# HPV

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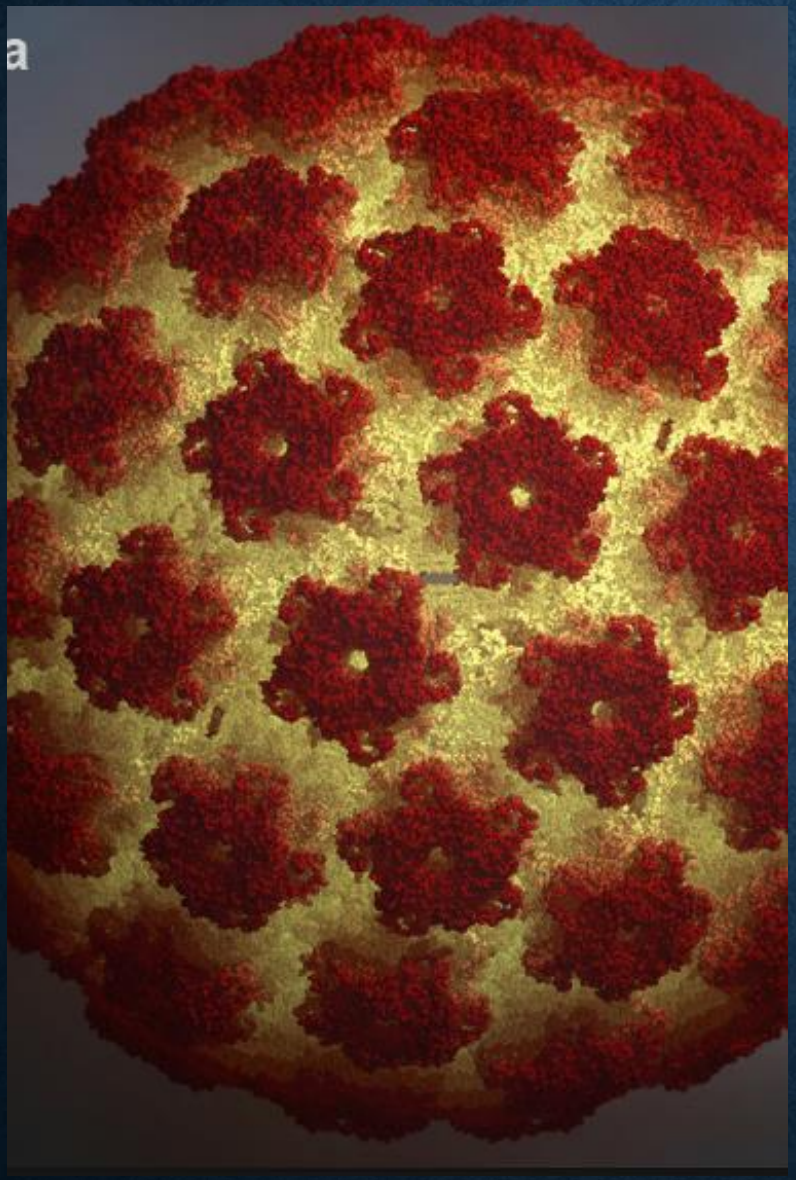


