Report:
Living Evidence Repository and Evidence and Gap Map on Human Papillomavirus Vaccine Delivery

Version 5.0

November 2026

For previous versions please see here.

Table of contents

	Page
Report information	**2**
Deviations from protocol	**4**
Results	**5**
References	**6**
Appendix 1: Search strategy results	**7**
Appendix 2: Coding tools - Prompts for Title and Abstract screening - Prompts for coding studies against the HPV Vaccine Delivery Taxonomy	**16**

Report information

Authors

Author	Affiliation	Contribution (based on the CRediT taxonomy)	Conflict of interest
Britta Tendal Jeppesen	Future Evidence Foundation	Conceptualization, methodology, writing - original draft, writing - review and editing and supervision	None
Akah Thelma Eni	eBASE Africa	Writing - Review and editing	None
Okwen Berenice Tifuh	eBASE Africa	Writing - Review and editing	None
Alvin Lontum	eBASE Africa	Writing - Review and editing	None
Melissa Bond	University College London	Conceptualisation, methodology, software, validation, analysis, writing - original draft, writing - review and editing	None
Ailbhe Finnerty Mutlu	University College London	Methodology, software, validation, writing - original draft, writing - review and editing	None
Fumane Lekoala	Future Evidence Foundation	Writing - Review and editing	None
Kijika Betrian Wongebe	eBASE Africa	Writing-Review and editing	None
Alang Ernest Wung	eBASE Africa	Writing-Review and Editing	None
Okwen Patrick Mbah	eBASE Africa	Writing-Review and editing	None
Ngem Bede Yong	eBASE Africa	Writing-review and editing	None
Mikey Rosato	Future Evidence Foundation	Writing - review and editing - and project administration	None
Pooja Sripad	JHPIEGO	Writing - review and editing	None
Tshepiso Mbangiwa	VACFA - NISH	Writing - review and editing	None
Charles Kakaire	UNICEF	Writing - review and editing	None
Barnabas Bessing	WHO AFRO	Writing - review and editing	None
Rabecca Chitundu	Centre for Infectious	Writing - review and editing	None

	Disease Research in Zambia (CIDRZ)		
Erica Rosser	International Vaccine Access Center (IVAC) at Johns Hopkins Bloomberg School of Public Health	Writing - review and editing	None
Charles Wiysonge	Cochrane South Africa	Writing - review and editing	None
Clovis Sangwe	GAVI	Writing - review and editing	None
Adolphus Trokon Clarke	Liberia Ministry of Health	Writing - review and editing	None
Tariq Masood	GAVI	Writing - review and editing	None
Hassan Sibomana	Rwanda Ministry of Health	Writing - review and editing	None
Balkiss Abdelmoula	MENA Coalition for HPV Elimination	Writing - review and editing	None
Laure-Anais Zultak	Gates Foundation	Writing - review and editing	None
Tomasz Kozakiewicz	University of Newcastle	Writing - review and editing	None

Funding

This report is based on research funded by the Gates Foundation (INV-075762). The funders had no role in study design, data collection, analysis and interpretation of data, decision to publish, or preparation of the manuscript. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Gates Foundation.

Correspondence

Britta Tendal Jeppesen
Chief Scientist
Future Evidence Foundation

britta@futureevidence.org

Deviations from protocol

No deviations from the current protocol (v5.0).

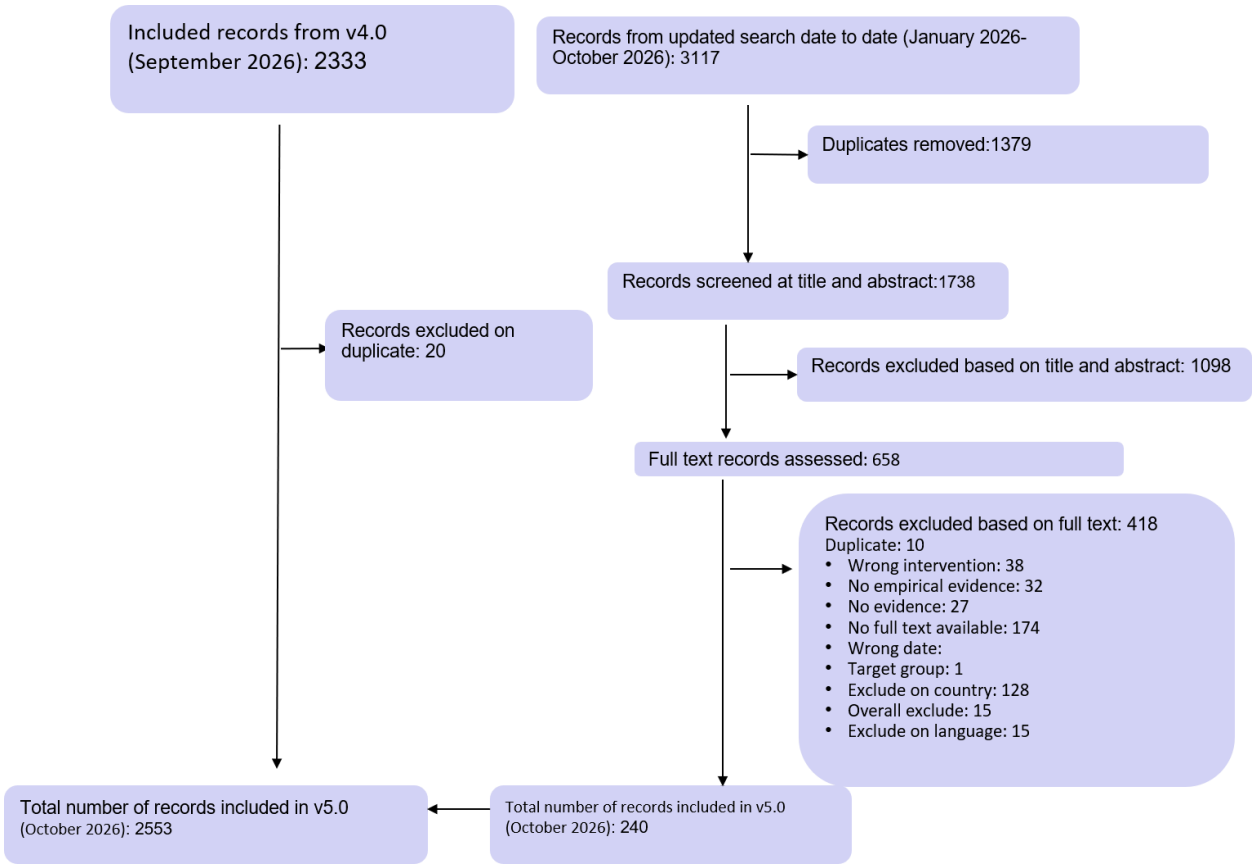
Results

The updated search for this version was conducted on 21 October 2026. The search covered the period January 2026 to October 2026.

We identified 3,117 additional records through the Version 5.0 searches, which were then added in the Version 5.0 of the repository. Please see Appendix 1 for more detail.

The ‘ground truth’ dataset of references (n=100) had 98% agreement between human reviewers on title and abstract screening, with fleiss kappa .90. The LLM prompt in Claude Sonnet 4.5 showed recall of .95 on title and abstract screening of the ‘ground truth’ dataset. No refinement of the prompt was undertaken before applying it to the remaining unscreened records.

Following full text screening and eligibility assessment, 240 papers were included for data extraction and 20 excluded as duplicates from the repository, bringing the cumulative total to 2,553 papers.



We extracted data using model GPT-5.2., ~2% of the records with extracted data were checked by an expert reviewer.

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. https://doi.org/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 strategy results

The updated search for this version was conducted on 21 October 2026. The search covered the period January 2026 to October 2026.

