



Human Papillomavirus and its Significance in the Development of Cervical Cancer and Importance of Vaccination

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DESCRIPTION

Human Papillomavirus (HPV) is the most common sexually transmitted infection worldwide, with a significant impact on public health due to its association with various cancers, including cervical cancer. Despite being preventable, cervical cancer remains a leading cause of cancer-related deaths among women in many parts of the world, particularly in low- and middle-income countries. The role of HPV in cervical cancer, the importance of vaccination and screening in prevention efforts, and the global initiatives aimed at reducing the burden of cervical cancer.

HPV is a group of over 200 related viruses, of which approximately 40 are sexually transmitted. HPV infections are highly prevalent, with nearly all sexually active individuals being exposed to the virus at some point in their lives. While most HPV infections are transient and asymptomatic, persistent infection with high-risk HPV types, particularly HPV-16 and HPV-18, can lead to the development of cervical cancer and other anogenital cancers, as well as oropharyngeal cancers. Vaccination against HPV represents a powerful primary prevention strategy to reduce the incidence of cervical cancer and other HPV-related cancers. HPV vaccines are highly effective in preventing infection with the most common high-risk HPV types responsible for cervical cancer. Currently available HPV vaccines target either two high-risk HPV types (HPV-16 and HPV-18) or four HPV types (HPV-6, HPV-11, HPV-16, and HPV-18). Vaccination is recommended for both boys and girls before they become sexually active, typically between the ages of 9 and 14, to maximize the benefits of immunization.

HPV vaccination is a crucial preventive measure, cervical cancer screening remains essential for early detection and treatment of pre-cancerous lesions. Pap smear (Papanicolaou test) and HPV DNA testing are the two primary screening methods used to detect cervical abnormalities. Pap smear involves collecting cells

from the cervix and examining them under a microscope for signs of dysplasia or malignancy. HPV DNA testing detects the presence of high-risk HPV types in cervical cells, identifying women at increased risk of developing cervical cancer. Screening guidelines vary by country, but regular screening is recommended for all women starting at age 21 or 25 and continuing until age 65 or 70.

Despite the availability of effective vaccines and screening methods, disparities in access to cervical cancer prevention services persist, particularly in low-resource settings. To address this gap, numerous global initiatives and partnerships have been established to increase access to HPV vaccination and cervical cancer screening in underserved populations. The World Health Organization (WHO) launched the Global Strategy to Accelerate the Elimination of Cervical Cancer in 2020, with the goal of achieving 90% HPV vaccination coverage and 70% cervical cancer screening coverage by 2030. Despite significant progress in HPV vaccination and cervical cancer screening, several challenges remain in achieving global cervical cancer prevention goals. These challenges include vaccine hesitancy, limited access to healthcare services, inadequate infrastructure, and cultural and social barriers to seeking care. Addressing these challenges requires a multifaceted approach involving political commitment, health system strengthening, community engagement, and advocacy efforts to raise awareness about the importance of cervical cancer prevention.

By increasing access to vaccination and screening services, particularly in underserved populations, we can make significant strides towards eliminating cervical cancer as a public health threat. As we continue to advance in our understanding of HPV and cervical cancer prevention, it is essential to prioritize equitable access to preventive interventions and to work collaboratively towards achieving global cervical cancer elimination.

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