



# **Report: Living Evidence Repository and Evidence Maps on Human Papillomavirus Vaccines Delivery**

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## Contributions

Name	Affiliation	Contribution	Conflicts of interest
Britta Tendal Jeppesen	Future Evidence Foundation	Conceptualisation, methodology and supervision	None
Akah Thelma Eni	eBASE Africa	Writing - Review and editing, Investigation, Supervision, Project administration	None
Okwen Berenice Tifuh	eBASE Africa	Technical support, Review and editing	None
Tawase Rodrick Wehtuogenyi	eBASE Africa	Review and editing	None
Lambou Leopold	eBASE Africa	Review and editing	None
Yeika Eugene Vernyuy	Ministry of Public Health, Cameroon	Review, writing and editing	None
Alvin LONTUM	eBASE Africa	Technical support, Review and editing	None
Teta-miyaka Tezok Okwen	eBASE Africa	Technical support, Review and editing	None
Bihle Nestor Mbinkar	eBASE Africa	Review and editing	None
Bereynuy Jude Cholong	Ministry of Public Health, Cameroon	Review and editing	None
Okwen Patrick Mbah	eBASE Africa	Conception, supervision and validation	None
Melissa Bond	University College London	Conceptualisation, methodology, software, validation, analysis, writing - original draft, writing - review and editing	None
Ngem Bede Yong	eBASE Africa	Supervision and validation	None
Ailbhe Finnerty Mutlu	University College London	Methodology, software, validation, analysis, writing - original draft, writing - review and editing	None

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## Correspondence

Britta Tendal Jeppesen [britta@futureevidence.org](mailto:britta@futureevidence.org)

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# Background and Objectives

Despite the proven efficacy of the human papillomavirus (HPV) vaccines in preventing cervical and other cancers, global coverage remains suboptimal. Challenges in HPV vaccine delivery, accessibility, effectiveness, feasibility, equity and vaccine hesitancy persist across various regions, especially in low- and middle-income countries (1,2). This living repository of evidence on HPV vaccine delivery and the evidence maps based on the repository are developed collaboratively to reflect the priorities of the HPV Living Evidence Partnership community ([HPV Living Evidence Partnership](#)). The repository will be continually updated. Based on current funding, we anticipate that the last update will be in early 2027.

- **Goal:** To provide a comprehensive HPV vaccine delivery evidence repository, and maps that identify available evidence and implementation gaps, with the goal of informing policy change and guiding strategic decision-making.
- **Objectives:**
  1. Identify and describe evidence on HPV vaccine delivery and (not screening or disease burden), and evidence that informs planning, implementation, and coordination.
  2. Highlight gaps in research and practice to guide future studies and interventions.
  3. Support policymakers, public health practitioners, and researchers with an organised repository of evidence.

## Scope

This repository focuses exclusively on evidence related to the delivery of HPV vaccination in low- and middle-income countries.

Thematic focus:

- Delivery strategies (e.g., school-based, outreach, facility-based)
- Health systems readiness, training and infrastructure

- Demand generation and communication
- Monitoring and data systems for HPV vaccine delivery
- Coordination and implementation structures
- Equity and gender within delivery contexts, including barriers to delivery to, for example, adolescent girls or marginalised groups
- Vaccine choice

Geographical focus:

- Low and middle-income countries

## 1. Study types

Inclusion

The repository includes all empirical study designs, including but is not limited to:

- Surveys/cross-sectional studies
- Case studies
- Systematic reviews
- Narrative reviews
- Review of reviews
- Evidence maps
- Cohort studies
- Qualitative studies
- Modeling studies
- Impact evaluations
- Costing studies
- Randomised trials
- Pre-post studies
- Implementation research

## Exclusion

- Opinion pieces without empirical data, for example, editorials.

## 2. Publication status

### Inclusion

- Peer-reviewed journal articles
- Preprints
- Government reports
- NGO or donor reports
- Technical briefs
- Theses/dissertations
- Unpublished data/evaluations

### Exclusion

- Press releases
- Abstracts
- Ongoing studies

## 3. Topics

### Inclusion

- Delivery strategies (e.g., school-based, outreach, facility-based)
- Health systems readiness, training and infrastructure
- Demand generation and communication
- Monitoring and data systems for HPV vaccine delivery
- Coordination and implementation structures

- Equity and gender within delivery contexts, including barriers to delivery to, for example, adolescent girls or marginalised groups
- Vaccine choice, including efficacy, safety

## Exclusion

- Studies focusing only on disease burden or HPV prevalence/incidence data
- Studies solely focused on screening or treatment of cervical cancer

## 4. Participants

### Inclusion

- Girls - all ages
- Boys - all ages
- Parents
- Healthcare workers
- Interest holders

### Exclusion

- None

## 5. Geographical scope

### Inclusion

- Low and middle-income countries, based on the World Bank's fiscal year 2025 (data for calendar year 2023), [World Bank Country and Lending Groups – World Bank Data Help Desk](#). We also include Venezuela, even though it is currently unclassified by the World Bank
- Mix of low, middle and high-income countries

## Exclusion

- High-income countries only

## 6. Language

### Inclusion

- English

### Exclusion

- Languages other than English

## Methodology

### 1. Search Strategy

We searched the following databases: Google Scholar, [iris.who.int](https://iris.who.int), [globalindexmedicus.net](https://globalindexmedicus.net), OpenAlex, PubMed, [nitag-resource.org/compendium/hpv](https://nitag-resource.org/compendium/hpv) and Technet-21

For objective 1: (("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("delivery strateg\*" OR "implementation strateg\*" OR "vaccination program\*" OR "service delivery" OR "health system\*" OR "school-based vaccination" OR "community-based vaccination" OR "outreach program\*") AND ("LMIC" OR "low- and middle-income countr\*" OR "developing countr\*" OR "Sub-Saharan Africa" OR "South Asia"))

For objective 2: (("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("research gap\*" OR "evidence gap\*" OR "implementation gap\*" OR "knowledge gap\*" OR "barriers" OR "challenges" OR "lessons learned" OR "unmet

need\*") AND ("LMIC" OR "low- and middle-income countr\*" OR "developing countr\*" OR "Sub-Saharan Africa" OR "South Asia"))

For objective 3: (("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("policy" OR "guideline\*" OR "recommendation\*" OR "best practice\*" OR "program evaluation" OR "implementation outcome\*" OR "equity" OR "gender" OR "demand generation" OR "communication strateg\*" OR "monitoring system\*" OR "program sustainability" OR "vaccine uptake") AND ("LMIC" OR "low- and middle-income countr\*" OR "developing countr\*" OR "Sub-Saharan Africa" OR "South Asia"))

The first set of searches will cover January 2006 up till August 2025. We will rerun the searches every month.

Please see Appendix 1 for the full search strategies.

## 2. Screening

We did an initial screening by title/abstract; eligible references were then screened based on the full text.

Differences in screening were reconciled and decisions made by a third reviewer where required. Percentage agreement was on average 77.24% with a range (69.92% to 85.26%) for the screened records.

### Initial screening by title/abstract.

References identified through the search were imported into EPPI Reviewer, a web-based software program for managing and analysing data in all types of systematic reviews (3). Duplicate records were automatically identified through the built-in deduplication algorithm to ensure only unique references proceed to the screening stage. References with missing abstracts were identified, and missing abstracts were added manually where available.

A subset of references (760) was double-screened by two human reviewers to ensure consistency in the screening criteria and guidance, and also to serve as a “ground truth” dataset to build a custom classifier. We applied the classifier to unscreened references to automatically identify those with a high probability of being an included record. The classifier was built on 60% of the screened included and excluded records, calibrated on 20% to find the threshold score above which references are likely to be included and evaluated on the final 20%. The classifiers are built to deliver a high recall at 90% so that the likelihood of missing references is low.

