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ASCCP Colposcopy Standards: How do we perform colposcopy? Implications for establishing standards

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Abstract

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Supplemental digital content: Colpo Survey (1)(1).pdf

Objectives—The ASCCP Colposcopy Standards recommendations address the role of and approach to colposcopy and biopsy for cervical cancer prevention in the United States. The recommendations were developed by an expert working group appointed by ASCCP's Board of Directors. Working Group 3 defined colposcopy procedure guidelines for minimum and comprehensive colposcopy practice and evaluated the use of colposcopy adjuncts.

Methods—The working group performed a systematic literature review to identify best practices in colposcopy methodology and to evaluate the use of available colposcopy adjuncts. The literature provided little evidence to support specific elements of the procedure. The working group, therefore, implemented a national survey of current and recent ASCCP members to evaluate common elements of the colposcopy examination. The findings of this survey were modified by expert consensus from the ASCCP Colposcopy Standards Committee members to create guidelines for performing colposcopy. The draft recommendations were posted online for public comment and presented at an open session of the International Federation for Cervical Pathology and Colposcopy 2017 World Congress for further comment. All comments were considered in the development of final recommendations.

Results—Minimum and comprehensive colposcopy practice guidelines were developed. These guidelines represent recommended practice in all parts of the exam including: pre-colposcopy evaluation, performing the procedure, documentation of findings, biopsy practice and post-procedure follow-up.

Conclusions—These guidelines are intended to serve as a guide to standardize colposcopy across the U.S.

Keywords

colposcopy; cervical intraepithelial neoplasia; colposcopy guidelines; colposcopy adjuncts; cervical squamous intraepithelial lesions

Introduction

Despite its central role in cervical cancer screening, the accuracy and reproducibility of colposcopy with biopsy as a diagnostic tool is limited. Important factors that may contribute to these limitations in the U.S. include lack of: 1) standardized terminology, 2) recommendations for colposcopy-biopsy practice and procedures, and 3) quality assurance measures. Recognizing the limitations of current colposcopy approaches in the U.S., the American Society for Colposcopy and Cervical Pathology (ASCCP), in collaboration with investigators from the U.S. National Cancer Institute (NCI), set out to review evidence and develop recommendations for U.S. colposcopy practice. This manuscript describes the development of recommendations for colposcopy practice and procedures.

The elements of colposcopy practice in the United States are not well delineated or standardized. They likely vary depending on training of the colposcopist and volume of colposcopies performed. While standard curricula are available, (1) the nature and quality of training varies widely (2). This may, in part, play a role in the low sensitivity of colposcopy in the United States.(3) Studies of the individual elements of the colposcopy examination are lacking in the literature, and most elements of the examination practiced by colposcopists

rely on “expert opinion” acquired during training and practice. A variety of colposcopy adjuncts have been brought to market in an effort to improve colposcopy performance but supportive evidence has not been assessed by any U.S. professional organization.

In response to this dearth of evidence-based consensus, ASCCP’s Board of Directors appointed the ASCCP Colposcopy Standards Committee, and charged a sub-committee, Working Group 3, with recommending standards for the performance of colposcopy in U.S. practices and evaluating colposcopic adjuncts. (4) These recommendations are meant to address the role and approach to colposcopy and biopsy for cervical cancer prevention.

Methods

Literature search

A systematic literature search was conducted to identify studies with relevant information about colposcopic technique, methods, instrumentation and adjuncts. The literature search terms for these specific areas were generated at the National Cancer Institute and reference lists were provided to the working groups. This PubMed search was performed on June 1, 2016 of English language literature between 1982 and 2015 and yielded 390 abstracts. The working group evaluated these articles for relevant results. (4)

Survey

A 44-question survey was developed by the authors with input from the ASCCP Colposcopy Standards Steering Committee, the ASCCP Board of Directors and ASCCP’s Chief Medical Research Advisor. (See supplemental digital content) The survey was sent electronically to 4200 individuals who are currently or have been ASCCP members in the past 3 years. This group likely represents colposcopists with special interest in the discipline and with greater experience in colposcopic technique than the general community of women’s healthcare providers performing colposcopy in the U.S.

