Findings

NORTH CAROLINA Family POLICY COUNCIL

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HPV—Human Papillomavirus

Why it matters to adolescent sexual health and education

By Alysse M. ElHage

Beginning with the sexual revolution of the 1960s, our culture has been saturated with media images that portray casual attitudes about sex. Sexual activity is presented in the movies, on television, and in popular music as a prerequisite to falling in love. As a result, young adults consider it normal to go to a bar, meet someone for the first time, and then engage in sexual activity with that person. Many teenagers wrongly believe that dating and sex go hand in hand. Forty years ago a first date that ended in a kiss was either considered a sign of "true love," or that the girl was letting the guy move too fast. Today, a date that does not end in sex is often viewed as an oddity.

Instead of looking for the kind of lasting love that will result in great sex with one partner for the rest of their lives, many young people look for great sex first, hoping that it will turn into lasting love. But love is rarely the result. In fact, they are more likely to walk away from these casual sexual encounters with a potentially deadly sexually transmitted disease (STD). The most common culprit attacking the bodies of teens and young adults today is the Human Papillomavirus (HPV). Approximately 75 percent of sexually active individuals will become infected with HPV in their lifetime.[1]

The majority of Americans have never heard of HPV, even though it is the most prevalent viral STD in the United States.[2] In a survey conducted in 2000 by the Kaiser Family Foundation, 70 percent of the respondents said they had never heard of HPV, and 89 percent said they had never discussed it with their doctors.[3]

This lack of knowledge is disturbing because HPV is the leading cause of cervical cancer worldwide and has been linked to other cancers in men and women.[4] Most people with HPV have no visible symptoms, and condoms offer little to no protection from HPV because it can be transmitted through skin-to-skin contact.[5] While HPV may not be well known, it is certainly widespread. There are an estimated 5.5 million new cases of HPV every year in the United States, and nearly 20 million men and women are currently infected.[6]

HPV is the leading cause of cervical cancer wordwide. More women die annually from cervical cancer than from HIV/AIDS.

These facts make HPV one of the most important and potentially dangerous STDs of today, especially when it comes to the ongoing debate over adolescent sex education in North Carolina and across the country. As the STD epidemic continues to eat away at the bodies, hearts and minds of teenagers, policy makers and health educators in North Carolina need to acknowledge the serious nature of HPV and look for effective ways to prevent its spread. This paper will present the facts about HPV, discuss why it matters, and show why abstinence from sexual activity until marriage is the only method that can successfully prevent the spread of HPV, as well as other STDs.

What is HPV?

The Human Papillomavirus is a "common virus that infects the skin and mucous membranes (such as the lining of the vagina, the mouth, etc.) of humans."[7] Of the 80 to 100 types of HPV that have been identified by scientists, about 30 are sexually transmitted and cause genital infections.[8] Most genital HPV infections do not cause noticeable symptoms and are often cleared up by the body's immune system.[9] Low-risk types of HPV can cause genital warts and low-grade Pap smear abnormalities. High-risk HPV types can cause precancerous cell changes and cervical cancer, as well as other anal and genital cancers.[10] Currently, there is no cure for HPV, although some complications can be medically treated.[11]

Genital Warts. Over one million sexually active Americans are diagnosed with genital warts each year.[12] They are considered a "low-risk" complication of HPV because they are not usually cancerous and can be treated with medication or surgical removal. Genital warts vary in size and amount, do not usually itch or burn, and can appear as raised or flat bumps.[13] In women, warts can occur in or outside the vagina, on the cervix, or around the anus. While genital warts are less common in men, they can appear on the tip or the shaft of the penis, on the scrotum, or around the anus. Warts can also develop in the mouth or throat of a person who has oral sex with an infected partner.[14] Genital warts are very contagious and can be spread through oral, anal, or vaginal sex with an infected person. While a doctor can remove the warts through treatment, they can recur at any time because there is no cure for the HPV infection that causes them.[15]

Abnormal Cell Changes. Both low and high-risk types of HPV can sometimes cause abnormal cell changes, known as dysplasia, to occur on genital tissue, such as the female cervix, vagina, vulva (external genital area) and anus, and the male anus and penis.[16] These changes are

categorized as either low grade or high grade abnormalities. It is important to note that these abnormal cell changes are not cancer, but some (especially high grade abnormalities) can lead to cancer over time.[17] Abnormal cell changes do not usually cause symptoms and are detected with a Pap test during a gynecological exam.[18]

