

## Cervical Cancer Screening in Young Women: Saving Lives With Prevention and Detection

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**T**he full but shortened life of Kristen Forbes is chronicled in the book *Love, Kristen*, written by her father as a tribute to his young, vivacious, fun-loving daughter (Forbes, 2009a). Kristen had just graduated from college when, in June 2007, she woke up one morning with a swollen right ankle. The following day, her entire right leg was swollen. At 21 years of age, the unlimited opportunities of life that are awarded to the majority of young women—rewards of college, a career, marriage, children, and a future filled with family and friends—came to a sudden halt for Kristen. By early July, she entered the frightening and uncertain world of cancer. On July 16, her gynecological oncologist found a mass in her pelvis. She was diagnosed with cervical cancer.

A patient, particularly a child or young adult, does not travel the cancer journey alone. As Kristen's personal story unfolded, her father expressed the grief and despair that the family experienced, particularly the despair of a parent whose loving daughter with a hopeful future is suddenly met with the pain, fear, and uncertainty that a cancer diagnosis and treatment brings. Kirk Forbes chronicled the journey that he, his wife, Kristen's siblings, and close friends shared as they traveled the cancer trajectory standing by her side. Oncology nurses understand when he expresses, "None of us, Dad, Mom, Megan, Kristen, or Eric, ever experienced a serious illness, injury, or hospitalization before this. It was a new experience for all of us. This type of battle consumes everyone's life . . . including caregivers. Everything else gets put on hold. Every waking moment we were focused on Kristen . . . her illness, treatment, medications, and future" (Forbes, 2009a, p. 15).

Kristen Forbes died from cervical cancer on June 1, 2009, at the age of 23. She left behind a deeply personal journal that has given readers the privilege of walk-

ing her journey beside her and of feeling the raw emotions of a young woman fighting for her life against all odds. Her father created an immeasurable gift by sharing Kristen's insightful messages and by creating the Kristen Forbes EVE Foundation (EVE stands for educate, vaccinate, and eradicate). More information about the book and the foundation can be found in Forbes (2009b).

### Background and Incidence

Cervical cancer is the second most common cancer among women worldwide (Cothran & White, 2002). The American Cancer Society (ACS) estimated that 11,270 cases of invasive cervical cancer were diagnosed in the United States in 2009, with an estimated 4,070 deaths (ACS, 2009a). On a positive note, incidence rates have decreased for Caucasian and African American women, and overall mortality rates also have declined because of prevention, screening, and early detection (ACS, 2009b). Because of the effectiveness of Papanicolaou (Pap) screening, pre-invasive lesions of the cervix are detected more often than invasive cancer (ACS, 2009b). The statistics demonstrate that, with proper measures, cervical cancer is preventable and treatable (Eggleston, Coker, Das, Corday, & Luchock, 2007). Evidence-based research has shown that correct screening procedures can reduce morbidity and mortality of cervical cancer (Ahmed et al., 2007; Blomberg, Ternstedt, Tornberg, & Tishelman, 2008; Eggleston et al.; Fylan, 1998; Glinde, Millen, Love, Pang, & Cameron, 2008; Meyskens & Tully, 2005; Sigurdsson, Sigvaldason, Gudmundsdottir, Sigurdsson, & Briem, 2009). Secondary prevention procedures address the promotional phase of carcinogenesis and focus on detecting precancers which can be managed by a variety of surgical and nonsurgical procedures (Meyskens & Tully); secondary prevention screening

procedures have contributed to a decrease in the yearly incidence of invasive cervical cancer.

Cervical cancer incidence declined from 10.2 to 8.5 per 100,000 women from 1998–2002 (Ahmed et al., 2007). The vaccination against human papillomavirus virus (HPV) types 6, 11, 16, and 18 (Gardasil®, Merck & Co., Inc.) is the primary preventive tool that can decrease the incidence of invasive cervical cancer.

