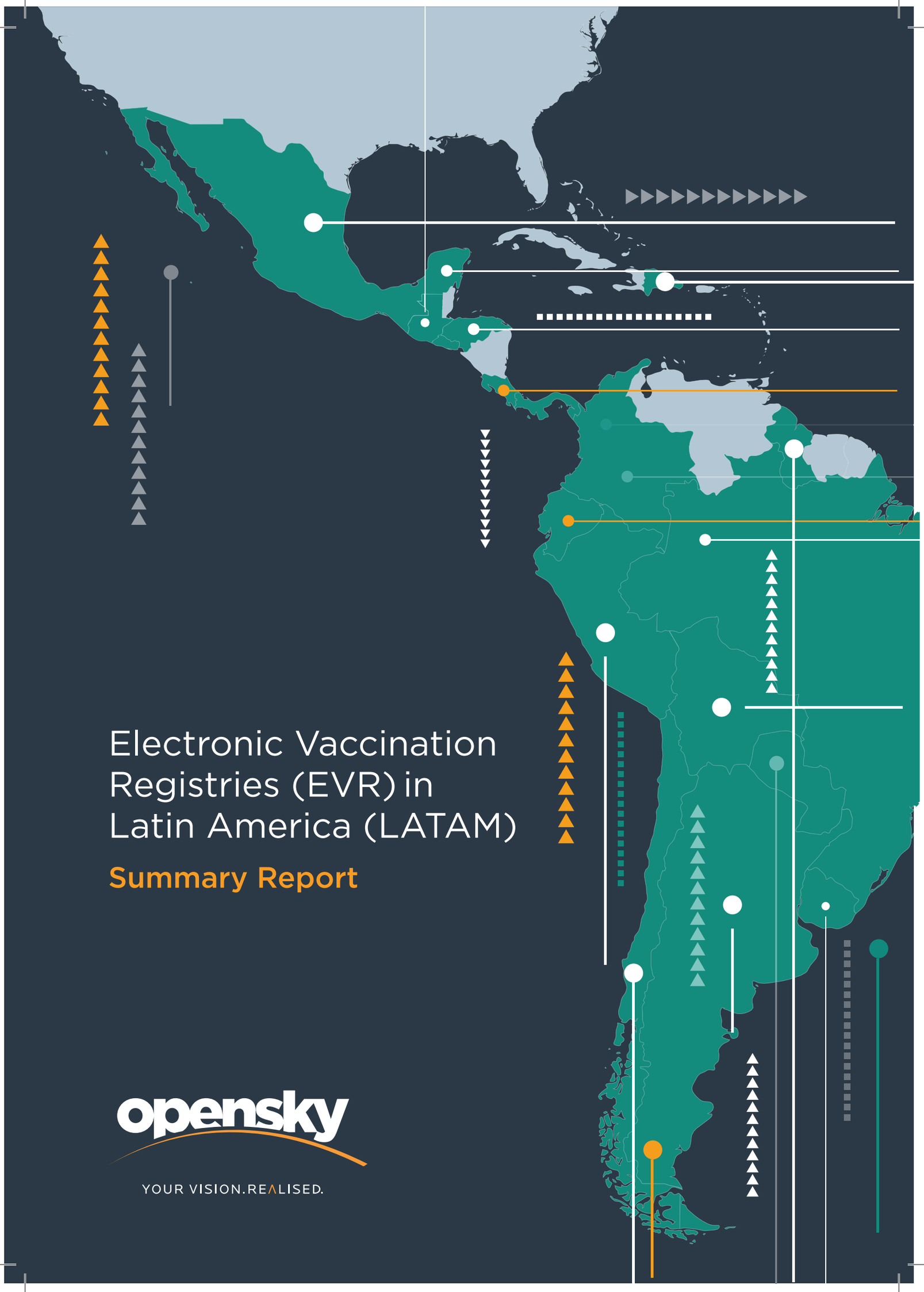


Electronic Vaccination Registries (EVR) in Latin America (LATAM)

