

Human Papillomavirus: A Global Burden

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common cancer in women living in less developed regions. In 2018, approximately 311,000 women died from cervical cancer; more than 85 percent of these deaths occurring in less developed countries.

Editorial

The World Health Organization (WHO) has identified the human papillomavirus (HPV) as a global burden, associated with 70% of cervical cancer cases (WHO, 2016). HPV is the principal cause of most cervical cancer cases and is the fourth most common cancer in women, worldwide. Hispanic women are both sixty percent more likely to be diagnosed with cervical cancer, and thirty percent more likely to die from cervical cancer as compared to non-Hispanic white women [1]. HPV is the most common sexually transmitted infection (STI). There are over 100 varieties of HPV, more than 40 of which are passed through sexual contact and can affect the genitals, mouth, or throat. The risk factors associated with acquiring the infection are for both sexually active women and men. Policies that are currently in place are centered on the requirement of the HPV vaccine, funding the vaccine, and educating the public or school children about the vaccine. Data available suggests that globally, HPV is a major health and economic problem. Despite the progress made in a few states with policies, data suggests that there is still more work to be done.

US Impact

In the U.S., HPV is the most common sexually transmitted infection (STI) and is often acquired soon after initiating sexual activity. An estimated 79 million persons are infected, and an estimated 14 million new HPV infections occur every year among persons aged 15–59 years. Furthermore, prevalence of HPV in the U.S. has decreased significantly since the vaccine was made available, falling from 11.5% to 4.3% among girls ages 14 to 19 between 2003-2006 and 2009-2012. In 2009-2012, half of this group had received at least one-dose of the vaccine. The virus is of great interest as it is the etiologic agent of cervical cancer.

Hispanic Impact

In 2017, the Office of Minority Health reported Hispanic women are both sixty percent more likely to be diagnosed with cervical cancer, and thirty percent more likely to die from cervical cancer as compared to non-Hispanic white women [2]. Likewise, estimates of cervical cancer incidence indicate Hispanic women have a 14.2/100,000 rate compared to the 8.2/100,000 rate observed in non-Hispanic white women [4]. Hispanic women have the second highest mortality rate from cervical cancer (after Black women). This rate is compared to all other ethnic/racial groups in the United States.

Introduction

Moreover, HPV vaccine uptake in the United States (U.S.) remains lower than the Healthy People 2020 goal of 80% coverage [2]. Interestingly, in 2014, vaccine completion rates among Hispanic females and males between the ages of 13 and 17 were an estimated 39.3 and 21.1% [3]. As the largest and fastest growing minority group in the U.S., attention to the health needs of the Hispanic population is critical. There is growing evidence that Hispanic women may develop cervical cancer linked to HPV at an earlier age than the overall population [4]. The church plays a vital role in the Hispanic culture. According to a study conducted by Brewer & Fazekas [5], Hispanic parents may be willing to vaccinate their teenage daughters however; it is possible for the vaccine to be discouraged by the church as it may be viewed as encouragement to engage in sexual behavior.

Human Papillomavirus Defined

As previously noted, HPV is the most common sexually transmitted infection (STI). HPV is a viral infection that is passed between individuals through skin-to-skin contact. There are over 100 varieties of HPV, more than 40 of which are passed through sexual contact and can affect the genitals, mouth, or throat. Additionally, certain types of HPV cause warts on the hands or feet, and other types of genital HPV may cause genital warts, while other types of genital HPV are linked to abnormal cell changes on the cervix that can lead to cervical cancer.

World Perspective

According to the World Health Organization, globally 570,000 cases per year in women and 60,000 cases in men are attributable to HPV. The estimated annual age-standardized incidence rate (ASR) was 15 per 100 000 women globally and ranged from less than 1 to 56 per 100 000. The highest estimated incidence rates are in sub-Saharan Africa (ASR 31.0), south central Asia (ASR 26.5), Latin America (ASR 33.5), south-east Asia (ASR 18.3) and the Caribbean (ASR 33.5). HPV types 16 and 18 are the most frequent types worldwide, with HPV-16 the most common type in all regions. Cervical cancer is the second most

Risk factors for HPV

The risk factors associated with acquiring the infection are for both sexually active women and men. The peak time for acquiring infection for both women and men is shortly after becoming sexually active. HPV is sexually transmitted, but penetrative sex is not required for transmission.

