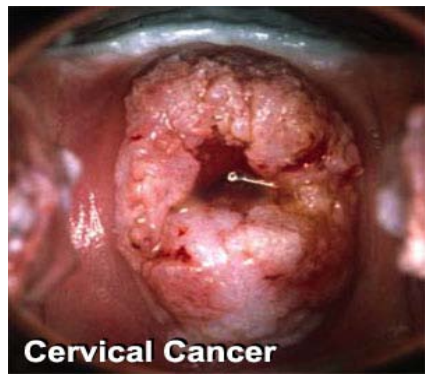
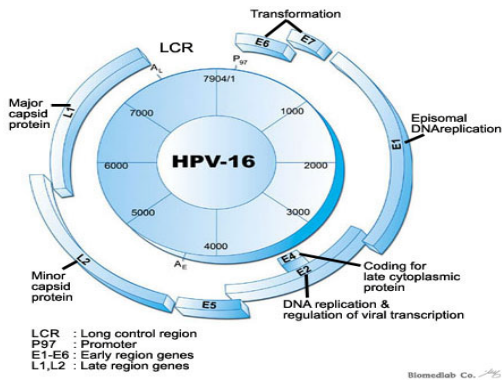


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Human Papillomavirus HPV

GARDASIL™
[Quadrivalent Human Papillomavirus
(Types 6, 11, 16, 18) Recombinant Vaccine]

Cervarix™
Human Papillomavirus Vaccine Types 16 and 18
(Recombinant, AS04 adjuvanted)

Introduction

The topic I chose to do fact sheet on for Public Health my 201, Wellness, was Human Papillomavirus, commonly known as HPV. I just recently found out about HPV through my gynecologist about two to five years ago during my yearly check-up exam. My gynecologist informed me that young teenagers and women are very susceptible to getting HPV and she recommended Gardasil. I chose to do research on Human Papillomavirus because if I decide to actually receive the Gardasil vaccination, I want to know what it is for exactly, and why it is highly recommended. Since it is highly recommended to protect against HPV, I wanted to research what HPV is, how it is transferred from person to person, and am I at high risk of being infected with it. Since I have so many unanswered questions about HPV I want to find out more and answer those questions before I make any decisions on protecting myself against it.

Section 1: Background and Problem Statement

Web Site #1 Name: American Social Health Association

Web Address: http://www.ashastd.org/hpv/hpv_learn_background.cfm

Background Information:

Unfortunately, Healthy People 2010, did not carry information on Human Papillomavirus, commonly known as HPV, but luckily there are many different organizations and Web sites that have researched HPV and are able to provide people with answers to their questions. The American Social Health Association Web site has a HPV and Cervical Cancer Resource Center, which provides the answers to many questions and lets those who are interested learn about HPV. HPV is a sexually transmitted disease, where certain types of HPV can cause cervical cancer, which is why regular testing and screening for HPV and all other STDs is necessary. In the United States alone, it has been estimated that 20 million people are right now infected with the Human Papillomavirus (Paragraph 2). HPV has been shown to be spread through genital contact, and although women are more likely to be infected, men still need to be concerned. Anyone who has ever had a sexual encounter can be easily infected. One major concern is that all research linking HPV to cervical cancer is fairly new, and the public is puzzled as to the proper treatment and prevention. Sadly, many Americans have no idea what is linked to cervical cancer, and 76% of American women had never even heard of HPV (Paragraph 3). This may be due to the fact that there is still a lot of confusion on HPV and unfortunately prevention and resource centers for HPV are poorly funded.

Web Site #2 Name: The Henry J. Kaiser Family Foundation

Web Address: http://www.kaiseredu.org/topics_im.asp?parentID=72&imID=1&id=609

Background Information:

The Henry J. Kaiser Family Web site is an online health policy resource foundation where anyone interested in the health policy and information of a disease can be easily found. It provided a large amount of background information on Human Papillomavirus, or HPV. Human Papillomavirus is the most common sexual transmitted disease among sexually active people. Although it is a sexually transmitted disease, many people think that if they don't engage in

intercourse they are safe, but with HPV, it can be transmitted without engaging in intercourse and just in genital contact alone. Each year there are approximately 6.2 million people diagnosed with the virus. A major concern associated with HPV is that there are 100 different forms and types, and over 20 different types are known to be associated with cervical cancer. In the information found using The Henry J. Kaiser Family Foundation Web site, there has been a recent vaccination developed by Merck, known as Gardasil.