### Screening Recommendations for Cervical Cancer

The U.S. Preventive Services Task Force (USPSTF) (2009a) cites the Pap test as the most effective way to screen for cervical cancer in women who have been sexually active and have a cervix (see Figure 1). ACS (2009b) also provides cervical screening guidelines (see Figure 2) and, although recommendations differ slightly, the Pap test is overwhelmingly supported as the most effective preventive measure for invasive cervical cancer if screening practices are followed as recommended. The American College of Obstetricians and Gynecologists also has issued recommendations (see Figure 3).

The U.S. Food and Drug Administration (FDA)-approved HPV vaccine is an additional preventive measure that complements the Pap test but does not substitute for screening (Merck & Co, Inc., 2009a). Therefore, nurses must understand both Pap screening and vaccine recommendations to educate girls in early adolescence, young adult women, and their parents. For young girls, the nurse can educate the mother or another guardian regarding the HPV vaccine; educational guidelines for mothers are provided by Merck & Co., Inc. (2009b).

Interventions to strengthen adherence to screening recommendations are

- Screening for cervical cancer should take place for women who have been sexually active and have a cervix.
- Routine screening of women older than age 65 for cervical cancer is unnecessary if they have had adequate recent screening with normal Pap smears and are not otherwise at high risk for cervical cancer.
- Pap smear screening for women who have had a total hysterectomy for benign disease is not recommended. For patients with a history of invasive cervical cancer or diethylstilbestrol exposure contributing to an increase risk for vaginal neoplasms, screening may be appropriate.
- The evidence is insufficient to recommend for or against the routine use of new technologies to screen for cervical cancer (e.g., DNA or human papillomavirus [HPV] testing).
- Evidence is insufficient to recommend for or against the routine use of HPV testing as a primary screening test for cervical cancer.

### Figure 1. Screening Recommendations for Cervical Cancer: U.S. Preventive Services Task Force

Note. Based on information from the U.S. Preventive Services Task Force, 2009a.

another vital factor in the prevention of cervical cancer. Cultural discrepancies in healthcare beliefs and access to care also must be identified across community settings. The purpose of the Pap test is to look at the cervical epithelium where columnar epithelium of the end cervix changes into squamous epithelium of the ectocervix. This area is where cells can undergo dysplasia and cervical cancer may arise (USPSTF, 2009b). Cervical cancer is typically asymptomatic until it reaches an advanced stage. Pap tests can detect early changes in cervical cells that can be monitored and treated before progressing to cancer, therefore reducing cervical cancer morbidity and mortality. Although no determination has been made of the optimal age to begin cervical cancer screening, the USPSTF (2009b) recommends that routine screening begins between the ages of 18–21 years. Pap tests every three years are thought to be as effective as yearly Pap tests; however, because of the sensitivity of a single Pap test being only 60%–80%, most organizations in the U.S. recommend yearly screening until two or three normal tests in a row have been achieved (USPSTF, 2009b).

ACS (2009b) recommends waiting until after the age of 30 years to increase the screening interval to three years. Overall, research suggests that women are fairly adherent to cervical cancer screening guidelines. Healthy People 2010 (2009) estimated that, in 1998, 92% of women aged 18 years or older had received a Pap test in their lifetime, and 79% of women aged 18 years or older had received a Pap test in the past three years. The goals of Healthy People 2010 are to raise the statistics to 97% and 90%, respectively.

