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ELIMINATING HPV-RELATED CANCERS IS POSSIBLE!

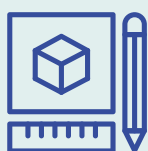
HPV-related cancers remain a **major and largely preventable public health challenge in Europe**. In Europe, HPV causes almost **100,000 cancers every year**, including cervical, anal, vaginal, vulvar, penile and oropharyngeal cancers. HPV also causes substantial non-cancer disease, notably recurrent respiratory papillomatosis (RRP) and anogenital warts. Universal vaccination across the EU could prevent many, and likely most, of these cancers, especially when combined with screening; a goal that sits at the heart of Europe's Beating Cancer Plan.

Yet **coverage across Europe remains uneven**, shaped by differences in policy, delivery systems, and public confidence. Some countries have demonstrated that sustained uptake above 90% is achievable; many others still fall short.

To help close these gaps, the European Cancer Organisation (ECO), together with recognised international experts, has developed a new **Good Practice Guide on HPV Vaccination**, offering **concise, tangible and evidence-based principles** to make high vaccination coverage a reality across countries.

The Guide is structured around six **thematic areas**: Policy & Governance, Vaccination Delivery, Data Systems & Monitoring, Communication, Access & Equity, and Catch-Up Vaccination & Extended Programmes. For each, it presents action-oriented principles, the evidence that underpins them, and country case studies that illustrate what is achievable in practice.

It is intended as a practical resource for policymakers, programme managers, patient organisations, and civil society actors, whether working to strengthen existing programmes or to address persistent coverage gaps. Eliminating HPV-related cancers is possible. What is needed now is consistent, sustained action.



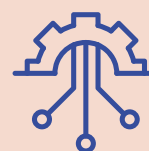
MAKE IT POLICY

Formalise gender-neutral HPV vaccination across law, budgets, schedules and systems



MAKE IT HAPPEN

Deliver consistently through schools and health services with trained staff and simple pathways, ensuring trust



MAKE IT LAST

Use data, communication and equity-focused strategies to sustain coverage over time and ensure long-term sustainability through budget allocation



**READ THE GUIDE IN FULL
BELOW AND ONLINE**



europeancancer.org/hpv



We thank our experts and supporters who have contributed to this Guide



ECO Good Practice Guide on HPV Vaccination

Make it policy. Make it happen. Make it last

POLICY & GOVERNANCE

Principles

Principle 1. Ensure political commitment and national ownership

Is HPV vaccination politically and strategically anchored?

Countries should formally commit to HPV vaccination as a core cancer prevention policy, embedded in national immunisation programmes and aligned with national cancer plans, and reflect this commitment in sustained public financing over time, recognising HPV vaccination as a long-term investment.

Principle 2. Establish clear leadership and joined-up decision making

Is HPV vaccination governed through clear leadership and decision-making processes?

Countries should clearly define who leads HPV vaccination policy in national cancer plans, embedding vaccination within broader cancer prevention strategy together with screening, how technical advice is translated into policy decisions, and how health, education, and other relevant sectors coordinate to implement those decisions consistently.

Principle 3. Build clear accountability mechanisms for long-term programme performance

Who is responsible for sustained performance and correction of HPV vaccination programmes over time?

Countries should establish clear accountability for HPV vaccination delivery over time, including defined responsibility for reviewing progress and taking corrective action when policy commitments are not met. This requires accurate data collection.

Justification & Scientific Evidence

HPV vaccination programmes are more likely to achieve sustained coverage when political commitment is embedded in formal national policy frameworks and supported by sustained public financing, rather than short-term or discretionary initiatives.

Comparative experience from countries progressing towards the elimination of HPV cancers shows that positioning HPV vaccination as a national cancer prevention policy, rather than as a standalone immunisation activity, is associated with stronger ownership and more consistent implementation over time [1, 2].

WHO guidance on cervical cancer elimination positions HPV vaccination as a core intervention to be delivered through national immunisation programmes, rather than as a time-limited or pilot initiative. In the European context, this approach is reinforced by regional cancer policy frameworks, including Europe's Beating Cancer Plan, which explicitly position HPV vaccination as a cornerstone of cancer prevention and elimination efforts [3]. This underscores the importance of embedding vaccination within durable health policy and planning instruments, including alignment with national cancer control strategies and elimination efforts [4].

Sustained political commitment to vaccination programmes coupled with predictable, sustained public financing integrated within routine national immunisation budgets is critical to programme continuity. Reliance on short-term or ad-hoc funding increases vulnerability to programme interruption. Such commitment is key in the context of interventions requiring long-term delivery such as HPV vaccination [4, 5, 6].

HPV vaccination programmes are more effective when leadership responsibilities, evidence-to-policy-pathways, and cross-sector coordination mechanisms are clearly defined and institutionalised.

Evidence from global guidance and immunisation policy research shows that clear leadership and formal decision-making structures strengthen the translation of scientific evidence into national vaccination policy, reducing delays and ambiguity in implementation [4,5,10,11,12].

National Immunization Technical Advisory Groups (NITAGs), which are established in most countries in the WHO European Region, provide a structured mechanism for evidence-informed decision making [7]. Within Europe, their role is reinforced by regional norms and scientific guidance from the European Centre for Disease Prevention and Control (ECDC) and the WHO Regional Office for Europe, contributing to the transparency, credibility and legitimacy of vaccination policy decisions, including those related to new or expanded vaccines [8,9].

Experience from HPV and other adolescent immunisation programmes highlights that effective coordination between health and education sectors is critical where schools are involved in delivery, and that lack of clarity in leadership, roles and cross-sector decision making can delay implementation and reduce policy coherence, even when political commitment and accountability mechanisms exist [10,11,12].

Sustained HPV vaccination programme performance depends on explicit accountability arrangements that link policy commitments to regular performance review and corrective action when implementation falls short.

Global immunisation guidance consistently highlights that political commitment and policy adoption alone are insufficient to sustain high vaccination performance without explicit accountability mechanisms, including defined responsibility for monitoring progress and responding to underperformance [3,7,13]. Within the European context, Europe's Beating Cancer Plan sets a clear accountability benchmark by committing to at least 90% HPV vaccination coverage in girls and a significant increase in coverage among boys, and ensure that 90% of the EU population who qualifies for cervical cancer screening is offered screening by 2025. [3].

