National Comprehensive Cancer Network®

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines™)

Cervical Cancer Screening

Version 1.2011

NCCN.org

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NCCN Guidelines Panel Disclosures

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Clinical Trials: The NCCN believes that the best management for any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

To find clinical trials online at NCCN member institutions, click here: nccn.org/clinical_trials/physician.html

NCCN Categories of Evidence and Consensus: All recommendations are Category 2A unless otherwise specified.

See NCCN Categories of Evidence and Consensus

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NCCN Guidelines™ Version 1.2011 Updates Cervical Cancer Screening

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Updates in Version 1.2011 of the NCCN Cervical Cancer Screening Guidelines from Version 1.2010 include:

CERVS-1

- The screening guidelines for early detection of cervical cancer were updated and adapted from the 2009 ACOG Committee Opinion No. 109 on Cervical Cytology Screening.

CERVS-3

- Visible/suspicious lesion on cervix, after biopsy, was modified as "If no cancer, consider CKC a*nd/or referral to gynecologic oncologist/specialist*".

CERVS-4

- Follow-up for "Cervical cytology/Pap test negative and high-risk HPV DNA positive ≥ 30 y" was modified by removing colposcopy and adding, "Repeat both tests at 12 mo, Cytology/Pap test *and* high-risk HPV DNA test."

CERVS-5

- For ASC-US or LSIL, after repeat cervical cytology/Pap test at 12 mo, if this is negative or ASC-US or LSIL, then repeat cervical cytology/Pap test was changed from 12 mo to "*24 mo*."
- For ASC-H or HSIL, unsatisfactory colposcopy, perform ECC and cervical biopsy, "CIN II" was added to "Negative or CIN I."

CERVS-9

- Follow-up was modified as "Repeat cervical cytology/Pap test, colposcopy, and ECC *every* 6 mo *until 2 consecutive negative results"*. Also for CERVS-10.
- Footnote n, "If preceding cervical cytology/Pap test was ASC-H, may consider follow-up" is new to the page.

CERVS-10

- For lesion seen, biopsy indicates CIN II or CIN III, "cryotherapy" and "laser ablation" were removed as management options.

CERVS-11

- CIN I with positive or negative margins or CIN II, III with negative margins, follow-up with "Cervical cytology/Pap test" was changed from 12 mo to "*6 mo*."
- CIN II, III with positive margins, reexcision, "Consider hysterectomy (after consultation with specialist)" was added as a follow-up option.

CERVS-13

- AGC-NOS, HPV DNA testing, not done, management was added for when cervical cytology is negative or cervical cytology ≥ ASC-US.

CERVS-14

- AGC, CIN I, ECC negative, management was added for when cervical cytology is negative or cervical cytology ≥ ASC-US.

CERVS-15

- Positive margins, fertility desired, "Repeat cervical cytology/Pap test, HPV DNA test, colposcopy, and ECC at 6 mo" was removed as a management option.
- Negative margins, fertility desired, follow-up was added for negative and positive results for "Cervical cytology/Pap test ± ECC every 6 mo until hysterectomy".

CERVS-B

- Fourth bullet, "Colposcopy and cervical biopsy for LSIL and ASC-US can be deferred until 6 weeks postpartum" is new to the page.
- Fifth bullet was modified as, "Colposcopy and cervical biopsy during pregnancy should be limited to patients where high-grade neoplasia or invasive cancer is suspected."

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SCREENING GUIDELINES FOR EARLY DETECTION OF CERVICAL CANCER[a]

When to start screening

- **Cervical cancer screening should begin at age 21 years. Screening before age 21 should be avoided, because it may lead to unnecessary and harmful evaluation and treatment in women at very low risk of cancer.**
- **Sexually active adolescents (ie, females younger than age 21 years) should be counseled and tested for sexually transmitted infections, and should be counseled regarding safe sex and contraception. These measures may be carried out without cervical cytology and, in the asymptomatic patient without the introduction of a speculum.**
- **Both liquid-based and conventional methods of cervical cytology are acceptable for screening.**

Frequency of screening

- **Cervical cytology screening is recommended every 2 years for women between the ages of 21 years and 29 years.**
- **Co-testing using the combination of cytology plus HPV DNA testing is an appropriate screening test for women older than 30 years. Any low-risk woman aged 30 years or older who receives negative test results on both cervical cytology screening and HPV DNA testing should be rescreened no sooner than 3 years subsequently.**
- **Women aged 30 years and older who have had three consecutive negative cervical cytology screening test results and who have no history of CIN II or CIN III, are not HIV infected, are not immunocompromised, and were not exposed to diethylstilbestrol in utero may extend the interval between cervical cytology examinations to every 3 years.**
- **Women who have been immunized against HPV-16 and HPV-18 should be screened by the same regimen as nonimmunized women.**
- **Regardless of the frequency of cervical cytology screening, physicians also should inform their patients that annual gynecologic examinations may still be appropriate even if cervical cytology is not tested at each visit.**

Screening Guidelines continued (See CERVS-2)

[a]Cervical cytology screening. ACOG Committee Opinion No. 109. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;114:1409-1420.

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SCREENING GUIDELINES FOR EARLY DETECTION OF CERVICAL CANCER[a]

When to discontinue screening

- **Women treated in the past for CIN II, CIN III, or cancer remain at risk for persistent or recurrent disease for at least 20 years after treatment and after initial posttreatment surveillance, and should continue to have annual screening for at least 20 years.**
- **Women who have had a hysterectomy with removal of the cervix and have a history of CIN II or CIN III — or in whom a negative history cannot be documented — should continue to be screened even after their period of posttreatment surveillance. Whereas the screening interval may then be extended, there are no good data to support or refute discontinuing screening in this population.**
- **In women who have had a total hysterectomy for benign indications and have no prior history of high-grade CIN, routine cytology testing should be discontinued.**
- **Because cervical cancer develops slowly and risk factors decrease with age, it is reasonable to discontinue cervical cancer screening between 65 years and 70 years of age in women who have three or more negative cytology test results in a row and no abnormal test results in the past 10 years.**

See Initial Findings of Screening Exam (CERVS-3)

[a]Cervical cytology screening. ACOG Committee Opinion No. 109. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;114:1409-1420.

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INITIAL FINDINGS OF SCREENING EXAM[b] → **FOLLOW-UP**

- **Visible/suspicious lesion on cervix** → **Biopsy** →
  - **If invasive cancer, see NCCN Cervical Cancer Guidelines**
  - **If no cancer, consider CKC and/or referral to gynecologic oncologist/specialist**
- **Cervical cytology/Pap test[c,d] unsatisfactory** →
  - **Repeat cervical cytology/Pap test should be done within 6-12 weeks.**
  - **Treat infection if present and indicated**
- **Cervical cytology/Pap test[c,d] negative for intraepithelial lesion or malignancy** → **Screening frequency based on screening guidelines**
  See Screening for Early Detection of Cervical Cancer (CERVS-1)
- **Cervical cytology/Pap test negative[c,d] and High-Risk HPV DNA positive ≥ 30 y** → **See Follow-up for High-Risk HPV DNA testing ≥ 30 y (CERVS-4)**
- **Cervical cytology/Pap test[c,d] positive for epithelial abnormalities:**
  - **Atypical squamous cells (ASC)**
    - **Undetermined significance (ASC-US)** →
    - **Suspicion of high-grade dysplasia (ASC-H)** →

    → **See Screening Findings Adolescents or Young Women < 21 y (CERVS-5)**
  - **Low-grade squamous intraepithelial lesions (LSIL)** →
  - **High-grade squamous intraepithelial lesions (HSIL)** →

    → **See Screening Findings Adult ≥ 21 y (CERVS-6)**
  - **Atypical glandular cells (AGC)[b]** → **See AGC Follow-Up and Management (CERVS-12)**
- **Cervical cytology/Pap test[c,d] positive for invasive cancer[b]** → **Biopsy visible lesion; diagnostic excision if no visible lesion** →
  - **If cancer, see NCCN Cervical Cancer Guidelines**
  - **If CIN I- III, see CERVS-11**

[b] Referral to specialist with oncological expertise for complex clinical situations should be strongly considered. Examples of complex clinical situations include:
- Atypical glandular cells
- Pregnancy
- Adenocarcinoma in-situ
- Persistent/recurrent dysplasia with desire for fertility preservation

[c] Cervical cytology/Pap test results should be reported using the Bethesda System. See The Bethesda System 2001 (CERVS-A).

[d] Conventional Pap test or liquid-based technology is an acceptable method for primary screening.

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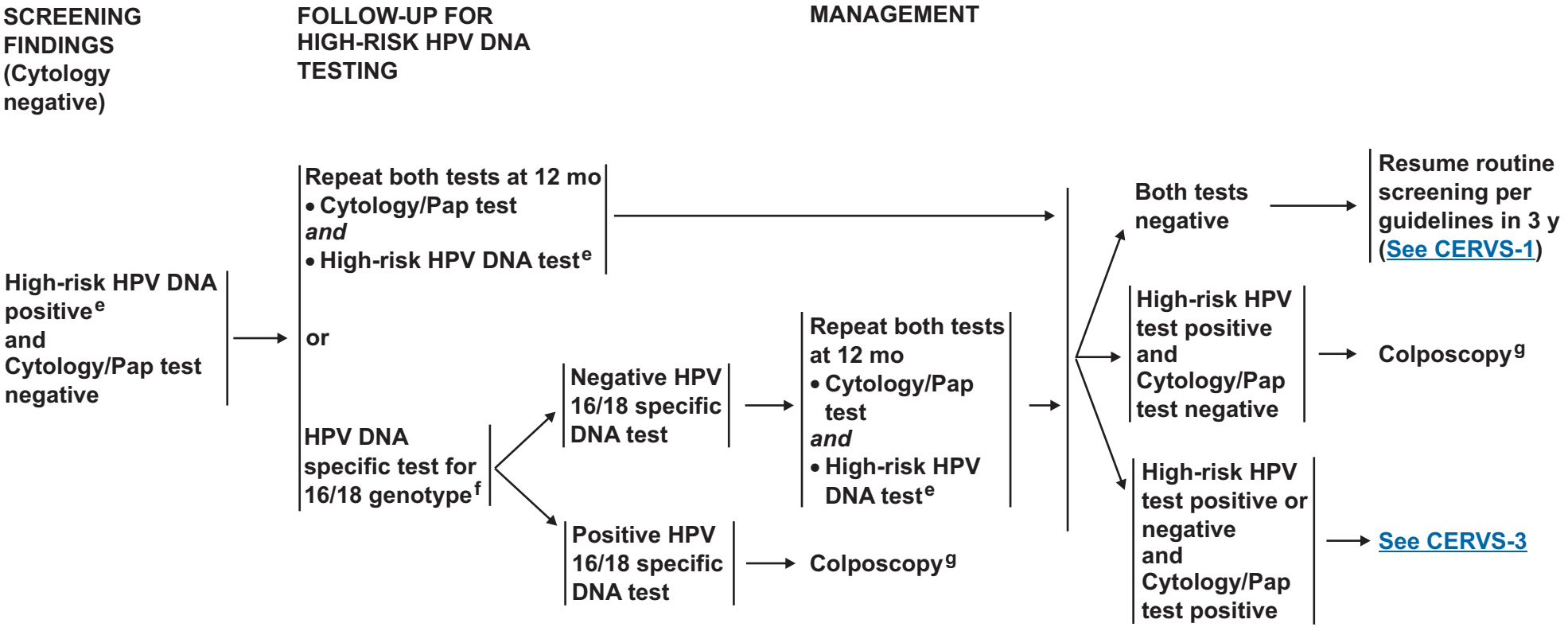
FOLLOW-UP FOR HIGH-RISK HPV DNA TESTING ≥ 30 y



[e] The FDA approved HPV DNA testing for high-risk virus types; it is not useful to test for low-risk virus types. High-risk HPV DNA tests detect whether any of the 13-14 high-risk types of HPV are present, although the tests do not indicate which types are present.

