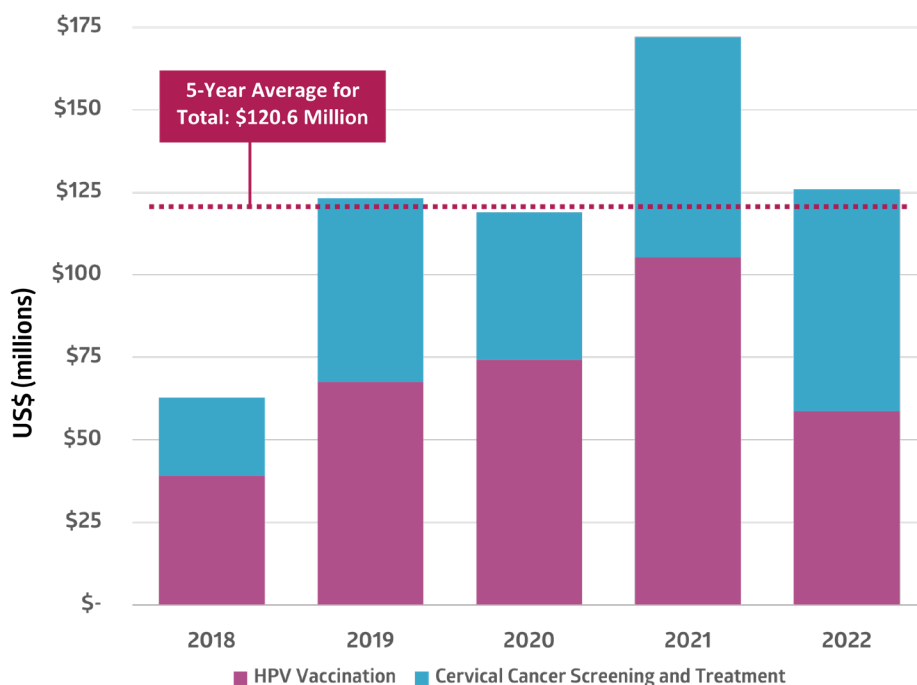


Figure 5. An Average Total of \$120.4 Million Was Invested in Cervical Cancer Vaccination and Cervical Cancer Screening and Treatment from 2018 to 2022.

Treatment of identified cervical pre-cancer in LICs and LMICs has been boosted by increased utilization of thermal ablation, which holds some advantages in low-resource settings over ablative methods using cryotherapy. Cryotherapy requires access to bulky tanks of nitrogen gas, which can be challenging to reliably procure. By contrast, thermal ablation is often performed by portable battery-powered devices that can be deployed even in remote areas and has proven to be acceptable by patients. UNICEF's Supply Division recently added thermal ablation devices to its procurement list at access prices.²⁸

Despite positive clinical and policy developments, expanding screening and treatment for cervical cancer in LICs/LMICs faces a multitude of challenges. While HPV viral testing holds a number of advantages over cytology and VIA, it remains a comparatively expensive option, especially compared to VIA, which limits the ability of programs to make the transition. The transition to molecular testing is further challenged by logistical and infrastructure barriers, including the need to upgrade lab infrastructure, to train staff on its use, and to build effective referral systems for women. Self-sampling for HPV is also currently hampered by a lack of regulatory approval in the majority of LMICs as well as in the United States, though the NIH's Last Mile Initiative, launched in 2022, aims to facilitate discussions and provide evidence for regulatory approval of self-sampling.²⁹ And the ethical imperative to ensure that every woman identified with cervical pre-cancer can access treatment for those lesions carries a correlating and costly requirement to scale up screening and preventive treatment services in proportion.