Strategic frameworks such as the Immunization Agenda 2030 emphasis country ownership, governance, and accountability as core conditions for sustained immunisation delivery, calling for regular review of progress and timely corrective action where implementation falls short [7,14].

Experience from HPV vaccination programmes, including within the WHO European Region, demonstrates that clear accountability and coordinated national action are particularly critical during periods of programme disruption or declining public confidence, enabling recovery of coverage through active corrective measures rather than reliance on delivery systems alone [14,15,16]. Together, these experiences underline that accountability for sustained delivery is a governance function, enabling countries to respond to challenges, maintain public trust, and protect long-term programme performance [15,16].

Case Studies

Belgium



Belgium illustrates the importance of a clear and structured vaccination policy. Although school-based vaccination programmes are associated with higher vaccination coverage [21], Belgium's federal system means that HPV vaccination is organised separately within the Flemish and French-speaking communities. This has resulted in substantial differences in coverage within the same country [22,23]. One-dose coverage among girls and boys in Flanders is 92.3% and 86.7% respectively, compared with 63.6% and 55.8% in the French community. While both communities deliver through schools, differences in regional organisation appear to explain this disparity. In the French-speaking community, there is no centralised approach across health services, and vaccination is not offered by all services. Coverage is lower in areas served by health centres that do not provide vaccination than in those that do [24]. This case highlights the value of a clear and consistent policy framework to support equitable programme delivery.

England (United Kingdom)



In England, HPV vaccination policy is governed through a clearly defined decision-making architecture that separates technical advice, policy adoption and implementation. The Joint Committee on Vaccination and Immunisation (JCVI) is an expert scientific advisory committee that provides evidence-based advice to the UK government on vaccination, including schedules, safety, and population impact [18]. Advice and recommendations provided by JCVI are formally considered by the government, and if accepted, adopted through ministerial decision and incorporated into national immunisation policy. Once policy decisions are taken, NHS England is responsible for commissioning the immunisation programme, supported by national guidance issued by the UK Health Security Agency [19, 20]. This pathway links evidence through policy to delivery, and provides a clear delineation of roles, and supports predictable vaccination decision making over time.

Rwanda



Rwanda was an early adopter of the HPV vaccine, becoming the first African country to implement a national HPV vaccination programme in 2011, and consistently maintaining vaccination coverage at 90%+ since. In 2025, the Ministry of Health launched the Accelerated Plan for the Elimination of Cervical Cancer in Rwanda 2024–2027, aiming to meet the WHO's 90–70–90 targets by 2027, three years ahead of the global strategy. The success of Rwanda's HPV programmes can be attributed to several factors. This includes strong will demonstrated by political leaders, collaboration by teams both within the Ministry of Health, and externally with the Ministries of Education, Local Government, and Gender and Family Promotion, and durable trust by the public in the well-established Expanded Program of Immunization (EPI) [17]

Further Reading & Bibliography.

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 - [WHO \(2020\) Global Strategy to accelerate the elimination of cervical cancer as a public health problem](#)
 - [European Commission \(2021\) Europe's Beating Cancer Plan](#)
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 - [WHO Regional Office for Europe: National Immunization Technical Advisory Groups \(NITAGs\): Strengthening evidence-informed vaccine policy in the WHO European Region](#)
 - [Economist Impact \(2023\) A global blueprint for cervical cancer elimination: Lessons from Sweden.](#)
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ECO Good Practice Guide on HPV Vaccination

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VACCINATION DELIVERY

Principles

Principle 1. Choose delivery platforms that maximise reach and reliability

Are HPV vaccines delivered through platforms that easily and reliably reach the target population?

Countries should select vaccination platforms best suited for their context, including school-based, healthcare-based, and pharmacist-led delivery, to maximise reach and sustained coverage of the target population.

Principle 2. Build workforce and system readiness for consistent delivery

Are there adequate systems and sufficient people to deliver HPV vaccination programmes consistently at scale?

Countries should ensure appropriate delivery systems are in place, supported by sufficiently trained personnel and logistical readiness to support reliable HPV vaccination across all selected delivery platforms.

Principle 3. Design vaccination policies that support routine delivery

Are HPV vaccination policies easy to implement in routine practice?

Countries should adopt HPV vaccination policies, including age eligibility, dosing and administration schedules, and consent and authorisation requirements that are straightforward to implement, are aligned with routine delivery opportunities, and minimise the risk of missed or delayed vaccination.

Vaccine Doses and Scheduling

In the European Union, HPV vaccines are authorised by the European Medicines Agency (EMA) with licensed schedules of two or three doses, depending on age and immune status.

The World Health Organization (WHO) has a critical role in helping to guide countries around the globe on how best to meet global health commitments, such as cervical cancer elimination. It is in this context that the WHO produces guidance documents to support countries at any level of health system development to meet public health obligations, including on vaccination. These are often especially useful in the most resource-constrained environments, such as low and middle-income Countries (LMICs).

WHO public health guidance on HPV vaccine dosing

Two-dose schedule

Current WHO guidance (2022) recommends a two-dose schedule to be used in the primary target group from 9 years of age, and for all older age groups for which HPV vaccines are licensed. The minimum recommended interval between the first and second dose is 6 months [1].

Alternative single dose schedule

However, the same guidance document also contains permissive recommendations about off-label dosing options. In particular, it suggests that a single-dose schedule could be considered in girls and boys aged 9–20 years. This recommendation reflects analyses of available evidence suggesting that a single dose might have comparable efficacy and duration of protection to a two-dose schedule.

However, WHO also notes that additional evidence should be generated on the long-term immunogenicity, efficacy, effectiveness, and duration of protection of single-dose HPV schedules in girls aged 9–14 years, boys, older women and men, and children aged under 9 years of age. As a priority, evidence is needed on the immune response and efficacy of reduced-dose schedules in immunocompromised individuals and people living with HIV. [1].

Scientific discussion on single-dose scheduling continues, particularly in high-income country settings where multidose programmes are well-established [14]. Practice examples from countries experimenting with single-dose programmes are still being collated, with Australia among those currently in the process of reporting outcomes [15].

