



## Maryland Chapter

### **The HPV Series: Human Papillomavirus (HPV) and Other Cancers Issue 4: April 14th, 2014**

*Through financial support from The Department of Health and Mental Health (DHMH) it is our pleasure to share with you a series dedicated to the HPV vaccine in the pediatric setting. Each issue will present a literature review for the provider with questions and answers on key issues for parents and caretakers. The AAP and CDC have both recommended vaccination starting at eleven to twelve years of age for both boys and girls; however, the vaccine still remains poorly utilized.<sup>1</sup>*

The last issue of the HPV series specifically focused on the role of HPV in cervical cancer. This article will review the more recent studies about the role of HPV in other cancers.

Given that HPV contains oncogenes known to cause cells to divide rapidly, the role of HPV in other cancers has been a subject of great investigation. The Centers for Disease Control has organized most of this research and estimates that in addition to the 11,070 cases of cervical cancer each year which result in almost four thousand deaths, 26,000 cases of cancer each year are caused by HPV. Of these cases 21,000 are attributable to HPV type 16 and 18. These are the two strains found in the HPV vaccines Cervarix and Gardasil. (1)(2)

A recent review article has covered the link of HPV in many cancers and shows that HPV can be found in:

- 60–65% of vaginal cancers.
- 20–50% in vulvar cancers.
- 30% of penile cancers
- 95% and 83% of cancers involving the anal canal in women and men.
- 23.5% and 35.6% for cancers of the oral cavity and oro-pharyngeal cancers. (3)

The self-reported limitations of these studies are that “With respect to squamous cell cancers of the vulva and vagina, penile cancer, and anal cancer, the relative risk associated with HPV infection is difficult to quantify, because of the small size of most studies, and the absence of comparable measurements of prevalence of infection in normal subjects.” Most previous studies have linked HPV to cancer by assessing for HPV DNA identified by PCR. This does not differentiate between those cancers cause by HPV and those where HPV could have otherwise occurred. A more specific indication would include looking for two key proteins E6 and E7 which are used in the virus lifecycle and are oncogenic.(3)

**HPV vaccines will continue to be improved by inclusion of additional strains. Merck has recently published a phase 3 clinical trial on the replacement of Gardasil which is still known as “V-503” this vaccine would additionally cover other risk HPV strains 31, 33, 45, 52, and 58.**

The next issue of the HPV series will focus on the role of HPV in causing genital warts. Two strains cause up to 90% of all genital warts. Genital warts have been seen in up to 1% of the total population.

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<sup>1</sup> The Author: Theodore Wilson MD is working with the Maryland AAP chapter. He has no financial conflicts of interest or investments in any products discussed. Reproduction is permitted.



This can be printed as a hand-out for parents to answer their questions.

### **The HPV Series: Family questions about (HPV) and other cancers**

#### **What can an infection with HPV look like?**

Most infections with HPV are silent meaning that they have no symptoms. Many of these infections spread by being silent and are easily transmitted.

#### **What other cancers can be caused by HPV?**

Cancers in the mouth, throat, anus and penis have been linked to HPV. HPV is a virus that encourages cell to multiply quickly which is how these cancers often begin.

#### **What is the best way to protect against these other cancers?**

A healthy lifestyle is one of the best ways to protect against these cancers. HPV is a risk factor for throat cancer though additional risk factors such as tobacco or alcohol use have also been linked to mouth and throat cancer.

#### **What is the ideal age to prevent these cancers?**

The HPV vaccine is still recommended at 11 to 12 years of age even for those patients who have only started to mature. The recommendations are in place so that individuals will receive all 3 boosters several years before that teen might have sex.

*References:*

- 1) CDC Pink Book "Human Papillomavirus Epidemiology and Prevention of Vaccine-Preventable Diseases" The Pink Book: - 12th Edition Second Printing (May 2012) (Additionally, source of image 1 CDC Public Domain) <http://www.cdc.gov/vaccines/pubs/pinkbook/hpv.html>
- 2) Saraiya et al. CDC Grand Rounds "Public Health Importance of Human Papillomavirus Infection and Disease" February 2013 <http://www.cdc.gov/about/grand-rounds/archives/2013/february2013.htm>
- 3) Parkin et al "The Burden of HPV Related Cancers" Vaccine 24S3 (2006) S3/11–S3/25 [http://www.hu.ufsc.br/projeto\\_hpv/CAP%202%20-%20GASTOS%20DCA%20HPV.pdf](http://www.hu.ufsc.br/projeto_hpv/CAP%202%20-%20GASTOS%20DCA%20HPV.pdf)
- 4) Root, Cyndi "FDA to Review Merck's V503 HPV vaccine" Pharmaceutical Online, Published Online Feb 25 2014 accessed 3/17/2014 <http://www.pharmaceuticalonline.com/doc/fda-to-review-merck-s-v-hpv-vaccine-0001>