

Executive summary



Improving equity in HPV vaccination through identification and enumeration of out-of-school and hard-to-reach girls



Photo: PATH/Gabe Biencyzki

Context and rationale

Countries across Africa and Asia have made substantial progress in introducing human papillomavirus (HPV) vaccination through national immunization programs. However, experience from these countries demonstrates that current delivery models that leverage school-based vaccination are not sufficient to achieve equitable HPV vaccine coverage. Girls who are out of school (OOS) or living in hard-to-reach (HTR) settings are often not systematically identified or enumerated, increasing the risk that they are missed during planning and implementation of vaccination activities.

Across these settings, gaps in the identification and enumeration of OOS and HTR girls reduce accurate target population estimates, constrain effective microplanning, and limit the ability of programs to design targeted service delivery strategies. These challenges are particularly pronounced in contexts affected by population mobility, displacement, insecurity, and fragile civil registration systems.

To address these gaps, PATH partnered with ministries of health and national stakeholders to convene multi-stakeholder consultation workshops focused on understanding current practices, identifying barriers, and proposing practical, context-appropriate strategies to improve identification and enumeration of OOS and HTR girls eligible for HPV vaccination.

Scope of work

Across the six countries, PATH supported national and subnational consultations that engaged stakeholders from health, education, civil registration, social protection, local government, community leadership, faith-based organizations, and civil society. These consultations were conducted in Burkina Faso, Ethiopia, Kenya, Lao People's Democratic Republic, Malawi, and Nigeria.

Between March and September 2025, the consultations examined:

- How OOS and HTR girls are currently defined, identified, and enumerated.
- The strengths and limitations of existing data systems and information sources.
- Human, technical, and operational barriers affecting equitable HPV vaccination.
- Feasible strategies to institutionalize identification and enumeration within routine systems.

While country contexts varied, the consultations revealed common structural challenges and convergent strategic priorities, enabling the synthesis of crosscutting insights relevant to immunization programs operating in diverse settings.

Key crosscutting findings

OOS and HTR girls are systematically missed by school-based delivery models

Across all countries, OOS and HTR girls were characterized as those who have never enrolled in school, have dropped out or attend irregularly, live with disabilities, migrate seasonally, reside in informal settlements, or live in areas affected by insecurity or geographic isolation. These populations are often invisible within education-based delivery platforms and incompletely captured in routine health information systems.

As a result, administrative coverage estimates frequently mask inequities, even in countries reporting high national HPV vaccination coverage. Stakeholders consistently emphasized that school-based delivery alone cannot achieve equity without complementary community-based identification and outreach mechanisms.

Fragmented data systems limit accurate microplanning and validation

A central finding across countries was that no single data source reliably identifies or enumerates OOS and HTR girls. Health information systems, education databases, census projections, civil registration records, and community registers each provide partial views, with limitations related to coverage, timeliness, disaggregation, and accessibility.

Limited interoperability across sectors further exacerbates these gaps. Health, education, civil registration, and social services systems often work separately, limiting data triangulation and validation. In many settings, microplanning relies on outdated or incomplete estimates, increasing the risk of missed populations.



Photo: PATH

Human resources and community structures are critical enablers

Across all consultations, human capital emerged as the most critical resource for identifying and reaching OOS and HTR girls. Health workers, community health workers or volunteers, teachers, extension workers, local leaders, and faith-based actors possess contextual knowledge essential for accurate identification.

Where community structures are systematically engaged, programs benefit from improved trust, more accurate data, and stronger community ownership. However, these actors are often constrained by limited training, high workloads, insufficient supervision, and inadequate incentives.

Door-to-door and community mapping approaches improve accuracy but are resource-intensive

House-to-house enumeration and participatory community mapping were widely recognized as among the most accurate approaches for identifying OOS and HTR girls, particularly in mobile, displaced, or informal settings. These methods enable direct verification and inclusion of populations missed by administrative systems.

At the same time, stakeholders highlighted that these approaches are labor-intensive and costly. Without standardized tools, strong supervision, and adequate resourcing, data quality may be compromised. Programs relying solely on campaign-based or ad-hoc enumeration risk generating data that are not sustainable or routinely updated.

Digital tools offer promise but require enabling conditions

Stakeholders across countries identified strong potential for digital solutions, including electronic community health information systems, electronic immunization registries, and geographic information system–supported microplanning. When effectively implemented, these tools can reduce duplication, support real-time tracking, and improve data triangulation.

However, consultations consistently underscored that digital tools are not a standalone solution. Key constraints include limited access to devices, connectivity challenges, insufficient training, and the

need for sustained financing. Digital approaches are most effective when integrated within broader systems that include community engagement, clear governance, and ongoing supervision.

Strategic implications and programmatic directions

Institutionalize the identification of OOS and HTR girls within routine systems

Findings across all six countries point to the need to move beyond campaign-based identification toward routine, system-integrated processes. Updating existing reporting tools and information systems to capture OOS and HTR status as standard data elements can improve continuity, accuracy, and sustainability. Embedding identification and enumeration within routine workflows strengthens microplanning, supports targeted outreach, and reduces reliance on parallel systems.

Strengthen intersectoral collaboration and data triangulation

Equitable HPV vaccination requires formalized collaboration across health, education, civil registration, and social services. Countries identified the value of joint task forces, data-sharing agreements, and coordinated planning mechanisms to triangulate data, validate estimates, and reduce duplication. Improved intersectoral collaboration enhances planning accuracy and enables programs to reach populations.

Leverage community-based structures to improve reach and trust

Community-based actors are central to identifying and reaching OOS and HTR girls. Programs should intentionally leverage existing local structures—such as village leadership, women’s groups, religious institutions, and youth networks—to support identification, enumeration, and mobilization. These approaches are often low cost, culturally appropriate, and effective in building trust, particularly in settings affected by misinformation, insecurity, or social exclusion.

Balance digital innovation with operational feasibility

Digital tools can significantly strengthen identification and enumeration when implemented thoughtfully. However, countries emphasized the importance of phased and context-appropriate adoption, including piloting tools, building capacity, and ensuring adequate resourcing for maintenance and supervision. Investments in digital systems should be accompanied by investments in people, processes, and governance to ensure sustainability and impact.

Align resources with last-mile delivery needs

Across countries, stakeholders highlighted gaps in financing for last-mile activities, including fuel, per diems, supervision, and incentives for community-based workers. Addressing these gaps is essential to translating improved identification into actual vaccination. Strategic resource allocation—aligned with equity goals—can enable programs to include HTR girls and sustain gains over time.

Conclusion

Across diverse contexts, the consultations reaffirm that accurate identification and enumeration of OOS and HTR girls are foundational to equitable HPV vaccination. While country contexts differ, the challenges and solutions are strikingly consistent. Advancing equity requires institutionalized identification within routine systems, strengthened intersectoral collaboration, meaningful engagement of community structures, and balanced investments in human and digital resources. By adopting these approaches, countries can move closer to ensuring that no eligible girl is missed and that HPV vaccination delivers on its promise of cancer prevention for all.