Economic Impact

HPV costs the United States health care system approximately \$1.7 billion (estimates range from \$800 million to \$2.9 billion) in direct medical costs. Although most HPV infections cause no symptoms, persistent HPV infection can cause cervical cancer in women as well as other anogenital cancers, oropharyngeal cancer, and genital warts in men and women. Consequently, HPV is particularly costly due to the expense of treating HPV-related cancers.

Policies Related to HPV

Policies that are currently in place are centered on the requirement of the HPV vaccine, funding the vaccine, and educating the public or school children about the vaccine. The CDC encourages clinicians to recommend HPV vaccination the same day and same way they recommend other vaccines for their adolescent patients (CDC, 2016). The Community Preventive Services Task Force, has recommended increasing the convenience of immunizations, reducing financial barriers, and using school-entry requirements as strategies to increase vaccination rates [5].

Currently, Rhode Island is the only state where the mandate covers mandatory vaccination for both young males and females, with both Virginia and Washington only covering females [6]. From a federal

funding standpoint, the Vaccine for Children program, provides the vaccine series at no cost to certain families, and the Affordable Care Act (ACA), requires private insurers to provide coverage of ACIP-approved vaccines at no cost to the patient (CDC, 2015).

Regulations

In 2006, the United States Food and Drug Administration (FDA) licensed a quadrivalent vaccine that protects against two HPV types (16,18). In 2018, the FDA extended licensing approval of the 9-valent vaccine for women and men aged 27–45 years, and in 2019 the Center for Disease Control’s (CDC) Advisory Committee on Immunization Practices (ACIP) recommended that unvaccinated adults aged 27-45 years discuss receiving the HPV vaccine with their health care providers [7-11].

Solutions/Recommendations

The overall goals of receiving HPV vaccines are to reduce health care costs, close health care disparity gaps, and to improve reproductive health promotion. HPV vaccination for adolescents has been routinely recommended for females since 2006 and for males since 2011 (CDC, 2016). Examples of proposed recommendations are included in Table 1.

<p>Center for Disease Control and Prevention Recommendations</p> <p>ACIP recommends vaccination for females aged 13 through 26 years and males aged 13 through 21 years not adequately vaccinated previously.</p> <p>Dosing schedules, intervals, and definitions of persons considered adequately vaccinated have not changed. No pre-vaccination testing (e.g., Pap or HPV testing) is recommended to establish the appropriateness of HPV vaccination.</p> <p>For persons who are pregnant, HPV vaccination should be delayed until after pregnancy; however, pregnancy testing is not needed before vaccination. Persons who are breastfeeding or lactating can receive HPV vaccine. Recommendations regarding HPV vaccination during pregnancy or lactation have not changed.</p> <p>HPV vaccine is recommended for routine vaccination at age 11 or 12 years. (Vaccination can be started at age 9).</p> <p>Vaccination is also recommended through age 26 years for gay, bisexual, and other men who have sex with men, transgender people, and for immunocompromised persons (including those with HIV infection) not adequately vaccinated previously.</p> <p>Other Recommendations</p> <p>Guidelines by the U.S. Preventive Services Task Force (USPSTF) recommend that most women ages 21 to 65 receive a Pap test once every three years and recommends that women over 30 get a high-risk HPV test every 5 years.</p>
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Table 1: HPV Prevention Recommendations.

Conclusion

Data available suggests that globally, HPV is a major health and economic problem. Despite the progress made in a few states with policies, data suggests that there is still more work to be done. Furthermore, the Hispanic population is expected to double over the next several decades, making it of vital importance that the focus is not only on improving HPV vaccination rates, but on the prevention of an increase in cervical cancer disparities among high-risk populations.

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