Protocol for a Living Evidence Repository and Evidence and Gap Map on Human Papillomavirus Vaccines Delivery

Version 4.0

For previous version please see here

Protocol information

Author	Affiliation	Contribution to V4.0 for V1.0 - V3.0please see here (based on the CRediT taxonomy)	Conflicts 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
Tamoh Clinton Ketumr	eBASE Africa	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 Disease Research in Zambia (CIDRZ)	Writing - review and editing	None
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 work was supported by the Bill and Melinda 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.

- **Correspondence:** Britta Tendal Jeppesen britta@futureevidence.org

Table of Contents

Protocol information **1**
Background and Objectives 4
Scope 4
Inclusion and Exclusion Criteria 5
Study types 5
Inclusion
All empirical study designs are eligible. This includes, but is not limited to: 5
Exclusion 6
Publication status 6
Inclusion 6
Exclusion 6
Topics 6
Inclusion 6
Exclusion 6
Participants 7
Inclusion 7
Exclusion 7
Geographical scope 7
Inclusion 7
Exclusion 7
Language 7
Inclusion 7
Exclusion 7
Methodology **8**
Search strategy 8
Screening 9
Initial screening by title/abstract 9
Full-text screening 9
Data extraction 10
Analysis **10**
Engagement and reporting **10**
Change log **11**
References **12**
Appendix 1 ..... **13**
HPV Vaccine Delivery Taxonomy 13

Background and Objectives

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

Goal

To provide a comprehensive evidence repository and maps that identify available evidence and implementation gaps on HPV vaccine delivery in LMICs, with the goal of informing policy change and guiding strategic decision-making.

Objectives

1. Identify and describe evidence on HPV vaccine delivery (not screening or disease burden), and evidence that informs planning, implementation, and coordination.
2. Highlight gaps in research and practice to guide future studies and interventions.
3. Support policymakers, public health practitioners, and researchers with an organized repository of evidence.

Scope

Thematic focus

This protocol focuses exclusively on evidence related to the delivery of HPV vaccination in LMICs. Thematic areas include:

- Behavioural and social drivers of uptake
- Delivery design and optimisation
- Demand generation and communication strategies
- Equity and hard-to-reach populations
- Financing and programme sustainability
- Governance, policy and political commitment
- Health workforce capacity and engagement
- Measurement, data systems and enumeration
- Modelling and impact projection
- Service integration and co-delivery
- Vaccine efficacy, immunogenicity and schedule

Geographical focus

LMICs

Inclusion and Exclusion Criteria

Study types

Inclusion
All empirical study designs are eligible. This includes, but is not limited to:

- Evidence synthesis
- Narrative or scoping review
- Systematic review and meta-analysis
- Mixed methods
- Modelling and economic evaluation
- Economic evaluation
- Budget impact analysis (BIA)
- Cost analysis/costing study
- Cost-benefit analysis (CBA)
- Cost-effectiveness analysis (CEA)
- Cost-utility analysis (CUA)
- Modelling study
- Qualitative empirical
- Documentary analysis
- Focus group discussion
- In-depth and key informant interviews
- Qualitative study
- Quantitative empirical
- Clinical trial
- Observational study
- Prevalence study
- Programme evaluation or implementation research
- Quasi-experimental study
- Randomised controlled trial

Exclusion

- Opinion pieces without empirical data (e.g., editorials, news letters/press releases, abstracts, ongoing studies)

Publication status

Inclusion

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

Exclusion

- Press releases
- Abstracts
- Ongoing studies

Topics

Inclusion

- Behavioural and social drivers of uptake
- Delivery design and optimisation
- Demand generation and communication strategies
- Equity and hard-to-reach populations
- Financing and programme sustainability
- Governance, policy and political commitment
- Health workforce capacity and engagement
- Measurement, data systems and enumeration
- Modelling and impact projection
- Service integration and co-delivery
- Vaccine efficacy, immunogenicity and schedule

