Financing of Human Papillomavirus Vaccination in Africa: A Scoping Review

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INTRODUCTION

Cervical cancer remains a major public health concern in Africa, largely driven by persistent human papillomavirus (HPV) infections. HPV vaccination offers a critical preventive measure, however, its scale-up is limited across Africa, due to financing barriers that hinder equitable access and sustainability (Murewanhema et al., 2024). Africa accounts for 19 of the 20 countries with the highest cervical cancer burdens (Dzinamarira et al., 2023), yet most countries are far from meeting WHO elimination targets (Adeyanju et al., 2024). Gavi has provided vital but time-limited support. While Rwanda and South Africa exemplify successful rollouts, most countries struggle with scaling beyond pilot projects without sustainable financing models. Broader health system issues such as cold chain capacity, workforce training, and integration into health financing remain unresolved, while the COVID-19 pandemic has further disrupted the progress (Saxenian et al., 2024).

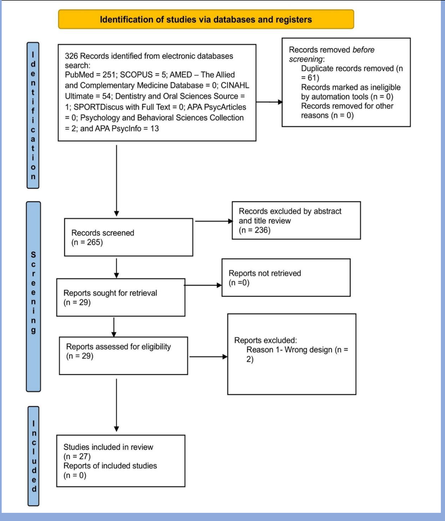
OBJECTIVE

This review mapped evidence on HPV vaccine financing in Africa, to identify prevailing funding mechanisms, cost estimates, and explore challenges and opportunities for sustainable financing.

METHODS

- **Study Design:** The scoping review method established by Arksey and O'Malley was utilized. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) was followed. (See Figure 1)
- **Literature Search**: Nine electronic databases were searched for relevant literature (e.g., SCOPUS, PubMed, APA PsycInfo).
- **Selection Criteria:** Peer-reviewed, English-language studies on HPV vaccine financing in Africa.
- **Screening**: Screening was done in two stages (i) Prima facie: titles and abstracts; (ii) Full-text).
- **Data Charting**: Structured form was devised for data charting to ensure consistency in the data extrcation process.
- **Data Synthesis**: A thematic approach was employed in the collation, summarization, and reporting of the data.

Figure 1: PRISMA Flowchart



RESULTS

In total, 27 relevant studies are included in this review, cutting across different sub-regions of Africa, including Eastern, Western, Southern, and Northern Africa. See Figures 2, 3, & 4 for additional information on the included studies.

Sources of Funding for HPV Vaccine: About 68% of the countries accessed (or relied on) donations from the vaccine manufacturer GAVI, either solely or with support from other funders (e.g., Bill and Melinda Gates Foundation, World Health Organization (WHO), The DoRIS, National cancer institute). In some countries, the Ministry of Health supplemented GAVI donations. Some received support solely from other sources (WHO, PATH, Pan American Health Organization (PAHO) Revolving Fund).

Financial and Economic Costs: These varied significantly by country, delivery method, and vaccine type, ranging from US$0.27 to US$19.76 (financial) and US$3.09 to US$91.19 (economic).

Drivers of HPV Vaccine Cost: Service delivery, personnel costs, social mobilization and information materials as well as outreach to out-of-school girls were primary cost drivers. Costs also varied by mode of vaccine delivery and levels of health system. Single-dose vaccination schedule demonstrated lower cost (financial & economic) and comparable efficacy. School-based delivery was also cost-effective in several contexts, while health facility-based vaccination method was cheaper in others.

Willingness to pay for HPV Vaccine: About 91.6% of mothers were willing to pay ($11.68 per fully vaccinated girl) for HPV vaccination for their daughters. However, this was lower than the estimated cost of vaccination at the Gavi-subsidized price ($18.16 to $19.26). This attitude was significantly influenced by residency, education, marital status, and income.

Cost-effectiveness of HPV Vaccine: Cost-effectiveness varied by vaccine brand, dosages, efficacy, vaccination coverage, etc.

Challenges with HPV Financing in Africa

- Reliance on external funding sources such as Gavi, raised concerns about long-term sustainability once such support diminishes.
- Lack of locally generated evidence for financial planning, leading to decision-making being influenced more by global funding priorities rather than country-specific data.
- High delivery cost of HPV vaccines, which varied between countries depending on factors such as delivery strategies, target populations, integration into existing health services, and operational contexts
- Securing funds for HPV vaccination is inhibited by the high vaccine cost and national economic problems, making financial sustainability difficult without Gavi and others' support.
- Limited national resources makes it hard for experts to demonstrate the cost-effectiveness and affordability of the HPV vaccine compared to other competing healthcare needs.