The references which have been marked as included by the custom classifier were then screened on title and abstract using an LLM prompt to further improve the precision of the screening. The prompts were iteratively developed and tested on the manually screened records to ensure their accuracy and alignment with the human decisions. The final prompt used for screening using LLM model GPT-4.1-nano was “is\_about\_HP\_Vaccine\_delivery\_uptake\_or\_perceptions: boolean // Return true if this record reports a primary study about HPV vaccine delivery, uptake, or acceptance with participants in a low-income or lower-middle-income country (LMIC), published in English. Eligible studies include those on:

- Delivery strategies (e.g., school-based delivery, outreach, facility-based delivery, single-dose vs. multi-dose delivery, integration with other programmes);
- Uptake, acceptance, or awareness (e.g., barriers and facilitators, parental or provider perceptions, community attitudes, gender and equity issues);
- Health system readiness and capacity (e.g., infrastructure, workforce training, coordination, physician recommendations);
- Economic and logistical aspects (e.g., vaccine cost-effectiveness, affordability, financing, monitoring and evaluation of programmes).
- Participants in the following countries:

Afghanistan	Angola	Bangladesh
Albania	Argentina	Belarus
Algeria	Armenia	Belize
American Samoa	Azerbaijan	Benin



Bhutan	Ethiopia	Malaysia
Bolivia	Fiji	Maldives
Bosnia and Herzegovina	Gabon	Mali
Botswana	Gambia	Marshall Islands
Brazil	Georgia	Mauritania
Bulgaria	Ghana	Mauritius
Burkina Faso	Grenada	Mexico
Burundi	Guatemala	Micronesia
Cabo Verde	Guinea	Moldova
Cambodia	Guinea-Bissau	Mongolia
Cameroon	Guyana	Montenegro
Central African Republic	Haiti	Morocco
Chad	Honduras	Mozambique
China (People's Republic of)	India	Myanmar
Colombia	Indonesia	Namibia
Comoros Islands	Iran	Nepal
Congo, Democratic Republic of	Iraq	Nicaragua
Congo, Republic of	Jamaica	Niger
Costa Rica	Jordan	Nigeria
Côte d'Ivoire	Kazakhstan	North Macedonia
Cuba	Kenya	Pakistan
Djibouti	Kiribati	Palestinian Territories
Dominica	Democratic People's Republic of Korea	Panama
Dominican Republic	Kosovo	Papua New Guinea
Ecuador	Kyrgyzstan	Paraguay
Egypt	Lao People's Democratic Republic	Peru
El Salvador	Lebanon	Philippines
Equatorial Guinea	Lesotho	Romania
Eritrea	Liberia	Russia
Eswatini	Libya	Rwanda
	Madagascar	Saint Lucia
	Malawi	Samoa
		São Tomé and Príncipe
		Senegal

Serbia	Syrian Arab Republic	Uganda
Sierra Leone	Tajikistan	Ukraine
Solomon Islands	Tanzania	Uzbekistan
Somalia	Thailand	Vanuatu
South Africa	Timor-Leste	Venezuela
South Sudan	Togo	Vietnam
Sri Lanka	Tonga	Yemen
St Vincent and the Grenadines	Tunisia	Zambia
Sudan	Turkey	Zimbabwe
Suriname	Turkmenistan	
	Tuvalu	

Return false if the study is primarily about HPV or cervical cancer screening/testing, treatment or prevalence rather than vaccination, if it is an editorial/commentary/opinion piece, or if the study setting is clearly in an upper-middle or high-income country (e.g., United States, Australia, Austria, China)."

All references screened using the LLM were checked by a human reviewer to evaluate the accuracy of the LLM results. All included references by the human reviewers and the LLM were then screened at the full text level.

Please see appendix 2 for coding tools.

## Full-text screening

We retrieved full texts for references included at the title/abstract level from the Zotero plugin to the EPPI Reviewer software; any full texts not found were searched for and added manually where available.

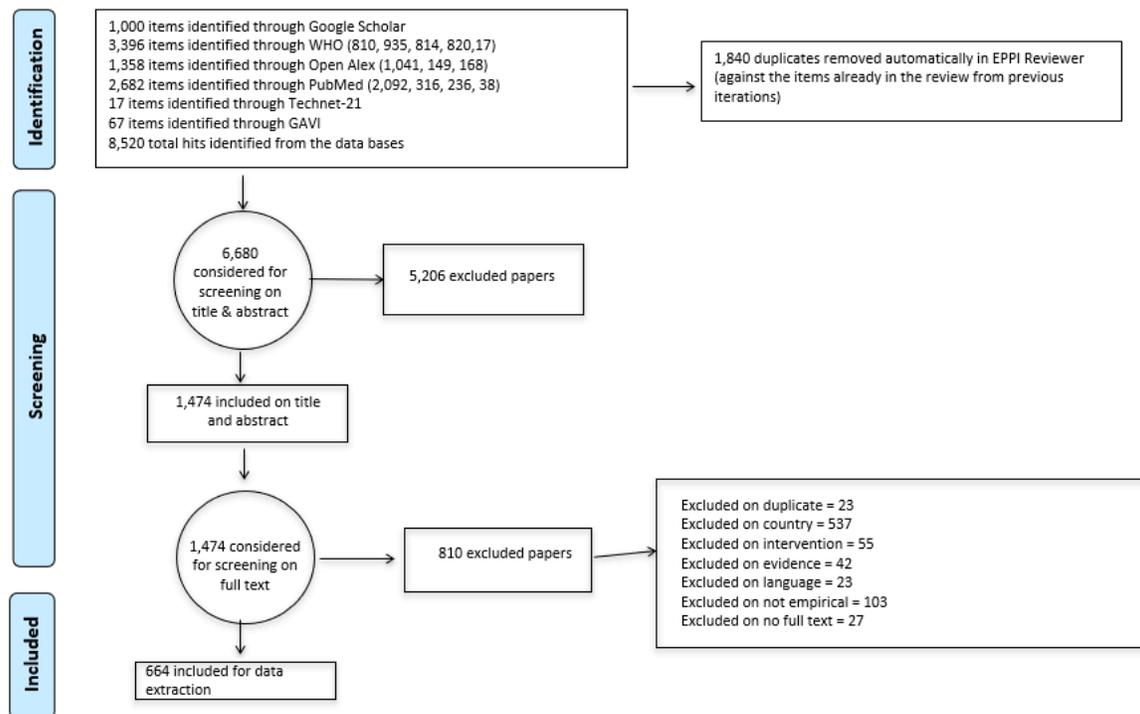
Items were screened on full text by groups of individual reviewers with a second reviewer checking all coding decisions. Any disagreement was solved by discussion or by involving a third reviewer. Automation was not used for full-text screening, and references included at the full-text screening progressed to data extraction.

### 3. Data extraction

Data extraction occurred automatically within EPPI Reviewer by creating individual LLM prompts for each code (see Appendix 2). We extracted data for an initial 100 studies using GPT model 4o, but then switched to using model GPT-4.1 for the remaining studies, as this model had proven more effective in other evaluations. The extracted data was double checked by humans. Data were extracted on the following variables: Country or regional focus, Continent, World Bank Region, World Bank Income Group, Thematic Focus, Study Design, Vaccine Schedule, Delivery dose, Special Populations, Age, Sex, Delivery strategy, Delivery location, Delivery cadre, Communication and Social Mobilisation, Vaccine Logistics, Monitoring Evaluation, Equity and Access, Governance and Financing and Vaccine Types. For more details on the coding tools please see appendix 2.