Source	Search string	Hits	Filters
PubMed	((("Papillomavirus Infections"[Mesh] OR "Uterine Cervical Neoplasms"[Mesh] OR (HPV[tiab] OR papilloma*[tiab] OR papiloma*[tiab] OR "human papillomavirus"[tiab] OR "human papilloma virus"[tiab] OR "cervical cancer"[tiab] OR "cervical intraepithelial neoplasia"[tiab] OR CIN[tiab])) AND (vaccin*[tiab] OR immuniz*[tiab] OR immunis*[tiab])) OR (Gardasil[tiab] OR "Gardasil 9"[tiab] OR Cervarix[tiab] OR Cecolin[tiab] OR Cervavac[tiab] OR Walrinvax[tiab] OR 2vHPV[tiab] OR 4vHPV[tiab] OR 9vHPV[tiab]) OR "Papillomavirus Vaccines"[Mesh]) AND ("Health Education"[Mesh] OR "Health Promotion"[Mesh] OR "Health Communication"[Mesh] OR "Mass Media"[Mesh] OR "Social Media"[Mesh] OR "Text Messaging"[Mesh] OR "Reminder Systems"[Mesh] OR "Motivational Interviewing"[Mesh] OR "Community Health Workers"[Mesh] OR "Community Participation"[Mesh] OR "Social Marketing"[Mesh] OR ("demand generation"[tiab] OR "demand creation"[tiab] OR "social mobilization"[tiab] OR "social mobilisation"[tiab] OR "community mobilization"[tiab] OR "community mobilisation"[tiab] OR "community engagement"[tiab] OR "health education"[tiab] OR "health promotion"[tiab] OR "health communication"[tiab] OR ("communication strategy"[tiab] OR "communication strategies"[tiab]) OR ("communication intervention"[tiab] OR "communication interventions"[tiab]) OR "behavior change"[tiab] OR "behaviour change"[tiab] OR ("behavioral intervention"[tiab] OR "behavioral interventions"[tiab]) OR ("behavioural intervention"[tiab] OR "behavioural interventions"[tiab]) OR SBC*[tiab] OR "mass media"[tiab] OR "social media"[tiab] OR mHealth[tiab] OR ("text message"[tiab] OR "text messages"[tiab] OR "text messaging"[tiab]) OR SMS[tiab] OR reminder*[tiab] OR nudge*[tiab] OR incentive*[tiab] OR ("cash transfer"[tiab] OR "cash transfers"[tiab]) OR advocacy[tiab] OR awareness[tiab] OR sensitiz*[tiab] OR sensitis*[tiab] OR misinformation[tiab] OR "risk communication"[tiab] OR ("community health worker"[tiab] OR "community health workers"[tiab]) OR ("community leader"[tiab] OR "community leaders"[tiab]) OR ("religious leader"[tiab] OR "religious leaders"[tiab]) OR ("educational intervention"[tiab] OR "educational interventions"[tiab]) OR ("decision	53	2026

	aid"[tiab] OR "decision aids"[tiab]) OR "motivational interviewing"[tiab] OR ("provider recommendation"[tiab] OR "provider recommendations"[tiab]) OR "peer education"[tiab] OR ("community dialogue"[tiab] OR "community dialogues"[tiab]) OR "stakeholder engagement"[tiab])) OR ("Health Education"[Mesh] OR "Health Promotion"[Mesh] OR "Health Communication"[Mesh] OR "Mass Media"[Mesh] OR "Social Media"[Mesh] OR "Text Messaging"[Mesh] OR "Reminder Systems"[Mesh] OR "Motivational Interviewing"[Mesh] OR "Community Health Workers"[Mesh] OR "Community Participation"[Mesh] OR "Social Marketing"[Mesh] OR ("demand generation"[tiab] OR "demand creation"[tiab] OR "social mobilization"[tiab] OR "social mobilisation"[tiab] OR "community mobilization"[tiab] OR "community mobilisation"[tiab] OR "community engagement"[tiab] OR "health education"[tiab] OR "health promotion"[tiab] OR "health communication"[tiab] OR ("communication strategy"[tiab] OR "communication strategies"[tiab]) OR ("communication intervention"[tiab] OR "communication interventions"[tiab]) OR "behavior change"[tiab] OR "behaviour change"[tiab] OR ("behavioral intervention"[tiab] OR "behavioral interventions"[tiab]) OR ("behavioural intervention"[tiab] OR "behavioural interventions"[tiab]) OR SBC*[tiab] OR "mass media"[tiab] OR "social media"[tiab] OR mHealth[tiab] OR ("text message"[tiab] OR "text messages"[tiab] OR "text messaging"[tiab]) OR SMS[tiab] OR reminder*[tiab] OR nudge*[tiab] OR incentive*[tiab] OR ("cash transfer"[tiab] OR "cash transfers"[tiab]) OR advocacy[tiab] OR awareness[tiab] OR sensitiz*[tiab] OR sensitis*[tiab] OR misinformation[tiab] OR "risk communication"[tiab] OR ("community health worker"[tiab] OR "community health workers"[tiab]) OR ("community leader"[tiab] OR "community leaders"[tiab]) OR ("religious leader"[tiab] OR "religious leaders"[tiab]) OR ("educational intervention"[tiab] OR "educational interventions"[tiab]) OR ("decision aid"[tiab] OR "decision aids"[tiab]) OR "motivational interviewing"[tiab] OR ("provider recommendation"[tiab] OR "provider recommendations"[tiab]) OR "peer education"[tiab] OR ("community dialogue"[tiab] OR "community dialogues"[tiab]) OR "stakeholder engagement"[tiab])) AND ("Vaccination Coverage"[Mesh] OR "Vaccination Hesitancy"[Mesh] OR (uptake[tiab] OR "vaccination coverage"[tiab] OR "vaccine coverage"[tiab] OR "immunization coverage"[tiab] OR "immunisation coverage"[tiab] OR hesitanc*[tiab] OR acceptab*[tiab] OR acceptance[tiab] OR refusal[tiab] OR "dose completion"[tiab] OR "series completion"[tiab] OR "population reach"[tiab]))		

Embase	(((HPV OR papilloma* OR papiloma* OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR "cervical intraepithelial neoplasia" OR CIN):ti,ab,kw AND (vaccin* OR immuniz* OR immunis*):ti,ab,kw) OR (Gardasil OR "Gardasil 9" OR Cervarix OR Cecolin OR Cervavac OR Walrinvax OR 2vHPV OR 4vHPV OR 9vHPV):ti,ab,kw OR 'human papilloma virus vaccine'/exp) AND ('immunization program'/exp OR 'vaccination program'/exp OR 'mass immunization'/exp OR 'health program implementation'/exp OR 'health care delivery'/exp OR (deliver* OR "health system*" OR roll* OR implement* OR polic* OR program* OR campaign* OR outreach OR coordinat* OR integrat* OR planning OR "school-based" OR "community-based" OR "facility-based" OR "mobile clinic*" OR NIP OR "routine immunization" OR "routine immunisation" OR "routine vaccination" OR "catch-up" OR "multi-age cohort"):ti,ab,kw) AND ('health education'/exp OR 'health promotion'/exp OR 'mass medium'/exp OR 'social media'/exp OR 'reminder system'/exp OR 'text messaging'/exp OR ("demand generation" OR "demand creation" OR "social mobilization" OR "social mobilisation" OR "community mobilization" OR "community mobilisation" OR "community engagement" OR "health education" OR "health promotion" OR "health communication" OR "communication strateg*" OR "communication intervention*" OR "behavior change" OR "behaviour change" OR "behavioral intervention*" OR "behavioural intervention*" OR SBC* OR "mass media" OR "social media" OR mHealth OR "text messag*" OR SMS OR reminder* OR nudge* OR incentive* OR "cash transfer*" OR advocacy OR awareness OR sensitiz* OR sensitis* OR misinformation OR "risk communication" OR "community health worker*" OR "community leader*" OR "religious leader*" OR "educational intervention*" OR "decision aid*" OR "motivational interviewing" OR "provider recommendation*" OR "peer education" OR "community dialogue*" OR "stakeholder engagement"):ti,ab,kw) AND (uptake OR "vaccination coverage" OR "vaccine coverage" OR "immunization coverage" OR "immunisation coverage" OR hesitanc* OR acceptab* OR acceptance OR refusal OR "dose completion" OR "series completion" OR "population reach"):ti,ab,kw	103	2026
CINAHL	(((MH "Papillomavirus Infections+" OR MH "Uterine Cervical Neoplasms+" OR XB(HPV OR papilloma* OR papiloma* OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR "cervical intraepithelial neoplasia" OR CIN)) AND (MH "Immunization+" OR XB(vaccin* OR immuniz* OR immunis*))) OR XB(Gardasil OR "Gardasil 9" OR Cervarix OR Cecolin OR Cervavac OR Walrinvax OR 2vHPV OR 4vHPV OR 9vHPV) OR MH	20	2026

	"Papillomavirus Vaccine") AND (MH "Immunization Programs" OR MH "School Health Services+" OR MH "Health Care Delivery+" OR MH "Health Services Accessibility+" OR MH "Adolescent Health Services" OR XB(deliver* OR "health system*" OR roll* OR implement* OR polic* OR program* OR campaign* OR outreach OR coordinat* OR integrat* OR planning OR "school based" OR "community based" OR "facility based" OR "mobile clinic*" OR NIP OR "routine immunization" OR "routine immunisation" OR "routine vaccination" OR "catch up" OR "multi age cohort")) OR (MH "Health Education+" OR MH "Health Promotion+" OR MH "Mass Media+" OR MH "Social Media" OR XB("demand generation" OR "demand creation" OR "social mobilization" OR "social mobilisation" OR "community mobilization" OR "community mobilisation" OR "community engagement" OR "health education" OR "health promotion" OR "health communication" OR "communication strateg*" OR "communication intervention*" OR "behavior change" OR "behaviour change" OR "behavioral intervention*" OR "behavioural intervention*" OR SBC* OR "mass media" OR "social media" OR mHealth OR "text messag*" OR SMS OR reminder* OR nudge* OR incentive* OR "cash transfer*" OR advocacy OR awareness OR sensitiz* OR sensitis* OR misinformation OR "risk communication" OR "community health worker*" OR "community leader*" OR "religious leader*" OR "educational intervention*" OR "decision aid*" OR "motivational interviewing" OR "provider recommendation*" OR "peer education" OR "community dialogue*" OR "stakeholder engagement")) AND XB(uptake OR "vaccination coverage" OR "vaccine coverage" OR "immunization coverage" OR "immunisation coverage" OR hesitanc* OR acceptab* OR acceptance OR refusal OR "dose completion" OR "series completion" OR "population reach")		
Cochrane Library	(HPV OR papilloma* OR papiloma* OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR "cervical intraepithelial neoplasia" OR CIN) in Title Abstract Keyword AND uptake OR "vaccination coverage" OR "vaccine coverage" OR "immunization coverage" OR "immunisation coverage" OR hesitanc* OR acceptab* OR acceptance OR refusal OR "dose completion" OR "series completion" OR "population reach" in Title Abstract Keyword AND (deliver* OR "health system*" OR roll* OR implement* OR polic* OR program* OR campaign* OR outreach OR coordinat* OR integrat* OR planning OR "school based" OR "community based" OR "facility based" OR "mobile clinic*" OR NIP OR "routine immunization" OR "routine immunisation" OR "routine vaccination" OR "catch up" OR "multi age cohort" OR "demand generation" OR "demand creation"	1054	2026

