Advancing Integrated HPV Vaccination Delivery in Mozambique: Policy Considerations for Sustainable and Equitable Scale-Up



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Recommendations

1. **School-based delivery can be an effective pathway for HPV vaccination delivery in Mozambique when supported through coordinated planning, integrated implementation approaches, and strong collaboration between the health and education sectors.** However, these approaches are not yet consistently operationalized across settings and do not reliably reach all eligible girls, particularly those outside the formal education system.
2. **Integrated HPV delivery approaches introduced through the intervention demonstrated that coordination across schools, health facilities, adolescent-friendly health services, and community outreach platforms can strengthen continuity of access and reduce missed opportunities for vaccination.** Strengthening referral systems between these platforms will be essential for reaching girls who miss school-based sessions or access services through other entry points.
3. **Mozambique's next policy challenge is operationalizing and routinizing integrated delivery approaches more consistently within existing systems**. This includes embedding integrated delivery within routine planning and supervision systems, establishing predictable outreach schedules, clarifying roles across sectors, and strengthening implementation guidance across service delivery platforms.
4. **Policy alignment around age eligibility and adolescent service platforms will be important for sustainable scale-up.** Current HPV vaccination policy targets 9-year-old girls, while Adolescent and Youth-Friendly Services often begin at age 10, creating potential gaps in continuity and referral. Policymakers should consider how referral systems, catch-up strategies, or age-aligned service models can better support girls who miss vaccination opportunities under the current delivery approach.

Summary

Mozambique continues to face a significant burden of cervical cancer, driven by limited access to preventive services and delayed diagnosis. Human papillomavirus (HPV) vaccination remains one of the most effective interventions for reducing cervical cancer incidence and mortality, and the country has made important progress in expanding vaccination coverage among adolescent girls. Mozambique introduced HPV vaccination nationally in 2021 through the

Expanded Programme on Immunization (EPI) using a two-dose schedule for 9-year-old girls. While first-dose coverage reached 94% in 2022, completion of the second dose remained substantially lower at 32%, and first-dose coverage declined to 68% in 2023, highlighting persistent challenges with continuity and completion under routine delivery conditions. Following the transition to a single-dose schedule in 2024, national coverage rebounded to 89%, creating an important policy opportunity to strengthen more sustainable and integrated delivery approaches.

INTEGRATE HPV is a VillageReach-led implementation research initiative designed to test approaches for strengthening integrated HPV vaccination delivery and uptake in Mozambique and Malawi. Conducted in partnership with Mozambique's Ministry of Health, the study used a quasi-experimental, mixed methods design across twelve catchment areas in Cahora Bassa and Tsangano districts of Tete Province, including six intervention and six comparison sites. The intervention focused on strengthening coordination across schools, health facilities, Adolescent and Youth-Friendly Services (AYFS), and community outreach platforms while integrating HPV vaccination with broader adolescent health services and demand-generation activities.

Findings from the implementation research suggest that integrated delivery approaches are operationally feasible and can strengthen both vaccination access and broader adolescent health service utilization when supported through coordinated planning, integrated implementation, and strong collaboration between the health and education sectors. Across intervention sites, HPV vaccination uptake increased more substantially than in comparison sites, with school-based delivery emerging as the primary driver of improvements. School-based vaccinations increased from approximately 105 total vaccinations across intervention facilities at baseline to 1,046 vaccinations over the endline period, or an 896.2% increase. Vaccinations in comparison areas also increased, but only by 236.1%. Vaccinations delivered through AYFS also increased from zero at baseline to 85 vaccinations in intervention areas, suggesting that adolescent-friendly platforms may serve as important complementary pathways for reaching girls missed through school-based delivery.

The findings suggest that Mozambique's next policy challenge is going beyond integration as a concept and operationalizing and routinizing integrated delivery approaches more consistently across schools, facilities, AYFS platforms, and community outreach systems. Strengthening integrated HPV delivery will require clearer operational guidance, stronger coordination between health and education sectors, routinized outreach systems, improved referral and data tracking mechanisms, and sustainable financing for integrated service delivery. Together, these findings indicate that integrated HPV delivery may provide an important pathway toward improving equitable access, strengthening continuity of care, and supporting more sustainable adolescent health service delivery in Mozambique. This brief examines policy considerations for how HPV vaccination can be more effectively integrated within existing service delivery platforms in Mozambique.