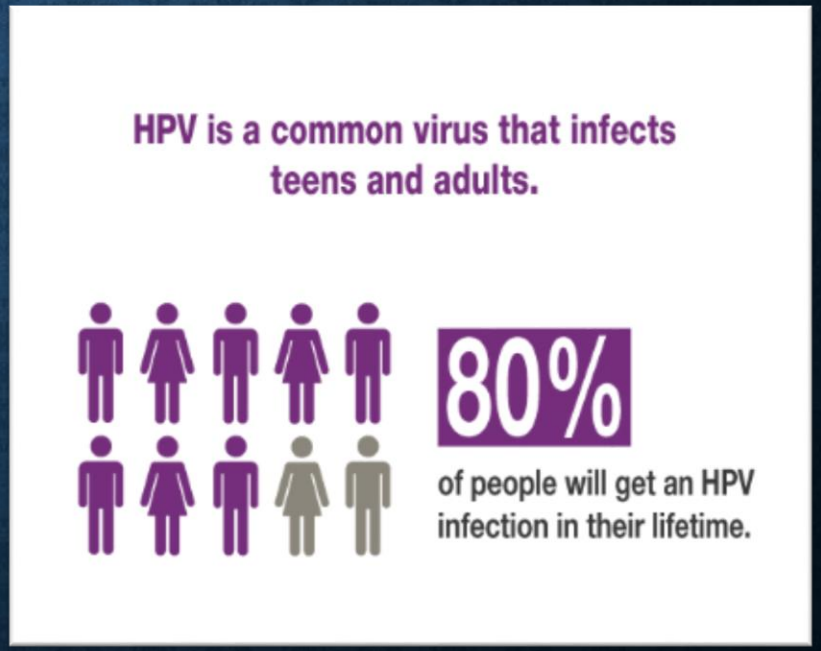
Human

Papilloma

Virus

# EPIDEMIOLOGY

- 80% of people infected
- Most common STI
- 150 virus types
- Skin-to-skin contact
- Males and females
- Not always visible
- 33,000 cancers in men and women



# MANIFESTATION

- Hand and foot warts
- Genital warts
- Cancer
  - Cervical
  - Vaginal
  - Vulvar
  - Penile
  - Oropharyngeal
  - Anal

# ONCOGENICITY

**High Risk**

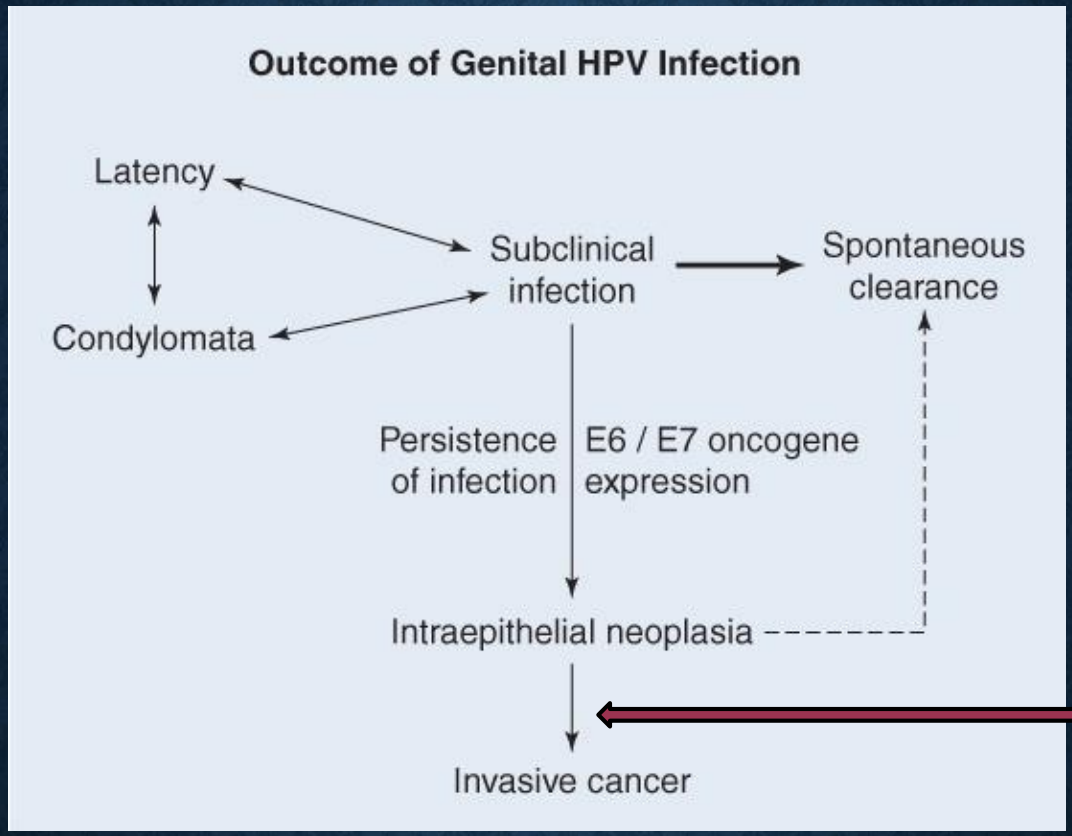
- 16, 18, 31, 33, 35, 45, 58
- 95% cervical cancers
- 16, 18- 70%
- 16 most carcinogenic