	OR "social mobilization" OR "social mobilisation" OR "community mobilization" OR "community mobilisation" OR "community engagement" OR "health education" OR "health promotion" OR "health communication" OR "communication strateg*" OR "communication intervention*" OR "behavior change" OR "behaviour change" OR "behavioral intervention*" OR "behavioural intervention*" OR SBC* OR "mass media" OR "social media" OR mHealth OR "text messag*" OR SMS OR reminder* OR nudge* OR incentive* OR "cash transfer*" OR advocacy OR awareness OR sensitiz* OR sensitis* OR misinformation OR "risk communication" OR "community health worker*" OR "community leader*" OR "religious leader*" OR "educational intervention*" OR "decision aid*" OR "motivational interviewing" OR "provider recommendation*" OR "peer education" OR "community dialogue*" OR "stakeholder engagement") in Title Abstract Keyword - (Word variations have been searched)		
Web of Science	(HPV OR papilloma* OR papiloma* OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR "cervical intraepithelial neoplasia" OR CIN OR vaccin* OR immuniz* OR immunis* OR Gardasil OR "Gardasil 9" OR Cervarix OR Cecolin OR Cervavac OR Walrinvax OR 2vHPV OR 4vHPV OR 9vHPV) AND (deliver* OR "health system*" OR roll* OR implement* OR polic* OR program* OR campaign* OR outreach OR coordinat* OR integrat* OR planning OR "school based" OR "community based" OR "facility based" OR "mobile clinic*" OR NIP OR "routine immunization" OR "routine immunisation" OR "routine vaccination" OR "catch up" OR "multi age cohort" OR "demand generation" OR "demand creation" OR "social mobilization" OR "social mobilisation" OR "community mobilization" OR "community mobilisation" OR "community engagement" OR "health education" OR "health promotion" OR "health communication" OR "communication strateg*" OR "communication intervention*" OR "behavior change" OR "behaviour change" OR "behavioral intervention*" OR "behavioural intervention*" OR SBC* OR "mass media" OR "social media" OR mHealth OR "text messag*" OR SMS OR reminder* OR nudge* OR incentive* OR "cash transfer*" OR advocacy OR awareness OR sensitiz* OR sensitis* OR misinformation OR "risk communication" OR "community health worker*" OR "community leader*" OR "religious leader*" OR "educational intervention*" OR "decision aid*" OR "motivational interviewing" OR "provider recommendation*" OR "peer education" OR "community dialogue*" OR "stakeholder engagement") AND (uptake OR "vaccination coverage" OR "vaccine coverage" OR "immunization coverage" OR "immunisation coverage" OR hesitanc*	303	2026

	OR acceptab* OR acceptance OR refusal OR "dose completion" OR "series completion" OR "population reach")		
Scopus	((TITLE-ABS-KEY(HPV OR papilloma* OR papiloma* OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR "cervical intraepithelial neoplasia" OR CIN) AND TITLE-ABS-KEY(vaccin* OR immuniz* OR immunis*)) OR TITLE-ABS-KEY(Gardasil OR "Gardasil 9" OR Cervarix OR Cecolin OR Cervavac OR Walrinvax OR 2vHPV OR 4vHPV OR 9vHPV)) AND TITLE-ABS-KEY(deliver* OR "health system*" OR roll* OR implement* OR polic* OR program* OR campaign* OR outreach OR coordinat* OR integrat* OR planning OR "school-based" OR "community-based" OR "facility-based" OR "mobile clinic*" OR NIP OR "routine immunization" OR "routine immunisation" OR "routine vaccination" OR "catch-up" OR "multi-age cohort" OR "demand generation" OR "demand creation" OR "social mobilization" OR "social mobilisation" OR "community mobilization" OR "community mobilisation" OR "community engagement" OR "health education" OR "health promotion" OR "health communication" OR "communication strateg*" OR "communication intervention*" OR "behavior change" OR "behaviour change" OR "behavioral intervention*" OR "behavioural intervention*" OR SBC* OR "mass media" OR "social media" OR mHealth OR "text messag*" OR SMS OR reminder* OR nudge* OR incentive* OR "cash transfer*" OR advocacy OR awareness OR sensitiz* OR sensitis* OR misinformation OR "risk communication" OR "community health worker*" OR "community leader*" OR "religious leader*" OR "educational intervention*" OR "decision aid*" OR "motivational interviewing" OR "provider recommendation*" OR "peer education" OR "community dialogue*" OR "stakeholder engagement") AND TITLE-ABS-KEY(uptake OR "vaccination coverage" OR "vaccine coverage" OR "immunization coverage" OR "immunisation coverage" OR hesitanc* OR acceptab* OR acceptance OR refusal OR "dose completion" OR "series completion" OR "population reach")	23	2026
ProQuest	(HPV OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer") AND (vaccin* OR immuniz* OR immunis* OR Gardasil OR Cervarix OR Cecolin OR Cervavac OR Walrinvax) AND (deliver* OR implement* OR rollout OR "roll-out" OR program* OR campaign* OR outreach OR "school-based" OR "community-based" OR "facility-based" OR integrat* OR coordinat* OR "routine immunization" OR "routine immunisation" OR "demand generation" OR "demand creation" OR "social mobilization" OR "community engagement" OR "health education" OR "health communication" OR	95	2026

	"communication strategy" OR "communication strategies" OR "behavior change" OR "behaviour change" OR "mass media" OR "social media" OR reminder* OR incentive* OR nudge* OR "text message" OR "text messages" OR advocacy OR misinformation OR "community health worker" OR "community health workers") AND (uptake OR coverage OR hesitanc* OR acceptab* OR acceptance OR completion)		
OpenAlex	(HPV OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR vaccin* OR immuniz* OR immunis* OR Gardasil OR Cervarix OR Cecolin OR Cervavac OR Walrinvax) AND (deliver* OR implement* OR rollout OR "roll-out" OR program* OR campaign* OR outreach OR "school-based" OR "community-based" OR "facility-based" OR integrat* OR coordinat* OR "routine immunization" OR "routine immunisation") OR ("demand generation" OR "demand creation" OR "social mobilization" OR "community engagement" OR "health education" OR "health communication" OR "communication strateg*" OR "behavior change" OR "behaviour change" OR "mass media" OR "social media" OR reminder* OR incentive* OR nudge* OR "text messag*" OR advocacy OR misinformation OR "community health worker*") AND (uptake OR coverage OR hesitanc* OR acceptab* OR acceptance OR completion)	1176	2026
Epistemonikos	(Gardasil OR Cervarix OR Cecolin OR Cervavac OR Walrinvax)	3	2026
Global Index Medicus	tw:(HPV OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR vaccin* OR immuniz* OR immunis* OR Gardasil OR Cervarix OR Cecolin OR Cervavac OR Walrinvax)	15	2026
Taylor & Francis Online	(HPV OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR vaccin* OR immuniz* OR immunis* OR Gardasil OR Cervarix OR Cecolin OR Cervavac OR Walrinvax) AND (deliver* OR implement* OR rollout OR "roll-out" OR program* OR campaign* OR outreach OR "school-based" OR "community-based" OR "facility-based" OR integrat* OR coordinat* OR "routine immunization" OR "routine immunisation") OR ("demand generation" OR "demand creation" OR "social mobilization" OR "community engagement" OR "health education" OR "health communication" OR "communication strateg*" OR "behavior change" OR "behaviour change" OR "mass media" OR "social media" OR reminder* OR incentive* OR nudge* OR "text messag*" OR advocacy OR misinformation OR "community health worker*") AND (uptake OR coverage OR hesitanc* OR acceptab* OR acceptance OR completion)	62	2026

