



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

Version 3.0

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Contributions

Name	Affiliation	Contribution	Conflicts of interest
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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 (LMICs) (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 (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 LMICs.

Thematic focus

Behavioural and social drivers of uptake	WHY do people accept or decline HPV vaccination?
Demand generation and communication strategies	WHAT strategies effectively change vaccination behaviour or demand?
Delivery design and optimisation	HOW should vaccination be structured and delivered?
Service integration and co-delivery	WHAT happens when HPV is delivered alongside other health services?
Equity and hard-to-reach populations	WHO is being missed and how can they be reached?
Health workforce capacity and engagement	What do health workers know, do, and need to deliver HPV vaccination?
Governance, policy and political commitment	WHO decides and HOW are programmes introduced and governed?
Financing and programme sustainability	What does vaccination COST and how is it funded sustainably?
Measurement, data systems and enumeration	HOW is vaccination coverage measured and how reliable is the data?
Modelling and impact projection	What IMPACT will vaccination have at population level?
Vaccine efficacy, immunogenicity and schedule	How well does the vaccine WORK biologically?

Geographical focus

- LMICs

Study types

Inclusion

All empirical study designs are eligible. This includes, 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 (e.g., editorials)

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

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

Participants

Inclusion

- Girls - all ages
- Boys - all ages

- Parents
- Healthcare workers
- Interest holders

Exclusion

- None

Geographical scope

Inclusion

- LMICs 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

Language

Inclusion

- English
- French

Exclusion

- Languages other than English and French

Methodology

Search Strategy

We searched the following databases: Google Scholar, iris.who.int, globalindexmedicus.net, OpenAlex, PubMed, DOAJ, Crossref, Cochrane, 3ie, Basenet, Research for life, Research square, Taylor & Francis online, GAVI, PATH, UNICEF, [WHO.int](https://www.who.int), [Google.com](https://www.google.com), Europe PMC.

Search strings in English

1. (((HPV[ti] OR Papilloma*[ti]) AND (vaccine*[ti] OR vaccinat*[ti] OR immuniz*[ti] OR immunis*[ti])) OR ((gardasil[ti] OR cervarix[ti])) OR ("Papillomavirus Vaccines"[Mesh])) AND ((deliver*[tiab] OR system*[tiab] OR roll*[tiab] OR implement*[tiab] OR polic*[tiab] OR program*[tiab]))
2. (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)
3. human papillomavirus vaccine filetype:pdf
4. HPV Vaccine

Search strings in French

1. (Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)
2. "Vaccination contre le VPH" OR "Vaccin contre le VPH"
3. VACCIN VPH filetype:pdf

The updated searches covered from January, 2000 to May, 2026. Please see Appendix 1 for the full search strategies.

Screening

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

A subset (n=200) of references were screened by the team to ensure continued consistency in applying the screening criteria. Differences in screening were reconciled by an expert reviewer. Percentage agreement was on 98% with fleiss kappa .90.

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.

The prompt from v2 of the map was applied to a group of records (n=200) that had been double-screened by reviewers. Recall of .90 was achieved and the LLM was applied to all unscreened records.

The final prompt used for screening using LLM model GPT-4.1 was:

"is_about_HPv_vaccine_delivery_uptake_or_perceptions: boolean // Return true if this record reports a primary empirical study about HPV vaccine delivery, uptake, or acceptance, published in English or French.

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).*
- grey literature reports from reputable sources (e.g., WHO, UNICEF, GAVI)*

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. "

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.

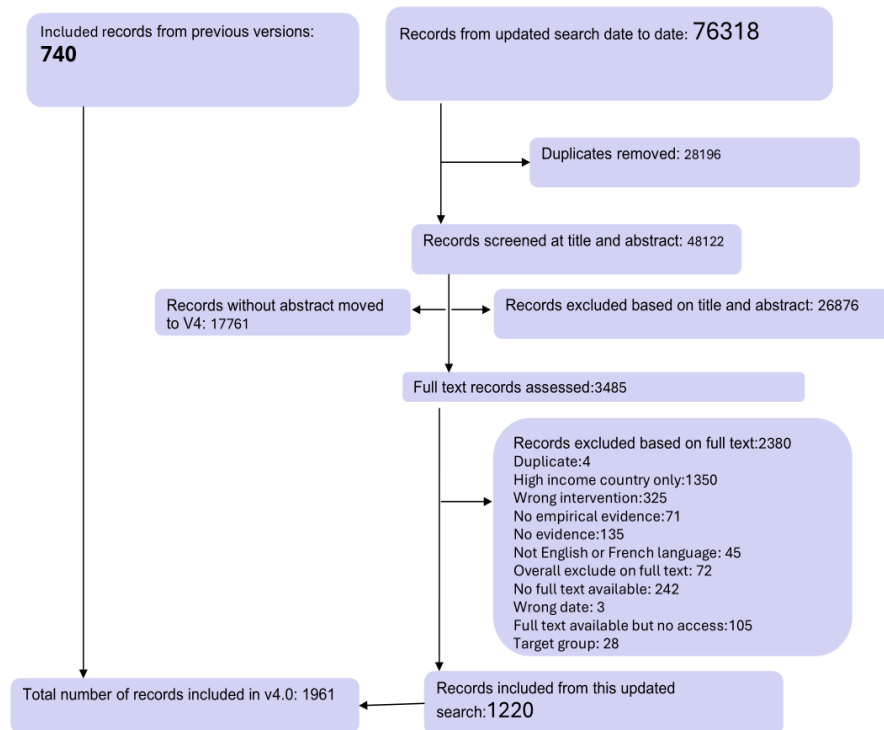
Items were screened on full text by groups of individual reviewers with a second reviewer checking all coding decisions. Any disagreement was solved by discussion or by involving a third reviewer. Automation was not used for full-text screening, and references included at the full-text screening progressed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

Data extraction

Data extraction occurred automatically within EPPI Reviewer by creating individual LLM prompts for each code (see Appendix 2). We extracted data using model GPT-5.1., ~2% of the records with extracted data were double checked by an expert reviewer. Data were extracted on the following variables: AI Application, Acceptability Target, Behavioural And Social Driver, Co Delivered, Intervention, Comm Strategies Interventions, Communication Channel, Communication Recipient, Communication Sender, Coordination Mechanism, Country, Country Classification, Data Source, Delivery Actor, Delivery Model Type, Delivery Platform, Delivery Site, Equity Dimension, Financing Mechanism, Fragility Humanitarian Context, Governance Actor, Implementation, Strategy, Integration Type, Misinformation Activity, Outcome Measure, Program Scale, Program, Stage, Quality Of Care Dimension, Setting Context, Study Design, Supply Chain Aspect, Target, Population, UNICEF Region, Vaccination Eligibility, Vaccine Schedule, WHO Region, World Bank, Region, Funder, Thematic Focus - Primary, Thematic Focus - Secondary, Vaccine Type and Document Type. For more details on the coding tools please see Appendix 2.

Results

We identified 76318 new records for Version 3 of the repository. After screening we included 1220 new records. Bringing the total number of records to 1961.



Data synthesis

The data is stored in the [Living HPV Vaccine Delivery Evidence Repository](#).

The records can be filtered by the items in the [HPV Vaccine Delivery Taxonomy](#) developed for this project. The records can be visualised as an interactive map - users can create matrices mapping one variable with another for example: thematic focus vs World Bank region. Finally, groups of records can be summarised using AI. This feature is currently not available to the public as it undergoes testing with a small group of pre-registered users.

We will continue to incorporate new records into the repository. The planned cadence is currently monthly. Based on current funding, we anticipate that the last update will be in early 2027.

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

Searches in English (01/01/2000 to 01/05/2026)

Database/Source	Search Terms	Filters	Hits
Google scholar	(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)	2000 - 2026	2831
Taylor & Francis	(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)	2000 - 2026	483
Openalex	(HPV vaccine OR Human Papillomavirus vaccine OR cervical cancer vaccine) AND (delivery OR	2000 - 2026	6194

	planning OR implementation OR coordination OR rollout OR campaign) NOT (cancer screening OR disease burden OR vaccine choice)		
Cochrane	(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)	2000 - 2026	13
PUBMED	(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)	2000 - 2026	9513
Crossref	(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)	2000 - 2026	22255
DOAJ	(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)	2000 - 2026	363
Research Square	(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)	2000 - 2026	1793
Research for life	(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)	2000 - 2026	140
Base-net	(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)	2000 - 2026	99
WHO.IRIS	HPV Vaccine	2000 - 2026	9022
Google.com	Human papillomavirus vaccine filetype:pdf	2000 - 2026	241
3ie	HPV Vaccine		11

UNICEF	HPV		4
PATH	HPV		7
Global index	HPV		5
GAVI	HPV		3

Total 1 = 52977

Searches in French (01/01/2000 to 01/05/2026)

Base de données / Source	Termes de recherche	Astuce / Filtres de recherche	Resultats
Google scholar	(Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)	2000 - 2026	751
Google scholar	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	335
Openalex	(Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)	2000 - 2026	3
Openalex	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	127
Crossref	(Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)	2000 - 2026	6690
Crossref	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	6525

WHO.int	(Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)	2000 - 2026	128
who.int	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	27
Base-net	(Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)	2000 - 2026	90
Base-net	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	20
iris.WHO.int	(Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne) NOT (dépistage du cancer OR fardeau de la maladie OR choix vaccinal)	2000 - 2026	4460
iris.who.int	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	43
Research for life	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	10
Research Square	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	3179
PUDMED	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	4
Europe PMC	"Vaccination contre le VPH" OR "Vaccin contre le VPH"	2000 - 2026	20
Google.com	Vaccin VPH filetype:pdf	2000 - 2026	174