Exclusion

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

Participants

Inclusion

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

Exclusion

- None

Geographical scope

Inclusion

- LMICs based on the World Bank's fiscal year 2025 (data for calendar year 2023) World Bank Country and Lending Groups – World Bank Data Help Desk. We also include Venezuela even though it is currently unclassified by the World Bank. We retained studies from Venezuela because of their relevance to the review and to avoid excluding potentially important evidence solely because of the country's current unclassified status.
- Mix of low, middle, and high-income countries

Exclusion

- High-income countries only

Language

Inclusion

- English
- French

Exclusion

- Languages other than English or French

Methodology

Search strategy

We will search the following databases: Google Scholar, iris.who.int, globalindexmedicus.net, OpenAlex, PubMed, EMBASE Cochrane, Epistimonikos, 3ie, Basenet, Research4r life, Research square, Taylor & Francis online, GAVI, PATH, UNICEF, WHO.int, Campbell collaboration (wiley online), Web of Science, Scopus, ProQuest, Google.com, and we will reach out to the community for additional references not identified by the database searches.

Search strings in English

1. ((HPV[tiab] OR Papilloma*[tiab] OR Papiloma*[tiab] OR "cervical cancer"[tiab] OR "Uterine Cervical Neoplasms"[Mesh] OR "cervical intraepithelial neoplasia"[tiab] OR CIN[tiab] OR "Papillomavirus Infections"[Mesh] AND (vaccine*[tiab] OR vaccinat*[tiab] OR immuniz*[tiab] OR immunis*[tiab] OR Cervavac[tiab] OR Cecolin[tiab] OR Walrinvax[tiab] OR Gardasil[tiab] OR Cervarix[tiab] OR "prophylactic vaccine*"[tiab] OR "therapeutic vaccine*"[tiab] OR "Papillomavirus Vaccines"[Mesh])) AND (deliver*[tiab] OR system*[tiab] OR roll*[tiab] OR implement*[tiab] OR polic*[tiab] OR program*[tiab] OR "delivery strategy"[tiab] OR "school-based"[tiab] OR "community-based"[tiab] OR "national immunization program"[tiab] OR NIP[tiab] OR "routine immunization"[tiab] OR "mass campaign"[tiab] OR "catch-up campaign"[tiab]) AND ("vaccine uptake"[tiab] OR "vaccination coverage"[tiab] OR "vaccine hesitancy"[tiab] OR "dose completion"[tiab] OR "population reach"[tiab] OR acceptability[tiab]))
2. For websites we will use site:www.xxx.yyy hpv vaccine filetype:pdf, where xxx.yyy represent the website and domain name.
3. human papillomavirus vaccine filetype:pdf for google.com

Search strings in French

1. (Vaccin contre le HPV OR Vaccin contre le VPH OR vaccin contre le virus du papillome humain OR vaccin contre le cancer du col de l'utérus) AND (livraison OR planification OR mise en œuvre OR coordination OR déploiement OR campagne)"Vaccination contre le VPH" OR "Vaccin contre le VPH"
2. VACCIN VPH filetype:pdf

Screening

We will do an Initial screening by title/abstract; eligible references will then be screened based on the full text. Differences in screening will be reconciled and decisions made by a third reviewer where required. Percentage agreement and/or interrater reliability will be reported for the screened records.

Initial screening by title/abstract

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

A subset of references (~10%) will be double screened by two human reviewers to ensure consistency in the screening criteria and guidance and also to serve as a "ground truth" dataset to train the Large Language Models (LLMs).

The references that have been marked as an include by the human reviewers will be screened on title and abstract using the LLM prompt from v1 of the map to further determine how accurate the recall and precision of the prompt are Tezok et al (2026) . Using the human decisions and feedback from the LLM model, the prompt will be iteratively refined to optimize recall, so that the chance of missing relevant studies is minimized, and then the precision to reduce the workload for the human reviewers. The prompt will take the format of:

"(GPT-4.1): is_this_record_about_HPV_vaccines: boolean // [does this record report a study about HPV vaccines?]".

Following the works of Tezok (2026), Gates et al (2019), and Pham et al (2021), a 10% subset of the references screened using the LLM will then be checked by the team lead to ensure the accuracy of the LLM results. All included references by the human reviewers and the LLM will then be screened at the full-text level.