**Low Risk**

- 6, 11
- Most genital warts

# TRANSMISSION

- Skin-to-skin
- Homosexual women have same risk as heterosexual
- Perinatal
  - Rare
  - 1-3 yrs of age
  - Conjunctival, laryngeal, vulvar, peri-anal
  - c/s not recommended
  - Consider sexual abuse after infancy




15 years

# NATURAL HISTORY

| | Regression (%) | Persistence (%) | Progression to CIS (%) | Progression to Invasion (%) |
|---|---|---|---|---|
| **CIN 1** | 57 | 32 | 11 | 1 |
| **CIN 2** | 43 | 35 | 22 | 5 |
| **CIN 3** | 32 | <56 | — | >12 |

# CERVICAL INTRAEPITHELIAL NEOPLASIA

- Mild dysplasia
  - CIN 1
  - LGSIL
- Moderate dysplasia
  - CIN 2
- Severe dysplasia
  - CIN 3
  - HGSIL

# NATURAL HISTORY

- 46% demonstrate cervical infection within 3 yrs of debut
- Median time to infection is 3 mos
  - Likely indicates sexual activity, not promiscuity
- Most resolve in young women
  - Many different infections
  - Likely sequential infection with new partners
- Low risk resolve faster than high risk
- Infection in older women is likely persistent
  - Risk of progression increases with age

# RISK FACTORS

- Low socioeconomic status
- Age
- Early sexual debut
- Smoking
- Multiple partners
- Dietary deficiencies
- HRHPV infection
- Exogenous hormones
- Immune suppression
- Lack of screening

