Cervical Cancer Screening Guideline

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Most recent guideline approval date: August 2012

Guidelines are systematically developed statements to assist patients and providers in choosing appropriate health care for specific clinical conditions. While guidelines are useful aids to assist providers in determining appropriate practices for many patients with specific clinical problems or prevention issues, guidelines are not meant to replace the clinical judgment of the individual provider or establish a standard of care. The recommendations contained in the guidelines may not be appropriate for use in all circumstances. The inclusion of a recommendation in a guideline does not imply coverage. A decision to adopt any particular recommendation must be made by the provider in light of the circumstances presented by the individual patient.
Prevention

Cervical cancer prevention measures include regular Pap test screening and reducing the risk of human papillomavirus (HPV) infection through condom use and HPV vaccination. In the presence of HPV infection, cigarette smoking is thought to be associated with a significantly increased risk of squamous cell carcinoma, and tobacco cessation is an important aspect of decreasing risk of cervical dysplasia (ACOG 2009).

- Group Health recommends HPV vaccination for both males and females aged 9–26 years for the prevention of HPV-related diseases. See Immunization Schedules.
- Group Health recommends tobacco cessation for all individuals. See Tobacco Use Guideline.

Abbreviations Used

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASC-US</td>
<td>Atypical squamous cells of undetermined significance</td>
</tr>
<tr>
<td>LSIL</td>
<td>Low-grade squamous intraepithelial lesion</td>
</tr>
<tr>
<td>ASC-H</td>
<td>Atypical squamous cells—cannot exclude HSIL</td>
</tr>
<tr>
<td>HSIL</td>
<td>High-grade squamous intraepithelial lesion</td>
</tr>
<tr>
<td>AGC</td>
<td>Atypical glandular cells</td>
</tr>
<tr>
<td>AIS</td>
<td>Adenocarcinoma in situ</td>
</tr>
<tr>
<td>CIN [1, 2, 3]</td>
<td>Cervical intraepithelial neoplasia [grade 1, 2, or 3]</td>
</tr>
<tr>
<td>LEEP</td>
<td>Loop electrosurgical excision procedure</td>
</tr>
<tr>
<td>ECC</td>
<td>Endocervical curettage</td>
</tr>
</tbody>
</table>
Specimen Collection Techniques

Liquid-based cytology Pap test
Sample the ectocervix with the spatula by rotating it 360 degrees, and sample the endocervix with the cytobrush, rotating it 90–180 degrees. Rotating the cytobrush more than ½ turn will result in too cellular a sample, which may be incorrectly interpreted as abnormal.

Conventional Pap test
Sample the squamocolumnar junction (SCJ) and the transformation zone (the squamous and glandular epithelium adjacent to the SCJ) using an extended tip spatula. For all patients, it is recommended that an additional endocervical sample be obtained with a cytobrush to ensure transformation zone sampling in all circumstances. Cytology guidelines recommend the endocervical brush be rotated only 90 degrees and then rolled completely on the slide. If the Pap smear returns unsatisfactory, it should be repeated within 6–12 weeks.

Colposcopy
Apply 4% acetic acid to the cervix. Use the colposcope at 10x or 16x magnification.

Satisfactory colposcopy means complete visualization of the transformation zone. If there is a satisfactory colposcopy, an endocervical curettage (ECC) does not necessarily need to be obtained. If the colposcopy is unsatisfactory, an ECC or endocervical dilator/speculum should be used. If there is a visible lesion, it should be biopsied directly.
Screening

Virtually all cervical cancers are caused by HPV infections, with just two types (16 and 18) responsible for approximately 70% of all cases. Other high-risk genotypes (such as 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) are also included in the high-risk HPV test.

Women who are immunized against HPV 16 and 18 should be screened by the same regimen as nonimmunized women.

A Pap test every 3 years is the preferred method of screening at Group Health; however, a Pap test combined with HPV DNA testing every 5 years is an alternative screening option for women 30 years and older. HPV DNA testing alone or in combination with cytology is not recommended in women younger than 30 (USPSTF 2012).