[f] The HPV 16/18 DNA diagnostic test is a separate test that only detects whether HPV 16 or HPV 18 are present.

[g] Follow appropriate colposcopy findings pathway (ie, satisfactory or unsatisfactory). If appropriate, see Colposcopy During Pregnancy (CERVS-B).

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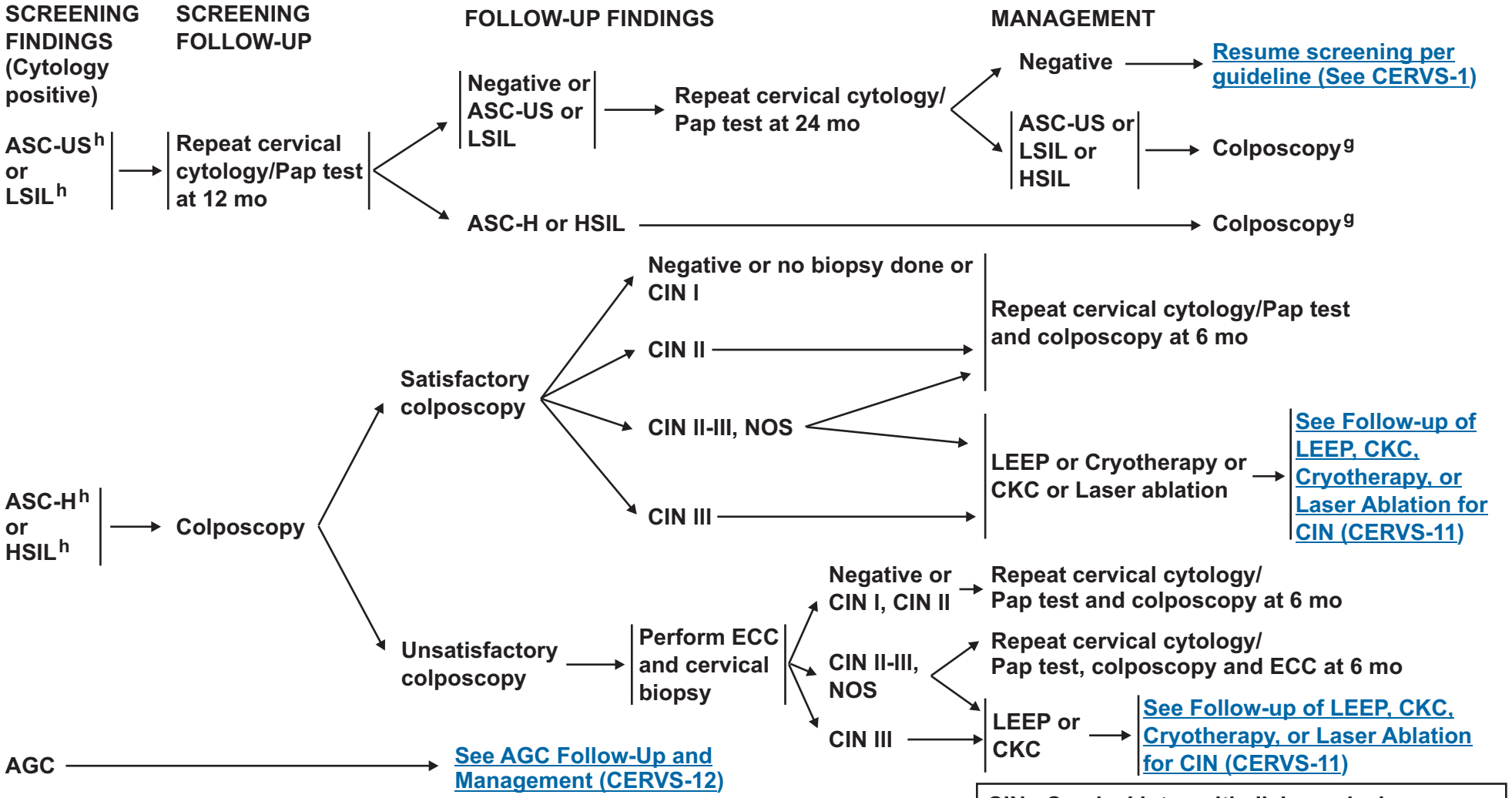
ADOLESCENTS OR YOUNG WOMEN < 21 Y

For Adults ≥ 21 y (See CERVS-6)



[g] Follow appropriate colposcopy findings pathway (ie, satisfactory or unsatisfactory). If appropriate, see Colposcopy During Pregnancy (CERVS-B).

[h] HPV DNA testing is not recommended in adolescents or young women < 21 y.

CIN= Cervical intraepithelial neoplasia
ECC= Endocervical curettage
LEEP= Loop electrosurgical excision procedure
CKC= Cold-knife conization

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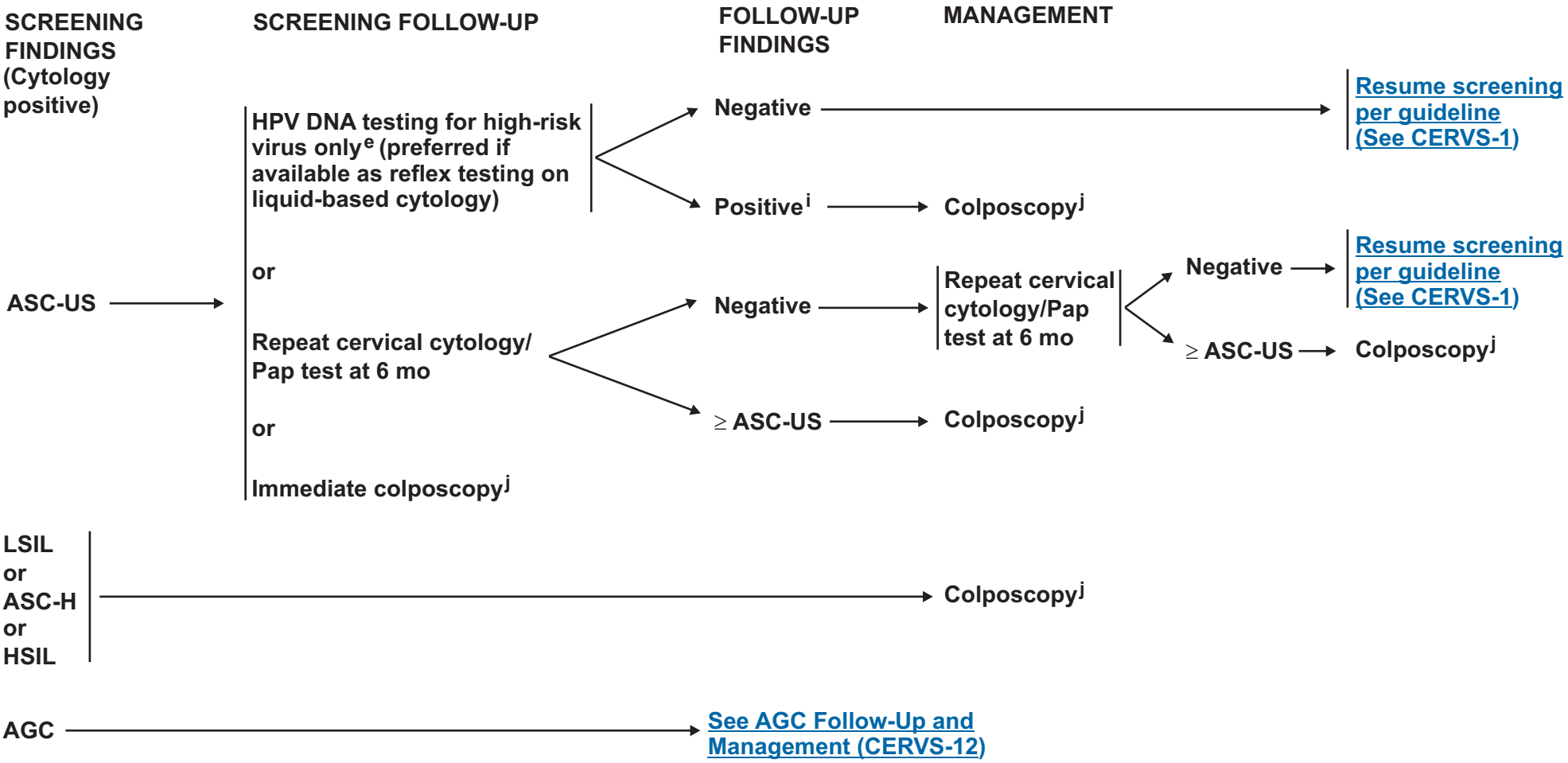
ADULTS ≥ 21 Y

For Adolescents or Young Women < 21 y (See CERVS-5)



[e]The FDA approved HPV DNA testing for high-risk virus types; it is not useful to test for low-risk virus types. High-risk HPV DNA tests detect whether any of the 13-14 high-risk types of HPV are present, although the tests do not indicate which types are present.

[i]In women with ASC-US who are high-risk HPV positive, the NCCN and American Society for Colposcopy and Cervical Pathology (ASCCP) do not recommend using the HPV 16/18 specific DNA test (ie, HPV genotyping) to screen for who should proceed to colposcopy. (http://www.asccp.org/pdfs/consensus/clinical_update_20090408.pdf).

[j]For colposcopy for ASC-US or LSIL, see CERVS-7 and for ASC-H or HSIL, see CERVS-9. If appropriate, see Colposcopy During Pregnancy (CERVS-B).

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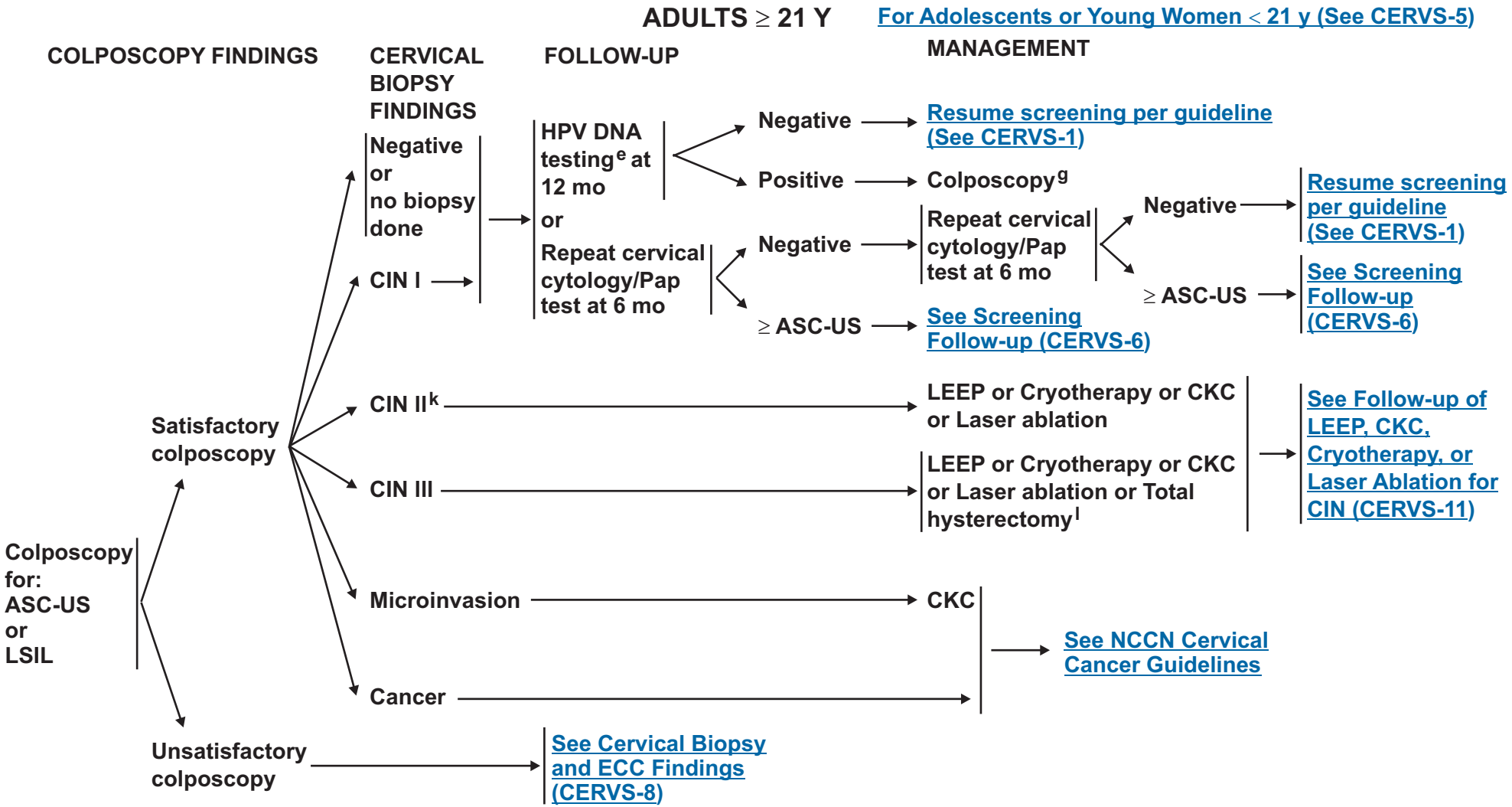

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[g]Follow appropriate colposcopy findings pathway (ie, satisfactory or unsatisfactory). If appropriate, see Colposcopy During Pregnancy (CERVS-B).