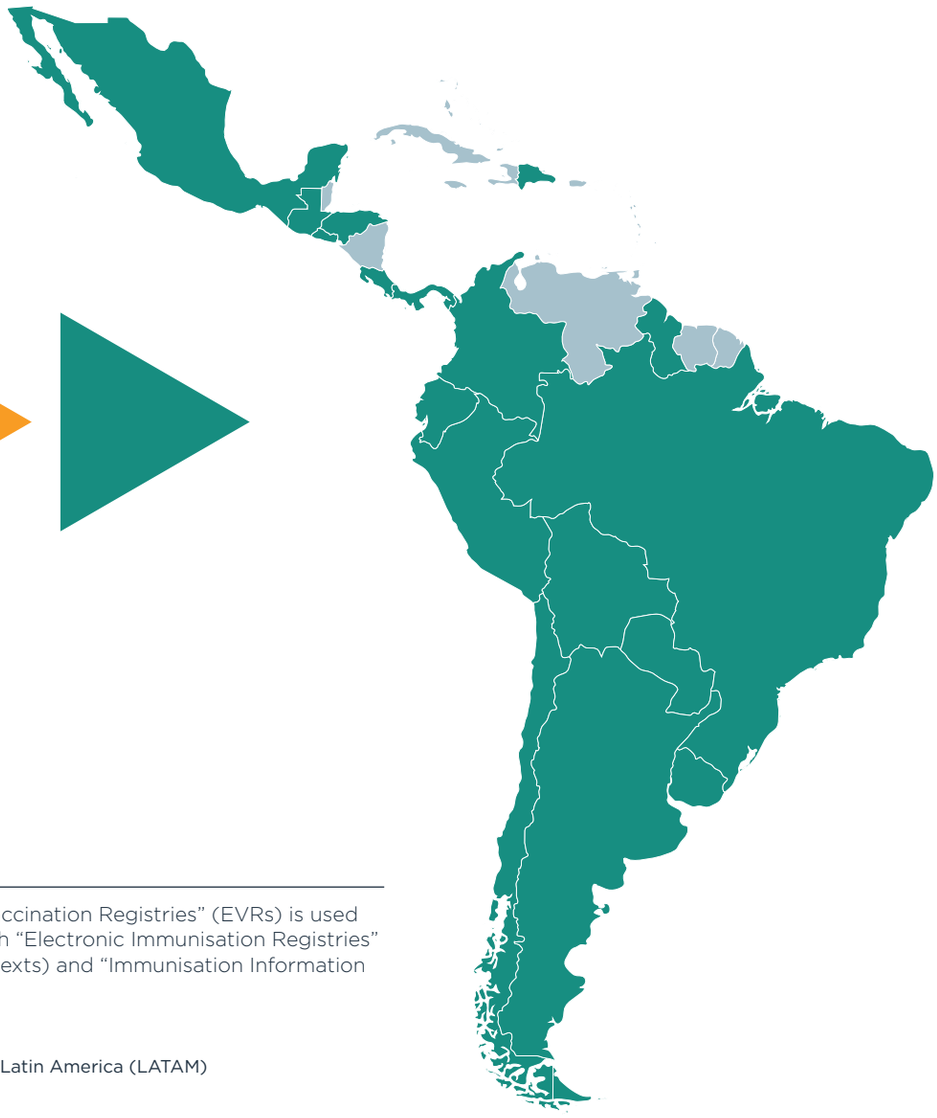
Summary Report

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Throughout the report, “Electronic Vaccination Registries” (EVRs) is used as the primary term, synonymous with “Electronic Immunisation Registries” (EIRs, common in PAHO/LATAM contexts) and “Immunisation Information Systems” (IISs, global/US standard).