Specific elements of the colposcopic examination were evaluated, including pre-procedure evaluation, colposcopic technique, number of biopsies typically performed, documentation, and follow-up management. A frequency distribution of responses was calculated. Additionally, where the number of colposcopies performed per month affected the approach to colposcopy, we stratified the survey results by volume of colposcopy practice, i.e. low volume practice (0–5 colposcopies performed per month), moderate volume (6–20) and high volume practice (>20 colposcopies per month). Comparisons used X^2 and trend test statistics with P-values. Analyses were performed using Stata version 14. (College Station, TX) The survey was deemed exempt from review by the Institutional Review Board of University of Pittsburgh.

Elements of the colposcopy exam endorsed by at least 80% of survey respondents in the moderate and high volume groups formed the base framework for the expert consensus for the working group’s recommendations. The value and validity of each element of the colposcopy examination thus identified were discussed within the working group and the larger steering committee. Elements were added or eliminated based on consensus opinion from the working group and steering committee.

Development of recommendations

Draft recommendations were developed based on the abstracted evidence and expert consensus. The recommendations were presented to the steering committee in October 2016 and reviewed for content and consistency. Revisions were presented to all working group members for discussion and further revision in January 2017, and a vote among working group members was held shortly after. Sixty-seven percent affirmative votes were required for approval of individual recommendations. All recommendations were approved at the first vote and most were approved unanimously with only minor comments. After further editing and notification of stakeholder professional organizations, recommendations were posted on the ASCCP website for public comments between March 13–22, 2017, which resulted in additional modifications in response to the comments. Finally, recommendations were presented at the International Federation for Cervical Pathology and Colposcopy's (IFCPC) 16th World Congress in Orlando, FL on April 5, 2017, followed by a plenary discussion. Final revisions were made by the steering committee based on comments received at this meeting. Recommendations were made for the performance of colposcopy in “minimum” and “comprehensive” colposcopy practices. “Minimum” refers to those basic elements needed to adequately perform colposcopy for the prevention of cancer. Colposcopists who perform a limited number of colposcopy exams should strive to meet at least the minimum elements. The “comprehensive” recommendations are intended as a target for all colposcopists, but at least as an expectation for those with more extensive and consultative colposcopy practices.

Role of funding source

ASCCP provided travel and logistic support for the Colposcopy Standards Committee and Working Groups.

Results

Literature review

Our review of 390 articles in the English language literature retrieved from PubMed from 1982–2015 using search terms appropriate for colposcopic technique, methods, and instrumentation did not reveal any evidence supporting or refuting specific colposcopic methodology. (4) Our literature search, further, included colposcopic adjuncts as part of our second charge. A variety of colposcopic adjuncts have been brought to market in an effort to improve colposcopy performance. Our evaluation required that the adjuncts be currently commercially available in the United States and that evaluated studies include prospective, randomized comparisons of colposcopy and biopsy with and without use of the adjunct. We did not find sufficient evidence to recommend for or against the use of adjuncts with colposcopy.

Survey

Of the 4200 surveys distributed, we received 501 responses, representing an 11.9% response rate. Four hundred sixty-eight (93.6%) respondents indicated they perform colposcopy. Of the 32 (6.4%) respondents not performing colposcopy, the most common reasons were

practice type (pathologist, RN, focus on High Resolution Anoscopy), just getting started in colposcopy, not yet fully trained, and retired. Of those answering the survey, 65% were physicians, 36% advance practice clinicians (APC), i.e. nurse practitioners, certified nurse midwives, and physician assistants. 4% listed “other”. There was some duplication of categories resulting in greater than 100% total. Respondents were mostly experienced colposcopists. The respondents were generally older (78% >44 years of age, 36% >59 years) with greater than 10 years of experience and performed a high volume of colposcopies per month. Sixty seven percent have been performing colposcopy for over 10 years. Thirty percent listed their practice type as “academic”. In addition, over half of respondents reported involvement in teaching colposcopy to medical students, resident physicians, and APC students. (Table 1).

We categorized the volume of colposcopy practice by number of colposcopy examinations performed each month: 32% indicated they perform fewer than 6 colposcopies per month (low volume); 46% perform 6–20 (intermediate volume); 21% perform over 20 colposcopies per month (high volume); and 10% of respondents reported they perform over 50 colposcopies per month. The high volume group was made up primarily of physicians. The proportion of physicians and APC colposcopists performing 6 or more colposcopies per month was similar ($p=0.254$).