While the pillars of the WHO's elimination strategy represent tested, effective strategies, investments in research, development, and implementation science continue to add critical information and improved methods to the global response. Policy Cures' G-FINDER project reports a total investment of US\$ 142 million into HPV and related cervical cancer research and development in 2021.³⁰ The CASCADE Clinical Trials Network organized by the U.S. National Cancer Institute is evaluating the effectiveness of proven interventions to optimize cervical

cancer screening, management, and precancer treatment cascade for women living with HIV in low- and middle-income countries and in regions with health disparities in the United States.³¹ Small targeted grants programs such as those offered by the International Federation of Gynecology and Obstetrics (FIGO) and TogetHER for Health are contributing to clinical and policy guidelines in low-resource settings by supporting feasibility studies of innovative cervical cancer prevention strategies.^{32, 33}

Building the road to elimination

Total funding for cervical cancer prevention in low- and lower middle-income countries fell from 2021's high of \$172.0 million to \$126.0 million. Despite this reduction, the 2022 total still landed 5.6% higher than the four-year average of \$119.3 million from 2018-2021. And notably, the primary driver of lower 2022 funding was effective utilization of pre-purchased vaccines in Gavi-funded programs. By any measure, funding has made strides since TogetHER's initial analysis in 2018.

Two conclusions can be made about the state of funding for cervical cancer prevention in LICs and LMICs. The first is that, quite simply, improved investments in high-quality programs can make WHO elimination targets achievable. Unitaid-funded pilot programs implemented in seven low- or lower middle-income countries reached 90% cervical cancer treatment targets for women identified with pre-cancerous lesions seven years ahead of the proposed 2030 target.³⁴ While the blueprint for effective long-term scale-up will depend on country context, where resources are applied, women's lives are saved.

The other conclusion is that funding remains insufficient so long as WHO targets remain unmet. An analysis by WHO performed alongside efforts to ratify the global elimination targets projected that an investment of \$10.5 billion between 2019 and 2030 would be necessary to fund HPV vaccination and screening and treatment programs in low- and lower middle-income countries.³⁵

Estimated support for these activities from 2019 to 2022 – the first four years of the 12-year projections – total \$540.2 million, setting a funding pace of only

