



DELIVERY



HPV Vaccine Lessons Learnt & Recommendations

# Delivery

The introduction of human papillomavirus (HPV) vaccine has the potential to save the lives of millions of women and girls worldwide. Based on a review conducted by the London School of Hygiene & Tropical Medicine and PATH, this brief highlights findings, key lessons and recommendations relevant to the theme of **HPV vaccine delivery**.

## Findings and key lessons

### DELIVERY STRATEGY

Most projects/programmes used schools as vaccination venues, either alone or in combination with health facilities, and with or without outreach for out-of-school and absentee girls. There remains limited experience with delivery through health facilities in low- and middle-income countries (12% of country experiences). Health workers who visited schools worked closely with teachers. Strategies that incorporated schools were reported as resource intensive but also achieved high coverage. Countries that used community health workers to support vaccine delivery activities cited positive outcomes, such as reduced workload for health workers and better access to hard-to-reach areas and groups.



**Key lesson:** Delivery strategies that used schools reached large proportions of 9- to 13-year-old girls and benefited from coordination with teachers. However, these strategies were resource intensive.



**Key lesson:** Engaging community health workers increased community acceptance and coverage, and assisted in identifying girls who were out of school or who missed doses.

### DISTRICT SELECTION AND DEFINITION AND ENUMERATION OF TARGET POPULATIONS

For 53 demonstration projects across 40 countries, district selection was based on the following criteria: average conditions that represent a 'typical' district, convenience and



PATH/Jacqueline Sherris

practicality, a range of conditions to allow comparison (e.g. urban, rural, hard-to-reach), or particular challenges that required additional testing and practice.

To define the population, 52% of the 75 delivery experiences that used schools targeted a selected age group of girls, 31% selected school grade(s) and 17% identified a selected age group within a selected grade. All projects/programmes that employed only health-facility and/or community outreach delivery strategies identified girls by age.

Across 43 demonstration projects in 35 countries, establishing an estimate of the target population to produce denominators for vaccine provision and coverage was a major challenge. The most common methods used to estimate the number of girls targeted were school registers, enrolment data from the ministry of education or the most recent census data combined with survey estimates on school attendance. In almost all cases, none of these sources provided reliable denominators for planning vaccination and estimating vaccine coverage. A few countries conducted a head count of eligible girls, including those not attending school, before vaccination and adjusted numbers prior to delivery of the next dose(s). However, this exercise demanded considerable time and financial resources. Determining girls' ages was a problem in many countries where birth records were not routinely available or not kept by the parents or where school registers were inaccurate.



PATH/Le Thi Nga

Across 12 national programmes, census data were used to estimate the target population, as eligibility for vaccination was age based. Most programmes targeted a wider age range, such as all 9- to 13-year-old girls, in the first year or two, then switched to a single-year cohort in subsequent years.

**Key lesson:** *Grade-based eligibility was simpler to implement on vaccination days in schools, although it was challenging to communicate why same-age girls in different grades would not be vaccinated.*

**Key lesson:** *Age-based eligibility was easier to explain to health workers and the community and could be applied consistently to both girls in and out of school. Age-based eligibility aligns with the routine vaccination programme but may not be reliable if determining age is challenging for parents and health workers and could also cause greater disruption in schools by vaccinating girls across multiple grades.*

**Key lesson:** *Across nearly all countries, estimating the target population for demonstration projects posed a considerable challenge.*

**Key lesson:** *Microplanning can include an exercise to enumerate all schools – including those not registered with the ministry of education – and establish reliable registers to be validated during first-dose delivery.*

## DURATION

HPV vaccine was delivered through a campaign-style approach in almost all projects/programmes. Among the 31 delivery experiences reporting time for delivery, the most common approach was one week per dose and scheduling all doses within a school calendar year, when schools were utilized as a vaccination location.

Nineteen countries completed 21 delivery experiences with a two-dose (6 months between doses) HPV vaccination schedule; one country implemented a one-time annual campaign for each dose (12 months between doses). All ten countries that had experience of both vaccine schedules reported two doses to be logistically easier and financially cheaper to deliver than three doses. However, some countries worried about how to effectively deliver three doses to HIV-positive girls.