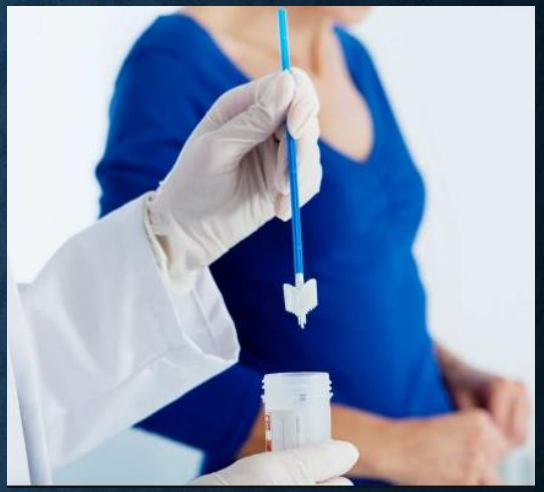
# TESTING

## Screening

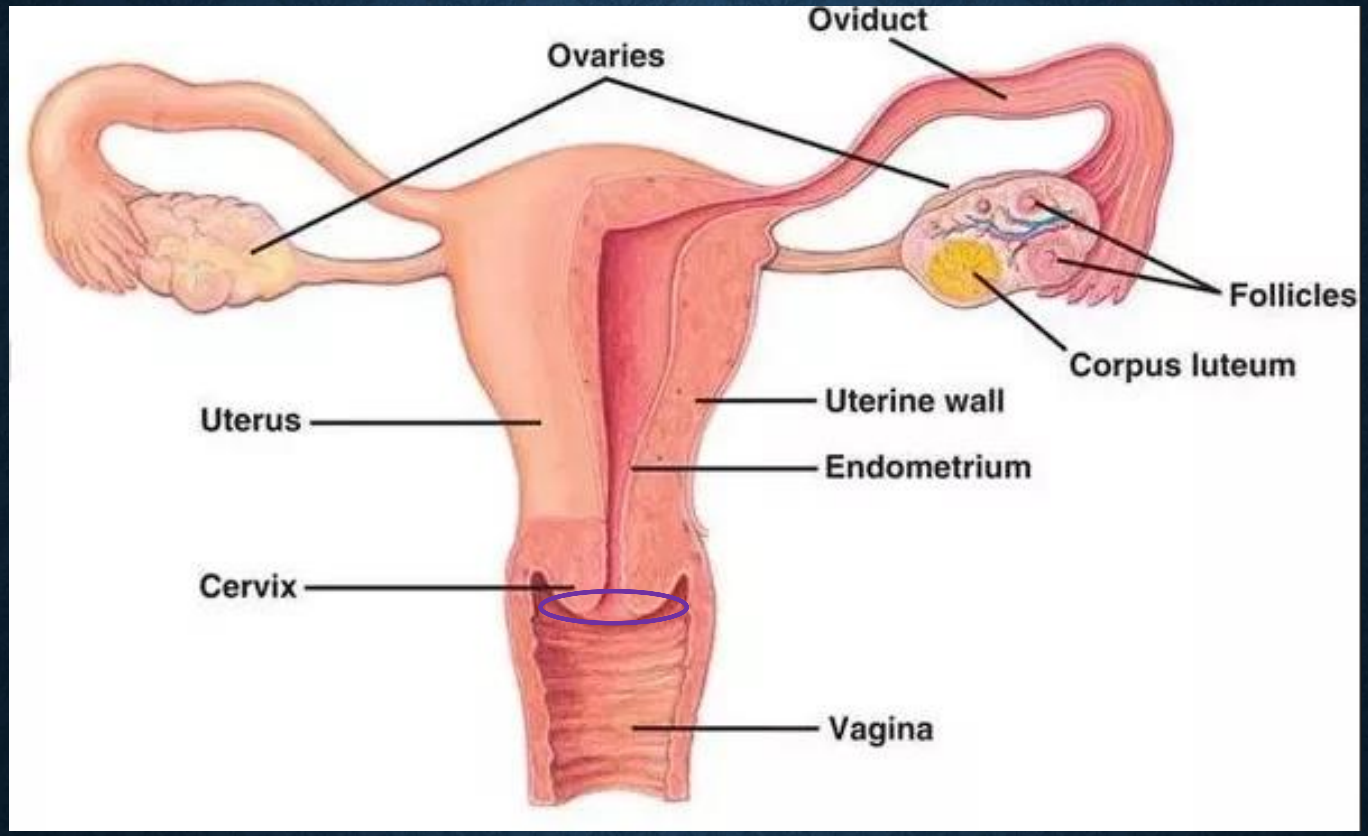
- Asymptomatic
- Low cost
- Used broadly
- Low risk/invasive
- High sensitivity
- Identify people needing diagnosis

## Diagnostic

- Symptomatic
- Higher cost
- Used narrowly
- Higher risk/invasive
- Specific
- Identify people needing treatment