Total 2= 22586

Handsearch = 755

(Total 1 + Total 2 + Handsearch) = 76318

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, published in English or French.
-
- 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).
 - - grey literature reports from reputable sources (e.g., WHO, UNICEF, GAVI)
-
- 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.
- **EXCLUDE on title & abstract**
- exclude: Boolean // Return true if is_about_HPВ_vaccine_delivery_uptake_or_perceptions is false.
- **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

HPV Taxonomy

- AI Application
 - AI in data analysis
AI_in_data_analysis: boolean // Return true if this paper reports on the use of artificial intelligence in data analysis, such as automated coding, classification, or pattern recognition.
 - AI in intervention
AI_in_intervention: boolean // Return true if this paper reports on the use of artificial intelligence as part of the intervention itself, such as AI-driven communication or decision support.
- Acceptability Target
 - Community leaders
Community_leaders1: boolean // Return true if this paper reports on community leaders including traditional, religious, or civic leaders whose acceptability of or attitudes toward HPV vaccination are assessed.
 - Caregivers
Caregivers1: boolean // Return true if this paper reports on acceptability toward HPV vaccination as perceived by caregivers, including parents and guardians.
 - Recipients
Recipients: boolean // Return true if this paper reports on acceptability toward HPV vaccination as perceived by vaccine recipients.
 - Health workers
Health_workers1: boolean // Return true if this paper reports on acceptability toward HPV vaccination as perceived by health workers involved in delivery.
- Behavioural And Social Driver
 - Motivation
Motivation: boolean // Return true if this paper reports on the degree to which individuals intend, are willing, or are actively driven to seek vaccination.
 - Thinking and feeling
Thinking_and_feeling: boolean // Return true if this paper reports on individual cognitive and emotional factors that shape whether a person decides to vaccinate.
 - Practical issues
Practical_issues: boolean // Return true if this paper reports on structural and logistical factors that prevent motivated individuals from accessing vaccination, including the experiences people have when they try to get vaccinated.
 - Social processes
Social_processes: boolean // Return true if this paper reports on interpersonal,

community, and normative factors that influence vaccination behaviour through relationships and social context.

- Co Delivered Intervention

- Mental health

Mental_health: boolean // Return true if this paper reports on mental health services or psychosocial support co-delivered alongside HPV vaccination, including counselling, screening for depression or anxiety, or referral services.

- Nutrition

Nutrition: boolean // Return true if this paper reports on nutritional interventions co-delivered alongside HPV vaccination, beyond iron and folate supplementation, including broader micronutrient programmes, school feeding, or nutrition counselling.

- Other vaccines

Other_vaccines: boolean // Return true if this paper reports on one or more other vaccines co-administered alongside HPV vaccination at the same visit or contact.

- Other

Other1 : boolean // Return true if this paper reports on a co-delivered health intervention not covered by other Co-delivered Intervention concepts.

- SRH

SRH: boolean // Return true if this paper reports on sexual and reproductive health services co-delivered alongside HPV vaccination, including contraception counselling, STI testing, SRH education, and HIV/AIDS care services.

- Deworming

Deworming: boolean // Return true if this paper reports on deworming treatment co-delivered with HPV vaccination.

- NCDs

NCDs: boolean // Return true if this paper reports on non-communicable disease screening or interventions co-delivered with HPV vaccination.

- Education

Education: boolean // Return true if this paper reports on educational activities or programmes co-delivered with HPV vaccination.

- Vision screening

Vision_screening: boolean // Return true if this paper reports on vision screening co-delivered with HPV vaccination.

- Hearing screening

Hearing_screening: boolean // Return true if this paper reports on hearing screening co-delivered with HPV vaccination.

- Iron/Folate supplementation

Iron/Folate_supplementation: boolean // Return true if this paper reports on iron and folate supplementation co-delivered with HPV vaccination.

- WASH

WASH: boolean // Return true if this paper reports on water, sanitation, and hygiene interventions co-delivered with HPV vaccination.

- GBV reduction
GBV_reduction: boolean // Return true if this paper reports on gender-based violence reduction activities co-delivered with HPV vaccination.
- Health education
Health_education: boolean // Return true if this paper reports on health education activities co-delivered with HPV vaccination.
- Cervical cancer screening
Cervical_cancer_screening: boolean // Return true if this paper reports on cervical cancer screening co-delivered or strategically linked with HPV vaccination as part of a combined cervical cancer prevention approach.
- HIV/AIDS care and treatment
HIV/AIDS_care_and_treatment: boolean // Return true if this paper reports on HIV/AIDS clinical care, treatment, or support services co-delivered alongside HPV vaccination.
- Comm Strategies Interventions
 - Community sensitisation
Community_sensitisation: boolean // Return true if this paper reports on community sensitisation activities to build awareness and acceptance of HPV vaccination at the community level.
 - Peer education models
Peer_education_models: boolean // Return true if this paper reports on peer education models where adolescents or community members deliver vaccination-related information to their peers.
 - Parent engagement
Parent_engagement: boolean // Return true if this paper reports on activities that engage parents or caregivers to support vaccination of their children.
 - School-based engagement
School-based_engagement: boolean // Return true if this paper reports on communication or education strategies delivered through or within school settings, using the school as the primary venue or channel for HPV vaccination messaging.
 - Teacher engagement
Teacher_engagement: boolean // Return true if this paper reports on communication or education strategies that deliberately involve teachers as active participants in conveying HPV vaccination information to students or caregivers.
- Communication Channel
 - Interpersonal (face-to-face)
Interpersonal_(face-to-face): boolean // Return true if this paper reports on one-on-one doctor consultations, doorstep visits as a communication channel, such as, direct face-to-face communication including counselling sessions, community meetings, and individual consultations.
 - Print materials
Print_materials: boolean // Return true if this paper reports on pamphlets, posters, school-entry flyers used to communicate about HPV vaccination.

- Other

Other2: boolean // Return true if this paper reports on a communication channel not covered by other concepts in this scheme.
- Mass media

Mass_media: boolean // Return true if this paper reports on television, radio, and other broadcast media used as communication channels for HPV vaccination campaigns.
- Digital/social media

Digital/social_media: boolean // Return true if this paper reports on SMS alerts, Facebook campaigns, WhatsApp groups as a communication channel, such as, social media platforms (Facebook, WhatsApp, TikTok, etc.) and digital channels.
- Text-message reminders

Text-message_reminders: boolean // Return true if this paper reports on Text or SMS-based reminders to promote vaccination attendance or completion.
- Communication Recipient
 - Young adults

Young_adults: boolean // Return true if this paper reports on young adults (typically 18 to 25) as a distinct communication recipient group, particularly relevant in catch-up programmes or where young adults are gatekeepers for adolescent girls.
 - Peer educators

Peer_educators: boolean // Return true if this paper reports on peer educators as communication recipients, being trained or equipped to deliver peer-to-peer HPV messaging.
 - Health workers

Health_workers2: boolean // Return true if this paper reports on health workers as communication recipients receiving training, updates, or education about HPV vaccination to improve their counselling or delivery capacity.
 - Community health workers

Community_health_workers1: boolean // Return true if this paper reports on community health workers as communication recipients receiving training or information to enable them to communicate about HPV vaccination in their communities.
 - Adolescent boys

Adolescent_boys: boolean // Return true if this paper reports on relevant in gender-neutral programmes and contexts where boys receive communication as part of a broader school or community engagement strategy. For programmes where boys are vaccination recipients rather than communication recipients, tag Male only in Target Population.
 - Caregivers

Caregivers2: boolean // Return true if this paper reports on parents, guardians, or adult caregivers as recipients of HPV vaccination communication. Often gatekeepers for adolescent vaccination decisions.
 - School personnel

School_personnel: boolean // Return true if this paper reports on school staff teachers, administrators, or school nurses as recipients of HPV-related communication or training.

- Traditional and religious leaders
Traditional_and_religious_leaders1 : boolean // Return true if this paper reports on traditional or religious leaders as communication recipients being engaged, briefed, or educated about HPV vaccination to secure their support.
- Adolescent girls
Adolescent_girls: boolean // Return true if this paper reports on the primary target recipient in most HPV communication programmes. Includes both in-school and out-of-school girls.
- Communication Sender
 - Celebrities/influencers
Celebrities/influencers: boolean // Return true if this paper reports on high-profile public figures used in mass media campaigns.
 - Civil society/NGOs
Civil_society/NGOs: boolean // Return true if this paper reports on local non-profits or international organizations.
 - Peers
Peers: boolean // Return true if this paper reports on students talking to other students.
 - Caregivers
Caregivers3: boolean // Return true if this paper reports on champion Parents who have vaccinated their children and share their stories.
 - Media
Media: boolean // Return true if this paper reports on media organisations or platforms including traditional broadcast and print media and social media acting as senders of HPV vaccination communication or information campaigns.
 - Teachers
Teachers: boolean // Return true if this paper reports on teachers as deliverers of vaccination-related communication or education.
 - Traditional and religious leaders
Traditional_and_religious_leaders2: boolean // Return true if this paper reports on traditional and religious leaders as deliverers of vaccination-related communication.
 - Health workers
Health_workers2: boolean // Return true if this paper reports on health workers as deliverers of vaccination-related communication.
- Coordination Mechanism
 - National Immunization Technical Advisory Group (NITAG)
National_Immunization_Technical_Advisory_Group_(NITAG): boolean // Return true if this paper reports on a body that provides independent, evidence-based guidance on vaccine policy to national governments.
 - Inter-agency Coordinating Committee (ICC)
Inter-agency_Coordinating_Committee_(ICC): boolean // Return true if this paper reports on a mechanism for coordinating the activities of government and partner organisations in immunisation.
- Country