<table>
<thead>
<tr>
<th>Eligible population</th>
<th>Test(s)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average-risk women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women younger than 21 years</td>
<td>Screening is not recommended regardless of age of onset of sexual activity, as it may lead to unnecessary and harmful evaluation and treatment in women at very low risk of cervical cancer.</td>
<td></td>
</tr>
<tr>
<td>Women 21 through 64 years</td>
<td>Liquid-based or conventional methods of cervical cytology (Pap test)</td>
<td>Every 3 years</td>
</tr>
<tr>
<td>Women 65 years and older</td>
<td>Screening is not recommended.</td>
<td></td>
</tr>
<tr>
<td><strong>High-risk women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women of any age who have received a diagnosis of CIN 2/3 or cervical cancer</td>
<td>Refer to Gynecology.</td>
<td></td>
</tr>
<tr>
<td>Women of any age who are immunocompromised (i.e., HIV or long-term immunosuppression)</td>
<td>Liquid-based or conventional methods of cervical cytology (Pap test)</td>
<td>Twice in the first year after diagnosis of HIV infection and then annually, provided the test results are normal</td>
</tr>
</tbody>
</table>

2. Sexually active women younger than 21 should be counseled regarding safe sex and contraception and tested for sexually transmitted infections.
3. Findings from observational studies suggest that high-risk HPV infections and cytologic abnormalities are common and transient in women younger than 21. In addition, CIN 3 or higher is much less common in the younger cohort. Women younger than 25 tend to have lower detection rates and higher false positive rates. At this time evidence suggests that screening younger women does not result in decreased incidence of cervical cancer among women younger than 30 (USPSTF 2012).
4. The USPSTF recommends against screening for cervical cancer in women who have had a total hysterectomy and no prior history of CIN.
5. There is adequate evidence that screening with Pap tests in women 65 years or older who have had adequate prior screening and are not otherwise at high risk provides little to no benefits. The 2012 ACS-ASCCP-ASCP guideline defines adequate prior screening as three or more documented, consecutive, and technically satisfactory normal/negative Pap tests, or two consecutive negative cotests, with the most recent test occurring within the past 5 years and no abnormal/positive Pap tests within the last 10 years.
Women 21 Years and Older: Management of Pap Results

Pap results

There are two screening options at Group Health: Pap test every 3 years for women over 21 years of age (preferred option), and Pap test and HPV co-testing every 5 years (alternative option). The alternative screening option is only recommended for women 30 years and older.

For patients screened with the preferred option, reflex HPV DNA testing is performed only when Pap results are ASC-US.

For women 30 and older screened using the alternative option, HPV DNA testing is performed for all Pap results.

<table>
<thead>
<tr>
<th>Pap results</th>
<th>HPV DNA status</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative: Women under 30</td>
<td>Not performed</td>
<td>Resume screening per Table 1.</td>
</tr>
<tr>
<td>Negative: Women 30 and older</td>
<td>Negative</td>
<td>Resume screening per Table 1.</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>If positive HPV 16 or HPV 16/18 genotype, refer for immediate colposcopy or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If negative HPV 16 or HPV 16/18 but positive for other high risk HPV genotype, repeat Pap and HPV DNA testing at 12 months.</td>
</tr>
<tr>
<td>ASC-US</td>
<td>Negative</td>
<td>Repeat Pap in 3 years, or co-test in 5 years (women over 30 years of age)</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>Colposcopy ³</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>Repeat Pap at 6 and 12 months or immediate colposcopy ³</td>
</tr>
<tr>
<td>LSIL</td>
<td>NA</td>
<td>Colposcopy ³</td>
</tr>
<tr>
<td>ASC-H or HSIL</td>
<td>NA</td>
<td>Colposcopy ⁴ or immediate LEEP ⁵</td>
</tr>
<tr>
<td>AGC</td>
<td></td>
<td>Colposcopy, ⁶ ECC, HPV DNA and Endometrial sampling if patient is older than 35 or has risk factors for endometrial neoplasia ⁷</td>
</tr>
</tbody>
</table>

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1. Clinical decision making is consistent with the 2012 ACS-ASCCP-ASCP, 2006 ASCCP (J Low Genit Tract Dis.), and 2012 NCCN guidelines.
2. HPV testing is not recommended for women under 30. Patients should be made aware that not all health plans cover HPV testing without co-insurance/copay/deductible.
3. See Table 3 for follow-up of colposcopy findings.
4. See Table 4 for follow-up of colposcopy findings.
5. After weighing pregnancy plans, consider skipping colposcopy step and performing LEEP for definitive diagnosis.
6. See Table 5 for follow-up of colposcopy findings.
7. Endometrial risk factors include obesity, unopposed estrogen hormone replacement therapy, polycystic ovarian disease/anovulation, tamoxifen therapy, and hereditary nonpolyposis colorectal cancer.
Women 21 Years and Older: Management of Colposcopy Results

Low-grade lesions (ASC-US or LSIL)
Visualization of the entire squamocolumnar junction and margins of any visible lesions is required for colposcopy to be considered satisfactory.

If the entire junction is not visualized (i.e., unsatisfactory colposcopy), then biopsy any visible lesions and obtain an ECC specimen.