[k]CIN II may be followed without treatment in certain clinical circumstances at the discretion of the physician.

[l]If appropriate for preexisting pathologic condition or quality of life.

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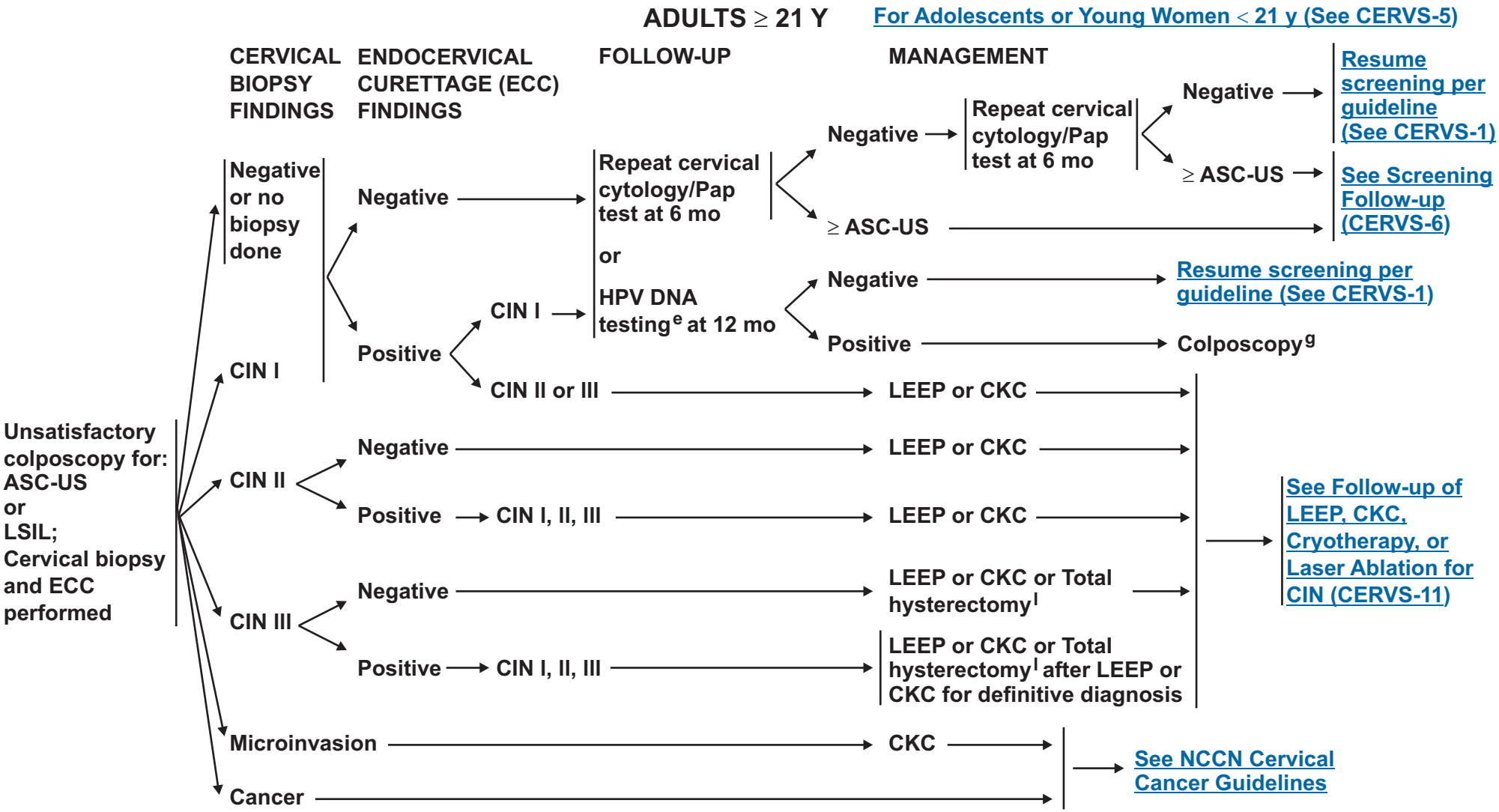

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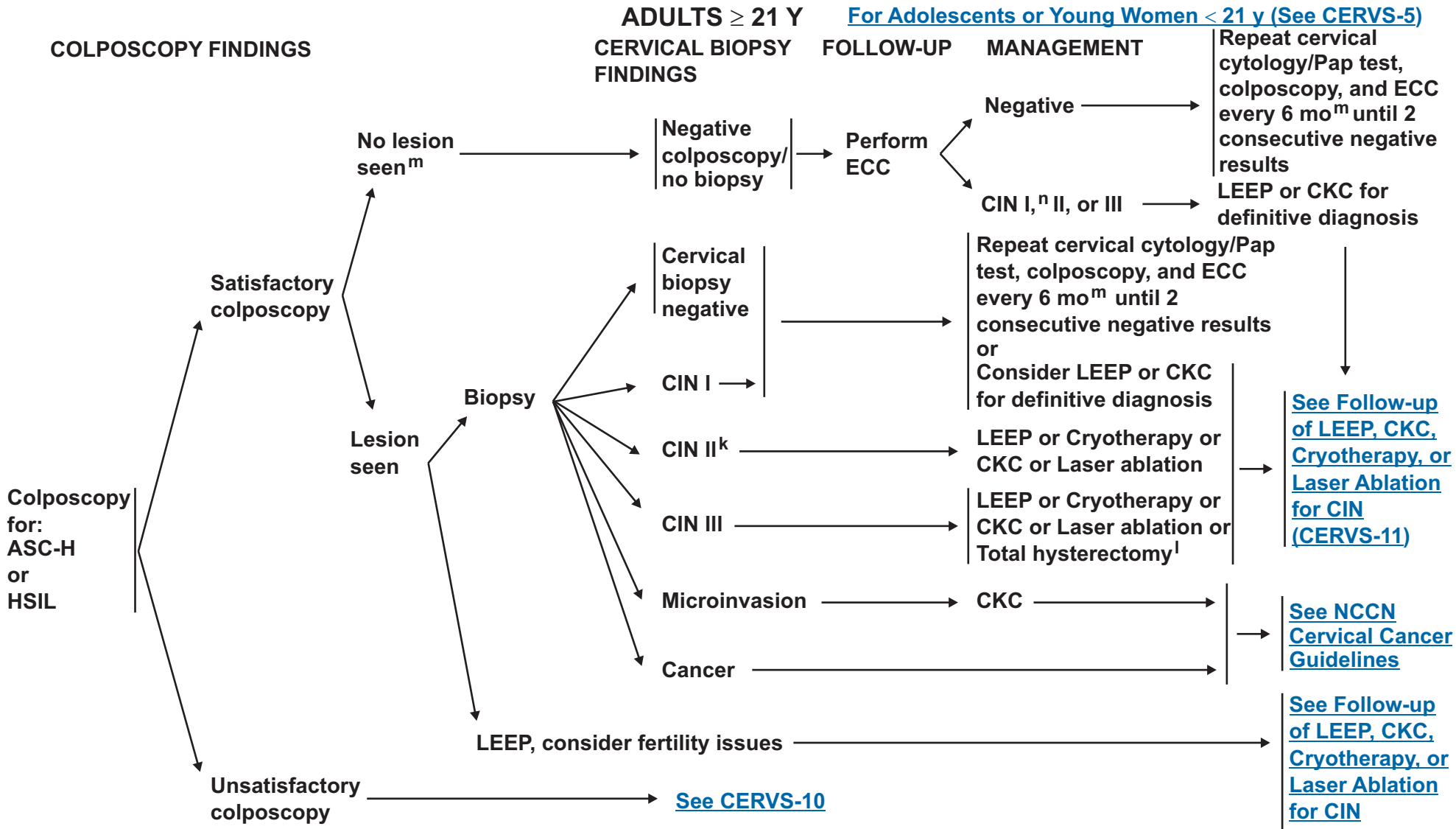

[k] CIN II may be followed without treatment in certain clinical circumstances at the discretion of the physician.

[l] If appropriate for preexisting pathologic condition or quality of life.

[m] Perform vaginal and vulvar colposcopy.

[n] If preceding cervical cytology/Pap test was ASC-H, may consider follow-up.

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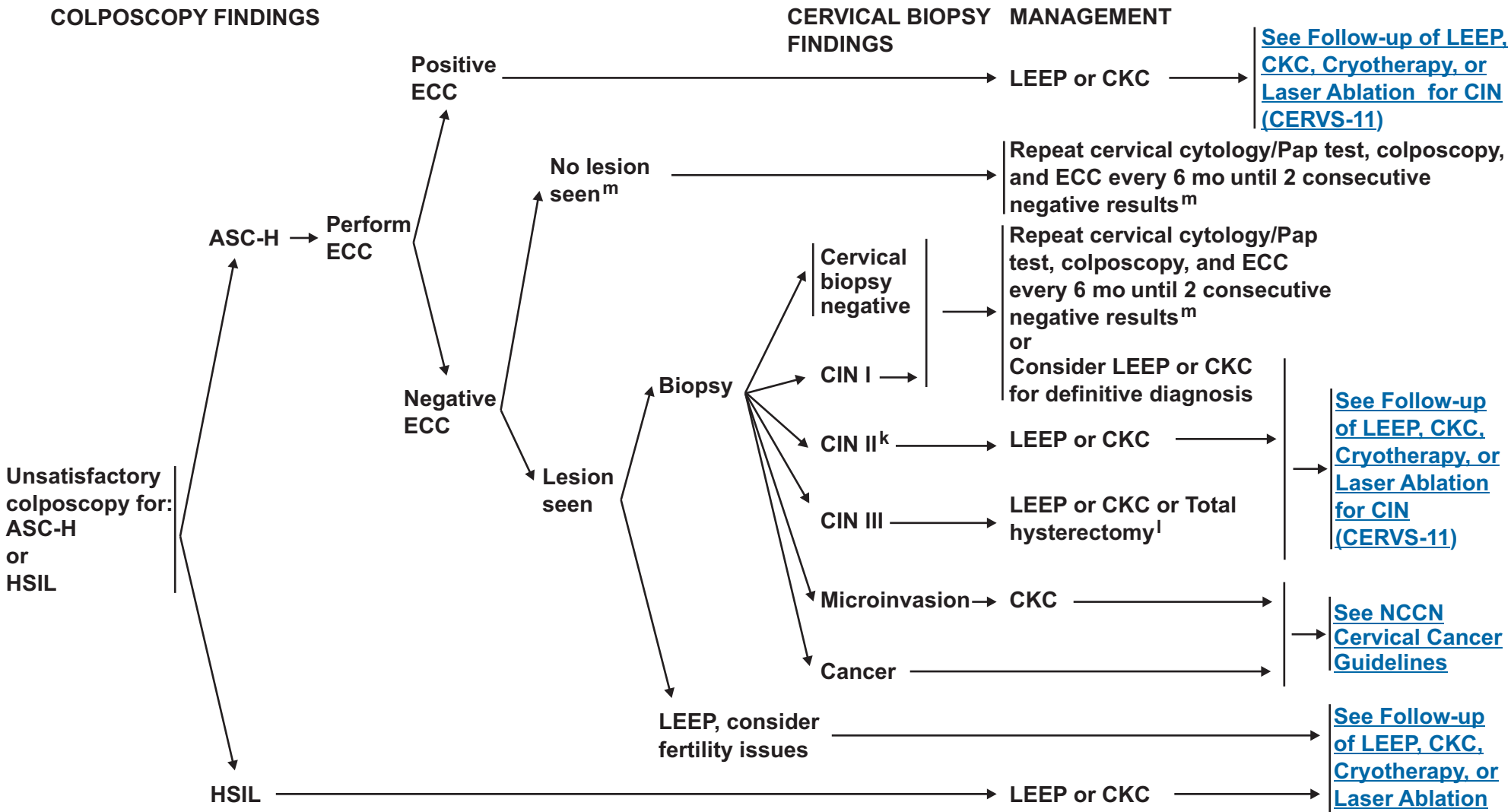
ADULTS ≥ 21 Y