As with use of other types of medications, the European Cancer Organisation recommends HPV vaccination for girls and boys in accordance with the most current licensed schedules, while also supporting the WHO's call for the generation of further evidence on the long-term immunogenicity, efficacy, effectiveness, and duration of protection of single-dose HPV schedules.

Justification & Scientific Evidence

School-based HPV programmes are among the most effective and equitable way to achieve high vaccination coverage. High coverage can also be achieved through well-organised healthcare-based or other delivery platforms.

Organised delivery platforms that reliably reach adolescents are a key determinant of high HPV vaccination coverage, regardless of the specific setting used [2].

Across multiple countries in Europe, school-based HPV vaccination programmes are consistently associated with high overall coverage and more equitable reach as this is the setting where children and adolescents spend a significant portion of their time [3, 4]. European guidance further indicates that, where feasible, school-based immunisation is often among the lowest-cost delivery options for HPV vaccination, as it reaches whole cohorts efficiently and keeps organisational and delivery costs relatively low, although local factors such as school health infrastructure, consent arrangements, and funding mechanisms influence feasibility [5, 6].

European experience also demonstrates that high coverage can be achieved through well-organised healthcare-based or other delivery platforms, reinforcing that delivery success is not dependent on a single model [2, 4]. In some settings, primary care services and pharmacist-led delivery may help expand access by providing additional vaccination opportunities, supporting vaccine confidence through trusted patient-doctor relationships, and increasing the number of accessible vaccination sites. Evidence from high-income countries with established school-based HPV vaccination programmes indicates that inequalities in uptake may persist, with girls from lower socioeconomic status (SES) and minority ethnic groups tending to be less likely to be vaccinated [7]. These findings could inform targeted approaches to catch-up vaccination. HPV vaccination delivery should also be considered within a life-course immunisation approach, with opportunities to vaccinate through adolescent programmes, catch-up activities, and primary care services. Further detail on catch-up and extended-age vaccination is provided in section 6.

Adequate delivery systems, supported by sufficient trained personal and logistics, are a prerequisite for consistent and scalable HPV vaccination programmes

HPV vaccination programmes that achieve sustained coverage are characterised by planned and recurrent delivery arrangements for adolescents, with clearly designated vaccinators who are trained and authorised to deliver HPV vaccination within those settings, reflecting the additional coordination required compared with infant immunisation [8].

HPV specific implementation guidance indicates that HPV vaccine introduction requires careful planning of delivery strategies and logistics because the target group is outside of routine immunisation, and that building health worker capacity and skills is an essential part of implementation support [3, 8].

European countries show substantial variation in HPV vaccination coverage, alongside marked differences in delivery organisation, workforce arrangements, and system readiness [1].

Policy design choices relating to age eligibility, dosing schedules, and consent requirements directly shape how easily HPV vaccination can be delivered in routine practice, with more complex or restrictive policies increasing the risk of missed or delayed vaccination.

WHO implementation guidance emphasises that delivery feasibility should be considered at the policy design stage, including alignment of eligibility criteria and vaccination schedules with existing delivery opportunities, such as school-based or other adolescent health platforms, to support consistent implementation and reduce missed vaccinations [8]. Additionally, complex eligibility criteria such as multiple age cut-offs, sex-specific rules, or narrowly defined target cohorts, as well as restrictive scheduling or delivery arrangements that are poorly aligned with service organisation can increase operational burden and hinder programme performance [8,9].

ECDC guidance on HPV vaccine introduction in EU countries, and information from the Vaccine Scheduler describes how age eligibility, consent models, and scheduling choices affect the feasibility of delivery across different settings, including schools and healthcare services [2,10].

Case Studies

Sweden



Sweden's school-based HPV vaccination programme offers a compelling example of effective public health intervention. Introduced in 2012 for girls and expanded in 2020 to include boys, the programme is delivered primarily through schools, ensuring high coverage and equitable access. Sweden is internationally recognised for the political decision taken by Parliament in 2021 that cervical cancer should be eliminated as soon as possible, with the target year set at 2027. The strategy involves i) rapidly achieving a population immunity (herd immunity) against HPV using an ambitious HPV vaccination strategy including routine universal (gender-neutral) vaccination free of charge for all individuals up to age 26 and systematic HPV vaccination concomitant with cervical screening (using HPV) for women up to age 30 and ii) achieving high coverage of HPV screening using population-based mail-to-home HPV self-sampling for women in the age span 23–77 years of age.

There is growing evidence of herd effects from school-based HPV vaccination, with reductions in HPV prevalence appearing greater than would be expected from direct protection alone, as well as reductions in cervical lesions among unvaccinated individuals from the same birth cohort. [10, 11]. The incidence of invasive cervical cancer in Sweden is decreasing rapidly. [18].

Portugal



Portugal has been achieving high HPV vaccination rates among boys and girls. However, in Portugal, the strategy was not through school-based HPV vaccination programmes, but through integration into primary healthcare. Children and young people are regularly monitored through medical and nursing consultations under the National Child and Youth Health Program, which aligns these consultations with the national vaccination programme to enhance accessibility. Additionally, primary healthcare nurses use the VACINAS platform, a centralised digital registry to monitor vaccination records. In cases of delayed vaccinations, parents or legal guardians are notified, and a schedule for HPV vaccine administration is proposed, ensuring continuity and high vaccination coverage. Nevertheless, it is important to acknowledge that no approach will be universally applicable, as vaccination strategies must be adapted to each country's healthcare system, infrastructure, cultural context, and population needs, with Portugal serving only as an example that high coverage can be achieved without a school-based programme [12].

Kosovo



Kosovo provides a recent example of how early investment in workforce capacity and system readiness can support the successful introduction of HPV vaccination at national scale. Following a recommendation from the NITAG, HPV vaccination was introduced in February 2024 for 12-year-old girls using a single-dose schedule, with expansion to boys of the same age in 2025 [16, 17]. Preparation for vaccine introduction included the development and delivery of a standardised training module for healthcare workers and immunisation staff, adapted from WHO materials and covering vaccine safety, effectiveness and practical aspects of delivery in both school-based and healthcare settings. Delivery readiness was further strengthened through

coordinated planning and monitoring involving the Ministry of Health, Institute of Public Health and the WHO. This enabled routine field monitoring, tracking of vaccine coverage and efficiency, systematic surveillance of adverse events following immunization (AEFI), and follow-up on priority implementation actions. In parallel, the digital vaccination module within the national Health Information System was updated, allowing real-time data collection, reporting and performance monitoring.