- Andorra
Andorra: boolean // Return true if this paper reports on participants from or a population of Andorra. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- United Arab Emirates
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Tuvalu: boolean // Return true if this paper reports on participants from or a population of Tuvalu. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Taiwan, Province of China
Taiwan_Province_of_China: boolean // Return true if this paper reports on participants from or a population of Taiwan, Province of China. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Tanzania, United Republic of
Tanzania_United_Republic_of: boolean // Return true if this paper reports on

participants from or a population of Tanzania, United Republic of. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Ukraine

Ukraine: boolean // Return true if this paper reports on participants from or a population of Ukraine. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Uganda

Uganda: boolean // Return true if this paper reports on participants from or a population of Uganda. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- United States Minor Outlying Islands

United_States_Minor_Outlying_Islands: boolean // Return true if this paper reports on participants from or a population of United States Minor Outlying Islands. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- United States

United_States: boolean // Return true if this paper reports on participants from or a population of United States. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Uruguay

Uruguay: boolean // Return true if this paper reports on participants from or a population of Uruguay. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Uzbekistan

Uzbekistan: boolean // Return true if this paper reports on participants from or a population of Uzbekistan. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Holy See (Vatican City State)

Holy_See_Vatican_City_State: boolean // Return true if this paper reports on participants from or a population of Holy See (Vatican City State). Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Saint Vincent and the Grenadines

Saint_Vincent_and_the_Grenadines: boolean // Return true if this paper reports on participants from or a population of Saint Vincent and the Grenadines. Participants will

only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Venezuela, Bolivarian Republic of
Venezuela_Bolivarian_Republic_of: boolean // Return true if this paper reports on participants from or a population of Venezuela, Bolivarian Republic of. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Virgin Islands, British
Virgin_Islands_British: boolean // Return true if this paper reports on participants from or a population of Virgin Islands, British. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Virgin Islands, U.S.
Virgin_Islands_U.S.: boolean // Return true if this paper reports on participants from or a population of Virgin Islands, U.S.. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Viet Nam
Viet_Nam: boolean // Return true if this paper reports on participants from or a population of Viet Nam. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Vanuatu
Vanuatu: boolean // Return true if this paper reports on participants from or a population of Vanuatu. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Wallis and Futuna
Wallis_and_Futuna: boolean // Return true if this paper reports on participants from or a population of Wallis and Futuna. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Samoa
Samoa: boolean // Return true if this paper reports on participants from or a population of Samoa. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Yemen
Yemen: boolean // Return true if this paper reports on participants from or a population of Yemen. Participants will only be listed in the methods section of the paper. The

author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.

- Mayotte
Mayotte: boolean // Return true if this paper reports on participants from or a population of Mayotte. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- South Africa
South_Africa: boolean // Return true if this paper reports on participants from or a population of South Africa. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Zambia
Zambia: boolean // Return true if this paper reports on participants from or a population of Zambia. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Zimbabwe
Zimbabwe: boolean // Return true if this paper reports on participants from or a population of Zimbabwe. Participants will only be listed in the methods section of the paper. The author affiliations, funders, and other mentions of countries within other sections (including the introduction and discussion) should not be considered.
- Country Classification
 - World Bank income tier
World_Bank_income_tier: boolean // Return true if this paper reports on country income classification per World Bank gross national income (GNI) per capita thresholds.
 - Low income
Low_income: boolean // Return true if this paper reports on countries classified by the World Bank as low income based on gross national income (GNI) per capita
 - High income
High_income: boolean // Return true if this paper reports on countries classified by the World Bank as high income based on gross national income (GNI) per capita.
 - Upper middle income
Upper_middle_income: boolean // Return true if this paper reports on countries classified by the World Bank as upper middle income based on gross national income (GNI) per capita.
 - Lower middle income
Lower_middle_income: boolean // Return true if this paper reports on countries classified by the World Bank as lower middle income based on gross national income (GNI) per capita.

- Gavi status

Gavi_status: boolean // Return true if this paper reports on country classification according to Gavi, the Vaccine Alliance eligibility and portfolio framework.

- Gavi Core

Gavi_Core: boolean // Apply ONLY where the text positively establishes (a) the study's data/programme period is 2021 or later, and (b) the country was in Gavi's Core portfolio (lower-income, highest need) in that period. This segment is a Gavi 5.0 construct (2021–2025) and did not exist before 2021. If either is not clearly established – including any undated record – do NOT apply. Do not infer from the country name alone.

- Gavi Fragile and Humanitarian

Gavi_Fragile_and_Humanitarian: boolean // Apply ONLY where the text positively establishes (a) the study's data/programme period is 2021 or later, and (b) the country was classified by Gavi as fragile/humanitarian in that period (weak governance, conflict, or humanitarian crisis requiring adapted support). This Gavi portfolio classification is a 5.0 construct (2021–2025) and did not exist in this form before 2021. If either is not clearly established – including any undated record – do NOT apply. Do not infer from the country name alone. (Distinct from the Fragility & Humanitarian Context scheme, which is not time-bounded.)

- Gavi High-impact

Gavi_High_impact: boolean // Apply ONLY where the text positively establishes (a) the study's data/programme period is 2021 or later, and (b) the country was in Gavi's High-impact portfolio (large unimmunised populations, large absolute impact) in that period. This segment is a Gavi 5.0 construct (2021–2025) and did not exist before 2021. If either is not clearly established – including any undated record – do NOT apply. Do not infer from the country name alone.

- Gavi MICS

Gavi_MICS: boolean // Apply ONLY where the text positively establishes (a) the study's data/programme period is 2021 or later, and (b) the country was covered by Gavi's Middle-Income Country Support (MICS) in that period (typically countries transitioned from standard eligibility but retaining access to specific Gavi products or co-financing). The MICS Approach dates from the Gavi 5.0 period (approved December 2020) and did not exist before 2021. If either is not clearly established – including any undated record – do NOT apply. Do not infer from the country name alone.

- Gavi not eligible

Gavi_not_eligible: boolean // Apply ONLY where the text indicates the country was outside Gavi support during the study's data/programme period – either never eligible (e.g. a high-income or long-standing self-financing country) or fully transitioned out (e.g. "self-financing", "nationally funded without Gavi", "after graduating/transitioning from Gavi", "not Gavi-eligible"). Judge status as of the STUDY PERIOD as shown in the text; do NOT use current or later status. The mere ABSENCE of any mention of Gavi is NOT evidence of ineligibility – do

not apply on silence. Mutually exclusive with the other two states. If status for that period cannot be established from the text, do NOT apply.

- Gavi transitioning

Gavi_transitioning: boolean // Apply ONLY where the text indicates the country was in a Gavi transition phase during the study's data/programme period – moving from Gavi-eligible toward self-financing (e.g. "transitioning from Gavi support", "accelerated/preparatory transition phase", "graduating from Gavi", rising co-financing toward full self-financing). Judge status as of the STUDY PERIOD as shown in the text; do NOT use the country's current or later status. Takes precedence over Gavi-eligible where transition is explicitly underway; mutually exclusive with the other two states. If the text gives no clear transition signal for that period, do NOT apply.

- Gavi-eligible

Gavi_eligible: boolean // Apply ONLY where the text indicates the country was receiving, or eligible for, standard Gavi support during the study's data/programme period – e.g. "Gavi-supported", "Gavi-funded introduction", "with support from Gavi", "Gavi-eligible", or co-financing as an eligible country. Judge status as of the STUDY PERIOD as shown in the text; do NOT use the country's current or later Gavi status. If the text shows transition underway, apply Gavi transitioning instead; if self-financing/graduated, apply Gavi not eligible. These three lifecycle states are mutually exclusive. If the text gives no clear signal of the country's Gavi status for that period, do NOT apply.

- Data Source

- Survey data

Survey_data: boolean // Return true if this paper reports on data collected through a structured survey instrument administered to individuals, households, or populations.

- KAP survey data

KAP_survey_data: boolean // Return true if this paper reports on data collected through a knowledge, attitudes, and practices (KAP) survey, measuring what respondents know, believe, and do in relation to HPV vaccination.

- Exit survey data

Exit_survey_data: boolean // Return true if this paper reports on data collected from vaccine recipients or caregivers immediately after a vaccination encounter, typically at the point of service.

- Primary qualitative data

Primary_qualitative_data: boolean // Return true if this paper reports on data collected through qualitative methods including in-depth interviews, key informant interviews, focus group discussions, or ethnographic observation.

- Costing and economic data

Costing_and_economic_data: boolean // Return true if this paper reports on data collected to measure the costs of delivering vaccination services, including ingredient costing, service time-motion studies, and economic data collection.

- Programme and policy documents

Programme_and_policy_documents: boolean // Return true if this paper reports on data

or evidence drawn from policy documents, programme reports, government publications, or other grey literature sources.