For Adolescents or Young Women < 21 y (See CERVS-5)



[k] CIN II may be followed without treatment in certain clinical circumstances at the discretion of the physician.
[l] If appropriate for preexisting pathologic condition or quality of life.
[m] Perform vaginal and vulvar colposcopy.

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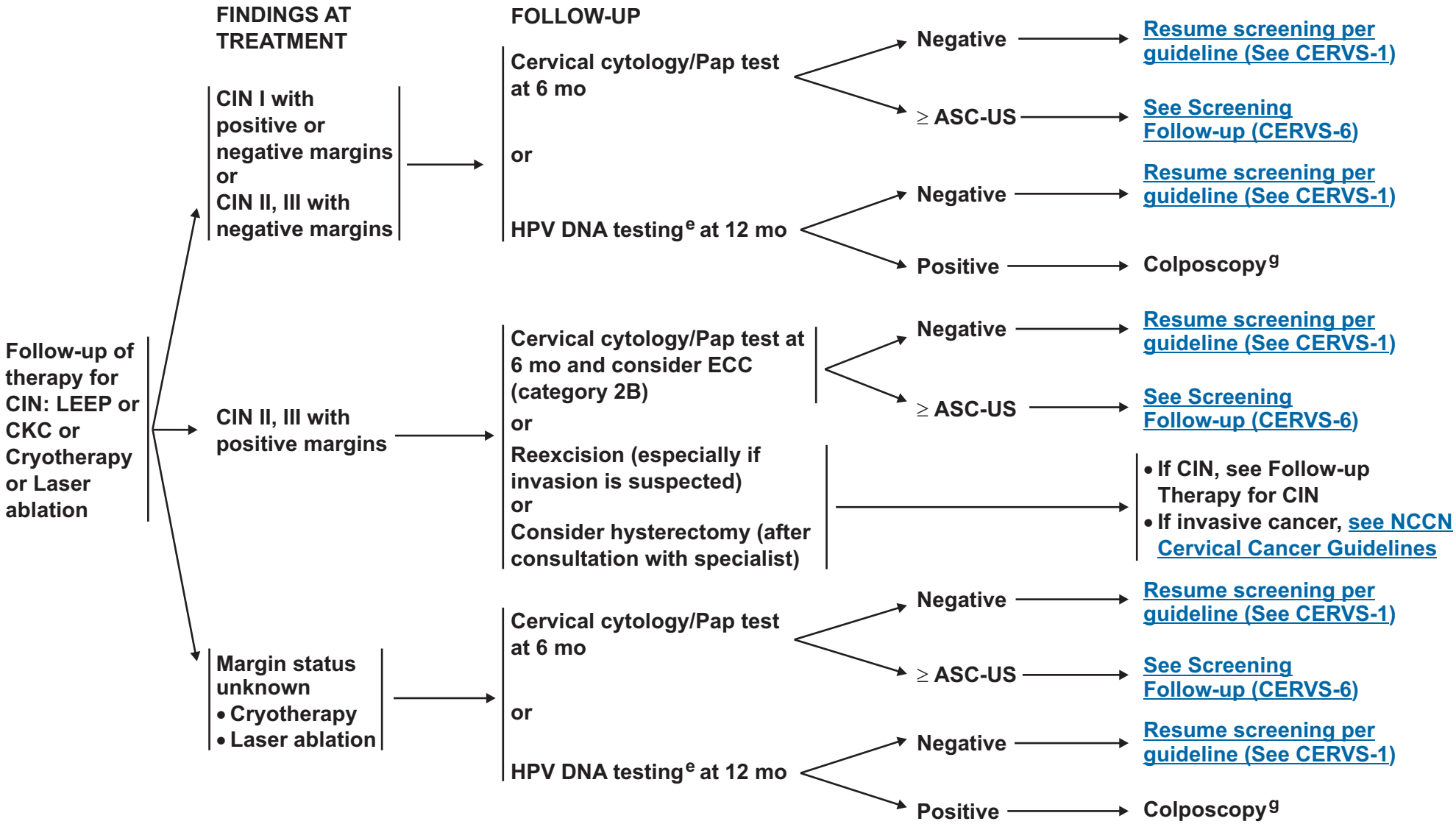

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[g] Follow appropriate colposcopy findings pathway (ie, satisfactory or unsatisfactory). If appropriate, see Colposcopy During Pregnancy (CERVS-B).

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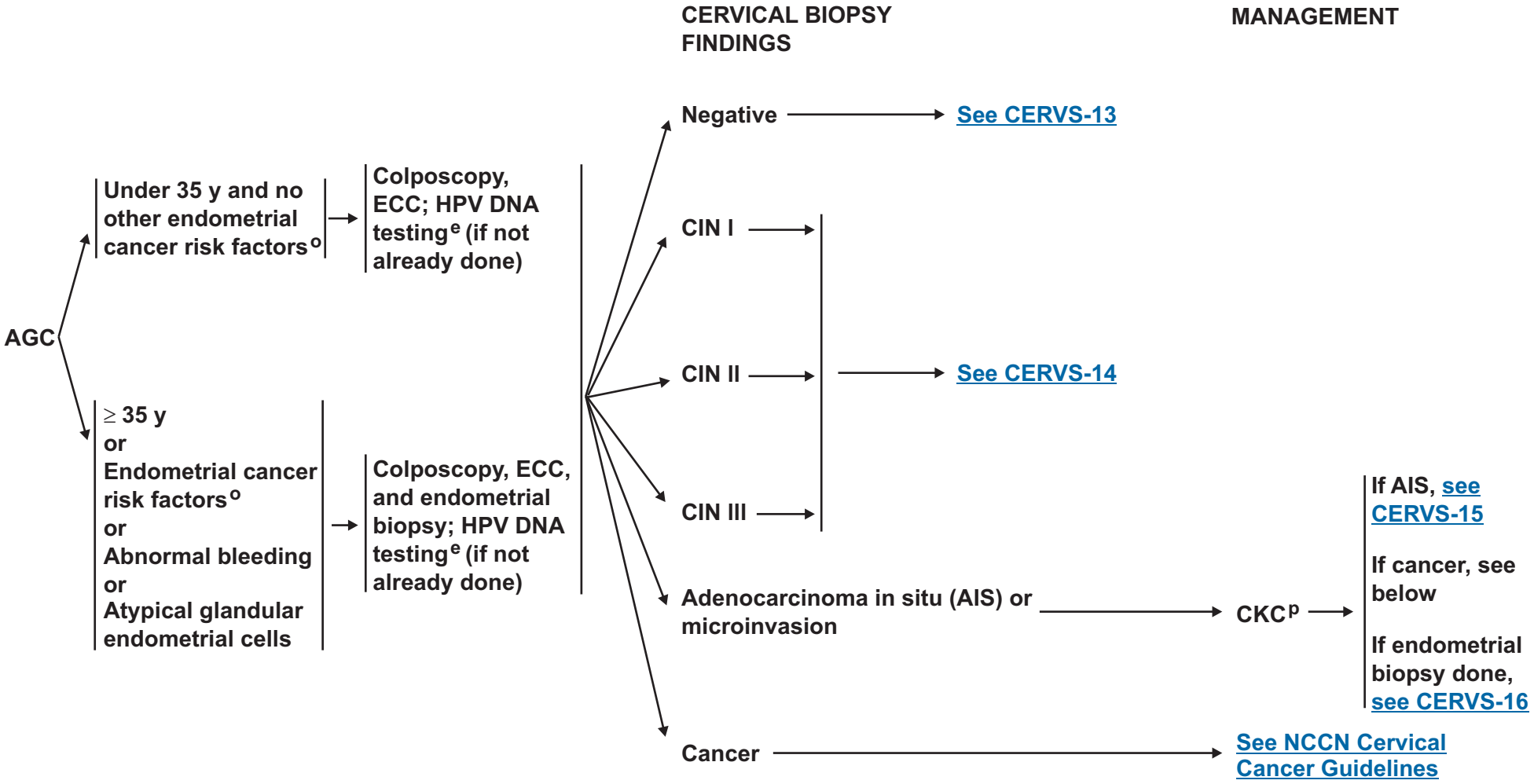
ATYPICAL GLANDULAR CELLS: FOLLOW-UP AND MANAGEMENT



[e]The FDA approved HPV DNA testing for high-risk virus types; it is not useful to test for low-risk virus types. High-risk HPV DNA tests detect whether any of the 13-14 high-risk types of HPV are present, although the tests do not indicate which types are present.
[o]Endometrial cancer risk factors: obesity, unopposed estrogen replacement therapy, polycystic ovarian disease, tamoxifen therapy, anovulation, Hereditary Non-Polyposis Colorectal Cancer syndrome (HNPCC).
[p]If atypical glandular cells favor neoplasia or adenocarcinoma in situ, follow CKC with endometrial sampling if not yet done.