HPV vaccination was delivered primarily through schools, complemented by primary healthcare facilities and targeted outreach efforts, including mobile teams for children not regularly attending school. According to the 2024 administrative data from the National Institute of Public Health (NIPH), HPV vaccination coverage in girls reached 85% in the first year of programme implementation [17].

Further Reading & Bibliography

- [WHO – Guide to introducing HPV vaccine into national immunization programmes](#)
 - [WHO – Scaling up HPV vaccine introduction](#)
 - [ECDC – Guidance on HPV Vaccination in EU Countries: Focus on boys, living with HIV and 9-valent HPV vaccine introduction](#)
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DATA SYSTEMS & MONITORING

Principles

Principle 1. Establish registries and systems to track vaccine uptake

Do countries have systems that can accurately track HPV vaccination uptake over time?

Countries should establish and maintain accurate vaccination registries, or equivalent data systems, that allow HPV vaccination coverage to be routinely tracked over time, across age groups and sex, and that can identify gaps in uptake to support programme management and corrective action.

Principle 2. Connect vaccination data across health and administrative systems

Can vaccination data be linked and used across relevant parts of the health system and other key administrative systems?

Countries should ensure that HPV vaccination systems are interoperable with other relevant health and administrative systems so that data can be shared, linked, and used to support coordinated programme management, policy decision-making, and efficient delivery across settings. The European Health Data Space (EHDS) provides a key policy framework for advancing this interoperability.

Principle 3. Use data transparently to drive reporting, feedback, and improvement

Is HPV vaccination coverage data routinely used to review performance and drive improvement?

Countries should establish regular public reporting and feedback mechanisms that make HPV vaccination data visible and usable by responsible authorities for performance review, accountability, and timely corrective action when vaccination coverage falls short of agreed targets. This should include periodic monitoring of shifts in circulating HPV types to ensure vaccination strategies remain aligned with evolving epidemiology and sustained vaccine effectiveness.

Justification & Scientific Evidence

Reliable, comprehensive vaccination registries or equivalent data systems are a foundational condition for monitoring HPV vaccination coverage over time, identifying gaps across populations, and enabling timely programme management and corrective action.

HPV vaccination programmes target different age groups and delivery platforms compared with routine infant immunisation, and a reduction in HPV cancer incidence cannot be detected for a significant time after the vaccine has been introduced in a country [1]. WHO guidance highlights that HPV vaccine coverage data is essential to guide strategy and interpret impact, and that monitoring HPV vaccination presents unique challenges due to wide age eligibility, multiple delivery settings, and doses delivered outside routine public-sector systems, reinforcing the need for comprehensive registries or equivalent data systems [1, 2].

European experience shows substantial variation in the availability, completeness, and functionality of vaccination registries, with implications for the ability to measure and manage HPV vaccination performance [3]. ECDC analyses of immunisation information systems (IIS) across EU and EEA countries highlight differences in whether countries can routinely monitor HPV vaccination coverage by age and sex, identify under-vaccinated groups, and use data to support programme oversight [4].

Interoperable vaccination data systems enable HPV vaccination data to be linked, shared, and used across relevant health and administrative systems, which is fundamental to coordinated programme management and policy decision making.

Once HPV vaccination data is captured, its value depends on whether it can be linked and used across systems involved in delivery, follow up, and planning. WHO guidance highlights that HPV vaccination programmes often involve multiple actors and settings, and that fragmented data systems limit the ability to coordinate programme management and decision making beyond basic coverage reporting [1,2]. This includes linkage with health management information systems, population or civil registration systems, education systems (when school-based delivery is used), and cancer screening and cancer registries [2,5].

European experience shows that differences in system interoperability affect whether vaccination data can be shared and used across the health system and relevant public services. ECDC analyses describe variation in the extent to which IIS interface with other health and administrative systems [3,4]. This shapes whether vaccination data can support coordinated oversight, planning, and evaluation across health, education, and other delivery settings, rather than remaining confined to stand-alone registries.

Recent European Joint Action work illustrates this variation. The PERCH project assessed countries' capacity to collect individual-level HPV vaccination data and link these records with cervical cancer screening and cancer registries, documenting wide differences across EU Member States, from countries with established national linkage to others where linkage is partial, not yet operational, or not planned, often due to technical, legal or administrative barriers [6].

Technical guidance on immunisation systems identifies interoperability as a core design feature that enables data linkage, reduces duplication, and improves the efficiency and usability of vaccination data for public health action [4,5]. Interoperable, individual level IIS can also support operational functions such as reminder-recall, helping programmes identify and follow up individuals who are due or overdue for HPV vaccination. Where systems are not interoperable, data use is constrained to basic coverage reporting, limiting their contribution to coordinated programme management.

The availability and interoperability of HPV vaccination data are necessary but not sufficient. Vaccination data only drives programme improvement when it is routinely reported, reviewed, and acted upon through clear feedback and accountability mechanisms.

Global immunisation guidance consistently emphasises that vaccination data are intended to inform programme review and decision making, rather than serving solely as a reporting function. Frameworks such as Immunization Agenda 2030 highlight the importance of using immunisation monitoring data within regular review and feedback processes to support accountability and course correction over time [7].

HPV-specific guidance further frames coverage reporting as a practical tool to assess progress, identify gaps in uptake, and adapt delivery strategies, particularly given the long time-lag before the impact of vaccination on disease outcomes can be observed [1].

Explicit vaccination targets and transparent reporting mechanisms provide a concrete basis for accountability and corrective action [7].

In the European context, the European Code Against Cancer frames HPV vaccination programmes as needing to be resourced and monitored to reach the 90% coverage target for both girls and boys [8].

Translating such targets into routine reporting dashboard-style monitoring helps make progress visible, enables performance review, and clarifies responsibility for action when coverage falls short [3].

Reporting national data through ECDC monitoring and reporting mechanisms can support regional comparison, accountability, and programme improvement. Ultimately, being able to demonstrate to the general public how vaccination and screening uptake reduces the burden of HPV cancers is a way to communicate the value of these interventions and can play a part in generating confidence in immunisation programmes.