Pre-procedure evaluation

Respondents indicated that when preparing a patient for colposcopy they routinely (>75% of the time) perform the following evaluations.

- Review indications for colposcopy 99%
- Document last menstrual period (LMP) 96%
- Document contraception 95%
- Assess pregnancy status 98%
- Assess HPV vaccination status 78%
- Assess HIV status 54%
- Document smoking status 94%
- Obtain signed consent whether or not biopsy performed 79%
- Obtain signed consent only if biopsy planned 24%

Colposcopy technique

The overwhelming majority of those responding (93% overall; 97% among those performing 6 or more colposcopies per month) reported use of a binocular colposcope with or without video monitor. Few (9% overall and 7% of high volume colposcopists) used a digital imaging system or camera and the majority (86% overall and 89% of high volume colposcopists) indicated use of more than one magnification when doing colposcopy.

Routine technique (>75% of the time) for examining the cervix included the following elements:

- Repeat the cytology at time of colposcopy: 12%
- Examine the cervix with saline before acetic acid wash: 31%
- Examine the cervix with 3–5% acetic acid: 98%
- Examine the cervix with Lugol's iodine: 45%
- Examine the cervix with a green/blue filter: 80%
- Identify the visible limits of the squamocolumnar junction (SCJ): 98%
- Examine vulva: 91%
- Perform bimanual exam: 25%
- Perform colposcopy of vagina: 55%
- Perform digital anal exam: 6%
- Achieve hemostasis with Monsel's Paste or Silver Nitrate: 99%

APCs and physicians included these elements in the colposcopy exam at similar rates. These technical elements were generally practiced equally among different volume practices, with the exception that fewer (26%) of those with moderate to high volume practices (6 per month) examined the cervix with saline wash before applying 3–5% acetic acid; and slightly more of this group (62%) routinely examined the vagina colposcopically.

Just under half of respondents, 48%, reported routinely performing colposcopy in the face of a mucopurulent discharge. By comparison, 68% indicated that they would proceed in the presence of vaginitis and 74% after a recently treated gonorrhea or chlamydia infection. 24% would decline to perform colposcopy in the event of any vaginal bleeding. This number increased to 84% in the presence of heavy bleeding.

The use of adjunctive technologies was uncommon. Only 8% of survey respondents indicated they sometimes or *frequently* use a colposcopy adjunct: Zedscan (Zilco, Manchester, U.K.) <1%; Apx 100 (a prototype of Zedscan, Zilco, Manchester, U.K.) <1%; LuViva (Guided Therapeutics, Norcross, GA) <2%; Dysismap (Dysis Medical, Edinburgh U.K.) <2%; Luma (Medispectra, Lexington, MA) <2%; Contact hysteroscopy <3%.

Generating colposcopic impression and documenting findings

Ninety percent (90%) of survey respondents routinely generated and documented a colposcopic impression. Only 25% indicated that they use the Reid (24%) (5) or Swedescore (1%) (6) scoring systems to define their colposcopic impression. There was a trend toward the use of the Reid Index in higher volume colposcopists; ranging from 21% for low volume colposcopists, 22% intermediate volume, and 36% for high volume. ($p=0.022$) Most respondents indicated that they document their findings using text and/or a drawing (80% and 66% respectively). 24% reported use of a digital imaging or print photos, some in addition to written forms of documentation. Lesion size was routinely documented by 48%,

and location of lesions by 96% of respondents. Location of lesions was noted relative to a clock face by 98.5%. These practices did not differ by colposcopy volume.

