A Review of the Current Cervical Cancer Screening Guidelines

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For many decades, Pap smear screening has been synonymous with well-woman visits. Although Pap smears have greatly decreased the rates of cervical cancer, current guidelines support less frequent screening. This commentary reviews the currently recommended strategies for cervical cancer screening.

Cervical cancer was once the leading cause of cancer-related deaths among women in the United States. With the development of the Pap smear and the widespread implementation of cervical cancer screening, the number of cervical cancer–related deaths has dropped significantly [1]. As our understanding of the pathogenesis of cervical cancer evolves and new screening technologies are developed, new guidelines are needed to define the best strategies for cervical cancer screening that prevent invasive disease while minimizing the negative impact that can come from overscreening.

Persistent infection with oncogenic strains of human papilloma virus (HPV) can lead to the development of premalignant lesions and, ultimately, invasive cancer. Although sexually active individuals have a high prevalence of HPV infection, only a small percentage of these infections will become persistent [2]. Early cervical cancer screening strategies were designed to identify and treat all women with high-risk cervical cytology; however, current screening recommendations focus on those who are at greatest risk for developing invasive disease by more accurately identifying women with persistent HPV infections. In 2011, the American Cancer Society, the American Society for Colposcopy and Cervical Pathology, and the American Society for Clinical Pathology updated their joint guidelines for cervical cancer screening [2], as did the US Preventive Services Task Force (USPSTF) [3]. Presented here is a summary of these guidelines to provide clinicians with the most up-to-date recommendations on cervical cancer screening.

What Is the Appropriate Age To Begin Screening?

Cervical cancer screening should begin at age 21 years regardless of when the patient has her first sexual encounter [2]. While Pap smear screening has reduced the overall incidence of cervical cancer in the United States, the incidence of cervical cancer in women aged 15–19 years is extremely low (0.15 cases per 100,000 per year) [4] and has remained unchanged over the past 4 decades. HPV infections and premalignant changes of the cervix are more likely to be transient in adolescent patients; hence, screening women under the age of 21 years is likely to increase the number of unnecessary colposcopies and procedures without significantly impacting the number of cancers prevented. In addition, treating preinvasive disease in this age group may create unnecessary anxiety that could negatively impact adherence to screening guidelines in the future. Although cervical cancer screening is not recommended for women under the age of 21 years, providers should use annual visits as an opportunity to address issues regarding reproductive health and actions that can promote a healthy future (eg, HPV vaccination, risk reducing behavior, and future screening recommendations).

How Often Should Women Undergo Cervical Cancer Screening?

Current guidelines recommend different screening schedules for women aged 21–29 years and those aged 30–65 years. While women aged 21–24 years have a high incidence of transient HPV infection, women over the age of 30 years have a higher risk of persistent HPV infection and invasive disease [5]. It is important to note that annual screening by any method is not recommended for any age group.

Women aged 21–29 years should be screened every 3 years with liquid-based cytology or conventional cytology methods alone [2, 5]. If a woman is screened prior to age 21 years, her results should be triaged as though she were 21–29 years of age [5]. Co-testing with high-risk HPV is not recommended in this age group. Due to the high prevalence of transient HPV infections in this group [2], routine HPV testing is more likely to lead to unnecessary colposcopies, biopsies, and excisional procedures that can negatively impact future reproductive health and pregnancy outcomes [5].

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Women aged 30–65 years should be screened every 5 years, and they should receive co-testing with cytology and high-risk HPV. A review of multiple studies confirms that co-testing with HPV increases the detection of cervical intraepithelial neoplasia (CIN) grade 3 or cancer, thus reducing rates of this at subsequent screenings [2]. Multiple European studies have demonstrated the low risk (0.28%) of detecting CIN grade 3 or cancer 6 years after negative co-testing [6]. These findings have been supported by the Kaiser Permanente Northern California cohort, which demonstrated that the 5-year risk of developing CIN grade 3 or higher following a negative co-test was 0.08% [5]. Screening every 3 years with cytology alone is an accepted alternative to co-testing.

Another study compared the risk of developing cervical cancer associated with screening intervals of 1, 2, and 3 years after a negative Pap test. The authors concluded that Pap smear screening every 3 years with cytology alone is an acceptable screening interval that provides an appropriate balance between benefit and harm [7]. While a rise in HPV vaccination rates is expected to reduce the incidence of persistent HPV infections, it is important to note that vaccination has not affected current screening guidelines [2].

When Is It Appropriate to Discontinue Screening?

Women 65 years or older who have had 10 years of normal screening results should not continue with routine cervical cancer screening. This 10-year interval is defined as either 3 consecutive negative cytology results or 2 consecutive negative co-testing results, with the most recent evaluation being within the last 10 years [2, 5]. The cervical transformation zone in older women is smaller and less accessible to HPV infections [8], and only a small percentage of women over age 65 years will develop a persistent infection after a high-risk HPV exposure [9]. Because cervical cancer develops many years after an infection occurs, screening this population would detect very few new cases of CIN grade 2 or above, thus preventing very few cervical cancers and even fewer cancer deaths [9].

Are There Recommendations for Screening Special Populations?

Some women have risk factors that are associated with an increased risk of developing CIN grade 3 or above or invasive disease. For these patients, an alternative screening schedule may be appropriate.

Women who have been treated for a premalignant lesion should be followed with post-treatment surveillance Pap smears every 6 months for 1 year [10]. If their post-treatment Pap smears are normal, they can then return to screening per recommended guidelines. These patients should continue screening for a total of 20 years, even if this extends screening past the age of 65 years [2, 5].

Women who have had a hysterectomy with complete removal of the cervix should not continue screening, provided they have never been treated for CIN grade 2 or higher. If a woman in this subgroup reports a new partner, routine Pap smear screening or co-testing is not recommended due to the low incidence of vaginal dysplasia and vaginal cancer in this group [2, 11]. Women with a history of CIN grade 2 or above in the past 20 years who undergo a total hysterectomy should continue with screening as outlined in the guidelines [2].

Women who are HIV-positive should undergo screening with cytology every 6 months for the first year after diagnosis, followed by annual screening [12]. There are no conclusive data to support the routine use of HPV co-testing; however, high-risk HPV testing is recommended when triaging a Pap smear with atypical squamous cells of undetermined significance [13].

Conclusion

Cervical cancer screening remains an important part of a woman's health care maintenance plan. We encourage clinicians to review these guidelines and incorporate these recommendations into their daily practice. While Pap smears were once synonymous with a woman's annual wellness visit, as these guidelines become integrated, providers and patients will recognize that annual Pap smears are no longer needed. Instead, we recommend that providers use these annual encounters as an opportunity to educate patients on the current screening recommendations and the pitfalls that come with excessive screening. These wellness visits can also serve as educational opportunities to review risk reducing behavior, HPV vaccination, contraceptive counseling, and breast health. As with any screening tool, it is important to evaluate the pros and cons of cervical cancer screening and its impact on patients. While the Pap smear has drastically reduced the number of cases of cervical cancer and mortality from this disease, we must recognize the potential harm and expense that can come from overscreening. Utilization of the guidelines presented here should allow providers to adequately screen patients and detect premalignant and treatable invasive disease while reducing the number of unnecessary colposcopies and/or excisional procedures that can be harmful and costly to patients. NCMJ

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