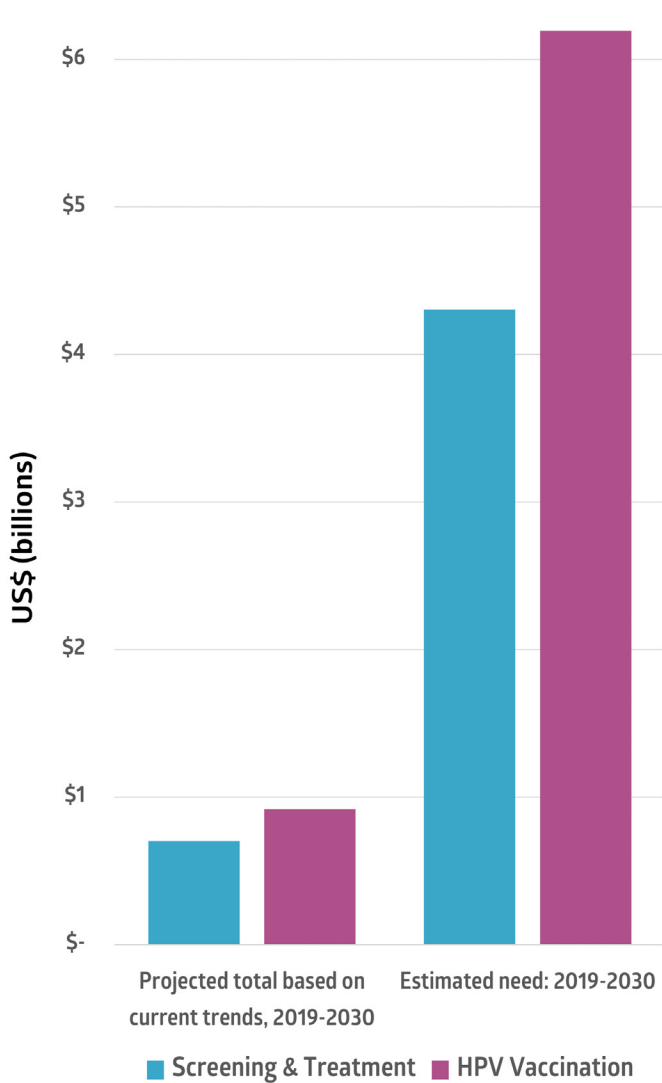


Figure 5. Pace of Funding for Cervical Cancer Prevention in LICs/LMICs (Based on 2019-2022 Data) Compared to Projected Resource Need for Cervical Cancer Elimination in LICs/LMICs 2019-2030.

\$1.6 billion for the 12-year period, approximately 15% of WHO’s projected need. Further, projected investments necessary to achieve elimination suggested heavy front-loading would be necessary in the first several years to initiate program scale-up, so by that measure funding in these first four years of the elimination agenda is even more insufficient.

The \$10.5 billion projection was built on assumptions for programs that predate the potential cost-savings of single-dose HPV vaccination and other means of reducing the total cost of achieving cervical cancer elimination in LICs and LMICs. But ultimately reaching WHO’s targets

will not be accomplished by mobilizing a specific level of funding. The most critical numbers remain 90, 70, and 90, regardless of the resources required for their realization. Until those targets are reached, needless deaths will persist, especially for women made inexcusably vulnerable because they lack access to simple, effective cervical cancer prevention strategies.

As 2030 approaches, new urgency is needed to mobilize the necessary funding to achieve global elimination targets. This report highlights funders already making these lifesaving investments, but overreliance on any one program carries a major risk to the cervical cancer elimination agenda. Gavi’s revitalization program will likely result in a significant year-to-year increase for HPV vaccination in 2023. While the United States’ Go Further program - the largest funder of cervical cancer screening and treatment in LICs and LMICs - is likely to be sustained, its future is clouded within ongoing political debates around PEPFAR reauthorization by the United States Congress.³⁶ USAID support for the integration of cervical cancer programs with other women’s health services through its PEER program ended in 2022, with no signals that this critical venture will be continued. Unitaid’s support for cervical cancer secondary prevention has been extended at a somewhat lower rate through March of 2025, although it remains to be seen whether further support will match the high levels provided by this critical funder in the last several years.³⁷

It’s notable that a large proportion of cervical cancer screening and treatment funding for LICs and LMICs stems from programs with global health mandates in which cervical cancer is not the central health focus. This speaks to the unique positioning of cervical cancer as at the nexus of multiple health areas toward which global health funding has been dedicated, including HIV/AIDS, maternal health, non-communicable diseases, sexual and reproductive health, or family planning. Integration and alignment of cervical cancer prevention programs with and within services to address these issues is critical, but achieving global cervical cancer elimination targets will require dedicated, sustainable, measurable support from a wider spectrum of funders motivated to prioritize the end of a preventable cancer.

Addressing the challenges outlined in the prior section will require not just resources but policy action. Efforts must be made to accelerate uptake of HPV viral testing as a primary screening method, in which major global donors such as PEPFAR must play a role. The exploration of mechanisms to reduce the cost of diagnostics must be undertaken, including potentially the expanded use of pooled procurement. Broadening the use of self-sampling for HPV testing hinges on regulatory approval, especially in countries that stand to benefit the most from this technology. Countries should be inspired to echo the efforts of the handful of their peers who have published strategic, costed cervical cancer prevention plans at the national level. And global bodies - most notably the WHO's International Agency for Research on Cancer (IARC) - should be supported to ensure more frequent publication of global and country data on cervical cancer diagnoses and deaths as well as country scale-up of elimination interventions to ensure an accurate picture of progress and accountability to global commitments.