Biopsies

There has been a rising interest in the colposcopy literature regarding number of biopsies to obtain and the role of random biopsies in colposcopy practice. (7,8,9,10) In our study, there was wide variation in routine (>75% of the time) biopsy practice among survey respondents. While most indicated they would take more than one biopsy, the total number of biopsies and the practice of taking “random” biopsies varied among colposcopists. The decision to biopsy was often influenced by the severity of the referral cytology and colposcopy practice volume. (Table 2) With a referral cytology result of “lesser abnormalities” (ASC-US/ HPV+, LSIL or NILM/HPV +), the worst appearing lesion only was biopsied by 27% of respondents vs 14% for a higher grade cytology (ASC-H or HSIL). By comparison, 72% of respondents would biopsy all lesions if the referral cytology was lesser abnormalities and 86% would biopsy all lesions for higher grade cytology. In the setting of a referral cytology of lesser abnormalities, if the SCJ was fully visualized and no lesions were seen, 50% of respondents indicated they would take no biopsies. On the other hand, 30% reportedly would take at least one random biopsy and 20% would take two or more random biopsies. With a cytology of ASC-H or HSIL, 20% indicated they would take no biopsies, 26% at least one random biopsy and 55% two or more random biopsies. Among 71% of respondents who took random, non-directed, biopsies in various situations, 39% took a single biopsy, and 31% biopsy each quadrant with no lesion.

Our survey showed variation as well in the practice of endocervical sampling (ECS). Ninety seven percent of respondents routinely performed endocervical sampling if the SCJ was not fully visualized and if referring cytology was HSIL or ASC-H. (Two thirds of those who do not perform ECS indicated that a diagnostic excision procedure is routinely planned in this situation.) When ECS was performed, 21% used a curette alone, 11% a brush alone, and 65% routinely use both curette and brush. Those with high volume practices were twice as likely to use a brush alone as colposcopists with moderate or low volume (16% vs 8–9%). For 22% of respondents, the patient’s age influenced the decision whether to do ECS, though again high volume colposcopists were more likely to report this than moderate or low volume colposcopists (32%, 17% and 21% respectively). Among respondents who do ECS, 36% perform ECS before biopsy and 64% perform biopsy first.

Colposcopy in Pregnancy

Practices vary with regard to performing colposcopy in pregnant women. More than half (56% of survey respondents indicated they would perform colposcopy in pregnancy with screening results of “lesser abnormalities”, i.e. HPV+ ASC-US, HPV16/18+ NILM, or LSIL. The proportion who perform colposcopy increases to 85% when the diagnosis is HSIL, AGC, or ASC-H. 20.4% do not routinely perform biopsies in pregnancy. 26% do biopsies only if the colposcopic impression is cancer. 13% biopsy only the single worst lesion. 14% biopsy more than one lesion and only 4% biopsy all visible lesions in pregnancy. Colposcopy and biopsy practices differ by volume of colposcopy practice in pregnant women. (Table 3)

Documentation of findings and patient notification

Colposcopy is a visual discipline, and the appearance of lesions revealed after application of dilute (3–5%) acetic acid may change with time. Findings observed by a colposcopist that lead to a directed biopsy are subjective. If dysplastic lesions are to be observed over time, treated at a different time, or evaluated by more than one colposcopist, meticulous documentation of findings is important. 96% of survey respondents indicated they document the location of lesions seen. Among those who document location, 98% identified the location by position on a clock face. Fewer than half (48%) documented the size of the lesion. Those who do are evenly divided (24–25% each) among identifying number of quadrants, estimating size in millimeters/centimeters, and calculating the percent of cervix involved. Slightly fewer (19%) documented size using drawings, diagrams, and photos.

Follow-up with patients after colposcopy is necessary to close the loop between screening and planned treatment. More than half (53–65%) of survey respondents indicated they notify patients of results by phone, depending on biopsy results. About one third (33–34%) schedule an office visit to review results.