Wiley Online Library	(HPV OR "human papillomavirus" OR "human papilloma virus" OR "cervical cancer" OR vaccin* OR immuniz* OR immunis* OR Gardasil OR Cervarix OR Cecolin OR Cervavac OR Walrinvax) AND (deliver* OR implement* OR rollout OR "roll-out" OR program* OR campaign* OR outreach OR "school-based" OR "community-based" OR "facility-based" OR integrat* OR coordinat* OR "routine immunization" OR "routine immunisation") OR (“demand generation” OR “demand creation” OR “social mobilization” OR “community engagement” OR “health education” OR “health communication” OR “communication strateg*” OR “behavior change” OR “behaviour change” OR “mass media” OR “social media” OR reminder* OR incentive* OR nudge* OR “text messag*” OR advocacy OR misinformation OR “community health worker*”) AND (uptake OR coverage OR hesitanc* OR acceptab* OR acceptance OR completion)	8	2026
Google Scholar	"HPV vaccine" OR "HPV vaccination" OR "human papillomavirus vaccine" delivery OR "delivery strategies" OR rollout OR campaign 2026 filetype:pdf	76	2026
PSYCINFO	(((HPV or papilloma* or papiloma* or human papillomavirus or human papilloma virus or cervical cancer or cervical intraepithelial neoplasia or CIN) and (vaccin* or immuniz* or immunis*)).ti,ab,kw. or (Gardasil* or Cervarix or Cecolin or Cervavac or Walrinvax or 2vHPV or 4vHPV or 9vHPV).ti,ab,kw,tn. or exp wart virus vaccine/) and ((exp immunization program/ or exp vaccination program/ or exp mass immunization/ or exp health program implementation/ or exp health care delivery/ or (deliver* or health system* or roll* or implement* or polic* or program* or campaign* or outreach or coordinat* or integrat* or planning or school based or community based or facility based or mobile clinic* or NIP or routine immuni?ation or routine vaccination or catch up or multi age cohort* or multiage cohort*).ti,ab,kw.) and (exp health education/ or exp health promotion/ or exp mass medium/ or exp social media/ or exp reminder system/ or exp text messaging/ or (demand generation or demand creation or social mobili?ation or community mobili?ation or community engagement or health education or health promotion or health communication or communication strateg* or communication intervention* or behavio?r change or behavio?ral intervention* or SBC* or mass media or social media or mHealth or text messag* or SMS or reminder* or nudge* or incentive* or cash transfer* or advocacy or awareness or sensitiz* or sensitis* or misinformation or risk communication or community health worker* or community leader* or religious leader* or educational intervention* or decision aid* or motivational interviewing or provider recommendation* or peer education or community dialogue* or	15	2026

	stakeholder engagement).ti,ab,kw.)) and (uptake or vaccination coverage or vaccine coverage or immuni?ation coverage or hesitanc* or acceptab* or acceptance or refusal or dose completion or series completion or population reach).ti,ab,kw.		
Google.com (en)	HPV vaccine 2026 filetype:pdf	94	2026
Google.com (fr)	vaccin HPV 2026 filetype:pdf	17	2026
TOTAL		**3117**	

Appendix 2: Coding tools

Prompts for Title and Abstract screening

The final prompt used Claude Sonnet 4.5.

INCLUDE on Title and Abstract

is_about_HPV_vaccine_delivery: boolean // Return TRUE if the record reports empirical research, evidence synthesis, implementation research, programme evaluation, modelling, economic evaluation, or grey literature related to HPV vaccination delivery, uptake, implementation, access, acceptability, policy, financing, communication, equity, monitoring, or health system strengthening in low- and middle-income countries (LMICs), or includes at least one LMIC in a multi-country study. Include studies on: • Behavioural and social drivers of HPV vaccine uptake • Vaccine hesitancy, acceptance, awareness, attitudes, beliefs, perceptions, or demand • Demand generation, communication, social mobilisation, community engagement, health education, or misinformation • HPV vaccine delivery strategies, programme implementation, rollout, or optimisation • School-based, facility-based, outreach, campaign, integrated, community-based, or routine vaccination • Service integration and co-delivery • Equity, access, coverage, hard-to-reach populations, or gender-related factors • Health workforce capacity, training, engagement, supervision, or provider recommendations • Governance, policy, leadership, coordination, political commitment, or programme management • Financing, sustainability, costing, affordability, budget impact, or economic evaluation • Monitoring, evaluation, surveillance, registries, information systems, data systems, or enumeration • Modelling and impact projection related to HPV vaccination programmes • HPV vaccine schedules, immunogenicity, or efficacy when informing vaccination policy, implementation, or delivery • Programme evaluations and implementation research • Peer-reviewed studies, preprints, government reports, NGO reports, technical reports, dissertations, and unpublished evaluations Eligible study designs include: • Randomised controlled trials • Clinical trials • Quasi-experimental studies • Observational studies • Programme evaluations • Implementation research • Qualitative studies • Mixed-methods studies • Economic evaluations • Modelling studies • Systematic reviews • Meta-analyses • Narrative reviews • Scoping reviews Return FALSE if: • The study focuses only on HPV prevalence, incidence, epidemiology, disease burden, or cancer burden without a vaccination delivery component. • The study focuses only on cervical cancer screening, HPV testing, diagnosis, treatment, or management without relevance to HPV vaccination. • The study focuses only on laboratory science, virology, vaccine development, or basic science unrelated to vaccine delivery. • The study is conducted exclusively in high-income countries with no LMIC data. • The publication is an editorial, commentary, opinion piece, letter, press release, conference abstract only, news item, or ongoing study without results. When uncertain, favour TRUE rather than FALSE. Return only: TRUE or FALSE If the title or abstract suggests any possible relevance to HPV vaccination programmes, delivery, implementation, uptake, access,

communication, policy, financing, equity, workforce, data systems, integration, modelling, or acceptability, return TRUE.

EXCLUDE on Title and Abstract

should_be_excluded_from_HPV_vaccine_delivery_repository: boolean // Return TRUE if the record should be EXCLUDED from the HPV Vaccine Delivery Evidence Repository. Exclude if ANY of the following apply: 1. Not about HPV vaccination • The study does not focus on HPV vaccines, HPV vaccination, HPV immunisation, or HPV vaccination programmes. • The study focuses on HPV infection, virology, molecular biology, laboratory science, vaccine development, or vaccine manufacturing without relevance to vaccination delivery or implementation. 2. Not about vaccine delivery or implementation • The study focuses only on HPV prevalence, incidence, transmission, epidemiology, disease burden, cervical cancer burden, or cancer outcomes without discussing HPV vaccination delivery, implementation, uptake, access, programme design, policy, financing, communication, or vaccine-related interventions. • The study focuses solely on cervical cancer screening, HPV testing, diagnosis, treatment, management, or disease outcomes and does not include an HPV vaccination component. 3. Ineligible geographic scope • The study was conducted exclusively in high-income countries and contains no LMIC data, analysis, findings, or implications. • No LMIC country is included in a multi-country study. 4. Ineligible publication type • Editorial • Commentary • Opinion article • Letter to the editor • News article • Press release • Conference abstract only • Meeting abstract only • Protocol without results • Ongoing study without findings 5. No eligible evidence • The publication contains no empirical data, evidence synthesis findings, programme data, implementation evidence, modelling outputs, economic evaluation results, or evaluation findings. • The publication merely describes an initiative, programme, policy, or intervention without presenting data, evaluation, analysis, outcomes, or findings. 6. Ineligible language • Full text is not available in English or French. 7. Clearly outside the repository scope • The study does not address any aspect of: - vaccine uptake or acceptability - behavioural and social drivers - vaccine delivery design or optimisation - demand generation or communication - equity or hard-to-reach populations - financing or sustainability - governance or policy - health workforce - monitoring, evaluation, data systems, or enumeration - modelling and impact projection - service integration or co-delivery - vaccine schedule implementation, efficacy, or immunogenicity relevant to programme delivery - misinformation related to HPV vaccination Return FALSE if: • The study may contribute evidence to any HPV vaccine delivery, implementation, uptake, programme, policy, financing, equity, communication, workforce, monitoring, modelling, or integration question, even when relevance is uncertain. When uncertain, favour FALSE rather than TRUE. Return only: TRUE or FALSE ``should_be_excluded_from_HPV_vaccine_delivery_repository

Rationale

justification: string // Outline why this study is, or is not, about HPV vaccines.

Prompts for coding studies against the HPV Vaccine Delivery Taxonomy

For a full list of the taxonomy scheme and concepts, please see the Version 2.3 Taxonomy.

The final prompts used GPT-5.2.

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
  United_Arab_Emirates: boolean // Return true if this paper reports on participants from or a population of United Arab Emirates. 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.
- Afghanistan
  Afghanistan: boolean // Return true if this paper reports on participants from or a population of Afghanistan. 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.
- Antigua and Barbuda
  Antigua_and_Barbuda: boolean // Return true if this paper reports on participants from or a population of Antigua and Barbuda. 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.
- Anguilla
  Anguilla: boolean // Return true if this paper reports on participants from or a population of Anguilla. 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.