A woman's cervix is especially vulnerable to HPV types that cause abnormal cell changes. According to the National Cancer Institute, "scientists believe that some abnormal changes in cells on the cervix are the first step in a series of slow changes that can lead to cancer years later."[19] In young women, low-grade abnormal cell changes on the cervix are common and often go away on their own. Doctors monitor these changes to see if they disappear or continue to grow.[20] Sometimes, they can develop into high-grade precancerous tissue, which can take several months or years to spread and requires treatment.[21] High-risk HPV infections that do not go away after several years are the most likely to cause abnormal cell changes that can lead to cancer.[22]

Treatment for high-grade precancerous cervical conditions can be painful, causing "cramping or other pain, bleeding or watery discharge."[23] Each year, about 2.5 million women who receive Pap smears are diagnosed with low-grade abnormal cell changes, and 200,000 to 300,000 women are diagnosed with high-grade precancerous cell changes.[24]

Cervical and Other Cancers. The well-established link between HPV and cervical cancer is the most troubling complication of this STD. A 1995 study found that HPV was present in 93 percent of cervical cancers.[25] In 1999, a re-examination of earlier studies concluded that HPV infection was present in 99 percent of all cervical cancers.[26]

There are about 14,000 cases of cervical cancer each year, and about 5,000 women die annually from the disease.[27] Cervical cancer begins with precancerous cell changes in the cervix and can take several years to fully develop. If it is caught early enough, the cancer can often be treated successfully with surgery and radiation therapy. A hysterectomy may be required if the cancer spreads further than the cervix.[28] Although invasive cervical cancer is most common in women over age 40, it is becoming more prevalent today among younger women.[29]

Studies have also found a strong association between anal cancer and HPV. An estimated 3,000 men and women are diagnosed with anal cancer each year.[30] Homosexual men, and women who engage in anal sex, are more at risk for abnormal cell changes in the anal area, which are caused by HPV and can lead to anal cancer.[31]

HPV has also been linked to other less common cancers, including vaginal and vulvar cancer in women, and penile cancer in men. Other studies have indicated that certain types of HPV may cause throat cancers in both men and women, who may contract HPV during oral sex.[32]

Transmission. Genital HPV is a highly infectious STD. According to the Centers for Disease Control and Prevention (CDC), HPV infections are transmitted through contact with infected skin or with mucosal surfaces (such as the vagina, cervix or male urethra) or fluids.[33] This means HPV is spread not only through vaginal, anal or oral sex with an infected person, but also through direct skin-to-skin contact with an infected area.[34] Other STDs that can be spread through contact with infected skin include syphilis, genital herpes and chancroid.[35]

The HPV infection can be present in areas that are not covered by a condom, such as the female cervix, vagina, vulva, anal area and inner thighs, and on the penis, urethra, scrotum, anal area and inner thighs of men.[36] Because most genital HPV infections are "silent" in that they often cause no visible symptoms, many people can be infected and not know it, which increases the risk of it spreading.

Detection: Doctors do not routinely screen for HPV, although Pap smears are used to screen for complications caused by HPV infections, such as precancerous or cancerous conditions.[37] While the Pap test is the most common screening method used to detect abnormal cell changes, an HPV test is also available, which can detect many of the HPV types that are associated with cervical cancer.[38]

Who is At Risk?

Every sexually active person (except for monogamous married couples where both partners abstained from sexual activity prior to marriage) is at risk for contracting HPV. The American Social Health Association estimates that nearly three out of four Americans between the ages of 15 and 49 have been infected with genital HPV in their lifetime.[39]

Risk Factors. Promiscuity, or having a high number of lifetime sexual partners, is the greatest risk factor associated with HPV.[40] According to the National Cancer Institute, women who become sexually active at age 16 or younger and who have multiple lifetime sexual partners are at the greatest risk for cervical HPV infections.[41]

