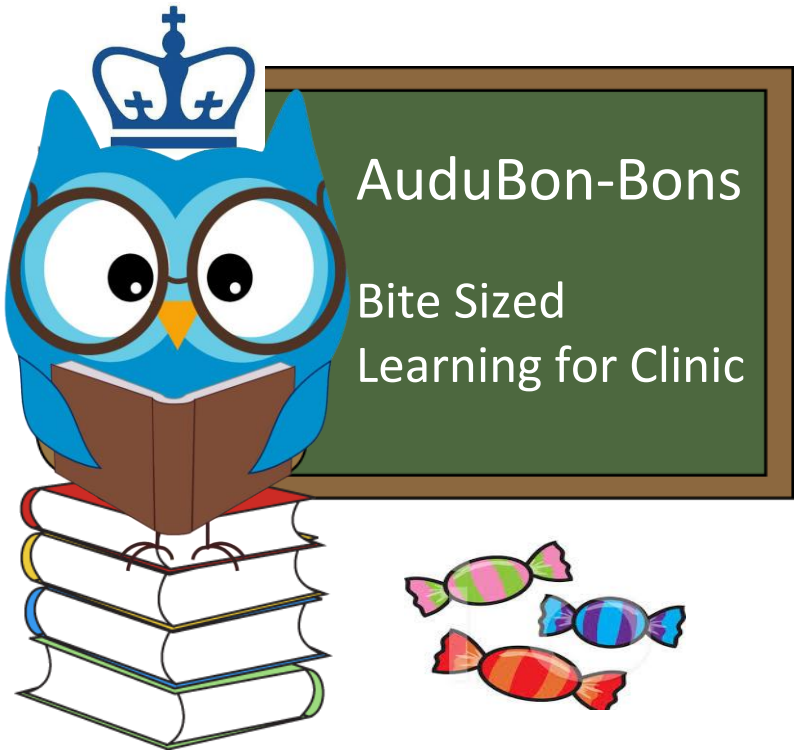
CERVICAL CANCER SCREENING



Week 73

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Homework Assignment:
ACOG Practice Bulletin #157
Cervical Cancer Screening and Prevention

Podcast: *CREOGS Over Coffee* Episode 46: Cervical Cancer Screening (July 21, 2019)

LEARNING OBJECTIVES

- To review the background and importance of cervical cancer screening
- To understand the role of HPV testing in cervical cancer screening
- To review the recommendations for cervical cancer screening in general and special populations

BACKGROUND

- The primary goal of screening is protection from cervical cancer
- Incidence of cervical cancer in the US has decreased > 50% in last 30 years due to wide spread screening
- Cervical cancer occurs more commonly in women who have never been or have been inadequately screened
  - **50% of women diagnosed with cervical ca have NEVER been screened**
  - Additional 10% had not been screened in last 5 years prior to dx

CERVICAL CYTOLOGY SCREENING TECHNIQUES

- Liquid-based and conventional methods of collecting cervical cells are acceptable
  - Liquid-based allows for performing cytology, HPV testing and GCCT testing in a single specimen
- Exfoliated cells from the transformation zone are collected
- Blood, discharge and lubricants can interfere with specimen interpretation

2014 BETHESDA SYSTEM

Box 1. The 2014 Bethesda System for Reporting Cervical Cytology

Specimen Type

Indicate: conventional test (Pap test), liquid-based preparation, or 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)
- Unsatisfactory for evaluation (specify reason)
  - Specimen rejected or not processed (specify reason)
  - Specimen processed and examined, but unsatisfactory for evaluation of epithelial abnormality because of (specify reason)

General Categorization (Optional)

- Negative for intraepithelial lesion or malignancy
- Other: see *Interpretation/Result* (eg, endometrial cells in a woman 45 years of age or older)
- Epithelial cell abnormality: see *Interpretation/Result* (specify "squamous" or "glandular" as appropriate)

Interpretation/Result

- Negative for intraepithelial lesion or malignancy (when there is no cellular evidence of neoplasia, state this in the *General Categorization* section, in the *Interpretation/Result* section, or both—whether or not there are organisms or other non-neoplastic findings)
  - Nonneoplastic findings (optional to report; list not inclusive)
    - Nonneoplastic cellular variations
      - Squamous metaplasia
      - Keratotic changes
      - Tubal metaplasia
      - Atrophy
      - Pregnancy-associated changes
    - Reactive cellular changes associated with
      - Inflammation (includes typical repair)
        - Lymphocytic (follicular) cervicitis
      - Radiation
      - Intrauterine device
    - Glandular cells status posthysterectomy
  - Organisms
    - *Trichomonas vaginalis*
    - Fungal organisms morphologically consistent with *Candida* species
    - Shift in flora suggestive of bacterial vaginosis
    - Bacteria morphologically consistent with *Actinomyces* species

