Subject	**Gavi Support for 9-Valent Human Papillomavirus (HPV) Vaccine**
Agenda item	**09**
Category	**For Decision**

Executive Summary

The purpose of this paper is to propose to the Gavi Alliance Board that it approves the inclusion of higher valency HPV vaccines (defined as 9-valent or higher, and hereafter referred to as HPV9) on the Gavi product menu. It is estimated that with the option of HPV9 on Gavi's product menu, and in a scenario of maximum adoption of HPV9 vaccines, an incremental 170,000-190,000 lives could be saved as a result of HPV9 adoption over Gavi 6.0, attributable to its broader protection. The proposed inclusion of HPV9 could increase the vaccine procurement cost by US$ 20-45 million over Gavi 6.0, from the v23 Gavi financial forecast, due to higher unit cost. However, the additional cost associated with HPV9 would not result in an increase in Gavi's total budget, as HPV vaccines, along with all other routine vaccines, would be part of the new, fixed Country Vaccine Budgets, assuming they are approved (see Doc 05b). Alliance Partners (HPV Market Shaping Subgroup), and the Programme and Policy Committee (PPC) were consulted on the analysis and recommendation.

Action Requested of the Board

The Gavi Alliance Programme and Policy Committee **recommended** to the Gavi Alliance Board that it:

Approve the inclusion of higher valency HPV vaccines (such as HPV9) on Gavi's product menu, subject to a second manufacturer's dossier being accepted for WHO Prequalification review (currently anticipated in 2026), in line with the market condition agreed by Alliance Partners, and Product Portfolio Management principles being met.

Next steps/timeline

HPV9 will be assessed under Gavi's Product Portfolio Management principles (see Annex B) and added to the product menu once a second manufacturer's dossier has been accepted for WHO Prequalification review with studies underway to generate evidence to support 1 dose schedule (currently anticipated in 2026), in line with the market condition agreed by Alliance Partners to encourage long-term competition and supply security.

Previous Board Committee or Board deliberations related to this topic

In October 2025 Programme and Policy Committee meeting book: Doc 09 *Higher Valency Human Papillomavirus Vaccines (HPV9+): Investment Case for Inclusion on the Gavi Product Menu*

In July 2025 Board meeting book: Doc 01d and 01d Annex C *Governance Pathways for Next Generation Vaccines*

In November 2011 Board meeting book: Doc 06 *Next steps on new vaccine windows: HPV, JE, Rubella and Typhoid*

Report

1. Background and Context

1.1 Following the Board approval of the governance pathways for next generation vaccines in July 2025, HPV9 is the first vaccine to be assessed for potential inclusion in the product menu (see Annex A for further details). The analysis and recommendation include feedback from Alliance Partners (HPV Market Shaping Subgroup) and the Gavi Programme and Policy Committee (PPC).

1.2 HPV vaccination ranks among Gavi's highest-impact programmes. In Gavi-supported settings, HPV vaccination is estimated to avert 17.4 deaths per 1,000 vaccinated individuals, making it one of the most efficient investments in the portfolio. To date, 46 Gavi-supported countries have introduced HPV vaccines into their national immunisation programmes. The HPV revitalisation remains on track to achieve the objective of vaccinating 86 million girls by the end of 2025, an important progress toward the global goal of eliminating cervical cancer as a public health issue, as endorsed by the WHO.

1.3 A significant majority (98%) of high-income countries have introduced HPV vaccination into national immunisation schedules, and many of them now use HPV9 vaccines. Ensuring that Gavi-eligible countries also have access to HPV9 would help close the equity gap, accelerating progress toward global cervical cancer elimination goals.

1.4 The inclusion of HPV9 on Gavi's menu is consistent with the Gavi Leap and the Gavi 6.0 strategy, both emphasising expanding country choice. Countries are thereby empowered to make programme decisions in line with their national priorities, using their available Country Vaccine Budgets.

1.5 The HPV vaccine market has strengthened greatly in recent years, with supply increasing and access expanding compared to the constraints faced earlier. Gavi's 2023 HPV Vaccine Market Shaping Roadmap anticipates phased market developments, additional new HPV2/4 vaccines expected in the medium term and multiple HPV9 vaccines entering thereafter. The proposed addition of HPV9 is fully aligned with these priorities, expanding country choice while supporting equity, and the creation of a competitive market.

1.6 Currently, there is one WHO-prequalified HPV9 vaccine from Merck (WHO-prequalified in 2018 and received a single dose schedule recommendation by WHO in 2022). With regards to pipeline vaccines (including from developing country manufacturers), another HPV9 vaccine is expected to enter the WHO Prequalification review process in early 2026 (with studies underway to generate evidence to support 1 dose schedule), while other HPV9 and HPV10 vaccines are in various stages of development.