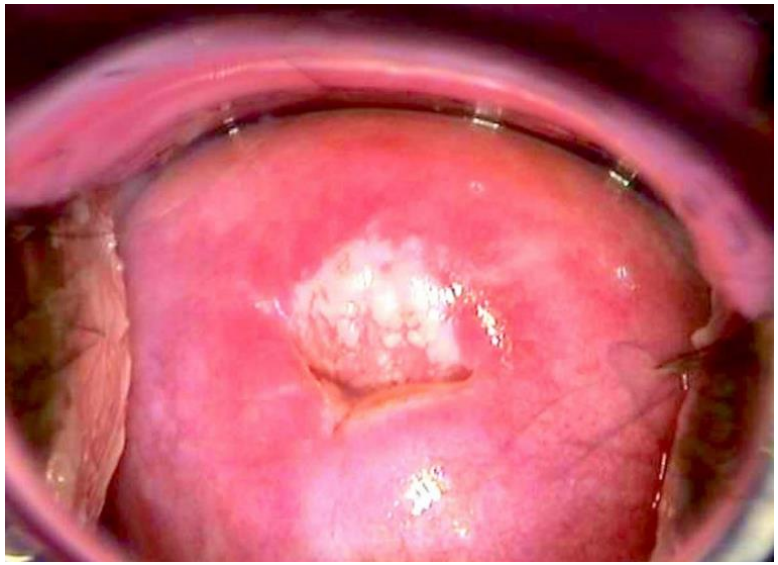
# THE PAP SMEAR

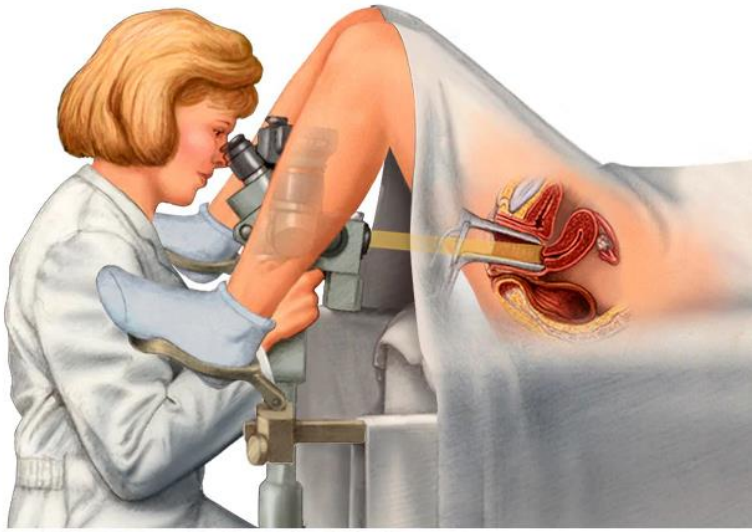



# THE PAP SMEAR

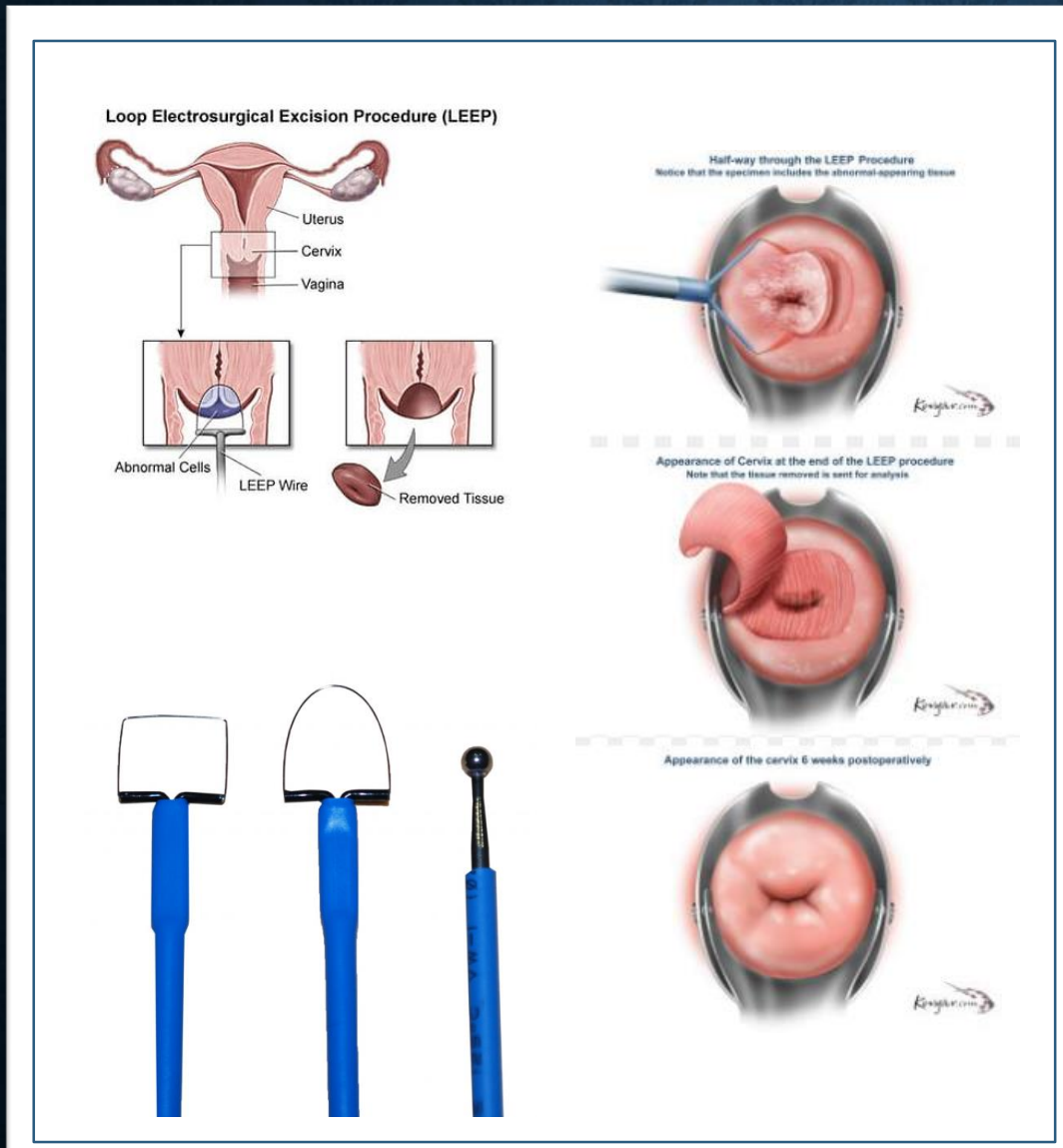
# MANAGEMENT

- Conservative
- Colposcopy
- LEEP
  - Loop Electrocautery Excision Procedure
- Cold knife cone
- Hysterectomy





# COLPOSCOPY


Loop Electrosurgical Excision Procedure (LEEP)
Uterus
Cervix
Vagina
Abnormal Cells
LEEP Wire
Removed Tissue
Half-way through the LEEP Procedure
Notice that the specimen includes the abnormal-appearing tissue
Appearance of Cervix at the end of the LEEP procedure
Note that the tissue removed is sent for analysis
Appearance of the cervix 6 weeks postoperatively

# LEEP

| 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<br>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) | |