One promising development is the expansion of new collaborations seeking to accelerate global momentum for the elimination of cervical cancer. The Global HPV Consortium was launched in September of 2023 by the Sabin Vaccine Institute, seeking to mobilize new partnerships and generate necessary urgency.³⁸ An effort spearheaded by the Asia Pacific Women's Cancer Coalition is engaging six target countries in the region to build out their national elimination strategies.³⁹ (TogetHER is a member of both of these efforts.) Coordinated by JSI with support from the Bill & Melinda Gates Foundation, the HPV Vaccine Acceleration Program Partners Initiative (HAPPI) Consortium launched in January of 2023 to increase and sustain equity, program quality, and accelerate coverage of HPV vaccination by 37 million girls above Gavi's goal of reaching 86 million girls.⁴⁰ And a Global Declaration to Eliminate Cervical Cancer circulated in 2023 has garnered almost 19,000 signatories from around the world.⁴¹

This report's funding analysis focuses solely on primary and secondary cervical cancer prevention, but the third pillar of WHO's global elimination strategy - ensuring that 90% of women identified pre-cancer or invasive cancer receive treatment - must not be overlooked.

Survivor support organizations like Zambia's Teal Sisters Foundation, Kenya's KILELE Health, and the U.S.- based but globally inclusive Cervivor have risen to become some of the most passionate and effective advocates for investments in cervical cancer prevention. Successful treatment of women with cervical cancer not only prolongs lives and supports the achievement of that third pillar - it preserves the voices of women who can speak from personal experience on the need to spare others from this preventable disease.



The Case for Investing in Cervical Cancer Prevention

The human toll exacted by cervical cancer - a disease that can be prevented with simple, low-cost interventions - is appalling. A woman dies of cervical cancer every 90 seconds. In the five years since this funding analysis was first published, 1.7 million women have needlessly lost their lives to cervical cancer - equal to the female population of Mongolia. One million children have been orphaned by cervical cancer deaths in that time.⁴²

The costs of averting those deaths are outweighed by their economic benefits. HPV vaccination and cervical cancer screening and treatment are listed as "Best Buys" for non-communicable diseases (NCDs). Every dollar invested in cervical cancer prevention and treatment is projected to return \$3.20 to the global economy through 2050.⁴³ Achieving WHO cervical cancer elimination goals by 2030 would represent a massive economic windfall for the world, adding \$28 billion to the global economy through 2050.^{44,45} The economic benefit of successfully ending cervical cancer for all time would only grow with each new generation free of the disease.

The unnecessary loss of a woman to cervical cancer doesn't just create unbearable grief for her families and loved ones. When we speak of "low-resource" settings it's done so in economic terms, but the impact of a woman on the lives around her – as a mother, as an entrepreneur, as a community leader, as a friend – is a resource that cannot be replaced once lost.

Recommendations

2022 data outlined in this report supports recommendations to critical stakeholders that can better enable the global response against cervical cancer:

- **International funders** – public sector agencies and private foundations – must sustain commitments to programs contributing to the achievement of WHO cervical cancer elimination targets as well as to improving data on the status of those targets. But as we approach 2030, it is reasonable to consider a more ambitious global funding agenda – including a sustainable, pooled funding and procurement mechanism dedicated to achieving the scale-up of elimination interventions, including country transition to HPV viral testing and preventive treatment.
- **Governments in low- and middle-income countries** should continue to expand HPV vaccine and screen-and-treat programs and develop budgeted national cervical cancer control plans – following the examples of Zambia, Tanzania, Mongolia, and others – that incorporate cervical cancer prevention programs and enhance disease surveillance through national cancer registries. These plans should incorporate WHO guidelines emphasizing HPV viral testing as the primary method of screening and consider gender-neutral HPV vaccine programs.
- **Manufacturers** of HPV vaccines, cervical cancer screening diagnostics, and preventive treatment tools must stay engaged as partners in global elimination activities and seek opportunities to provide critical technical expertise. Technology transfer agreements such as that being leveraged to increase Indonesia's HPV vaccine supply should be considered across the cervical cancer prevention continuum.
- **Implementers** – including nongovernmental organizations and private sector partners – should continue to seek synergies in women's health by integrating cervical cancer screening and treatment into existing HIV, family planning, and reproductive health programs.
- **Civil society** must continue to inspire policymakers, funders, and implementers to make cervical cancer elimination a signature generational effort, arguing for evidence-based strategies to ensure access to cervical cancer prevention regardless of geography.

