LEARNING BRIEF

INTEGRATE HPV - MALAWI

Implementation Research on Community Generated, Integrated Solutions to Increase HPV Vaccination Coverage

MAY 2026

Cervical cancer is the fourth most common cancer among women globally, with Malawi facing one of the world's highest incidence and mortality rates. Persistent human papillomavirus (HPV) infection is responsible for 95% of cases, and HPV vaccination is a proven preventive measure (WHO, 2024). Although Malawi had a successful nationwide introduction of HPV vaccination in 2019, coverage has declined sharply in recent years. In 2024, only 54% of Malawian girls aged 9 to 14 years received their first dose of the HPV vaccine (WUENIC, 2024).

HPV vaccination in Malawi has traditionally been offered as a standalone service, typically delivered through targeted campaigns. Recently, attention has grown around how shifting to consistently available routine, integrated delivery could increase uptake among adolescent girls.

In January 2025, **VillageReach launched a study to design, implement, and evaluate integrated approaches to increase HPV vaccination uptake and coverage**. The study had three main objectives:

1. **Generate community-led, integrated solutions to HPV vaccine delivery** through a series of Human Centered Design (HCD) sessions with adolescents, caregivers, health workers, community leaders, and educators

2. **Implement solutions prioritized by local stakeholders and gather ongoing feedback** to make real-time adjustments and understand facilitators and barriers to successful implementation

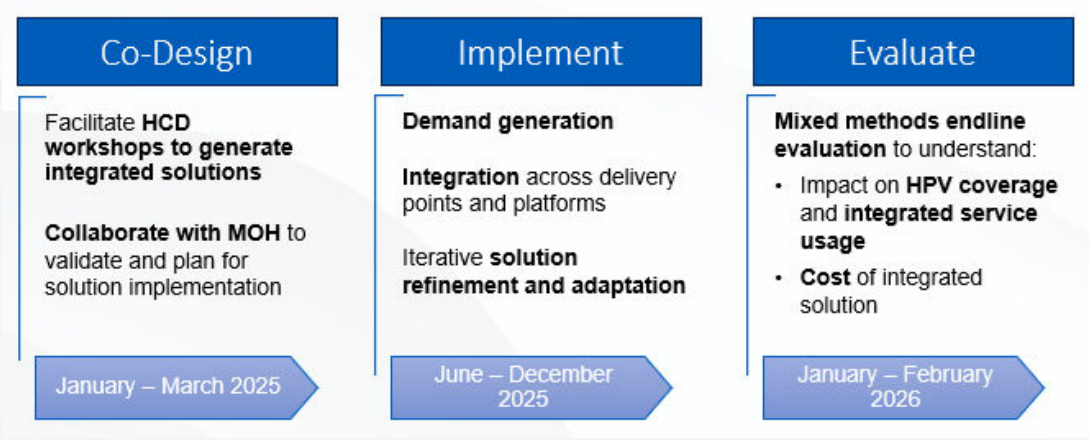
> *"...let's remove that campaign aspect. Let [HPV vaccination] be the regular work of the hospital...it should be part of the service, and if [the adolescent] sees and wants it, it should be possible."*
>
> -Community Leader, Machinga

Supported by

Gavi The Vaccine Alliance · Gates Foundation · VillageReach · SCOPE IMPACT

3. **Evaluate whether solutions impacted uptake of HPV vaccination and/or use of integrated services**, and conduct a **costing assessment** to understand costs and sustainability of the integrated solutions

Figure 1. Project overview and timeline



Project Design

The study employed a **quasi-experimental**, **mixed methods approach**. Working with the Malawi Ministry of Health, we selected three intervention and three comparison facilities in Machinga and Mchinji districts, totaling twelve catchment areas.

We leveraged **quantitative and qualitative methods** to **inform solution design, understand implementation successes and challenges**, and **evaluate impact**.

Specific methods

- **HCD sessions** with a mix of stakeholders that generated insights into general barriers to HPV vaccination and those related to integration, and were the mechanism through which communities designed and prioritized locally-tailored solutions.
- **A difference-in-difference (DID) analysis leveraging facility and DHIS2 records** to understand the impact of integrated solutions on uptake of HPV vaccination and integrated services.
- **Key informant interviews (KIIs)** with caregivers, adolescents, educators, health workers, and local and national Ministry of Health representatives.
- **Knowledge, Attitudes, and Practices surveys** with health workers and educators, as key players in the integrated solutions.
- **Costing surveys** with health workers, educators, Ministry of Health, and program staff to capture costs associated with delivering the integrated package**.**

The community-designed, integrated solution package

Adolescents, caregivers, health workers, educators, and community leaders shared barriers to and preferences for integrated HPV vaccination delivery. Through iterative design and prioritization, **stakeholders coalesced on an approach centered on both supply and demand considerations to improve HPV vaccination uptake** through integrated delivery.