Case Studies

Lithuania



The Lithuanian Human Papillomavirus (HPV) Vaccination Dashboard [11] enables real-time monitoring of vaccination coverage in different regions across the country, 'providing an opportunity to analyse HPV vaccination data at the level of the municipalities and healthcare institutions, and contributes to more accurate monitoring of the vaccination situation' [12]. Data can be filtered by age group, gender, geographical area, and number of doses, and insights will be used to prepare messages for the public, and train and educate healthcare professionals. The overall goal is to increase HPV vaccination coverage rates in girls and boys and reduce variations in uptake across Lithuania [12].

Norway



In Norway, individual-level HPV vaccination records can be linked at the national level with cervical cancer screening and cancer registry data. European Joint Action PERCH documentation indicates that Norway has already performed such linkages and continues to do so. Additionally, several new linkage studies are underway including HPV genotypes from the national HPV surveillance programme. [6]. This illustrates how interoperability can support coordinated monitoring and analysis across prevention programmes.

Australia



Australia records HPV vaccination in the Australian Immunisation Register (AIR) an individual-level national immunisation dataset into which HPV vaccination records were transferred in 2018 [9]. Coverage rates are broken down by year, sex, state and territory, and First Nation status, and data is annualised by calendar year based on quarterly coverage data [9]. HPV vaccination coverage data is also made available as part of the 'Cervical Cancer Elimination Progress Report: Australia's progress towards the elimination of cervical cancer as a public health problem', enabling analysis of both primary and secondary prevention measures [10].

Slovakia



Slovakia has developed a public HPV vaccination dashboard through the National Health Information Center (NCZI), presenting data by birth cohort, age, sex, month and year of vaccination, and geography, including regional and district level variation. It distinguishes between children receiving at least one dose and those receiving two or more, includes monthly data that allow uptake to be tracked dynamically within the year rather than just annually, and also reports quarterly pharmacy issue data on HPV vaccines dispensed and changes over time [13]

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COMMUNICATION

Principles

Principle 1. Embed sustained, institutionalised communication

Do countries have public health communication approaches that support HPV vaccination confidence over time, rather than relying on one-off campaigns?

Countries should establish and maintain sustained, institutionalised communication on HPV vaccination that is embedded within routine public health functions and designed to normalise HPV vaccination as a core cancer prevention measure.

Principle 2. Reach audiences through trusted and audience tailored communication

Are HPV vaccination messages delivered through trusted messengers and designed to address the needs and concerns of different audiences?

Countries should ensure that HPV vaccination communication is delivered through trusted messengers and is appropriate to the needs of different audiences, including adolescents, parents or caregivers, and health care workers.

Principle 3. Ground communication strategies in evidence and adapt them over time

Are communication strategies informed by the data and insight, and adjusted over time in response to public concerns and emerging challenges?

Countries should ensure that HPV vaccination communication strategies are informed by relevant data and insight, including vaccination coverage trends, behavioural and social insights, and monitoring of public concerns.

Justification & Scientific Evidence

Continuous communication embedded in public health systems supports confidence in HPV vaccination over time.

Although focused primarily on female-only programmes, guidance on HPV vaccine communication from the WHO explicitly frames communication as an ongoing process rather than a time-limited activity, with its implicit goal being to ensure HPV vaccination becomes a social norm [1]. Communication efforts should persist well beyond HPV introduction, recognising that each year brings new cohorts of adolescents, caregivers, teachers, and health workers who may be encountering HPV vaccination for the first time [1].

WHO guidance further emphasises the importance of multi-year communication planning and resourcing, noting that while large –scale mass media campaigns may not be required every year, continued investment in communication is needed. This enables the maintenance of confidence in vaccination programmes, reinforces understanding of vaccination benefits, and supports responses to emerging concerns as programmes mature [1]. This includes maintaining opportunities for dialogue, updating information materials, and routinely monitoring and addressing rumours and misinformation as part of programme implementation [1].

European guidance aligns closely with this approach. ECDC similarly emphasises the value of providing not only a continuous provision of information to the public, with regular updates and monitoring, and that this reliable and trustworthy information should be consistently available to support confidence in vaccination programmes over time [2].

Confidence in HPV vaccination is strongly influenced by who delivers vaccination

messages, with health care workers, including nurses, midwives, pharmacists and physicians playing a particularly influential role.

Confidence in HPV vaccination is shaped by the credibility of the messenger and the extent to which communication is tailored to the needs and concerns of different audiences. Their understanding, engagement and support can make the difference between the success and failure of HPV vaccination efforts. Guidance highlights that relevant audiences are broad and diverse including adolescents, parents or caregivers, health workers, educators, professional, cultural and religious associations, and the media, and that countries should also assess which additional groups need to be reached in their specific context [1]. Communications approaches should therefore recognise differences across audiences and adapt messengers and channels accordingly in order to support confidence in vaccination [1]. Medical students and community health mediators can be particularly effective messengers for harder-to-reach groups, including minority ethnic communities and hesitant parents.

Within this broader set of audiences, health care workers, including nurses, midwives, pharmacists and physicians, are consistently identified as particularly influential. WHO Regional Office for Europe identifies health care workers as the most trusted advisors and influencers of vaccination decisions, highlighting that strong recommendations from health professionals are a key facilitator of vaccination uptake and that ongoing relationships with caregivers support informed decision making [3]. Confidence in vaccination is shaped not only by the information provided, but by the communication skills, credibility, and engagement of health workers in dialogue with caregivers and patients [3]. Patient organisations and parent-teacher organisations, particularly within the context of school-based immunisation programmes can be particularly effective in working alongside healthcare professionals to complement clinical messaging and strengthen trust.

ECDC guidance supports this conclusion, noting that across European Union countries, health care providers are consistently identified as the most important and trusted source of information on protection from vaccine-preventable diseases, and that their knowledge, attitudes, and confidence can influence both individual vaccination decisions and broader vaccine acceptability [2,4]. Complementary evidence suggests that even limited scepticism among health care practitioners can amplify hesitancy within communities, underscoring the importance of engaging and supporting health care workers as a priority group within vaccination communication strategies [5].