The case for investment is both humanitarian and financial. The means are available and increasingly affordable. The best possible time to commit the necessary resources to end cervical cancer forever is now.

Methodology and Request for Data

Data included in this brief have been compiled from multiple sources, including documented budgets, data on HPV vaccine administration, program disbursements, and funding information obtained directly from donors and implementers. This brief provides a high-level aggregate of global funding data; the authors acknowledge that such aggregation can reduce the visibility of specific country and regional contexts for cervical cancer prevention programs. 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 for Health. TogetHER would like to acknowledge the efforts of individuals who contributed data and review assistance to this project. This analysis would be impossible without their support.

References

- ¹ Sung, Hyuna & Ferlay, Jacques & Siegel, Rebecca & Laversanne, Mathieu & Soerjomataram, Isabelle & Jemal, Ahmedin & Bray, Freddie. (2021). Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: a cancer journal for clinicians*. 71. 10.3322/caac.21660.
- ² Ginsburg, Ophira & Vanderpuye, Verna & Beddoe, Ann & Bhoo-Pathy, Nirmala & Bray, Freddie & Caduff, Carlo & Florez, Narjust & Fadhil, Ibtihal & Hammad, Nazik & Heidari, Shirin & Kataria, Ishu & Kumar, Somesh & Liebermann, Erica & Moodley, Jennifer & Mutebi, Miriam & Mukherji, Deborah & Nugent, Rachel & So, Winnie & Soto-Perez-de-Celis, Enrique & Soerjomataram, Isabelle. (2023). Women, power, and cancer: a Lancet Commission. *The Lancet*. 10.1016/S0140-6736(23)01701-4.
- ³ *ibid*
- ⁴ Frick, Clara & Rumgay, Harriet & Vignat, Jérôme & Ginsburg, Ophira & Nolte, Ellen & Bray, Freddie & Soerjomataram, Isabelle. (2023). Quantitative estimates of preventable and treatable deaths from 36 cancers worldwide: a population-based study. *The Lancet Global Health*. 11. 10.1016/S2214-109X(23)00406-0.
- ⁵ World Health Organization. (2020). "WHO releases new estimates of the global burden of cervical cancer associated with HIV." <https://www.who.int/news/item/16-11-2020-who-releases-new-estimates-of-the-globalburden-of-cervical-cancer-associated-with-hiv>.
- ⁶ Bruni, Laia & Serrano, Beatriz & Roura, Esther & Alemany, Laia & Cowan, Melanie & Poljak, Mario & Murillo, Raul & Broutet, Nathalie & Riley, Leanne & de Sanjose, Silvia. (2022). Cervical cancer screening programmes and age-specific coverage estimates for 202 countries and territories worldwide: a review and synthetic analysis. *The Lancet Global Health*. 10. e1115-e1127. 10.1016/S2214-109X(22)00241-8.
- ⁷ World Health Organization. (2020). Global strategy to accelerate the elimination of cervical cancer as a public health problem. <https://www.who.int/publications/i/item/9789240014107>. Accessed October 26, 2023.
- ⁸ Arbyn, Marc & Verdoodt, Freija & Snijders, Prof & Verhoef, Viola & Suonio, Eero & Dillner, Lena & Minozzi, Silvia & Bellisario, Cristina & Banzi, Rita & Zhao, Fang-Hui & Hillemanns, Prof & Anttila, Ahti. (2014). Accuracy of human papillomavirus testing on self-collected versus clinician-collected samples: A meta-analysis. *The Lancet Oncology*. 15. 10.1016/S1470-2045(13)70570-9.
- ⁹ George W. Bush Presidential Center. (2022). Go Further Program-Wide Highlights. https://gwbccenter.imgix.net/Publications/Resources/Go_Further_Highlights/July2022/GoFurther_GlobalHighlights_FY22Q2_18_JULY_2022.pdf. Published July 18, 2022.
- ¹⁰ World Health Organization. (2022). "One-dose Human Papillomavirus (HPV) vaccine offers solid protection against cervical cancer." [https://www.who.int/news/item/11-04-2022-one-dose-human-papillomavirus-\(hpv\)-vaccine-offers-solid-protection-against-cervical-cancer](https://www.who.int/news/item/11-04-2022-one-dose-human-papillomavirus-(hpv)-vaccine-offers-solid-protection-against-cervical-cancer). Accessed October 21, 2022.