## Results

We identified 8,520 records in total after screening, and we included 664 records.



## Data Synthesis:

- o Using EPPI Mapper, we created a matrix linking thematic focus with the World Bank region.
- o The evidence map is interactive. We added filters: World Bank income groups, study design, special populations, delivery dose and country. We embedded hyperlinks within the maps connecting users directly with research papers and other sources of evidence.
- o We will regularly incorporate new records into the maps. The planned cadence is currently monthly.

## References

1. Aggarwal S, Agarwal P, Gupta N. A comprehensive narrative review of challenges and facilitators in the implementation of various HPV vaccination programs worldwide. *Cancer Med.* 2024 Feb;13(3):e6862. doi: 10.1002/cam4.6862. Epub 2024 Jan 11. PMID: 38213086; PMCID: PMC10911072.

2. Rosser EN, Wysong MD, Rosen JG, Limaye RJ, Park S. HPV Vaccine Delivery Strategies to Reach Out-of-School Girls in Low- and Middle-Income Countries: A Narrative Review. *Vaccines*. 2025; 13(5):433. <https://doi.org/10.3390/vaccines13050433>
3. Thomas, J., Graziosi, S., Brunton, J., Ghouze, Z., O'Driscoll, P., & Bond, M. & Koryakina, A. (2023). EPPI-Reviewer: advanced software for systematic reviews, maps and evidence synthesis. EPPI Centre, UCL Social Research Institute, University College London

## Appendix 1

### Search strategies and results

Objective 1: Identify and describe evidence on HPV vaccine delivery and (not screening or disease burden), and evidence that informs planning, implementation, and coordination.

<b>Database/Source</b>	<b>Search Terms</b>	<b>Search Tips/Filter s</b>	<b>Hits</b>
<b>Google Scholar</b>	HPV -prevalence -incidence -treatment -choice -disease -burden -cancer -screening -America -Europe -Australia	2006 – 2025 (16800)	First 1000

Database/Source	Search Terms	Search Tips/Filter s	Hits
<a href="https://iris.who.int/">https://iris.who.int/</a> <a href="https://www.globalindexmedicines.net">https://www.globalindexmedicines.net</a>	<p>1. (("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("delivery strateg*" OR "implementation strateg*" OR "vaccination program*" OR "vaccination campaign planning" OR rollout OR coordination "service delivery" OR "health system*" OR "school-based vaccination" OR "community-based vaccination" OR "outreach program*")) AND ("LMIC" OR "low- and middle-income countr*" OR "developing countr*" OR "Sub-Saharan Africa" OR "South Asia"))</p> <p>2. hpv AND ( type_of_study:( "risk_factors_studies" OR "diagnostic_studies" OR "observational_studies" OR "etiology_studies" OR "prognostic_studies" OR "guideline" OR "qualitative_research" OR "clinical_trials" OR</p>	<p>2006 – 2025 (823)</p>	<p>1. 810 2. 2.935</p>

Database/Source	Search Terms	Search Tips/Filter s	Hits
	<p>"evaluation_studies" OR  "health_economic_evaluation"  OR "systematic_reviews" OR  "health_technology_assessment"  )) AND (year_cluster:[2006 TO  2025])</p>		
OpenAlex	<p>(HPV vaccine OR Human Papillomavirus  vaccine OR cervical cancer vaccine)  AND (delivery OR planning OR  implementation OR coordination OR  rollout OR campaign) NOT (cancer  screening OR disease burden OR  vaccine choice)</p>		1,545
Pubmed	<p>((("Papillomavirus Vaccines"[MeSH] OR  "HPV vaccine"[tw] OR "human  papillomavirus vaccine"[tw] OR  "cervical cancer vaccine"[tw]) AND  ("Immunization Programs"[MeSH] OR  "vaccination"[MeSH] OR "vaccine  delivery"[tw] OR "vaccine strategy"[tw]  OR "vaccination program"[tw] OR  "immunization strategy"[tw] OR  "delivery model"[tw] OR "delivery  approach"[tw] OR "vaccine rollout"[tw]  OR "outreach program"[tw] OR  "vaccination campaign planning"[tw]</p>		2,092

Database/Source	Search Terms	Search Tips/Filter s	Hits
	OR rollout[tw] OR coordination[tw]) AND ("Adolescent"[MeSH] OR "youth"[tw] OR "teenagers"[tw] OR "girls aged 9-14"[tw] OR "school-aged children"[tw] OR "students"[tw] OR "female adolescents"[tw] OR "caregivers"[tw] OR "parents"[tw] OR "school personnel"[tw] OR "teachers"[tw] OR "health personnel"[MeSH] OR "nurses"[tw] OR "community health workers"[tw]) AND ("Program Evaluation"[MeSH] OR "Vaccination Coverage"[MeSH] OR "uptake"[tw] OR "effectiveness"[tw] OR "acceptability"[tw] OR "reach"[tw] OR "participation"[tw] OR "completion"[tw]))		
<b>Total for objective 1</b>			<b>8382</b>

Objective 2: Highlight gaps in research and practice to guide future studies and interventions.

Database/Source	Search Terms	Search Tips/Filter s	Hits
<a href="https://iris.who.int/">https://iris.who.int/</a>	("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("research gap*" OR "knowledge gap*" OR "evidence gap*" OR "research need*" OR "challenge*" OR "barrier*" OR "limitation*" OR "understudied" OR "unexplored" OR "future research") AND ("high-burden setting" OR "conflict-affected area" OR "urban		814

Database/Source	Search Terms	Search Tips/Filter s	Hits
	<p>slum" OR "remote rural" OR "weak health infrastructure" OR "vaccine hesitancy" OR "gender norms" OR "cultural resistance" OR "community trust" OR "rumor" OR "misinformation" OR "religious opposition" OR "health worker confidence" OR "digital readiness" OR "cold chain reliability" OR "1-dose schedule" OR "catch-up vaccination" OR "missed opportunity vaccination" OR "equity in coverage" OR "cost per fully vaccinated girl" OR "disease burden reduction" OR "DALYs averted" OR "QALYs gained" OR "lives saved")</p>		
<b>OpenAlex</b>	<p>((("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("research gap*" OR "evidence gap*" OR "implementation gap*" OR "knowledge gap*" OR "barriers" OR "challenges" OR "lessons learned" OR "unmet need*")) AND ("LMIC" OR "low- and middle-income countr*" OR "developing countr*" OR</p>		149

Database/Source	Search Terms	Search Tips/Filter s	Hits
	"Sub-Saharan Africa" OR "South Asia"))		
Pubmed	("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("research gap*" OR "knowledge gap*" OR "evidence gap*" OR "research need*" OR "challenge*" OR "barrier*" OR "limitation*" OR "understudied" OR "unexplored" OR "future research") AND ("high-burden setting" OR "conflict-affected area" OR "urban slum" OR "remote rural" OR "weak health infrastructure" OR "vaccine hesitancy" OR "gender norms" OR "cultural resistance" OR "community trust" OR "rumor" OR "misinformation" OR "religious opposition" OR "health worker confidence" OR "digital readiness" OR "cold chain reliability" OR "1-dose schedule" OR "catch-up vaccination" OR "missed opportunity vaccination" OR "equity in coverage" OR "cost per fully vaccinated girl" OR "disease burden reduction" OR "DALYs		316

Database/Source	Search Terms	Search Tips/Filter s	Hits
	averted" OR "QALYs gained" OR "lives saved")		
<b>Total 2</b>			<b>1,279</b>

Objective 3: Support policymakers, public health practitioners, and researchers with an organized repository of evidence.