- Independent or evaluative study
Independent_or_evaluative_study: boolean // Return true if this paper reports on evidence drawn from independent or external evaluations of HPV vaccination programmes, including mid-term reviews, end-of-project evaluations, or commissioned assessments.
- Surveillance data
Surveillance_data: boolean // Return true if this paper reports on evidence drawn from disease or health surveillance systems.
- Administrative and registry data
Administrative_and_registry_data: boolean // Return true if this paper reports on evidence drawn from administrative records, health registries, or routine programme data.
- Proficiency testing programme
Proficiency_testing_programme: boolean // Return true if this paper reports on evidence drawn from a proficiency testing programme.
- Expert elicitation data
Expert_elicitation_data: boolean // Return true if this paper reports on data derived from structured expert opinion processes, used as inputs to models or analyses where empirical data are unavailable or insufficient.
- Geospatial and GIS data
Geospatial_and_GIS_data: boolean // Return true if this paper reports on geographic, spatial, or satellite-derived data used to analyse vaccination coverage, service accessibility, population distribution, or microplanning.
- Global modelled estimates
Global_modelled_estimates: boolean // Return true if this paper reports on internationally produced, modelled datasets that harmonise multiple data sources to generate standardised national or regional estimates, published by WHO, UNICEF, IHME, or similar bodies.
- Primary quantitative data
Primary_quantitative_data: boolean // Return true if this paper reports on data collected through primary quantitative methods, including clinical measurements, biological samples, laboratory assays, structured observations, or trial endpoints.
- Published study data
Published_study_data: boolean // Return true if this paper reports on data drawn from previously published studies, trials, or evaluations and used as inputs to a model, synthesis, or secondary analysis rather than collected directly by the authors.
- Social media and online data
Social_media_and_online_data: boolean // Return true if this paper reports on data derived from social media platforms, online forums, search engines, or other digital sources, used to analyse vaccine-related discourse, sentiment, misinformation, or information-seeking behaviour.
- Delivery Actor

- Health workers
Health_workers3: boolean // Return true if this paper reports on health workers, including doctors, nurses, and other clinical or paraclinical staff involved in vaccine delivery.
- Community health workers
Community_health_workers2: boolean // Return true if this paper reports on community health workers operating at the community level, often as a link between the health system and the population.
- Private sector
Private_sector: boolean // Return true if this paper reports on private sector actors involved in vaccine delivery, supply, or financing.
- Faith-based organisations
Faith-based_organisations: boolean // Return true if this paper reports on faith-based organisations involved in vaccine delivery, mobilisation, or advocacy.
- NGOs
NGOs: boolean // Return true if this paper reports on non-governmental organisations involved in vaccine delivery, support, or coordination.
- Delivery Model Type
 - Single-platform
Single_platform: boolean // Return true if this paper reports that the vaccination is delivered through one platform or site type only throughout the programme or study period.
 - Sequential
Sequential: boolean // Return true if this paper reports that the vaccination is delivered through different platforms or site types at different stages for example, school-based delivery for dose 1 followed by facility-based or outreach delivery for dose 2 or catch-up.
 - Integrated/simultaneous
Integrated_simultaneous: boolean // Return true if this paper reports that the vaccination is delivered through two or more platforms or site types operating simultaneously as a deliberate programme strategy for example, school-based delivery combined with community outreach running in parallel to reach out-of-school populations.
 - Unspecified
Unspecified: boolean // Return true if this paper reports that the delivery model type cannot be determined from the available study description the methods section does not provide sufficient detail to distinguish between single-platform, sequential, or integrated/simultaneous delivery.
- Delivery Platform
 - National Cancer Control Programme
National_Cancer_Control_Programme: boolean // Return true if this paper reports on delivery through a National Cancer Control Programme, where HPV vaccination is embedded as a component of a broader national cervical cancer elimination or control strategy.

- HIV treatment platform
HIV_treatment_platform: boolean // Return true if this paper reports on delivery through an HIV treatment or care platform, such as ART clinics or HIV community services, targeting populations living with or at risk of HIV.
- School Health
School_Health: boolean // Return true if this paper reports on delivery through a school-based health programme.
- Adolescent Health
Adolescent_Health: boolean // Return true if this paper reports on delivery through an adolescent health platform, which may operate within or outside of school settings.
- Routine EPI
Routine_EPI: boolean // Return true if this paper reports on delivery through the routine Expanded Programme on Immunization (EPI), encompassing facility-based, outreach, and mobile strategies.
 - Facility-based
Facility_based: boolean // Return true if this paper reports on routine EPI delivery based at a fixed health facility, where recipients come to the facility to receive vaccination.
 - Mobile
HIV_treatment_platform: boolean // Return true if this paper reports on delivery through an HIV treatment or care platform, such as ART clinics or HIV community services, targeting populations living with or at risk of HIV.
 - Outreach
Outreach: boolean // Return true if this paper reports on routine EPI delivery through outreach, where health workers travel to communities, schools, or other locations outside a fixed facility on a scheduled or periodic basis.
 - Periodic Intensification of Routine Immunization (PIRI)
Periodic_Intensification_of_Routine_Immunization__PIRI1: boolean // Return true if this paper reports on a short-term, targeted intensification of routine immunisation activities in low-coverage areas, designed to rapidly boost coverage among missed or under-vaccinated populations through catch-up vaccination and defaulter tracing.
- Campaign
Campaign: boolean // Return true if this paper reports on delivery through a time-limited vaccination campaign.
 - Integrated campaign
Integrated_campaign: boolean // Return true if this paper reports on a campaign that integrates HPV vaccination with other health interventions.
 - Multi-age cohort catch-up campaign
Multi_age_cohort_catch_up_campaign: boolean // Return true if this paper reports on a catch-up campaign targeting multiple age cohorts simultaneously to rapidly increase population coverage.

- Sexual orientation and gender identity
Sexual_orientation_and_gender_identity: boolean // True only if the paper examines sexual orientation or gender identity (LGBTQI+ or sexual/gender-minority status) as a factor affecting HPV vaccination access or uptake. Reserve for studies focused on these populations; for gender or sex differences more broadly, use Gender.
- Immunocompromised status
Immunocompromised_status: boolean // True only if the paper examines immunocompromised status – particularly HIV/ALHIV – in relation to HPV vaccination eligibility, dosing, or access. Not where immune status is only a clinical descriptor with no access or equity analysis.
- Gender
Gender: boolean // True only if the paper examines gender or biological sex in relation to HPV vaccination access, uptake, or outcomes (e.g. comparing across sexes/genders, or gender-neutral vs girls-only delivery). Not where it merely reflects that the target group is girls, or appears only as a sample descriptor. For LGBTQI+/minority focus, use Sexual orientation and gender identity.
- Socioeconomic status
Socioeconomic_status: boolean // True only if the paper examines wealth, income, or deprivation in relation to HPV vaccination coverage or uptake – e.g. coverage disaggregated by wealth quintile, or analysed as a driver of gaps. Not where the study merely takes place in a low-income community or SES is only a sample characteristic. For between-country income comparisons, use Geographic and cross-country equity.
- Disability
Disability: boolean // True only if the paper examines whether physical, sensory, intellectual, or psychosocial disability affects HPV vaccination access or uptake. Not where disability is mentioned only in passing or as a participant characteristic.
- Education status
Education_status: boolean // True only if the paper examines education level (recipient or caregiver) or school-enrolment status – including out-of-school adolescents – in relation to HPV vaccination access or uptake. Not where education is only a sample descriptor. For out-of-school purely as a target group, see Target Population.
- Migration status
Migration_status: boolean // True only if the paper examines migrant, refugee, IDP, or non-citizen status in relation to HPV vaccination access or uptake. Not where it merely describes a humanitarian or displacement setting without analysing migration as a driver of inequity.
- Age
Age: boolean // True only if the paper analyses age as a driver of differential access, eligibility, or uptake – e.g. comparing coverage across age groups within an eligible cohort, or older vs younger girls in a catch-up cohort. Not where age only defines the target population (e.g. "9–14-year-olds").
- Disease burden and cancer incidence
Disease_burden_and_cancer_incidence: boolean // True only if the paper frames equity through differential HPV infection, cervical cancer incidence, or mortality across

populations or geographies (e.g. highest-burden groups having lowest coverage), or uses burden to justify prioritisation. Not where it simply reports prevalence or burden with no equity comparison.

- Geographic and cross-country equity
Geographic_and_cross_country_equity: boolean // True only if the paper analyses disparities in coverage, access, or outcomes where the country, region, income group, or sub-national administrative unit is itself the unit of comparison. Distinct from Place of residence, which covers individual-level rural/urban/remoteness.
- Occupation
Occupation: boolean // True only if the paper examines employment, livelihood, or occupational role as a driver of inequity in HPV vaccination access or uptake – e.g. working vs non-working caregivers, or girls who work rather than attend school. Not merely because the study is set in a working community. Distinct from Socioeconomic status (income/wealth).
- Social capital
Social_capital: boolean // True only if the paper examines community- or network-level social resources – social networks, collective trust, community cohesion – as a driver of inequity in HPV vaccination access or uptake. Not for individual trust in the health system, which belongs in the BeSD scheme.
- Financing Mechanism
 - Public financing
Public_financing: boolean // Return true if this paper reports on financing of HPV vaccination through government budget lines, including national health budget allocations, emergency procurement orders, and public expenditure on vaccines and delivery.
 - Donor or external financing
Donor_or_external_financing: boolean // Return true if this paper reports on financing of HPV vaccination through external donors, including bilateral aid, multilateral funds, and development bank financing.
 - Programme financing
Programme_financing: boolean // Return true if this paper reports on financing of the vaccination programme through government budgets, donor funding, or institutional sources.
 - User fees
User_fees: boolean // Return true if this paper reports on fees charged to recipients or caregivers at the point of vaccination, which may act as a barrier to uptake.
- Fragility Humanitarian Context
 - Fragile state
Fragile_state: boolean // Return true if this paper reports on a country or sub-national setting classified as fragile due to weak institutions, governance failure, or social cohesion breakdown, in the absence of active armed conflict.
 - Conflict-affected
Conflict_affected: boolean // Return true if this paper reports on a setting experiencing

active or recent armed conflict, where health system functioning and service delivery are directly disrupted by violence or insecurity.