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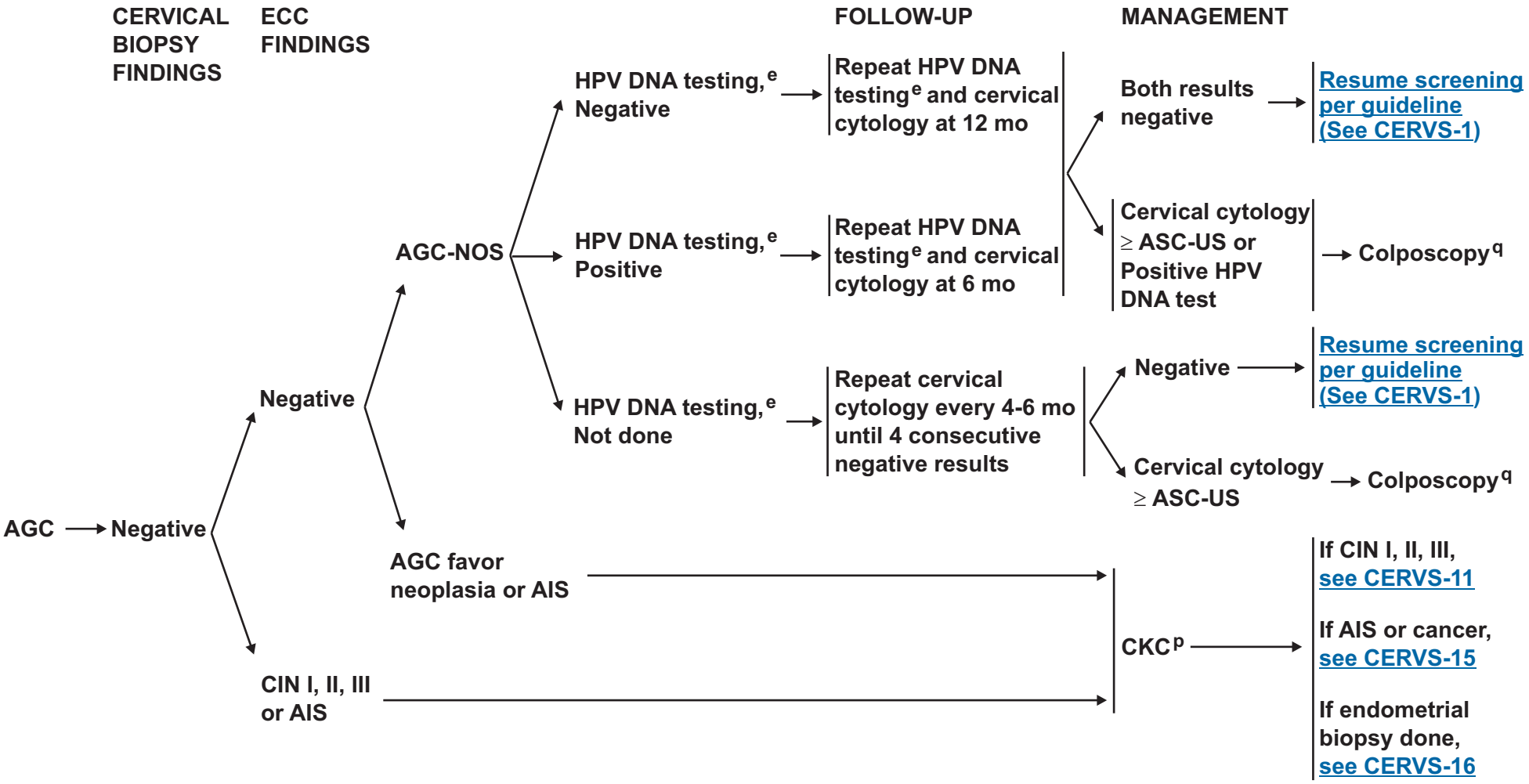
ATYPICAL GLANDULAR CELLS: FOLLOW-UP AND MANAGEMENT



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[p] If atypical glandular cells favor neoplasia or adenocarcinoma in situ, follow CKC with endometrial sampling if not yet done.

[q] Follow appropriate colposcopy findings pathway (See CERVS-12). If appropriate, see Colposcopy During Pregnancy (CERVS-B).

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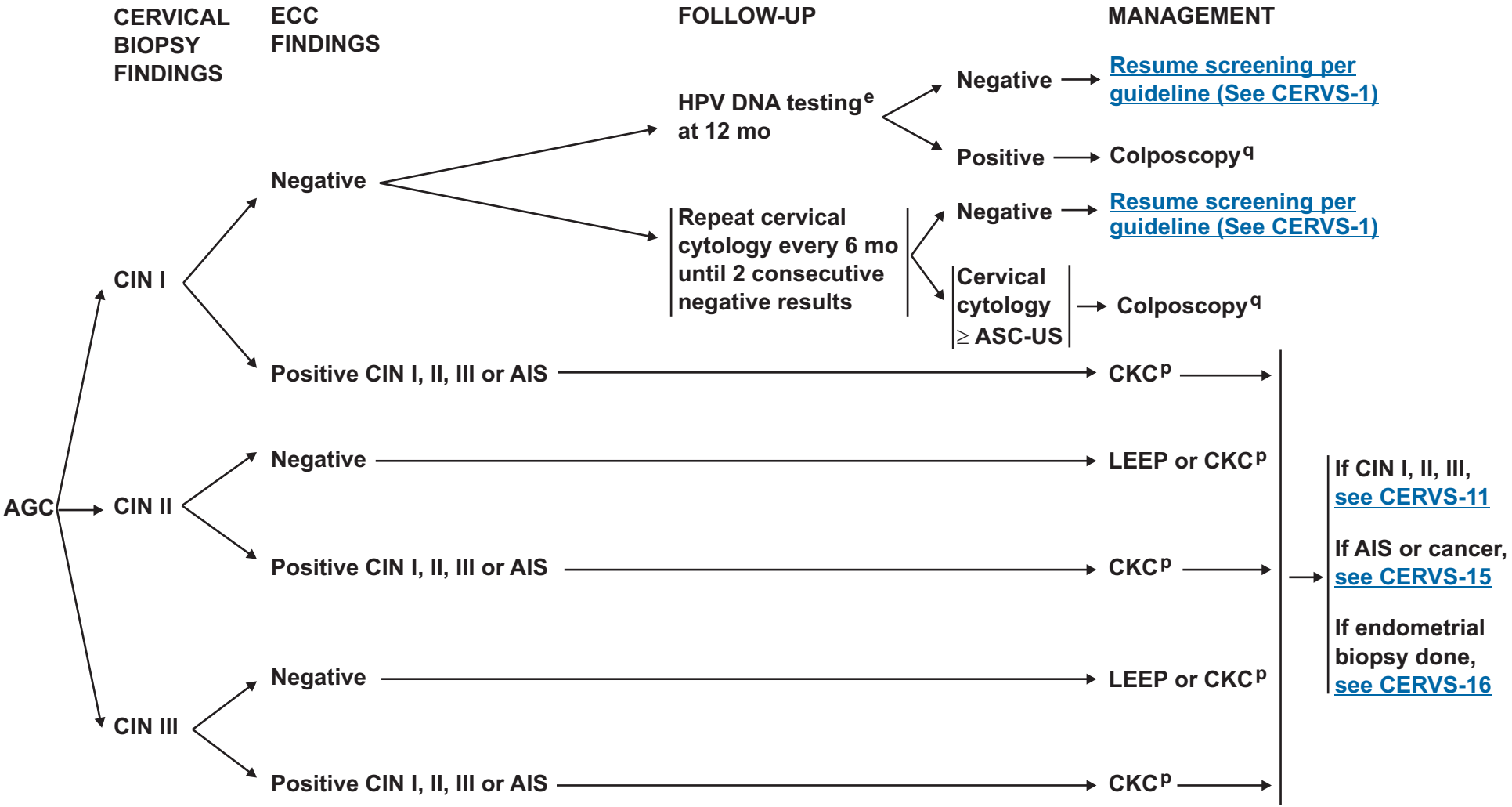
ATYPICAL GLANDULAR CELLS: FOLLOW-UP AND MANAGEMENT



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[p] If atypical glandular cells favor neoplasia or adenocarcinoma in situ, follow CKC with endometrial sampling if not yet done.

[q] Follow appropriate colposcopy findings pathway (See CERVS-12). If appropriate, see Colposcopy During Pregnancy (CERVS-B).

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ATYPICAL GLANDULAR CELLS: ADENOCARCINOMA IN SITU MANAGEMENT

CKC FINDINGS

Adenocarcinoma in situ (Strongly consider referral to gynecologic oncologist/specialist)

- **Negative margins, fertility desired** →
  - Cervical cytology/Pap test ± ECC every 6 mo until hysterectomy
  - Requires consent/counseling
  - Strongly consider hysterectomy when childbearing completed
  - **Positive** → See CERVS-12
  - **Negative** → Cervical cytology/Pap test ± ECC every 6 mo until hysterectomy
- **Negative margins, fertility not desired** → Strongly consider hysterectomy
- **Positive margins, fertility desired** →
  - Reexcision to attain negative margins
  - Requires consent/counseling
  - Strongly consider hysterectomy when childbearing completed
- **Positive margins, fertility not desired** →
  - Hysterectomy
  - Consider repeat CKC to rule out invasive disease prior to hysterectomy (category 2B)

Cancer → See NCCN Cervical Cancer Guidelines

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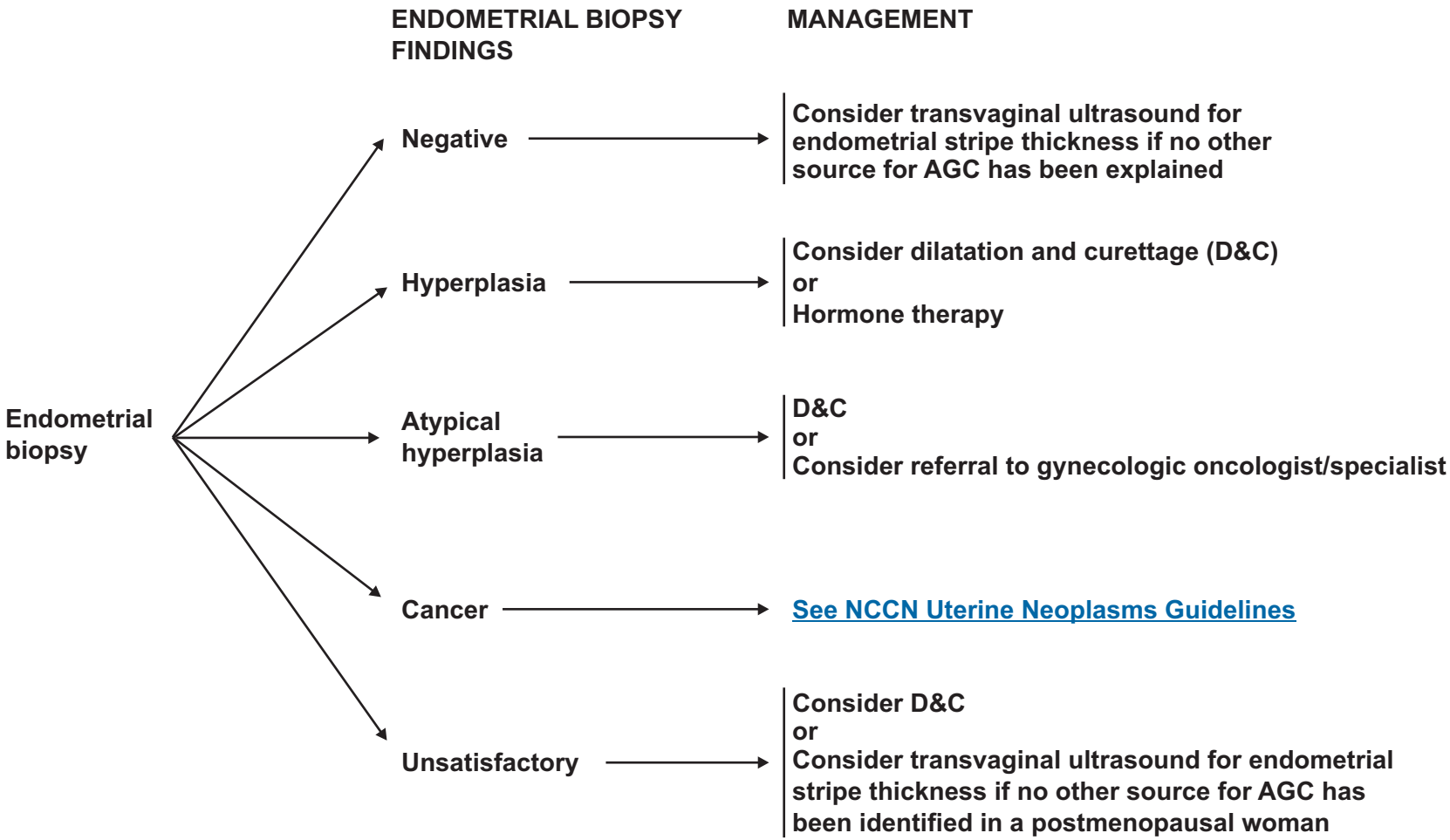
ATYPICAL GLANDULAR CELLS: ENDOMETRIAL BIOPSY FINDINGS