Database/Source	Search Terms	Search Tips/Filter s	Hits
<a href="https://iris.who.int/">https://iris.who.int/</a>	(("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("policy" OR "guideline*" OR "recommendation*" OR "best practice*" OR "program evaluation" OR "implementation outcome*" OR "equity" OR "gender" OR "demand generation" OR "communication strateg*" OR "monitoring system*" OR "program sustainability" OR "vaccine uptake") AND ("LMIC" OR "low- and middle-income countr*" OR "developing countr*" OR "Sub-Saharan Africa" OR "South Asia"))		820
<b>OpenAlex</b>	(("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("policy" OR "guideline*" OR "recommendation*" OR "best practice*" OR "program evaluation" OR "implementation outcome*" OR "equity" OR "gender" OR "demand generation" OR "communication strateg*" OR "monitoring system*" OR "program		168

Database/Source	Search Terms	Search Tips/Filter s	Hits
	sustainability" OR "vaccine uptake") AND ("LMIC" OR "low- and middle-income countr*" OR "developing countr*" OR "Sub-Saharan Africa" OR "South Asia"))		
Pubmed	<p>1. (("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination") AND ("policy" OR "guideline*" OR "recommendation*" OR "best practice*" OR "program evaluation" OR "implementation outcome*" OR "equity" OR "gender" OR "demand generation" OR "communication strateg*" OR "monitoring system*" OR "program sustainability" OR "vaccine uptake") AND ("LMIC" OR "low- and middle-income countr*" OR "developing countr*" OR "Sub-Saharan Africa" OR "South Asia"))</p> <p>2. ("HPV vaccine" OR "human papillomavirus vaccine" OR</p>		<p>1. 236</p> <p>2. 38</p>

Database/Source	Search Terms	Search Tips/Filter s	Hits
	<p>"HPV vaccination") AND ("school-based delivery" OR "facility-based delivery" OR "outreach clinics" OR "mobile clinics" OR "hybrid delivery" OR "mass campaigns" OR "1-dose schedule" OR "2-dose schedule" OR "3-dose schedule" OR "catch-up vaccination" OR "missed opportunity vaccination" OR "series completion reminder" OR "community engagement" OR "social mobilization" OR "peer education" OR "SMS reminders" OR "media campaigns" OR "health education in schools" OR</p> <p>3. "policy mandates" OR "domestic financing" OR "Gavi support" OR "donor transition" OR "intersectoral partnership" OR "health system integration") AND ("high-burden setting" OR "conflict-affected area" OR "urban slum" OR "remote rural"</p>		

Database/Source	Search Terms	Search Tips/Filter s	Hits
	<p>OR "decentralized governance"  OR "weak health infrastructure"  OR "vaccine hesitancy" OR  "gender norms" OR "cultural  resistance" OR "cervical  cancer incidence" OR "HPV  prevalence" OR "adolescent  health platforms" OR  "community trust" OR "social  influencers" OR "health worker  confidence" OR "digital  readiness" OR "cold chain  reliability" OR "school  collaboration") AND  ("coverage" OR "first-dose  uptake" OR "completion rate"  OR "dropout rate" OR  "timeliness" OR "equity in  coverage" OR "vaccine  acceptance" OR "cost per fully  vaccinated girl" OR "system  efficiency" OR "disease burden  reduction" OR "lives saved" OR  "DALYs averted" OR "QALYs  gained" OR "program  sustainability" OR "policy</p>		

Database/Source	Search Terms	Search Tips/Filter s	Hits
	implication*" OR "practice implication*" OR "recommendation*" OR "guideline*")		
<b>Total 3</b>			<b>1,262</b>

Additional searches – 07/08/2025

Site	Search string	Hits
<b>Technet-21</b>	("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination")	17
<b>GAVI</b>	("HPV vaccine" OR "human papillomavirus vaccine" OR "HPV vaccination")	67
WHO	(Human Papillomavirus Vaccine)	17
<b>Total 4</b>		<b>101</b>

# Appendix 2

## Coding tools

### Screening on T&A

- Include on Title and Abstract  
*is\_about\_HPВ\_vaccine\_delivery\_uptake\_or\_perceptions: boolean // Return true if this record reports a primary empirical study about HPV vaccine delivery, uptake, or acceptance with participants in a low or middle-income country (LMIC), published in English. Eligible studies include those on:*
  - *delivery strategies (e.g., school-based delivery, outreach, facility-based delivery, single-dose vs. multi-dose delivery, integration with other programmes);*
  - *uptake, acceptance, or awareness (e.g., barriers and facilitators, parental or provider perceptions, community attitudes, gender and equity issues);*
  - *health system readiness and capacity (e.g., infrastructure, workforce training, coordination, physician recommendations);*
  - *economic and logistical aspects (e.g., vaccine cost-effectiveness, affordability, financing, monitoring and evaluation of programmes).**Return false if the study is primarily about HPV or cervical cancer screening/testing, treatment or prevalence rather than vaccination, if it is an editorial/commentary/opinion piece, or if the study setting is clearly in an upper-middle or high-income country (e.g., United States, Australia, Austria, China).*
- EXCLUDE on title & abstract
- Rationale  
*justification: string // Outline why this study is, or is not, about HPV vaccines.*

### Screen on Full Text

- EXCLUDE duplicate
- EXCLUDE on date
- EXCLUDE on country
- EXCLUDE on target group
- EXCLUDE on intervention
- EXCLUDE on evidence
- EXCLUDE on language
- EXCLUDE not empirical
- EXCLUDE no full text available
- INCLUDE on full study

## Data extraction (HPV)

- Country or regional focus
  - Afghanistan  
*participants\_from\_Afghanistan: boolean // return true if participants were located in Afghanistan*
  - Albania  
*participants\_from\_Albania: boolean // return true if participants were located in Albania*
  - Anguilla  
*participants\_from\_Anguilla: boolean // return true if participants were located in Anguilla*
  - Argentina  
*participants\_from\_Argentina: boolean // return true if participants were located in Argentina*
  - Armenia  
*participants\_from\_Armenia: boolean // return true if participants were located in Armenia*
  - Australia  
*participants\_from\_Australia: boolean // return true if participants were located in Australia*
  - Austria  
*participants\_from\_Austria: boolean // return true if participants were located in Austria*
  - Bangladesh  
*participants\_from\_Bangladesh: boolean // return true if participants were located in Bangladesh*
  - Belgium  
*participants\_from\_Belgium: boolean // return true if participants were located in Belgium*
  - Belize  
*participants\_from\_Belize: boolean // return true if participants were located in Belize*
  - Benin  
*participants\_from\_Benin: boolean // return true if participants were located in Benin*
  - Bhutan  
*participants\_from\_Bhutan: boolean // return true if participants were located in Bhutan*
  - Bolivia  
*participants\_from\_Bolivia: boolean // return true if participants were located in Bolivia*

- Bosnia & Herzegovina  
*participants\_from\_Bosnia\_and\_Herzegovina: boolean // return true if participants were located in Bosnia and Herzegovina*
- Botswana  
*participants\_from\_Botswana: boolean // return true if participants were located in Botswana*
- Brazil  
*participants\_from\_Brazil: boolean // return true if participants were located in Brazil*
- Burkina Faso  
*participants\_from\_Burkina\_Faso: boolean // return true if participants were located in Burkina Faso*
- Burundi  
*participants\_from\_Burundi: boolean // return true if participants were located in Burundi*
- Cabo Verde  
*participants\_from\_Cabo\_Verde: boolean // return true if participants were located in Cabo Verde*
- Cambodia  
*participants\_from\_Cambodia: boolean // return true if participants were located in Cambodia*
- Cameroon  
*participants\_from\_Cameroon: boolean // return true if participants were located in Cameroon*
- Canada  
*participants\_from\_Canada: boolean // return true if participants were located in Canada*
- Central African Republic  
*participants\_from\_Central\_African\_Republic: boolean // return true if participants were located in the Central African Republic*
- Chad  
*participants\_from\_Chad: boolean // return true if participants were located in Chad*
- Chile  
*participants\_from\_Chile: boolean // return true if participants were located in Chile*
- China  
*participants\_from\_China: boolean // return true if participants were located in China*
- Colombia  
*participants\_from\_Colombia: boolean // return true if participants were located in Colombia*