Communication approaches which incorporate learning and adjustment over time are more effective at sustaining confidence in HPV vaccination

Communication around HPV vaccination is most effective when treated as an iterative component of programme management, rather than a fixed component. Monitoring, evaluation and behavioural insights are important in assessing whether communication activities are achieving their intended effects, approaches which should be refined over time as programmes mature and public concerns evolve [1].

WHO's tailoring Immunization Programmes approach provides a structured framework for evidence-led and adaptive communication, emphasising the systematic identification of barriers and drivers to vaccination and the design, implementation, evaluation, and refinement of tailored interventions over time. Vaccination coverage data, surveillance information and qualitative research should be used to inform communication and service design, reflecting the premise that communication strategies must respond to the needs, concerns, and context of specific populations in order to sustain confidence and address persistent coverage gaps [6]. Although communication outcomes can be difficult to measure directly, WHO recommends that plans include clear objectives, indicators, milestones, and validation mechanisms to guide refinement over time, including monitoring changes in knowledge, sources of information, reasons for vaccination or non-vaccination, and uptake trends in hesitant or underserved populations [1].

This is supported by the European Code Against Cancer and ECDC guidance which emphasises the importance of identifying behavioural determinants of vaccine uptake and tailoring communication responses accordingly, rather than relying on uniform messaging, particularly in dynamic information environments including social and digital media [7, 2]. This is further reinforced by recent European Commission-supported work to develop a Communication Model for Building Awareness and Countering Misinformation and Disinformation on HPV and HBV Vaccination, designed to provide Member States with practical guidance for evidence-based, tailored communication and ongoing monitoring of mis-

leading narratives [17].

Case Studies

Denmark



Denmark's "Stop HPV – Get Vaccinated" campaign demonstrates how clear, sustained communication can rebuild vaccine confidence. After HPV vaccination coverage among 12-year-old girls dropped from around 90% to below 40%, the Danish Health Authority, in partnership with the Danish Cancer Society and the Danish Medical Association, launched a targeted campaign.

They first analysed why parents were hesitant, finding that most concerns came from media and social media reports of alleged side-effects. To rebuild trust, the campaign used multiple strategies: it published informative articles in newspapers and lifestyle magazines, shared personal stories such as Eigil Poulsen's account of losing his wife to cervical cancer, and created a dedicated Facebook page where parents could ask questions and receive reliable answers from medical professionals.

By tracking vaccination uptake, engaging healthcare workers and trusted voices, and maintaining a continuous, open dialogue rather than a one-off effort, the campaign quickly increased HPV vaccination, with nearly twice as many girls starting the programme within a year [11,12].

England (United Kingdom)



Since the introduction of the HPV vaccination programme in 2008, and its subsequent expansion to include boys in 2019, communication with adolescents, alongside parents and caregivers, has been institutionalised as part of annual programme delivery for each new cohort. HPV vaccination is embedded within the school-based immunisation system, and education settings play a central role in sustained and trusted communication [8, 9].

Directed by the School Age Immunisation Services, schools support sustained and trusted communication because of their established relationships with young people and parents. Schools support vaccination by distributing information materials and consent forms, sending reminders of vaccination sessions, and coordinating with immunisation teams. Through national produced, standardised information materials and consent forms they ensure consistency of messaging to stakeholders in advance of vaccination, explaining eligibility, purpose and schedule and signalling that HPV vaccination is a normal part of adolescent health care [10]. This supports informed decision making well in advance of the point of delivery.

Bulgaria



Astra Forum Foundation's 'Vaccines School' demonstrates how communication capacity can be strengthened by systematically supporting health care workers in a high vaccine-hesitancy context. Launched in 2022 in response to growing disinformation and declining routine immunisation coverage, the programme was developed with support from UNICEF and later the WHO country offices, with the Bulgarian Ministry of Health as an institutional partner. Rather than relying on broad public campaigns, it focused on family doctors, paediatricians, nurses and other public health professionals, recognising that general practitioners remained among the more credible sources of vaccine information [13, 14, 15].

The programme curriculum drew on WHO Europe and ECDC approaches to interpersonal communication for vaccine hesitancy, including motivational interviewing and tailored communication for hesitant parents. These methods were reinforced through repeated online and in-person sessions, a Bulgarian-language for medical professionals on immunisation communication, and ongoing support through updated scientific materials, expert consultation, and advanced training modules [16]. The handbook includes dedicated content on HPV vaccination, including communication on HPV vaccination for boys as well as girls, and helping integrate HPV more clearly into wider immunisation communication and professional training. Together these features show how continuing support to health care workers can strengthen trusted communication at the point of care, rather than relying on one-off messaging efforts

alone.

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ACCESS & EQUITY Principles

Principle 1. Establish who has access to HPV vaccination

Is access to HPV vaccination clearly defined and consistent for the target population?

Countries should clearly establish who has access to HPV vaccination through appropriate health policy or regulatory instruments, ensuring access is consistent over time, and not varying by location or discretionary restriction.

Principle 2. Ensure financial access to HPV vaccination

Are cost and reimbursement arrangements a barrier to HPV vaccination?

Countries should ensure that HPV vaccination is provided free of charge or fully reimbursed for the target population, and that reimbursement and financing arrangements do not create barriers to access.

Principle 3. Design access arrangements that prevent systematic exclusion

Do HPV vaccination policies and access arrangements avoid the systematic exclusion of specific population groups?

Countries should design HPV vaccination eligibility and access arrangements in a way that prevents the exclusion of specific population groups, including where overall high vaccination coverage may mask persistent access gaps, by using complementary delivery pathways, culturally and linguistically appropriate communication, and targeted outreach for populations not reliably reached through routine models.

Justification & Scientific Evidence

Clear definition of who has access to HPV vaccination is a core programme design requirement and a necessary condition for equitable access

WHO guidance on HPV vaccination consistently treats the definition of a target population (as defined in national policy) as a central element of vaccination policy and programme design. Explicit emphasis is given to defining eligible age cohorts and aligning eligibility criteria with delivery strategies in order to reach the intended eligible population, and to avoid systematic exclusion of specific groups, such as adolescents who are not enrolled in school [1, 2]. Decisions on how eligibility is defined for example by age, year of birth, or school grade, have direct implications for programme feasibility, coverage measurement, and the risk of missing subpopulations [2]. In the European context, where HPV vaccination is now implemented for both girls and boys, these access principles are therefore relevant to all eligible adolescents included in national HPV vaccination policies.

