Readiness Assessment for Cervical Cancer Elimination in Europe

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Introduction

- Human Papillomavirus (HPV) is a well-established cause of cervical cancer and other HPV-related cancers (anus, penis, vagina, vulvar) and head and neck cancers.(1)
- The World Health Organization (WHO) released a global roadmap towards cervical cancer elimination, which envisions the elimination of cervical cancer, targeting a threshold of <4 cases per 100,000 women-years by incorporating the following 90-70-90 targets by 2030:(2,3)

- The European Commission's Europe's Beating Cancer Plan, aims to:(4)
  - Vaccinate at least 90% of the EU target population of girls and to significantly increase the vaccination of boys by 2030.
  - Put forward a new EU-supported cancer screening scheme to help member states reach 90% screening rates by 2025.
  - Support member states in establishing at least one national comprehensive cancer centre by 2025, ensuring that 90% of eligible patients have access to such centres by 2030.
- Further, the EU's Council recommends to increase vaccine uptake in females and males by implementing structures such as: removing structural barriers, expanding access in- and outside of regular immunisation programmes, improving programme performance by using data for decision making, etc.(5)

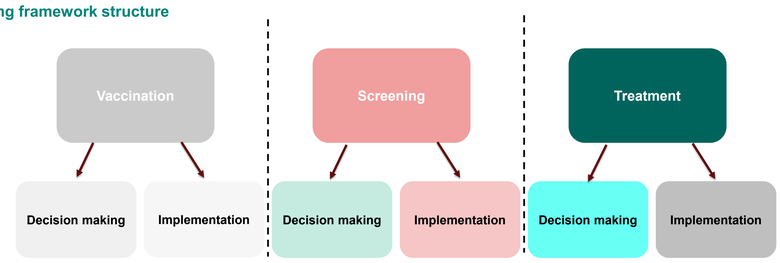
Objectives

- To assess the readiness of European countries to eliminate cervical cancer by defining the current status of the vaccination, screening, and treatment programmes, programme implementation, and the status of the required data systems to ensure surveillance and monitoring for the elimination initiative at a country level.

Methods

- A scoring framework, developed with consideration of previously published literature on existing frameworks and concepts(6-9) was used to assess the readiness to eliminate cervical cancer for the following countries of interest (N=31):
- Austria, Belgium, Bulgaria, Croatia, Czechia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom (UK).
- Country readiness to eliminate cervical and prevent other HPV-related cancers is assessed across three different domains (Figure 1) to align with the WHO and EU Commission strategies. Within each domain, countries were assessed on a decision making and implementation level:
  - The decision making subdomain encompasses the process of generating recommendations to ensure vaccine, screening and treatment availability and accessibility (e.g., availability of vaccination and screening targets and registries).
  - The implementation subdomain is defined as the process of proceeding with recommendations, including vaccine introduction and sustainability (e.g., vaccination setting and coverage rates).

Figure 1. Scoring framework structure



- The grouping of key elements and point scoring aligns with previously published frameworks, such as Pham et al. 2023.(9) The structure of the scoring system was similarly aligned:

Scoring (points): *
0 = No data available
1 = Data are partially available
2 = Data are fully available

*For some questions, up to 3 points were available to suit the data thresholds.

Results

- A geographical overview of country specific scores overall and for all three domains are presented in Figure 2.
- Based on the overall percentage score, 27 countries were tiered in the moderate-high readiness tier or higher. In contrast, four countries fell into the moderate-low, although no country ended up in the low readiness tier.
- Scoring results showed that Southern European countries such as Romania, Greece, Cyprus and Bulgaria scored the lowest, while Northern European countries such as Sweden, Ireland and the UK achieved the highest scores.
- Across the three domains, countries generally scored lower in the screening domain. In addition, across the vaccination and screening domains, countries generally scored lower in the implementation subdomain compared to the decision making subdomain, which was not the case for the treatment domain (Figure 3 and Figure 4).

Figure 2. Overall scores by country and domains

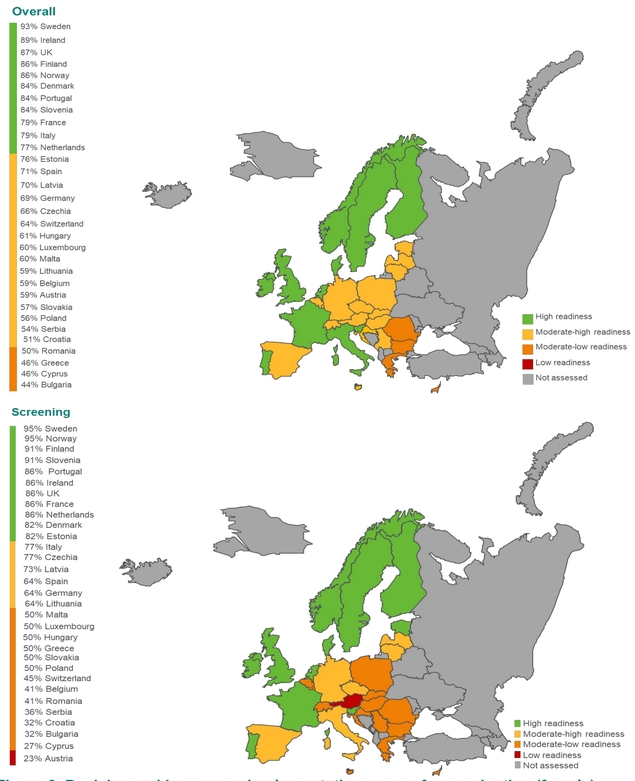
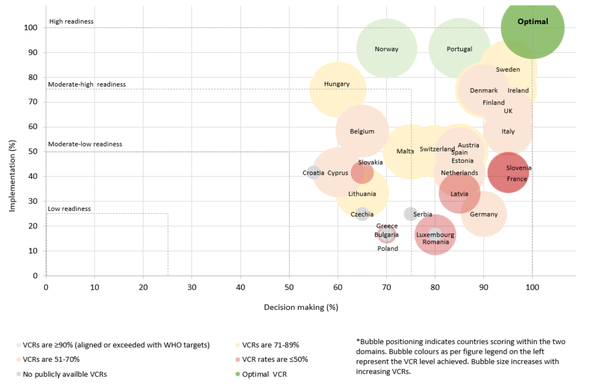