Gardasil is a vaccination that is given to young girls around the ages of eleven and twelve to protect them against the types of HPV that can cause cervical cancer in older females. Due to the fact that Gardasil is a recently new drug, many people aren't sure about the effects or how well the drug will actually protect someone from getting cervical cancer. One thing about Gardasil that most people do not know is that it is not a onetime vaccination. It has to be given in three different doses over a six-month period. There hasn't been enough research to show exactly how long the vaccine protects those that have received it, but with the little amount of research done, it has shown an effectiveness of about five years. So, not only do these vaccinations have to occur in three doses over a six-month period, patients who have received the vaccination need to continuously come back every five years to receive the three doses Gardasil. Since Gardasil is a new found drug, there is no law that mandates that people receive the vaccination. Many health researchers do believe that the vaccination will do no harm and it can help reduce the amount of deaths due to cervical cancer caused by a type of HPV. (Paragraphs 6-9)

Web Site #3 Name: GlaxoSmithKline

Web Address:

<http://www.gsk.com.au/resources.ashx/MediaCentreChildDataAssociatedDownloads/97/File/B0A830497CB9C42F23E16C8CA1B2C8D1/CervicalCancerHPVandPapSmears.pdf>

Background Information:

GlaxoSmithKline is a Web site with a mission to improve the quality of human life by enabling people to do more, feel better about themselves, and act freely. The resources found on the GlaxoSmithKline provide the general public with a lot of facts and background information about Human Papillomavirus, HPV that most people have no clue about. HPV most definitely plays a gender role, because it generally affects more women than it does men. In today's population roughly 50%-80% of women that engage in any form of sexual activity, not necessarily just intercourse will be infected with virus at some point of their life (Paragraph 3). Condoms may prevent those who are sexually active from other sexually transmitted disease; condoms cannot even prevent the transmission of HPV, because it is generally spread through genital skin-to-skin contact. Since a majority of people contract HPV, it is a virus that can be cured and go away, but unfortunately you are still susceptible to acquiring HPV the next time you engage in any form of genital to genital contact.

HPV is commonly associated with cervical cancer because there are a large number of types of HPV that cause cervical cancer. Women that do not go to regular check-up exams and therefore do not receive regular Pap smear screenings are at a tremendously higher risk to acquire HPV. There are a few extremely common types of HPV that are largely responsible for causing cervical cancer: Types 16, 18, 31, 33, 35, 45, 52, and 58 (Paragraph 4). The two leading causing HPV types are 16 and 18. They are responsible for more than 70 percent of all cervical cancer cases globally. Cervical dysplasia is caused by HPV and requires a large number of painful treatments costing "an arm and a leg". In order to reduce the risk of going through those

treatments public health services across the globe highly recommend that women between the ages of 9 and 26 receive a vaccination.

Lastly, most men do not feel the need to be concerned about HPV because it rarely affects them, and they obviously cannot get cervical cancer, but unfortunately most men need to realize that they should show some concern as well. Although HPV is mainly associated with causing cervical cancer, it is also associated greatly with the development of genital warts. Men are at a high risk to catch genital warts, which is why they definitely need to show concern and be informed about the causes, effects, etc. about the Human Papillomavirus (HPV).

Section 2: Research

Web Site #1 Name: Human Papillomavirus (HPV) Study of 2916 Cytological Samples by PCR and DNA Sequencing: Genotype Spectrum of Patients from the West German Area

Web Address: <http://jmm.sgmjournals.org/cgi/content/abstract/53/2/125>

Summary of the Research:

Human Papillomavirus (HPV) is the most common cause of cervical cancer. Although it is not a newly discovered STD, there is plenty of new research being done on HPV and its strong link to cervical cancer. A group of patients from the West German area were involved in a study of 2916 cytological samples of PCR and sequencing. This was a study on Human Papillomavirus (HPV).