- Humanitarian and emergency response
Humanitarian_and_emergency_response: boolean // Return true if this paper reports on a setting in which HPV delivery is being conducted as part of a formal humanitarian response, including natural disaster, epidemic, or protracted crisis contexts.
- Refugee and IDP setting
Refugee_and_IDP_setting: boolean // Return true if this paper reports on a setting serving refugees, asylum seekers, or internally displaced persons, typically in camps, collective centres, or urban displacement contexts.
- Governance Actor
 - National immunisation programme/EPI
National_immunisation_programme_EPI: boolean // Return true if this paper reports on the national Expanded Programme on Immunization or equivalent national immunisation authority, responsible for policy, scheduling, and oversight of all vaccines including HPV.
 - NITAG
NITAG: boolean // Return true if this paper reports on the National Immunisation Technical Advisory Group or equivalent body providing independent scientific and technical advice on vaccine policy to government.
 - Ministry of Interior
Ministry_of_Interior: boolean // Return true if this paper reports on the Ministry of Interior or equivalent, relevant in contexts where population registration, identity documents, or security coordination affect HPV programme reach.
 - Ministry of Gender or Humanitarian Affairs
Ministry_of_Gender_or_Humanitarian_Affairs: boolean // Return true if this paper reports on government ministries responsible for gender, women s affairs, humanitarian response, or social protection, which may play a governance role in HPV programmes targeting girls and adolescents.
 - Other government ministry
Other_government_ministry: boolean // Return true if this paper reports on a government ministry or body not covered by other Governance Actor concepts that plays a formal role in HPV programme governance.
 - Ministry of Health
Ministry_of_Health: boolean // Return true if this paper reports on the Ministry of Health, typically the lead government agency for vaccination policy and delivery.
 - Ministry of Education
Ministry_of_Education: boolean // Return true if this paper reports on the Ministry of Education, involved in school-based vaccination delivery and coordination.
 - Ministry of Finance
Ministry_of_Finance: boolean // Return true if this paper reports on the Ministry of Finance, involved in budget allocation and financing for vaccination programmes.
 - Technical partners
Technical_partners: boolean // Return true if this paper reports on technical partners

providing expertise, guidance, or implementation support for vaccination programmes, including bilateral donors, foundations, and technical agencies.

- UN partners
UN_partners: boolean // Return true if this paper reports on United Nations agencies involved in vaccination support, coordination, or financing.
- Implementation Strategy
 - Training
Training: boolean // Return true if this paper reports on training of personnel involved in HPV vaccine delivery or communication.
 - Management and supervision
Management_and_supervision: boolean // Return true if this paper reports on management and supervision of HPV vaccination activities, including oversight and quality assurance.
 - Community mobilisation
Community_mobilisation: boolean // Return true if this paper reports on community mobilisation activities to build awareness, trust, and demand for HPV vaccination.
 - Integration
Integration: boolean // Return true if this paper reports on integration of HPV vaccination into existing health or education service delivery systems.
 - Advocacy
Advocacy: boolean // Return true if this paper reports on advocacy efforts to build political commitment, secure funding, or influence policy for HPV vaccination.
- Integration Type
 - Shared funding or budget integration
Shared_funding_or_budget_integration: boolean // Return true if this paper reports on HPV vaccination integrated with other programmes at the level of shared budgeting, joint financing, or co-funded implementation.
 - Other programme integration
Other_programme_integration: boolean // Return true if this paper reports on HPV vaccination delivered through or integrated with another programme or platform not covered by other Integration Type concepts, such as HIV/AIDS service platforms, national cancer control programmes, or other vertical programmes.
 - Bundled communication/health education
Bundled_communication_health_education: boolean // Return true if this paper reports on HPV vaccination bundled with communication, demand generation, or health education activities as part of an integrated delivery approach.
 - Service co-delivery
Service_co_delivery: boolean // Return true if this paper reports on HPV vaccine co-delivered alongside one or more other health interventions at the same point of contact, whether with other vaccines or with other health services.
 - Monitoring
Monitoring: boolean // Return true if this paper reports on HPV vaccination activities that are integrated with monitoring, surveillance, or data collection systems of other health programmes.

- Planning

Planning: boolean // Return true if this paper reports on HPV vaccination integrated at the planning, coordination, or policy level with other health or education programmes.
- Misinformation Activity
 - Misinformation banks

Misinformation_banks: boolean // Return true if this paper reports on context- and location-specific repositories of known vaccine misinformation, used to support detection and response efforts.
 - Detection

Detection: boolean // Return true if this paper reports on activities focused on detecting vaccine misinformation, including monitoring and surveillance of information environments.

 - Behavioural and communication response interventions (indirect detection)

Behavioural_and_communication_response_interventions__indirect_detection_: boolean // Return true if this paper reports on strategies that address misinformation by analysing behavioural responses, public concerns, or communication gaps that emerge in relation to HPV vaccination.
 - Community and frontline feedback

Community_and_frontline_feedback: boolean // Return true if this paper reports on mechanisms that gather insights from healthcare workers, community leaders, social mobilizers, teachers, parents, religious leaders, adolescents and other local actors.
 - Digital and social media listening

Digital_and_social_media_listening: boolean // Return true if this paper reports on approaches that monitor online conversations, posts, comments, and trends across platforms such as Facebook, X/Twitter, WhatsApp, TikTok, and other digital forums
 - Integrated misinformation reporting and response dashboards

Integrated_misinformation_reporting_and_response_dashboards: boolean // Return true if this paper reports on systems that consolidate information from digital, community, and traditional media sources into a unified platform.
 - Traditional media monitoring

Traditional_media_monitoring: boolean // Return true if this paper reports on tracking misinformation trends and narratives disseminated through radio, newspapers, television, and other mass communication channels.
 - Addressing

Addressing: boolean // Return true if this paper reports on activities focused on addressing vaccine misinformation through a range of strategies.

 - Communication and information correction strategies

Communication_and_information_correction_strategies: boolean // Return true if this paper reports on strategies to correct misinformation through direct communication, fact-checking, or information provision.

measuring the operational performance of the HPV vaccination programme how well the programme reaches, serves, and sustains coverage of its target population.

- Demand and Acceptability
Demand_and_Acceptability: boolean // Return true if this paper reports on outcomes measuring whether individuals, caregivers, communities, or health workers are willing to accept, seek out, or recommend HPV vaccination.
- Program Scale
 - National
National: boolean // Return true if this paper reports on a programme that operates at national scale, covering all or the majority of the country's eligible population within the national immunisation system.
 - Sub-national
Sub_national: boolean // Return true if this paper reports on a programme that operates at sub-national scale, covering one or more administrative units such as provinces, regions, or districts, but not yet the whole country.
 - Pilot/demonstration
Pilot_demonstration: boolean // Return true if this paper reports on a programme that is a small-scale pilot or demonstration project, designed to generate evidence or test feasibility before broader introduction or scale-up.
- Program Stage
 - Pre-introduction
Pre_introduction: boolean // Return true if this paper reports on the period before HPV vaccine introduction has begun, including feasibility studies, demonstration projects, pilot programmes, and planning activities preparing for national or sub-national rollout.
 - Introduction
Introduction: boolean // Return true if this paper reports on the initial phase of HPV vaccine introduction into a national or sub-national immunisation programme, from first rollout through early scale-up.
 - Routine/established
Routine_established: boolean // Return true if this paper reports on HPV vaccination delivered as part of an established, ongoing routine immunisation schedule with stable coverage and systems.
- Quality Of Care Dimension
 - Referral systems
Referral_systems: boolean // Return true if this paper reports on the quality of referral systems linking vaccination sites to other facilities or services, including the effectiveness of handoffs when a site is out of stock, unable to vaccinate a specific patient, or needs to connect recipients with other health services.
 - Availability of vaccines
Availability_of_vaccines: boolean // Return true if this paper reports on whether vaccines are available at the point of delivery when needed.

- Accessibility
Accessibility: boolean // Return true if this paper reports on whether vaccination services are accessible to the target population in terms of distance, cost, and convenience.
- Interpersonal interaction
Interpersonal_interaction: boolean // Return true if this paper reports on the quality of interpersonal interactions between health workers and vaccine recipients or caregivers, including provider attitude, counselling quality, respectful communication, and wait times.
- Consent
Consent: boolean // Return true if this paper reports on processes and requirements related to obtaining informed consent for vaccination.
- Setting Context
 - Urban
Urban: boolean // Return true if this paper reports on an urban setting, typically characterised by higher population density and closer proximity to health infrastructure.
 - Rural
Rural: boolean // Return true if this paper reports on a rural setting, typically characterised by lower population density, greater distances to health facilities, and more dispersed communities.
 - Hard-to-reach
Hard_to_reach: boolean // Return true if this paper reports on a setting where populations face significant barriers to accessing health services due to geographic isolation, poor infrastructure, or other structural factors that impede routine service delivery.
- Study Design
 - Mixed methods
Mixed_methods: boolean // Return true if this paper reports on studies explicitly combining quantitative and qualitative methods in a single study design.
 - Modelling and economic evaluation
Modelling_and_economic_evaluation: boolean // Return true if this paper reports on studies using mathematical, computational, or economic models rather than primary empirical data.
 - Economic evaluation
Economic_evaluation: boolean // Return true if this paper reports on an economic evaluation comparing costs and outcomes of alternative interventions or strategies.
 - Budget impact analysis (BIA)
Budget_impact_analysis__BIA_: boolean // Return true if this paper reports on budget impact analysis assessing the affordability of an intervention within a specific budget context.