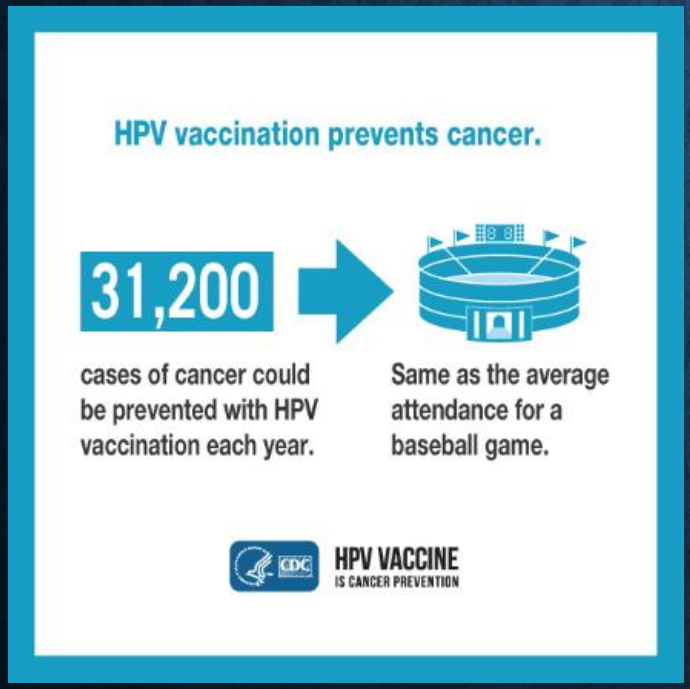
# PAP SMEAR SCHEDULE

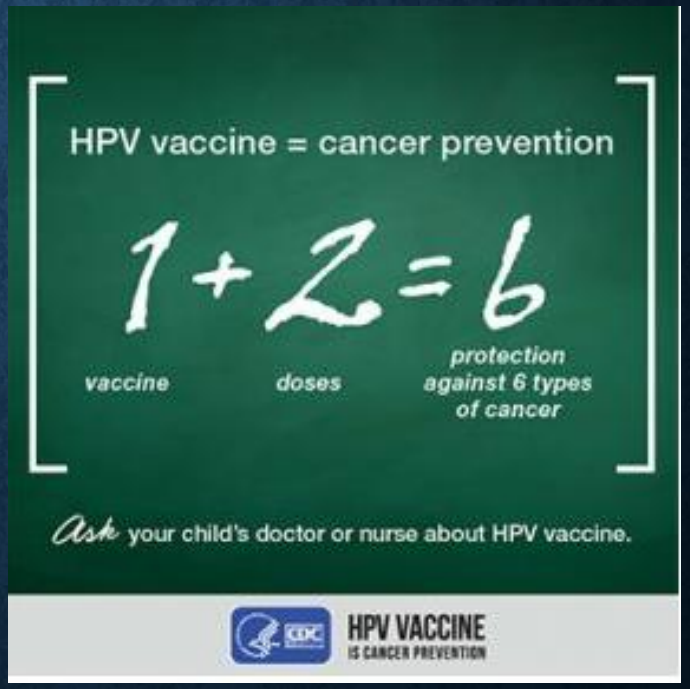
| Screening Method | Result | Management |
|---|---|---|
| Cytology screening alone | Cytology negative | Screen again in 3 years |
| | ASC-US cytology and reflex HPV negative | Cotest in 3 years |
| | All others | Refer to ASCCP guidelines* |
| Cotesting | Cytology negative, HPV negative | Screen again in 5 years |
| | ASC-US cytology, HPV negative | Screen again in 3 years |
| | Cytology negative, HPV positive | Option 1: 12-month follow-up with cotesting<br>Option 2: Test for HPV-16 or HPV-18 genotypes<br>• If positive results from test for HPV-16 or HPV-18, referral for colposcopy<br>• If negative results from test for HPV-16 and HPV-18, 12-month follow-up with cotesting |
| | All others | Refer to ASCCP guidelines* |

# SCREENING ALGORITHM

# PREVENTION

# PREVENTION


HPV vaccination prevents cancer.
31,200
cases of cancer could be prevented with HPV vaccination each year.
Same as the average attendance for a baseball game.
HPV VACCINE
IS CANCER PREVENTION


HPV vaccine = cancer prevention
1 + 2 = 6
vaccine
doses
protection against 6 types of cancer
Ask your child's doctor or nurse about HPV vaccine.
HPV VACCINE
IS CANCER PREVENTION

# HPV VACCINE


- Males and females 9-26
- 2 doses if first dose under age 15 yrs
  - Baseline and at 6-12 mos
- 3 doses if first dose 15 or older
  - Baseline, 1-2 mos, and at 6 mos
- 2, 4, 9 HPV types
- Not approved for people older than 26
- Can be used for immune suppressed
- Few adverse reactions

# CLOSING STATISTICS

- Cervical cancer once the leading cause of cancer deaths
- Mortality declined 50% in 40 years
- 2017- 12,820 women diagnosed
- 4,210 died
- Most diagnosed between ages 20-50