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 implemented a delivery strategy that used schools as the venues for vaccination, either alone or in combination with health facilities, and with or without outreach for out-of-school and absentee girls. Health workers who visited schools worked closely with teachers. Strategies that incorporated schools were reported as resource intensive; however, these strategies also achieved the highest coverage. Countries that used community health workers for vaccine delivery 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 30 demonstration projects across 26 countries, district selection was based on the following criteria: average conditions that represent a ‘typical’ district, convenience and 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, 47% of the delivery experiences that used schools targeted a selected age group of girls, 35% selected school grade(s) and 18% 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 32 demonstration projects and five national programmes, 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 most countries, a headcount of eligible girls was taken a few weeks before vaccination and during the first-dose delivery, which allowed numbers to be adjusted prior to delivery of the next dose(s).

Key lesson: A grade-based delivery strategy was simpler to implement in schools, although it was challenging to communicate why same-age girls in different grades would not be vaccinated. An age-based strategy was easier to explain to the community and aligns with the routine vaccination programme but could cause greater disruption in schools by vaccinating girls across multiple grades.
**Recommendations**

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

1. **Target schools as the most efficient way to reach most 9- to 13-year olds.** However, where school enrolment is low, a combination of delivery strategies is 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. **Implement a specific mobilisation strategy for out-of-school girls.** This might include messages about the nearest health facility where the vaccine can be accessed or other targeted vaccination opportunities.

4. **Assess the cost-effectiveness of follow-up activities, such as return visits to schools with low coverage rates.** Having a coverage threshold may be a way to identify areas where these activities will likely yield the most benefit.

5. **Establish a robust records system during implementation of the first dose.** This will be important for future target group calculations and for tracking subsequent doses.

6. **Have standardised national guidelines and training procedures for reporting and responding to adverse events.** Stakeholders who are not part of the national immunisation programme, such as teachers and parents, can be a useful resource in monitoring and reporting adverse events.

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**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 34 countries with any data. Most AEFIs were minor and temporary, requiring observation but no or minimal treatment.

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.

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**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.