Women. HPV is particularly high among women. Population-based studies have shown that among sexually active women: over 50 percent have been infected with one or more genital HPV types; approximately 15 percent have evidence of current infection (of these, 50 to 75 percent are infected with high-risk types); and one percent have genital warts."[42] A 1998 study that examined the prevalence of genital HPV among sexually active, college-age women found that 43 percent tested positive for HPV at some point during a 36-month follow-up period.[43] Because HPV can be transmitted through skin-to-skin contact, all sexual activity with an infected person can be risky, including homosexual activity between women.[44]

Adolescent Girls. Some studies have shown that HPV is the most prevalent STD among adolescent girls.[45] Dr. Meg Meeker is a pediatrician who has spent the past 20 years treating children and adolescents, and is a fellow of the American Academy of Pediatrics. She sees abnormal Pap smears caused by HPV in one-third to one-half of her adolescent female patients.[46] In her book, *Epidemic*, Dr. Meeker explains that the bodies of adolescent girls and young women are more vulnerable to many sexually transmitted diseases that infect the cervix. She writes:

> *"Their bodies have receptive vaginal mucus that holds the virus, and their cervical cells are more receptive to viral infections, allowing the viruses to reproduce easily. As women age, they are better able to fight off the virus."*[47]

Compared to men, women generally suffer more serious complications from HPV, as well as from many other STDs. According to the Medical Institute for Sexual Health:

> *"For some STDs, a female who is exposed to an infected partner is more likely to become infected, and once infected, females experience more health-compromising disease complications. Sexually transmitted diseases discriminate against females—they are sexist."*[48]

Men. Not many studies have been conducted on the prevalence of HPV among men. According to the CDC, the studies that have been done show similar rates of infection among men as among women.[49] HPV has been associated with penile and

anal cancers in men. Homosexual men are at the greatest risk for anal cancer.[50]

The Costs of HPV

Because the majority of HPV infections cause no symptoms, do not lead to cancer, and can often resolve on their own, it is easy to question the importance of this disease. While serious complications from HPV are rare, they can be deadly.

To understand the importance of HPV, it helps to consider that more women die annually from cervical cancer than from HIV/AIDS. In fact, women are twice as likely to die from HPV-associated diseases than from HIV.[51]

In addition to the thousands of women who die annually from cervical and other cancers caused by HPV, hundreds of thousands—including sexually active adolescents—are diagnosed with precancerous cell changes.[52] Most often this tissue has to be removed, usually through invasive treatments and surgical procedures, in order to prevent cervical cancer from developing. Although most treatments are successful, the procedures can be physically painful, and cause both emotional and mental stress for women and their families who are faced with the possibility of cancer.[53]

Aside from the physical, mental and emotional costs of HPV, treating HPV-associated diseases can be expensive. In fact, HPV is considered the second most costly STD after HIV in the United States.[54] According to the American Social Health Association, the estimated annual cost of treating HPV symptoms and complications is $1.6 billion. Cervical cancer screening programs, or Pap smears, cost $5 billion per year.[55]

Even the low-risk HPV infections that result in low-grade Pap smear abnormalities need to be taken seriously, especially when these abnormalities occur in teenage girls. Although most early abnormal cell changes in young women will resolve on their own and are not cancerous, a sexually active teenager has an increased risk of becoming re-infected with another, and possibly more serious, type of HPV as she is exposed to more sexual partners.

"If I'm looking at a 16-year-old who has an abnormal Pap smear, she is already in a high-risk category for HPV, which means she could become re-infected," explains Dr. Meeker, who says she has female patients as young as age 15 with cervical cancer.[56] Abnormal Pap smears in adolescent girls are warning signs that eventual precancerous conditions could occur.

HPV and Condoms

Nationwide, adolescent prevention efforts for most STDs have focused primarily on encouraging condom use. While abstinence-until-marriage sex education programs have been gaining ground in recent years, many schools continue to promote a mixed message that includes providing kids with condoms. HPV presents a huge dilemma for condom proponents because studies have found no evidence that condoms reduce the risk of HPV transmission.[57]

In 1999, the CDC, along with several other federal health agencies, convened an expert panel to discuss genital HPV. The panel wrote in their report:

> *"Theoretically, barrier contraceptives such as condoms are less likely to be effective in preventing infections such as genital HPV, which can involve the external genital skin, than they are for infections which are limited to specific mucosal areas and are spread by semen..."*[58]