- ¹¹ World Health Organization. (2020). HPV Immunization Dashboard, accessed October 20, 2023. [Link](#).
- ¹² UNICEF. (2023). Vaccine Market Update: Human Papillomavirus (HPV) Vaccine. <https://www.unicef.org/supply/media/18931/file/UNICEF-VIC2023-Session21-HPVupdate-UNICEF-2023.pdf>. Accessed October 25, 2023.
- ¹³ UNICEF. (2020). "HPV vaccine manufacturers commit to provide enough supply to immunize at least 84 million girls in Gavi countries." <https://www.unicef.org/press-releases/hpv-vaccine-manufacturers-commit-provide-enough-supply-immunize-least-84-million>. Accessed October 22, 2023.
- ¹⁴ Gavi, the Vaccine Alliance. (2023). "Immunisation partners outline ambitious plan to protect millions of girls in lower- and middle-income countries against cervical cancer." <https://www.gavi.org/news/media-room/immunisation-partners-outline-ambitious-plan-protect-millions-girls-against-cervical-cancer>. Accessed October 29, 2023.
- ¹⁵ Pan American Health Organization. (2022). "PAHO Revolving Fund." <https://www.paho.org/en/revolving-fund>. Accessed October 27, 2023.
- ¹⁶ Author calculation based data on doses administered reported to WHO, based on publicly available information on pricing and implementation cost assumptions derived from Portnoy (citation below). This total includes all countries listed as lower middle-income by World Bank criteria for each calendar year, meaning that countries included in calculation may differ year-to-year as income status changes.
- Portnoy, A. (2020). Costing and Evaluating Human Papillomavirus (Hpv) Vaccine Strategies in Low- and Middle-Income Countries (Lmics) Utilizing Modeling and Economic Analyses. Doctoral dissertation, Harvard T.H. Chan School of Public Health. <https://dash.harvard.edu/bitstream/handle/1/42676005/PORTNOY-DISSERTATION-2020.pdf>.
- ¹⁷ Makoni, Munyaradzi. (2023). Africa reaffirms commitments to eliminate cervical cancer. *The Lancet Oncology*. 24. 10.1016/S1470-2045(23)00450-3.
- ¹⁸ UNICEF. (2023). Vaccine Market Update: Human Papillomavirus (HPV) Vaccine. <https://www.unicef.org/supply/media/18931/file/UNICEF-VIC2023-Session21-HPVupdate-UNICEF-2023.pdf>. Accessed October 25, 2023.
- ¹⁹ The Indian Express. (2023). "Cervavac, India's own HPV vaccine for cervical cancer, is now in pvt hospitals: Who should get it first? What's its efficacy?" <https://indianexpress.com/article/health-wellness/cervavac-indias-hpv-vaccine-cervical-cancer-rs-2000-8699190>. Accessed October 29, 2023.
- ²⁰ Fierce Pharma. (2022). "Merck & Co. inks pact with Indonesia's Bio Farma to make HPV vaccine." <https://www.fiercepharma.com/manufacturing/merck-co-pact-indonesias-bio-farma-make-hpv-vaccine>. Accessed October 29, 2023.
- ²¹ UNICEF. (2023). "Childhood immunization begins recovery after COVID-19 backslide." <https://www.unicef.org/press-releases/childhood-immunization-begins-recovery-after-covid-19-backslide>. Accessed October 28, 2023.
- ²² UNICEF. (2023). "New data indicates declining confidence in childhood vaccines of up to 44 percentage points in some countries during the COVID-19 pandemic." https://www.unicef.org/press-releases/sowc_2023_immunization. Accessed October 28, 2023.
- ²³ Vaccine Confidence Project. (2023). Africa Centres for Disease Control and Prevention (Africa CDC) Working Group. <https://www.vaccineconfidence.org/our-work/projects/africa-cdc/> Accessed November 1, 2023.
- ²⁴ World Health Organization. (2021). WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention. <https://www.who.int/news/item/06-07-2021-new-recommendations-for-screening-and-treatment-to-prevent-cervical-cancer>. Published July 6, 2021.
- ²⁵ Ramírez Pineda, Arianis & Valls, Joan & Baena, Armando & Rojas, Freddy & Ramírez, Katherine & Álvarez, Rodrigo & Cristaldo, Carmen & Henríquez, Odessa & Reynaga, Daysi & Palma, Hans & Robinson, Isabel & Hernández, Diana & Bardales, Rosa & Cardinal, Lucia & Salgado, Yuly & Martínez, Sandra & González, Emmanuel & Guillen, Diego. (2023).

