

# Activities that Sustain HPV Vaccination Programs after Introduction: A Synthesis Across Five Countries in Sub-Saharan Africa





Portrait of Mekdes Alemu, 16, after receiving her second dose of the HPV vaccine at Felege Meles Primary School in Addis Ababa, Ethiopia, on May 4, 2023. Creator(s): Genaye Eshetu

## BACKGROUND

For almost 20 years, highly effective and safe vaccines to prevent HPV infection, a known cause of cervical cancer, have been available.<sup>1</sup> These vaccines have reshaped the cervical cancer prevention landscape in low- and middle-income countries (LMICs), where inadequate infrastructure, a shortage of trained health care personnel, and logistical challenges can limit access to screening and treatment services.<sup>2</sup> The World Health Organization (WHO) recommends that all countries include HPV vaccination in their routine immunization programs.<sup>3</sup> As of March 2024, 148 WHO member states, including 29 in Africa, have introduced HPV vaccination. However, sustaining high vaccination coverage, especially during and after the system disruptions created by the COVID-19 pandemic, is a challenge for some countries, especially LMICs.

Operational studies and evaluations to better understand HPV vaccination demonstration projects and/or subsequent introduction have revealed important activities for successful HPV vaccine delivery, including establishing data collection mechanisms and integrating them into existing systems; conducting initial trainings for all health workers; specifying vaccine eligibility and delivery strategies; and launching new health communications campaigns.<sup>4</sup> However, these initial activities may not be all that are required to sustain HPV vaccinations after introduction. Examining the specific program activities implemented after the first year of HPV vaccine introduction (including what is done, by whom, how often, and with what intensity) can help identify the critical components and resources needed for sustaining HPV vaccination programs.

- 1 Supitcha, K. and Pitisuttithum, P. 2021. "Human Papillomavirus Vaccine Efficacy and Effectiveness against Cancer" *Vaccines* 9, no. 12: 1413. <https://doi.org/10.3390/vaccines9121413>
- 2 Petersen, Z., Jaca, A., Ginindza, T.G. et al. Barriers to uptake of cervical cancer screening services in low-and-middle-income countries: a systematic review. *BMC Women's Health* 22, 486 (2022). <https://doi.org/10.1186/s12905-022-02043-y>
- 3 Vaccines and Biologicals Immunization, "Human Papillomavirus Vaccines: WHO Position Paper, December 2022," December 16, 2022, <https://www.who.int/publications/i/item/who-wer9750-645-672>.
- 4 Dur, W., Bolio, A., Guillaume, D., et al. "Planning, Implementation, and Sustaining High Coverage of Human Papillomavirus (HPV) Vaccination Programs: What Works in the Context of Low-resource Countries?" *Frontiers in Public Health* 11, (2023): 1112981. <https://doi.org/10.3389/fpubh.2023.1112981>.

**Cover image caption: Mekdes Alemu, 16, after receiving her second dose of the HPV vaccine at Felege Meles Primary School in Addis Ababa, Ethiopia, on May 4, 2023. Creator(s): Genaye Eshetu**

