

Advancing data-driven decision-making for vaccine-preventable cancers:

Recommendations for effective surveillance of incidence and monitoring of vaccination coverage rates

This position paper outlines how comprehensive and timely data can enable and support evidence-based public health policies and interventions to better protect Europeans in the fight against vaccine-preventable cancers. It calls for concrete actions at EU and national level to further develop and strengthen data collection, sharing and use for public health policymaking, building on Europe's Beating Cancer Plan and the upcoming Council Recommendation on Vaccine-Preventable Cancers set forth in its implementation roadmap.



Key Recommendations for improving Hepatitis B and HPV vaccination:

- ✓ Strengthen the role of the **European Centre for Disease Control (ECDC)** on data collection
- ✓ Ensure **high-quality data** is translated into policy recommendations
- ✓ **Establish forums** for sharing best practices at EU level
- ✓ Ensure proper and sustained resource allocation for **building and maintaining data systems** as well as disease and cancer surveillance systems
- ✓ Establish an EU implementation roadmap to help Member States achieve **Europe's Beating Cancer Plan (EBCP)** objectives

1. Consequences of **insufficient data collection** on vaccine-preventable cancers



Insufficient data collection on disease levels and vaccine coverage rates for HPV and Hepatitis B poses significant risks and challenges, ultimately leaving Europeans more vulnerable in the fight against cancer.

One of the key concerns is the underestimation of the burden of vaccine-preventable cancers. Accurate data on their incidence and prevalence is needed to monitor disease trends, identify high-risk populations, evaluate the impact of vaccination programmes and develop effective prevention and control strategies.

Insufficient data collection makes it difficult to assess the effectiveness and impact of vaccination programmes. Robust data (vaccine uptake, HPV and Hepatitis B infection rates, and related cancers' incidence) are necessary to estimate vaccine coverage rates, identify any gaps or disparities in vaccine uptake and evaluate long-term benefits. This information provides actionable insights to guide policymaking towards better protection against vaccine-preventable cancers.

2. Burden of vaccine-preventable cancers in Europe



In total, there were about **4 million new cancer cases in Europe in 2020**. That same year, 1.9 million people were estimated to have died from the disease.¹ The burden of cancer in Europe is high and rising. Forecasts show that **cases will increase 24% by 2035**, making it the leading cause of death in the EU.²

HPV and Hepatitis B are among the most important infections associated with cancer.

Hepatitis B is transmitted through contact with contaminated bodily fluids. This can occur through sexual contact, mother-to-child transmission, unsafe injections or other exposure to contaminated blood, saliva or other bodily fluids. **A chronic Hepatitis B infection can cause liver cancer, which accounts for 60,000 deaths among Europeans annually.**^{3,4}

HPV is a group of viruses primarily transmitted via sexual contact. HPV viruses cause cervical, oropharyngeal, head, neck, anal, penile, vaginal and vulvar cancer. Cervical cancer is the second most common cancer after breast cancer affecting women aged 15–44 years in

the European Union.⁵ **Each year, 58,169 women are diagnosed with cervical cancer; 53,000 of those cases are attributable to HPV.**⁶ Besides cervical cancer, 14,700 other anogenital cancers can be attributed to an HPV infection annually; 5,400 of which occur in men.⁷

The burden of HPV, Hepatitis B and related cancers is unevenly distributed across Europe, with some countries having much higher incidence rates than others.⁸

Both HPV and Hepatitis B infections can be prevented by vaccination. However, vaccination access and uptake varies widely across Europe.⁹ For HPV for example, not all Member States provide gender-neutral vaccination or enable vaccination at alternative sites such as schools or pharmacies.¹⁰ Other Member States have bureaucratic barriers that complicate access to vaccination, especially in countries that rely on vaccination by general practitioners or work with opt-in systems. Hepatitis B vaccination access and uptake varies across Europe due to differing risk-based recommendations across Member States and the fact that not all countries vaccinate children against the disease.

3. Challenges in **addressing vaccine-preventable cancers** in Europe



3.1. Lack of accurate and up-to-date data and cohesive data collection for effective vaccination strategies

Data collection practices vary across Europe, with some Member States not reporting disease levels and vaccination coverage rates for HPV and Hepatitis B.¹¹ Moreover, when reporting does occur, methods and timelines often differ.¹² The lack of standardised reporting frameworks hinders the comparability and reliability of the collected data, limiting their usefulness as evidence in public health decision-making.

The absence of vaccination and cancer registries in many Member States limits the availability of comprehensive and up-to-date information. Conversely, countries with mature electronic vaccination registries in place tend to have higher vaccination coverage rates. However, the lack of interoperability between these systems, both across and within Member States, further impedes the integration and analysis of data, hindering the development of effective elimination strategies.¹³

3.1.1. **Hepatitis B-specific hurdles**

Insufficient data, especially regarding disease levels, poses significant challenges to the

effective management of Hepatitis B in Europe. Statistics suggest that approximately only 19% of people living with Hepatitis B are aware of their infection, posing a critical barrier to quantifying the disease's impact.¹⁴ Recent results from a systematic Hepatitis B screening at an emergency department in Spain showed that the rate of infections with Hepatitis B was 3 times higher than estimated in the general population, indicating either a sub-population of higher disease prevalence or that the overall disease rate is much higher than currently estimated.¹⁵

Even when data is collected, translation into actions and recommendations is often inconsistent. For instance, although Germany collects comprehensive data on Hepatitis B, only 4% of cases have an identified risk factor and recommendations for adults have not been adjusted to this reality and are still based on the limited known risk factors.¹⁶ Finally, vaccine recommendations vary widely in the EU: some countries do not vaccinate children, while for adults recommendations are risk-based and inconsistent across Member States.

