

Author: Mark Suojanen

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Abstract: Gardasil has been demonstrated to be a safe and effective vaccine to confer immunogenicity to young men but is awaiting approval by the U.S. FDA.

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## HPV Vaccination For Boys

### What is HPV

- HPV is human papillomavirus, a virus that infects the skin and mucous membranes.
- There are over 130 HPV types.
- Certain HPV types can cause common warts other types genital warts (Condyloma acuminata), and some types can lead to cancers of the cervix in women and cancer of the penis in men and anal cancer in both sexes.

### How is HPV Transmitted

- HPV is transmitted primarily by skin to skin contact
- HPV infection occurs when the virus enters your body through cuts or abrasions in the skin.
- The HPV types that cause genital warts and the types that can lead to cancer are spread via sexual intercourse, anal intercourse and other skin to skin contact in the genital region.

### Symptoms of HPV Infection

- Often there are no symptoms but it is still possible to pass the virus to others or develop symptoms at a later time.
- Symptoms of genital warts are: small bumps that are flat or may be raised and cauliflower-like in appearance. Genital warts are caused primarily by HPV types 6 and 11 and these types are rarely associated with malignant lesions.
- Precancerous lesions are caused by HPV types 6, 11, 16, and 18. In women these are screened for with PAP smears as these can lead to cancer (usually types 16 and 18). Men may develop cancers of the genital region but their risk of cancer is much less than that of women.

### Treatment of HPV

- There is no cure for HPV infection.
- Genital warts may be removed surgically, with lasers, by freezing or with certain topical medications but this does not eliminate the virus and the warts may return.
- Premalignant and Malignant lesions are also removed via the above methods but if they have advanced to cancer it will require more invasive measures that can include major surgery and chemotherapy.



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### Prevention

- HPV Infection can be prevented by:
  - Limiting number of sexual partners.
  - Using condoms during sex.
  - Being in a mutual monogamous sexual relationship.
  - HPV vaccination.

### Gardasil

- Gardasil is a vaccine for HPV types 6, 11, 16, and 18.
- Types 6 and 11 cause 90% of genital warts.
- Types 16 and 18 lead to 70% of cervical cancers.
- This vaccine is currently approved for vaccinating girls and women from ages 9 to 26 years.

### Effectiveness of Gardasil

- This vaccine has been demonstrated to be safe and to confer immunogenicity in BOTH female and male recipients.
- Studies have shown that the vaccine has been effective in preventing the development of genital warts and premalignant and malignant lesions in female recipients.
- Studies have also been conducted to test the effectiveness in male recipients and demonstrate similar effectiveness to that seen in female recipients but the studies are not complete.
- As of now the U.S. FDA has not approved vaccination for men and boys but this is likely to change in the near future.

### Side effects

- The side effects of this vaccine are usually mild and limited but can include:
  - Pain, swelling and redness at the injection site.
  - Headache
  - Fever
  - Nausea
  - Dizziness
  - Vomiting

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