Table 1. Solution package that was implemented

1. Integrate HPV vaccination with adolescent health services		
Point of Delivery	**Prior to Intervention**	**Intervention Package**
School Health and Nutrition Days	HPV vaccination provided through ad hoc campaigns once or twice a year, with limited coordination between teachers and health workers and not linked to school health activities	**Facilitated joint planning between teachers and health workers** to promote coordinated school vaccination schedules; **Trained School Health and Nutrition teachers** at 61 schools on cervical cancer, HPV messaging, adolescent friendly services, and on teachers' roles supporting vaccination sessions
HIV Prevention / ART Teen Clubs	ART teen clubs provided HIV services to HIV+ teens aged 10-19. HPV vaccination not integrated into service delivery package	**Trained ART health providers** on cervical cancer, the HPV vaccine, and service integration to then **promote HPV vaccine awareness** and **screen and refer eligible girls** to EPI; **Ongoing supportive supervision**
Youth-Friendly Health Services (YFHS) (Facility & Community)	HPV vaccination included in YFHS package in policy but inconsistently implemented. HPV vaccination offered irregularly across facilities	**Trained YFHS focal persons on HPV and service integration** (routine screening, education, and **referring girls to EPI for vaccination** during facility and outreach sessions); **Ongoing supportive supervision** on integration pathways
Routine Immunization (Facility & Community)	HPV vaccination available at EPI clinics and outreach but on an ad hoc basis and not proactively offered. Limited integration with adolescent services	**Trained Health Surveillance Assistants** (HSAs) on HPV vaccine, storage and administration, outreach services integration, preparing **HSAs to provide on-demand HPV vaccinations** at facility and outreach sessions; **Supported vaccine transport logistics** across study sites, as needed

2. Create demand for HPV vaccination			
Create/promote **resources and platforms** for adolescents, caregivers, health workers, and community leaders to **discuss HPV vaccination**	Facilitate **regular joint meetings between teachers and health workers** to establish agreed upon vaccination schedules and equip teachers to promote accurate and timely messaging about HPV vaccination	Conduct **refresher training for health workers** focused on youth-friendly service provision and provide HPV specific job aids	**Engage male champions in advocating** for the uptake of HPV vaccination

Results

HPV Vaccination Uptake

The intervention arm experienced a statistically significant increase of 157.2% in total HPV vaccinations, contrasted with a slight decrease at the comparison sites. This effect was largely driven by an increase in school-based delivery at the intervention sites (192.8%).

Figure 2 relays the distribution of the total 8,083 vaccinations recorded across all study sites, of which 6,375 vaccinations, or 78.9% of them, were delivered in intervention catchment areas.

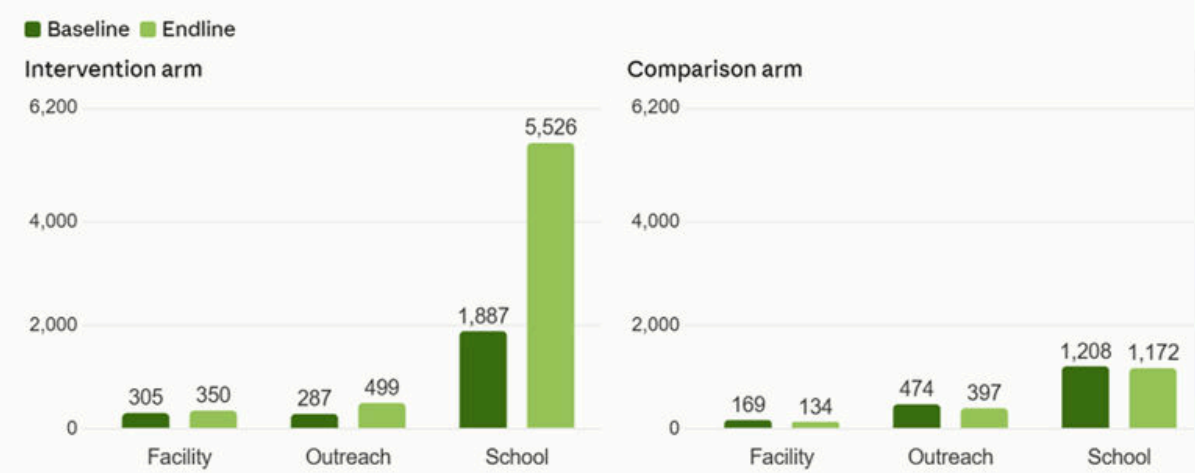


Figure 2. Total HPV vaccinations by delivery point and study arm, baseline versus endline. Malawi, June–December 2024 and June–December 2025