Table 3. Management of low-grade lesions (ASC-US or LSIL) for women 21 YEARS AND OLDER

<table>
<thead>
<tr>
<th>ECC/biopsy findings</th>
<th>Management</th>
<th>Findings</th>
<th>Management</th>
<th>Findings</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative or CIN 1</td>
<td>HPV DNA testing at 12 months</td>
<td>Negative</td>
<td>Resume screening per Table 1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Repeat Pap at 6 months</td>
<td>Negative</td>
<td>Repeat Pap at 6 months</td>
<td>Negative</td>
<td>Resume screening per Table 1.</td>
</tr>
<tr>
<td>OR</td>
<td>Repeat Pap at 6 months</td>
<td>ASC-US or higher</td>
<td>Colposcopy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIN 2/3</td>
<td>Refer to Gynecology for diagnostic excisional procedure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Clinical decision making is consistent with the 2006 ASCCP (J Low Genit Tract Dis.) and 2012 NCCN guidelines.
2 For follow-up after treatment for CIN 2/3, see Table 6.
High-grade lesions (ASC-H or HSIL)
Visualization of the entire squamocolumnar junction and margins of any visible lesions is required for colposcopy to be considered satisfactory.

If the entire junction is **not** visualized (i.e., unsatisfactory colposcopy), then:
- Biopsy any visible lesions **and** obtain an ECC specimen, **or**
- Refer to Gynecology for diagnostic excisional procedure.

### Table 4. Management of high-grade lesions (ASC-H or HSIL) for women 21 YEARS AND OLDER

<table>
<thead>
<tr>
<th>Colposcopy</th>
<th>ECC/Biopsy findings</th>
<th>Management Findings</th>
<th>Management Findings</th>
<th>Management Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory colposcopy</td>
<td>Negative or CIN 1</td>
<td>Repeat Pap at 6 months.</td>
<td>Negative, ASC-US or LSIL</td>
<td>Repeat Pap at 6 months.</td>
</tr>
<tr>
<td></td>
<td>See Figure 1 for flow chart.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsatisfactory colposcopy</td>
<td>Any findings</td>
<td>Refer to Gynecology.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Clinical decision making is consistent with the 2006 ASCCP (*J Low Genit Tract Dis.*) and 2012 NCCN guidelines.
2. After weighing pregnancy plans, consider referring to Gynecology for diagnostic excisional procedure.
3. For follow-up after treatment for CIN 2/3, see Table 6.
High-grade lesions (ASC-H and HSIL)—Negative or CIN 1
Clinical decision making is consistent with the 2006 ASCCP and 2012 NCCN guidelines.

Satisfactory colposcopy in woman 21 years or older with high-grade lesions (ASC-H or HSIL) and negative or CIN 1

Choose one management option:

Repeat Pap at 6 months.

Refer to Gynecology.

Review material. Consider reviewing cytological, histological, and colposcopic findings with a multidisciplinary team. If review changes interpretation, follow management guidelines for the revised interpretation.

Negative, ASC-US or LSIL

ASC-H or HSIL

Repeat Pap at 6 months.

Results?

Resume screening per Table 1.

Resume screening per Table 2.
Women of Any Age: Management of Atypical Glandular Cells (AGC)

AGC should be managed by a clinician with experience in managing glandular disorders (2006 ASCCP, *J Low Genit Tract Dis.*). Management should include colposcopy, ECC, HPV testing, and endometrial sampling, if indicated.

If the entire junction is **not** visualized (i.e., unsatisfactory colposcopy), then refer to Gynecology for diagnostic excisional procedure.

| Table 5. Management of atypical glandular cells (AGC) in WOMEN OF ANY AGE | | |
|---|---|---|---|---|
| Initial Pap results | Cervical biopsy findings | ECC findings | HPV DNA findings | Management Findings | Management |
| AGC-NOS Negative See Figure 2 for flow chart. | Negative | Negative | HPV DNA at 12 months and Pap at 12 months | Both negative | Resume screening per Table 1. |
| | | | | | HPV positive and/or ASC-US or higher Colposcopy |
| | | | | | |
| Positive | | | HPV DNA at 6 months and Pap at 6 months | Both negative | Resume screening per Table 1. |
| | | | | | HPV positive and/or ASC-US or higher Colposcopy |
| Unknown | Repeat Pap every 4 to 6 months until 4 negative results. | Negative | Resume screening per Table 1. |
| | | | | | ASC-US or higher Colposcopy |
| CIN 1/2/3 or AIS HPV positive or negative | Refer to Gynecology. | | | |
| CIN 1 See Figure 3 for flow chart. | Negative | HPV positive or negative | HPV DNA at 12 months | Negative | Resume screening per Table 1. |
| | | | | | Positive Colposcopy |
| OR | Repeat cytology every 6 months until 2 consecutive negative results. | Negative | Resume screening per Table 1. |
| | | | | | ASC-US or higher Colposcopy |
| CIN 2/3 HPV positive or negative | Refer to Gynecology. | | | |
| AGC favor neoplasia or AIS | Negative | HPV positive or negative | Refer to Gynecology. | | |