### Role of Human Papillomavirus

HPV is a virus that is known to cause cervical cell abnormalities that may progress to cervical cancer (Ahmed et al., 2007; Cothran & White, 2002; U.S. Department of Health and Human Services [HHS], 2009). HPV is the most common type of sexually transmitted infection (STI), with at least 50% of sexually active men and women becoming infected at some point in their lifetime (HHS). Most people who have HPV are asymptomatic and, therefore, do not realize they have the virus. The human body is capable of clearing HPV infections and this often happens after infection. However, HPV infections can lead to genital warts, specifically types 3 and 11, and cervical cancer (types 16 and 18) over time (HHS). According to epidemiological studies, HPV is necessary but not sufficient alone to cause progression to cervical cancer (Cothran & White). For this reason, insufficient evidence exists to support HPV/DNA screening as a secondary prevention measure. Knowing that teenagers and young adults may have been exposed to HPV through sexual practices makes the importance of Pap tests for this age group evident. Young women who begin having sex at an early age or with multiple sexual partners are at increased risk of HPV exposure. HPV infections are common in healthy women and in only rare circumstances does the infection progress into invasive cervical cancer. Other factors may increase the risk of cervical cancer, including immunosuppression, high parity, cigarette smoking, and long-term use of oral contraceptives (ACS, 2009a), cervical neoplasia, and concomitant sexually transmitted diseases (STDs) (USPSTF, 2009b).

Adolescents and young adults go through many physical, cognitive, psychosocial, and moral changes that may

contribute to high risk sexual behavior, increasing their chances for contracting HPV, and developing cervical cancer (Cothran & White, 2002). Adolescents often have difficulty conceptualizing an unknown future. Adolescents and young adults may feel immune to illnesses such as STIs or cancer because these diseases are outside their realm of concrete thought (Cothran & White). Despite the fact that many countries have established screening programs and have seen decreases in invasive cervical cancer, an increasing incidence of pre-invasive cervical intraepithelial

- All women should begin having the Pap test about three years after sexual activity but no later than age 21.
- The test should be done every year if the regular Pap test is used; every two years if the liquid-based test is used.
- Beginning at age 30, women who have had three normal test results in a row may get the Pap test every two to three years. Another option for women older than age 30 is to have a Pap test every three years plus the human papillomavirus (HPV) DNA test.
- Women who have certain risk factors (e.g., HIV infection, immunosuppression) should get a Pap test every year.
- Women aged 70 years or older who have had three or more normal Pap tests in a row (and no abnormal tests in the past 10 years) may choose to stop having the test. But women who have had cervical cancer or who have other risk factors should continue the Pap test.
- Women who have had a total hysterectomy (removal of the uterus and cervix) may choose to stop having the test unless the surgery was done as a treatment for cervical cancer or precancer. Women who have had a simple hysterectomy (the cervix was not removed) should continue to follow the guidelines.
- Testing for certain types of HPV that increase the risk of cervical cancer can now be done by examination of the DNA of cervical cells. This test does not replace the Pap test. Sexually active younger women are more likely than older women to have HPV, but the majority of cases will resolve by themselves. DNA testing for HPV can be beneficial for women with abnormal Pap results to help guide additional testing and treatment.

### Figure 2. American Cancer Society Cervical Screening Guidelines

Note. Based on information from American Cancer Society, 2009b.

neoplasia among adolescents has been noted. In the United States and Britain, this increase has been attributed to a reduced use of barrier contraceptives (Fylan, 1998). Additionally, cervixes of girls and young women are undergoing physical changes (e.g., the cervix is covered with columnar epithelium, making it more vulnerable to HPV infection than the squamous epithelium of an adult cervix) (Cothran & White). For all of these reasons, sexually active adolescents and young adults should begin cervical Pap tests as a secondary preventative measure for cervical cancer and obtain the HPV vaccine prior to their first sexual contact.

### Abnormal Pap Smear Treatment

As a follow-up to an abnormal Pap test, women are recommended to get a colposcopy or cervical biopsy. A colposcopy examines a woman's vagina and cervix using a colposcope, and a cervical biopsy may be taken if the colposcopy cannot identify the abnormal finding reflected in a Pap test (National Cancer Institute [NCI], 2009). Although adherence to Pap test recommendations has been found to be quite good, poor adherence to follow-up of an abnormal Pap test is of significant concern among health officials. In 1998, an estimated 12%–50% of women who had an abnormal Pap test did not return for a colposcopy (Fylan, 1998). In addition, a study found that 13% of invasive cervical carcinomas could be attributed to failure of a woman to follow-up after an abnormal Pap test (Eggleston et al., 2007). For these reasons, follow-up to secondary screening measures must be considered when promoting increased adherence to screening. Cervical cancer has an almost 100% survival rate if detected early (Eggleston et al.). Inadequate follow-up to abnormal Pap tests may be caused by a lack of education and understanding of young women to the increased risk of progression to invasive cancer. Fear and embarrassment related to procedures such as colposcopy and cone biopsies also may prevent young women from returning to their physicians for necessary follow-up treatment and surveillance.