1. SCOPE AND POSITIONING OF THIS SUMMARY REPORT

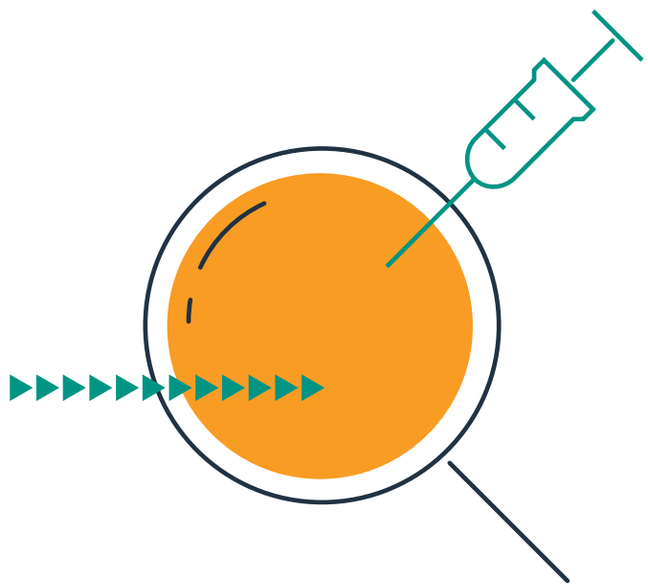
This summary report presents the key findings of the assessment of Electronic Vaccination Registries (EVRs) across Latin America (LATAM), based exclusively on LATAM-specific evidence. The report is intentionally limited to the LATAM region. While the broader research programme includes equivalent analyses in Europe and the Asia–Pacific, references to these regions are provided only for contextual positioning and do not influence or substitute for LATAM evidence. The assessment covers the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Panama, Paraguay, Peru, and Uruguay.

The purpose of this summary is to synthesise the most relevant structural insights regarding:
- how EVRs function in practice across LATAM
- how these systems shape HPV vaccination monitoring
- and how they influence the interpretation of Vaccine Coverage Rates (VCRs)

The report is diagnostic and analytical, not evaluative. It focuses on system characteristics, patterns, and constraints.

2. METHODOLOGICAL NOTE

This assessment is based on a mixed-methods, triangulated research design, combining desk-based research, structured data capture, qualitative country notes, and stakeholder interviews, with findings cross-validated across evidence types. It reflects a 2025 point-in-time analysis.



3. REGIONAL IMMUNISATION CONTEXT IN LATIN AMERICA

Latin America has developed a strong tradition of coordinated immunisation strategies, supported by regional cooperation and long-standing institutional frameworks. The Pan American Health Organisation (PAHO) has played a central role in shaping vaccination policies, promoting standardised immunisation schedules, and supporting countries in strengthening their public health infrastructures.

Regional initiatives have contributed to significant progress in controlling diseases, while more recent efforts have focused on addressing the burden of HPV-related diseases, particularly cervical cancer. These initiatives are supported by coordinated policy frameworks, technical guidance, and monitoring mechanisms that operate across national boundaries.

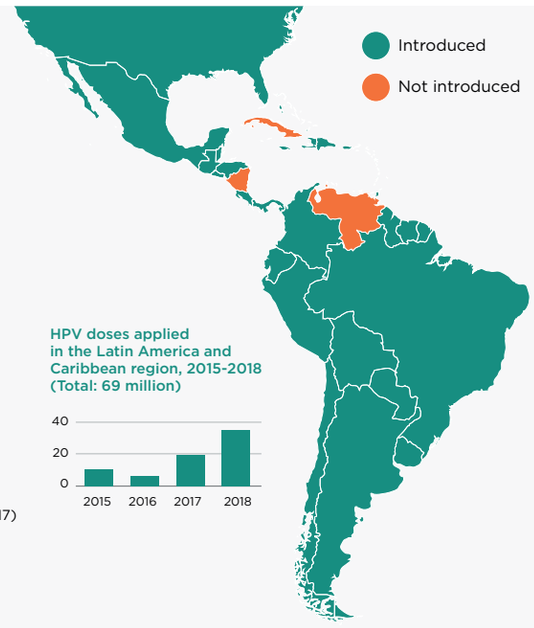
At the same time, the implementation of immunisation programmes remains influenced by national health system structures. Differences in governance models, funding mechanisms, and service delivery arrangements result in varying levels of performance and coverage across countries.

This combination of regional coordination and national diversity creates a complex immunisation ecosystem in which shared objectives coexist with heterogeneous implementation approaches. Understanding this context is essential for interpreting how vaccination data systems, including digital registries, are developed and used across the region.