During the study, 2916 cytological samples underwent screening for HPV (Paragraph 1). The results of the study showed that about 32.5% or 948 of the 2916 cytological samples tested positive for the Human Papillomavirus. In the 948 cytological samples that tested positive for HPV, 134 of them actually showed to contain multiple HPV types. By doing research and using DNA sequencing, researchers found that 39 different types of HPV were found in the samples. HPV types 16 and 31, the two most common types were found in the majority of the samples and accounted for 36.3% of the sequences (Paragraph 1). Studies and research has shown that PCR and direct DNA sequencing is the most reliable method in detecting HPV in cytological samples (Paragraph 1).

Web Site #2 Name: Studies of GARDASIL(R), Merck's Cervical Cancer Vaccine, and HPV 16 Vaccine Component of GARDASIL Presented an International Papillomavirus Conference

Web Address: <http://www.medicalnewstoday.com/articles/149567.php>

Summary of the Research:

Gardasil is a vaccination given to females between the ages of 9 and 26 to prevent them from acquiring certain types of HPV that are known to cause cervical cancer. The study involved 290 women that received the Gardasil vaccine. After they received the vaccine researchers continued the study and did an extended follow up of those 290 women. The study showed that Gardasil was very effective against the HPV type 16 infection, but only for approximately 8 ½ years after it was administered to the women (Paragraph 1). During the extended follow up period not one of the 290 women developed the HPV 16 infection.

Another study done on women aged 16 to 26 showed that after receiving the Gardasil vaccine, the number of abnormal Pap test results decreased by 17-45%. Since Gardasil is a recently developed vaccine there is plenty of research underway on the long – term effectiveness.

Web Site #3 Name: A Controlled Trial of a Human Papillomavirus Type 16 Vaccine

Web Address: <http://content.nejm.org/cgi/content/abstract/347/21/1645>

Summary of the Research:

In conducting research on Human Papillomavirus (HPV), The New England Journal of Medicine reported on actual research experiment involving the cancer causing HPV type, HPV-16. In their lab report, they gave a brief background of HPV type 16. It has been shown through a great deal of research around the globe (primarily in the United States and the United Kingdom) that about 20% of all adults will acquire HPV type 16 in their lifetime (Abstract – Paragraph 1). HPV type 16 is a dangerous type because it is well – known for playing a large role in causing cervical cancer.

The study conducted on HPV type 16 was a double – blind study. At random researchers chose 2392 women between the ages of 16 to 23. The women were split into two equal groups of 1196, where the first group/control group would be given three doses of a Placebo and the second group/experimental group would receive an actual HPV-16 vaccine (Abstract – Paragraph 2). The vaccinations were given over a 6-month period, where the first dose was given on day 0, and the second dose on day 1 of month 2, and the third dose on day 1 of month 6. Researchers then took the genital samples of each woman before they even received the vaccination, a month after receiving the vaccination, and every 6 months after. The tissue that they collected from the participants was then evaluated for cervical cancer cells. The women were followed and continuously tested for about 17 months after the vaccination was given. All the women that had received the HPV-16 vaccine resulted in not one woman receiving any cancer causing types of HPV. The women in first/control group that received the Placebo showed that on average 3.8 per 100 women received a cancer causing HPV type, particularly HPV-16 (Abstract – Paragraph 3). The research conducted had concluded that women that receive an HPV-16 vaccine reduce their risk of acquiring the cancer causing HPV type, HPV – 16.