- Cold chain maintenance
Cold_chain_maintenance: boolean // Return true if this paper reports on maintenance and operational upkeep of cold chain equipment and systems, including refrigeration, temperature monitoring devices, and repair capacity.
- Financial and resource constraints
Financial_and_resource_constraints: boolean // Return true if this paper reports on financial or resource constraints affecting supply chain operations, including budget shortfalls, underfunding of logistics, and resource gaps that limit vaccine procurement, storage, or distribution.\",
- Forecasting
Forecasting: boolean // Return true if this paper reports on forecasting of vaccine demand and supply needs.
- Distribution
Distribution: boolean // Return true if this paper reports on distribution of vaccines from central stores to points of delivery.
- Supply chain management
Supply_chain_management: boolean // Return true if this paper reports on management of the vaccine supply chain, including logistics planning and coordination.
- Supply chain capacity
Supply_chain_capacity: boolean // Return true if this paper reports on the capacity of the supply chain infrastructure, including storage, transport, and personnel.
- Cold chain integrity
Cold_chain_integrity: boolean // Return true if this paper reports on maintaining the integrity of the cold chain from manufacturer to point of delivery.
- Stock-outs
Stock_outs: boolean // Return true if this paper reports on instances where vaccine stock is unavailable at the point of delivery.
- Target Population
 - School enrolment
 - In-school adolescents
In_school_adolescents: boolean // Return true if this paper reports on adolescents currently enrolled in school and reachable through school-based HPV vaccination platforms.
 - Out-of-school adolescents
Out_of_school_adolescents: boolean // Return true if this paper reports on adolescents not enrolled in school and therefore not reachable through standard school-based HPV vaccination platforms.
 - Sex
Sex: boolean // Return true if this paper reports on the sex of the target population.
 - Female only
Female_only: boolean // Return true if this paper reports on the study or intervention targets females only.

- China; Cook Islands; Fiji; Indonesia; Japan; Cambodia; Kiribati; Lao People's Democratic Republic; Malaysia; Marshall Islands; Micronesia (Federated States of); Democratic People's Republic of Korea; Myanmar; Nauru; Mongolia; New Zealand; Niue; Palau; Philippines; Republic of Korea; Samoa; Papua New Guinea; Singapore; Solomon Islands; Thailand; Timor-Leste; Tokelau; Tonga; Tuvalu; Vanuatu; Viet Nam*
- Eastern and Southern Africa
Eastern_and_Southern_Africa1: boolean // Return true only if this study is about or the participants are from any of the following countries: Angola; Botswana; Burundi; Comoros; Djibouti; Eritrea; Ethiopia; Eswatini; Madagascar; Kenya; Mozambique; Malawi; Lesotho; Mauritius; Namibia; Rwanda; Sudan; Seychelles; Somalia; South Africa; South Sudan; Uganda; United Republic of Tanzania; Zambia; Zimbabwe
 - Europe and Central Asia
Europe_and_Central_Asia1: boolean // Return true only if this study is about or the participants are from any of the following countries: Andorra; Austria; Belgium; Cyprus; Czechia; Denmark; Estonia; Finland; France; Germany; Greece; Holy See; Hungary; Iceland; Ireland; Italy; Latvia; Liechtenstein; Lithuania; Luxembourg; Malta; Monaco; Netherlands (Kingdom of the); Norway; Poland; Portugal; San Marino; Slovakia; Slovenia; Spain; Sweden; Switzerland; United Kingdom; Albania; Armenia; Azerbaijan; Belarus; Bosnia and Herzegovina; Bulgaria; Croatia; Georgia; Kazakhstan; Kyrgyzstan; Republic of Moldova; Montenegro; North Macedonia; Romania; Russian Federation; Serbia; Tajikistan; Türkiye; Turkmenistan; Ukraine; Uzbekistan
 - Latin America and Caribbean
Latin_America_and_Caribbean1: boolean // Return true only if this study is about or the participants are from any of the following countries: Anguilla; Antigua and Barbuda; Argentina; Bahamas; Barbados; Belize; Bolivia (Plurinational State of); Brazil; British Virgin Islands; Chile; Colombia; Costa Rica; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; Guyana; Grenada; Guatemala; Honduras; Haiti; Jamaica; Mexico; Montserrat; Nicaragua; Panama; Paraguay; Peru; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Trinidad and Tobago; Turks and Caicos Islands; Uruguay; Venezuela (Bolivarian Republic of)
 - Middle East and North Africa
Middle_East_and_North_Africa1: boolean // Return true only if this study is about or the participants are from any of the following countries: Algeria; Bahrain; Egypt; Iran (Islamic Republic of); Iraq; Israel; Jordan; Kuwait; Lebanon; Libya; Morocco; Oman; Qatar; Saudi Arabia; State of Palestine; Syrian Arab Republic; Tunisia; United Arab Emirates; Yemen
 - South Asia
South_Asia1: boolean // Return true only if this study is about or the participants are from any of the following countries: Afghanistan; Bangladesh; Bhutan; India; Sri Lanka; Maldives; Nepal; Pakistan
 - West and Central Africa
West_and_Central_Africa1: boolean // Return true only if this study is about or the participants are from any of the following countries: Benin; Burkina Faso; Cabo Verde; Cameroon; Central African Republic; Chad; Congo; Côte d'Ivoire; Democratic Republic of

the Congo; Equatorial Guinea; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Liberia; Mali; Mauritania; Niger; Nigeria; Sao Tome and Principe; Senegal; Sierra Leone; Togo; Benin; Burkina Faso; Cabo Verde; Cote d'Ivoire; Cameroon; Central African Republic; Democratic Republic of the Congo; Congo; Equatorial Guinea; Guinea; Gambia; Gabon; Guinea-Bissau; Ghana; Liberia; Mali; Niger; Mauritania; Nigeria; Senegal; Sierra Leone; Sao Tome and Principe; Chad; Togo

- Vaccination Eligibility
 - Routine target cohort
Routine_target_cohort: boolean // Return true if this paper reports on the cohort of girls (or boys in gender-neutral programmes) scheduled for HPV vaccination through the routine immunisation programme at the nationally defined target age, typically 9 to 14 years.
 - Vaccination Policy
Vaccination_Policy: boolean // Return true if this paper reports on the official policy governing HPV vaccination eligibility, such as national mandates, recommendations, or sub-national policies.
 - Target Age
Target_Age: boolean // Return true if this paper reports on the age or age range targeted for HPV vaccination under the relevant policy.
 - Secondary Target Population
Secondary_Target_Population: boolean // Return true if this paper reports on populations beyond the primary target age who are eligible for HPV vaccination, such as catch-up cohorts or specific risk groups.
- Vaccine Schedule
 - Three or more doses
Three_or_more_doses: boolean // Return true if this paper reports on a vaccine schedule involving three or more doses, as recommended for immunocompromised populations including adolescents living with HIV in some country guidelines.
 - Single dose
Single_dose: boolean // Return true if this paper reports on a single-dose HPV vaccination schedule.
 - Two dose
Two_dose: boolean // Return true if this paper reports on a two-dose HPV vaccination schedule.
 - Extended interval
Extended_interval: boolean // Return true if this paper reports on an extended interval schedule with a longer gap between doses than the standard recommendation.
- WHO Region
 - African Region
African_Region: boolean // Return true only if this study is about or the participants are from any of the following countries: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea,

Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe

- Region of the Americas

*Region_of_the_Americas: boolean // Return true only if this study is about or the participants are from any of the following countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico (*Associate WHO Member State), Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, United States of America, Uruguay, Venezuela (Bolivarian Republic of)*

- South-East Asia Region

South_East_Asia_Region: boolean // Return true only if this study is about or the participants are from any of the following countries: Bangladesh, Bhutan, Democratic People s Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste

- European Region

European_Region: boolean // Return true only if this study is about or the participants are from any of the following countries: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Türkiye, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, Uzbekistan

- Eastern Mediterranean Region

*Eastern_Mediterranean_Region: boolean // Return true only if this study is about or the participants are from any of the following countries: Afghanistan, Bahrain, Djibouti, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, West Bank and Gaza Strip (*Non-Member area), Yemen*

- Western Pacific Region

*Western_Pacific_Region: boolean // Return true only if this study is about or the participants are from any of the following countries: Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, Japan, Kiribati, Lao People s Democratic Republic, Malaysia, Marshall Islands, Micronesia (Federated States of), Mongolia, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Tokelau (*Associate WHO Member State), Tonga, Tuvalu, Vanuatu, Viet Nam*