Figure 1. Introduction of HPV vaccination programmes across the Americas (as of April 2023)

Americas
Argentina (2011)
Belize (2016)
Bolivia (Plurinational State of) (2017)
Brazil (2014)
Canada (2007-2009)
Chile (2014)
Colombia (2012)
Costa Rica (2019)
Ecuador (2014)
El Salvador (2020)
French Guiana (2021)
Guatemala (2018)
Guyana (2012 the half; 2017 the whole country)
Honduras (2016)
Mexico (2012)
Panama (2008)
Paraguay (2013)
Peru (2015)
Suriname (2013)
Uruguay (2013)
United States of America (2006)

Caribbean Islands
Anguilla (2016)
Antigua and Barbuda (2019)
Aruba (2014)
Bahamas (2015)
Barbados (2014)
Bermuda (2007)
Bonaire (2015)
British Virgin Islands (2019)
Cayman Islands (2009)
Curaçao (2021)
Dominica (2019)
Dominican Republic (2017)
Grenada (2019)
Guadeloupe (2008)
Jamaica (2017)
Martinique (2021)
Montserrat (2017)
Puerto Rico (2006)
Saba (2013)
Saint Kitts and Nevis (2019)
Saint Lucia (2019)
Saint Vincent and Grenadines (2017)
Sint Maarten (2013)
Sint Eustatius (2013)
Trinidad and Tobago (2012)
Turks and Caicos Islands (2019)



Source: Pan American Health Organization (PAHO), Evaluating the impact of the human papillomavirus vaccine in Latin America and the Caribbean, 2023.

4. OVERALL EVR LANDSCAPE IN LATAM

A heterogeneous and hybrid system environment

The EVR landscape in LATAM is best characterised as:
• Heterogeneous — no single dominant system model
• Hybrid — coexistence of multiple system types within countries

Observed configurations include:
- Nominal (individual-level) registries
- Programme-specific systems (HPV, COVID-19)
- Aggregate administrative reporting tools
- Paper-based and hybrid workflows

These configurations often coexist within the same country, varying by vaccine, delivery channel (routine vs school-based), and administrative level.

Fragmentation as a structural feature

Fragmentation is not incidental - it is a defining regional characteristic, manifesting through:

- Vaccine-level fragmentation
  (HPV, COVID-19, and routine immunisation tracked separately)
- Institutional fragmentation
  (parallel systems across programmes or agencies)
- Territorial fragmentation
  (variation across regions or provinces in decentralised systems)

Even where national systems exist, integration is often partial, negotiated or operationally uneven.

COVID-19 systems frequently operate as parallel infrastructures rather than as integrated extensions of EVRs.

Widespread digitalisation, limited consolidation

Electronic recording of vaccination data is now widespread across LATAM. However, fully consolidated, life-course EVRs are uncommon, and systems often operate as collections of partially connected components.

This results in incomplete longitudinal records, limited continuity across age groups, and weak integration across programmes.

5. SYSTEM CONFIGURATIONS ACROSS LATAM

The heterogeneity described above resolves into five recurring configurations, each carrying different consequences for how HPV coverage data should be read.

- **Nominal registries with fragmented integration:** Argentina, Brazil, Colombia, Peru, Uruguay. Individual-level capture exists, but weak interoperability delays consolidation. For HPV, delivered largely through school-based campaigns in several of these countries, this typically means completeness improves over time but timeliness lags, since reconciling campaign batches into the national registry is slow.
- **Administratively consolidated systems with limited visibility**: Chile, Costa Rica, Panama. Internal administrative coherence supports reasonably complete and timely data capture, but routine public dissemination is limited. HPV coverage may be tracked adequately inside the system while remaining hard to interpret externally, simply because little of it is published.
- **Programme-driven or campaign-based systems:** Guatemala, Ecuador, Honduras, Paraguay, El Salvador. Digitalisation is often built around the vaccine or campaign itself rather than a life-course registry. HPV, being campaign-based in these countries, may be well digitised in isolation, but weak integration into the wider registry limits comparability with other vaccines and makes year-on-year trends unreliable.
- **Aggregate or minimally digitised systems:** Bolivia, Dominican Republic, Guyana. Reliance on aggregate reporting constrains both completeness and timeliness. Where HPV coverage figures exist, they are administrative estimates rather than registry-derived counts, so they reflect reporting practice as much as vaccination activity.
- **Mixed profiles at scale:** Mexico. Nominal registration, programme-based capture, and fragmented integration coexist within the same system. National HPV figures can mask substantial state-by-state variation in both completeness and timeliness.

