Summary of the WHO Position Paper on Vaccines against Human Papillomavirus (HPV)

This position paper published in 2014 replaces the corresponding document published in April 2009. It focuses primarily on the prevention of cervical cancer, but also considers the broader spectrum of cancers and other diseases preventable by HPV vaccination. The main difference from the previous paper concerns the number of doses of vaccine recommended for different age groups.

Epidemiology and Virology:
Persistent infection by oncogenic HPV types is a prerequisite for the development of cervical cancer, which each year hits about 528000 women and causes 266000 deaths worldwide. The viral types 16 and 18 are the most common types in invasive cervical cancer, accounting for about 70% of all cervical cancers. Other manifestations of HPV infection include vaginal, vulvar, penile, oropharyngeal and anal cancers. In addition, HPV types 6 and 11 cause anogenital warts and recurrent respiratory papillomatosis. HPV is mainly transmitted sexually. Cervical cancer occurs only in a small fraction of those infected and takes a decade or more to develop. Most victims of HPV induced pathology are found among adult women in low-resource settings, as greater than 80% of cervical cancer cases occur in the less developed regions and mortality rates vary as much as 18-fold between industrialized and developing countries. Properly implemented screening programmes contribute to the low mortality observed in some countries.

Vaccinology:
Two HPV vaccines are available, quadrivalent and bivalent, both based on non-infectious virus-like particles (VLPs) developed through recombinant DNA technologies. The quadrivalent vaccine contains VLPs for HPV types 6, 11, 16 and 18, whereas the bivalent vaccine targets exclusively HPV type 16 and 18. Both the quadrivalent and bivalent HPV vaccines have an excellent safety profile and efficacy against precancerous lesions and other anogenital pathology caused by the respective vaccine-related HPV-types. Protection against infection and cervical lesions associated with HPV16/18 has been demonstrated for at least 8 years for both vaccines. Data on efficacy for prevention of cervical cancer are pending, but the consistency of these observations strongly suggests that similar high rates of protection can be expected also against cervical cancer.

By August 2014, 58 countries (30%) had introduced HPV vaccine in their national immunization programme for girls.

Recommendations:
WHO recommends that HPV vaccination should be introduced into national immunization programmes where
i) prevention of cervical cancer and/or other HPV-related disease is a public health priority
ii) the introduction is programmatically feasible and economically sustainable, and
where
iii) cost-effectiveness aspects have been duly considered.

As HPV vaccines are most efficacious in females who are naïve to vaccine-related HPV types, HPV-immunization programmes should initially prioritize high coverage in the primary target population of girls aged 9-13 years. Where possible, such programmes should be part of a coordinated strategy that includes education about risk behaviours for HPV infection,
information on the continued value of screening programmes for cervical cancer, and training of health care workers. HPV vaccination of males is not recommended as a priority, especially in resource-constrained settings, as the available evidence indicates that the first priority should be for cervical cancer reduction by timely vaccination of young females and high coverage with each dose.

For both the bivalent and quadrivalent HPV vaccines, a 2-dose schedule with a 6-month interval between doses is now recommended for females younger than 15 years, including females 15 years or older at the time of the second dose. There is no maximum recommended interval between doses. However, an interval no greater than 12–15 months is suggested in order to complete the schedule promptly and before becoming sexually active. If the interval between doses is shorter than 5 months, a third dose should be given at least 6 months after the first dose. A 3-dose schedule (0, 1–2, 6 months) is recommended for females aged 15 years and older, and for those known to be immunocompromised and/or HIV-infected (regardless of whether they are receiving ART). It is not necessary to screen for HPV infection or HIV infection prior to HPV vaccination. The need for a booster dose has not been established.