- Comoros  
*participants\_from\_Comoros: boolean // return true if participants were located in Comoros*
- Côte d'Ivoire  
*participants\_from\_Côte\_d'Ivoire: boolean // return true if participants were located in Côte d'Ivoire*
- Democratic Republic of the Congo  
*participants\_from\_Democratic\_Republic\_of\_the\_Congo: boolean // return true if participants were located in the Congo*
- Djibouti  
*participants\_from\_Djibouti: boolean // return true if participants were located in Djibouti*
- Dominica  
*participants\_from\_Dominica: boolean // return true if participants were located in Dominica*
- Dominican Republic  
*participants\_from\_the\_dominican\_republic: boolean // return true if participants were located in the Dominican Republic*
- Ecuador  
*participants\_from\_Ecuador: boolean // return true if participants were located in Ecuador*
- Egypt  
*participants\_from\_Egypt: boolean // return true if participants were located in Egypt*
- El Salvador  
*participants\_from\_El\_Salvador: boolean // return true if participants were located in El Salvador*
- Eritrea  
*participants\_from\_Eritrea: boolean // return true if participants were located in Eritrea*
- Eswatini  
*participants\_from\_Eswatini: boolean // return true if participants were located in Eswatini*
- Ethiopia  
*participants\_from\_Ethiopia: boolean // return true if participants were located in Ethiopia*
- Fiji  
*participants\_from\_Fiji: boolean // return true if participants were located in Fiji*
- Finland  
*participants\_from\_Finland: boolean // return true if participants were located in Finland*
- France  
*participants\_from\_France: boolean // return true if participants were located in France*

- Gambia  
*participants\_from\_Gambia: boolean // return true if participants were located in Gambia*
- Georgia  
*participants\_from\_Georgia: boolean // return true if participants were located in the country of Georgia*
- Germany  
*participants\_from\_Germany: boolean // return true if participants were located in Germany*
- Ghana  
*participants\_from\_Ghana: boolean // return true if participants were located in Ghana*
- Guatemala  
*participants\_from\_Guatemala: boolean // return true if participants were located in Guatemala*
- Guinea  
*participants\_from\_Guinea: boolean // return true if participants were located in Guinea*
- Guinea-Bissau  
*participants\_from\_Guinea\_Bissau: boolean // return true if participants were located in Guinea-Bissau*
- Grenada
- Guyana  
*participants\_from\_Guyana: boolean // return true if participants were located in Guyana*
- Haiti  
*participants\_from\_Haiti: boolean // return true if participants were located in Haiti*
- Honduras  
*participants\_from\_Honduras: boolean // return true if participants were located in Honduras*
- Hong Kong  
*participants\_from\_Hong\_Kong: boolean // return true if participants were located in Hong Kong*
- Iceland  
*participants\_from\_Iceland: boolean // return true if participants were located in Iceland*
- India  
*participants\_from\_India: boolean // return true if participants were located in India*
- Indonesia  
*participants\_from\_Indonesia: boolean // return true if participants were located in Indonesia*
- Iran  
*participants\_from\_Iran: boolean // return true if participants were located in Iran*

- Ireland  
*participants\_from\_Ireland: boolean // return true if participants were located in Ireland*
- Italy  
*participants\_from\_Italy: boolean // return true if participants were located in Italy*
- Jamaica  
*participants\_from\_Jamaica: boolean // return true if participants were located in Jamaica*
- Kazakhstan  
*participants\_from\_Kazakhstan: boolean // return true if participants were located in Kazakhstan*
- Kenya  
*participants\_from\_kenya: boolean // return true if participants were located in Kenya*
- Kiribati  
*participants\_from\_Kiribati: boolean // return true if participants were located in Kiribati*
- Kosovo  
*participants\_from\_Kosovo: boolean // return true if participants were located in Kosovo*
- Lao PDR  
*participants\_from\_Lao\_PDR: boolean // return true if participants were located in Lao PDR*
- Lebanon  
*participants\_from\_Lebanon: boolean // return true if participants were located in Lebanon*
- Lesotho  
*participants\_from\_Lesotho: boolean // return true if participants were located in Lesotho*
- Liberia  
*participants\_from\_Liberia: boolean // return true if participants were located in Liberia*
- Madagascar  
*participants\_from\_Madagascar: boolean // return true if participants were located in Madagascar*
- Malaysia  
*participants\_from\_Malaysia: boolean // return true if participants were located in Malaysia*
- Malawi  
*participants\_from\_Malawi: boolean // return true if participants were located in Malawi*
- Mali  
*participants\_from\_Mali: boolean // return true if participants were located in Mali*

- Mauritania  
*participants\_from\_Mauritania: boolean // return true if participants were located in Mauritania*
- Mauritius  
*participants\_from\_Mauritius: boolean // return true if participants were located in Mauritius*
- Mexico  
*participants\_from\_Mexico: boolean // return true if participants were located in Mexico*
- Moldova  
*participants\_from\_Moldova: boolean // return true if participants were located in Moldova*
- Mongolia  
*participants\_from\_Mongolia: boolean // return true if participants were located in Mongolia*
- Morocco  
*participants\_from\_Morocco: boolean // return true if participants were located in Morocco*
- Mozambique  
*participants\_from\_Mozambique: boolean // return true if participants were located in Mozambique*
- Myanmar  
*participants\_from\_Myanmar: boolean // return true if participants were located in Myanmar*
- Namibia  
*participants\_from\_Namibia: boolean // return true if participants were located in Namibia*
- Nepal  
*participants\_from\_Nepal: boolean // return true if participants were located in Nepal*
- Netherlands  
*participants\_from\_the\_Netherlands: boolean // return true if participants were located in the Netherlands*
- New Zealand
- Nicaragua  
*participants\_from\_Nicaragua: boolean // return true if participants were located in Nicaragua*
- Niger  
*participants\_from\_Niger: boolean // return true if participants were located in Niger*
- Nigeria  
*participants\_from\_Nigeria: boolean // return true if participants were located in Nigeria*

- Norway  
*participants\_from\_Norway: boolean // return true if participants were located in Norway*
- Pakistan  
*participants\_from\_Pakistan: boolean // return true if participants were located in Pakistan*
- Palestine  
*participants\_from\_Palestine: boolean // return true if participants were located in Palestine or the Palestinian governorates*
- Paraguay  
*participants\_from\_Paraguay: boolean // return true if participants were located in Paraguay*
- Philippines  
*participants\_from\_the\_Philippines: boolean // return true if participants were located in the Philippines*
- Peru  
*participants\_from\_Peru: boolean // return true if participants were located in Peru*
- Republic of Sudan  
*participants\_from\_the\_Republic\_of\_Sudan: boolean // return true if participants were located in the Republic of Sudan*
- Russia  
*participants\_from\_Russia: boolean // return true if participants were located in Russia*
- Rwanda  
*participants\_from\_Rwanda: boolean // return true if participants were located in Rwanda*
- S.t Lucia  
*participants\_from\_Saint\_Lucia: boolean // return true if participants were located in Saint Lucia*
- St. Vincent and the Grenadines  
*participants\_from\_Saint\_Vincent\_and\_the\_Grenadines: boolean // return true if participants were located in Saint Vincent and the Grenadines*
- Sao Thorne  
*participants\_from\_Sao\_Thorne: boolean // return true if participants were located in Sao Thorne*
- Senegal  
*participants\_from\_Senegal: boolean // return true if participants were located in Senegal*
- Serbia  
*participants\_from\_Serbia: boolean // return true if participants were located in Serbia*
- Seychelles  
*participants\_from\_Seychelles: boolean // return true if participants were located in Seychelles*