Recommendations

The recommendations for “minimal” and “comprehensive” colposcopy practice derived from this survey with input from the steering committee and from public comments, addressed six major components of the colposcopy procedure: the pre-colposcopy evaluation, the examination, use of colposcopy adjuncts, documentation, biopsy sampling and post-colposcopy procedures. (See text and table 4) Recommended elements of the pre-colposcopy evaluation for “minimum” colposcopy practice include indications for colposcopy, pregnancy status, menopausal status, history of hysterectomy and obtaining informed consent. Expectations for a “comprehensive” colposcopy exam include in addition to the above, past history relative to cervical cytology, colposcopy and treatment, parity, contraception, smoking history, HIV status and HPV vaccination status. For “minimum” colposcopy practice, the colposcopist should examine the vulva and vagina grossly and examine the cervix with magnification after application of 3–5% acetic acid. In addition, a “comprehensive” exam includes evaluation of the upper vagina with magnification, and examination of the cervix after application of 3–5% acetic acid using multiple magnifications and the use of both white light and a red-free (blue or green) filter. Documentation in “minimum” colposcopy practice should be at least in text format, and in the “comprehensive” practice, should include a diagram or photograph, annotated if possible with findings imported into the electronic medical record. The visibility or non-visibility of the squamocolumnar junction, presence or absence of acetowhitening and colposcopic lesions should be documented for all colposcopies. Each colposcopy should include a colposcopic impression (Benign-Normal / LSIL / HSIL / Cancer). In addition, the colposcopist performing a “comprehensive” exam should document whether cervical manipulation is needed to completely visualize the SCJ, and if lesion(s) are present, the extent of lesion visualized (fully/not fully), lesion size and location and description (color, contour, border, vascular changes). In both “minimum” and “comprehensive” practice, biopsies, if indicated should be taken at the SCJ and endocervical sampling, if performed should be documented. In “comprehensive” practice, the location of any biopsies and the

method of endocervical sampling, if done, should be documented. Finally, arrangements should be made to notify the patient of the biopsy and endocervical sampling results with follow-up management plans for all colposcopies. For a “comprehensive” practice, documentation of these arrangements should be included. As for our second charge, based on our review of the literature, we were unable to recommend for or against the use of colposcopic adjuncts.

Discussion

Without Level 1 or 2 evidence to support performing most elements of the colposcopic examination, we performed a survey of current or recent ASCCP members to help define “expert practice” in the United States. The results of our survey demonstrate that colposcopists show a surprising uniformity of practice. Certain elements have a high level of consistency: use of a binocular colposcope at several magnifications, application of dilute acetic acid, evaluation using a blue/green filter, assessing completeness of visualization of the SCJ, the nature and location of lesions, and documenting the findings. There are differences in practice regarding other elements of the procedure, including routine use of Lugol’s iodine, use of saline wash, routine colposcopy of the vagina and documenting the size of lesions. There are also variations regarding colposcopy during pregnancy, performance of colposcopy for minimally abnormal screening results, number of biopsies to take, the role of the random biopsy, and routine endocervical sampling. These differences vary with volume of colposcopy practice. While most colposcopists surveyed, regardless of the volume of their practice take biopsies of all lesions seen, those with the highest volume practice, >20 colposcopies per month, were more likely than less active colposcopists to take no biopsies if the SCJ is fully visualized and no lesions are seen, regardless of the antecedent cytology. When lesions are identified, these “high volume” colposcopists were also more likely to biopsy only the worst appearing lesion. There is controversy in the literature over the role of taking random (nondirected) biopsies (8,9,10). This was addressed by Working Group 2 of the Colposcopy Standards Committee, and they found no added benefit for women with low risk of precancer (11). The evidence from the literature is clear that sensitivity is increased with taking multiple biopsies.(7,10). Working Group 2 underscored this in most situations using a risk based approach. (11)

Colposcopic examination with biopsies for pathologic assessment is the gold standard in the diagnostic evaluation of cervical dysplasia. Prior studies of colposcopy report a sensitivity of only 53.6% – 69.9% (3,7). Further, studies have demonstrated poor inter and intra-observer reliability (12). Attempts, therefore, have been made to improve the diagnostic properties of colposcopy by developing new adjunctive technologies that exploit the altered biochemical and morphological changes present in dysplastic cervical cells. Three main techniques are currently in development: fluorescence and reflectance spectroscopy, dynamic spectral imaging and optical coherence tomography. Only one of these, dynamic spectral imaging, is FDA approved and marketed in the U.S. Among colposcopists taking our survey, only 5% indicated that they sometimes or frequently used one of these types of adjuncts.

The results of our survey should not be generalized to all U.S. colposcopists. The survey participants were current or recent ASCCP members. The results are necessarily biased

toward the practice preferences of clinicians with an interest and/or clinical focus on colposcopy and prevention of female lower genital tract cancer.