Full-text screening

We will retrieve full texts for references included at the title/abstract level from the Zotero plugin to the EPPI-Reviewer software; any full texts not found will be searched for and added manually.

Full texts will be screened by one reviewer with a percentage check-in (~10%) by a second reviewer. Any disagreement will be solved by discussion or, if needed, by involving a third reviewer. Automation will not be used for full-text screening, and references included at the full-text screening will progress to data extraction.

Data extraction

We will extract data using LLMs from the included full-text documents according to the HPV vaccine delivery taxonomy v2. Using the definition, scope notes, and, if needed, additional clarifying information, a prompt is constructed to ensure accurate information is retrieved from the full-text document in order to classify or extract specific text relevant to this term. These prompts are developed individually and are specific to each term. For a list of the taxonomy scheme and concept, please see Appendix 1 for a full description; please see the Taxonomy Reader.

Analysis

The data is stored in the Living HPV Vaccine Delivery Evidence Repository.

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

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

Engagement and reporting

The primary users of this repository and maps will be knowledge brokers, researchers, decision-makers and other advisors to decisions makers in LMICs involved in HPV vaccine delivery, including but not limited to: representatives from National Immunisation Technical Advisory Groups (NITAGs), EPI teams, Ministries of Health, Ministries of Education, Ministries of Finance, technical partners, academia, researchers, implementing partners, and civil society.

The Future Evidence Foundation, the partnership secretariat, will facilitate and convene a community of users to engage with, support the dissemination of, and directly use evidence stored in this repository. This community and engagement process will focus on collectively refining a rigorous body of evidence to ensure that policy and practice questions receive timely, context-specific answers.

The community will be engaged through three structures:

- The Steering Group (SG) stewards the development of the living HPV vaccine delivery evidence base. It provides strategic direction and ensures that the living evidence serves the broader research and delivery community and meets end users' needs. See here for the involved individuals.
- The Tactical Group (TG) provides expert guidance and technical oversight to the eBASE Africa team, UCL, and Alive, which are the teams responsible for developing the repository and maps. Members of the TG will provide technical oversight to ensure the LSR is both methodologically sound and meets the needs of decision-makers. The TG will provide technical oversight to ensure the development of robust, high-quality living protocols.
- The Group of Advisors (AG) provides technical input and systems insight to inform the SG's strategic decisions.

The repository will be updated every two months. Based on current funding we anticipate that the last update will be in early 2027.

Change log

Version	Change
4.0	Bibliographic records of research articles and grey literature in English and French published from 1st January 2000 up to 1st September 2026.
4.0	Updated search strings to include new databases.
4.0	Deduplication of repository records.
4.0	New workflow and functional improvements.
3.0	Bibliographic records of research articles and grey literature in English and French published from 1st January 2000 up to 1st May 2026.
3.0	Updated filter tags/keywords list based on revised and expanded underlying taxonomy. Further details are available in the Version 2.0 Taxonomy and Version 2.0 Taxonomy Change Report.
3.0	New user interface and visual design.
3.0	New boolean and faceted search functionality.
3.0	New workflow and functional improvements.

3.0	New AI-supported evidence summary tool. *Please note we are currently running a limited, gated preview with a small group of pre-registered testers to help us refine the tool. While spots are limited, we hope to expand access over time. If you are interested in joining future testing phases, please contact hello@aliveevidence.org.*
2.0	French language added as inclusion criteria.
2.0	Search strategy updated.
2.0	WHO and UNICEF regions added under data extraction.