- Albania
  Albania: boolean // Return true if this paper reports on participants from or a population of Albania. 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.
- Armenia
  Armenia: boolean // Return true if this paper reports on participants from or a population of Armenia. 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.
- Angola
  Angola: boolean // Return true if this paper reports on participants from or a population of Angola. 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.
- Antarctica
  Antarctica: boolean // Return true if this paper reports on participants from or a population of Antarctica. 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.
- Argentina
  Argentina: boolean // Return true if this paper reports on participants from or a population of Argentina. 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.
- American Samoa
  American_Samoa: boolean // Return true if this paper reports on participants from or a population of American 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.
- Austria
  Austria: boolean // Return true if this paper reports on participants from or a population of Austria. 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.
- Australia
  Australia: boolean // Return true if this paper reports on participants from or a population of Australia. 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.
- Aruba
  Aruba: boolean // Return true if this paper reports on participants from or a population of Aruba.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.

- Aland Islands
  Aland_Islands: boolean // Return true if this paper reports on participants from or a population of Aland 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.
- Azerbaijan
  Azerbaijan: boolean // Return true if this paper reports on participants from or a population of Azerbaijan. 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.
- Bosnia and Herzegovina
  Bosnia_and_Herzegovina: boolean // Return true if this paper reports on participants from or a population of Bosnia and Herzegovina. 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.
- Barbados
  Barbados: boolean // Return true if this paper reports on participants from or a population of Barbados. 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.
- Bangladesh
  Bangladesh: boolean // Return true if this paper reports on participants from or a population of Bangladesh. 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.
- Belgium
  Belgium: boolean // Return true if this paper reports on participants from or a population of Belgium. 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.
- Burkina Faso
  Burkina_Faso: boolean // Return true if this paper reports on participants from or a population of Burkina Faso. 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.
- Bulgaria
  Bulgaria: boolean // Return true if this paper reports on participants from or a population of Bulgaria. 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.

- Bahrain
  Bahrain: boolean // Return true if this paper reports on participants from or a population of Bahrain. 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.
- Burundi
  Burundi: boolean // Return true if this paper reports on participants from or a population of Burundi. 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.
- Benin
  Benin: boolean // Return true if this paper reports on participants from or a population of Benin. 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 Bartholemy
  Saint_Bartholemy: boolean // Return true if this paper reports on participants from or a population of Saint Bartholemy. 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.
- Bermuda
  Bermuda: boolean // Return true if this paper reports on participants from or a population of Bermuda. 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.
- Brunei Darussalam
  Brunei_Darussalam: boolean // Return true if this paper reports on participants from or a population of Brunei Darussalam. 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.
- Bolivia, Plurinational State of
  Bolivia_Plurinational_State_of: boolean // Return true if this paper reports on participants from or a population of Bolivia, Plurinational State 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.
- Bonaire, Sint Eustatius and Saba
  Bonaire_Sint_Eustatius_and_Saba: boolean // Return true if this paper reports on participants from or a population of Bonaire, Sint Eustatius and Saba. 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.
- Brazil
  Brazil: boolean // Return true if this paper reports on participants from or a population of

Brazil. 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.

- Bahamas
  Bahamas: boolean // Return true if this paper reports on participants from or a population of Bahamas. 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.
- Bhutan
  Bhutan: boolean // Return true if this paper reports on participants from or a population of Bhutan. 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.
- Bouvet Island
  Bouvet_Island: boolean // Return true if this paper reports on participants from or a population of Bouvet Island. 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.
- Botswana
  Botswana: boolean // Return true if this paper reports on participants from or a population of Botswana. 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.
- Belarus
  Belarus: boolean // Return true if this paper reports on participants from or a population of Belarus. 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.
- Belize
  Belize: boolean // Return true if this paper reports on participants from or a population of Belize. 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.
- Canada
  Canada: boolean // Return true if this paper reports on participants from or a population of Canada. 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.
- Cocos (Keeling) Islands
  Cocos_Keeling_Islands: boolean // Return true if this paper reports on participants from or a population of Cocos (Keeling) 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.

- Congo, The Democratic Republic of the
  Congo_The_Democratic_Republic_of_the: boolean // Return true if this paper reports on participants from or a population of Congo, The Democratic Republic of the. 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.
- Central African Republic
  Central_African_Republic: boolean // Return true if this paper reports on participants from or a population of Central African Republic. 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.
- Congo
  Congo: boolean // Return true if this paper reports on participants from or a population of Congo. 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.
- Switzerland
  Switzerland: boolean // Return true if this paper reports on participants from or a population of Switzerland. 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.
- Cote d'Ivoire
  Cote_d_Ivoire: boolean // Return true if this paper reports on participants from or a population of Cote d Ivoire. 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.
- Cook Islands
  Cook_Islands: boolean // Return true if this paper reports on participants from or a population of Cook 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.
- Chile
  Chile: boolean // Return true if this paper reports on participants from or a population of Chile. 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.
- Cameroon
  Cameroon: boolean // Return true if this paper reports on participants from or a population of Cameroon. 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.
- China
  China: boolean // Return true if this paper reports on participants from or a population 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.

- Colombia
  Colombia: boolean // Return true if this paper reports on participants from or a population of Colombia. 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.
- Costa Rica
  Costa_Rica: boolean // Return true if this paper reports on participants from or a population of Costa Rica. 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.
- Cuba
  Cuba: boolean // Return true if this paper reports on participants from or a population of Cuba. 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.
- Cabo Verde
  Cabo_Verde: boolean // Return true if this paper reports on participants from or a population of Cabo Verde. 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.
- Curasao
  Curasao: boolean // Return true if this paper reports on participants from or a population of Curasao. 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.
- Christmas Island
  Christmas_Island: boolean // Return true if this paper reports on participants from or a population of Christmas Island. 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.
- Cyprus
  Cyprus: boolean // Return true if this paper reports on participants from or a population of Cyprus. 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.
- Czechia
  Czechia: boolean // Return true if this paper reports on participants from or a population of Czechia. 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.

- Germany
  Germany: boolean // Return true if this paper reports on participants from or a population of Germany. 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.
- Djibouti
  Djibouti: boolean // Return true if this paper reports on participants from or a population of Djibouti. 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.
- Denmark
  Denmark: boolean // Return true if this paper reports on participants from or a population of Denmark. 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.
- Dominica
  Dominica: boolean // Return true if this paper reports on participants from or a population of Dominica. 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.
- Dominican Republic
  Dominican_Republic: boolean // Return true if this paper reports on participants from or a population of Dominican Republic. 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.
- Algeria
  Algeria: boolean // Return true if this paper reports on participants from or a population of Algeria. 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.
- Ecuador
  Ecuador: boolean // Return true if this paper reports on participants from or a population of Ecuador. 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.
- Estonia
  Estonia: boolean // Return true if this paper reports on participants from or a population of Estonia. 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.
- Egypt
  Egypt: boolean // Return true if this paper reports on participants from or a population of Egypt. 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.

- Western Sahara
  Western_Sahara: boolean // Return true if this paper reports on participants from or a population of Western Sahara. 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.
- Eritrea
  Eritrea: boolean // Return true if this paper reports on participants from or a population of Eritrea. 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.
- Spain
  Spain: boolean // Return true if this paper reports on participants from or a population of Spain. 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.
- Ethiopia
  Ethiopia: boolean // Return true if this paper reports on participants from or a population of Ethiopia. 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.
- Finland
  Finland: boolean // Return true if this paper reports on participants from or a population of Finland. 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.
- Fiji
  Fiji: boolean // Return true if this paper reports on participants from or a population of Fiji. 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.
- Falkland Islands (Malvinas)
  Falkland_Islands_Malvinas: boolean // Return true if this paper reports on participants from or a population of Falkland Islands (Malvinas). 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.
- Micronesia, Federated States of
  Micronesia_Federated_States_of: boolean // Return true if this paper reports on participants from or a population of Micronesia, Federated States 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.

- Faroe Islands
  Faroe_Islands: boolean // Return true if this paper reports on participants from or a population of Faroe 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.
- France
  France: boolean // Return true if this paper reports on participants from or a population of France. 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.
- Gabon
  Gabon: boolean // Return true if this paper reports on participants from or a population of Gabon. 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 Kingdom
  United_Kingdom: boolean // Return true if this paper reports on participants from or a population of United Kingdom. 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.
- Grenada
  Grenada: boolean // Return true if this paper reports on participants from or a population of Grenada. 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.
- Georgia
  Georgia: boolean // Return true if this paper reports on participants from or a population of Georgia. 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.
- French Guiana
  French_Guiana: boolean // Return true if this paper reports on participants from or a population of French Guiana.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.
- Guernsey
  Guernsey: boolean // Return true if this paper reports on participants from or a population of Guernsey. 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.
- Ghana
  Ghana: boolean // Return true if this paper reports on participants from or a population of Ghana. 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.