A review of the literature from 1990–2005 (Eggleston et al., 2007) identified barriers that contributed to nonadherence to recommended Pap tests, as well as nonadherence to follow-up care after an abnormal Pap test. Contributing factors included being young, being African American or Asian, living in an

urban setting, being a smoker, and having less than a high school education. Surprisingly, proximity to a clinic was not a factor in adherence, and neither was having a primary language other than English. Women who did not understand the meaning of an abnormal Pap test and the rationale for additional treatment were less likely to complete follow-up (Eggleston et al.). This exemplifies the crucial importance of patient education and understanding necessary to get young women to adhere to Pap test recommendations in addition to the healthcare benefits of receiving appropriate and necessary follow-up care. In Eggleston et al., educational brochures and telephone interviewing interventions were shown to increase the likelihood of follow-up after an abnormal Pap test. Nurses can play an important role in adherence by providing women with accurate and easily accessible, as well as easily understandable, information about the importance of Pap tests and follow-up.

### Culture Affecting Adherence

Research has identified non-Hispanic Caucasian women as being less adherent to screening procedures than African American or Hawaiian and Pacific Islanders, yet more adherent than Asian or East Indian women (Eggleston et al., 2007; Healthy People 2010). Despite the differences in cervical cancer screening rates between different racial and cultural groups, more research is needed to determine why these differences occur. Latinos have cervical cancer incidence and mortality rates two times higher than the national average, and mortality rates second only to African Americans (ACS, 2009a; McMullin, 2008). In-depth interviews of the lived experiences of Latino women diagnosed with cervical cancer pointed out reasons such as the patient's dismissing symptoms, lack of knowledge regarding where to obtain low-cost diagnosis, lengthy wait times for insurance approval, and dismissal of symptoms by medical providers (McMullin). These barriers were complicated by women perceiving cynicism from physicians, perceptions that they would not receive quality care, and moral and racial attributes the women felt assigned to them (McMullin). Social, cultural, and economic factors, and access to care compounded by moral judgments and racial stereotypes also increase risk factors for cervical cancer in specific populations.

- Cervical cancer screening should be delayed until age 21.
- Cervical cancer screening for women aged 21–29 years should occur every two years.
- Women aged 30 years or older who have had three consecutive normal results can be screened every three years if they have no history of cervical intraepithelial neoplasia 2 or 3, HIV, immunocompromise, or in utero exposure to diethylstilbestrol.
- The recommendations apply to women already vaccinated against human papillomavirus.

### Figure 3. American College of Obstetricians and Gynecologists Screening Guidelines

Note. Based on information from Boschert, 2009.

One study looked at cervical cancer screening practices among postgraduate women physicians (Ross, Nunez-Smith, Forsyth, & Rosenbaum, 2008). All of the physicians were insured, highly educated, and had easy access to healthcare services. Regardless of these commonalities, Asian and East Indian women physicians were significantly less likely to be screened than non-Hispanic Caucasian women, and no significant difference was found between non-Hispanic Caucasian, African American, and Hispanic women (Ross et al.). The results seen in this study cannot be attributed to socioeconomic status, education, lack of insurance, lack of usual source of care, language barriers, or lack of understanding of Western medicine. An article by Glinde et al. (2008) found inconclusive evidence about discrepancies in screening rates between races and socioeconomic groups, but disparities were found in cancer prevention programs and education among different ethnic and socioeconomic groups. Glinde et al.'s survey was carried out in three emergency departments in Boston, MA, using self-reported data from 387 patients to investigate if initiating cancer screening in emergency departments would be a beneficial secondary screening measure to detect cervical abnormalities. Sixty-seven percent of women participating in the study reported having had a Pap test within the past three years and, overall, a high rate of cancer screenings compliant with USPSTF recommendations was found (Glinde et al.). The findings suggest that more research into cultural and ethnic



differences and their implication in cancer screening is needed.