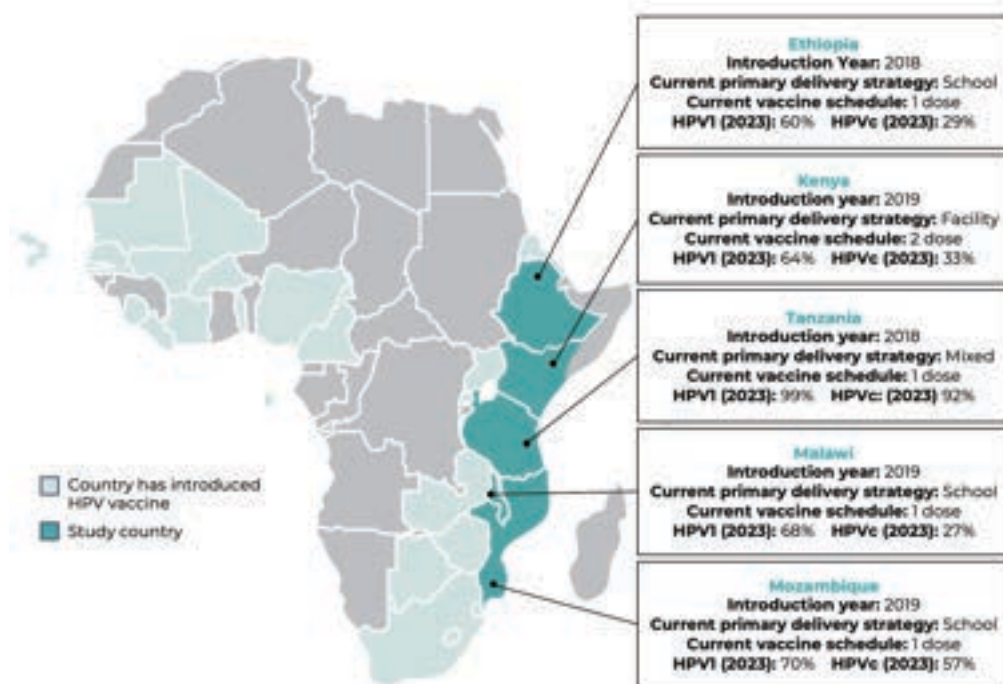
A key element of the HAPPI project’s mission to promote sustainable HPV vaccination for girls is understanding the activities and resources required to maintain these programs after the introduction year. This study aimed to review country-level planning documents and gather stakeholder perspectives to examine the operational context for sustained HPV vaccine delivery in countries that have implemented their programs for at least three years.

## METHODS

We selected five countries in Sub-Saharan Africa where JSI has an in-country presence and HPV vaccination has been ongoing for at least three years: Ethiopia, Kenya, Malawi, Mozambique, and Tanzania. These countries represent a range of implementation models and varying levels of program performance (Figure 1).

We conducted a desk review of country-level documents describing HPV vaccination program activities implemented, including global meeting convening documents, training and preparation materials, monitoring and evaluation reports, presentations and published literature, and other documents provided by the country’s Expanded Programme on Immunization (EPI) and technical partners. We conducted key informant interviews (KIIs) with national-level HPV vaccination experts to fill in data gaps identified in the document review (Figure 2). The level of available information was quantified as substantial, some, minimal, or no information. Structured templates were used to extract information from data sources and categorize, sort, and map codes. Rapid qualitative analysis was used to deductively and inductively code and analyze the textual content from the documents and KIIs.

**Figure 1: Countries in Africa that have introduced HPV vaccination and selected locations for desk review**  
Delivery strategy, current dose schedule and coverage rates taken from WHO HPV Dashboard as of Sept. 2024.



Current primary delivery strategy, current dose schedule, and coverage rates taken from [WHO HPV Dashboard](#) as of Sept. 2024. Current primary delivery strategy is categorized by the site where the majority of vaccinations take place and is estimated by WHO based on data from WHO/UNICEF Joint Reporting Form (eJRF) and other sources. Current vaccine schedule is for the primary target age range of 9–14-years. HPV vaccine program coverage represents the number of HPV vaccine doses provided in the calendar year as a fraction of the program’s target population and is estimated by WHO from eJRF.

Figure 2: Documents reviewed and key informant interviews on sustained HPV vaccination programs in Sub-Saharan Africa



## RESULTS

The amount of information available varied across the framework domains (Figure 3). Due to no or minimal data, HPV vaccination activities could not be summarized for seven domains: adverse event following immunization (AEFI), cold chain management, crisis management and response (including detailed strategies to combat misinformation and their comparative effectiveness), vaccine procurement, vaccine wastage, waste management and injection safety, and estimating impact of disease. Additionally, a key information gap remains regarding specific approaches to increase coverage among out-of-school girls and other hard-to-reach populations, particularly in urban and conflict-affected environments.