- Sierra Leone  
*participants\_from\_Sierra\_Leone: boolean // return true if participants were located in Sierra Leone*
- Solomon Islands  
*participants\_from\_Solomon\_Islands: boolean // return true if participants were located in the Solomon Islands*
- Somalia  
*participants\_from\_Somalia: boolean // return true if participants were located in Somalia*
- South Africa  
*participants\_from\_South\_Africa: boolean // return true if participants were located in South Africa*
- South Sudan  
*participants\_from\_South\_Sudan: boolean // return true if participants were located in South Sudan*
- Sri Lanka  
*participants\_from\_Sri\_Lanka: boolean // return true if participants were located in Sri Lanka*
- Sweden  
*participants\_from\_Sweden: boolean // return true if participants were located in Sweden*
- Taiwan  
*participants\_from\_Taiwan: boolean // return true if participants were located in Taiwan OR if primary studies in systematic reviews were conducted in Taiwan*
- Tajikstan  
*participants\_from\_Tajikstan: boolean // return true if participants were located in Tajikstan*
- Tanzania  
*participants\_from\_Tanzania: boolean // return true if participants were located in Tanzania*
- Thailand  
*participants\_from\_Thailand: boolean // return true if participants were located in Thailand*
- Togo  
*participants\_from\_Togo: boolean // return true if participants were located in Togo*
- Tonga  
*participants\_from\_Tonga: boolean // return true if participants were located in Tonga*
- Tunisia  
*participants\_from\_Tunisia: boolean // return true if participants were located in Tunisia*

- Türkiye
  - participants\_from\_Turkey: boolean // return true if participants were located in Turkey or Türkiye*
- Uganda
  - participants\_from\_Uganda: boolean // return true if participants were located in Uganda*
- UK
  - participants\_from\_United\_Kingdom: boolean // return true if participants were located in the United Kingdom*
- Ukraine
  - participants\_from\_Ukraine: boolean // return true if participants were located in Ukraine*
- United States
  - participants\_from\_the\_United\_States: boolean // return true if participants were located in the United States*
- Uzbekistan
  - participants\_from\_Uzbekistan: boolean // return true if participants were located in Uzbekistan*
- Vietnam
  - participants\_from\_Vietnam: boolean // return true if participants were located in Vietnam*
- Yemen
  - participants\_from\_Yemen: boolean // return true if participants were located in Yemen*
- Zambia
  - participants\_from\_Zambia: boolean // return true if participants were located in Zambia*
- Zimbabwe
  - participants\_from\_Zimbabwe: boolean // return true if participants were located in Zimbabwe*
- Multiple countries
  - Multiple\_countries: boolean // return true if this study included participants from multiple countries*
- Global
  - participants\_from\_all\_over\_the\_world: boolean // return true if participants were located all over the world*
- Other high income countries
- Continent
  - Africa
    - study\_undertaken\_in\_Africa: boolean // return true if this study was undertaken in any African country*
  - Asia
    - study\_undertaken\_in\_Asia: boolean // return true if this study was undertaken in any Asian country*

- Europe  
*study\_undertaken\_in\_Europe: boolean // return true if this study was undertaken in any European country*
- Latin America and the Caribbean  
*study\_undertaken\_in\_Latin\_America\_and\_the\_Caribbean: boolean // return true if this study was undertaken in any Latin American or Caribbean country*
- North America  
*study\_undertaken\_in\_North\_America: boolean // return true if this study was undertaken in any North American country*
- Oceania  
*study\_undertaken\_in\_Oceania: boolean // return true if this study was undertaken in any Oceanian country*
- World Bank Region
  - East Asia & Pacific  
*study\_undertaken\_in\_East\_Asia\_or\_the\_Pacific: boolean // return true if this study was undertaken in any country in East Asia or the Pacific*
  - Europe & Central Asia  
*study\_undertaken\_in\_Europe\_or\_Central\_Asia: boolean // return true if this study was undertaken in any European or Central Asian country*
  - Latin America and the Caribbean  
*study\_undertaken\_in\_Latin\_America\_and\_the\_Caribbean: boolean // return true if this study was undertaken in any Latin American or Caribbean country*
  - Middle East, North Africa, Afghanistan & Pakistan  
*study\_undertaken\_in\_the\_Middle\_east\_North\_Africa\_Afghanistan\_or\_Pakistan: boolean // return true if this study was undertaken in at least one country in the Middle East, North Africa, Afghanistan or Pakistan*
  - North America  
*study\_undertaken\_in\_North\_America: boolean // return true if this study was undertaken in any North American country*
  - South Asia  
*study\_undertaken\_in\_South\_Asia: boolean // return true if this study was undertaken in any country in South Asia*
  - Sub-Saharan Africa  
*study\_undertaken\_in\_Sub\_Saharan\_Africa: boolean // return true if this study was undertaken in any country in Sub Saharan Africa*
- World Bank Income Group
  - Low Income Country  
*focused\_on\_low\_income\_countries: boolean // return true only if this study is about or the participants are from any of the following countries: Afghanistan, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of Congo, Eritrea, Gambia, The Guinea-Bissau, Democratic People's Public of Korea, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Somalia, South Sudan, Sudan, Syrian Arab Republic, Togo, Uganda, Yemen*

- Lower-Middle Income Country  
*participants\_from\_lower\_middle\_income\_countries: boolean // return true only if this study is about or the participants are from any of the following countries: Angola, Bangladesh, Benin, Bhutan, Bolivia, Cambodia, Cameroon, Comoros, Republic of Congo, Côte d'Ivoire, Djibouti, Egypt, Arab Republic, Eswatini, Ethiopia, Ghana, Guinea, Haiti, Honduras, India, Jordan, Kenya, Kiribati, Kyrgyz Republic, Lao PDR, Lebanon, Lesotho, Mauritania, Micronesia, Morocco, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, Pakistan, Papua New Guinea, the Philippines, São Tomé and Príncipe, Senegal, Solomon Islands, Sri Lanka, Tajikistan, Tanzania, Timor-Leste, Tunisia, Uzbekistan, Vanuatu, Vietnam, West Bank and Gaza, Zambia, or Zimbabwe*
- Upper-Middle Income Country  
*focused\_on\_upper\_middle\_income\_countries: boolean // return true only if this study is about or the participants are from any of the following countries: Albania, Algeria, Argentina, Armenia, Azerbaijan, Belarus, Belize, Bosnia and Herzegovina, Botswana, Brazil, Cabo Verde, China, Colombia, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Equatorial Guinea, Fiji, Gabon, Georgia, Grenada, Guatemala, Indonesia, Iran, Islamic Rep., Iraq, Jamaica, Kazakhstan, Kosovo, Libya, Malaysia, Maldives, Marshall Islands, Mauritius, Mexico, Moldova, Mongolia, Montenegro, North Macedonia, Paraguay, Peru, Samoa, Serbia, South Africa, St. Lucia, St. Vincent and the Grenadines, Suriname, Thailand, Tonga, Türkiye, Turkey, Turkmenistan, Tuvalu, or Ukraine.*
- High Income Country  
*focused\_on\_high\_income\_countries: boolean // return true only if this study is about or the participants are from any of the following countries: American Samoa, Andorra, Antigua and Barbuda, Aruba, Australia, Austria, the Bahamas, Bahrain, Barbados, Belgium, Bermuda, British Virgin Islands, Brunei Darussalam, Bulgaria, Canada, Cayman Islands, Channel Islands, Chile, Costa Rica, Croatia, Curaçao, Cyprus, Czechia, Denmark, Estonia, Faroe Islands, Finland, France, French Polynesia, Germany, Gibraltar, Greece, Greenland, Guam, Guyana, Hong Kong SAR, Hungary, Iceland, Ireland, Isle of Man, Israel, Italy, Japan, South Korea, Kuwait, Latvia, Liechtenstein, Lithuania, Luxembourg, Macao SAR, Malta, Monaco, Nauru, Netherlands, New Caledonia, New Zealand, Northern Mariana Islands, Norway, Oman, Palau, Panama, Poland, Portugal, Puerto Rico, Qatar, Romania, Russian Federation, San Marino, Saudi Arabia, Seychelles, Singapore, Sint Maarten, Slovak Republic, Slovenia, Spain, St. Kitts and Nevis, St. Martin (French part), Sweden, Switzerland, Taiwan, Trinidad and Tobago, Turks and Caicos Islands, United Arab Emirates, United Kingdom, United States, Uruguay, or the Virgin Islands.*
- Thematic Focus
  - Acceptability of HPV vaccine by patients  
*about\_patient\_acceptance\_of\_or\_attitude\_towards\_HPV\_vaccination: boolean // return true if this study is about patient acceptance of or their attitude towards HPV vaccination*