The difference-in-differences (DID) analysis shows a statistically significant overall increase in HPV vaccinations for the intervention arm relative to the comparison arm across all service delivery points combined (IRR = 3.689, p = 0.035). School-based delivery showed the strongest effect, where vaccination rates in intervention sites increased more than 400% compared to comparison sites (IRR = 5.036, p = 0.046).

Facility and outreach platforms showed non-significant differences across arms, with facility vaccinations decreasing 28.8% in intervention relative to comparison sites (IRR = 0.712, p=0.679) and intervention sites' outreach vaccination rates increasing by approximately 58.5% relative to comparison sites (IRR = 1.585, p = 0.378).

Use of Youth Friendly Health Services

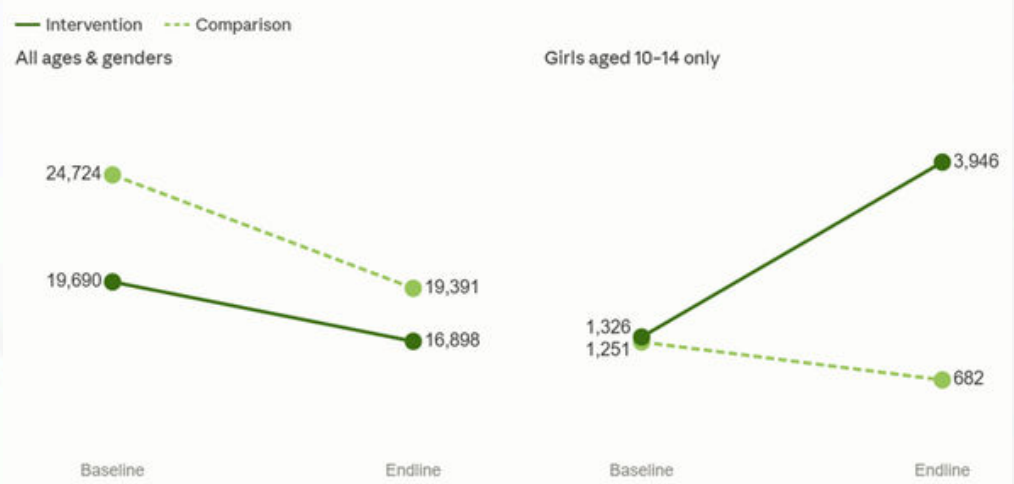
The total number of Youth-Friendly Health Services (YFHS) users showed a decline in both study arms from baseline to endline, with the comparison group experiencing the sharper decline.

Table 2 Total number of YFHS users per study arm at baseline and endline for all ages and both genders

	Baseline	Endline	Pre-post change (%)
Intervention	19,690	16,898	-14.20%
Comparison	24,724	19,391	-21.60%

However, **within the 10–14 age group, the total number of users increased markedly in the intervention arm, while a decline was observed in the comparison arm** (Figure 3). This divergence likely reflects the pull effect of school-based HPV vaccination sessions and targeted demand generation, which disproportionately reached girls in this age group and may have drawn them into broader YFHS engagement across delivery points.

Figure 3 Pre-post change in YFHS users by study arm: all ages (left) versus girls aged 10–14 (right). Malawi, 2024–2025*



*Note that the value of the service with the highest number of registrations per facility per month was used as a proxy for the number of YFHS users since services but not unique users are tracked.

Integrating HPV vaccination into YFHS can serve as a pull factor for the target adolescent cohort, increasing their engagement with health services without negatively affecting other service areas. The intervention seems particularly effective for early adolescents (10–14 years), a group that may otherwise under-utilize adolescent-focused health services.

Feasibility

Qualitative and quantitative findings point to the **integrated solution being feasible to implement within the YFHS platform, and particularly in schools**. Key enablers included strengthened coordination at the district and community facility level, both across health facility departments, as well as between the education and health sectors. Stakeholders also agreed that the intentional demand generation efforts were key to laying the foundation for strong integrated service delivery.