Despite limitations in the availability of information gathered from in-country documents and KIIs, our analysis across five countries resulted in six key findings on maintaining HPV vaccine delivery:

1. Integrating HPV vaccination activities into wider immunization systems and processes, post-introduction, complicates the identification of specific activities conducted to sustain HPV vaccination, except for a small number of activities that are unique for HPV vaccination.
2. Activities to promote vaccine acceptance and stakeholder engagement are critical to sustaining HPV vaccination.
3. Stakeholders across sectors need to be mobilized and included in planning and coordination mechanisms every year.
4. Schools and community health workers play a central role in promoting HPV vaccination.
5. Multiple opportunities for HPV vaccination at various sites and delivery times throughout the year increase coverage.
6. HPV vaccination training is critical and under-resourced.

Figure 3. Information in reviewed documents, by country and domain

Domain	Ethiopia	Kenya	Malawi	Mozambique	Tanzania
Sustainment planning	Some or substantial information	Some or substantial information	Some or substantial information	Minimal information	Some or substantial information
Training	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Advocacy, communication, acceptance	Minimal information	Some or substantial information	Some or substantial information	Minimal information	Some or substantial information
Vaccine delivery	Some or substantial information	Some or substantial information	Some or substantial information	Minimal information	Some or substantial information
Vaccine coverage	Minimal information	Some or substantial information	Some or substantial information	Minimal information	Some or substantial information
Monitoring, evaluation, and supervision	Minimal information	Some or substantial information	Some or substantial information	Minimal information	Some or substantial information
AEFI	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Vaccine management, transport, and logistics	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Cold-chain management	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Vaccine wastage	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Waste management and injection safety	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Sustainability	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Human Resources	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Crisis management and response	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Vaccine procurement	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information
Estimating demand	Minimal information	Some or substantial information	Minimal information	Minimal information	Minimal information
Estimating impact of disease	Minimal information	Minimal information	Minimal information	Minimal information	Minimal information

Key: Extent of information contained in program documents	No information	Minimal information	Some or substantial information
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A medical assistant prepares to administer the HPV vaccine at Felege Meles Primary School in Addis Ababa, Ethiopia, on May 4, 2023. Creator(s): Genaye Eshetu

## IMPLICATIONS FOR SUSTAINING HPV VACCINATION PROGRAMS

Based on our findings, we propose twenty program elements for post-introduction HPV vaccination programs. These include activities integrated or absorbed into routine immunization (e.g., tasks/ processes of EPI where the inclusion of HPV considerations is simply absorbed by the process/activity) and HPV-vaccination specific activities that require targeted attention which supplements the routine immunization system (e.g., tasks that are done annually for HPV vaccination specifically) (Figure 4).

### Absorbed by the routine immunization system

#### Financing

- Financing and annual budget

#### Communication

- Crisis management, response

#### Planning and management

- Annual micro-planning
- Estimating target population
- Vaccine procurement
- Human resources

#### Logistics and delivery

- Cold chain management
- Vaccine management and transport logistics
- Waste management; injection safety

#### Monitoring

- Vaccine wastage
- Monitoring AEFIs
- Data recording and reporting
- Supportive supervision

### Targeted effort done for HPV vaccination

#### Policy environment

- Political commitment/will
- Advocacy and stakeholder engagement

#### Communication

- Social mobilization and demand generation

#### Planning and management

- Cross-sectoral coordination

#### Training

- On-going and refresher trainings

#### Logistics and delivery

- Vaccine delivery across multiple platforms (e.g., schools, health facilities, mop-op campaigns)