(continued)

Box 1. The 2014 Bethesda System for Reporting Cervical Cytology *(continued)*

Interpretation/Result (continued)

- Negative for intraepithelial lesion or malignancy *(continued)*
  - Organisms *(continued)*
    - Cellular changes consistent with herpes simplex virus
    - Cellular changes consistent with cytomegalovirus
- Other
  - Endometrial cells (in a woman 45 years of age or older) (specify if "negative for squamous intraepithelial lesion")
- Epithelial cell abnormalities
  - Squamous cell
    - Atypical squamous cells (ACS)
      - Of undetermined significance (ASC-US)
      - Cannot exclude high-grade squamous intraepithelial lesion (HSIL) (ASC-H)
    - Low-grade squamous intraepithelial lesion (LSIL) (encompassing: human papillomavirus/mild dysplasia/cervical intraepithelial neoplasia (CIN) 1
    - High-grade squamous intraepithelial lesion (encompassing: moderate and severe dysplasia, carcinoma in situ; CIN 2, and CIN 3)
      - With features suspicious for invasion (if invasion is suspected)
    - Squamous cell carcinoma
  - Glandular cell
    - Atypical
      - Endocervical cells (not otherwise specified or specify in comments)
      - Endometrial cells (not otherwise specified or specify in comments)
      - Glandular cells (not otherwise specified or specify in comments)
    - Atypical
      - Endocervical cells, favor neoplastic
      - Glandular cells, favor neoplastic
    - Endocervical adenocarcinoma in situ
    - Adenocarcinoma
      - Endocervical
      - Endometrial
      - Extrauterine
      - Not otherwise specified
- Other malignant neoplasms (specify)

HPV TESTING

- **Infection with the oncogenic strains of human papilloma virus is necessary for the development of squamous cervical neoplasia**
  - Most HPV infections are transient
  - Persistent infections > 1-2 years strongly predict risk of CIN 3 or cancer regardless of age
  - HPV 16 has the highest carcinogenic potential
- **Indications for HPV testing**:
  - Reflex testing
  - Co-testing
- Testing should only be performed to detect the presence of oncogenic (high-risk)

CASE VIGNETTE # 1

Your patient is a 19 y.o. G2P0020 woman who presents for her annual well woman exam. She is requesting a pap smear today.

- OBHx: VTOP x 2
- GYNHx: + remote h/o chlamydia, + h/o HSV, denies fibroids, cysts, has never had a pap smear
- PMHx/PSHx: Denies
- Meds: None
- Allergies: NKDA
- SocHx: + cigarette smoker, ½ PPD, + social ETOH, denies illicit drug use

Should you perform a pap smear on this patient today?

- **NO**

INITIATION OF SCREENING

When should cervical cancer screening begin?

- Age 21

Are there exceptions to this recommendation?

- Yes, women who are infected with HIV or who are immunocompromised

Why do we start screening at age 21?

- The incidence of cervical cancer in this population is very low
- Screening younger women has not decreased rates of cervical cancer and may lead to increased anxiety, morbidity and expense

CASE VIGNETTE # 2

Your patient is a 26 y.o. G0 woman who presents for her annual well woman exam. She is requesting a pap smear today.

- OBHx: Nulliparous
- GYNHx: Denies h/o STIs, fibroids, cysts. She reports her last pap smear was 3 years ago and was "normal."
- PMHx/PSHx: Denies
- Meds: None
- Allergies: NKDA
- SocHx: Denies use of tobacco, ETOH, illicit drugs

Should you perform a pap smear on this patient today?

- **YES**

TIMING OF SCREENING

What test should be performed for screening and how often?

Table 1. Screening Methods for Cervical Cancer for the General Population: Joint Recommendations of the American Cancer Society, the American Society for Colposcopy and Cervical Pathology, and the American Society for Clinical Pathology*

Population	Recommended Screening Method	Comment
Women younger than 21 years	No screening	
Women aged 21–29 years	Cytology alone every 3 years	
Women aged 30–65 years	Human papillomavirus and cytology cotesting (preferred) every 5 years Cytology alone (acceptable) every 3 years	Screening by HPV testing alone is not recommended*
Women older than 65 years	No screening is necessary after adequate negative prior screening results	Women with a history of CIN 2, CIN 3, or adenocarcinoma in situ should continue routine age-based screening for a total of 20 years after spontaneous regression or appropriate management of CIN 2, CIN 3, or adenocarcinoma in situ
Women who underwent total hysterectomy	No screening is necessary	Applies to women without a cervix and without a history of CIN 2, CIN 3, adenocarcinoma in situ, or cancer in the past 20 years
Women vaccinated against HPV	Follow age-specific recommendations (same as unvaccinated women)	

Abbreviations: CIN, cervical intraepithelial neoplasia; HPV, human papillomavirus.