- Acceptability of HPV vaccination by parents  
*about\_parent\_acceptance\_of\_or\_attitude\_towards\_HPV\_vaccination: boolean // return true if this study is about parental acceptance of or their attitude towards HPV vaccination*
- Acceptability of HPV vaccine by health care workers  
  
*about\_healthcare\_worker\_acceptance\_of\_or\_attitude\_towards\_HPV\_vaccination : boolean // return true if this study is about healthcare worker acceptance of or their attitude towards HPV vaccination*
- Vaccine Efficacy and Effectiveness  
*is\_about\_HPV\_vaccine\_efficacy\_and\_effectiveness: boolean // return true if this study focuses on HPV vaccine efficacy and effectiveness*
- Vaccine Introduction and Implementation in LMICs  
*is\_about\_HPV\_vaccine\_introduction\_and\_implementation\_in\_LMICs: boolean // return true if this study focuses on HPV Vaccine Introduction and Implementation in Low- and middle-income countries*
- Cost and Cost-Effectiveness of Vaccination Programs  
*is\_about\_cost\_and\_cost\_effectiveness\_of\_HPV\_vaccination\_programs: boolean // return true if this study focuses on the cost and/or cost-effectiveness of HPV vaccination programs*
- Impact & equity of vaccination  
*is\_about\_impact\_and\_equity\_of\_HPV\_vaccination: boolean // return true if this study focuses on the impact and equity of HPV vaccination*
- Single-dose HPV vaccination  
*is\_about\_single\_dose\_HPV\_vaccination: boolean // return true if this study focuses on single dose HPV vaccination*
- Vaccine types & development  
*is\_about\_vaccine\_types\_and\_development: boolean // return true if this study focuses on vaccine types and development*
- Monitoring & evaluation of vaccination programs  
*is\_about\_monitoring\_and\_evaluation\_of\_vaccination\_programs: boolean // return true if this study focuses on the monitoring and evaluation of vaccination programs*
- Study design
  - Modeling study  
*is\_a\_modeling\_study: boolean // return true if this study is a modeling study, for example transmission-dynamic, cost-effectiveness. Return false if this is any type of evidence synthesis, such as a systematic review, meta-analysis or scoping review.*
  - Clinical trials  
*is\_a\_clinical\_trial: boolean // return true if this study is a clinical trial, for example a randomized controlled trial, immunobridging or cohort study. Return false if this is any type of evidence synthesis, such as a systematic review, meta-analysis or scoping review.*

- Costing study  
*is\_a\_costing\_study: boolean // return true if this study is a costing study, for example microcosting or operational research. Return false if this is any type of evidence synthesis, such as a systematic review, meta-analysis or scoping review.*
- Prevalence study  
*is\_a\_prevalence\_study: boolean // return true if this study is a prevalence study, for example a cross-sectional study. Return false if this is any type of evidence synthesis, such as a systematic review, meta-analysis or scoping review.*
- Descriptive observational study  
*is\_a\_descriptive\_observational\_study: boolean // return true if this study is a descriptive observational study*
- Systematic reviews and meta-analyses  
*is\_an\_evidence\_synthesis: boolean // return true if this is a form of evidence synthesis, for example a systematic review, scoping review, meta-analysis, mapping review or evidence gap map*
- Qualitative study  
*is\_a\_qualitative\_study: boolean // return true if this is a qualitative study, for example using interviews, focus groups or thematic analysis. Return false if this is any type of evidence synthesis, such as a systematic review, meta-analysis or scoping review.*
- Analysis of surveillance data  
*is\_an\_analysis\_of\_surveillance\_data: boolean // return true if this study is an analysis of surveillance data*
- Proficiency testing program  
*is\_a\_proficiency\_testing\_program: boolean // return true if this is a proficiency testing program*
- Use of administrative and registry data  
*uses\_administrative\_and\_registry\_data: boolean // return true if this study uses administration and/or registry data*
- Vaccine Schedule
  - Dose Schedule  
*dose\_schedule\_discussed: boolean // return true if this study reports a recommended number and timing of HPV vaccine doses (e.g., 2-dose vs. 1-dose).*
  - Catch-up Strategies  
*catch\_up\_strategies\_used: boolean // return true if this study targets older cohorts or missed girls outside the recommended age range for HPV vaccination*
- Delivery Dose
  - Single dose  
*single\_vaccine\_dose: boolean // return true if participants were given a single dose of a HPV vaccine*

- Multi-dose  
*multi\_vaccine\_dose: boolean // return true if participants were given multiple doses of a HPV vaccine*
- Special Populations
  - Subgroups requiring tailored strategies*
    - Out-of-school girls  
*study\_targeted\_out\_of\_school\_girls: boolean // return true if this study targeted girls not attending school*
    - Hard to reach populations  
*study\_targeted\_hard\_to\_reach\_populations: boolean // return true if this study targeted hard to reach populations*
    - HIV positive adolescents  
*study\_targeted\_HIV\_positive\_adolescents: boolean // return true if this study targeted HIV positive adolescents*
    - Medical physicians  
*participants\_are\_medical\_professionals: boolean // Return true if this study includes participants who are medical professionals, for example doctors, paediatricians or health care workers*
    - Medical students  
*participants\_are\_medical\_students: boolean // Return true if this study includes participants who are medical students*
    - Parents  
*parents\_are\_participants: boolean // Return true if the participants of this study are parents.*
    - Researchers/Academics  
*academics\_are\_participants: boolean // Return true if the participants in this study were academics.*
    - NGO workers  
*NGO\_workers\_are\_participants: boolean // Return true if the participants in this study included national governmental organisation workers, for example the World Health Organisation, or UNICEF.*
    - Policymakers  
*policymakers\_are\_participants: boolean // Return true if the participants in this study included policymakers, such as for national governments*
- Age of study participants
  - 21 or over  
*participants\_aged\_21\_or\_over: boolean // return true if participants in this study included people aged 21 or over*
  - 9 year olds  
*9\_year\_old\_participants: boolean // return true if participants in this study included 9 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 10 year olds  
*10\_year\_old\_participants: boolean // return true if participants in this study*