## Human Papillomavirus Vaccine

The FDA approval of the HPV vaccine as a preventative barrier to HPV will make a significant contribution toward reducing cervical cancer morbidity and mortality (Ahmed et al., 2007; Sigurdson et al., 2009). When administered effectively to eligible populations, HPV vaccines can prevent about 70% of cervical cancers, specifically those caused by HPV 16 and 18 (Ahmed et al.). HPV vaccine may be particularly effective on adenocarcinoma because these lesions may arise in the endocervix and are harder to detect in a Pap test (Ahmed et al.). Although the HPV vaccine has great promise for the future, it should be given to young women before they have been exposed to any form of HPV (i.e., before they become sexually active) to have the most effectiveness. Some controversy exists about the vaccine being given to young girls, particularly from conservative religious groups who are concerned that promotion of the vaccine may be interpreted as permission to become sexually active at a young age (Smith, 2005). However, through an educational and information campaign, the manufacturers of HPV vaccine have had success in promoting acceptance of the vaccine for its potentially life-saving results (HHS, 2009). In addition, nurses must educate young women that Pap tests continue to be recommended whether or not a woman has received an HPV vaccine. The reason for this recommendation is that the HPV vaccine does not provide protection for all genital types of HPV and will not treat ongoing infection (Grimshaw-Mulcahy, 2007). Gynecologic examinations for routine Pap smears also provide an opportunity for a thorough genital assessment and testing for high-risk but asymptomatic STDs (e.g., herpes simplex virus) (Grimshaw-Mulcahy).

Another barrier to cervical cancer screening is the cost of follow-up procedures for abnormal Pap tests. Low-grade squamous intra-epithelial lesions have been found in an estimated 13% of sexually active young women. These low-grade lesions have a chance of resolving themselves; however, they also may progress into cancerous lesions. Colposcopy and biopsy treatments of only 50% of these lesions would cost \$200 million each year (Cothran & White, 2002). In this case, primary preventative measures (e.g., HPV vaccine, abstinence, barrier

protection, spermicidal gel during intercourse) may be more cost-effective than secondary prevention.

Fear and embarrassment play a role in whether young women get Pap tests (Fylan, 1998), with concerns about the pelvic examination itself or concerning a possible abnormal test outcome. Studies have shown that many women do not understand the purpose of a Pap test, and believe an abnormal result automatically means they have cervical cancer (Eggleston et al., 2007). Before or after a Pap test and particularly after an abnormal result, women may experience extreme levels of stress; therefore, nurses should attempt to ease this stress level by educating women to understand the primary purpose of the Pap test and help them to understand that recommendations and follow-up are individualized based on their age and clinical and sexual history. The medical nomenclature of the various results of a Pap test is confusing for many young women who fear that any abnormality signifies cancer. Education and understanding may decrease fears and myths related to Pap tests so that screening compliance will increase.

Feeling uncomfortable with one's clinician has been shown to be a barrier to receiving a Pap test. In Sweden, the public health sphere provides a cost-free, population-based cervical cancer screening program (PCCSP). Coordinated by regional oncologic centers, women aged 23–50 years receive an invitation to screen every third year, and every fifth year if between the ages of 51–60 years. A medical reminder letter gives information about the Pap test, its aim, an appointment time and place, and acts both as a woman's referral and as a response form for the clinic and laboratory. Although Sweden has more than 80% Pap test coverage of its targeted population, in 1998 only 31% of these were conducted through the PCCSP (Blomberg et al., 2008). One of the key factors cited by women who did not use the PCCSP was their preference to see their own gynecologist whom they trusted and had a long relationship with versus going to a clinician they had never met. Interestingly, a significant number of women in this study were found to prefer paying for their own doctor than receive free screening from a stranger (Blomberg et al.). The findings emphasize the importance of trust and comfort a woman wants with her clinician during intimate screening procedures such as sharing sexual history, gynecologic examinations, and Pap testing. Providing a safe and

confidential environment for women is essential.