These configurations (mapped against composite scores in Figure 2.) show that HPV coverage data cannot be read at face value from a country's aggregate EVR score. The same score can conceal a system that captures HPV doses reliably but publishes rarely, or one that publishes promptly on thin, campaign-specific data. This distinction is picked up again later in this report, when interpreting the scorecard findings.

6. OPERATIONAL REALITIES OF DATA CAPTURE

Hybrid data collection workflows

In practice, vaccination data capture is frequently paper-based at the point of care, followed by delayed digitisation, sometimes via batch uploads or spreadsheets.

These workflows are particularly visible in rural or low-connectivity areas and campaign-based vaccination settings.

HPV as a high-complexity use case

HPV vaccination introduces additional operational complexity:
- school-based delivery
- coordination between the health and education sectors
- manual attendance tracking
- retrospective data entry

As a result, HPV data are often less timely and less complete even in countries with otherwise functional EVRs.

HPV vaccination as a system stress test

Across LATAM, HPV vaccination implicitly functions as a stress test for EVRs.
Compared with routine immunisation, HPV programmes require more complex denominator construction, multi-sector coordination, and non-standard delivery channels.

This exposes structural limitations in data capture, system integration, and reporting pathways. Variation in HPV VCRs often reflects system configuration and data pathways rather than vaccination performance alone.

In many countries, HPV coverage estimates rely on administrative data rather than registry-derived denominators.

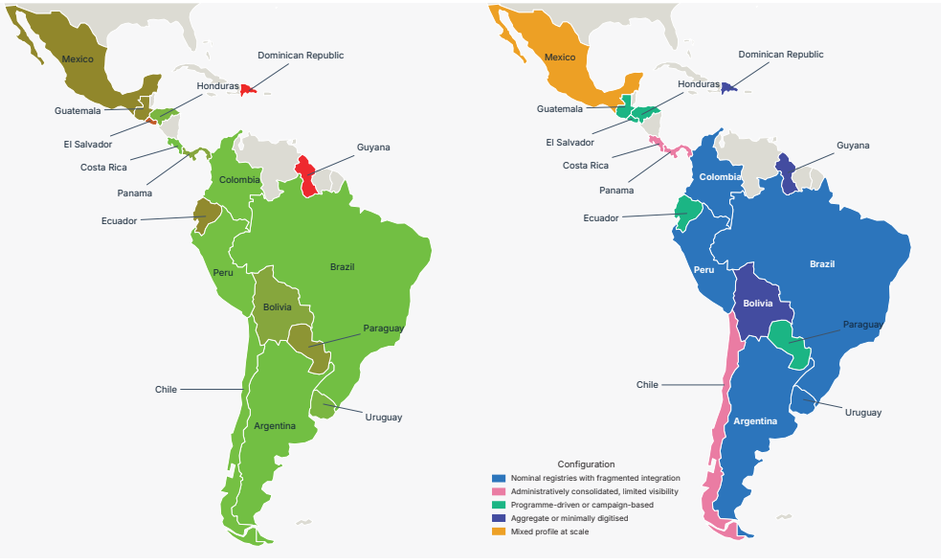
7. SCORECARD FINDINGS AND STRUCTURAL CONVERGENCE

Compression around the middle

A large number of countries cluster within a narrow mid-range of scores, with eleven countries falling within a single 11% interval. This indicates structural convergence, not polarisation. At the same time, a limited number of lower-scoring outliers remain, forming a visible lower tail in the distribution. This limits the explanatory value of aggregate scores, as countries with similar scores may operate very different systems. This pattern is directly observable in Figure 2 (left), which visually confirms the concentration of countries within a narrow mid-range of weighted scores.

