One of the greatest challenges in developing cancer-screening guidelines is devising strategies that maximize screening benefits and minimize screening harms. The benefits of cancer screening — decreased cancer-related morbidity and mortality — are well known and widely promoted; the harms of cancer screening receive less attention and can take many forms: direct complications from screening and confirmatory tests; the expense, anxiety, and life disruptions incurred with new diagnoses with unclear clinical significance; and the prolonged surveillance endured by patients with positive tests but no evidence of disease. Whereas benefits can be maximized by initiating screening early and repeating testing frequently over a person’s entire life span, harms can be minimized by adopting a more focused scope for screening. The tension between these two screening goals is apparent and often leads to controversies regarding the age at which to begin cancer screening, the age at which to end screening, and the appropriate screening interval.

New guidelines for cervical-cancer screening issued on November 20 by the American College of Obstetricians and Gynecologists (ACOG) address all these controversies (see table). Three major changes have been made that are designed to minimize screening harms while preserving high benefit. The approach is in sync with contemporary evidence-based guideline development, which gives equal attention to screening benefits and harms and makes transparent judgments about the balance between the two.

The first major change, and perhaps the most striking, involves the age at which to begin cervical cytologic screening (with the Pap–Papanicolaou, or Pap, smear). The new guidelines state that screening should begin at 21 years of age and that screening “should be avoided” before that age. The evidence supporting this recommendation is compelling. Although cervical cancer is rare before the age of 21, cytologic abnormalities are common and can lead to labeling, anxiety, extended surveillance, and invasive procedures, such as colposcopy. If colposcopy is performed, the ACOG guidelines devoted to the management of histologic abnormalities recommend restraint in the treatment of most biopsy-confirmed precancerous lesions identified in young women. For example, the...
Cervical Cytologic Screening Guidelines from the American College of Obstetricians and Gynecologists, 2009.

<table>
<thead>
<tr>
<th>Age</th>
<th>Recommendation for Cytologic Screening</th>
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<tbody>
<tr>
<td>Under 21 yr</td>
<td>Avoid screening</td>
</tr>
<tr>
<td>21 to 29 yr</td>
<td>Screen every 2 yr</td>
</tr>
<tr>
<td>30 to 65 or 70 yr</td>
<td>May screen every 3 yr†</td>
</tr>
<tr>
<td>Between 65 and 70 yr</td>
<td>May discontinue screening†</td>
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</tbody>
</table>

* This recommendation applies only to women with three consecutive negative cytologic tests; exceptions include women with human immunodeficiency virus infection, compromised immunity, a history of cervical intraepithelial neoplasia grade 2 or 3, or exposure to diethylstilbestrol in utero.

† This recommendation applies only to women with three or more consecutive negative cytologic tests and no abnormal tests in the preceding 10 years; exceptions include women with multiple sexual partners.

most common type of cervical lesion, cervical intraepithelial neoplasia grade 1 (CIN 1), is considered a manifestation of acute human papillomavirus (HPV) infection, and treatment is discouraged. For young women with CIN 2, surveillance rather than treatment can be offered, since spontaneous regression of this lesion is common. The most proximal cervical-cancer precursor, CIN 3, is rare and may persist for a decade before becoming invasive. If CIN 3 develops before a woman is 21 years old, screening after that age affords multiple opportunities for such lesions to be detected and treated. Precancerous lesions are often treated with excisional procedures; observational studies have shown consistent associations between these treatments and adverse pregnancy outcomes, including preterm delivery and low-birthweight infants. Since most women under the age of 21 have not yet begun or completed childbearing, these adverse effects were weighted heavily in balancing benefits with harms, thereby prompting this unprecedented recommendation.

The second major change involves screening intervals. Whereas annual screening has been standard practice for many decades, the new guidelines state that women with an average level of risk do not require such frequent testing. Specifically, the guidelines recommend testing every 2 years for women 21 to 29 years of age. Thereafter, screening may be performed every 3 years among women who have had three consecutive negative cytologic tests. This recommendation is based on evidence showing that among women in this age group, as the number of previous normal tests increases, the likelihood of underlying cervical neoplasia decreases substantially; continued frequent screening of these low-risk women is associated with many positive tests and needless interventions but has little effect on the overall incidence of cervical cancer.5

The third major change involves the age at which screening should end. Previously, the ACOG had determined that the evidence was inconclusive and so was not useful in establishing an age at which testing should stop. The new guidelines state that it is now “reasonable” to discontinue screening in women between 65 and 70 years of age who have had three or more consecutive normal tests and no abnormal results within the preceding 10 years. This conclusion reiterates that of an ACOG Committee Opinion issued in May 2009 and is in agreement with current guidelines published by the American Cancer Society and the U.S. Preventive Services Task Force. The factors supporting this recommendation are familiar; screening benefits are small in women at low risk, and harms are incurred when tests are positive. Moreover, coexisting medical conditions that become more common with advancing age may increase the risks associated with surgical treatments.

Important areas of uncertainty remain. The effects that HPV vaccination will have on screening initiation and screening intervals are unknown; immunized women should therefore continue to be screened in the same way that nonimmunized women are screened. It is also unclear what appropriate care consists of for women over 65 who are deemed to be at low risk for cervical neoplasia because of previous normal cytologic test results but who have multiple sexual partners (and presumably new sexual exposures); given the current uncertainties, the new recommendations call for continued routine screening in such women. It is now also suggested that women with a history of CIN 2 or 3 who have undergone hysterectomy with removal of the cervix continue to be screened — a modification of the recommendation put forth in the previous guidelines. A lack of high-quality evidence to support the previous recommendation to discontinue screening after three normal cytologic tests is cited as...
the basis for this new recommendation. Modeling studies and individual risk calculators may be useful in determining whether the presence of certain risk factors increases the risk of cervical neoplasia to a level that justifies continued screening. Although annual cytologic testing is no longer recommended for most women, the guidelines state that physicians should inform women that an annual gynecologic examination “may still be appropriate.” The precise content of this examination is undefined, and more evidence regarding the benefits and harms of this widespread practice is needed.

How should clinicians discuss these changes with patients? Guidelines promoting a recommendation to do less are often viewed with suspicion; individual women may feel as if they are being asked to accept greater personal risk as part of an overall effort to contain costs and conserve resources. Clinicians should inform women that the changes in the guidelines have not been prompted by financial considerations but by careful consideration of the estimated balance between benefits and harms. Women should be made aware that health recommendations are updated periodically as newer, more robust evidence becomes available. Changes are expected to occur over time. Women should also be aware of components of periodic health examinations that have been identified as providing greater benefits than harms, such as those actively promoted by the U.S. Preventive Services Task Force. Clinicians can have the greatest effect on minimizing the harms of screening by taking seriously the recommendations to do less screening among women in low-risk groups, especially young women. Finally, in terms of screening, clinicians should seek out and offer screening to unscreened and poorly screened women, a group that accounts for at least half of the estimated 11,000 cases of cervical cancer that occur annually in the United States.

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From the Department of Obstetrics, Gynecology, and Reproductive Sciences, the Department of Epidemiology and Biostatistics, and the Helen Diller Family Comprehensive Cancer Center—all at the University of California, San Francisco.

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