## Mother and Daughter Bond

On a family level, the mother and daughter relationship is of utmost importance when considering decision making for young women to receive gynecologic examinations and Pap tests. Adolescent girls may need guidance and affirmation from their parents, specifically their mothers, before receiving their first pelvic examination and subsequent Pap tests or STD screenings. If a young woman feels comfortable talking with her mother about her sexual health, she is more likely to follow appropriate screening measures. The controversy with the recommended age for the HPV vaccine, along with the unease many parents feel about their young daughter's sexual behavior, can cause barriers to preventative and screening measures in young women. Understanding how HPV is linked as a causative agent to cervical cancer may encourage mothers to seek out the best preventative health care for their daughters. Nurses are in a prime position to help ease the discomfort surrounding this topic by providing mothers with a private environment to express concerns or address questions that they may have concerning the sexual health of their daughter(s). Young women also must be made to feel that they can seek out screening measures on their own if they are uncomfortable with their mother or significant guardian being involved. Free health clinics are community resources for young women. On the community level, the serious risk of HPV to young women must be acknowledged. Community-wide screenings of young women of all ethnic and socioeconomic groups must be implemented. Most cases of cervical cancer are found in women who have never been screened (USPSTF, 2009b); therefore, early implementation of Pap test screening can have a large effect on cervical cancer morbidity.

## Conclusion

Prevention of cervical cancer does not end with Pap screening and vaccination alone; adherence to follow-up recommendations also must be attained. Education is the first step that can increase adherence to follow-up. By understanding the meaning of an abnormal Pap test and the purpose of a colposcopy, a young woman is in a better position to acknowledge follow-up to an abnormal

Pap test as a health behavior that drastically increases a positive health outcome. After an abnormal Pap test, patient education is of utmost importance to decrease the fear and myths surrounding cancer. The staging system of Pap results can be confusing and overwhelming to many young women. They may interpret all abnormal Pap results as equivalent, decreasing their adherence to follow-up procedures because of fear of a cancer diagnosis. Acknowledging the seriousness of cervical cancer, yet understanding the specific results of their test and the necessary treatment required, will likely increase adherence to follow-up of abnormal tests. Primary prevention of cervical cancer begins with young women before they become sexually active and exposed to HPV and other sexually transmitted diseases. It includes identification of other risk factors, including smoking, multiple parity, and long-term contraceptive use. Measures include following recommended guidelines for Pap screening and vaccination. Secondary prevention of cervical cancer includes early detection of abnormal cervical lesions followed by appropriate follow-up and treatment. Therefore, it is crucial that young women are given correct information regarding safe sexual practices, informed about the preventative role of the HPV vaccination, and become educated about the role of the Pap test as a secondary screening measure for cervical cancer. Nurses across all settings are in a powerful position to be advocates for safe healthcare practices of young women through education at personal, community, and national levels.

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Digital Object Identifier: 10.1188/10.ONF.33-38

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## Do You Have an Interesting Clinical Experience to Share?

Clinical Challenges provides readers with a forum to discuss creative clinical solutions to challenging patient care issues. Case studies or descriptions may be submitted with or without discussion or solutions. Materials or

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# Clinical Highlights: Cervical Cancer Screening in Young Women

## Definition

Cervical cancer forms in the lining of the cervix. Noninvasive cervical cancer (carcinoma in situ) may be four times more prevalent than invasive cervical cancer, making early detection and treatment imperative. Barriers to early detection of cervical cancer include access to care, socioeconomic status, older age, and false-negative rates because of sampling error or laboratory detection error (Memarzadeh & Berek, 2009).