Figure 3. Decision making versus implementation scores for vaccination (female)



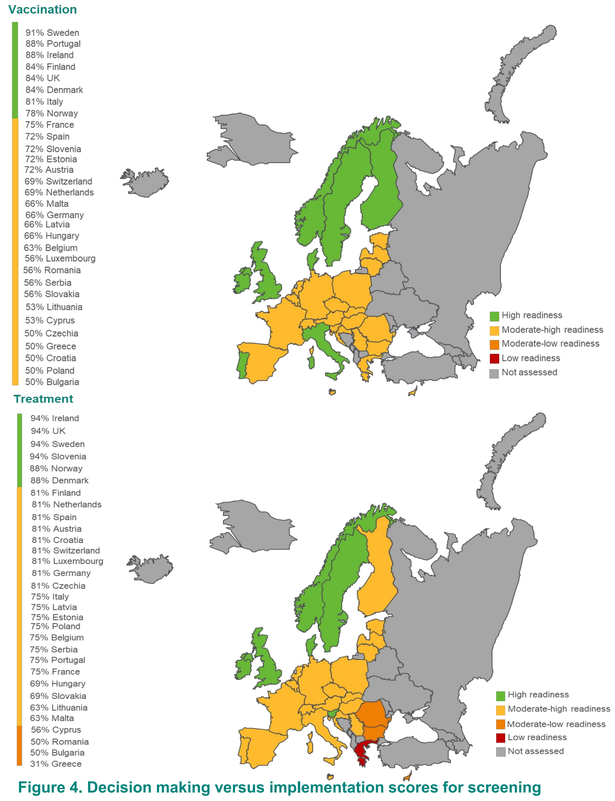
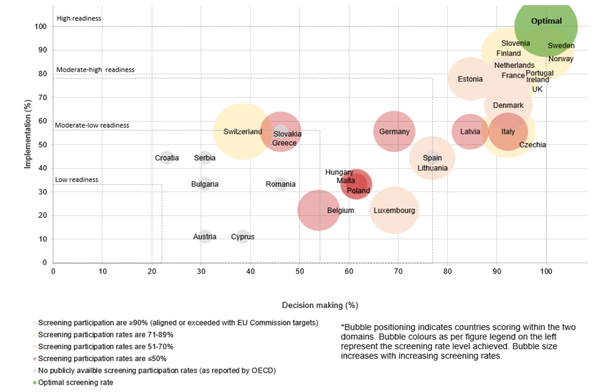


Figure 4. Decision making versus implementation scores for screening



Key considerations

- To achieve cervical cancer elimination, decision makers should consider implementing key parameters that will broaden access and improve adherence to vaccination and screening programmes, including:
  - Mobilising healthcare professionals to proactively address the importance of vaccination and screening, improving vaccination settings within schools, pharmacies or other easily accessible facilities to increase vaccine coverage rates, gender-neutral access to vaccines, availability of catch-up cohort vaccinations, organised screening programmes, self-sampling screening and use of HPV DNA screening tests.
- In addition to maintaining well-established vaccination, screening, and treatment programmes, accurate data collection and surveillance is necessary to track and improve country progress. Countries should:
  - Have population-based registries for data surveillance in place, as well as willingness to ensure data are publicly accessible and up to date.
- The vaccination domain is the key domain due to the importance of preventing HPV-related disease(s) and cancer(s) in both males and females. Following vaccination, the screening domain was deemed important as early detection is key for a successful cancer treatment.
- Since HPV infection does not just increases the risk for cervical cancer, but also for other cancer types, this framework may be adapted to assess countries readiness towards the elimination of other HPV-related cancers and diseases.

Conclusions

- The assessment of countries' readiness to achieve cervical cancer elimination based on their policies as well as efforts and implementation progress, is an important step in driving countries achievements further and improve the public health in Europe.
- Results of this framework showed that countries, with effective multi-pronged interventions and solid data, such as Sweden, Ireland the UK and are on a good path towards cervical cancer elimination, while other countries show room for growth in certain areas such as overall data availability, VCRs for girls and boys or existence of national immunisation and screening registries.
- Visualised findings might prompt discussion and a call for action, while helping countries to improve in highlighted areas.

Funding:This work was funded by Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA.

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Presented at ISPOR Europe; Barcelona, Spain; 17-20 November 2024.