- Gibraltar
  Gibraltar: boolean // Return true if this paper reports on participants from or a population of Gibraltar. 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.
- Greenland
  Greenland: boolean // Return true if this paper reports on participants from or a population of Greenland. 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.
- Gambia
  Gambia: boolean // Return true if this paper reports on participants from or a population of Gambia. 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.
- Guinea
  Guinea: boolean // Return true if this paper reports on participants from or a population of Guinea. 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.
- Guadeloupe
  Guadeloupe: boolean // Return true if this paper reports on participants from or a population of Guadeloupe. 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.
- Equatorial Guinea
  Equatorial_Guinea: boolean // Return true if this paper reports on participants from or a population of Equatorial Guinea. 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.
- Greece
  Greece: boolean // Return true if this paper reports on participants from or a population of Greece. 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 Georgia and the South Sandwich Islands
  South_Georgia_and_the_South_Sandwich_Islands: boolean // Return true if this paper reports on participants from or a population of South Georgia and the South Sandwich 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.

- Guatemala
  Guatemala: boolean // Return true if this paper reports on participants from or a population of Guatemala. 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.
- Guam
  Guam: boolean // Return true if this paper reports on participants from or a population of Guam. 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.
- Guinea-Bissau
  Guinea-Bissau: boolean // Return true if this paper reports on participants from or a population of Guinea-Bissau. 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.
- Guyana
  Guyana: boolean // Return true if this paper reports on participants from or a population of Guyana. 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.
- Hong Kong
  Hong_Kong: boolean // Return true if this paper reports on participants from or a population of Hong Kong. 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.
- Heard Island and McDonald Islands
  Heard_Island_McDonald_Islands: boolean // Return true if this paper reports on participants from or a population in the Heard Island or McDonald 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.
- Honduras
  Honduras: boolean // Return true if this paper reports on participants from or a population of Honduras. 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.
- Croatia
  Croatia: boolean // Return true if this paper reports on participants from or a population of Croatia. 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.
- Haiti
  Haiti: boolean // Return true if this paper reports on participants from or a population of Haiti. 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.

- Hungary
  Hungary: boolean // Return true if this paper reports on participants from or a population of Hungary. 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.
- Indonesia
  Indonesia: boolean // Return true if this paper reports on participants from or a population of Indonesia. 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.
- Ireland
  Ireland: boolean // Return true if this paper reports on participants from or a population of Ireland. 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.
- Israel
  Israel: boolean // Return true if this paper reports on participants from or a population of Israel. 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.
- Isle of Man
  Isle_of_Man: boolean // Return true if this paper reports on participants from or a population of Isle of Man. 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.
- India
  India: boolean // Return true if this paper reports on participants from or a population of India. 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.
- British Indian Ocean Territory
  British_Indian_Ocean_Territory: boolean // Return true if this paper reports on participants from or a population of British Indian Ocean Territory. 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.
- Iraq
  Iraq: boolean // Return true if this paper reports on participants from or a population of Iraq. 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.

- Iran, Islamic Republic of
  Iran_Islamic_Republic_of: boolean // Return true if this paper reports on participants from or a population of Iran, Islamic 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.
- Iceland
  Iceland: boolean // Return true if this paper reports on participants from or a population of Iceland. 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.
- Italy
  Italy: boolean // Return true if this paper reports on participants from or a population of Italy. 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.
- Jersey
  Jersey: boolean // Return true if this paper reports on participants from or a population of Jersey. 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.
- Jamaica
  Jamaica: boolean // Return true if this paper reports on participants from or a population of Jamaica. 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.
- Jordan
  Jordan: boolean // Return true if this paper reports on participants from or a population of Jordan. 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.
- Japan
  Japan: boolean // Return true if this paper reports on participants from or a population of Japan. 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.
- Kenya
  Kenya: boolean // Return true if this paper reports on participants from or a population of Kenya. 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.
- Kyrgyzstan
  Kyrgyzstan: boolean // Return true if this paper reports on participants from or a population of Kyrgyzstan. 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.

- Cambodia
  Cambodia: boolean // Return true if this paper reports on participants from or a population of Cambodia. 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.
- Kiribati
  Kiribati: boolean // Return true if this paper reports on participants from or a population of Kiribati. 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.
- Comoros
  Comoros: boolean // Return true if this paper reports on participants from or a population of Comoros. 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 Kitts and Nevis
  Saint_Kitts_and_Nevis: boolean // Return true if this paper reports on participants from or a population of Saint Kitts and Nevis. 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.
- Korea, Democratic People's Republic of
  Korea_Democratic_People_s_Republic_of: boolean // Return true if this paper reports on participants from or a population of Korea, Democratic People s 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.
- Korea, Republic of
  Korea_Republic_of: boolean // Return true if this paper reports on participants from or a population of Korea, 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.
- Kuwait
  Kuwait: boolean // Return true if this paper reports on participants from or a population of Kuwait. 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.
- Cayman Islands
  Cayman_Islands: boolean // Return true if this paper reports on participants from or a population of Cayman 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.

- Kazakhstan
  Kazakhstan: boolean // Return true if this paper reports on participants from or a population of Kazakhstan. 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.
- Lao People's Democratic Republic
  Lao_People_s_Democratic_Republic: boolean // Return true if this paper reports on participants from or a population of Lao People s Democratic Republic. 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.
- Lebanon
  Lebanon: boolean // Return true if this paper reports on participants from or a population of Lebanon. 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 Lucia
  Saint_Lucia: boolean // Return true if this paper reports on participants from or a population of Saint Lucia. 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.
- Liechtenstein
  Liechtenstein: boolean // Return true if this paper reports on participants from or a population of Liechtenstein. 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.
- Sri Lanka
  Sri_Lanka: boolean // Return true if this paper reports on participants from or a population of Sri Lanka. 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.
- Liberia
  Liberia: boolean // Return true if this paper reports on participants from or a population of Liberia. 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.
- Lesotho
  Lesotho: boolean // Return true if this paper reports on participants from or a population of Lesotho. 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.
- Lithuania
  Lithuania: boolean // Return true if this paper reports on participants from or a population of Lithuania. 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.

- Luxembourg
  Luxembourg: boolean // Return true if this paper reports on participants from or a population of Luxembourg. 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.
- Latvia
  Latvia: boolean // Return true if this paper reports on participants from or a population of Latvia. 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.
- Libya
  Libya: boolean // Return true if this paper reports on participants from or a population of Libya. 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.
- Morocco
  Morocco: boolean // Return true if this paper reports on participants from or a population of Morocco. 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.
- Monaco
  Monaco: boolean // Return true if this paper reports on participants from or a population of Monaco. 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.
- Moldova, Republic of
  Moldova_Republic_of: boolean // Return true if this paper reports on participants from or a population of Moldova, 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.
- Montenegro
  Montenegro: boolean // Return true if this paper reports on participants from or a population of Montenegro. 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 Martin (French part)
  Saint_Martin_French_part: boolean // Return true if this paper reports on participants from or a population of Saint Martin (French part). 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.

- Madagascar
  Madagascar: boolean // Return true if this paper reports on participants from or a population of Madagascar. 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.
- Marshall Islands
  Marshall_Islands: boolean // Return true if this paper reports on participants from or a population of Marshall 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.
- North Macedonia
  North_Macedonia: boolean // Return true if this paper reports on participants from or a population of North Macedonia. 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.
- Mali
  Mali: boolean // Return true if this paper reports on participants from or a population of Mali. 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.
- Myanmar
  Myanmar: boolean // Return true if this paper reports on participants from or a population of Myanmar. 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.
- Mongolia
  Mongolia: boolean // Return true if this paper reports on participants from or a population of Mongolia. 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.
- Macao
  Macao: boolean // Return true if this paper reports on participants from or a population of Macao. 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.
- Northern Mariana Islands
  Northern_Mariana_Islands: boolean // Return true if this paper reports on participants from or a population of Northern Mariana 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.
- Martinique
  Martinique: boolean // Return true if this paper reports on participants from or a population of Martinique. 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.

- Mauritania
  Mauritania: boolean // Return true if this paper reports on participants from or a population of Mauritania. 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.
- Montserrat
  Montserrat: boolean // Return true if this paper reports on participants from or a population of Montserrat. 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.
- Malta
  Malta: boolean // Return true if this paper reports on participants from or a population of Malta. 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.
- Mauritius
  Mauritius: boolean // Return true if this paper reports on participants from or a population of Mauritius. 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.
- Maldives
  Maldives: boolean // Return true if this paper reports on participants from or a population of Maldives. 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.
- Malawi
  Malawi: boolean // Return true if this paper reports on participants from or a population of Malawi. 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.
- Mexico
  Mexico: boolean // Return true if this paper reports on participants from or a population of Mexico. 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.
- Malaysia
  Malaysia: boolean // Return true if this paper reports on participants from or a population of Malaysia. 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.
- Mozambique
  Mozambique: boolean // Return true if this paper reports on participants from or a

population of Mozambique. 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.

