

**HPV vaccination and HPV-related malignancies: impact, strategies and optimizations toward global immunization coverage**

**Abstract**

1. HPV-related diseases represent a major cause of morbidity and mortality, although effective HPV vaccines are available, potentially allowing for the elimination of these malignancies. Historically, most of the available literature has focused on cervical cancer, the fourth commonest cause of cancer-related death worldwide, whose incidence is heterogeneous mirroring the inequitable distribution of facilities for screening and treatment and vaccination programs. A broader vision of HPV vaccination impact is needed to understand the potential effect of a global high immunization coverage on both cervical cancer and other HPV-associated malignancies, in women and men. Five HPV vaccines are currently available, all inducing antibody response against the most frequent high-risk HPV types (HPV16 and 18). They are safe and strongly reduce the incidence of HPV-related diseases in clinical trials and in real-world studies, among both women and men. Therefore, WHO has set an ambitious goal for the global elimination of cervical cancer. The WHO global strategy has been launched to accomplish this goal and is supported by multiple organizations, governments, and donors, aiming at vaccinating 90% of young girls worldwide by 2030. In this setting, it is vital to optimize vaccination programs, with a focus on delivery approaches, target populations, increasing financial support, and awareness. In conclusion, HPV vaccination is safe and effective and can lead to the first case of cancer elimination worldwide. A sustained joint effort is fundamental for this goal to be reached, with optimization of this strategy and adaptation of vaccination programs to country-specific infrastructure.

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