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BETHESDA SYSTEM 2001

SPECIMEN TYPE: Indicate conventional smear (Pap smear) vs. liquid-based vs. other

SPECIMEN ADEQUACY
- Satisfactory for evaluation (describe presence or absence of endocervical/transformation zone component and any other quality indicators, eg, partially obscuring blood, inflammation, etc.)
- Unsatisfactory for evaluation (specify reason)
  - Specimen rejected/not processed (specify reason)
  - Specimen processed and examined, but unsatisfactory for evaluation of epithelial abnormality because of (specify reason)

INTERPRETATION/RESULT

NEGATIVE FOR INTRAEPITHELIAL LESION OR MALIGNANCY (when there is no cellular evidence of neoplasia, state this in the Interpretation/Result section of the report, whether or not there are organisms or other non-neoplastic findings)
- Organisms:
  - *Trichomonas vaginalis*
  - Fungal organisms morphologically consistent with *Candida spp*
  - Shift in flora suggestive of bacterial vaginosis
  - Bacteria morphologically consistent with *Actinomyces spp*
  - Cellular changes consistent with Herpes simplex virus
- Other non-neoplastic findings (Optional to report; list not inclusive):
  - Reactive cellular changes associated with:
    - inflammation (includes typical repair)
    - radiation
    - intrauterine contraceptive device (IUD)
  - Glandular cell status post hysterectomy
  - Atrophy
- OTHER
  - Endometrial cells (in a woman ≥ 40 y of age) (Specify if 'negative for squamous intraepithelial lesion')

EPITHELIAL CELL ABNORMALITIES
- Squamous cell
  - Atypical squamous cells
    - of undetermined significance (ASC-US)
    - cannot exclude HSIL (ASC-H)
  - Low grade squamous intraepithelial lesion (LSIL)
    - encompassing: HPV/mild dysplasia/CIN 1
  - High grade squamous intraepithelial lesion (HSIL)
    - encompassing: moderate and severe dysplasia, CIS; CIN 2 and CIN 3
    - with features suspicious for invasion (if invasion is suspected)
  - Squamous cell carcinoma
- Glandular cell
  - Atypical
    - endocervical cells (NOS or specify in comments)
    - endometrial cells (NOS or specify in comments)
    - glandular cells (NOS or specify in comments)
  - Atypical
    - endocervical cells, favor neoplastic
    - glandular cells, favor neoplastic
  - Endocervical adenocarcinoma *in situ*
  - Adenocarcinoma
    - endocervical
    - endometrial
    - extrauterine
    - not otherwise specified (NOS)

- OTHER MALIGNANT NEOPLASMS: (specify)

Note: The NCI Bethesda System 2001 web site includes additional information such as the definitions of terms used for this table and information about ancillary testing and automated review.

NCI Bethesda System 2001. Available at: http://nih.techriver.net/bethesdaTable.php Accessed August 17, 2010.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

COLPOSCOPY DURING PREGNANCY

Recommendations for colposcopy and follow-up are the same as delineated in these guidelines *except*:

- **Consultation or referral to colposcopist with experience in colposcopy during pregnancy.**
- **No ECC**
- **Treatment for CIN (any grade) delayed until after pregnancy.**
- **Colposcopy and cervical biopsy for LSIL and ASC-US can be deferred until 6 weeks postpartum.**
- **Colposcopy and cervical biopsy should be limited to patients where high-grade neoplasia or invasive cancer is suspected.**
- **Diagnostic limited excisional procedure is recommended only if invasion is suspected.**
- **Brush cytology is safe during pregnancy.**

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

Discussion

NCCN Categories of Evidence and Consensus

Category 1: The recommendation is based on high-level evidence (e.g. randomized controlled trials) and there is uniform NCCN consensus.

Category 2A: The recommendation is based on lower-level evidence and there is uniform NCCN consensus.

Category 2B: The recommendation is based on lower-level evidence and there is nonuniform NCCN consensus (but no major disagreement).

Category 3: The recommendation is based on any level of evidence but reflects major disagreement.

All recommendations are category 2A unless otherwise noted.

Overview

Despite a significant decrease in the incidence and mortality of cervical carcinoma in the United States, it is estimated that 12,200 women will be diagnosed in 2010, with 4,210 expected deaths.[1] High-risk groups include women without access to health care and those who have immigrated to the United States from countries where cervical cancer screening is not routinely done.[2] Because cervical cytology screening is the current method for early detection of this neoplasm, the purpose of the NCCN Cervical Cancer Screening Guidelines is to provide direction for the evaluation and management of cervical cytology.

The NCCN guidelines include recommendations regarding screening techniques, initiation and frequency of screening, and management of abnormal screening results including colposcopy. Cervical cytology screening techniques include liquid-based cytology or conventional Papanicolaou (Pap) smears. Unless specifically noted, these techniques are collectively referred to as “cervical cytology” in this manuscript (i.e., Discussion). Human papillomavirus (HPV) DNA testing for primary cervical cancer has been approved by the FDA; several diagnostic tests are available (i.e., the HPV high-risk and HPV 16/18 DNA tests, Hybrid Capture 2 HPV DNA test). However, HPV DNA testing is not recommended in women younger than 21 years.[3] HPV DNA testing for high-risk virus types can also be used as a component of both primary screening and workup of abnormal cytology results; it is not useful to test for low-risk virus types.[3] See section on “HPV DNA Testing” for more detail about these tests.

Colposcopy, along with colposcopically directed biopsies, is the primary method for evaluating women with abnormal cervical cytologies. During a colposcopic examination, the cervix is viewed through a long focal-length dissecting-type microscope (magnification, 10-16 times). A 4% solution of acetic acid is applied to the cervix before viewing. The coloration induced by the acid and the observance of blood-vessel patterns allow a directed biopsy to rule out invasive disease and to determine the extent of preinvasive disease. If the entire squamocolumnar junction of the cervix is visualized (i.e., the entire transformation zone is seen), the examination is considered satisfactory and endocervical curettage (ECC) is unnecessary.[3-5] Special considerations for colposcopy performed during pregnancy are also discussed (see CERVS-B).

Techniques for definitive treatment of cervical abnormalities include excision with the loop electrosurgical excision procedure (LEEP), cold-knife conization (CKC), or total hysterectomy. Ablative procedures include laser ablation or cryotherapy.

Cervical Cancer Screening

Initiation and Frequency (see CERVS-1, and CERVS-2)

The NCCN panel adopted the recent recommendations of the American College of Obstetricians and Gynecologists (ACOG) on the initiation and frequency of cervical cancer screening. Women should begin screening at 21 years of age, regardless of whether sexual intercourse has already occurred.[2] Recent data indicate that cervical screening should be avoided in women younger than 21 years old, because these women are at very low risk of cancer and because treatment can lead to complications (e.g., significant increase in premature births in women previously treated for dysplasia).[6] However, adolescents who are immunocompromised (e.g., HIV infection, organ transplants, long-term steroid use) need to have cervical screening (see ACOG Practice Bulletin no. 109 for frequency).[2] For example, those infected with HIV should be tested every 6 months the first year and then annually. Cervical cytology screening should still be initiated in young women (21 years or older) who have been vaccinated against HPV 16 and HPV 18, because there are other high-risk subtypes of HPV that are oncogenic (e.g., HPV 31).

The onset of gynecologic care should not be based on the need for cervical screening. Thus, sexually active adolescents should receive counseling and testing for sexually transmitted diseases and should also receive counseling about safe sex and contraception. In asymptomatic adolescents, this can be done without using a speculum. After initiation, cervical screening should be performed every 2 years in women 21-29 years of age with either liquid-based cytology or with conventional cervical cytology smears (i.e., Pap smears) . However, women with high-risk factors (e.g., a history of cervical cancer, diagnosis of CIN II-III, in utero exposure to diethylstilbestrol (DES), and/or who are immunocompromised [e.g., HIV infection]) should receive more frequent screening, usually annually, as determined by their physician. HPV DNA testing is not recommended in adolescents or younger women (i.e., younger than 21 years) (see CERVS-5).[3] HPV DNA testing is also not recommended 1) as routine screening in women younger than 30 years, and 2) in women with ASC-H, LSIL (except in postmenopausal women), or HSIL cytology (http://www.asccp.org/pdfs/consensus/clinical_update_20090408.pdf).[2] See section on “HPV DNA Testing” for more detail.

Screening options for women 30 years and older include: 1) cervical cytology alone; or 2) cervical cytology combined with DNA testing for high-risk HPV types (i.e., combined testing).[2] Cervical screening may be performed less frequently (i.e., every 3 years, at the discretion of her physician) if a 30-year-old woman at low risk for cervical cancer has had 3 or more consecutive (and technically satisfactory) cytologic examinations with normal (ie, negative) findings.[2] Combined cytology and HPV DNA testing should not be done more often than every 3 years if both tests were negative. However, physicians should also inform their patients that annual gynecologic examinations may still be appropriate even if cervical cytology is not tested at each visit.

Women with high-risk factors (e.g., a history of cervical cancer, diagnosis of CIN II-III, in utero exposure to diethylstilbestrol (DES), and/or who are immunocompromised [e.g., HIV infection]) who are 30 years and older should receive more frequent screening, usually annually, as determined by their physician. Women who have had a hysterectomy with removal of the cervix should have annual screening with vaginal cytology if they have history of CIN II-III lesions or cancer, or if a negative history cannot be documented (see CERVS-2).

Combined cytology and HPV DNA testing appears to increase the detection rate of cervical intraepithelial neoplasia (CIN) III, which is a

precursor of cervical cancer.[7-9] Although some studies have used HPV DNA testing alone without cervical cytology for screening women who are 30 years and older, currently this strategy is not used in the United States.[7, 10] The appropriate screening interval for women with negative cytology who test positive for HPV DNA is shown on CERVS-4 and is described later (see "Squamous Epithelial Cell Abnormalities in Adult Women Age 21 Years or Older").

Continue or Discontinue Screening (see CERVS-1, and CERVS-2)

Cervical cytology screening should *continue* in women who have been vaccinated against HPV 16 and HPV 18. Women previously treated for CIN II, CIN III, or cancer should *continue* to have annual screening for at least 20 years after treatment and after initial post-operative surveillance, because they remain at risk for persistent or recurrent disease.[2] Women who have had a hysterectomy with removal of the cervix should have screening for vaginal cancer if they have history of CIN II-III lesions or cancer, or if a negative history cannot be documented. Cervical cytology screening should *continue* for women with other high-risk factors (i.e., in utero DES exposure, immunocompromised [e.g., HIV infection]).

Screening for cervical cancer can be *discontinued* after total hysterectomy for benign disease, although efforts should be made to confirm via physical examination or pathology report that the cervix was completely removed. Screening for cervical cancer may be *discontinued* for women with an intact cervix who are age 65-70 years and older with 3 or more negative cytology test results in a row and with no history of abnormal cervical cytology tests in the previous 10 years, because cervical cancer develops slowly and risk factors decrease with age.[2] Women with comorbid or life-threatening illness may *discontinue* screening.

HPV DNA Testing

Note that the recently approved HPV 16/18 and the HPV high-risk DNA tests are 2 different diagnostic tests (http://www.asccp.org/pdfs/consensus/clinical_update_20090408.pdf). The HPV high-risk DNA test detects whether any of the 14 high-risk (oncogenic) types of HPV are present, although it does not indicate which types are present. The HPV 16/18 DNA test detects whether HPV 16 or HPV 18 is present, which is termed *HPV genotyping*. The American Society for Colposcopy and Cervical Pathology (ASCCP) provides information about HPV DNA testing (http://www.asccp.org/hpv.shtml#provider). The HPV 16/18 DNA test is not used alone; it is used together with the HPV high-risk DNA test. At the current time, these tests should not replace other cervical cancer screening methods (i.e., regular Pap tests and gynecologic examinations) (http://www.sgo.org/WorkArea/showcontent.aspx?id=2474).

