Human Papillomavirus and cancer

Speaker: Decca Mohammed, MD

Objective

- Statistics for cervical cancer and HPV
- Association of HPV to cervical cancer, and other cancers
- Prevention
- Screening
- Recommendations

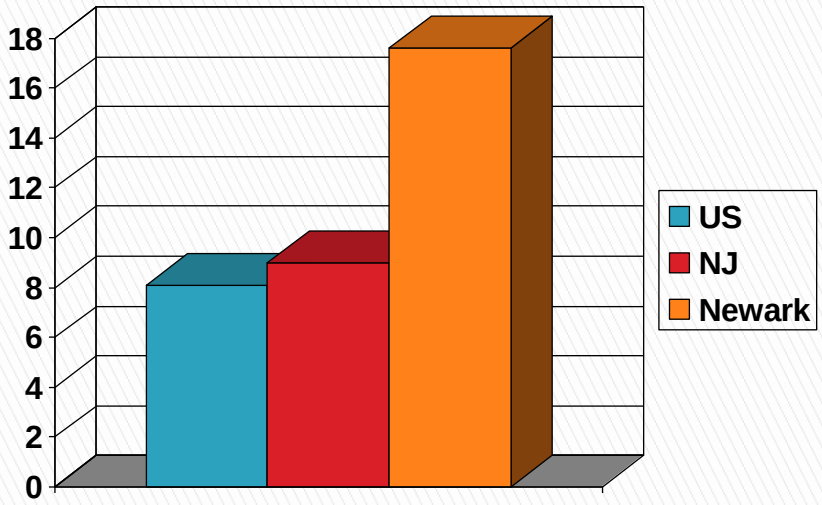
Cervical Cancer Statistics

- 12,000 women in the U.S. get cervical cancer in 2009
- 4000 women died from it in the U.S. in 2009
- It is the most common cause of cancer death in the world where pap tests are not available (240,000 deaths annually)
- It is the easiest gynecologic cancer to prevent

cdc.gov

US, New Jersey and Newark Cervical Cancer Rates

- Cervical cancer rates
  - –US: 2004–2008 age adjusted incidence rate of 8.1/100,000 population[1]
  - –NJ:2004–2008 age adjusted incidence rate of 9/100,000 population[2]
  - –Newark:1998–2002 age adjusted incidence rate of 17,.6/100,000 population[3]



SEER STAT FACT Sheets: Cervix Uteri;http://seer.cancer.gov/statfacts/html/cervix.html.sept 19,2011

2.Cancer incidence and mortatility in NJ 2004–2008;http://www.state.nj.us/health/ces/documents/report04-08.pdf; sept 19,2011

3.Cancer incidence rates in NJ'sTen Most Populated Municipalities 1998–2002;http://www.nj.gov/health/ces/documents/cancer municipalities.pdf; sept 19,2011

Risk factors for cervical cancer

- Persistent high risk HPV infection

- Early onset of sexual activity
- Multiple sexual partner
- History of STI
- Smoking
- Immunosuppression
- High parity
- Low socioeconomic status

Signs and Symptoms

- Abnormal vaginal bleeding
- Post-coital bleeding
- Malodorous vaginal discharge

HPV infection in the US

- Estimated incidence-6.2 million women/yr
- Estimated prevalence-20 million women
- 9.2 million women age 15-24 yrs are infected currently

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Linking HPV to cervical cancer

- HPV DNA is found in almost 99% of cervical cancer
- High risk HPV (ie.16,18,31,33,45) detected in 70% of invasive cervical cancer cases worldwide
- Persistent infection with HPV is a prerequisite for getting cervical cancer or its precursor cell

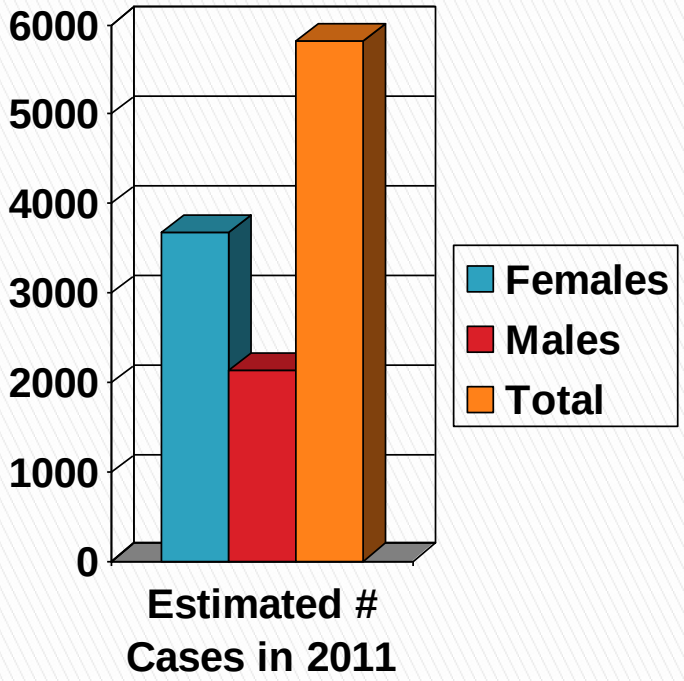
HPV associated cancers

	% HPV association
Cervix	96
Oropharynx	63
Anus	93
Vulva	51
Vagina	64
Penis	36

Gillison ML Cancer Suppl 2008;113(10):3036-46

US Anal Cancer Rates

- Estimated 5820 new cases of anal cancer in the US in 2011
  - ~3680 females
  - ~2140 males[1]
- Between 1975-2008, the annual percentage change for cancer of the anus, anal canal, and anorectum was 2.2%[2]
  2.5%(males)
  2.0%(females)