The CDC report goes on to state that studies on male condoms have "generally found no evidence of protection against the [HPV] infection" for women.[59]

In a report published in July 2001, the National Institutes of Health (NIH) reached a similar conclusion about condoms, stating that there "was no epidemiologic evidence that condom use reduced the risk of HPV infection, but study results did suggest that condom use might afford some protection in reducing the risk of HPV-associated diseases, including warts in men and cervical neoplasia in women."[60]

With some STDs, condoms can reduce—but not eliminate—the risk of transmission, only when they are used correctly 100 percent of the time, which is difficult for adults, much less teenagers.[61] But consistent and correct condom use does not protect a person from contracting HPV when the infection is present in areas that condoms do not cover, such as the scrotum and inner thighs. A 2001 CDC fact sheet on condoms states: "Latex condoms can only protect against transmission when the ulcers or infections are in genital areas that are covered or protected by the condom."[62]

Condoms are not the answer for preventing the spread of HPV. The most the CDC and the NIH can promise is that condoms "might" offer "some" protection against the spread of diseases caused by HPV.[63] For most people, this is not enough of a guarantee, especially when it comes to the health of adolescents.

"I think condoms will become a serious medical and legal issue over time," says Dr. Meeker. "I consider it malpractice to be teaching kids to use condoms, when the National Institutes of Health has said they are not protective enough against many sexually transmitted diseases, including HPV."[64]

HPV Prevention That Works

The best prevention efforts focus on reducing the risk factors of STDs, or reducing the behaviors that put people at risk. For HPV, the greatest risk factors are becoming sexually active at an early age and having multiple lifetime sexual partners. Passing out condoms to teenagers will not lower these risks but could increase them.

The expert panel on HPV convened by the CDC in 1999 recognized the need for prevention efforts that focus on changing behavior. The report notes:

> *"There was extensive discussion about the merits of trying to reduce genital HPV transmission by focusing on behavior change approaches…Increased awareness that HPV is widespread, that it might not be fully prevented by condom use, and that it can have rare but serious sequelae might help stimulate and sustain efforts to reduce exposure to HPV and other STDs. Such strategies could include delay in initiation of sexual intercourse, a reduction in the number of partners, and selection of partners perceived to have had fewer partners."*[65]

Encouraging teens to delay sexual activity is the most important prevention method discussed by the CDC panel because it directly affects the number of lifetime sexual partners they will have, and even who they will choose as a sexual partner. Among women, one of the greatest risk factors for HPV is becoming sexually active at an early age, which leads to a higher number of lifetime sexual partners. According to a 2003 Heritage Foundation study, girls who begin sexual activity at age 13 or 14 will have an average of 13 voluntary non-marital sexual partners in their lifetime, compared to women who begin sexual activity in their 20s, who will have an average of 2.7 non-marital sexual partners. Girls who become sexually active at age 13 are twice as likely to contract an STD, like HPV, than girls who delay sexual activity until age 21.[66]

So how do educators encourage adolescents to delay sexual activity and

have fewer lifetime sexual partners? The answer is not by giving them condoms. The most effective way to encourage teenagers to delay sexual activity is to promote abstinence until marriage, and provide them with the tools they need to withstand sexual pressures throughout adolescence and young adulthood. Marriage is integral to the abstinence message because monogamy is the best protection against any STD, and monogamy works best inside marriage.[67] Abstinence can also help ensure that teens will one day be able to find a lifetime mate who is less likely to be infected with HPV.

Conclusion

HPV is a highly infectious sexually transmitted disease that often has no visible symptoms and causes rare but serious complications, especially among women. Because HPV is spread through skin-to-skin contact, and the infection can be present in areas such as the inner thighs, condoms are not effective at preventing its transmission. These facts make HPV a serious threat to the well-being of teens and young adults who are bombarded daily with societal messages to treat sex casually.

Policy makers and health educators in North Carolina can no longer afford to be silent about the dangers of HPV or to ignore the implications it has for the sexual health of adolescents. HPV has dispelled the myth that sex can be "safe" outside the bonds of a monogamous marital relationship. Young people in North Carolina deserve to know that the only way to completely eliminate the devastating effects of HPV, or any other STD, is to abstain from sexual activity until marriage.

Alysse M. ElHage is a communications consultant with the North Carolina Family Policy Council.

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