1 Clinical decision making is consistent with the 2006 ASCCP (*J Low Genit Tract Dis.*) guideline.
2 For women over 35 or who have risk factors for endometrial neoplasia, conduct endometrial sampling in conjunction with colposcopy. Endometrial risk factors include obesity, unopposed estrogen hormone therapy, polycystic ovarian disease/anovulation, tamoxifen therapy, and hereditary nonpolyposis colorectal cancer.
Atypical glandular cells (AGC) not otherwise specified (NOS)—No CIN
Clinical decision making is consistent with the 2006 ASCCP guideline.

AGC- NOS and negative cervical biopsy findings in woman of any age

ECC findings

HPV DNA status

Management

Findings

Management
Figure 3.

Atypical glandular cells (AGC) not otherwise specified (NOS)—CIN 1
Clinical decision making is consistent with the 2006 ASCCP guideline.

AGC- NOS and CIN 1 in woman of any age

ECC findings

HPV DNA status

Management

Findings

Management

Resume screening per Table 1.
Colposcopy
Resume screening per Table 1.
Colposcopy

HPV positive or negative

HPV DNA testing at 12 months
OR
Repeat Pap every 6 months until 2 consecutive negative results

Repeat Pap every 6 months.

HPV results at 12 months?

Negative
Positive

Pap results?

Negative
ASC-US or higher

2 consecutive negative results?

YES

NO

ECC negative

CIN 1/2/3 or AIS

HPV positive or negative

Refer to Gynecology.
## Women of Any Age: Management After Definitive Treatment for Cervical Intraepithelial Neoplasia (CIN)

### Table 6. Management after treatment for CIN 2/3 in WOMEN OF ANY AGE

<table>
<thead>
<tr>
<th>Margin status or Margin status unknown</th>
<th>Follow-up</th>
<th>Findings</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative margins</td>
<td>Pap test at 6 months</td>
<td>Negative</td>
<td>Resume screening per Table 1.</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td>ASC-US or higher</td>
<td>Repeat Pap test at 6 months or immediate colposcopy</td>
</tr>
<tr>
<td>Margin status unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV DNA at 12 months</td>
<td>Negative</td>
<td></td>
<td>Resume screening per Table 1.</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td></td>
<td>Colposcopy</td>
</tr>
<tr>
<td>Positive margins</td>
<td>Pap test at 6 months and consider ECC</td>
<td>Negative</td>
<td>Resume screening per Table 1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASC-US or higher</td>
<td>Repeat Pap test at 6 months or immediate colposcopy</td>
</tr>
<tr>
<td></td>
<td>Refer to Gynecology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Clinical decision making is consistent with the 2012 NCCN guideline.
Special Populations

Pregnant women
Based on the 2006 ASCCP (*J Low Genit Tract Dis.*) and 2012 NCCN guidelines, Group Health recommends the following for pregnant women:

Management of Pap results
Refer the patient to a colposcopist with experience in colposcopy during pregnancy.

**ASC-US and LSIL**
- Endocervical sampling should be avoided.
- Colposcopy and cervical biopsy for LSIL and ASC-US may be deferred until 6 weeks postpartum.

**ASC-H and HSIL**
- Endocervical sampling should be avoided.
- Colposcopy and cervical biopsy can be performed in pregnant women, but biopsy should be limited to patients in whom high-grade intraepithelial neoplasia or microinvasive cancer is suspected. Biopsy if lesion is seen.
- Reassessment 6–12 weeks postpartum by Pap test, colposcopy, endocervical sampling and biopsy should be performed.

**AGC**
- Endocervical sampling should be avoided.
- Endometrial biopsy should be avoided.

Management of colposcopy findings
- Brush cytology is safe during pregnancy.
- Treatment for CIN (any grade) should be delayed until after pregnancy.
- Diagnostic excisional procedure is recommended only if invasive cancer is suspected.
- If biopsy proves CIN 2/3, repeat Pap test and colposcopy may be performed every 12 weeks, with repeat biopsy if the lesion worsens or suggests invasion.

