# GYNAECOLOGY & OBSTETRICS UPDATE

**Issue 56** | **April, 2007**



## Author

***T.M.Malak***

**MB, BCh., M.Sc., Ph.D., DFFP, MRCOG, FRCOG**

**Consultant Obstetrician Gynaecologist & Urogynaecologist**

**Address**
**Esperance Private Hospital**
**Eastbourne**
**Tel: 01323 414816/ 410717/ 410929**
**Fax: 01323 730313**

**Web address**
**For Professionals**
**MarkMalak.com**
**For Patients**
**MrMalak.com**
**Finalist**

HOSPITAL DOCTOR AWARD 2005


# *Vaccination against Cervical Cancer*

One of the most important developments in cancer biology over the past 25 years has been the evidence that infection with Human Papilloma Viruses (HPVs) in the lower genital tract is the cause of virtually all cases of cervical carcinoma and a smaller percentage of vulvar and vaginal cancers. These cancers are preceded with pre-malignant lesions called **Intraepithelial Neoplasm** (Cervical**: CIN–** Vaginal: **VaIN,** Vulvar**: VIN)** which are further classified to **1,2 & 3** according to the severity.

**HPVs Types**: About 100 types. They are either low-risk, non-oncogenic: types 6, 11 and their relatives, which cause genital warts and are rarely detected in cancer; or high-risk oncogenic: types 16, 18, 31, 33, 35, 45, 52 and 56, plus 8 minor types. These can be detected in almost 100% of cervical cancer biopsies and more than 90% of CIN 2/3. Genital HPV infection is sexually transmitted

**Genital HPV Infection: Prevalence and Natural History**: At least 80% of sexually active females will have acquired the infection by the age of 50. 90% of infections clear within 2 years and women are unlikely to become re-infected by the same type. The overall prevalence is 27% at age 14-59 but increase from 14 to 24 followed by a gradual decline. HPV types 6/11/16 & 18 are detected in 3.4% but are responsible for 70% of CIN3 and cervical cancer, 50% of CIN1/2 and 90% of genital warts

**HPV Vaccines and their effectiveness:** Two have been developed: Cervarix® against HPV types 16 & 18 and Gardasil® against HPV types 6/11/16 &18. Gardasil® has European license and is available in the UK. **The efficacy of the Gardasil® against**:

* HPV 16/18– related CIN2/3, VIN2/3 and VaIN2/3 was **100%**,
* HPV 6/11/16/18-related CIN1/2/3 was **95%** and
* HPV 6/11/16/18-related genital warts was **99%**.

**Why CIN 2/3 is used as an endpoint to establish the efficacy of the vaccine to prevent cervical cancer**: It will take 20 years for a large population to demonstrate a reduction in the cancer. The trials will be prohibitively expensive. Furthermore epidemiological and scientific studies have established beyond reasonable doubt the causal link between HPV infection and CIN3 that lead to cervical cancer.

**Is there any cross-protection against other types, or are the vaccine antibody responses absolutely type-specific?** HPV 16/18 vaccines are partially protected against incident infection with HPV 31 and 45 which are also linked to cervical cancer. However cross-protection is only partial, not complete, and second-generation HPV vaccines will need to include other HPV types.

**Vaccine Schedule, duration for protection and Safety :** Protection against the four HPV types lasts for 5 years on completion of three 0.5ml IM doses, given at 0, 2 and 6 months. The need for booster doses will only become apparent after long follow-ups. The vaccine is not live with mild adverse effects as local soreness at the vaccination site and occasional allergic reactions such as hives or urticaria

**At what age should the females be immunized?** The vaccine is not effective in individuals with established genital HPV infection. Therefore it should be given to females before they become sexually active or become infected. The trials proved the vaccine effectiveness in women aged 16-26 and even better antibody response was detected in girls aged 9-15. The vaccine is therefore licensed for female aged 9-26. No trials were done in children below the age of 9 due to the problems with consent, dosages and the greater vulnerability of immature organs

**Should boys be vaccinated**? Including boys is logically important for the development of group immunity but male disease is rare. There is currently only limited studies of the effectiveness of the vaccine in boys or men. Therefore male immunization is not currently recommended

**Will these vaccines eliminate the need for cervical cancer screening programmes?**

**From the above information the answer is:** ***Absolutely not***

1. HPV types against which the vaccine is effective is responsible of only 70% of the cervical cancer/ CIN3 cases. A vaccine which is effective against all HPV types that cause cancer is not yet available
2. Cross-protection against other high risk types is only partial
3. The vaccine is unlikely to benefit women who have already been exposed to HPV infection
4. The vaccine effectiveness in treating CIN has been disappointing (***it is not a Therapeutic vaccine***)

## Reference


*RECOG 2007 SAC Opinion Paper Number 9*

*JAMA 2007;297:813-819*

*Lancet 2006; 367: 1247-55*

*Vaccine 2006; 24: 5571-83*





Happy Easter