*After the Joint Recommendations were published, a test for screening with HPV testing alone was approved by the U.S. Food and Drug Administration. Gynecologic care providers using this test should follow the interim guidance developed by the American Society for Colposcopy and Cervical Pathology and the Society for Gynecologic Oncology (Huh WK, Ault KA, Chelmow D, Davey DD, Goulart RA, Garcia FA, et al. Use of primary high-risk human papillomavirus testing for cervical cancer screening: interim clinical guidance. Obstet Gynecol 2015;125:330–7.).

Modified from Saslow D, Solomon D, Lawson HW, Killackey M, Kulasingam SL, Cain J, et al. American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer. ACS-ASCCP-ASCP Cervical Cancer Guideline Committee. CA Cancer J Clin 2012;62:147–72.

CASE VIGNETTE # 3

Your patient is a 67 y.o. G2P2 woman who presents for her annual well woman exam. She is requesting a pap smear today.

- OBHx: FT NSVD x 2
- GYNHx: Denies h/o STI, fibroids, cysts. She reports no h/o abnormal pap smears and her last pap was 3 year ago and was NILM/HPV negative
- PMHx/PSHx: Denies
- Meds: None
- Allergies: NKDA
- SocHx: Denies use of tobacco, ETOH, illicit drugs

Should you perform a pap smear on this patient today?

- **NO**

DISCONTINUATION OF SCREENING

At what age is it appropriate to discontinue screening?

- 65 y.o.

What criteria MUST be met in order to discontinue screening in this population?

- Must have evidence of adequate prior negative screenings and NO h/o CIN 2 or greater
  - Three consecutive negative cytology results or two consecutive negative cotest results within the previous 10 years
    - The most recent test must have occurred within the last 5 years

Why do we choose this age to discontinue screening?

- Low risk of progression to cancer in this population with newly acquired infections

DISCONTINUATION OF SCREENING

When is it appropriate to discontinue screening for women who have had a total hysterectomy?

- In women who have had a total hysterectomy (with removal of the cervix) and have NEVER had CIN 2 or greater, routine cytology and HPV testing should be discontinued and NOT RESTARTED FOR ANY REASON

- Vaginal cytology screening in this group has a small chance of detecting an abnormality, and the test has a very low positive predictive value.

CASE VIGNETTE # 4

Your patient is a 17 y.o. G0 woman, HIV positive, who presents for her annual well woman exam.

- OBHx: Nulligravid
- GYNHx: Denies h/o STIs, fibroids, cysts. She became sexually active at age 16 and has had only 1 sexual partner. She has never had a pap smear.
- PMHx/PSHx: Congenital HIV
- Meds: None
- Allergies: NKDA
- SocHx: Denies use of tobacco, ETOH, illicit drugs

Should you perform a pap smear on this patient today?

- **YES**

SCREENING STRATEGIES IN HIV + AND IMMUNOCOMPROMISED PATIENTS

- **Women with the following risk factors may require more frequent screening than recommended for the general population at average-risk:**
  - Women infected with HIV
  - Women who are immunocompromised (e.g. those who have received a solid organ transplant)
  - Women exposed to diethylstilbestrol in utero
  - Women previously txed for CIN 2, CIN 3 or cancer
- No studies or major society recommendations exist to guide screening in immunocompromised women because of non-HIV causes

SCREENING STRATEGIES IN HIV + AND IMMUNOCOMPROMISED PATIENTS

Initiation

- Within 1 year of onset of sexual activity or
- Within first year after HIV dx if already sexually active
- No later than 21 years old

Women < 30 y.o.

- If initial cytology normal repeat in 12 months
- Three consecutive annual cytology results q3yr cytology

Women > 30 y.o.

- Three consecutive annual cytology results q3yr cytology OR
- One negative cotest result any cervical cancer screening in 3 years

Discontinuation

- Screening should be continued throughout a woman's lifetime

SOCIAL DETERMINANTS OF HEALTH

Race, socioeconomic status, and region strongly influence cervical cancer outcomes.

NH Black and Hispanic women have higher incidence and mortality rates and lower survival rates than white women.