Women with DES exposure in utero
Between 1940 and 1971, diethylstilbestrol (DES) was prescribed to pregnant women to prevent miscarriage, premature labor, and related complications of pregnancy. Prenatal DES exposure has been linked to clear cell adenocarcinoma of the cervix and vagina.

Screening procedure
Women who were exposed in utero require special sampling during cervical cancer screening. Clinicians should sample all quadrants of the vaginal fornices as well as the cervix, and submit the combined sample in one vial with the requisition documenting DES exposure. Yearly examination with a Pap test is a documented standard of care. Colposcopy with biopsies is indicated if there is an abnormal Pap or there are palpable changes in the reproductive tract mucosa.

Women who are immunocompromised (e.g., HIV or long-term immunosuppression)
Women with HIV should be screened with a Pap test twice in the first year after diagnosis (at 6-month intervals) and then annually, provided the test results are normal (2009 ACOG). Immunosuppressed women with ASC-US—including women who are HIV-positive—may be managed in the same way as women in the general population (2006 ASCCP, *J Low Genit Tract Dis.*). Other cytologic abnormalities in immunosuppressed women should also be evaluated in the same manner as in other women.
**Women who have had a hysterectomy with diagnosis of CIN2 or greater**

Follow-up of women after hysterectomy with a diagnosis of CIN2 or greater should include routine screening with Pap smears for 20 years. It is important to ascertain the results of previous Pap smears so that appropriate follow-up can be determined.
**Women Younger than 21 Years**

For women under 21 years of age, screening is not routinely recommended regardless of age of onset of sexual activity, as it may lead to unnecessary and harmful evaluation and treatment in women at very low risk of cervical cancer.

For those who have already received screening and have an abnormal Pap result, see “Pap results,” “High-grade lesions or consecutive abnormal Paps,” and “Atypical glandular cells,” below.

### Pap results

<table>
<thead>
<tr>
<th>Pap results</th>
<th>Management Findings</th>
<th>Management Findings</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASC-US or LSIL</td>
<td>Repeat Pap at 12 months Negative, ASC-US or LSIL</td>
<td>Repeat Pap at 12 months Negative</td>
<td>Resume screening per Table 1. ASC-US, LSIL, ASC-H or HSIL Colposcopy 2</td>
</tr>
<tr>
<td>ASC-H or HSIL</td>
<td>Colposcopy 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGC</td>
<td>Colposcopy 3, ECC, HPV DNA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Clinical decision making is consistent with the 2006 ASCCP *(J Low Genit Tract Dis.)* and the 2012 NCCN guidelines.
2. See Table 8 for follow-up of colposcopy findings.
3. See Table 5 for follow-up of colposcopy findings.

### High-grade lesions (ASC-H or HSIL) or consecutive abnormal Paps

Visualization of the entire squamocolumnar junction and margins of any visible lesions is required for colposcopy to be considered satisfactory.

If the entire junction is not visualized (i.e., unsatisfactory colposcopy), then biopsy any visible lesions and obtain ECC specimen.

<table>
<thead>
<tr>
<th>ECC/biopsy findings</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative or CIN 1</td>
<td>Repeat colposcopy and Pap at 6-month intervals for up to 2 years.</td>
</tr>
<tr>
<td>CIN 2/3</td>
<td>Repeat colposcopy and Pap at 6-month intervals for up to 2 years. \or Refer to Gynecology for management. 2</td>
</tr>
</tbody>
</table>

1. Clinical decision making is consistent with the 2006 ASCCP guidelines *(J Low Genit Tract Dis., Am J Obstet Gynecol.)*.
2. For follow-up after treatment for CIN 2/3, see Table 6.

### Atypical glandular cells (AGC)

Management for AGC does not differ by age. See Table 5.
Evidence/References

Group Health has adopted the recommendations of the:


- **American Society for Colposcopy and Cervical Pathology (ASCCP) 2006**  


- **American College of Obstetricians and Gynecologists (ACOG) 2009**  

- **American Cancer Society, ASCCP, and American Society for Clinical Pathology 2012**  
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Most Recent Guideline Approval Date: August 2012  

Process of Development  
A systematic review of the recommendations from external evidence-based guidelines that fulfill our criteria was conducted in June 2012 by the Guideline Team. Based on this review, we adopted recommendations from the following guidelines: 2012 U.S. Preventive Services Task Force (USPSTF); 2006 American Society for Colposcopy and Cervical Pathology (ASCCP); 2012 American Cancer Society, ASCCP, and American Society for Clinical Pathology; and 2012 National Comprehensive Cancer Network (NCCN).

The following specialties were represented on the development team: family medicine, gynecologic oncology, medical oncology, pathology, and pediatrics.