Background and Policy Context

Mozambique has one of the highest cervical cancer burdens in sub-Saharan Africa, with incidence and mortality rates reflecting persistent gaps in prevention, screening, and treatment services. HPV vaccination is widely recognized as a highly effective intervention for reducing cervical cancer incidence, and national efforts have prioritized expanding access to vaccination among adolescent girls. Prior to the implementation research, HPV vaccination delivery in Mozambique relied primarily on school-based campaign-style approaches, with variable coordination across health, education, and adolescent health platforms. Findings from the INTEGRATE HPV project demonstrated that school-based delivery can be highly effective in reaching large numbers of enrolled girls when coordination between sectors is strengthened and supported by integrated planning and outreach activities. However, girls who are not enrolled in

school, absent during vaccination sessions, or living in hard-to-reach areas continue to face barriers to access, and opportunities for follow-up vaccination through routine platforms remain inconsistent.

Mozambique has made broader investments in strengthening primary health care and adolescent health services, including the expansion of adolescent-friendly health services and community outreach mechanisms. These platforms provide opportunities to deliver HPV vaccination more continuously and to reach populations that are not consistently served through school-based delivery. Increasing emphasis on integrated service delivery, adolescent health platforms, and simplified HPV vaccination schedules has created a supportive environment for countries to transition from campaign-based approaches to more routine and system-integrated models. Within this context, Mozambique has an opportunity to strengthen HPV delivery by embedding vaccination within existing service delivery systems.

The Policy Problem: Coverage, Continuity, and Equity

The central policy challenge facing Mozambique is how to sustain high coverage while improving equity and continuity of access to HPV vaccination. School-based delivery remains the most efficient mechanism for reaching eligible girls at scale, but it is inherently limited in its ability to reach those who are not enrolled or consistently attending school.

Evidence from stakeholder perspectives indicates that gaps in coverage persist among out-of-school girls, rural populations, and those with limited interaction with formal service delivery platforms. These gaps reflect structural challenges in identifying eligible populations, coordinating delivery across sectors, and ensuring that vaccination opportunities are available beyond single-day or campaign-style events. Stakeholders also emphasized the importance of strengthening referral pathways and routine vaccination opportunities within health facilities, including through improved coordination across pediatric services, adolescent and youth-friendly health services, and EPI platforms. Strengthening these referral systems could help reduce missed opportunities for vaccination, particularly for girls who are absent during school-based activities or who access health services through other entry points.

Reliance on campaign-style delivery also raises questions about long-term sustainability. Campaign approaches require periodic intensification of resources, including workforce mobilization, transport, and financing, which may be difficult to maintain under routine conditions. This creates a policy tension between efficiency and sustainability, as well as between reaching large numbers of girls quickly and ensuring that all eligible populations are equitably reached.

Integration as a Policy Option

Integration of HPV vaccination within existing adolescent and primary health care platforms is already reflected within broader national health and adolescent service delivery priorities in Mozambique. The Ministry of Health has recognized the value of linking HPV vaccination with schools, adolescent-friendly health services, community outreach, and other routine delivery platforms as part of broader efforts to strengthen adolescent health and improve continuity of care. The implementation challenge is therefore less about introducing integration as a new policy concept and more about strengthening how integrated approaches are operationalized consistently across service delivery platforms and sectors.

Findings from the implementation research indicate that integrated delivery approaches can improve both uptake and system efficiency when effectively coordinated across schools, health facilities, adolescent-friendly health services, and community outreach systems. By leveraging these established platforms, integrated delivery can expand access, reduce missed opportunities for vaccination, and create multiple entry points through which eligible girls can be identified and

vaccinated. Integration also supports a more continuous model of service delivery, allowing vaccination opportunities beyond discrete campaign periods and strengthening referral and follow-up systems for girls who miss vaccination in one setting.

From a systems perspective, integrated delivery offers opportunities for more efficient use of resources by aligning planning, supervision, social mobilization, and implementation activities across programs. It may also improve the experience of care for communities by reducing the need for multiple service visits and improving accessibility across delivery platforms. Importantly, integrated delivery aligns closely with national priorities to strengthen adolescent health systems and improve coordination between the health and education sectors. Strengthening implementation of these integrated approaches may therefore provide an important pathway toward more sustainable, equitable, and routinized HPV vaccination delivery in Mozambique.