Cervical cancer incidence and mortality rates are higher in rural and nonmetropolitan areas than in metropolitan areas

Table 1. Age-Adjusted Cervical Cancer Incidence (N = 59,432)[a] and Rate Ratios of All Stages, by Race/Ethnicity and Rurality, US Cancer Statistics 2010–2014[b]

	Race/Ethnicity				Rurality[c]		
Cancer Stage	NH White	NH Black	Hispanic	NH Other[d]	Urban	Rural	Total
Total No. (%)	36,144 (60.8)	9,359 (15.7)	10,024 (16.9)	3,905 (6.6)	50,205 (84.5)	9,227 (15.5)	59,432
Localized							
No. (%)	16,080 (44.5)	3,384 (36.2)	4,412 (44.0)	1,688 (43.2)	21,757 (43.3)	3,807 (41.3)	25,564 (43.0)
Rate (95% CI)	4.7 (4.6–4.8)	4.8 (4.6–4.9)	5.6 (5.4–5.8)	4.5 (4.3–4.7)	4.7 (4.6–4.7)	5.2 (5.0–5.4)	–
Rate ratio (95% CI)	1 [Ref]	1.01 (0.97–1.05)	1.19 (1.15–1.23)	0.96 (0.91–1.01)	1 [Ref]	1.11 (1.07–1.15)	–
Regional							
No. (%)	12,603 (34.9)	3,719 (39.7)	3,697 (36.9)	1,369 (35.1)	17,981 (35.8)	3,407 (36.9)	21,388 (36.0)
Rate (95% CI)	3.2 (3.2–3.3)	5.2 (5.0–5.4)	5.1 (4.9–5.2)	3.8 (3.6–4.0)	3.6 (3.5–3.7)	4.1 (4.0–4.3)	–
Rate ratio (95% CI)	1 [Ref]	1.62 (1.56–1.68)	1.57 (1.51–1.63)	1.17 (1.10–1.24)	1 [Ref]	1.14 (1.10–1.19)	–
Distant							
No. (%)	5,496 (15.2)	1,637 (17.5)	1,266 (12.6)	475 (12.2)	7,434 (14.8)	1,440 (15.6)	8,874 (14.9)
Rate (95% CI)	1.3 (1.3–1.3)	2.3 (2.1–2.4)	1.8 (1.7–1.9)	1.3 (1.2–1.4)	1.4 (1.4–1.5)	1.6 (1.5–1.7)	–
Rate ratio (95% CI)	1 [Ref]	1.73 (1.63–1.83)	1.39 (1.30–1.48)	1.01 (0.92–1.11)	1 [Ref]	1.12 (1.05–1.19)	–
Unknown							
No. (%)	1,965 (5.4)	619 (6.6)	649 (6.5)	373 (9.6)	3,033 (6.0)	573 (6.2)	3,606 (6.1)
Rate (95% CI)	0.5 (0.5–0.5)	0.9 (0.8–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	0.6 (0.6–0.6)	0.7 (0.6–0.7)	–
Rate ratio (95% CI)	1 [Ref]	1.75 (1.60–1.92)	1.83 (1.66–2.00)	2.04 (1.82–2.28)	1 [Ref]	1.13 (1.02–1.24)	–

Abbreviations: – , not applicable; CDC, Centers for Disease Control and Prevention; CI, confidence interval; NH, non-Hispanic; RUCC, rural–urban continuum codes; USDA, US Department of Agriculture.

[a] Rates are per 100,000 women and are age-adjusted to the 2000 US standard population (19 age groups, Census P25–1130).

[b] Data are from population-based registries that participate in CDC's National Program of Cancer Registries and/or the National Cancer Institute's Surveillance, Epidemiology, and End Results Program and meet high-quality data criteria. Data from Nevada did not meet criteria in 2011, and Kansas and Minnesota report county-level data, so were excluded. The remaining registries cover approximately 96.5% of the US population.

[c] Urban defined as USDA RUCC 1–3 (metropolitan counties with population sizes ≥1 million; 250,000– <1,000,000; and <250,000). Rural defined as USDA RUCC 4–9 (nonmetropolitan counties with population sizes ≥20,000; 2,500–19,999; and <2,500).

[d] NH other includes non-Hispanic American Indian/Alaska Native, Asian/Pacific Islander, unspecified race, and other race and unknown.

Improving access to screening services and follow-up of abnormal tests in rural areas and among minority women can affect stage at diagnosis and overall cervical cancer incidence and may serve to diminish the racial/ethnic differences in cervical cancer survival.

EPIC .PHRASE

BBonCervicalCaScreening

Description: Cervical cancer screening timing

Recommended cervical cancer screening intervals were discussed with the patient today. Given the patient's age and timing of her last pap smear (last pap smear date and result***), a pap smear (was/was not***) performed today.