- World Bank Region

- East Asia and Pacific
East_Asia_and_Pacific: boolean // Return true if this study was undertaken in any country in East Asia or the Pacific as defined by the world bank
- Europe and Central Asia
Europe_and_Central_Asia: boolean // Return true if this study was undertaken in any European or Central Asian country as defined by the world bank
- Latin America and Caribbean
Latin_America_and_Caribbean: boolean // Return true if this study was undertaken in any Latin American or Caribbean country as defined by the world bank
- Middle East and North Africa
Middle_East_and_North_Africa: boolean // Return true if this study was undertaken in at least one country in the Middle East, North Africa, Afghanistan or Pakistan as defined by the world bank's Middle East and North Africa region
- North America
North_America: boolean // Return true if this study was undertaken in any North American country as defined by the world bank
- South Asia
South_Asia: boolean // Return true if this study was undertaken in any country in South Asia as defined by the world bank
- Sub-Saharan Africa
Sub_Saharan_Africa: boolean // Return true if this study was undertaken in any country in Sub Saharan Africa as defined by the world bank
- Funder
Funder: string // Please report the funders of this study or body of work
- Thematic Focus - Primary
 - Behavioural and social drivers of uptake
primary_behavioural: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing*

and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #1 "Behavioural and social drivers of uptake": studies whose MAIN question is the demand-side determinants of why individuals/caregivers accept or decline (KAP, acceptability, hesitancy, confidence, cultural/religious/gender norms), with NO behaviour-change intervention tested. If an intervention IS tested, primary is #2. If the subject is health-worker KAP, it is #6. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Delivery design and optimisation
primary_delivery: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*
 - 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested)
 - 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response))
 - 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery)
 - 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax))
 - 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants))
 - 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision)
 - 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy)
 - 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability)
 - 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring)
 - 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy)
 - 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging)*Tick this box ONLY IF that single best-fit primary theme is #3 "Delivery*

design and optimisation": studies whose MAIN question is HOW vaccination is structured or delivered (platform/site/model, school- vs facility-based, single-dose operational rollout, PIRI, catch-up/multi-age cohort, consent models, revitalisation/coverage recovery). If the focus is immunogenicity of a schedule, primary is #11. If equity/reaching the underserved is the lens, #5. If co-delivery of other services is the point, #4. Coverage reported as an outcome does not move it to #9. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Demand generation and communication strategies
primary_demand: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #2 "Demand generation and communication strategies": studies where an intervention or strategy to inform, motivate, or mobilise is the unit of analysis (campaigns, community mobilisation, peer education, mHealth/SMS, social media, faith-leader engagement, misinformation detection/response, HCD). If the paper only measures knowledge/attitudes with no intervention, primary is #1. If it is HCW training, #6. If a digital tool is used mainly for coverage measurement, #9. If any other theme is the*

better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Equity and hard-to-reach populations
primary_equity: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*
1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #5 "Equity and hard-to-reach populations": studies whose MAIN question is WHO is being missed and why, or how to reach systematically underserved groups (coverage disparities by PROGRESS+ dimensions, out-of-school girls, zero-dose, fragile/conflict/humanitarian settings, disability-inclusive, ALHIV/immunocompromised, migrants/refugees). If the paper is merely SET in a poor/rural area without analysing equity, primary is #3. A general acceptability study without an equity analysis is #1. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.
- Financing and programme sustainability
primary_financing: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*
1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP,

acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #8 "Financing and programme sustainability": studies whose MAIN subject is cost, financing, or economic value (programme costing, CEA/CUA, budget impact, Gavi co-financing/transition/bridge funding, domestic financing, willingness-to-pay, ROI, post-transition sustainability, recipient-side financial barriers). If it is epidemiological modelling without economic outcomes, primary is #10. Governance without a financing focus is #7. A delivery study where cost is only a secondary variable is #3. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Governance policy and political commitment
 primary_governance: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_* flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:
 - 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity

and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #7 "Governance, policy and political commitment": studies whose MAIN question is WHO decides/leads or HOW programmes are governed and introduced (NITAG processes, programme introduction decisions, MoH-MoE coordination, political economy/prioritisation, stakeholder analyses, comparative introduction trajectories). If the focus is financing/budget without governance, primary is #8. If it is operational delivery, #3. If workforce capacity, #6. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Health workforce capacity and engagement
primary_workforce: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data*

systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #6 "Health workforce capacity and engagement": studies where health workers are the PRIMARY subject (their HPV knowledge/attitudes/practice, recommendation rates and barriers, training-programme evaluation, task-shifting to CHWs/lay cadres, supportive supervision). If HCWs are simply the delivery actors but their capacity is not the subject, primary is #3. If HCWs act as communication senders in a demand-generation study, #2. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Measurement data systems and enumeration

primary_measurement: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*

- 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested)
- 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response))
- 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery)
- 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax))
- 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants))
- 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision)
- 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy)
- 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability)
- 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring)
- 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy)
- 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging)

Tick this box ONLY IF that single best-fit primary theme is #9 "Measurement, data systems and enumeration": studies whose MAIN subject is HOW

coverage is measured or HOW data quality is assessed/improved (coverage-survey methodology, administrative-data quality, denominator estimation/enumeration, GIS microplanning, comparison of data sources, digital monitoring tools, coverage-decline detection). If a model uses coverage data to project impact, primary is #10. If data is only a sub-component of a delivery study, #3. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

○ Modelling and impact projection

primary_modelling: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*

- 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested)
- 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response))
- 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery)
- 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax))
- 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants))
- 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision)
- 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy)
- 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability)
- 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring)
- 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy)
- 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging)

Tick this box ONLY IF that single best-fit primary theme is #10 "Modelling and impact projection": studies whose MAIN contribution is a mathematical/statistical/simulation model (transmission models of vaccination impact, cervical-cancer elimination projections, single- vs multi-dose population-impact models, optimal allocation/scheduling models, herd-immunity models, combined vaccination-screening impact models). If it is a CEA without epidemiological modelling as the primary method, primary is #8. Coverage measurement is #9. Clinical efficacy is #11. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Service integration and co-delivery
primary_integration: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*
1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #4 "Service integration and co-delivery": studies whose MAIN question is HOW HPV is integrated or co-delivered with another service at point of care (co-administration with other vaccines, SRH/adolescent-health/HIV-ART integration, mother-daughter vaccination-screening, combined vaccination+screening). If it is school-based delivery WITHOUT co-delivery of other services, primary is #3. If community contacts are used merely as demand touchpoints, #2. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.
- Vaccine efficacy immunogenicity and schedule
primary_efficacy: boolean // SINGLE-SELECT thematic classification. Across the WHOLE set of primary_ flags, EXACTLY ONE must be ticked. First decide the paper's PRIMARY theme: the single theme that best matches its main research question and primary reported outcomes. Choose the single best fit from these 11 candidates:*
1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform,

motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Tick this box ONLY IF that single best-fit primary theme is #11 "Vaccine efficacy, immunogenicity and schedule": studies whose MAIN question is the biological performance of the vaccine (efficacy RCTs, immunogenicity/antibody/seroconversion, real-world effectiveness, immunobridging across schedules/products, duration of protection, cross-protection, safety/AEFI, product comparisons). If it is population-level impact modelling, primary is #10. If it is operational rollout of a single-dose schedule, #3. If it is cost of products, #8. If any other theme is the better fit, do NOT tick. Tie-break: if two themes seem equally central, pick the one more directly tied to the stated research question; if still tied, pick the lower-numbered theme.

- Thematic Focus - Secondary
 - Behavioural and social drivers of uptake

secondary_behavioural: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_ flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates:*

1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6

Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7
 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #1 "Behavioural and social drivers of uptake" AND #1 is NOT the primary theme. For #1, a substantive contribution means: studies whose MAIN question is the demand-side determinants of why individuals/caregivers accept or decline (KAP, acceptability, hesitancy, confidence, cultural/religious/gender norms), with NO behaviour-change intervention tested. If an intervention IS tested, primary is #2. If the subject is health-worker KAP, it is #6. If the paper has no substantive second theme, or only mentions "Behavioural and social drivers of uptake" in passing, do NOT tick.

- Delivery design and optimisation

secondary_delivery: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates:
 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys,

administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #3 "Delivery design and optimisation" AND #3 is NOT the primary theme. For #3, a substantive contribution means: studies whose MAIN question is HOW vaccination is structured or delivered (platform/site/model, school- vs facility-based, single-dose operational rollout, PIRI, catch-up/multi-age cohort, consent models, revitalisation/coverage recovery). If the focus is immunogenicity of a schedule, primary is #11. If equity/reaching the underserved is the lens, #5. If co-delivery of other services is the point, #4. Coverage reported as an outcome does not move it to #9. If the paper has no substantive second theme, or only mentions "Delivery design and optimisation" in passing, do NOT tick.

- Demand generation and communication strategies
 secondary_demand: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates:
 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule

immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #2 "Demand generation and communication strategies" AND #2 is NOT the primary theme. For #2, a substantive contribution means: studies where an intervention or strategy to inform, motivate, or mobilise is the unit of analysis (campaigns, community mobilisation, peer education, mHealth/SMS, social media, faith-leader engagement, misinformation detection/response, HCD). If the paper only measures knowledge/attitudes with no intervention, primary is #1. If it is HCW training, #6. If a digital tool is used mainly for coverage measurement, #9. If the paper has no substantive second theme, or only mentions "Demand generation and communication strategies" in passing, do NOT tick.