References

1. Aggarwal S, Agarwal P, Gupta N. A comprehensive narrative review of challenges and facilitators in the implementation of various HPV vaccination program worldwide. Cancer Med. 2024 Feb;13(3):e6862. doi: 10.1002/cam4.6862. Epub 2024 Jan 11. PMID: 38213086; PMCID: PMC10911072.
2. Rosser EN, Wysong MD, Rosen JG, Limaye RJ, Park S. HPV Vaccine Delivery Strategies to Reach Out-of-School Girls in Low- and Middle-Income Countries: A Narrative Review. Vaccines. 2025; 13(5):433. https://doi.org/10.3390/vaccines13050433
3. Thomas, J., Graziosi, S., Brunton, J., Ghouze, Z., O'Driscoll, P., & Bond, M. & Koryakina, A. (2023) EPPI-Reviewer: advanced software for systematic reviews, maps and evidence synthesis. EPPI Centre, UCL Social Research Institute, University College London
4. Tezok, K. O. T., Wung, E. A., Okwen, G. A. N., Yuh, N. M., Fri, O. C., Lontum, A., Ongolo, M. M., Fenji, N. J., & Okwen, M. P. (2026). Don't let the evidence die: From rapid to living reviews, experiences from the Global South. Campbell Systematic Reviews, 22(2), 18911803261462152. https://doi.org/10.1177/18911803261462152
5. Gates A., Guitard S., Pillay J., Elliott S. A., Dyson M. P., Newton A. S., Hartling L. (2019). Performance and usability of machine learning for screening in systematic reviews: A comparative evaluation of three tools. Systematic Reviews, 8(1), 278. https://doi.org/10.1186/S13643-019-1222-2
6. Pham B., Jovanovic J., Bagheri E., Antony J., Ashoor H., Nguyen T. T., Rios P., Robson R., Thomas S. M., Watt J., Straus S. E., Tricco A. C. (2021). Text mining to support abstract screening for knowledge syntheses: A semi-automated workflow. Systematic Reviews, 10(1), 156. https://doi.org/10.1186/s13643-021-01700-X

Appendix 1

HPV Vaccine Delivery Taxonomy

Schemes & Concepts — Quick Reference

v2.3 | 37 schemes · 344 concepts (excl. 249 ISO country codes)

Country · Single per country

The country in which the study took place. ISO 3166-1 alpha-3 codes.

- 249 ISO 3166-1 alpha-3 country codes

UNICEF Region · Single

Regional classification per UNICEF groupings.

- East Asia and Pacific
- Eastern and Southern Africa
- Europe and Central Asia
- Latin America and Caribbean
- Middle East and North Africa
- North America
- South Asia
- West and Central Africa

WHO Region · Single

Regional classification per WHO groupings.

- African Region
- Eastern Mediterranean Region
- European Region
- Region of the Americas
- South-East Asia Region
- Western Pacific Region

World Bank Region · Single

Regional classification per World Bank groupings.

- East Asia and Pacific
- Europe and Central Asia
- Latin America and Caribbean
- Middle East and North Africa
- North America
- South Asia
- Sub-Saharan Africa

Country Classification · Single per branch (one WB + one Gavi)
World Bank income tier and Gavi status at the time of the study.

- **World Bank income tier**
  - Low income
  - Lower middle income
  - Upper middle income
  - High income
- **Gavi status**
  - Gavi-eligible
  - Gavi transitioning
  - Gavi not eligible
  - Gavi Core
  - Gavi High-impact
  - Gavi Fragile and Humanitarian
  - Gavi MICS

Study Design · Multi
The methodological design of the research. Use the most specific child concept.

- **Quantitative empirical**
  - Randomised controlled trial
  - Clinical trial
  - Quasi-experimental study
  - Observational study
  - Prevalence study
  - Programme evaluation or implementation research
- **Qualitative empirical**
  - In-depth and key informant interviews
  - Focus group discussion
  - Documentary analysis
  - Qualitative study
- Mixed methods
- **Modelling and economic evaluation**
  - Modelling study
  - **Economic evaluation**
    - Cost-effectiveness analysis (CEA)
    - Cost-utility analysis (CUA)
    - Cost-benefit analysis (CBA)
    - Budget impact analysis (BIA)
    - Cost analysis/costing study
- **Evidence synthesis**
  - Systematic review and meta-analysis
  - Narrative or scoping review

Data Source · Multi

The type of data or evidence the study drew upon. Tag all sources used.

- Administrative and registry data
- Survey data
- KAP survey data
- Exit survey data
- Surveillance data
- Primary qualitative data
- Primary quantitative data
- Published study data
- Global modelled estimates
- Independent or evaluative study
- Costing and economic data
- Programme and policy documents
- Proficiency testing programme
- Social media and data from online activities
- Geospatial and GIS data
- Expert elicitation data

Program Maturity · Single — SINGLE-SELECT

The lifecycle stage of the HPV vaccination programme at the time of the study.