Although the package was feasibly implemented, the degree of success varied by service delivery point, as well as by specific health facility and school. For instance, while we observed a positive trend in HPV vaccination uptake across all service delivery points from baseline to endline, the DiD analysis was only significant for school vaccinations.

Additionally, some educators praised the collaborative relationships they had built with local health workers, while others shared persistent issues of health workers showing up to vaccinate without notice and disrupting classes, or rarely visiting the school and perpetuating a campaign-based approach to vaccination rather than routinizing it. **Ultimately, while school-based HPV delivery is feasible, embedding structured coordination in national school health policies and EPI operational guidelines is critical, and must translate into tangible collaboration,** such as joint planning and delivery of sessions by teachers and health workers.

Threats to feasibility also included logistics, such as stockouts and lack of reliable transportation to facilitate health workers providing vaccinations at schools and during YFHS outreach sessions. One educator shared they worked with health workers to establish a mechanism to refer eligible girls for vaccination, but girls would arrive at the facility only to learn the vaccine was not in stock.

Finally, health workers generally found the integrated package feasible, but some would have appreciated streamlined workflows, targeted training, and supportive supervision to further support their ability to deliver integrated services. They cited increased workload and competing priorities when attempting to provide multiple services simultaneously, as well as added effort for cross-departmental and cross-sectoral coordination.

Acceptability

Stakeholders generally expressed **high levels of support for the integrated approach**. Health workers and educators agreed that delivering integrated HPV vaccination services at school was an effective way to increase vaccination uptake and provide girls with more information about their health. Importantly, educators expressed strong support for offering integrated HPV vaccination at schools into the future.

Health workers generally felt that integrating services increased their efficiency and reduced duplication of outreach efforts, and even those who lamented increased workloads still had a general appreciation for the value of providing integrated services.

> *"[Integration] is working very well because when you carry HPV vaccine only...and then on another day you carry Iron and Folic Acid supplementation separately...you are only giving yourself a lot of work when the services are going to the same target group. It becomes easier because you do all the work at once and then you are done with it." –Health worker, Mchinji*

Adolescents appreciated the convenience and time savings associated with receiving integrated **HPV vaccination at locations where they already spend their time.**

> *"I wouldn't have had time to return to the health facility to receive the vaccine, so it was a good thing that they also gave us the vaccine which helped me have time to go and do chores at home."*
>
> -Adolescent who received her HPV vaccination alongside HPV+ Teen Club services, Machinga

Some adolescents and health workers flagged that **if services are not also provided in the community, girls who are not attending school or who missed school on the vaccination day will be missed**, and thus an integrated package with multiple delivery points is most acceptable and likely to be successful in reaching the girls who need to be reached.

In terms of which services were acceptable to integrate with HPV vaccination, **some respondents supported integration with YFHS, while other groups of caregivers and adolescents expressed concerns**. A 12 year old adolescent in Mchinji explained she is aware of the YFHS package but shared her perception that it is intended for those older than her, explaining "at our age we cannot go there because we are young." Caregivers also expressed concern about pairing sexual and reproductive health (SRH) services with HPV , vaccination citing both a reluctance to expose younger girls to SRH content, as well as that tying HPV vaccination with SRH services could confer unnecessary stigma on HPV vaccination.

Finally, some adolescents, educators, and caregivers feared that **offering too many services to girls during one visit could overwhelm** her or make it hard to identify the cause of any side effects she might experience.

Knowledge and Attitudes

All stakeholder types demonstrated some familiarity with HPV vaccination and cervical cancer. Respondents commented on the various HPV vaccination demand generation activities and talks hosted in the community and schools. Interviews and KAP surveys, however, revealed that significant knowledge gaps remain.

.

Educators' (n=146) knowledge was statistically significantly higher in intervention areas than in comparison sites, but knowledge gaps persisted in both groups. Educators self-identified this gap, with 28.7% of respondents in comparison areas and 18.3% of those in intervention areas reporting feeling inadequately trained to counsel adolescents and caregivers on HPV vaccination. Knowledge was measured on a 0–11 scale (e.g. "Is cervical cancer caused by persistent HPV infection?"), with the intervention group scoring 0.661 points higher than the comparison group.