The other high-risk HPV DNA test, Hybrid Capture 2 HPV DNA test (Digene HPV HC2 DNA Test), assesses whether women are positive for any of 13 high-risk types of HPV, although there are false-positive results due to slight cross reactivity with nononcogenic HPV subtypes.[11, 12] Note that the HC2 has no internal standard to determine sample adequacy.[13] Data about the sensitivity of HC2 for disease detection are derived from studies where it was used in the setting of co-collection with cytology. The performance characteristics of HC2 as a stand-alone test are unknown.

HPV Vaccines

Vaccination with the quadrivalent HPV vaccine provides protection against infection by certain types of HPV, which cause cervical, vulvar, and vaginal cancer (types 16, 18) and genital warts (types 6, 11).[14-18]

After 3 years, the efficacy of the quadrivalent HPV vaccine was 99% for preventing CIN grades 2 and 3 (CIN II/III) caused by HPV 16 or 18 in females who were not previously infected with either HPV 16 or 18 before vaccination; however, efficacy was only 44% in those who had been infected prior to vaccination.[15] Many agree that CIN III (which is essentially squamous cell carcinoma in situ [i.e., stage 0]) is the best marker for risk of progression to invasive cancer.[19] Recent data suggest that 40% of CIN II lesions will regress after 2 years; however, CIN II from HPV 16 appear less likely to regress.[20] In addition, a meta-analysis reported that 22% of CIN II lesions progress to carcinoma in situ.[21]

Although it is not clear how long immunity will last after vaccination, data suggest the quadrivalent HPV vaccine is effective for at least 5 years and up to 9.5 years.[22-24] Recent data suggest that the quadrivalent HPV vaccine decreases abnormal Pap results, colposcopies, and cervical biopsies.[25]

Another prophylactic HPV vaccine is the bivalent vaccine, which was recently approved in the United States to prevent cervical cancer and precancerous lesions due to HPV 16 and 18 in girls and women ages 10 to 25 years (http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm187048.htm). The bivalent vaccine is also approved in more than 90 other countries.[17, 26-28]

The US Food and Drug Administration (FDA) has approved the HPV quadrivalent vaccine for use in girls and women ages 9 to 26 years (http://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM111263.pdf). However, the vaccine is most effective if given to girls and young women before sexual intercourse is initiated. Guidelines from the Advisory Committee on Immunization Practices (ACIP), American College of Obstetricians and Gynecologists (ACOG), ACS, and Society of Gynecologic Oncologists all agree that 11 to 12 year old girls should receive routine vaccination with the HPV vaccine, but they differ regarding recommendations for other age groups (http://www.sgo.org/WorkArea/showcontent.aspx?id=950).[29-31] The quadrivalent HPV vaccine was recently approved to prevent genital warts in boys and men ages 9 to 26 years. Data from the Vaccine Adverse Event Reporting System (VAERS) indicate that the quadrivalent HPV vaccine is safe, although syncope and venous thrombotic events have been reported.[32] Both the bivalent and the quadrivalent vaccines are preventive not therapeutic.

Although HPV 16 and HPV 18 are responsible for an estimated 70% of cervical cancer, vaccinated women are still at risk for cervical cancer related to other less common types of oncogenic HPV (http://www.asccp.org/hpv_history.shtml).[16] Both HPV vaccines also offer some cross-protection against non-HPV vaccine types that also cause cervical cancer (eg, HPV-31).[33, 34] However, it is important to note that HPV vaccination does not alter screening recommendations. Vaccinated women should continue cervical cancer screening according to the guidelines. In addition, HPV testing and typing should not be used to determine whether patients are eligible for HPV vaccination (http://www.sgo.org/WorkArea/showcontent.aspx?id=2474).

Initial Findings (see CERVS-3)

The NCCN panel recommends that cervical cytology tests should be reported using the Bethesda System 2001 (http://nih.techriver.net/bethesdaTable.php) (see CERVS-A).[35] Note that this is a summary table and there are numerous links on the web site for the definitions of terms used for this table (e.g., images for the

specific cell abnormalities, additional information about specimen adequacy). The different possible results of an initial screening examination are summarized on CERVS-3.

It should be noted that for findings of atypical squamous cells (ASC), low-grade squamous intraepithelial lesions (LSIL), and high-grade squamous intraepithelial lesions (HSIL), the guidelines differ according to whether the patient is younger or older than 21 years.[3, 36] These guidelines are discussed in the next section for younger women (see CERVS-5) and later in the manuscript for older women (see CERVS-6). Atypical glandular cells (AGC) are also addressed later in the manuscript (see CERVS-12).

All women with cervical cytology tests reported as normal (i.e., negative for intraepithelial lesion or malignancy), unsatisfactory, or positive for invasive cancer are managed as shown on CERVS-3. A biopsy should be performed on any grossly visible or suspicious lesion on the cervix, because cervical cytology can be reported as negative when invasive cancer is grossly present. If the cervical cytology is positive for invasive cancer, a biopsy of a visible lesion is recommended or a diagnostic excision is recommended if there is no visible lesion (see NCCN Cervical Cancer Guidelines or CERVS-11). If the initial cervical cytology is negative and the cervix is grossly normal, then subsequent screening should be based on the recommendation for frequency discussed earlier (see CERVS-1). Cervical cytology tests reported as unsatisfactory should be repeated within 6 to 12 weeks. Underlying infection should be treated, if indicated, before obtaining the subsequent cytology. Combined testing using cervical cytology and HPV high-risk DNA testing is discussed in the following sections.

Squamous Epithelial Cell Abnormalities in Adolescents or Young Women (< Age 21 Years) (see CERVS-5)

The management of squamous cell abnormalities requires special consideration in adolescents or young women (< 21 years) due both to the high prevalence of HPV positivity in this age group and to the frequent regression of LSIL lesions.[3, 37, 38] For example, various studies have reported that a high percentage of young women will be HPV positive within several years of initial sexual activity.[39-41] These statistics indicate that HPV testing cannot be used to further triage management of squamous epithelial abnormalities in this population. Therefore, the NCCN algorithms specifically note that HPV testing is not recommended in adolescents or women younger than 21 years.[42] Although a small number of adolescents or young adults may have CIN III, progression to cancer is extremely rare in women younger than 21 years, and most women with CIN III are picked up on subsequent screening.[3, 37, 43, 44] Therefore, although colposcopy is routinely recommended for LSIL in women 21 years or older, younger patients may be initially followed with repeat cytology.

Atypical Squamous Cells of Undetermined Significance (ASC-US) or Low-Grade Squamous Intraepithelial Lesion

Young women (< 21 years) with ASC-US or LSIL should undergo repeat screening at 12 months. Those with negative cervical cytology results or with persistent ASC-US or LSIL should undergo repeat screening after 24 months. If the cytology results are negative after this 3-year period, then the patient can resume routine screening. If the cytology indicates ASC-US, LSIL, or HSIL, then colposcopy is recommended. Patients then follow the “satisfactory” or “unsatisfactory” colposcopy pathway for adolescents or young women (see CERVS-5). Colposcopy is also recommended if the first rescreen at 12 months reveals atypical squamous cells – suspicion of high-grade dysplasia (ASC-H) or HSIL.

Atypical Squamous Cells – Suspicion of High Dysplasia

Colposcopy is recommended if initial screening reveals ASC-H or HSIL, due to the increased risk of CIN II or higher. Further management depends on colposcopy findings. For a satisfactory colposcopy, repeat cervical cytology and colposcopy at 6 months are recommended if the findings are reported as CIN II, I negative, or if no biopsy was done. Options for patients with CIN II-III "not otherwise specified" (NOS) findings include: 1) an ablative or excision procedure (i.e., laser ablation, cryotherapy, LEEP, or CKC); or 2) repeat cervical cytology and colposcopy at 6 months. Patients with an unsatisfactory colposcopy should undergo ECC and cervical biopsy. These patients are then managed as shown on CERVS-5.

Squamous Epithelial Cell Abnormalities in Adult Women Age 21 Years or Older (CERVS-6)

Atypical Squamous Cells of Undetermined Significance or Low-Grade Squamous Intraepithelial Lesion

The guideline offers 3 options for the management of ASC-US in adults. Unlike adolescents, HPV DNA testing for high-risk virus is informative in adult women due to the lower underlying prevalence. The inclusion of HPV testing as an option is based on the results of the ASCUS-LSIL Triage Study (ALTS) trial, which demonstrated that HPV triage ("reflex" HPV testing for atypical Pap smears from liquid-based cytology) is at least as sensitive as immediate colposcopy for detecting CIN grade III and refers about half as many women to colposcopy.[45] However, in women with ASC-US who are positive for oncogenic HPV high-risk DNA, the NCCN and ASCCP do not recommend the use of HPV 16 /18 specific DNA testing (i.e., HPV genotyping) as a screen to determine who should proceed to colposcopy (http://www.asccp.org/pdfs/consensus/clinical_update_20090408.pdf). Only about 50% of CIN II+ infections are associated with HPV 16 or 18.[46] Thus, the risk of CIN II+ is about 20% in women with ASC-US who are positive for other oncogenic HPV types (e.g., HPV 31, 45). Therefore, the NCCN and ASCCP recommend that women with ASC-US who are positive for HPV high-risk DNA should be referred for colposcopy.

A second option is immediate colposcopy.[3] A third option is to repeat the cervical cytology. If 2 consecutive cytology tests 6 months apart are negative, screening every 2 years may be resumed. However, if the repeat cytology test reveals persistent ASC-US or greater, a colposcopic evaluation of the cervix is appropriate.

Women 30 years and older who are high-risk HPV DNA positive but cytology negative have several options: 1) repeating both tests (i.e., cytology and high-risk HPV DNA) at 12 months; or 2) HPV genotyping (i.e., specific HPV 16/18 DNA test) (see CERVS-4). Several studies suggest that it is appropriate and safe to wait 1 year before rescreening.[7, 47] About 60% of women who are high-risk HPV positive will become HPV negative during follow-up.[48] Data suggest that the incidence of CIN III+ is 17% in women who are HPV 16+, 14% in HPV 18+ women, and only 3% with other high-risk HPV types.[49] Thus, it is also appropriate to use HPV genotyping because HPV 16 and 18 are more oncogenic than the other high-risk types of HPV, and patients with persistent HPV 16/18 infection are at greater risk.