- Namibia
  Namibia: boolean // Return true if this paper reports on participants from or a population of Namibia. 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.
- New Caledonia
  New_Caledonia: boolean // Return true if this paper reports on participants from or a population of New Caledonia. 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.
- Niger
  Niger: boolean // Return true if this paper reports on participants from or a population of Niger. 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.
- Norfolk Island
  Norfolk_Island: boolean // Return true if this paper reports on participants from or a population of Norfolk Island. 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.
- Nigeria
  Nigeria: boolean // Return true if this paper reports on participants from or a population of Nigeria. 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.
- Nicaragua
  Nicaragua: boolean // Return true if this paper reports on participants from or a population of Nicaragua. 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.
- Netherlands
  Netherlands: boolean // Return true if this paper reports on participants from or a population of Netherlands. 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.
- Norway
  Norway: boolean // Return true if this paper reports on participants from or a population of Norway. 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.

- Nepal
  Nepal: boolean // Return true if this paper reports on participants from or a population of Nepal. 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.
- Nauru
  Nauru: boolean // Return true if this paper reports on participants from or a population of Nauru. 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.
- Niue
  Niue: boolean // Return true if this paper reports on participants from or a population of Niue. 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.
- New Zealand
  New_Zealand: boolean // Return true if this paper reports on participants from or a population of New Zealand. 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.
- Oman
  Oman: boolean // Return true if this paper reports on participants from or a population of Oman. 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.
- Panama
  Panama: boolean // Return true if this paper reports on participants from or a population of Panama. 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.
- Peru
  Peru: boolean // Return true if this paper reports on participants from or a population of Peru. 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.
- French Polynesia
  French_Polynesia: boolean // Return true if this paper reports on participants from or a population of French Polynesia. 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.
- Papua New Guinea
  Papua_New_Guinea: boolean // Return true if this paper reports on participants from or a population of Papua New Guinea. 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.

- Philippines
  Philippines: boolean // Return true if this paper reports on participants from or a population of Philippines. 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.
- Pakistan
  Pakistan: boolean // Return true if this paper reports on participants from or a population of Pakistan. 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.
- Poland
  Poland: boolean // Return true if this paper reports on participants from or a population of Poland. 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 Pierre and Miquelon
  Saint_Pierre_and_Miquelon: boolean // Return true if this paper reports on participants from or a population of Saint Pierre and Miquelon. 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.
- Pitcairn
  Pitcairn: boolean // Return true if this paper reports on participants from or a population of Pitcairn. 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.
- Puerto Rico
  Puerto_Rico: boolean // Return true if this paper reports on participants from or a population of Puerto Rico. 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.
- Palestine, State of
  Palestine_State_of: boolean // Return true if this paper reports on participants from or a population of Palestine, State 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.
- Portugal
  Portugal: boolean // Return true if this paper reports on participants from or a population of Portugal. 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.

- Palau
  Palau: boolean // Return true if this paper reports on participants from or a population of Palau. 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.
- Paraguay
  Paraguay: boolean // Return true if this paper reports on participants from or a population of Paraguay. 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.
- Qatar
  Qatar: boolean // Return true if this paper reports on participants from or a population of Qatar. 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.
- Reunion
  Reunion: boolean // Return true if this paper reports on participants from or a population of Reunion. 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.
- Romania
  Romania: boolean // Return true if this paper reports on participants from or a population of Romania. 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.
- Serbia
  Serbia: boolean // Return true if this paper reports on participants from or a population of Serbia. 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.
- Russian Federation
  Russian_Federation: boolean // Return true if this paper reports on participants from or a population of Russian Federation. 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.
- Rwanda
  Rwanda: boolean // Return true if this paper reports on participants from or a population of Rwanda. 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.
- Saudi Arabia
  Saudi_Arabia: boolean // Return true if this paper reports on participants from or a population of Saudi Arabia. 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.

- Solomon Islands
  Solomon_Islands: boolean // Return true if this paper reports on participants from or a population of Solomon 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.
- Seychelles
  Seychelles: boolean // Return true if this paper reports on participants from or a population of Seychelles. 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.
- Sudan
  Sudan: boolean // Return true if this paper reports on participants from or a population of Sudan. 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.
- Sweden
  Sweden: boolean // Return true if this paper reports on participants from or a population of Sweden. 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.
- Singapore
  Singapore: boolean // Return true if this paper reports on participants from or a population of Singapore. 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 Helena, Saint Helena, Ascension and Tristan da Cunha
  Saint_Helena_Saint_Helena_Ascension_and_Tristan_da_Cunha: boolean // Return true if this paper reports on participants from or a population of Saint Helena, Saint Helena, Ascension and Tristan da Cunha. 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.
- Slovenia
  Slovenia: boolean // Return true if this paper reports on participants from or a population of Slovenia. 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.
- Svalbard and Jan Mayen
  Svalbard_and_Jan_Mayen: boolean // Return true if this paper reports on participants from or a population of Svalbard and Jan Mayen. 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.

- Slovakia
  Slovakia: boolean // Return true if this paper reports on participants from or a population of Slovakia. 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.
- Sierra Leone
  Sierra_Leone: boolean // Return true if this paper reports on participants from or a population of Sierra Leone. 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.
- San Marino
  San_Marino: boolean // Return true if this paper reports on participants from or a population of San Marino. 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.
- Senegal
  Senegal: boolean // Return true if this paper reports on participants from or a population of Senegal. 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.
- Somalia
  Somalia: boolean // Return true if this paper reports on participants from or a population of Somalia. 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.
- Suriname
  Suriname: boolean // Return true if this paper reports on participants from or a population of Suriname. 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 Sudan
  South_Sudan: boolean // Return true if this paper reports on participants from or a population of South Sudan. 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.
- Sao Tome and Principe
  Sao_Tome_and_Principe: boolean // Return true if this paper reports on participants from or a population of Sao Tome and Principe. 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.
- El Salvador
  El_Salvador: boolean // Return true if this paper reports on participants from or a population of El Salvador. 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.

- Sint Maarten (Dutch part)
  Sint_Maarten_Dutch_part: boolean // Return true if this paper reports on participants from or a population of Sint Maarten (Dutch part). 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.
- Syrian Arab Republic
  Syrian_Arab_Republic: boolean // Return true if this paper reports on participants from or a population of Syrian Arab Republic. 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.
- Eswatini
  Eswatini: boolean // Return true if this paper reports on participants from or a population of Eswatini. 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.
- Turks and Caicos Islands
  Turks_and_Caicos_Islands: boolean // Return true if this paper reports on participants from or a population of Turks and Caicos 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.
- Chad
  Chad: boolean // Return true if this paper reports on participants from or a population of Chad. 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.
- French Southern Territories
  French_Southern_Territories: boolean // Return true if this paper reports on participants from or a population of French Southern Territories. 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.
- Togo
  Togo: boolean // Return true if this paper reports on participants from or a population of Togo. 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.
- Thailand
  Thailand: boolean // Return true if this paper reports on participants from or a population of Thailand. 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.

- Tajikistan
  Tajikistan: boolean // Return true if this paper reports on participants from or a population of Tajikistan. 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.
- Tokelau
  Tokelau: boolean // Return true if this paper reports on participants from or a population of Tokelau. 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.
- Timor-Leste
  Timor-Leste: boolean // Return true if this paper reports on participants from or a population of Timor-Leste. 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.
- Turkmenistan
  Turkmenistan: boolean // Return true if this paper reports on participants from or a population of Turkmenistan. 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.
- Tunisia
  Tunisia: boolean // Return true if this paper reports on participants from or a population of Tunisia. 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.
- Tonga
  Tonga: boolean // Return true if this paper reports on participants from or a population of Tonga. 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.
- Turkiye
  Turkiye: boolean // Return true if this paper reports on participants from or a population of Turkiye. 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.
- Trinidad and Tobago
  Trinidad_and_Tobago: boolean // Return true if this paper reports on participants from or a population of Trinidad and Tobago. 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.

- Tuvalu
  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 thevaccination 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.
    - Multiple-antigen campaign
      Multiple_antigen_campaign: boolean // Return true if this paper reports on a campaign delivering HPV vaccine alongside other antigens.
- Hit-and-run delivery
  Hit_and_run_delivery: boolean // Return true if this paper reports on a delivery strategy used in insecure or conflict-affected settings where vaccination teams rapidly deploy to an area, administer as many doses as possible in a short window, and withdraw before security conditions deteriorate. Characterised by speed, minimal advance notice, and absence of a sustained presence.

Delivery Site

- Mobile unit
  Mobile_unit: boolean // Return true if this paper reports on vaccination delivered via a mobile unit such as a vaccination van, ambulance, or temporary structure that travels to communities or populations.
- Private clinic or pharmacy
  Private_clinic_or_pharmacy: boolean // Return true if this paper reports on vaccination delivered at a private clinic, pharmacy, or other private sector health provider.
- School
  School: boolean // Return true if this paper reports on vaccination delivered at or through a school.
- Facility
  Facility: boolean // Return true if this paper reports on vaccination delivered at a public health facility such as a clinic, hospital, or health centre.

- Community
  Community: boolean // Return true if this paper reports on vaccination delivered in a community setting outside of schools and health facilities, including community centres, places of worship, or open community spaces.