We briefly discussed possible outcomes of the pap smear and possible need for follow up depending on results.

The patient was informed that a letter will be sent to her home with a normal pap smear result. If any abnormalities are detected, the patient will receive a phone call from a clinical staff member with those results and recommendations for follow up.

All questions were answered to the patient's satisfaction.

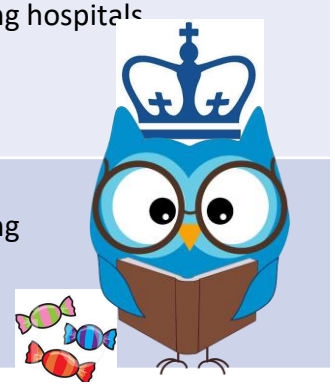
CODING AND BILLING

- Diagnostic Codes (ICD-10)
  - Z12.4 Encounter for screening for malignant neoplasm of cervix
  - Z12.72 Encounter for screening for malignant neoplasm of vagina

  - Z01.419 Encounter for gynecologic examination (general) (routine) without abnormal findings
    - WWE including screening cervical pap smear

CODING AND BILLING – NEW PATIENT

HISTORY	EXAM	MEDICAL DIAGNOSIS MAKING	CODE	APPLICABLE GUIDELINES
Problem focused: - Chief complaint - HPI (1-3)	Problem focused: - 1 body system	Straight forward: - Diagnosis: minimal - Data: minimal - Risk: minimal	99201	- Personally provided - Primary care exception - Physicians at teaching hospitals
Expanded problem focused: - Chief complaint - HPI (1-3) - ROS (1-3)	Expanded problem focused: - Affected areas and others	Straight forward: - Diagnosis: minimal - Data: minimal - Risk: minimal	99202	- Personally provided - Primary care exception - Physicians at teaching hospitals
Comprehensive - Chief complaint - HPI (4) - ROS (2-9) - Past, family, social history (1)	Detailed: - 7 systems	Low: - Diagnosis: limited - Data: limited - Risk: low	99203	- Personally provided - Primary care exception - Physicians at teaching hospitals
Comprehensive - Chief complaint - HPI (4+) - ROS (10+) - Past, family, social history (3)	Comprehensive: - 8 or more systems	Moderate: - Diagnosis: multiple - Data: moderate - Risk: moderate	99204	- Personally provided - Physicians at teaching hospitals
Comprehensive - Chief complaint - HPI (4+) - ROS (10+) - Past, family, social history (3)	Comprehensive: - 8 or more systems	High: - Diagnosis: extended - Data: extended - Risk: high	99205	- Personally provided - Physicians at teaching hospitals



CODING AND BILLING – ESTABLISHED PATIENT

HISTORY	EXAM	MEDICAL DIAGNOSIS MAKING	CODE	APPLICABLE GUIDELINES
Expanded problem focused: - Chief complaint - HPI (1-3)	Problem focused: - 1 body system	Straight forward: - Diagnosis: minimal - Data: minimal - Risk: minimal	99212	- Personally provided - Primary care exception - Physicians at teaching hospitals
Expanded problem focused: - Chief complaint - HPI (1-3) - ROS (1)	Expanded problem focused: - Affected area and others	Low: - Diagnosis: limited - Data: limited - Risk: low	99213	- Personally provided - Primary care exception - Physicians at teaching hospitals
Detailed - Chief complaint - HPI (4+) - ROS (10+) - Past, family, social history (3)	Detailed: - 7 systems	Moderate: - Diagnosis: multiple - Data: moderate - Risk: moderate	99214	- Personally provided - Physicians at teaching hospitals
Comprehensive - Chief complaint - HPI (4+) - ROS (10+) - Past, family, social history (2)	Comprehensive: - 8 or more systems	High: - Diagnosis: extended - Data: extended - Risk: high	99215	- Personally provided - Physicians at teaching hospitals

EVIDENCE

- References
  - Cervical cancer screening and prevention. Practice Bulletin No. 168. American College of Obstetricians and Gynecologists. Obstet Gynecol 2016;128:e111–30.
  - Gynecologic care for women and adolescents with human immunodeficiency virus. Practice Bulletin No. 167. American College of Obstetricians and Gynecologists. Obstet Gynecol 2016;128:e89–110.
  - Yu L, Sabatino SA, White MC. Rural–Urban and Racial/Ethnic Disparities in Invasive Cervical Cancer Incidence in the United States, 2010–2014. Prev Chronic Dis 2019;16:180447. DOI: https://doi.org/10.5888/pcd16.180447.