- Pre-introduction

Pilot

- Introduction
- Routine/established

Program Scale · Single — SINGLE-SELECT

The geographic scale of the programme (not the study sample).

- National
- Sub-national
- Pilot or demonstration

Outcome Measure · Multi — 4 domains

The outcomes measured or reported. Tag all domains that apply.

- Delivery, Operations and Implementation
- Vaccine Impact
- Economic
- Demand and Acceptability

Barriers and facilitators

Equity

Thematic Focus — Primary · Single — MANDATORY for every record

The single theme best reflects the paper's primary research question.

- Behavioural and social drivers of uptake
- Demand generation and communication strategies
- Vaccine delivery design and optimisation
- Service integration and co-delivery
- Equity and hard-to-reach populations
- Health workforce capacity and engagement
- Governance, policy and political commitment
- Financing and programme sustainability
- M&E, Measurement, data systems and enumeration
- Modelling and impact projection
- Vaccine efficacy, immunogenicity and schedule

Thematic Focus — Secondary · Single — OPTIONAL

A substantive secondary theme where the paper makes a genuine contribution beyond its primary theme.

- Same 11 concepts as Thematic Focus — Primary
- (Cannot be the same as the Primary theme)

Delivery — tag when delivery is described

Delivery Model Type · Single — MANDATORY when delivery described

The structural model of HPV vaccine delivery.

- Single-platform
- Sequential
- Integrated/simultaneous
- Unspecified

Delivery Platform · Multi

The organisational mechanism through which HPV vaccination is delivered.

- ▸ **Campaign**
  - Integrated campaign
  - Multi-age cohort catch-up campaign
  - Multiple-antigen campaign
- ▸ **Routine EPI**
  - Facility-based
  - Mobile
  - Outreach
  - Periodic Intensification of Routine Immunization (PIRI)
- School Health

- Adolescent Health
- HIV treatment platform
- National Cancer Control Programme
- Hit-and-run delivery

Unclear or not stated

Delivery Site · Multi

The physical location where HPV vaccination is delivered.

- School
- Facility
- Community
- Mobile unit
- Other

Unclear or not stated

Delivery Actor · Multi

Who physically administers HPV vaccines at the point of delivery.

- Health workers
- Community health workers
- Trained lay workers

Pharmacy

- Other private sector providers
- Other

Unclear or not stated

Vaccine Schedule · Single — SINGLE-SELECT

The dosing schedule used or evaluated in the study.

- Single dose
- Two dose
- Three dose
- Unspecified

Vaccination Eligibility · Multi

Who is eligible for vaccination as defined by the programme.

- Age-based eligibility
- Sex-based eligibility
- Risk-based eligibility
- Routine target cohort

Target Population · Multi

Population groups targeted by the vaccination programme or study.

- **Age Group**
  - 0–8 years
  - 9–14 years
  - 15–20 years
  - 21+ years
- **Sex**
  - Female only
  - Male only
  - Female and male - gender neutral
- **School enrolment**
  - In-school adolescents
  - Out-of-school adolescents
- **Special Population**
  - Immunocompromised populations
  - Men who have sex with men
  - Zero-dose/missed communities

Setting Context · Multi

Geographic characteristics of the study setting.

- Urban
- Rural
- Hard-to-reach

Fragility & Humanitarian Context · Multi

Political and crisis context of the study setting.(at time of the study)

- Conflict-affected
- Post-conflict
- Displaced populations
- Other humanitarian emergency

Implementation Strategy · Multi

How change is attempted — the implementation approach.

- Training
- Community mobilisation
- Parent and caregiver engagement
- Social mobilisation
- Policy change

Integration — tag when co-delivery or integration described

Integration Type · Multi
How HPV vaccination is integrated with other services.

- Service co-delivery
- Bundled communication/health education
- Platform integration
- Shared funding or budget integration
- Monitoring
- Other programme integration

Co-delivered Intervention · Multi
The specific health services co-delivered alongside HPV vaccination.

