Chapter 4

HUMAN PAPILLOMAVIRUS VACCINES: WHO, WHEN, WHY?

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Human papillomaviruses (HPVs) are a highly heterogeneous group of viruses with 206 recognized types today **(Maver & Poljak, 2018).** HPVs play an major role in the ethiopathogenesis of various neoplastic and precancerous lesions in humans. Low risk HPV types (HPV-6, HPV-11), cause genital warts and laryngeal papillomas. HPV-16 and HPV-18 are the most important variants among the high-risk HPV types and play a role in the development of cervical, anal, penile, vaginal, vulvar cancer **(Maver & Poljak, 2018).**

HPV infections are the most common sexually transmitted infections worldwide. **(Burchell, Winer, de Sanjose, & Franco, 2006).** The rates of genital HPV transmission are highest among sexually active women under the age of 30.The estimations for cumulative incidence are 30% in the first year and up to 50% three years after initiation of vaginal intercourse **(Winer et al., 2008)**.Although the prevalence of HPV infection peaks just under 25 years of age, the prevalence in some regions has a other peak above 45 years of age **(Bruni et al., 2010).** There is no specific treatment for HPV today, but cryotherapy, LEEP (loop electrosurgical excision procedure) and cold knife cone biopsy are some treatment options for HPV-induced anogenital lesions.

VACCINES AND SAFETY

Three vaccines to prevent HPV infection approved by the U.S. Food and Drug Administration (FDA); a nonavalent HPV-6/-11/-16/-18/-31/-33/-45/-52/-58 (9vHPV) vaccine, Gardasil9 (Merck & Co.), a quadrivalent HPV-6/-11/-16/-18 (4vHPV) vaccine, Gardasil/Silgard (Merck & Co., USA/Sanofi Pasteur MSD, France); and a bivalent HPV-16/-18 (2vHPV) vaccine, Cervarix (GlaxoSmith-Kline Biologicals, Belgium). The FDA licensed the 9v HPV vaccine in December 2014. The Advisory Committee on Immunization Practices has recommended similar schedules for all three vaccines. When the vaccinations of approximately 14,000 women between 16 and 26 years of age were examined, the Gardasil9

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