Performance of cervical cytology and HPV testing for primary cervical cancer screening in Latin America: an analysis within the ESTAMPA study. *The Lancet Regional Health - Americas*. 26. 100593. 10.1016/j.lana.2023.100593.

²⁶ Daponte, Nikoletta & Valasoulis, George & Michail, Georgios & Magaliou, Ioulia & Daponte, Athina-Ioanna & Garas, Antonios & Grivea, Ioanna & Bogdanos, Dimitrios & Daponte, ALEXANDROS. (2023). HPV-Based Self-Sampling in Cervical Cancer Screening: An Updated Review of the Current Evidence in the Literature. *Cancers*. 15. 1669. 10.3390/cancers15061669.

²⁷ Hou, Xin & Shen, Guangyang & Zhou, Liqiang & Li, Yinuo & Wang, Tian & Ma, Xiangyi. (2022). Artificial Intelligence in Cervical Cancer Screening and Diagnosis. *Frontiers in Oncology*. 12. 851367. 10.3389/fonc.2022.851367.

²⁸ Clinton Health Access Initiative. (2022). "Portable thermal ablation devices allow more women to access lifesaving cervical cancer prevention in countries where the majority of deaths occur." <https://www.clintonhealthaccess.org/news/portable-thermal-ablation-devices-allow-more-women-to-access-lifesaving-cervical-cancer-prevention-in-countries-where-the-majority-of-deaths-occur>. Accessed October 29, 2023.

²⁹ United States National Cancer Institute. (2023). "NCI Cervical Cancer 'Last Mile' Initiative." <https://prevention.cancer.gov/major-programs/nci-cervical-cancer-last-mile-initiative>. Accessed November 13, 2023.

³⁰ Policy Cures. (2023). Sexual and Reproductive Health Research and Development: Beyond Spillovers. <https://www.policycuresresearch.org/analysis/2023-srh-g-finder-report>. Accessed October 29, 2023.

³¹ National Cancer Institute. (2021). "HIV/Cervical Cancer Prevention 'CASCADE' Clinical Trials Network." <https://prevention.cancer.gov/major-programs/hivcervical-cancer-prevention-cascade-clinical-trials-network>. Accessed October 27, 2023.

³² International Federation of Gynecology and Obstetrics. (2021). "Eliminating Cervical Cancer: FIGO calls for grant proposals for new pilot project." <https://www.igo.org/project-eliminate-cervical-cancer>. Accessed October 27, 2023.