Low-Grade Squamous Intraepithelial Lesion, Atypical Squamous Cells-Suspicion of High Dysplasia, or High-Grade Intraepithelial Lesion

In adolescent patients, LSIL often regresses spontaneously; therefore, repeat cervical cytology is an effective triage strategy. In contrast, in adults, the ALTS trial demonstrated that LSIL cytology is best managed by colposcopy initially, because no useful triage strategy was identified.[45] Therefore, colposcopy is recommended in adults older than 30 years for all squamous lesions other than ASC-US (i.e., LSIL,

ASC-H, HSIL). As previously mentioned, HPV DNA testing is not recommended in women with ASC-H, LSIL, or HSIL cytology. Note that cytologic LSIL is not the same as histologic CIN 1; cytologic HSIL is not the same as histologic CIN 2,3.[3]

Colposcopy for LSIL or ASC-US in Adult Women

Satisfactory Colposcopy for LSIL or ASC-US (see CERVS-7)

The first consideration in evaluating the colposcopy result is a determination of whether the colposcopy visualized the entire transition zone of the cervix and was considered satisfactory.[3] Unsatisfactory colposcopies are addressed in the next section. The ASCCP has published 2 consensus guidelines: "2006 Consensus Guidelines for the Management of Women With Abnormal Cervical Cancer Screening Tests" and "2006 Consensus Guidelines for the Management of Women With Cervical Intraepithelial Neoplasia or Adenocarcinoma in Situ" (http://www.asccp.org/consensus.shtml).[3, 36]

Women found to have negative findings or CIN I on cervical biopsy, or those who did not have a biopsy, after satisfactory colposcopic examination for ASC-US or LSIL may be followed with a repeat cytology at 6 months or with HPV DNA testing for high-risk viruses at 12 months. Excision or ablation procedures are not recommended for these patients to avoid potential over-treatment. If negative cervical cytology is found at 6 and at 12 months, a normal screening schedule can be reinstated, because most of these lesions will regress to normal.[38] If ASC-US or greater is found on one of these examinations, the screening management recommendations should be followed (see CERVS-6). For patients followed by HPV DNA at 12 months, a positive result requires a colposcopy, whereas negative findings permit returning to a normal screening schedule. The ALTS trial suggested that after an initial diagnosis of CIN I or less by colposcopy, the most efficient test for identifying women with CIN grade II or III might be an HPV test alone at 12 months.[50]

If the cervical biopsy reveals CIN II or III, further therapy is indicated consisting of LEEP, cryotherapy, CKC, or laser ablation. However, CIN II may be followed without treatment in certain clinical circumstances (e.g., young woman who desires fertility, is reliable about office visits, and prefers no treatment) at the discretion of the physician. Total hysterectomy may also be considered an option for CIN III, if indicated for pre-existing pathologic conditions or for enhancement of quality of life. The panel favored the use of CKC in patients in whom microinvasive cervical cancer was suspected.[51] The LEEP has been associated with a cautery artifact that may compromise the pathologic evaluation of the tissue specimen. Diagnosis of microinvasive or invasive cancer at cervical biopsy requires treatment according to the NCCN Cervical Cancer Guidelines.

Unsatisfactory Colposcopy for LSIL or ASC-US (see CERVS-8)

If the colposcopic examination is unsatisfactory for ASC-US or LSIL, ECC should be performed in addition to the directed cervical biopsy. If the cervical biopsy is negative (or no biopsy is done) and the ECC findings are negative or CIN I, repeat cytologic examinations at 6 months or HPV DNA testing at 12 months can be performed. The same strategy as previously outlined for a satisfactory colposcopy should be followed. ECC with a diagnosis of CIN II or III requires LEEP or CKC for definitive diagnosis.[52]

A cervical biopsy result of CIN II requires a LEEP or CKC to establish a definitive diagnosis. If CIN III is identified, options include LEEP, CKC, or a total hysterectomy. However, in patients with CIN III, an initial LEEP or CKC is recommended before the total hysterectomy to confirm the diagnosis. Cold-knife conization is performed for microinvasive

biopsy findings; CKC or LEEP can serve as definitive treatment if the lesion is confirmed to be intraepithelial.[51] A diagnosis of microinvasive or invasive cancer on cervical biopsy, LEEP, or CKC requires treatment according to the NCCN Cervical Cancer Guidelines.

Colposcopy for ASC-H or HSIL in Adult Women (see CERVS-9)

All women with a diagnosis of ASC-H or HSIL on cytology require colposcopic evaluation. Again, management depends on whether the colposcopy is considered satisfactory or unsatisfactory (see either CERVS-9 or CERVS-10). A LEEP or CKC is recommended for those with HSIL or those with ASC-H and positive ECC who have unsatisfactory colposcopies, with management as outlined (see CERVS-10). Patients with ASC-H who have a negative ECC with no lesion seen, however, can have cytology, colposcopy (including vaginal or vulvar colposcopy), and ECC repeated every 6 months until 2 results in a row are negative. Patients can resume regular screening after 2 consecutive negative results (see CERVS-1).

Management of those with a satisfactory colposcopy depends on whether a lesion is seen. ECC should be performed in those without a lesion or biopsy or with a negative colposcopy. If the ECC is negative, then the cytology, colposcopy (including vaginal or vulvar colposcopy), and ECC should be repeated in every 6 months until 2 results in a row are negative. If CIN 1 is identified in ECC, follow-up may be considered in women with a preceding ASC-H.

Two options are available if a lesion is identified. A patient may opt for a LEEP procedure as the first option, particularly if maintaining fertility is not an issue; this patient should then have follow-up as described in the following section (see CERVS-11). Biopsy is the second option. A negative cervical biopsy or CIN I lesion can be managed with either 1) a repeat cervical cytology, colposcopy (including vaginal and vulvar colposcopy), and ECC every 6 months (until 2 consecutive results are negative and then regular screening can resume); or 2) a LEEP or CKC can be considered for definitive diagnosis or for positive findings. A diagnosis of CIN II or III requires treatment with LEEP, cryotherapy, CKC, or laser ablation. However, CIN II may be followed without treatment in certain clinical circumstances (e.g., young woman who desires fertility, is reliable about office visits, and prefers no treatment) at the discretion of the physician. Total hysterectomy is another recommended option if the lesion is CIN III and if other indications for hysterectomy are present (e.g., symptomatic fibroids, persistent abnormal bleeding). Again, CKC should be performed for microinvasive biopsy findings, and any confirmed invasive cancers need treatment according to the NCCN Cervical Cancer Guidelines.

Follow-up After Treatment of Cervical Intraepithelial Neoplasia (see CERVS-11)

Surgical margins cannot be assessed after ablative procedures with cryotherapy or laser ablation; recommended follow-up for these patients consists of cervical cytology at 6 months or HPV DNA testing at 12 months.[53] Treatment of those initially managed with excision (i.e., LEEP or CKC) depends on the status of the margins. Cervical cytology at 6 months or HPV DNA testing at 12 months is recommended for those with CIN II or III lesions with negative margins and for all CIN I lesions. For CIN II and CIN III lesions with positive margins, options include 1) cervical cytology at 6 months; an ECC can be considered (category 2B); 2) re-excision, especially if invasion is suspected; or 3) consider hysterectomy. If repeat cervical cytology or HPV DNA testing is negative, screening as per the guidelines may be resumed (see CERVS-1). If HPV DNA testing is positive, then colposcopy is recommended. If the repeat cervical cytology identifies ASC-US or

greater, then the screening recommendations should be followed as previously mentioned (see CERVS-6).

Atypical Glandular Cells (see CERVS-12)

The finding of AGC on cervical cytology is associated with a clinically significant lesion in 45% of patients,[54] including CIN, cervical adenocarcinoma in situ (AIS), cervical cancer, and endometrial, ovarian, and fallopian tube cancer.[3] CIN is the most common finding; 3% to 17% of women have invasive cancer.[3] Cervical cytologic screening methods are less useful for diagnosing AIS, because AIS affects areas of the cervix that are harder to sample (i.e., endocervical canal).[55, 56] However, liquid-based cytology appears to improve detection of abnormal glandular lesions (http://www.sgo.org/WorkArea/showcontent.aspx?id=952). Thus, all patients with a finding of AGC on cervical cytology and who are younger than 35 years of age with no risk factors for endometrial cancer should undergo colposcopy, ECC, and HPV DNA testing (if not already done). Risk factors for endometrial cancer include obesity, unopposed estrogen replacement therapy, polycystic ovarian syndrome, tamoxifen therapy, anovulation, or hereditary non-polyposis cancer syndrome (HNPCC).

Patients who are 35 years of age or older and all those with atypical glandular endometrial cells, abnormal bleeding, or endometrial cancer risk factors should also undergo endometrial biopsy along with colposcopy, ECC, and HPV DNA testing (if not already done) as part of their initial evaluation. Management is then directed by the results of the cervical biopsy, ECC, and HPV testing. Additional management may be dictated by the results of the endometrial biopsy (see CERVS-16). Note that it is not appropriate to repeat cervical cytology in the initial triage of AGC. HPV DNA testing alone is also not appropriate in the initial triage of all subcategories of AGC.[57]

If cervical biopsy and ECC identify CIN (I, II, or III) or AIS, further evaluation by CKC is indicated (see CERVS-14). However, a patient with an adequate colposcopic examination, a cervical biopsy revealing CIN I, and a negative ECC may be managed conservatively either with a repeat cervical cytology every 6 months until 2 consecutive negative results are obtained or with HPV DNA testing at 12 months. Colposcopy is recommended for those with cervical cytology greater than ASC-US. For patients with cervical biopsy findings of CIN II or III but with a negative ECC result, LEEP or CKC is recommended (see CERVS-14).

The panel felt that most patients with a cervical cytology revealing AGC and an abnormal cervical biopsy result or ECC should undergo CKC to both confirm the diagnosis and to serve as potential treatment. The use of LEEP in patients with AIS has been associated with an increased incidence of positive margins of excision in the tissue specimen.[58] For this reason, CKC is the preferred diagnostic procedure in patients at risk for AIS or microinvasion. CKC should be followed by endometrial sampling, if “atypical glandular cells favor neoplasia” or ”AIS” is reported.

Management of Adenocarcinoma In Situ (see CERVS-15)

The NCCN panel recommends that all patients with AIS should be strongly considered for referral to a gynecologic oncologist or similar specialist. The choice of treatment depends on the patient’s desire for fertility. The definitive treatment for AIS is hysterectomy.[36] Patients desiring to preserve fertility and who have a CKC specimen with negative margins of excision, may be followed conservatively by repeat cervical cytology with (or without) ECC every 6 months until

hysterectomy; these patients should also receive counseling regarding the risks of this strategy. Hysterectomy should be strongly considered in these patients when childbearing is completed. Women with positive findings on cervical cytology/ECC should then follow the management options on CERVS-12. Those with negative findings can continue screening every 6 months.

However, clear margins of excision do not rule out persistent AIS, because approximately 30% of patients have residual disease on subsequent hysterectomy.[36, 59] If CKC margins are positive for abnormal glandular cells, a hysterectomy is recommended if the patient does not desire to remain fertile. Consider repeating CKC to rule out invasive disease before the hysterectomy (category 2B).

Re-excision to attain negative margins is recommended for patients with positive margins who wish to remain fertile. These patients should also receive counseling regarding the risks of this strategy. Hysterectomy should be strongly considered in these patients when childbearing is completed.

Finally, patients with invasive adenocarcinoma on cervical biopsy, ECC, CKC, or endometrial biopsy should undergo treatment according to the NCCN Cervical Cancer Guidelines or NCCN Uterine Neoplasms Guidelines.

Management of Endometrial Biopsy (see CERVS-16)

If the result of the endometrial biopsy is negative, transvaginal ultrasound to determine the endometrial stripe thickness may be considered if no other source for the AGC has been identified. If the endometrial biopsy result is hyperplasia, recommended options are either hormone therapy or consideration of a uterine dilatation and curettage (D&C). Patients with atypical hyperplasia on biopsy should undergo a D&C; additionally, referral to a gynecologic oncologist or similar specialist should be considered. For patients with unsatisfactory endometrial biopsy results, consider D&C or transvaginal ultrasound for endometrial stripe thickening if no other source of AGC has been identified in a postmenopausal woman. A diagnosis of endometrial cancer requires treatment according to the NCCN Uterine Neoplasms Guidelines.

Colposcopy During Pregnancy (see CERVS-B)

During pregnancy, the recommendations for colposcopy and follow-up are the same as outlined previously, with the following exceptions. Brush cytology is safe during pregnancy; however, to avoid possible disruption of the pregnancy, ECC should not be performed.[3] Colposcopy and cervical biopsy during pregnancy should be limited to women in whom high-grade neoplasia or invasive cancer is suspected; LSIL and ASC-US can be deferred until 6 weeks postpartum. Treatment for CIN (any grade) should be delayed until after the pregnancy.[60-63] Because colposcopic evaluation in pregnant women can be problematic, consultation with or referral to an experienced colposcopist should be considered. A diagnostic limited excisional procedure is recommended only if invasive cancer is suspected.

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