This is consistent with Immunization Agenda 2030 (IA2030), which emphasises that immunisation services should be deliberately designed and delivered in ways that are responsive to the needs of individuals and communities [3].

Evidence from WHO guidance on refugees and migrants indicates that lack of clarity around eligibility, and access conditions, can prevent individuals from being offered or seeking vaccination in practice, even where entitlement exists in policy [4]. Limited provider knowledge of migrants' health needs and eligibility may result in missed vaccination opportunities, and discourage uptake [4].

Removal of point-of-use financial barriers is necessary to ensure equitable access to HPV vaccination

In Europe, the European Council Recommendation on vaccine-preventable cancers explicitly calls on

Member States to provide HPV vaccination free of charge and/or fully reimbursed for those for whom vaccination is recommended, and to ensure access and uptake among vulnerable populations and high-risk groups [5].

This policy position is reinforced by systematic review evidence indicating that perceived costs and uncertainty about charges at the point of use can act as barriers to HPV vaccination uptake in some settings, particularly among disadvantaged or underserved populations [6].

Routine HPV vaccination policies and delivery models can systematically exclude specific population groups unless access arrangements are deliberately designed to prevent this.

In the context of HPV vaccination programmes in Europe, high overall vaccination coverage does not on its own, ensure equitable access. Routine immunisation systems may systematically miss vulnerable populations unless delivery strategies are deliberately adapted [7]. IA2030 frames equitable access as a core system objective and emphasises that the benefits of immunisation are not spread equally. It highlights that systematic exclusion can occur when immunisation services are not deliberately designed to address subnational and population-level inequities related to socio-economic, geographic, cultural and gender-related barriers [3]. The exclusion of these groups often arises from the way eligibility rules, delivery settings, timing or administrative requirements interact with people's lived circumstances, rather than from individual choice or refusal.

Even when free-of-charge vaccination and clear national eligibility rules are in place, HPV vaccination programmes can systematically miss groups facing structural barriers: migrants and refugees with administrative obstacles, marginalised communities, people experiencing homelessness, MSM, people with higher-risk sexual behaviour, and people in carceral settings. For example, school-based approaches may miss adolescents who are not enrolled in school unless complementary strategies are implemented, illustrating how delivery pathways that work well for most of the population may exclude specific groups [1]. WHO guidance on the integration of refugees and migrants into immunisation policies provides one concrete example of these mechanisms, documenting how lack of explicit inclusion in policy and delivery arrangements can result in exclusion from routine vaccination services, even in the presence of formal entitlement [4]. This requires monitoring and review arrangements that can identify persistent access gaps across population groups, so that exclusion is recognised and addressed in practice.

Case Studies

Poland



In Poland, HPV vaccination has been recommended since 2008 for girls aged 11–12 years, with catch-up recommendations for older adolescents, but was not included in the mandatory immunisation programme. As vaccination in primary health-care settings required an additional charge, HPV vaccine uptake remained low, with coverage among adolescents estimated at 7.5%–10%, and access varying where some districts introduced locally financed vaccination programmes [8].

To address this, Poland introduced a nationwide HPV vaccination programme in 2023 as part of the National Oncology Strategy 2020–2030. The programme established a clear national entitlement to free HPV vaccination for girls and boys aged 12–13 years and integrated HPV vaccination within a broader cancer prevention framework [9]. Early implementation data indicate that uptake remains low, highlighting that while the removal of financial barriers was a necessary step, additional system components such as public awareness, engagement of healthcare workers, and coordinated implementation strategies are critical to achieving equitable reach [10].

Netherlands



The Netherlands provides a diagnostic example of how persistent access gaps can occur even in high-performing HPV vaccination programmes, underscoring the need for deliberate system design to prevent systematic exclusion.

HPV vaccination is provided free of charge through the National Immunisation Programme with clear eligibility and centralised invitations. Nevertheless, population-level analyses demonstrate persistent differences in uptake between population groups. A national database study found lower HPV vaccination uptake among adolescents with one or two parents born in Morocco or Turkey, those living in areas with lower socioeconomic status, and those with indicators of lower general willingness to vaccinate, such as not having received MMR vaccination [11]. Qualitative research indicates that these differences are partly linked to health-system and delivery factors, including limited awareness-raising on HPV, insufficient provision of tailored information, language barriers and lack of coordination between services [12]. More recently, a regional HPV 18 years+ vaccination campaign found higher knowledge and vaccination uptake among young adults exposed to the campaign, suggesting that complementary, targeted approaches outside routine adolescent delivery may help reach populations not reliably served by standard pathways [13].

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CATCHUP VACCINATION & EXTENDED PROGRAMMES

Principles

Principle 1. Institutionalise catch-up vaccination to close gaps in immunisation

Do countries have explicit strategies to vaccinate cohorts who missed earlier routine HPV vaccination?

Countries should establish and implement a defined catch-up vaccination policy and schedule, embedded within the national immunisation programme, so that individuals who missed routine vaccination, or who were older than the priority target age when the programme was introduced, have ongoing opportunities to be vaccinated and are not permanently excluded from protection.

Principle 2. Embed explicit, governed, and revisable decisions on extending HPV vaccination beyond routine cohorts

Are formal processes in place to decide, review, and adapt whether HPV vaccination extends beyond routine age cohorts?

Countries should use formal, evidence-informed decision-making processes to determine whether to extend HPV vaccination beyond the priority target population, informed by vaccination coverage, programme performance, disease epidemiology, health system capacity, feasibility and resource implications. These decisions should be reviewed periodically as programme objectives and conditions change.

Principle 3. Design catch-up and extended-age strategies to reach populations missed by routine delivery

Are there dedicated delivery pathways for populations who are not reached through routine HPV vaccination delivery models?

Countries should design and implement catch-up and extended-age HPV vaccination strategies that deliberately complement routine delivery models, using alternative delivery models appropriate to the needs and contexts of those populations where needed to reach people who are otherwise missed.

Justification & Scientific Evidence

WHO and European guidance explicitly frame catch-up vaccination as a necessary programme function to ensure that individuals who miss routine HPV immunisation are not permanently excluded from protection.