³³ TogetherHER for Health. (2023). "Cervical Cancer Grants Program." <https://togetherforhealth.org/cervical-cancer-grants/> Accessed October 27, 2023.

³⁴ Clinton Health Access Initiative. (2022). "Unitaid and global health partners reach 90 percent treatment target for women screened with cervical cancer in multi-country pilots." <https://www.clintonhealthaccess.org/news/unitaid-and-global-health-partners-reach-90-percent-treatment-target-for-women-screened-with-cervical-cancer-in-multi-country-pilots/> Accessed November 1, 2023.

³⁵ Bertram et al. (2019). The investment case of the cervical cancer elimination strategy in low and lower-middle income countries. In publication.

³⁶ Kaiser Family Foundation. (2023). "PEPFAR Reauthorization: The Debate About Abortion." <https://www.kff.org/policy-watch/pepfar-reauthorization-the-debate-about-abortion/> Accessed October 30, 2023.

³⁷ Unitaid. (2023). "Resolution n°5-2023-e. Cost Extension for the Project 'Preventing deaths from cervical cancer by catalysing the use of optimal screening tests and treatment devices.'" https://unitaid.org/assets/R5_2023-e-2023-CHAI-CxCa-Costed-Extension.pdf. Accessed October 29, 2023.

³⁸ Sabin Vaccine Institute. (2023). "The Global HPV Consortium." <https://www.sabin.org/communities/the-global-hpv-consortium/> Accessed November 2, 2023.

³⁹ APAC Women's Cancer Coalition. (2023). "Empower Her: Advancing Women's Cancer Care in Asia Pacific." <https://womenscancercoalitionapac.com/landing>. Accessed November 2, 2023.

Global Declaration to Eliminate Cervical Cancer (2023). <https://www.cervicalcancerdeclaration.org>. Accessed November 13, 2023.

⁴⁰ JSI. (2023). "HPV Vaccine Acceleration Program Partners Initiative (HAPPI) Consortium." <https://www.jsi.com/project/hpv-vaccine-acceleration-program-partners-initiative-happi-consortium-2/>

⁴¹ Accessed November 2, 2023.

⁴² Guida, Florence & Kidman, Rachel & Ferlay, Jacques & Schüz, Joachim & Soerjomataram, Isabelle & Kithaka, Benda & Ginsburg, Ophira & Mailhot, Raymond & Galukande, Moses & Parham, Groesbeck & Vaccarella, Salvatore & Canfell, Karen & Ilbawi, Andre & Anderson, Benjamin & Bray, Freddie & Silva, Isabel & McCormack, Valerie. (2022). Global and regional estimates of orphans attributed to maternal cancer mortality in 2020. *Nature Medicine*. 28. 1-10. 10.1038/s41591-022-02109-2.

⁴³ Forbes. (2022). WHO: Here Are The 16 'Best Buys' To Tackle Non-Communicable Diseases." <https://www.forbes.com/sites/brucelee/2022/02/21/who-here-are-the-16-best-buys-to-tackle-noncommunicable-diseases/?sh=1f5b282035ec>. Accessed October 30, 2023

⁴⁴ World Health Organization. (2020). Global strategy to accelerate the elimination of cervical cancer as a public health problem. <https://www.who.int/publications-detail-redirect/9789240014107>. Published November 17, 2020. 45 Cervical Cancer Action for Elimination. (2021). "Cervical Cancer Elimination: A Global Vision Requiring a Coordinated Effort." <https://cervicalcanceraction.org/cervical-cancer-elimination/> Accessed October 25, 2023.

⁴⁵ Cervical Cancer Action for Elimination. (2021). "Cervical Cancer Elimination: A Global Vision Requiring a Coordinated Effort." <https://cervicalcanceraction.org/cervical-cancer-elimination/> Accessed October 25, 2023.

TogetherHER for Health is a global partnership igniting the movement to end cervical cancer everywhere around the world by driving awareness, supporting catalytic programs, and fighting for the political and financial resources needed to end this preventable disease.

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