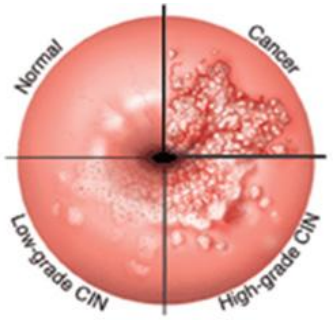


1.http:/www.cancer.org/cancer/analcancer/detailedguide/anal-cancer-what-is-key-statistics, sept 19,2011

2.Seer stat fact sheets, anal cancer;http://seer.cancer.gov/statfacts/html/anus.html; sept 19,2011

HPV

- Non-enveloped double stranded DNA virus
- >100 types identified
- 30-40 anogenital types
  - -15-20 oncogenic types, ie 16,18,31,33,45
    (HPV 16 and 18 account for the majority of worldwide cervical cancers)
  - -Non-oncogenic types are associated with genital warts, ie HPV 6 and HPV11



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Mechanism of HPV transmission

- Direct sexual contact

  -condoms may not prevent HPV infection but may protect against HPV related diseases(warts, cancers, pre-cancer cell)

- Non-sexual routes

  -mother to newborn(respiratory papillomatosis)

  -fomites (ie undergarments)

Natural history of HPV

- Most HPV infections are cleared by 1-2yrs
- 60-70% will be cleared by 1 yr
- 90% will be cleared by 3 yrs
- The longer the HR HPV infection persists, the greater the risk for cervical cancer precursor formation

cdc.gov

HPV vaccination

- Quadrivalent vaccine (types 6,11,16, &18)
  -approved by FDA for females age 9-26yrs for the prevention of cervical, vulvar and vaginal cancer cause(2006)
  -approved by FDA for use in males age 9-26yrs for the prevention of genital warts caused by HPV types 6 & 11

- Bivalent vaccine (type16,18)-2009

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Recommendation

- Annual pap smear starting at age 21
- Pap smear every 2-3yrs at age 30 if three consecutive negative pap smears
- HPV testing with pap smear after age 30
- HPV testing earlier if abnormal pap smear

ACOG recommendation

Adolescent visit

- No pap smear
- Counseling about safe sex practice and contraception
- Counseling and testing for sexually transmitted diseases
- No speculum exam if pt is asymptomatic

ACOG practice bulletin No.109

Review

- 18 yrs young lady, never pregnant, has never had sexual activity comes for annual gyn exam.

  -no pap smear
  -no speculum
  -no HPV testing
  -HPV vaccine
  -counseling

- 16 y/o young lady, 2pregnancy, 1 abortion, comes to see gyn for vaginal discharge

  -no pap smear
  -+speculum
  -+STI screening
  -no HPV testing
  -HPV vaccine
  -counseling

Review

- 27 y/o lady,2 children, for annual gyn exam

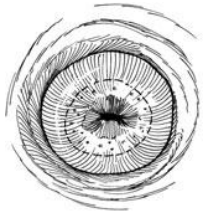
  -pap smear
  -no HPV HR unless pap shows precursor cells
  -no vaccine
  -STI screening

- 44 y/o lady, 4 children, for annual gyn exam

  -pap smear with HPV
  -no pap if last 3 consecutive paps neg.
  -no vaccine

Classification of terms

- Specimen adequacy- transformation zone must be present



- Negative for intraepithelial lesion or malignancy

- Squamous cells
  (ASC-US, ASC-H, LSIL,HSIL, Squamous Cell Ca, Glandular cell abnormalities)

Follow up of abnormal pap smear

www.asccp.org

ASC-US
(atypical squamous cells of undetermined

HPV HR +

HPV HR -

↓

Colposcopy

↓

Repeat pap in 4-6 mos

ASC-H
(atypical squamous cells-cannot exclude HSIL)

Colposcopy

LGSIL
(Low grade squamous intraepithelial lesion)

Colposcopy
HPV testing not needed

HGSIL
(High grade squamous intraepithelial lesion)

↓

Colposcopy or LEEP
HPV testing not needed

Summary

- Cervical cancer still affects thousands of women
- Millions more are impacted by the HPV related precursor cells
- Excellent preventive advances

  1.vaccines

  2.screening with pap and HPV(when indicated)

  3.treatment of precursor cells