In developing the ASCCP Colposcopy Standards for colposcopy procedures, we based the framework for our recommendations on practice patterns endorsed by at least 80% of those survey respondents in the combined moderate and high volume groups. Interim recommendations were then developed with input by the entire ASCCP Colposcopy Standards Committee, Board of Directors, and Chief Medical Research Advisor. They were modified again after considering comments on a national electronic bulletin board posted on the ASCCP website (asccp.org), and after comments solicited during presentation at the International Federation of Cervical Pathology and Colposcopy (IFCPC) World Congress April 5, 2017. Recommendations for both minimum and comprehensive colposcopy practice were established (Table 4). The “minimum” colposcopy practice should be the baseline requirements for a colposcopy examination in the U.S. This will be acceptable for those who perform colposcopies infrequently. Most colposcopists, however should be able to practice at the “comprehensive” level.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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IRB: This study was deemed exempt by the University of Pittsburgh Institutional Review Board.

B.A. receives royalties from Elsevier Publishing for her Colposcopy Text and Atlas 2004, 2008 and royalties plus stock from SABK Inc. for her Colposcopic Image Library on CD, 2004.

M.E. has advised, but does not receive an honorarium from, any companies. In specific cases his employer has received payment for his consultation from Photocure, Papivax, Inovio, PDS Biotechnologies, Natera, and Immunovaccine. If travel is required for meetings with any industry, the company pays for his travel-related expenses. His employers have received grant funding for research related costs of clinical trials that M.E. has been the overall PI or local PI for the past 12 months including from Astra Zeneca, Baxalta, Pfizer, Inovio, Fujiboro, and Eli Lilly.

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Abbreviations

AGC	Atypical glandular cells
APC	Advance practice clinician
ASCCP	American Society for Colposcopy and Cervical Pathology
ASC-H	Atypical squamous cells, cannot rule out high grade squamous intraepithelial lesion
ASC-US	Atypical squamous cells of undetermined significance
ECS	Endocervical sampling

FDA	U.S. Food and Drug Administration
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
HPV+	positive for high risk human papillomavirus
HSIL	High grade squamous intraepithelial lesion
IFCPC	International Federation of Cervical Pathology and Colposcopy
LMP	Last menstrual period
LSIL	Low grade squamous intraepithelial lesion
NCI	National Cancer Institute
NILM	Negative for intraepithelial lesion or malignancy
PI	Principle investigator
SCJ	Squamocolumnar junction

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Table 1

Characteristics of Survey Respondents

	N (number)	% Total
Type of Practice		
Nurse Practitioner	112	25.4
CNM	36	8.2
Physician Assistant	11	2.5
MD, DO – Family Medicine	76	17.2
MD, DO – OB/GYN	183	41.5
MD, DO – GYN Oncology	30	6.8
Other	18	4.1%
Practice Setting		
Academic	130	29.6
Government	41	9.3
Hospital-based	89	20.3
Private Practice	154	35.1
Public Clinic	72	16.4
Other	58	13.2
Years doing colposcopy		
0–5	86	19.6
6–10	59	13.4
> 10 years	295	67.1
Number of exams per month		
0–5	143	32.4
6–20	205	46.4
21–50	51	11.5
> 50	43	9.7

Table 2

Number of biopsies

		Low volume	Intermediate volume	High volume	Total*	P-trend
Referral Cytology; Colposcopy	Number	143	206	94	443	
Lesser Abnormalities; Lesion(s) seen	Biopsy single worst appearing lesion	20.3%	26.7%	36.6%	26.7%	0.007
	Biopsy all lesions	79.0%	72.3%	61.3%	72.2%	0.004
ASC-H, HSIL; Lesion(s) seen	Biopsy single worst appearing lesion	9.8%	12.4%	22.8%	13.7%	0.008
	Biopsy all lesions	90.2%	87.6%	77.2%	86.3%	0.008
Lesser Abnormalities SCJ fully visualized; No lesion seen	Take no biopsies	42.0%	50.0%	60.9%	49.7%	0.005
	Take at least one random biopsy	26.6%	34.7%	25.0%	30.0%	0.967
	Take 2 or more random biopsies	31.5%	15.4%	14.1%	20.4%	<0.001
ASC-H, HSIL SCJ fully visualized; No lesion seen	Take no biopsies	16.2%	16.8%	30.8%	19.5%	0.013
	Take at least one random biopsy	23.2%	27.7%	23.4%	25.7%	0.750
	Take 2 or more random biopsies	60.6%	55.2%	45.1%	54.8%	0.024