Among 37 countries, common strategies for following up girls who missed doses included directing girls to health facilities, returning to schools for a second vaccination session, administering the missing dose at the next scheduled dose (i.e., starting dose one at the time of dose two delivery) or visiting girls at home.

**Key lesson:** *The scope of follow-up activities for girls who did not receive the first dose was generally governed by country-specific factors such as school absenteeism, perceived 'adequate' coverage and available resources.*

**Key lesson:** *Delivery of all doses within one school year minimised dropouts and facilitated tracking girls to complete all doses.*

**Key lesson:** *Where resources allowed, providing a second opportunity for vaccination was successful in reaching girls and parents who initially refused.*

**Key lesson:** *Delivery of a two-dose schedule, including 12 months between doses, was easier and cheaper than three doses.*

## Recommendations

Based on country experience, to devise a successful delivery strategy for future HPV vaccine programmes, decision-makers should:

1. **Vaccinate in schools as an efficient way to reach most 9- to 13-year-old girls.** However, where school enrolment is low or resources are unavailable, a combination of delivery strategies are essential to achieve high coverage.
2. **Consider a range of factors when selecting a delivery strategy.** These should include the proportion of the target group in school, absenteeism rates, operational costs, desired/adequate coverage, and human and financial resources required for programme sustainability.
3. **Clearly define eligible populations.** Age-based eligibility was easier to understand, utilized census estimates for denominators and was relevant for both in- and out-of-school girls. However, selecting a single age group across grades in school-based programmes can be challenging and not all populations may know their ages.
4. **Implement a specific mobilisation strategy for out-of-school girls.** This might include using health workers or volunteers to track girls, disseminate messages in the community about the nearest health facility where the vaccine can be accessed or target other vaccination opportunities.
5. **Use two-dose vaccination schedules, as they are easier to implement than three-dose schedules.** Considerations for how to give a third dose to HIV-positive girls need careful planning to avoid stigmatization (e.g., provision of first and second doses at school [months 0 and 6] and dose three at a clinic at 12 months).
6. **Assess the cost-effectiveness of follow-up activities, such as return visits to schools that have low uptake rates.** This will be important for future target group calculations and for tracking subsequent doses.
7. **Vaccinate all 9- to 13-year-old girls in the first year of national rollout, which can act as catch-up.** Funding needs to be secured for this, and subsequent years would only need to target 9-year-old girls.
8. **Have standardised national guidelines and training procedures for reporting and responding to adverse events.** Stakeholders, such as teachers and parents, can be a useful resource in monitoring and reporting adverse events.



PATH/Scott LaMontagne

### ADVERSE EVENTS FOLLOWING IMMUNIZATION AND SAFE INJECTION PROCEDURES

In most countries, adverse events following immunization (AEFIs) were reported on standardised forms at vaccination sites. Reported AEFIs were below 1% among 44 countries with any data. Most AEFIs were minor and temporary, requiring observation but no or minimal treatment. Parents and teachers were a useful resource in monitoring and reporting AEFIs.

Most countries indicated availability of injection safety guidelines and/or training procedures. Where these were lacking, countries suggested that they 'generally adhered' to safe practices.



**Key lesson:** Adverse event training, monitoring and response procedures were generally considered acceptable and consistent with those of other vaccines; some projects/programmes monitored adverse events more closely for HPV vaccines.

**About this project:** Since 2007, countries have been gaining knowledge about how best to deliver HPV vaccines through demonstration projects and national introductions. To aid decision-makers, the London School of Hygiene & Tropical Medicine and PATH conducted a review of HPV vaccine delivery experience in 46 low- and middle-income countries. These activities represent 12 national programmes and 66 demonstration projects – some of which implemented multiple delivery strategies – resulting in 92 distinct vaccine delivery experiences.

Additional topic summaries address preparation, communications, achievements, sustainability, value and pitfalls. Find those briefs and more information at [www.rho.org/HPVlessons](http://www.rho.org/HPVlessons).