Section 3: Statistics

Web Site #1 Name: HPV – Associated Cancer Statistics

Web Address: <http://www.cdc.gov/cancer/hpv/statistics/>

Summary of the Statistics:

In the United States alone, approximately 20 million people are currently infected with a type of Human Papillomavirus (HPV). HPV is a serious STD that is known for causing cervical cancers and genital warts. Every year 24, 900 HPV – associated cancers occur, 17,300 in women and only 7,600 in men (Paragraph 1). In women, cervical cancer takes the cake. Cervical cancer is the main HPV associated cancer acquired by women. In men, the most common HPV – causing cancer acquired is cancer of the head and neck. Cancers found in the mouth are extremely common in men because this virus is easily transmitted through oral intercourse. HPV is responsible for many different cancers found in both men and women. In fact, HPV is known

to cause 85% of anal cancers, 70% of vaginal cancers, 40% of vulvar cancers, and 40% of penile cancers (Paragraph 1).

Web Site #2 Name: Prevalence of HPV Infection Among Females in the United States

Web Address: <http://jama.ama-assn.org/cgi/content/abstract/297/8/813>

Summary of the Statistics:

Statistics show that Human Papillomavirus (HPV) is more prevalent in women than it is in men. HPV is more prevalent in women aged 20 to 24. In females between the ages of 14 to 19 statistics have shown that the overall HPV prevalence was 24.5% (Results Paragraph 1). It was the highest in women between the ages of 20 to 24 with almost 50%. As the age of the women increased the HPV prevalence had a huge decline. The HPV prevalence had a significant increase each year in women between the ages of 14 and 24 (Results – Paragraph 1). Women between the ages of 25 and 59 had a huge decrease in HPV prevalence. Previous statistics have shown that HPV prevalence in the United States has greatly increased, making the HPV infection more prominent globally. Due to the increase of previous statistics health care providers recommend that females between the ages of 12 to 25 receive Gardasil or another recently developed HPV vaccination as early as possible to reduce their risk.

Web Site #3 Name: HPV Statistics

Web Address: <http://www.cervicalcancer.org/hpvstatistics.html>

Summary of the Statistics:

Today, approximately 20 million are infected with Human Papillomavirus (HPV), and every year that number increases because 5.5 million new people become infected. Statistics have shown that as high as 75% of all sexually active Americans have been infected and have carried HPV at least one point in their lives. Unfortunately, HPV is a sexually transmitted disease that rarely shows any signs or symptoms, only 1 to 5% of people infected with HPV actually show any symptoms (Fast Statistics and Facts about HPV). Therefore, the majority of people don't even know they are carrying the virus. Women, especially young women are the main carriers of HPV. Most young women catch and transmit HPV in college. According to cervicalcancer.org, "as high as 43% of American female college students were infected with the virus during a three – year study period" (<http://www.cervicalcancer.org/hpvstatistics.html>). Approximately every 14 out of 100 college females have acquired genital HPV every year. HPV type 16 is the most common type of HPV to cause cancer; in fact, it causes more than 50% of cervical cancers (Fast Statistics and Facts about HPV). Cervicalcancer.org has three important statistics they share with the public to inform them of the dangers of HPV. "In 1966 only 56,000 patients in the United States visited a doctor because of genital warts. In 2004, 316,000 people went to their health care provider for treatment of genital warts" (<http://www.cervicalcancer.org/hpvstatistics.html>). Genital warts have increasingly grown in just under 40 years.

Section 4: Consumer Information

Web Site #1 Name: Understanding HPV

Web Address:

http://my.clevelandclinic.org/disorders/Genital_Warts/hic_Understanding_HP.V.aspx

Summary of the Information:

Human Papillomavirus (HPV) has over 100 types that affect different parts of the human body. Thirty out of those 100 types affect the genitals alone. The genital area includes the vulva, vagina, cervix, penis, anus, and scrotum. Although all 30 types that affect the genital area are dangerous, there are 13 types that are considered to be more “high risk” because they lead to genital warts and cervical cancer (What is HPV? – Paragraph 1). Due to the fact that about 20 million people are infected with HPV anyone sexually active can acquire HPV, including types that cause genital warts. HPV does not only have to be spread through sexual intercourse, it can easily be spread through any direct – skin – to skin contact with someone infected. This includes all aspects of sex including vaginal, anal, and oral sex. Not only does HPV cause cervical cancer there are many different types that cause genital warts as well. Genital warts are hard, rough, lumps that develop on the skin. These warts begin on the genital area, but can also be easily transmitted to others, and also onto hands, face, and other parts of the body. Women will most likely find genital warts on their vulva, in or around their vagina, in or around their anus, on their groin, or on their cervix (How do you get HPV? – Paragraph 1). Men normally do not have any signs or symptoms of carrying HPV, which is why most men do not even realize they are carrying it and most of them go untreated. If a man does show signs of HPV, he will most likely find in on his penis, scrotum, in or around his anus, or on his groin (How do you get HPV? – Paragraph 1).

