

Question and Answers:

New research on HPV: HPV infections will plummet by 2010

The number of new human papillomavirus (HPV) infections in Australian females is expected to more than halve by 2010 and fall by 92 per cent by 2050, thanks to extensive HPV vaccination, according to a new study by Cancer Council.

The Cancer Council and National Centre for Immunisation Research and Surveillance et al published a study called "The predicted impact of vaccination on human papillomavirus infections in Australia" in International Journal of Cancer on July 2008.¹

What did the researchers find?

- The researchers estimated the reduction in HPV infections that is expected to take place in both the short and long term. They did this using a computer simulation, which used information on the number of girls and women who have been vaccinated through the National HPV Program, sexual behaviour patterns in our community and research highlighting the effectiveness of the HPV vaccination.
- They found that the number of new HPV infections is expected to more than halve by 2010, with a 56% decrease expected. By the year 2050, infections will have dropped by more than 90%, thanks to the impact of the National HPV Vaccination Programme.

What is modelling? How does it work?

- Modelling is a computer simulation of future outcomes, using the information we have today.
- For example this research used information on sexual behaviour in our community to predict the transmission of the HPV virus and then the long-term reduction of transmission due to vaccination.

How do you know the findings are reliable?

- To increase the reliability of their findings, the researchers checked that their conclusions were not substantially impacted by variations in state vaccination delivery schedules, the duration of HPV infections, or of girls' immune response to HPV.
- Also, they checked their current predictions for the number of HPV infections in Australia against data on infections in women of different ages.

How safe is the vaccine? Are there any side effects?

- No vaccine is completely without side effects, but the diseases they prevent are far more harmful than the effects that can sometimes follow immunisation.
- The great majority of side effects are mild and common problems such as soreness, swelling, redness or other reaction at the injection site.
- Over 26 million doses of the HPV vaccine have been distributed worldwide and the overall level of side effects is very low.

- The overall level of reporting for the vaccine, following the distribution of approximately 3.7 million doses in Australia, is very low and consistent with that for other new vaccines and rates reported from other countries.
- Adverse events following immunisations are carefully monitored in Australia and regularly reviewed by expert advisory groups.
- The product information for the vaccine has been updated since it was first marketed to reflect the accumulating clinical experience, but neither Australia's TGA nor other regulatory agencies have considered any further regulatory action is required at this time.

Source: www.tga.gov.au/alerts/medicines/gardasil.htm

Should women over 26 years of age be vaccinated?

- Although it's best to be vaccinated before you've been sexually active, the vaccine may still offer some protection.
- This is because you don't know which types of HPV you have been exposed to, and so you can still be protected against the types you have not yet acquired.
- However, whether vaccinated or not, it's still critically important to have regular Pap tests. All women between the ages of 18 and 70 who have ever had sex should have a Pap test regularly, because this can detect any abnormal cell changes in the cervix brought about by strains of HPV not covered by the vaccine.

Should women have Pap smears after vaccination against HPV?

- Yes. The HPV vaccine does not protect against all HPV types that can cause cervical cancer. All females, whether vaccinated against HPV or not, should have regular Pap smears as recommended.
- The current recommendations are that women should have a Pap smear every two years from the age of 18 or two years after having sex, whichever is later.
- Regular Pap smears are still essential because the HPV vaccine does not prevent all cervical cancers. Pap smears detect abnormal changes to cells in the cervix so treatment can start before cancer develops.

What is cervical cancer?

- Cervical cancer is a disease where abnormal cells grow in the cervix. The cancer may spread throughout the body.
- Cervical cancer is not common in Australia, because of the success of the National Cervical Screening Program. However, over two hundred women die each year in Australia from cervical cancer.

What is HPV (human papillomavirus)?

- Human papillomavirus (HPV) is the name for a group of viruses that cause skin warts, genital warts and some cancers.
- Human papillomaviruses (HPV) are the major cause of cervical cancer. These are a group of over 100 different viruses, some of which are more likely to lead to the development of cancer than others. It's estimated up to four out of five women will have HPV at some time in their lives, usually without knowing it.

- Many different types of HPV can affect different parts of the body. Some of these types can infect the genital area. Warts on other parts of the body, such as the hands, are caused by different HPV types.
- HPV types that can cause genital warts or cervical cancer can be spread by direct, skin-to-skin contact during all types of sexual activity with a person who has the virus.
- Anyone who has ever had sexual contact could have HPV – it is so common that 4 in 5 people will have had a genital HPV infection at some time in their lives. Most genital infections with HPV do not cause any symptoms and people do not know they have the infection.

What is the cervical cancer vaccine?

- The cervical cancer vaccine (Gardasil or Cervarix) protects against two of the types of HPV that have been found to cause cancer (the two types that the vaccine protects against are types 16 and 18).
- These two types are responsible for the majority of cervical cancers - between 70 and 80 per cent of cases in Australia and New Zealand.

What is the link between HPV and cervical cancer?

- Certain strains of HPV can actually cause the cervical cell changes that may lead to cervical cancer.
- Most women who have HPV slowly clear the virus naturally and do not develop cervical cancer.
- However, in some cases, cervical cancer can develop, usually over a period of more than ten years.
- Immunising women against these strains of HPV can protect women from contracting the viruses that cause most cervical cancer.

How long have we known about the link between HPV and cervical cancer?

- The relationships between certain strains of HPV and cervical cancer have been understood for some years. The HPV vaccine is the culmination of research conducted over the last decade.
- The vaccine is a breakthrough that can help to protect women from infection by certain strains of the HPV virus that are linked with 70% of cervical cancers.

Can HPV infection be treated?

- No. Treatments are only available for the effects of the virus, such as genital warts and abnormal changes to cells in the cervix.

Can HPV infection be prevented? Which strains of the HPV virus does the vaccine immunise against?

- The HPV vaccine can prevent infection with two types of cancer-causing HPV types. These two types cause 7 out of 10 cervical cancers.
- One of the vaccines also protects against another two types which cause 9 out of 10 cases of genital warts.

- If a girl has had sexual contact then she may have been infected with some of these HPV types. If she has already been infected with any of these four HPV types, her protection against cervical cancer and/or genital warts after vaccination may be reduced.
- The HPV vaccine cannot protect females against cervical cancer and genital warts caused by other HPV types that are not in the vaccine.
- Regular Pap smears are still essential because the HPV vaccine does not prevent all cervical cancers.

For further information on the National HPV Vaccination Program, refer to the program website at <http://www.health.gov.au/cervicalcancer>. Some of these Q&As have been adapted from the National HPV Program website.

ⁱ Megan A. Smith, Karen Canfell, Julia Brotherton, Jie-Bin Lew and Ruanne V Barnabas, "The predicted impact of vaccination on human papillomavirus infections in Australia," International Journal of Cancer, July 2008.