Lesser abnormalities = NILM/HPV+, ASC-US/HPV+, LSIL

Low volume = Less than 6 colposcopies per month

Intermediate volume = 6–20 colposcopies per month

High volume = More than 20 colposcopies per month

* Missing (no response); Lesser abnormalities lesion seen- 5; ASC-H, HSIL lesion seen- 6; Lesser abnormalities no lesion- 9; ASC-H, HSIL no lesion- 7

Table 3

Colposcopy in pregnancy

	Low Volume	Intermediate Volume	High Volume	Total*	P-trend
Number	143	206	94	443	
Routinely perform colposcopy in pregnancy for LSIL-, ASC-US/HPV+, NILM/HPV16/18+	50.4%	55.5%	63.3%	55.7%	0.064
Routinely perform colposcopy in pregnancy for ASC-H, AGC, HSIL	77.4%	86.3%	92.2%	84.9%	0.003
In pregnancy, biopsy all lesions	6.0%	2.8%	3.3%	3.9%	0.287
Biopsy the worst appearing single lesion when doing colposcopy in pregnancy	10.3%	12.1%	18.9%	13.1%	0.079
Biopsy only if the colposcopic impression is cancer when doing colposcopy in pregnancy	19.7%	27.5%	30.0%	25.7%	0.081
Take no biopsies if colposcopic impression is low grade when doing colposcopy in pregnancy	23.1%	24.2%	20.0%	22.9%	0.639

Low volume = Less than 6 colposcopies per month

Intermediate volume = 6–20 colposcopies per month

High volume = More than 20 colposcopies per month

* Missing (no response): Lower grade lesions- 48; Higher grade lesions- 46; questions-54;

Table 4

Recommendations for Minimum and Comprehensive Colposcopy Practice (4)

	Comprehensive Colposcopy Practice	Minimum Colposcopy Practice
Pre-colposcopy Evaluation	Evaluate and document at least the following: <ul style="list-style-type: none"> • Indications for colposcopy • Past history of cervical cytology, colposcopy, treatment • Parity • Contraception • Pregnancy status • Menopausal status • Hysterectomy status • Smoking history • HIV status • HPV vaccination status 	Evaluate and document at least the following: <ul style="list-style-type: none"> • Indications for colposcopy • Pregnancy status • Menopausal status • Hysterectomy status
	Obtain informed consent	Obtain informed consent
Examination	Examine vulva and vagina grossly.	Examine vulva and vagina grossly.
	Examine the cervix with multiple magnifications after application of 3–5% acetic acid.	Examine the cervix with magnification after application of 3–5% acetic acid.
	Examine cervix with both white light and a red-free (blue or green) filter.	
	Examine upper vagina with magnification.	
Documentation	Document findings using a diagram or photograph, annotated if possible. Findings should be imported into electronic medical record.	Document findings at least in text format.
	Document cervix visibility (fully / not fully visualized)	
	Document SCJ visibility (fully /not fully visualized), and whether cervical manipulation is needed, to completely visualize the SCJ, e.g. using an applicator stick or endocervical speculum.	Document SCJ visibility (fully/not fully visualized).
	Document colposcopic findings. <ul style="list-style-type: none"> • Acetowhitening present (yes/no) • Lesion(s) present (yes/no) • If lesion(s) present, document extent of lesion(s) visualized (fully/not fully), lesion size and location, description (Color, Contour, Border, Vascular changes). 	Document colposcopic findings. <ul style="list-style-type: none"> • Acetowhitening present (yes/no) • Lesion(s) present (yes/no)
	Document a colposcopic impression (benign-normal / LSIL / HSIL/ Cancer).	Document a colposcopic impression (benign-normal / LSIL /HSIL/ Cancer).
Biopsy	If biopsies are indicated, take biopsies at the SCJ and document their location	If biopsies are indicated, take biopsies at the SCJ
	Document whether endocervical sampling performed and method: curette vs brush or both	Document whether endocervical sampling performed
Post-procedure	Document how patient will be notified of results and management plan	Make arrangements to notify patient of results

Wentzensen N, Massad LS, Mayeaux EJ, et al Evidence-based consensus recommendations for colposcopy practice and cervical cancer prevention in the United States. J Low Genit Tract Dis. 2017 reference from this journal issue.