Health workers (n=188) showed no significant difference in knowledge scores across the two arms (0.17 points higher on an 8-point scale), and both groups had room for improving their knowledge. Only 63% of respondents in each group correctly reported that boys and men can contract HPV, for instance. While double the percentage of health workers in the intervention arm correctly identified that 1 dose was the current recommended regimen for non-immunocompromised girls (64% to only 32% in their comparison counterparts), it reveals that more than one-third of health workers in intervention sites were still unaware of the recommended dosing regimen.

Myths and misconceptions also circulated, particularly amongst caregivers, some who believed that receiving HPV vaccination can make adolescent girls infertile. All stakeholder groups cited myths and rumors continuing in the community and underscored the importance of ongoing community sensitization on HPV vaccination.

Costs

The intervention cost approximately **$3.92 per girl vaccinated** (excluding HCD costs), or **$6.00 including HCD costs** annualized over five years. The incremental cost per additional vaccination was $4.75. **Total costs from the health systems perspective were $73,318**, comprising HCD costs of $48,302 and delivery costs of $25,016. Start-up and one-off costs represented 74% of total costs. If implemented over a longer timeframe, the incremental cost per additional vaccination would likely fall significantly.

Key Challenges

1. **Health worker knowledge gaps**
   Limited understanding of dosing, eligibility, and other important aspects of HPV vaccine delivery persists at some sites, limiting effective delivery

2. **Integrated messaging often fell short of service integration**
   Health workers reported integrating HPV vaccination with other services, but many interpreted this as incorporating messaging rather than vaccine delivery, limiting true service integration

3. **Logistical constraints impeded consistent, integrated services**
   National stockouts and transport delays disrupt routine delivery and signal weak routinization to staff, caregivers, and adolescents

4. **Poor data integration and weak feedback loops limited effective cross-departmental collaboration**
   HPV vaccination and adolescent health system data remain siloed, inhibiting health workers, facility leadership, and district level decision-makers from having real-time insight into vaccination status and to what degree integration is working

Lessons Learned

LESSON 1	**Involving adolescents, caregivers, health workers, and educators in HCD sessions created solutions poised for success and sparked stakeholder buy-in from the onset that promoted ongoing commitment:** Stakeholders started implementing the solutions they designed during the HCD even before the implementation phase had officially started.
LESSON 2	**School Health and Nutrition Days present an effective opportunity to integrate and increase HPV vaccination**: Joint planning between educators and health workers led to a reliable vaccination schedule and statistically significant increases in school vaccinations in intervention sites over comparison sites.
LESSON 3	**Service uptake data disaggregated by schooling status needed to underscore equity considerations**: Schools proved an effective platform for increasing opportunities for HPV vaccination, but we need stronger data systems and denominators to understand coverage among out-of-school girls and bring attention to opportunities to strengthen integrated outreach and

Implications & Recommendations

Findings suggest that **integrated solutions implemented over a relatively short period can yield meaningful increases in HPV vaccinations and positive uptake trends for YFHS** amongst adolescent girls in Malawi.

The **school setting was particularly effective for increasing vaccinations** over baseline and relative to comparison sites, with qualitative inputs emphasizing schools are an effective setting to reach eligible girls with integrated HPV vaccination.

Stakeholders also cautioned that concentrating on schools as the means to reaching girls will overlook out-of-school girls, and those who happen to be absent on the day of vaccination. Interviewees **recommended a multi-prong approach for equity-focused integration, including school-, facility-, and community-based opportunities** for vaccination. They also stressed the importance of keeping the vaccine in stock and providing transportation for vaccinators to reach eligible girls where they are.

Clear HPV guidelines and training modules are needed for health care workers to increase knowledge, standardize messaging, clarify roles across platforms, and support effective vaccination and data management.Equipping health workers with HPV knowledge and adolescent friendly skills can help dispel some of the ongoing **confusion and myths about HPV vaccination that circulate** in the community.

In 2026, the previous eligibility criteria of 9 to 14 years in Malawi was adjusted to focus exclusively on 9-year-olds. In considering scaling the integrated approach and how to maximize opportunities for integrated delivery, **it may be worthwhile for the Ministry of Health to extend YFHS age eligibility down to 9 years old.** Health workers could consider offering separate sessions for younger and older adolescents, with services and curriculum tailored to the groups. This approach would respect caregivers' concerns about sensitive SRHR content being shared with the youngest girls and provide additional pathways for eligible girls to receive integrated vaccination services. Conversely or in addition, the MOH could also discuss whether including both 9 and 10 year-olds in the HPV target group would expand opportunities for integrated service delivery.