Figure 2. EVR scorecard heatmap (left) and structural configuration (right) across Latin America

Costa Rica	86%
Argentina	77%
Brazil	77%
Peru	72%
Chile	72%
Colombia	72%
Honduras	70%
Uruguay	70%
Bolivia	67%
Panama	67%
Paraguay	64%
Guatemala	62%
Ecuador	62%
Mexico	61%
El Salvador	48%
Dominican Republic	36%
Guyana	30%



What this score does not tell about HPV monitoring

The weighted score behind each country (left) reflects overall EVR establishment - governance, architecture, interoperability, and publication combined into a single number. It does not indicate how well HPV vaccination specifically is captured, timed, or made usable. The configuration map (right, and Section 5) shows why. Peru, Chile, and Colombia share an identical composite score of 72%, yet Chile sits in a different configuration from Peru and Colombia. Conversely, Costa Rica and Panama sit in the same configuration but 19 points apart on the scorecard - 86% against 67%. A higher position on the scorecard should be read as a more established EVR overall - not as more reliable HPV data specifically.

Individual-level capture vs limited use

Many countries demonstrate partial individual-level data capture, but lack interoperability, routine analytics, and systematic publication (especially for HPV).

8. VACCINATION PRIORITIES AND DISEASE BURDEN

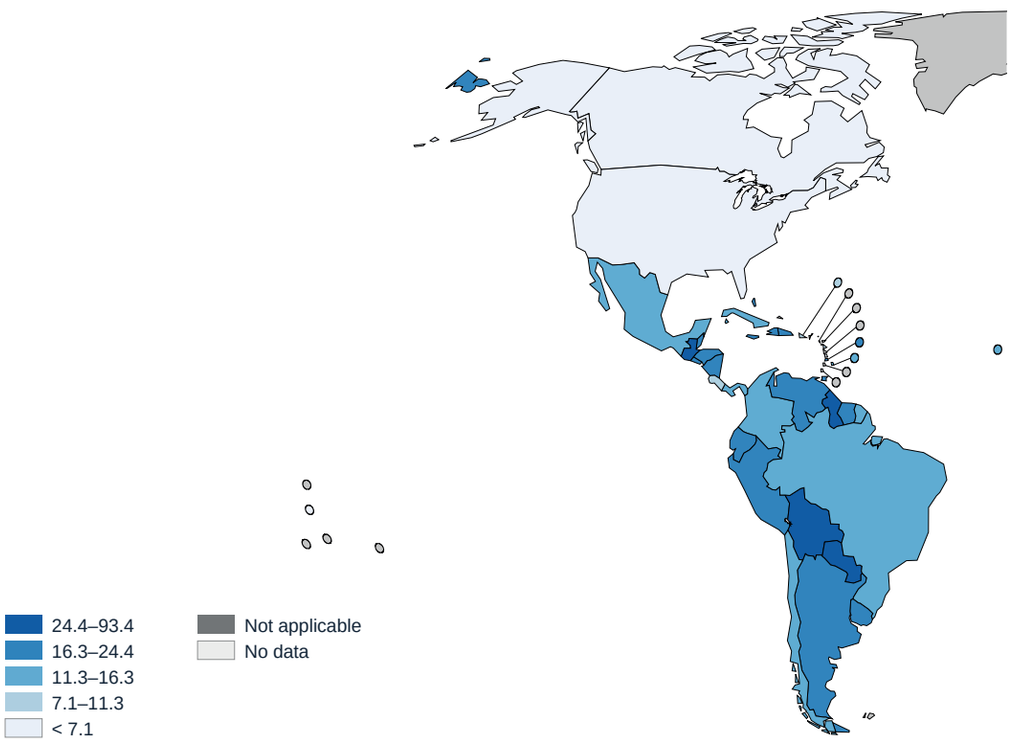
Vaccination strategies in Latin America are closely aligned with regional and global disease control and elimination objectives. Particular emphasis has been placed on reducing the burden of vaccine-preventable diseases with significant public health impact, including HPV.

PAHO and WHO initiatives have prioritised expanding HPV vaccination programmes as part of broader cancer prevention strategies. These efforts aim to increase vaccine coverage, reduce inequalities in access, and support long-term disease elimination targets.