WHO defines catch-up vaccination as vaccinating individuals who are missing doses of vaccines for which they are eligible under the national immunisation schedule, and states that a catch-up vaccination strategy is an essential part of a well-functioning national immunisation programme that should be implemented on a continual basis [1], consistent with a life-course approach to immunisation [2]. Catch-up vaccination can play an important role in closing immunisation gaps that would otherwise widen over time as populations age, and that individuals who miss vaccination become harder to identify and reach over time [1].

The European Code Against Cancer explicitly recommends providing catch-up opportunities for HPV vaccination to people older than the priority age group, at least until age 18 where feasible, and prioritising individuals at higher risk of HPV infection, including immunocompromised individuals and people living with HIV [3]. The EU Council Recommendation on vaccine-preventable cancers further supports extending recommendations, via targeted catch-up campaigns, to young adults who did not get vaccinated or fully vaccinated during adolescence or preadolescence, reinforcing the role of catch-up as a

policy tool to prevent missed cohorts from remaining unprotected over time [5].

Guidance emphasises that decisions to extend HPV vaccination beyond routine target populations should be directed by formal, evidence-informed processes and reviewed over time as programme conditions evolve.

Guidance on planning and implementing catch-up vaccination recommends that National Immunization Technical Advisory Groups (NITAGs) provide technical and programmatic advice on the development and review of vaccination policies and explicitly calls for existing policies to be reviewed and revised where they unintentionally constrain catch-up or extended-age vaccination. This includes restrictive target age groups or upper age limits, limitations on which health workers are authorised to vaccinate, and inflexibility on when and where vaccinations can be delivered [1] and reinforces the importance of periodic policy review that can be adapted over time as programme conditions evolve.

The EU Council Recommendation on vaccine-preventable cancers similarly emphasises structured national action and coherent policy frameworks to support coherent and coordinated vaccination policy, supporting the need for policy decisions that are transparent, coordinated, and capable of review over time in line with national priorities and system capacity [5].

Routine HPV vaccination delivery models may systematically miss certain populations, so targeted or alternative delivery pathways are required to ensure access to vaccination for these groups.

Offering catch-up vaccination to populations who may not be reached through routine immunisation services is critical to ensuring that they are not excluded from protection. This includes mobile populations such as refugees, asylum seekers and migrants, who may be difficult to reach or track and for whom responsibility for vaccination may be unclear, particularly where individuals move across borders [1,2]. The WHO further emphasises that immunisation strategies should be adapted to reach populations that are geographically, socially or culturally isolated, and that addressing the causes of low vaccine use among marginalised groups is necessary to improve access to immunisation services [2].

Specific population groups are identified by WHO and European guidance, for whom targeted HPV vaccination strategies may be appropriate due to elevated risk of HPV infection or disease, or because they are not reliably reached through routine delivery models, such as men who have sex with men (MSM), due to the high burden of HPV infection in this group [4]. In practice, many MSM were not reached through earlier adolescent vaccination programmes because HPV vaccination programmes initially targeted girls, and targeted adult offers may miss people who do not disclose sexual orientation, do not attend sexual health services, or face stigma and discrimination in healthcare settings [6, 7]. Complementary access pathways including delivery through sexual health, HIV prevention and other inclusive services, may therefore be needed [8]. The European Code Against Cancer similarly recommends that individuals at higher risk of infection, including immunocompromised individuals and people living with HIV, are prioritised for HPV vaccination, supporting the use of tailored approaches beyond standard-age delivery [3].

European policy instruments further reinforce the need for dedicated strategies to reach populations missed by routine vaccination pathways. The EU Council Recommendation on vaccine-preventable cancers calls for targeted efforts to address structural barriers to HPV vaccination uptake among disadvantaged groups, explicitly naming migrants, asylum seekers, refugees, people experiencing homelessness, Roma, persons with disabilities, displaced people from Ukraine, LGBTI people, and individuals with higher-risk sexual behaviour [5].

Case Studies

Ireland



In Ireland, HPV vaccination has been delivered through a routine school-based programme since 2010, but vaccination coverage declined significantly from around 2015 following public controversy and misinformation, resulting in substantial cohorts of adolescents and young adults who missed vaccination through routine programmes. To address these immunity gaps, Ireland introduced the nationally coordinated Laura Brenna HPV Vaccine Catch-Up Programme in 2022, offering free HPV vaccination to boys and girls

in second-level education who had not previously received the vaccine (boys were added to routine programmes in 2019), as well as to young women up to age 25 who had left school, with vaccination initially delivered through clinic-based settings [9]. The programme was explicitly time-limited and eligibility defined, reflecting a formal policy decision to correct missed vaccination rather than an automatic extension of routine delivery. An expanded HPV vaccination drive began in January 2026 with the initiative offering free vaccines to fifth- and sixth-year post-primary students from January to August 2026, before expanding to second- to fifth-year students in the 2026/27 academic year [10]. The routine programme targets all girls and boys in first year of secondary school.

Slovenia



In Slovenia, HPV vaccination has been offered free of charge through a routine school-based programme for girls aged 11–12 years old since 2009, with boys included in the vaccination programme since 2021 [11, 12]. National public health authorities have explicitly acknowledged that routine uptake has remained below the 90% benchmark required to achieve population impact. In response, Slovenia's vaccination policy provides structured opportunities for individuals who miss vaccination at the routine age to be vaccinated at later systematic health check-ups during secondary school [12]. National guidance further specifies that young people under the age of 26 who have not been vaccinated may also receive HPV vaccination free of charge, extending eligibility beyond the primary target cohort [12].

HPV FASTER

HPV FASTER is a public health strategy proposing a combined approach to HPV vaccination and HPV screening for women aged 25–45 years. In practice, this works with a dual intervention strategy: HPV vaccination administered to women up to 45 years old, even if previously exposed; HPV-based screening using HPV DNA testing, to detect and treat existing infections or precancerous lesions [13]. The project targeted vulnerable populations, including female sex workers, women living with HIV, transgender men and non-binary persons with a cervix, socioeconomically deprived women, women living in prison and migrants.

As an ongoing research initiative, findings continue to evolve, and conclusions will be subject to further validation as evidence accumulates.

Further Reading & Bibliography

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- [HPV Faster](#)
- [River EU](#)
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