Web Site #2 Name: HPV Infection: Symptoms and Diagnosis

Web Address: <http://www.mayoclinic.com/health/hpv-infection/DS00906/DSECTION=symptoms>

Summary of the Information:

Most people infected with HPV do not even know it because it usually goes undetected meaning there is rarely any signs or symptoms. Of course, there are rare cases of people infected with HPV that do show symptoms, but those symptoms can vary depending on the type of HPV that person is infected with.

Genital warts. These warts appear on the genitals and can appear as a flat lesion, tiny – bump, or a tiny protrusion. The HPV types that cause genital warts are HPV – 6 and HPV – 11.

Pre – Malignant Genital Lesions. There are certain types of HPV that cause cellular changes inside the vagina. These cellular changes are known as abnormalities that are detected through Pap Smear Tests. Once an abnormality is found, doctors will determine whether the abnormality is a low-grade abnormality or a high-grade abnormality. Low-grade abnormalities aren’t too much to worry about. The cells have a high chance to return to normal without any sort of treatment. An abnormality with a low-grade is not normally anything to be concerned about. If an abnormality is found that your doctor determines to be a high-grade abnormality it is unlikely that the cells will return to normal. These are the types of cells that will continue to grow and even advance into cancer. The HPV types HPV – 16 and HPV – 18 are the two types that cause high-grade abnormalities (Pre-malignant Genital Lesions – Paragraphs 1-2).

If any warts are spotted in or around the genital area and they are an embarrassment, or are causing discomfort and pain it is recommended that you go see a doctor. Since women are more susceptible to acquiring HPV, all women need to be sure that they continue to go to their doctor for annual check-ups, including a regular Pap Smear Test. Women should begin annual Pap Test no more than three years after their first sexual intercourse encounter (When to see a doctor – Paragraph 2)

Web Site #3 Name: Human Papillomavirus (HPV) Vaccines

Web Address: <http://www.cancer.gov/cancertopics/factsheet/Prevention/HPV-vaccine>

Summary of the Information:

Human Papillomavirus (HPV) is a wide spread sexually transmitted disease where certain types can be easily prevented. Recent studies have discovered two popular vaccines that are used by health care providers that prevent HPV types that cause cancers and genital warts. Gardasil is the most popular vaccine received by women and men between the ages of 9 and 26, and Cervarix is the second most popular vaccine received by women between the ages of 10 and 25 (Paragraph 8-9).

Gardasil was founded and produced by Merck. It is a quadrivalent vaccine because it is a vaccine used to protect males and females against HPV types, HPV-6, HPV-11, HPV-16, and HPV-18. HPV-6 and HPV-11 are known and associated with causing genital warts in both males and females. HPV-16 and HPV-18 are known for causing cervical cancers in women. Gardasil is given in three doses, injected into the muscle tissue over a six-month period. The FDA has approved Gardasil to be used to help protect females against HPV types causing cervical cancers and also helps to protect males and females against the HPV types causing genital warts. Males and Females between ages 9 and 26 are eligible to receive the vaccination. (Paragraph 8)

Cervarix is produced by GlaxoSmithKline (GSK). It is different from Gardasil because it is only a bivalent vaccine. Cervarix serves the purpose of only targeting HPV types HPV-16 and HPV-18. Like Gardasil it is given in three doses over a six-month period. The FDA approved Cervarix to be given to females only between the ages of 10 and 26 in order to protect them against cervical cancer causing HPV types, HPV-16 and HPV-18. (Paragraph 9)

Section 5: Solutions to the Problem (or Issue)

Web Site #1 Name: Human Papillomavirus (HPV) Infection

Web Address: <http://www.cdc.gov/STD/HPV/>

Summary of the Information:

For over 60 years, the CDC, Centers for Disease Control and Prevention, is a government agency that puts forth a lot of time and effort to improve the quality of life by preventing and controlling disease, injury, and disability. Their goal is to provide whatever they can to ensure that everyone lives a long, healthy, and productive life. The CDC creates programs to help reduce risk of causing death through diseases.