## Pathophysiology

Cervical cancer is believed to start at the squamocolumnar junction. Intraepithelial neoplastic changes can occur prior to invasive carcinoma because of the ability of cells in the cervical epithelium to divide repeatedly rather than mature in a controlled fashion (Brown, 2000). Diagnosis via Pap screening follows the 2001 Bethesda system: atypical squamous cells, low-grade squamous intraepithelial lesions including human papillomavirus (HPV)/mild dysplasia/cervical intraepithelial neoplasia type 1 (CIN 1) to high-grade intraepithelial lesion (HSIL) encompassing moderate to severe dysplasia and carcinoma in situ (CIS)/CIN 2 and CIN 3 (Memarzadeh & Berek, 2009; National Cancer Institute, [NCI] 2009). Low-grade carcinoma in situ (CIN 1) is the type that may regress spontaneously and HSIL (CIN 2/CIN 3) more likely to persist or progress; the average time to invasive malignancy is estimated to be 10–15 years (NCI).

Evidence supports the relationship among HPV, cervical dysplasia, and invasive carcinoma. The natural history of HPV infection is influenced by the host immune system with the occurrence of all stages of CIN having the ability to regress spontaneously or remain unchanged; however, a small percentage of lesions have the ability to bypass this progression and replicate over a substantially shorter period of time (Memarzadeh & Berek). More than 60 HPV subtypes have been identified. Types 6 and 11 are most often associated with benign condyloma acuminata (genital warts), and types 16 and 18 associated with malignant transformation. Invasive cervical cancer spreads by local extension into local pelvic structures followed by sequential metastases along lymph

node chains. Blood-borne metastases are most common to the lung, liver, or bone (Memarzadeh & Berek).

## Risk Factors

HPV infection is the strongest causal relationship to cervical cancer (Memarzadeh & Berek, 2009). Increased risks include early age at first sexual intercourse, early first pregnancy, multiple sexual partners (Memarzadeh & Berek), exposure to diethylstilbestrol in utero, lack of barrier contraception, history of HPV or sexually transmitted disease (STD), immunosuppression, and lack of screening measures (Brown, 2000), cigarette smoking both active and passive, high parity, and long-term use of oral contraceptives (NCI, 2009).

## Clinical Presentation

HPV infection often is asymptomatic and subclinical; therefore, it often goes unrecognized without screening. Cervical infection (Brown, 2000), vaginal discharge, bleeding, and postcoital bleeding may occur, with advanced stages presenting with malodorous vaginal discharge, weight loss, or obstructive uropathy (Memarzadeh & Berek, 2009).

## Prevention, Detection, and Early Treatment

**Vaccination:** Gardasil® (Merck & Co., Inc.), a prophylactic quadrivalent vaccine made from noninfectious viral-like particles, offers protection against four types of HPV (6, 11, 16, and 18) (Grimshaw-Mulcahy, 2007). The HPV vaccine consists of three doses given over a six-month period. The vaccination does not provide protection for all genital types of HPV and will not protect against ongoing infection; therefore, it will not replace the necessity of routine screening by Pap smear.

**Sexual practice:** HPV is common in young women who have become sexually active, and every encounter with a new partner is a risk of exposure. The use of latex condoms decreases rates of HPV and other STDs.

**Pap smear:** The U.S. Preventive Services Task Force ([USPSTF], 2009) cited a Pap smear as the most effective tool to screen for cervical cancer. Clinical implementation of guidelines for Pap smears should be made on an individual basis

and decided between the patient and physician. The American Cancer Society (2009), USPSTF, and the American College of Obstetricians and Gynecologists (Boschert (2009) each provide recommendations for the professional to make decisions regarding the routine testing of young women.

## Implications for Nursing

The majority of cervical cancer is found in women who have never been screened, but adherence to follow-up of an abnormal Pap smear is of significant concern. Understanding the link between HPV and cervical cancer may encourage parents to seek out primary preventive measures for their daughters. Oncology nurses can educate young women about the importance of safe sexual practices, the causal relationship of HPV to cervical cancer, and the importance of routine Pap test screening and follow-up care.

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