3.1.2. HPV-specific hurdles

The design and implementation of appropriate, well-resourced and up-to-date national cancer control plans is an enabler for the effective elimination of HPV-related cancers. However, some Member States either lack cancer control plans altogether or fail to include the vaccination targets set by the World Health Organization (WHO) and EBPC in their plans.¹⁷ This raises significant concerns about the accountability of Member States in adhering to the targets that have been set.

Member States' implementation of vaccination programmes, including catch-up programmes, is very uneven. Only a few countries provide catch-up vaccinations for individuals who missed their vaccinations or were not eligible during the initial launch of a vaccination programme. What's more, not all of those programmes are funded.¹⁸ Cohesive and inclusive vaccination strategies must address the lack of catch-up vaccination programmes and inadequate attention to adult at-risk groups.

4. How the **Council Recommendation** on Vaccine-Preventable Cancers can contribute to **eliminating vaccine-preventable cancers**



4.1. Benefits of **cohesive data collection** and sharing

Appropriate monitoring of disease levels and vaccination coverage rates is crucial for health systems to identify gaps and vulnerable populations, evaluate programme effectiveness, assess vaccine impact and guide resource allocation. Only by leveraging the power of data can policymakers design targeted interventions, prioritise resource allocation and maximise the impact of public health efforts, contributing to the elimination of vaccine-preventable cancers.

Denmark provides a great example of leveraging digital tools to improve HPV

vaccination rates. The country has made effective use of data to monitor its childhood vaccination programme by successfully implementing a national Immunisation Implementation System (IIS). The Danish IIS features an effective reminder and recall system, an Electronic Vaccination Registry providing a breakdown of vaccination coverage rates by region and across targeted groups, and gathers data on participation in screening programmes.¹⁹ More recently, Slovakia has made progress towards regular publication of high-quality detailed HPV vaccination data.

4.2. Vaccines Europe's recommendations for the Council Recommendation on Vaccine-Preventable Cancers

The forthcoming Council Recommendation presents a pivotal opportunity for Europe to strengthen its efforts in combatting vaccine-preventable cancers, enhance EU support and better monitor progress in Member States. To achieve the desired impact, it is imperative to prioritise robust and cohesive data collection and sharing as a fundamental pillar for public health decision-making.

4.2.1. Strengthening the role of the European Centre for Disease Control (ECDC) on data collection for Hepatitis B and HPV vaccination

The COVID-19 pandemic has demonstrated the possibility and importance of robust data collection and sharing on vaccination coverage rates. Building on this experience, similar practices should be extended to the monitoring of HPV and Hepatitis B disease levels and vaccination rates. In this regard, the ECDC should lead efforts to enhance consistent data collection for vaccine-preventable cancers in Europe. Collaborating with national health authorities and stakeholders, the ECDC can establish standardised data collection methodologies and reporting mechanisms, and provide technical assistance to ensure consistent and high-quality data collection on disease levels and vaccination rates across the EU.

4.2.2. Ensure high-quality data is translated into policy recommendations

It is imperative to recognise that data collection alone is not sufficient. Translating the collected data into meaningful policy recommendations is equally crucial, both at national and EU levels. In this respect, the EU should pay specific attention to Hepatitis B, for which there is a clear need to establish vaccination targets and universal recommendations. Such targets and guidance should follow the WHO's global strategy aiming to reduce new Hepatitis B infections by 90% and deaths by 65% between 2016 and 2030.²⁰

The United States has developed best practices in addressing Hepatitis B by implementing universal vaccination and screening guidelines to tackle undiagnosed cases and improve vaccine uptake.²¹ Similarly, Spain conducted a systematic Hepatitis B screening at an emergency department, revealing an infection rate three times higher than the general population estimate.²² These proactive approaches aim to ensure widespread access to vaccinations and screenings, irrespective of individual risk factors.

4.2.3. Establish forums for sharing best practices at EU level

To accelerate progress, the Council Recommendation should encourage the creation of dedicated forums for best practice sharing among Member States. Existing policy tools should be used and further deployed such as the European Cancer Inequalities Registry, which should include all relevant indicators related to cancer prevention through vaccination (limited today to vaccination coverage rates for girls up to age 15 for HPV vaccination).²³ By promoting collaboration and knowledge-sharing, countries and stakeholders can draw insights from successful initiatives that have boosted HPV and Hepatitis B vaccine uptake, adapting them to their specific contexts. These forums will foster a culture of continuous improvement and enable collective action towards eradicating vaccine-preventable cancers.

4.2.4. Ensure proper and sustained resource allocation for building and maintaining data systems as well as disease and cancer surveillance systems

The Council Recommendation should prioritise allocating ample resources for effective data collection and analysis. Member States must ensure sufficient funding and

human resources to support comprehensive surveillance systems. Investing in robust data infrastructure, including electronic health records, digital reporting platforms and data management tools, is essential for seamless data collection and analysis. Proper resource allocation will enhance the capacity of national health authorities and enable evidence-based decision-making at all levels.

4.2.5. Establish an EU implementation roadmap to help Member States achieve Europe's Beating Cancer Plan (EBCP) objectives

It is imperative to establish an EU-level implementation roadmap with clear and concrete milestones for attaining a 90% vaccination coverage rate for HPV in girls and increasing coverage for boys, and increased vaccination for Hepatitis B by 2030. This roadmap should keep in mind national differences while outlining actionable steps, such as strengthening vaccination programmes, addressing barriers to vaccine uptake, enhancing data collection systems and ensuring equitable access to vaccines across all Member States.

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