1.7 Under the Gavi 6.0 strategy, the Alliance's market shaping goal is to ensure healthy vaccine markets. In line with this objective, and the 2023 Market Shaping Roadmap for HPV Vaccines, the Market Shaping HPV Alliance Partners agreed through a series of consultations in 2024 on a specific market

condition to be met before HPV9 is added to the Gavi product menu, in order to encourage long-term competition and supply security. Accordingly, subject to Board approval, HPV9 will be included on the menu only once a second manufacturer's dossier has been accepted for WHO Prequalification review, with studies underway to generate evidence to support 1 dose schedule, currently expected in 2026. The potential need for additional market conditions was also highlighted in the Governance Pathways for Next Generation Vaccines (approved in July 2025).

2. Epidemiology and WHO Position

2.1 The HPV9 vaccine targets HPV types 16 and 18 (as in the HPV2 and HPV4 vaccines) and additionally types 6, 11, 31, 33, 45, 52 and 58. HPV16/18 are associated with ~71% of cervical cancers worldwide. The five extra oncogenic types in HPV9 account for a further ~18% of cervical cancers; types 6/11 are non-oncogenic and primarily prevent anogenital warts. Certain HPV2 and HPV4 vaccines have demonstrated some cross-protection against types 31/33/45, though this protection is limited.

2.2 Accounting for cross-protection and vaccine effectiveness, HPV9 vaccines provide protection against approximately 6% - 13% more cervical cancers compared to HPV2 and HPV4 vaccines with cross-protection data, and approximately 18% compared to HPV2 and HPV4 vaccines without cross-protection data. However, this will vary by setting based on the epidemiology of HPV infection and the distribution of sub-types.

2.3 WHO's position paper on HPV vaccines from 2022 states that "Current evidence suggests that, from a public health perspective, all currently licensed bivalent, quadrivalent and nonavalent vaccines offer comparable immunogenicity, efficacy and effectiveness for the prevention of cervical precancer and cancer, which is mainly caused by HPV types 16 and 18". In this context, achieving high coverage with any HPV vaccine delivers the greatest impact, while the addition of HPV9, where feasible, can further reduce incidence of cervical cancer.

3. HPV9 Financial and Health Impact Analysis

3.1 As per the Governance pathways for next generation vaccines, approved by the Board in July 2025, the Gavi Secretariat conducted an impact assessment of HPV9 vaccines adoption, which showed that there is "*unfavourable budget impact commensurate with benefits*". This is primarily driven by the expectation that, although HPV9 vaccine prices are likely to remain within the range of currently available HPV vaccines (considered cost-effective for LMICs[1]), they are likely to have a higher price compared to lower-cost HPV2/HPV4 vaccines; therefore, the overall weighted average price – and the total programme cost - is projected to increase with HPV9 adoption relative to the v23 financial forecast

[1] Based on a recent study by WHO International Agency for Research on Cancer "Avoidable cervical cancer deaths and cost-effectiveness of switching from 2/4-valent to 9-valent HPV vaccination at the country level in 121 LMICs"

baseline. As per the Board-approved governance pathways, the Secretariat's Programmatic Leadership Team and CEO recommended that the decision should be considered by the PPC and Board (see Annex A).

3.2 The baseline for the financial and health impact analysis is Gavi's v23 financial forecast, which takes into account recalibration outcomes and targets.

3.3 An analysis was conducted to show the hypothetical *maximum* potential additional health impact and cost, based on the hypothesis that all countries (but one) would adopt HPV9 by 2028 (and the remaining country adopts HPV9 by 2030).

3.4 This analysis suggests that, in a hypothetical scenario of maximum adoption of HPV9 vaccines, an **incremental 170,000-190,000 lives**[2] could be saved as a result of HPV9 adoption over Gavi's 6.0 strategic period. This impact derives from the broader protection that HPV9 provides against additional oncogenic HPV types.

3.5 From the programmatic side, inclusion of an HPV9 on the menu may allow countries with higher rates of certain oncogenic HPV strains to select a product more closely aligned with their epidemiology and accelerate the timeline to cervical cancer elimination. Governments have indicated interest in access to HPV9. Switching to HPV9 from a lower valency product is not complex.

3.6 The cost of the HPV programme over the Gavi 6.0 strategic period could increase by **US$ 20-45 million**[3] compared to financial forecast v23, with the magnitude of increase determined by the extent of country adoption of lower- versus higher-priced HPV9 vaccines. This variability will be influenced by countries' price sensitivity within their Country Vaccine Budget context.