Evidence on Integrated HPV Delivery in Mozambique

Existing Platforms Provide a Strong Foundation for Integration: Evidence from key informant interviews indicates that integrated HPV vaccination delivery in Mozambique builds on existing service delivery practices rather than introducing entirely new approaches. Respondents noted that elements of integration were already present prior to the project, particularly within school health activities and community outreach services. In some areas, respondents described integrated practices already occurring outside the intervention settings, particularly through coordination between school health activities, adolescent-friendly health services, community outreach platforms, and routine immunization services. Stakeholders also noted examples of HPV vaccination being linked informally with broader adolescent health activities, including health education, nutrition services, HIV and STI screening, and referral systems within facilities and community outreach activities. These findings suggest that elements of integration are already embedded within parts of the health system, although implementation remains inconsistent across settings and platforms.

School-Based Delivery Remains the Core Platform: Stakeholder interviews and vaccination data underscored that school-based delivery remained the central platform for HPV vaccination in Mozambique and demonstrated strong potential when supported through integrated delivery approaches and coordination between the health and education sectors. Across intervention sites, school-based vaccinations increased nearly ten-fold over the implementation period, highlighting the effectiveness of coordinated school-based delivery approaches. Respondents emphasized that schools remain one of the most efficient and acceptable mechanisms for reaching eligible girls, particularly when supported through coordinated planning, social mobilization, and referral systems between schools and health services. Stakeholders also highlighted that schools provide an important opportunity to deliver broader adolescent health services alongside HPV vaccination, including nutrition interventions, HIV and STI screening, and sexual and reproductive health education. Together, these findings reinforce the policy opportunity to strengthen schools not only as vaccination sites, but as broader adolescent health service delivery platforms that support more integrated and continuous care for adolescents.

Complementary Platforms Expand Reach and Continuity: In addition to school-based delivery, respondents identified health facilities and community outreach platforms as essential components of integrated HPV vaccination delivery. Adolescent-friendly health services, including Serviços Amigos dos Adolescentes e Jovens, were highlighted as important entry points for providing continuous access to vaccination, particularly for girls who miss school-based sessions. Community-based delivery, including mobile brigades, was identified as critical for reaching underserved and hard-to-reach populations. Interviewees from the INTEGRATE HPV project emphasized the effectiveness and acceptability of these platforms in extending coverage beyond schools and facilities, particularly in rural areas. Together, these platforms function in a complementary manner. School-based delivery provides scale and

efficiency; facility-based services support continuity and follow-up, and outreach platforms expand reach to populations that may otherwise be missed. This multi-platform approach reflects a key strength of integrated delivery and provides a foundation for more responsive and inclusive service delivery.

Integration Supports Multi-Service Delivery and System Efficiency: A consistent theme across interviews was the value of integrating HPV vaccination with a broader package of adolescent health services. Respondents highlighted the importance of delivering HPV vaccination alongside services such as nutrition, HIV and STI screening, and reproductive health services. This approach was viewed as both efficient and beneficial for adolescents, allowing multiple health needs to be addressed in a single interaction. From a system perspective, integration supports more coordinated planning and implementation, reducing duplication of effort, and improving the use of limited resources. Stakeholders also emphasized the importance of aligning integrated delivery with existing structures and systems. Building on established platforms and coordination mechanisms were seen as critical to ensuring feasibility and sustainability at scale.

Formalizing Integration Through Policy and Guidance: Findings from the implementation research suggest that integrated delivery approaches can be effectively operationalized across schools, community outreach, and facility-based platforms when supported through deliberate coordination and planning. Prior to the intervention, integrated HPV delivery was not commonly implemented across the study areas, and respondents indicated that coordination across immunization, adolescent health, school health, and community platforms was often inconsistent or informal. The intervention therefore introduced and strengthened integrated practices within implementation sites, demonstrating how more coordinated delivery approaches could expand access and improve service continuity. Stakeholder perspectives highlighted the need for clearer operational guidance to support more consistent implementation beyond the study setting, including clarifying roles and responsibilities across programs, standardizing referral and follow-up pathways, and embedding integrated delivery approaches within national planning, supervision, and monitoring systems.

Policy Direction and Recommendations

The evidence from implementation experience and stakeholder perspectives highlights a clear pathway for advancing integrated HPV vaccination delivery in Mozambique. Importantly, the policy priority is not the introduction of new delivery models, but the strengthening, expansion, and formalization of approaches that are already functioning within the system.