- included 10 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 11 year olds
    - 11\_year\_old\_participants: boolean // return true if participants in this study included 11 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 12 year olds
    - 12\_year\_old\_participants: boolean // return true if participants in this study included 12 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 13 year olds
    - 13\_year\_old\_participants: boolean // return true if participants in this study included 13 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 14 year olds
    - 14\_year\_old\_participants: boolean // return true if participants in this study included 14 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 15 year olds
    - 15\_year\_old\_participants: boolean // return true if participants in this study included 15 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 16 year olds
    - 16\_year\_old\_participants: boolean // return true if participants in this study included 16 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 17 year olds
    - 17\_year\_old\_participants: boolean // return true if participants in this study included 17 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 18 year olds
    - 18\_year\_old\_participants: boolean // return true if participants in this study included 18 year olds. Return false if participants\_are\_medical\_professionals is true.*
  - 19 year olds
    - 19\_year\_old\_participants: boolean // return true if participants in this study included 19 year olds*
  - 20 year olds
    - 20\_year\_old\_participants: boolean // return true if participants in this study included 20 year olds*
- Sex
  - Male
    - study\_included\_males: boolean // return true if this study included male participants*

- Female  
*study\_included\_females: boolean // return true if this study included female participants*
- Delivery strategy
  - Routine delivery  
*routine\_vaccination\_delivery: boolean // return true if vaccination delivery was via health system mechanisms integrated into the national immunisation schedule.*
  - Campaign delivery  
*campaign\_delivery: boolean // return true if this study used a specific campaign. A campaign is a time-limited intensive immunization activity or activities targeting a defined group, often to introduce HPV vaccine or boost coverage (for example PIRI, BCU, nOPV campaigns)*
  - Mixed strategy  
*mixed\_delivery\_strategy: boolean // return true is this study used a combination of routine and campaign strategies in a phased or integrated format.*
- Delivery location
  - School-based  
*primary\_delivery\_strategy\_was\_only\_in\_schools: boolean // return true if the primary delivery strategy of HPV vaccine was only undertaken within educational institutions, typically targeting in-school girls and boys.*
  - Health facility-based  
*primary\_delivery\_strategy\_was\_only\_in\_health\_facilities: boolean // return true if the primary delivery strategy of HPV vaccine was only undertaken in health facilities, such as clinics, hospitals, or other formal healthcare settings.*
  - Outreach/mobile  
*primary\_delivery\_strategy\_was\_outreach: boolean // return true if the primary delivery strategy of HPV vaccine was undertaken by outreach or through mobile teams to reach populations not easily accessed via static sites.*
  - Community-based  
*vaccine\_given\_at\_community\_sites: boolean // return true if this study reports that HPV vaccine was administered at community sites (for example in churches, markets, community centres).*
  - Schools + Outreach  
*primary\_delivery\_strategy\_was\_in\_schools\_and\_outreach: boolean // return true if the primary delivery strategy of HPV vaccine was undertaken using a combination of schools and outreach*
  - Schools + child health days  
*primary\_delivery\_strategy\_was\_in\_schools\_and\_child\_health\_days: boolean // return true if the primary delivery strategy of HPV vaccine was undertaken using a combination of schools and child health days*
  - School + health facility  
*primary\_delivery\_strategy\_was\_in\_schools\_and\_health\_facilities: boolean //*

*return true if the primary delivery strategy of HPV vaccine was undertaken using a combination of schools and health facilities*

- School, health facility + outreach  
*primary\_delivery\_strategy\_was\_in\_schools\_health\_facilities\_and\_outreach: boolean // return true if the primary delivery strategy of HPV vaccine was undertaken using a combination of schools, health facilities and outreach*
- Integration into the health care service  
*primary\_delivery\_strategy\_was\_integration\_into\_the\_health\_care\_service: boolean // return true if the primary delivery strategy of HPV vaccine was only by integrating it into the health care service*
- Delivery cadre
  - Health workers  
*health\_workers\_were\_responsible\_for\_delivery: boolean // return true if this study reports that health workers were responsible for vaccine administration, such as nurses, midwives or other medical staff.*
  - Community Health Workers  
*community\_health\_workers\_were\_responsible\_for\_delivery: boolean // return true if this study reports that community health workers (CHWs) were responsible for vaccine administration, who are non-formal health actors trained to support immunisation efforts in communities.*
  - Teachers/Volunteers  
*teachers\_or\_volunteers\_were\_responsible\_for\_delivery: boolean // return true if this study reports that teachers or volunteers were responsible for vaccine administration, who are non-health professionals assisting with logistics, mobilisation, or monitoring.*
- Communication & Social Mobilisation
  - Community Engagement  
*community\_engagement: boolean // return true if this study reports activities that inform, educate, and mobilize communities to support HPV vaccination. Includes dialogue structure, meetings, TV, and radio programs.*
  - Demand Generation  
*demand\_generation: boolean // return true if this study reports using strategies to increase vaccine uptake (e.g., SBCC campaigns, parental consent drives).*
  - Misinformation Management  
*misinformation\_management: boolean // return true if this study reports using approaches to detect, monitor, and respond to vaccine hesitancy and misinformation.*
- Vaccine Logistics
  - Cold Chain & Supply  
*cold\_chain\_and\_supply\_reported: boolean // return true if this study reported using systems for storing and transporting vaccines at appropriate temperatures and tracking stock levels.*

- Wastage Management  
*wastage\_management\_reported: boolean // return true if this study reports using strategies to reduce unused or spoiled vaccines (e.g., multi-dose vial policy).*
- Microplanning  
*microplanning\_reported: boolean // return true if this study reports local-level planning of vaccination activities (e.g., scheduling, site mapping).*
- Monitoring Evaluation
  - Coverage Monitoring  
*used\_coverage\_monitoring: boolean // return true if this study used systems to track vaccination coverage, dropout, and completion rates.*
  - Adverse Event Monitoring  
*adverse\_event\_monitoring\_used: boolean // return true if this study conducted surveillance of post-vaccination side effects (AEFI).*
  - Data Quality Audits  
*data\_quality\_audits\_conducted: boolean // return true if this study reported conducting data quality audits, which are reviews to assess the accuracy, completeness, and timeliness of immunization data.*
- Equity & Access
  - Gender Considerations  
*gender\_considered: boolean // return true if this study reported ensuring equitable gender access and addressing gender-specific barriers.*
  - Socioeconomic Barriers  
*considered\_socioeconomic\_barriers: boolean // return true if this study reported addressing socioeconomic barriers to vaccination, such as affordability, transportation, caregiver literacy, etc.*
  - Geographic Barriers  
*geographic\_barriers\_considered: boolean // return true if this study reports considering geographic barriers, such as remote or insecure areas that limit vaccine access.*
- Governance & Financing
  - Government Leadership  
*government\_leadership\_involved: boolean // return true if this study reports that government leadership was involved, such as the Ministry of Health or national bodies overseeing vaccine introduction, scale-up, and policy.*
  - Financing Mechanisms  
*financing\_mechanisms\_reported: boolean // return true if this study reports domestic or donor funding for HPV delivery (e.g., GAVI support, basket funding).*
  - Partner Coordination  
*partner\_coordination\_involved: boolean // return true if this study reports collaboration between stakeholders (e.g., GAVI, UNICEF, NGOs)*
- Vaccine Types
  - Cecolin  
*cecolin\_is\_vaccine: boolean // return true if participants were given Cecolin*

- Cervarix  
*cervarix\_is\_vaccine: boolean // return true if participants were given Cervarix*
- Gardasil-4  
*Gardasil4\_is\_vaccine: boolean // return true if participants were given Gardasil-4*
- Gardasil-9  
*gardasil9\_is\_vaccine: boolean // return true if participants were given Gardasil-9*