Figure 2. Year of Publication

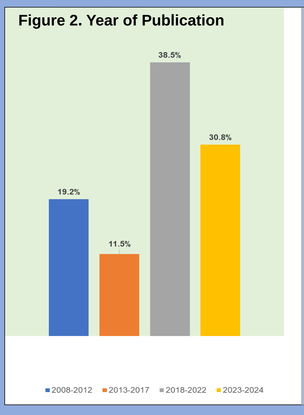
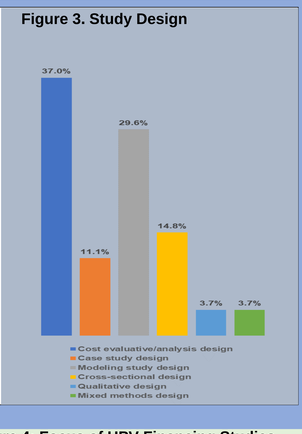


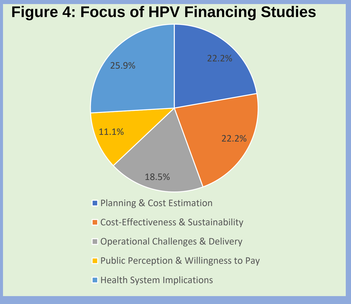
Figure 3. Study Design



DISCUSSION

- Similar to previous studies, evidence reveals that combining HPV vaccination with CC screening can enhance protection and cost-effectiveness (Arora & Tuffaha, 2024).
- Single-dose HPV vaccine was found in other studies to be very efficacious in preventing CC similar to multiple doses (Barnabas et al., 2022; Reyburn et al., 2023; Stanley et al., 2024).
- The Joint Committee on Vaccination and Immunization (JCVI) also affirms the efficacy of single-dose vaccines (Department of Health & Social Care, 2022).
- African countries need to prioritize vaccine brands that are cost-effective to maximize health benefits and minimize costs. Weighing the benefits of cross-protection is also important to ensure long-term outcomes (Reyburn et al., 2023).
- Evidence supports targeted strategies to reach out-of-school girls and other populations experiencing low vaccine coverage (Simuyemba et al., 2023).
- Strengthening health systems and human resources is crucial to maintaining effective vaccine delivery and monitoring programs.
- Considering that the mode of vaccine delivery impacts HPV vaccine costs, countries should tailor HPV vaccine delivery strategies to their specific contexts.
- This review points to a positive attitude towards paying out-of-pocket for HPV vaccine at a certain cost threshold which is lower than the subsidized rate (Umeh et al., 2016)..
- Investing in HPV vaccination could prevent cervical cancer-related morbidity and mortality, remarkably in high-burden countries like Eswatini, Malawi, Zambia, and Uganda (Wu et al., 2025).

Figure 4: Focus of HPV Financing Studies



CONCLUSION

Heavy reliance on donor funding continues to dominate HPV vaccine financing in the African region. Single-dose HPV vaccination schedules significantly reduce both financial and logistical burdens while maintaining cost-effectiveness. Governments across Africa must prioritize HPV vaccine financing within national budgets, adopt cost-effective procurement practices, and tailor delivery strategies to local contexts. Strengthening health systems and investing in long-term solutions is essential to achieving the WHO 90-70-90 elimination targets and reducing the burden of cervical cancer across the continent.

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CHIC COALITION to STRENGTHEN the HPV IMMUNIZATION COMMUNITY

Cephas Health Research Initiative

Financement de la vaccination contre le HPV en Afrique : revue de portée

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Résumé détaillé :

Le cancer du col de l'utérus demeure un problème majeur de santé publique en Afrique. Bien que la vaccination contre le HPV soit une mesure préventive essentielle, sa généralisation est entravée par des obstacles financiers. L'Afrique compte 19 des 20 pays ayant la plus forte incidence de ce cancer, et la plupart sont loin d'atteindre les objectifs d'élimination de l'OMS. Alors que le soutien de Gavi a permis d'initier des programmes, la durabilité reste précaire. Cette revue de portée a cartographié les mécanismes de financement, estimé les coûts et mis en évidence les défis et les opportunités afin d'étayer des modèles de financement durables.

Suivant la méthodologie d'Arksey & O'Malley et la checklist PRISMA-ScR, neuf bases de données ont été interrogées pour des études en anglais sur le financement de la vaccination HPV en Afrique. Sur 27 études pertinentes, environ 68 % des pays étudiés dépendaient des dons de Gavi, souvent complétés par d'autres bailleurs tels que la Fondation Gates, l'OMS, DoRIS ou l'Institut national du cancer ; quelques pays recevaient un soutien exclusivement d'autres sources. Les coûts financiers variaient fortement selon le pays, la méthode de délivrance et le type de vaccin, de 0,27 $ à 19,76 $ par dose, tandis que les coûts économiques allaient de 3,09 $ à 91,19 $. Les principaux moteurs de coût étaient la prestation des services, les salaires, la mobilisation sociale et l'information, ainsi que la nécessité d'atteindre les filles hors de l'école ; les coûts différaient selon que la vaccination était organisée en milieu scolaire ou en centre de santé. Les programmes unidose réduisaient les coûts tout en maintenant une efficacité comparable, et la vaccination en milieu scolaire s'avérait rentable dans plusieurs contextes, tandis que l'administration en structure de santé pouvait être moins onéreuse ailleurs.

La plupart des mères (91,6 %) se déclaraient prêtes à payer environ 11,68 $ pour la vaccination complète de leur fille, un montant néanmoins inférieur au coût subventionné par Gavi (18,16–19,26 $), la volonté de payer étant influencée par le lieu de résidence, le niveau d'éducation, la situation matrimoniale et le revenu. Des études montrent que combiner la vaccination au dépistage du cancer du col améliore la protection et la rentabilité, et que les vaccins unidose sont très efficaces, comme confirmé par des essais et par le comité britannique (JCVI). Les obstacles identifiés comprennent la dépendance aux bailleurs externes, l'absence de données locales pour la planification financière, les coûts

élevés de livraison, les ressources limitées et la difficulté de démontrer la rentabilité comparée à d'autres priorités sanitaires. Les auteurs recommandent que les pays africains intègrent le financement du HPV dans leurs budgets, adoptent des pratiques d'approvisionnement rentables, adaptent les stratégies de délivrance au contexte et renforcent les systèmes de santé et les ressources humaines pour atteindre les objectifs d'élimination.