- Cervical cancer screening
- SRH
- HIV/AIDS care and treatment
- Other vaccines
- Deworming
- Iron/Folate supplementation
- Nutrition
- Health education
- Education
- Mental health
- GBV reduction
- NCDs
- WASH
- Vision screening
- Hearing screening
- Other

Unclear or not stated

Demand & Communication — tag when communication, demand generation, or acceptability described

Communication Sender · Multi
Who delivers communication or mobilisation activities.

- Health workers
- Community health workers
- Traditional and religious leaders

Other community workers or leaders

- Peers
- Teachers
- Media
- Other

Unclear or not stated

Communication Recipient · Multi
Who receives communication or mobilisation activities.

- Adolescent girls
- Caregivers
- Fathers/male caregivers
- Community members
- Health workers
- Boys
- Other

Communication Channel · Multi
The medium through which communication flows.

- Interpersonal (face-to-face)
- Mass media
- **Digital/social media**
  - Text-message reminders
- Print materials
- Other

Unclear or not stated

Communication strategies/interventions · Multi
What communication approach or strategy is used.

- Community sensitisation
- Social mobilisation
- Parent and caregiver engagement
- Reminder and recall
- Other

Unclear or not stated

Behavioural and Social Driver · Multi — 4 domains
Behavioural and social factors affecting vaccine uptake. WHO BeSD framework.

Information and knowledge

- Thinking and feeling
- Social processes
- Motivation
- Practical issues

Acceptability Target · Multi

Whose acceptability or perceptions are being assessed.

- Recipients
- Caregivers
- Health workers
- Community leaders

Equity & Quality — tag when equity analysis or quality assessment present

Equity Dimension · Multi — tag only when explicitly analysed

Dimensions of inequity explicitly analysed. PROGRESS+ framework plus HPV-specific extensions.

- Place of residence
- Ethnicity and race
- Occupation
- Gender
- Religion
- Education status
- Socioeconomic status
- Social capital
- Age
- Disability
- Migration status
- Sexual orientation and gender identity
- Immunocompromised status
- Geographic and cross-country equity
- Disease burden and cancer incidence

Quality of Care Dimension · Multi

Dimensions of service quality from recipient/caregiver perspective.

- Availability
- Accessibility
- Acceptability of services
- Safety and respect
- Continuity and referral

Governance & Financing — tag when governance, policy, or financing addressed

Governance Actor · Multi

Organisations playing formal governance, coordination, or policy roles.

- National government/Ministry
- Sub-national government

- UN partners
- Gavi/CEPI
- International NGO
- Implementing NGO
- Research institution
- Private sector
- Civil society
- Other

Coordination Mechanism · Multi
Formal mechanisms for leadership and coordination.

- Interagency Coordinating Committee (ICC)
- NITAG

Financing Mechanism · Multi
How the vaccination programme is funded.

- Free/fully subsidised
- User fee
- Public financing
- Donor or external financing

Unclear or not stated

Supply Chain — tag when vaccine supply or logistics addressed

Supply Chain Aspect · Multi
Operational dimensions of vaccine supply and distribution.

- Procurement
- Cold chain integrity
- Cold chain maintenance
- Storage
- Distribution and transport
- Wastage management
- Stock management
- Demand forecasting
- Last-mile delivery
- Other

Unclear or not stated

Misinformation — tag when vaccine misinformation explicitly addressed

Misinformation Activity · Multi
Activities related to vaccine misinformation. Two sub-trees: Detection and Addressing.

▸ **Detection**
  - Digital and social media listening
  - Community and frontline feedback
  - Traditional media monitoring
  - Integrated misinformation reporting and response dashboards
  - Behavioural and communication response interventions (indirect detection)

▸ **Addressing**
  - Communication and information correction strategies
  - Community engagement and interpersonal communication approaches
  - Social and behaviour change communication (SBCC) interventions
  - Digital communication and online response strategies
  - Traditional media and public awareness activities
  - Integrated communication or multi-component approaches
  - Curriculum integration and educational interventions
  - Legal and regulatory strategies

- Misinformation banks

AI — tag when AI methods used or evaluated

AI Application · Multi

Use of AI in research or intervention.

- AI in data analysis or research methods
- AI in vaccination intervention or programme