1. School-based delivery can remain a core component of the national HPV vaccination strategy, given its demonstrated efficiency in reaching eligible girls. To strengthen consistency, implementation as a routine platform rather than an occasional campaign activity could be prioritized. This could include establishing standard school vaccination calendars, defining roles for school directors and teachers in mobilization and follow-up, and ensuring that health and education teams jointly plan sessions in advance. In addition, linking school-based delivery to clear referral pathways can help ensure that girls who are absent, out of school, or missed during school sessions can be followed up through health facilities or outreach platforms.
2. Regular outreach delivery, supported by available logistics, can extend access: Mobile brigades may be more effective when operating on predictable, pre-announced schedules, with dates communicated in advance through schools, community leaders, radio, and household mobilization. Policymakers may consider incorporating mobile brigade planning into routine district and facility workplans, including dedicated budget lines for transport, fuel, outreach staff time, and community sensitization. This would help position outreach as a routine service delivery function rather than an ad hoc activity.

3. **Mozambique can build on existing policies by further operationalizing integrated adolescent service delivery within existing platforms**. When HPV vaccination is already included in policy or program guidance as part of adolescent health or routine immunization services, the next step is to strengthen consistency in implementation. This could involve clarifying which service points screen for HPV vaccination eligibility and how—including AYFS, EPI, pediatric consultations, outpatient departments, and community outreach services—and strengthening referral procedures so that eligible girls can be identified and connected to vaccination regardless of their entry point into the health system.
4. **Age eligibility and service platform alignment may benefit from intentional consideration. HPV vaccination policy currently focuses on 9-year-old girls, while AYFS often begin at age 10, creating a practical gap for integration**. Policymakers should consider whether AYFS should formally include 9-year-old girls for HPV-related counselling and referral, while also strengthening screening and referral mechanisms across other facility entry points that routinely interact with eligible children and adolescents, including pediatric outpatient services, routine EPI services, outpatient departments, HIV care and treatment services, and community outreach platforms. These entry points could identify girls who missed school-based vaccination opportunities and strengthen continuity of access within routine service delivery systems. Policymakers may also consider whether HPV vaccination eligibility should include older girls who missed vaccination at age 9, or whether periodic catch-up or multi-age cohort approaches should be used to reach girls aged 10 and above who were missed in previous years. The observation that girls older than 9 were vaccinated in both intervention and comparison areas suggests that missed cohorts exist and require a clearer policy and operational response.
5. **Community engagement and demand generation are critical components to increasing HPV vaccination uptake.** Endline interviews highlighted persistent gaps in community awareness regarding age eligibility, vaccination schedules, and service availability. Stakeholders emphasized the role of teachers, local leaders, model mothers, fathers, and other trusted actors in improving acceptance and addressing misinformation. Developing a national set of IEC materials and counselling scripts for use by health workers, teachers, community leaders, and model mothers could assist in leading up to and during vaccination sessions. Such a package might include caregiver notifications, school-based education sessions, community dialogues, and radio messaging in local languages, with clear information on eligibility, safety, and access points.
6. **Investments in workforce capacity can focus on role clarity and practical implementation skills**. Health workers, teachers, and community actors need regular refresher training, supportive supervision, and clear job aids explaining their responsibilities in integrated delivery. Training should cover eligibility screening, referral processes, recording and reporting, counselling, and management of community concerns. Referral tracking systems should focus on identifying girls who missed vaccination opportunities and linking them back to a school, facility, or outreach vaccination point. Given the recommendation for a single HPV dose for non-immunocompromised girls, careful use of vaccination "completion" terminology may help avoid confusion.
7. **Sustainable scale-up will depend on reliable financing and logistics that support routine implementation.** Dedicated funding for vaccines, transport, supervision, IEC materials, and data tools within routine planning processes can help reinforce this transition. Joint planning structures across health, education, and community systems may further support alignment of resources, calendars, staff roles, and reporting expectations.

Taken together, these recommendations suggest an opportunity for Mozambique to move from integration as a recognized approach to integration as a consistently implemented routine practice. Advancing this transition will involve clearer operational guidance, predictable outreach systems, age-aligned service platforms, stronger referral tracking, and sustained financing across an array of delivery channels.

FOR MORE INFORMATION CONTACT
Katie Reynolds
Katie.Reynolds@villagreach.org