3.7 The total Gavi vaccine budget will be constrained over Gavi 6.0, thus countries will likely have to consider their HPV product choices, including potential adoption of HPV9, and likely trade-offs within a fixed Country Vaccine Budget (see Doc 05b), in line with Gavi's aim to increase country ownership and will be supported by Vaccine Portfolio Optimisation and Prioritisation (VPOP) support. Assuming the Country Vaccine Budgets will be implemented, then the size of the total vaccine budget will not be influenced by having HPV9 vaccines on the

[2] Analysis by CHAI based on data from the following studies, Gavi forecasts and United Nations Development Programme population data: Serrano et al., *HPV genotype attribution in female anogenital lesions*, *European Journal of Cancer*, 2015; WHO SAGE Working Group on HPV, 6–7 June 2019 meeting, October 2019 report to SAGE, original source: WHO IVB database, preliminary results, May 2019; Serrano et al., *Potential impact of a nine-valent vaccine in human papillomavirus-related cervical disease*, *Infectious Agents and Cancer*, 2012, 7:38; McCormack, *Quadrivalent Human Papillomavirus (Types 6, 11, 16, 18) Recombinant Vaccine (Gardasil): A Review of Its Use in the Prevention of Premalignant Anogenital Lesions, Cervical and Anal Cancers, and Genital Wart*, *Drugs*, 2014, 74:1253–1283; Kuhn et al., *Final efficacy, immunogenicity, and safety analyses of a nine-valent human papillomavirus vaccine in women aged 16–26 years: a randomised, double-blind trial*, *The Lancet*, 5 September 2017; Kavanagh et al., *Changes in the prevalence of human papillomavirus following a national bivalent human papillomavirus vaccination programme in Scotland: a 7-year cross-sectional study*, *The Lancet*, 28 September 2017

[3] The estimated potential costs are based on assumptions regarding future prices of HPV9-10 vaccines from manufacturers. Actual costs may differ once final prices are confirmed.

menu and the addition of HPV9 does not preclude future decisions on Country Vaccine Budgets, as their operationalisation is still under development.

4. Considerations, Risks and Mitigations

4.1 Current considerations related to Country Vaccine Budgets are based on the present understanding and may evolve pending Board guidance (see Doc 05b). Countries will have the option to allocate resources from within their overall Country Vaccine Budget or seek alternative funding sources to cover the additional cost of introducing HPV9. As with other programme scale-ups, countries may adjust resource allocations across programmes to accommodate HPV9. It will be critical to continue the enhanced efforts supporting countries through VPOP in making evidence-based decisions that align with national priorities. Instances where HPV9 emerges as a desirable trade-off within an envelope are to be expected, as HPV is among the most impactful vaccines.

4.2 From the market shaping and Gavi 6.0 Strategic Goal 4 (SG4) perspective, addition of HPV9 vaccines on the Gavi menu will be a strong signal that the Alliance continues to value innovation and supplier diversity in a prevailing global context of shrinking budgets and price sensitivity.

4.3 The availability of multiple HPV vaccines on the product menu may lead to fragmentation of volumes per product, while the new proposed Country Vaccine Budgets approach, could temporarily create a period of reduced demand predictability as countries make their choices. Together, these dynamics may place upward pressure on the expected HPV9 price levels and the resulting weighted average price compared to the v23 baseline, with potential implications for the Gavi 6.0 Market Shaping saving targets. To mitigate these risks, the operationalisation of envelopes will aim to strengthen demand predictability and promote long-term planning. Alliance partners will stay closely engaged with countries and manufacturers.

4.4 A decision not to add, or to delay the addition of, HPV9 vaccines to the Gavi portfolio would likely result in delayed country access to HPV9 vaccines, with supply concentrated among fewer manufacturers. Moreover, taking a decision now is timely, as it will enable countries to factor HPV9 into their VPOP discussions as they plan their country vaccine budgets during 2026.

5. Next steps

5.1 In terms of next steps, if HPV9 inclusion is approved by the Board, HPV9 will be assessed against Gavi's Product Portfolio Management (PPM) principles (see Annex B for details). Following this, HPV9 will be added on the Gavi product menu as soon as a second HPV9 vaccine dossier is accepted by WHO Prequalification for review, with studies underway to generate evidence to support 1 dose schedule (as per the market condition agreed upon by Alliance Partners). Subsequently, UNICEF contracting and procurement would take place to secure supply and pricing, in conjunction with Gavi working with countries as they evaluate whether to accommodate HPV9.

Annexes

Annex A: Overview of the revised governance pathways

Annex B: Gavi's Product Portfolio Management Principles

Additional reference materials online:

Human papillomavirus vaccines: WHO position paper, December 2022: https://iris.who.int/bitstream/handle/10665/365350/WER9750-eng-fre.pdf?sequence=1

Market Shaping Roadmap Human Papillomavirus Vaccines, December 2023: https://www.gavi.org/sites/default/files/about/market-shaping/roadmaps/Market-Shaping-Roadmap-HPV-Vaccines-Public-Summary-December-2023.pdf