Equity Dimension

- Place of residence
  Place_of_residence: boolean // True only if the paper examines geographic location of residence (rural, remote, hard-to-reach, or underserved) in relation to HPV vaccination access or uptake — e.g. coverage disaggregated by it, or analysed as a driver of inequity. Not where rural/urban is only the study setting or a background descriptor. Where the country, region, or income group is the unit of comparison, use Geographic and cross-country equity instead.
- Ethnicity and race
  Ethnicity_and_race: boolean // True only if the paper examines ethnicity, race, or indigenous status in relation to HPV vaccination access, acceptability, or uptake — e.g. outcomes disaggregated by it, or analysed as a driver of inequity. Not where ethnicity is only a baseline sample characteristic.
- Religion
  Religion: boolean // True only if the paper examines religious belief, affiliation, or community norms as a factor affecting HPV vaccine acceptability or access. Not where religion is only a descriptive characteristic of participants.
- 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.
    - Community engagement and interpersonal communication approaches
      Community_engagement_and_interpersonal_communication_approaches: boolean // Return true if this paper reports on approaches that use community dialogue, trusted intermediaries, or interpersonal communication to counter misinformation.
    - Curriculum integration and educational interventions
      Curriculum_integration_and_educational_interventions: boolean // Return true if this paper reports on integration of misinformation awareness or critical thinking into educational curricula or formal learning settings.

    - Digital communication and online response strategies
      Digital_communication_and_online_response_strategies: boolean // Return true if this paper reports on strategies using social media, websites, or other digital platforms to counter online misinformation.
    - Integrated communication or multi-component approaches
      Integrated_communication_or_multi_component_approaches: boolean // Return true if this paper reports on multi-component approaches that combine several communication strategies to address misinformation.
    - Legal and regulatory strategies
      Legal_and_regulatory_strategies: boolean // Return true if this paper reports on legal or regulatory measures to restrict the spread of vaccine misinformation.
    - Social and behaviour change communication (SBCC) interventions
      Social_and_behaviour_change_communication__SBCC__interventions: boolean // Return true if this paper reports on structured SBCC interventions designed to shift attitudes and behaviours around vaccine misinformation.
    - Traditional media and public awareness activities
      Traditional_media_and_public_awareness_activities: boolean // Return true if this paper reports on the use of radio, television, print, or other traditional media to counter misinformation and raise public awareness.
- Misinformation as barrier
  Misinformation_as_barrier: boolean // Return true if this paper reports on misinformation or conflicting information about HPV vaccination that functions as a barrier to vaccine uptake. Applies when the paper explicitly identifies exposure to false, misleading, or contradictory information as a driver of vaccine hesitancy or non-uptake among recipients, caregivers, or communities.

Outcome Measure

- Vaccine Impact
  Vaccine_Impact: boolean // Return true if this paper reports on outcomes measuring the biological or epidemiological effect of HPV vaccination at individual or population level.
- Economic
  Economic: boolean // Return true if this paper reports on outcomes measuring the cost, cost-effectiveness, or economic value of HPV vaccination programmes.
- Delivery and Operations
  Delivery_and_Operations: boolean // Return true if this paper reports on outcomes 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.
        - Cost analysis/costing study
          Cost_analysis_costing_study: boolean // Return true if this paper reports on a cost analysis or costing study estimating the costs of an intervention without comparing outcomes.

        - Cost-benefit analysis (CBA)
          Cost_benefit_analysis__CBA_: boolean // Return true if this paper reports on cost-benefit analysis expressing both costs and benefits in monetary terms.
        - Cost-effectiveness analysis (CEA)
          Cost_effectiveness_analysis__CEA_: boolean // Return true if this paper reports on cost-effectiveness analysis comparing cost per unit of health outcome, such as cost per DALY averted.
        - Cost-utility analysis (CUA)
          Cost_utility_analysis__CUA_: boolean // Return true if this paper reports on cost-utility analysis comparing cost per quality-adjusted life year (QALY).
    - Modelling study
      Modelling_study: boolean // Return true if this paper reports on a study using mathematical or computational models to estimate outcomes, costs, or impacts, not primarily based on primary empirical data collection.
- Evidence synthesis
  Evidence_synthesis: boolean // Return true if this paper reports on studies synthesising evidence from multiple primary studies.

    - Narrative or scoping review
      Narrative_or_scoping_review: boolean // Return true if this paper reports on a narrative or scoping review synthesising evidence without the full systematic review methodology.
    - Systematic review and meta-analysis
      Systematic_review_and_meta_analysis: boolean // Return true if this paper reports on a systematic review, with or without meta-analysis, synthesising evidence from multiple primary studies.
- Qualitative empirical
  Qualitative_empirical: boolean // Return true if this paper reports on studies using qualitative empirical methods to collect and analyse non-numerical data.

    - Documentary analysis
      Documentary_analysis: boolean // Return true if this paper reports on a study drawing on policy documents, programme reports, grey literature, or other documentary sources as primary evidence.
    - Focus group discussion
      Focus_group_discussion: boolean // Return true if this paper reports on a study using focus group discussions as the primary data collection method.
    - In-depth and key informant interviews
      In_depth_and_key_informant_interviews: boolean // Return true if this paper reports on a study using in-depth interviews (IDI) or key informant interviews (KII) as the primary data collection method.

    - Qualitative study
      Qualitative_study: boolean // Return true if this paper reports on a study using qualitative methods to collect and analyse non-numerical data.
- Quantitative empirical
  Quantitative_empirical: boolean // Return true if this paper reports on studies using quantitative empirical methods to collect or analyse numerical data.

    - Clinical trial
      Clinical_trial: boolean // Return true if this paper reports on a controlled clinical trial evaluating HPV vaccine safety, immunogenicity, or efficacy.
    - Observational study
      Observational_study: boolean // Return true if this paper reports on a study observing outcomes without an intervention, including cohort, case-control, and cross-sectional designs not primarily measuring prevalence.
    - Prevalence study
      Prevalence_study: boolean // Return true if this paper reports on a study measuring the prevalence of HPV infection, related disease, or vaccination coverage in a population.
    - Programme evaluation or implementation research
      Programme_evaluation_or_implementation_research: boolean // Return true if this paper reports on a study designed to evaluate the implementation, scale-up, feasibility, or real-world effectiveness of an HPV vaccination programme or intervention.
    - Quasi-experimental study
      Quasi_experimental_study: boolean // Return true if this paper reports on a study using a non-randomised design to evaluate an intervention, such as interrupted time series, difference-in-differences, or propensity score matching.
    - Randomised controlled trial
      Randomised_controlled_trial: boolean // Return true if this paper reports on a randomised controlled trial evaluating an HPV vaccine delivery strategy, intervention, or programme component.

Supply Chain Aspect

- Wastage management
  Wastage_management: boolean // Return true if this paper reports on management of HPV vaccine wastage, including open vial wastage policies, wastage rates, and strategies to minimise dose loss.
- Vaccine expiration management
  Vaccine_expiration_management: boolean // Return true if this paper reports on management of vaccine expiration, including stock rotation, shelf-life monitoring, and disposal of expired doses.
- 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.

    - Male only
      Male_only: boolean // Return true if this paper reports on the study or intervention targets males only.
    - Female and male - gender neutral
      Female_and_male___gender_neutral: boolean // Return true if this paper reports on the study or intervention targets all sexes.
- Special Population
    - Men who have sex with men
      Men_who_have_sex_with_men: boolean // Return true if this paper reports on men who have sex with men (MSM), a population with specific HPV exposure risk and vaccination relevance, particularly in programmes in the European and Americas regions.
    - Zero-dose/missed communities
      Zero_dose_missed_communities: boolean // Return true if this paper reports on communities where individuals have received zero doses of any vaccine, identified by vaccination status rather than geographic accessibility.
    - Immunocompromised populations
      Immunocompromised_populations: boolean // Return true if this paper reports on populations with compromised immune systems primarily adolescents living with HIV (ALHIV) who have specific HPV vaccine dosing recommendations and elevated cervical cancer risk.
- Age Group
    - 9-14 years
      9___14_years: boolean // Return true if this paper reports on adolescents aged 9 to 14 years. The primary HPV vaccination target age range per WHO guidelines, corresponding to pre-sexual debut and optimal immunogenicity.
    - 15-20 years
      15_20_years: boolean // Return true if this paper reports on adolescents aged 15 to 20 years. Secondary or catch-up target cohort in many HPV programmes.
    - 21+ years
      21__years: boolean // Return true if this paper reports on adults aged 21 years and older. Includes older women targeted in catch-up programmes and male populations in gender-neutral strategies.
    - 0-8 years
      0__8_years: boolean // Return true if this paper reports on children aged 0 to 8 years. Below the standard HPV primary target age; may be relevant for younger sibling studies or multi-antigen delivery research.

UNICEF Region

- North America
  North_America1: boolean // Return true only if this study is about or the participants are from any of the following countries: Canada; United States

- East Asia and Pacific
  East_Asia_and_Pacific1: boolean // Return true only if this study is about or the participants are from any of the following countries: Australia; Brunei Darussalam; 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; TogoBenin; 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 to14 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

- 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).