**RESEARCH ARTICLE**

# Age and Cervical Cancer Screening Recommendations

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**Abstract**
Recommendations for cervical cancer screening have had remarkable agreement from a number of medical societies, including the American College of Obstetricians and Gynecologists (ACOG), American Cancer Society (ACS), American Society of Cervical Colposcopy and Pathology (ASCCP), and the US Preventative Services Task Force (USPSTF). Reference to the recommended age for screening may need to be re-examined, in light of current data regarding the comparative age-related incidence of cervical malignancy, especially when recognizing the past utility of screening with exfoliative cytology in reducing subsequent mortality.

**Age and Cervical Cancer Screening Recommendations**

The recommendations for cervical cancer screening from the US Preventative Services Task Force (USPSTF), [1] the American College of Obstetricians and Gynecologists (ACOG), [2] the American Society of Colposcopy and Cervical Pathology (ASCCP), and the American Cancer Society (ACS) provide for discontinuation of screening for women over 65 years of age, provided that no previous dysplasia was detected in the past 10 years. However, there may be some important findings in the Surveillance, Epidemiology and End Results (SEER) database, which may be worth examining. For example, according to SEER data, from 2004 -2015, the incidence of cervical cancer in patients aged 65 or over was significantly higher than that of young patients ($P < 0.001$). [3] Moreover, cervical cancer patients aged ≥ 65 (16% of the listed population) had a worse cancer-specific survival compared with younger patients. From these SEER data, it may not be possible at this time to determine if those diagnosed with cervical cancer had negative screening in the previous 10 years, as is stated in recommendations. Of course, it has been noted that 50% of those diagnoses are in women with no prior screening, and 10% of those patients had no screening in the 5 years prior to diagnosis, [2] which may certainly apply to the previously described population.

At the other end of the age spectrum, a recommendation from ACS has been issued, to change the age of initiation of such screening from 21 to the age of 25. [3] In 2012, per the USPSTF, the age at initiation of cervical cancer screening was changed to exclude screening *before* the age of 21, regardless of the age of debut of sexual activity. [2] This change may not have had a negative impact on the incidence of cervical cancer in young women. [4] Examining the incidence of cervical pre-cancer for those women aged 21-25 suggests the possibility of an increasing proportion of high-grade squamous lesions between 2011 and 2017 in that population. [5] However, after that change of age at initial screening, it was concluded that no cases of cervical cancer would have been prevented as a result of that recommendation change. [6] Furthermore, the there appears to be an unproductive increase of procedures that would otherwise occur without that change. [7] Such are the considerations for cervical cancer screening in the younger population, not having identified an increased incidence of cervical cancer in that age group.

There has been substantial improvement in the outcome from early diagnosis of cervical cancer and its overall survival in developed countries in recent decades. This result is independent of the particular methodology utilized for this testing – cytology or High-risk Human Papillomavirus (HPV) or co-testing. The value of such screening should therefore be recognized, given that improvement of life expectancy (LE) and quality-adjusted life years (QALYs) has been demonstrated with early cervical cancer screening, [8] and this LE and QALYs extension may reasonably apply to older women as well, regarding these mentioned recommendations and SEER data examination.

 

It is well understood how recommendations must consider cost efficiency for any screening guidelines, recognizing the relative balance between the cost of screening versus its clinical yield. This cost, which is often borne by medical insurance coverage, must be balanced with the number of cancer cases diagnosed from this screening. In this case, the yield can be measured with the denominator of the incidence as per 100,000 women. Since the current recommendations state that women over the age of 65 should not be cytologically or HPV tested if they qualify for exclusion (i.e., negative dysplasia in past 10 years), it should be noted that current data suggests that a finite number of cancer deaths occur in this population. This might be prevented, according to examination of these SEER data. [8, 9]

It seems that the age at which cervical screening should be recommended to stop is dependent on its efficiency prior to that age, and whether there is an inflection point at that particular age. It is clear that the practical and technologic ease of such non-invasive screening, and its resultant possible preventability of mortality should be considered. Naturally, individualization is needed, recognizing the role of other risk factors and patient status in any shared decision-making. It is also fair to follow evidence-based determinations for recommended intervals for cervical screening. The statement in the ACOG reference, [2] that "women aged 65 years and older do get cervical cancer", may be important to consider for this.

Cervical cancer screening must recognize the role of the sexual transmissibility of HPV in oncogenicity of the cervix, and hence the statistical likelihood of it occurring in the years after the age of 65. [10] As has been reported, the average lifespan for women in the United States is advancing, and widowing may be an important component of this to consider, and sexual activity may likely continue beyond the age of 65. [11] Therefore, many of these women may have a new sexual partner, and some of them may therefore be at risk of acquiring HPV, given the reported incidence of male carriage of HPV. [12] Recommendations for cervical cancer screening (and the age of its discontinuation) should take this into account, to provide reasonable public health advice.

It seems that most cervical cancer screening in patients of advanced years may be performed by primary care medical personnel, including internists, family physicians and advanced practice nurses. Naturally, most gynecologic clinicians rarely make the diagnosis of cervical cancer from screening asymptomatic women, but rather most often find pre-malignant cervical changes during such screening, which can then often be successfully treated. Alternatively, the diagnosis is made in women who present with symptoms, such as bleeding. As we constantly seek biomarkers to detect any of a variety of diseases in early easily treatable stages, it is useful to recognize a diagnostic tool, of which advantage can be taken (e.g., the Papanicolaou test). As our typical life expectancy appears to be advancing, we

 

should welcome the use of well-established diagnostic tools that have been proven to be useful for providing clinical support.

It appears that cervical cancer screening for women older than 65 years of age may be even more essential than ever before, which is at odds with the prevailing medical society recommendations to discontinue cervical screening at the age of 65. This is despite the evidence that there are 13 cases/100,000 women of cervical cancer in the ages of 70-74, which is greater than that seen at younger ages. [13] Interestingly, the Canadian recommendations identify the age of 69 at which cervical screening for cancer can be discontinued. [14] Perhaps then, the current recommendations should be revisited, for this reason. At the very least, the statement regarding the exception of patients with a prior known history of cervical dysplasia, for screening those women over 65, should be highlighted or strongly emphasized. Given the manner of healthcare provided today, with patients having a discontinuity of primary care providers using often non-interoperable electronic health record systems, and a possible lack of memory regarding their own history of cervical screening results over the previous decade, there is a potential fallibility of following the stated exclusions for required cervical screening. Additionally, necessary individualization of cervical screening decision-making should be considered, so that other possible personal risk factors can be considered (e.g., continuing to have sexual intercourse with new partners). Admittedly, conversations with patients about this may be difficult to have. Recognition of the need to revisit these recommendations for the older woman has been previously described. [15, 16] Recommendations for cervical cancer screening of younger women, however, do not need to be adjusted.

 

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