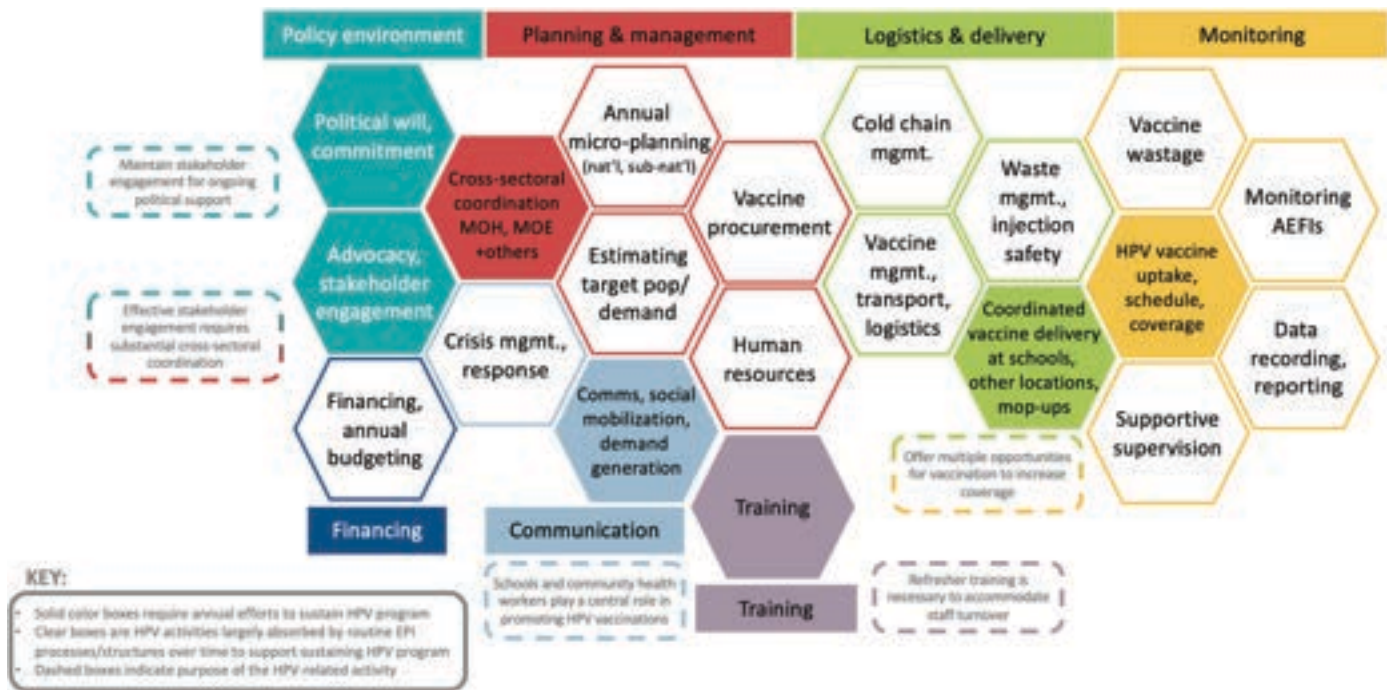
#### Monitoring

- For vaccine uptake (e.g., was target population reached)
- For vaccine schedule, including for special populations (e.g., immunocompromised or HIV+ girls)
- For coverage (e.g., overall program performance)



Mekdes Alemu, 16, (left) and Yohanniswa Gebrehiwot, 15, register for the HPV vaccination at Felege Meles Primary School in Addis Ababa, Ethiopia, on May 4, 2023. Creator(s): Genaye Eshetu

Figure 4. Components to sustain HPV vaccination



Abbreviations: MOH Ministry of Health; MOE Ministry of Education; mgmt. management; nat'l national; pop population; AEFI adverse events following immunization programs

## CONCLUSION

The majority of the HPV vaccination-related activities are integrated into systems and processes that support routine immunization, which in turn supports sustaining HPV vaccination. This study also identified five activities specific to sustaining HPV vaccination programs that require annual effort:

1. maintaining an enabling policy environment
2. engaging in cross-sectoral coordination
3. continuing social mobilization and communication leveraging schools, community health workers, and other community stakeholders
4. offering refresher training, particularly for staff changes in health workers and educators (for programs that deliver HPV vaccines at schools)
5. ensuring multiple opportunities for vaccination at different locations and times throughout the year

As countries transition from the initial vaccine introduction year, continued investment in these focused activities should be considered for HPV vaccination sustainability.

Publicly available and country-level data sources, although informative, highlight key data gaps for post-introduction activities around the effectiveness of specific communication strategies and approaches to increase coverage among missed-populations, particularly out-of-school girls, for those that might need additional doses (such as immune-compromised girls), and girls living in urban slums or conflict-affected environments. To address these information gaps, future research should target specific activities at health facilities and subnational levels to sustain high HPV vaccination coverage following introduction to further refine the special focus areas of HPV vaccination programs. This will provide guidance to countries on how to effectively plan for, implement, and document critical HPV vaccination activities as part of routine vaccination under the EPI program at the national, subnational, and local levels.