The effectiveness of these strategies depends not only on vaccine availability but also on health systems' ability to monitor uptake and coverage across population groups. Reliable and timely data are therefore essential for assessing progress towards immunisation targets and for identifying gaps in programme implementation.

Differences in disease burden, demographic structures, and health system capacity further influence how vaccination programmes are prioritised and implemented across countries.

Figure 3. Age-standardised incidence rates of cervical cancer (Cervix uteri) in the Americas (females, all ages, per 100,000)



Source: International Agency for Research on Cancer (IARC), Global Cancer Observatory: Cancer Today (GLOBOCAN 2024), Cervix uteri fact sheet (adapted from global map).

9. DATA VISIBILITY, PUBLICATION, AND USE

Uneven public visibility

Across LATAM, publication of vaccination data is irregular, and HPV-specific data are often delayed, incomplete, or absent.

Administrative vs registry-based VCRs

Publicly available VCRs are often derived from administrative estimates rather than nominal registry data.

Gap between data capture and data use

A consistent regional finding is the gap between data collection and data utilisation. Limitations include weak dashboard use, limited feedback loops, and minimal use in programme management. This reduces the ability to identify coverage gaps, target interventions, and monitor equity.

10. GOVERNANCE AND INSTITUTIONAL FACTORS

Across LATAM, EVR performance is strongly shaped by governance continuity, institutional ownership, and sustained investment.

In decentralised systems, integration becomes a negotiated process rather than a technical deployment. In mixed public–private systems, reporting completeness becomes a system-level constraint.

11. WHAT THIS MEANS FOR HPV MONITORING

For anyone using this report to interpret HPV coverage figures across LATAM, three points carry forward from the analysis above.

HPV VCRs are highly sensitive to system design. Whether a country captures HPV through a life-course registry, a campaign-specific tool, or aggregate administrative reporting shapes how a coverage figure comes about. Variation in HPV VCRs across the region reflects these underlying data pathways as much as it reflects vaccination performance itself.management. This reduces the ability to identify coverage gaps, target interventions, and monitor equity.

Visibility does not equal usability. Digital capture of vaccination data is now common across LATAM, but that is not the same as the data being used. Routine analysis, dashboards, and feedback into programme management remain limited even where figures are published. A visible number is not necessarily an actionable one.

Cross-country comparisons need caution. Countries with similar scores, or similar-looking coverage rates, can sit on materially different systems. Reading HPV data across LATAM means reading it alongside the configuration that produced it, not the figure alone.



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The references provided represent a selected subset of sources informing the analysis and do not constitute an exhaustive list. Additional country-specific sources were used in the underlying assessment but are not individually listed in this summary report.

ABOUT OPENSKY

OpenSky Data Systems is an Ireland-based data, AI and digital transformation consultancy and Microsoft Solutions Partner. Operating since 2004, we work with government, healthcare and pharmaceutical organisations across Ireland, the UK, Europe and North America.

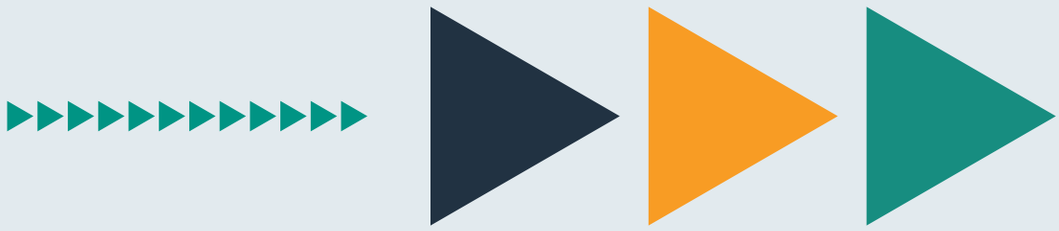
OpenSky has a long track record delivering e-health solutions for the Health Service Executive, including the Schools Immunisation System, Ireland's national electronic vaccination registry. OpenSky has also developed vaccination coverage intelligence across European markets including Slovakia, the Czech Republic and Denmark. This report forms part of OpenSky's wider research programme on Electronic Vaccination Registries across Europe, Latin America and the Asia–Pacific.

For more information, please visit www.openskydata.com

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