So, what has the CDC done for Human Papillomavirus, HPV? Well, it provides fact sheets and even hands out brochures to inform all people of the dangers of HPV. They provide the public community with facts about what they should know about this virus. The CDC

commits itself to helping women and even men around the globe to see a doctor and get tested for HPV. Before they even get tested they strongly suggest to women that they get vaccinated to prevent the spread of HPV and to reduce their risk of catching an HPV type that causes cervical cancer and genital warts.

Web Site #2 Name: HPV and Cervical Cancer Prevention Resource Center

Web Address: http://www.ashastd.org/hpv/hpv_aboutcenter.cfm

Summary of the Information:

The United States actually has an HPV and Cervical Cancer Prevention Resource Center. It was created by the American Social Health Association (ASHA), which is a non-profit organization. It is well known because it is considered to be America's authority for sexually transmitted infection information. The ASHA provides the community with the risks, transmissions, preventions, testing, and treatments for many widely known sexually transmitted diseases. ASHA created the National HPV and Cervical Cancer Prevention Resource Center. This resource center was created to provide people across the nation with information and prevention about HPV and Cervical Cancer because unfortunately there is a lack of available resources. Not only does the resource center provide information and prevention tips, it also provides up-to-date information on related issues such as screening, self-esteem, sexual partners, and transmission. If you are suffering from the HPV infection then the resource center will refer you to local HPV support groups so that you can talk and discuss what you're going through with people that can easily relate. The HPV and Cervical Cancer Prevention Resource Center is also the largest voice across the nation to increase HPV and cervical cancer awareness, especially through the mass media.

Web Site #3 Name: Human Papillomavirus, HPV

Web Address: <http://www.healthywomen.org/condition/human-papillomavirus-hpv>

Summary of the Information:

Healthy Women is another non-profit organization that leads the nation in health information sources for women. Members of Healthy Women get together with other organizations, corporations, government agencies, and even the media to come up with ways to raise awareness for a variety of women's health conditions. Healthy Women strongly addresses all health issues that strongly affect the health of women.

Healthy Women has put a lot of effort into providing women all the information it can about Human Papillomavirus, HPV. Healthy Women has put out many news articles and even magazines providing women with information on HPV including what it is, how it's spread, how it's diagnosed, and how it can be prevented and treated. Healthy Women has also provided a large amount of funds for women to receive the Gardasil vaccination so they are able to reduce their risk and protect themselves from acquiring the HPV types that cause genital warts, but more importantly the HPV types that cause cervical cancers in women.

Conclusions:

In doing consistent research, I learned a lot about Human Papillomavirus, HPV. The most important thing that I learned about HPV was that I am at a high risk of catching it. I learned it is easily spreadable, and about 20 million people are infected with the disease and they don't even know it. I know I am at a high risk because I am a college female and I have not received a Gardasil vaccine.

My audience reading this Fact Sheet I hoped gained a lot of new information on Human Papillomavirus, HPV. I hope my audience truly understands the dangers of HPV. I hope my audience learned that they should be more careful in their sexual activities because unfortunately HPV is a very common STD. It doesn't have to be spread through sexual intercourse alone; it can be easily spread through oral and anal sex as well. After reading this fact sheet, I honestly hope that my audience gained the knowledge on how to protect themselves against HPV, and that if my audience is a male or female between the ages of 9 and 26, they should look into getting vaccinated to protect themselves against HPV types such as HPV-16, HPV-18, HPV-6, and HPV-11, and other HPV types that are known for causing cancer and genital warts.

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