- Equity and hard-to-reach populations

secondary_equity: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_ flags, AT MOST ONE may be ticked - and for most papers ZERO is correct.*

First identify the paper's single PRIMARY theme from these 11 candidates:

1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #5 "Equity and hard-to-reach populations" AND #5 is NOT the primary theme. For #5,

a substantive contribution means: studies whose MAIN question is WHO is being missed and why, or how to reach systematically underserved groups (coverage disparities by PROGRESS+ dimensions, out-of-school girls, zero-dose, fragile/conflict/humanitarian settings, disability-inclusive, ALHIV/immunocompromised, migrants/refugees). If the paper is merely SET in a poor/rural area without analysing equity, primary is #3. A general acceptability study without an equity analysis is #1. If the paper has no substantive second theme, or only mentions "Equity and hard-to-reach populations" in passing, do NOT tick.

- Financing and programme sustainability
secondary_financing: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #8 "Financing and programme sustainability" AND #8 is NOT the primary theme. For #8, a substantive contribution means: studies whose MAIN subject is cost, financing, or economic value (programme costing, CEA/CUA, budget impact, Gavi co-financing/transition/bridge funding, domestic financing, willingness-to-pay, ROI, post-transition sustainability, recipient-side financial barriers). If it is epidemiological modelling without economic outcomes, primary is #10. Governance without a financing

focus is #7. A delivery study where cost is only a secondary variable is #3. If the paper has no substantive second theme, or only mentions "Financing and programme sustainability" in passing, do NOT tick.

- Governance policy and political commitment
secondary_governance: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #7 "Governance, policy and political commitment" AND #7 is NOT the primary theme. For #7, a substantive contribution means: studies whose MAIN question is WHO decides/leads or HOW programmes are governed and introduced (NITAG processes, programme introduction decisions, MoH-MoE coordination, political economy/prioritisation, stakeholder analyses, comparative introduction trajectories). If the focus is financing/budget without governance, primary is #8. If it is operational delivery, #3. If workforce capacity, #6. If the paper has no substantive second theme, or only mentions "Governance, policy and political commitment" in passing, do NOT tick.
- Health workforce capacity and engagement
secondary_workforce: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is

correct. First identify the paper's single PRIMARY theme from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #6 "Health workforce capacity and engagement" AND #6 is NOT the primary theme. For #6, a substantive contribution means: studies where health workers are the PRIMARY subject (their HPV knowledge/attitudes/practice, recommendation rates and barriers, training-programme evaluation, task-shifting to CHWs/lay cadres, supportive supervision). If HCWs are simply the delivery actors but their capacity is not the subject, primary is #3. If HCWs act as communication senders in a demand-generation study, #2. If the paper has no substantive second theme, or only mentions "Health workforce capacity and engagement" in passing, do NOT tick.

- Measurement data systems and enumeration
secondary_measurement: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised:

platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #9 "Measurement, data systems and enumeration" AND #9 is NOT the primary theme. For #9, a substantive contribution means: studies whose MAIN subject is HOW coverage is measured or HOW data quality is assessed/improved (coverage-survey methodology, administrative-data quality, denominator estimation/enumeration, GIS microplanning, comparison of data sources, digital monitoring tools, coverage-decline detection). If a model uses coverage data to project impact, primary is #10. If data is only a sub-component of a delivery study, #3. If the paper has no substantive second theme, or only mentions "Measurement, data systems and enumeration" in passing, do NOT tick.

- Modelling and impact projection
 secondary_modelling: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6

Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7
 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #10 "Modelling and impact projection" AND #10 is NOT the primary theme. For #10, a substantive contribution means: studies whose MAIN contribution is a mathematical/statistical/simulation model (transmission models of vaccination impact, cervical-cancer elimination projections, single- vs multi-dose population-impact models, optimal allocation/scheduling models, herd-immunity models, combined vaccination-screening impact models). If it is a CEA without epidemiological modelling as the primary method, primary is #8. Coverage measurement is #9. Clinical efficacy is #11. If the paper has no substantive second theme, or only mentions "Modelling and impact projection" in passing, do NOT tick.

- Service integration and co-delivery
 secondary_integration: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_* flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates: 1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA,

budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs, immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #4 "Service integration and co-delivery" AND #4 is NOT the primary theme. For #4, a substantive contribution means: studies whose MAIN question is HOW HPV is integrated or co-delivered with another service at point of care (co-administration with other vaccines, SRH/adolescent-health/HIV-ART integration, mother-daughter vaccination-screening, combined vaccination+screening). If it is school-based delivery WITHOUT co-delivery of other services, primary is #3. If community contacts are used merely as demand touchpoints, #2. If the paper has no substantive second theme, or only mentions "Service integration and co-delivery" in passing, do NOT tick.

- Vaccine efficacy immunogenicity and schedule
secondary_efficacy: boolean // OPTIONAL secondary theme. Across the WHOLE set of secondary_ flags, AT MOST ONE may be ticked - and for most papers ZERO is correct. First identify the paper's single PRIMARY theme from these 11 candidates:*
1 Behavioural and social drivers of uptake (WHY people accept or decline; KAP, acceptability, hesitancy, confidence, social/cultural norms; NO intervention tested) 2 Demand generation and communication strategies (an intervention/strategy to inform, motivate, or mobilise (campaigns, mobilisation, peer ed, mHealth, misinformation response)) 3 Delivery design and optimisation (HOW delivery is structured/optimised: platform, site, model, schedule, cohort, consent, PIRI, catch-up, coverage recovery) 4 Service integration and co-delivery (HPV integrated/co-delivered with other services at point of care (co-administration, SRH/HIV, mother-daughter, screening+vax)) 5 Equity and hard-to-reach populations (WHO is missed and why, or how to reach underserved (disaggregated coverage, out-of-school, zero-dose, fragile, disability, ALHIV, migrants)) 6 Health workforce capacity and engagement (health workers as the subject: their knowledge, recommendation practice, training, task-shifting, supervision) 7 Governance, policy and political commitment (WHO decides/leads: programme introduction, NITAG, policy, cross-sectoral coordination, political economy) 8 Financing and programme sustainability (cost, financing, economic value: costing, CEA/CUA, budget impact, Gavi co-financing/transition, WTP, sustainability) 9 Measurement, data systems and enumeration (HOW coverage is measured / data quality: surveys, administrative data, denominators, enumeration, GIS microplanning, monitoring) 10 Modelling and impact projection (a mathematical/statistical/simulation model projecting epidemiological impact or optimal strategy) 11 Vaccine efficacy, immunogenicity and schedule (biological performance: efficacy RCTs,

immunogenicity/antibody, real-world effectiveness, safety/AEFI, schedule immunobridging) Then judge whether the paper ALSO makes a substantive, standalone contribution to a DIFFERENT second theme - such that a researcher focused on that second theme would find this paper genuinely useful in its own right, not merely tangential or background/context. Tick this box ONLY IF that substantive second theme is #11 "Vaccine efficacy, immunogenicity and schedule" AND #11 is NOT the primary theme. For #11, a substantive contribution means: studies whose MAIN question is the biological performance of the vaccine (efficacy RCTs, immunogenicity/antibody/seroconversion, real-world effectiveness, immunobridging across schedules/products, duration of protection, cross-protection, safety/AEFI, product comparisons). If it is population-level impact modelling, primary is #10. If it is operational rollout of a single-dose schedule, #3. If it is cost of products, #8. If the paper has no substantive second theme, or only mentions "Vaccine efficacy, immunogenicity and schedule" in passing, do NOT tick.

- Vaccine Type

- Bivalent HPV vaccine

Bivalent_HPV_vaccine: boolean // Return true if this paper reports on HPV vaccine targeting two oncogenic HPV types: HPV 16 and HPV 18, which together cause approximately 70% of cervical cancers.

- Nonavalent HPV vaccine

Nonavalent_HPV_vaccine: boolean // Return true if this paper reports on HPV vaccine targeting nine HPV types: HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58 providing broader protection against approximately 90% of cervical cancers.

- Quadrivalent HPV vaccine

Quadrivalent_HPV_vaccine: boolean // Return true if this paper reports on HPV vaccine targeting four HPV types: HPV 6, 11, 16, and 18 providing protection against both cervical cancer (16/18) and genital warts (6/11).

- Document Type

Classifies documents by format and, for grey literature, by the type of organisation that produced them. Multiple concepts can be tagged where more than one applies – for example, a jointly published document should receive all relevant sender types. Pre-print/Working Paper can be updated to Journal Article upon formal publication.

- Book Chapter

Book_Chapter: boolean // Return true if this paper reports on a contribution to an edited academic volume.

- Conference & Presentation Material

Conference_Presentation_Material: boolean // Return true if this paper reports on research or programme experience shared at conferences, webinars, or external events, including slides and presentation decks.

- Government Report

Government_Report: boolean // Return true if this paper reports on a report, brief, or document published by a government body at any level.

- International Development Partner Report

International_Development_Partner_Report: boolean // Return true if this paper reports

on a report, brief, or document published by an international organisation or multilateral body (e.g. WHO, UNICEF, UN agencies, IOM, World Bank, Gavi).

- Journal Article
Journal_Article: boolean // Return true if this paper reports on a publication in an academic or professional journal.
- NGO/Organisation Report
NGO_Organisation_Report: boolean // Return true if this paper reports on a report, brief, or document published by a non-governmental organisation, research institution, or implementing partner.
- Pre-print/Working Paper
Pre-print_Working_Paper: boolean // Return true if this paper reports on preliminary findings, not yet formally published.
- Thesis/Dissertation
Thesis_Dissertation: boolean // Return true if this paper reports on graduate-level academic research (e.g. MA, PhD).