
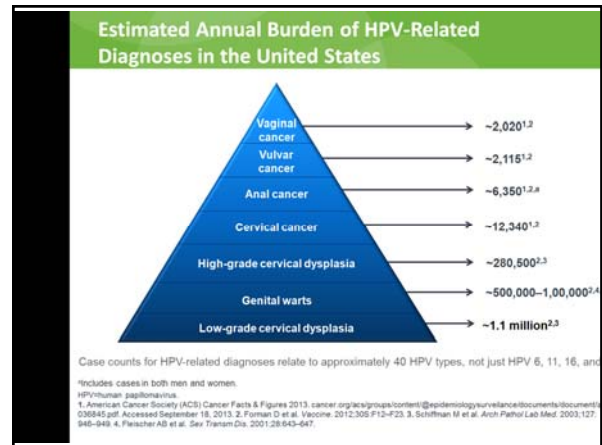
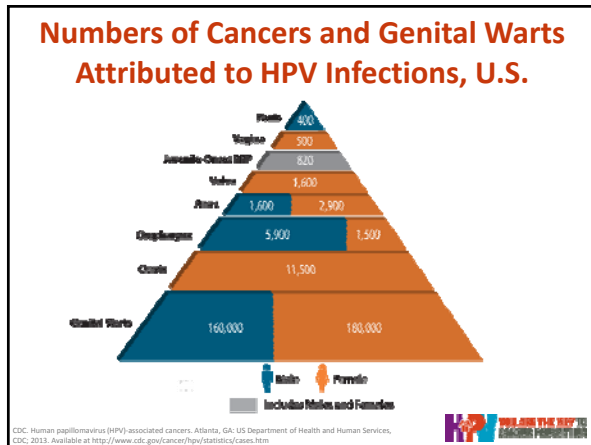
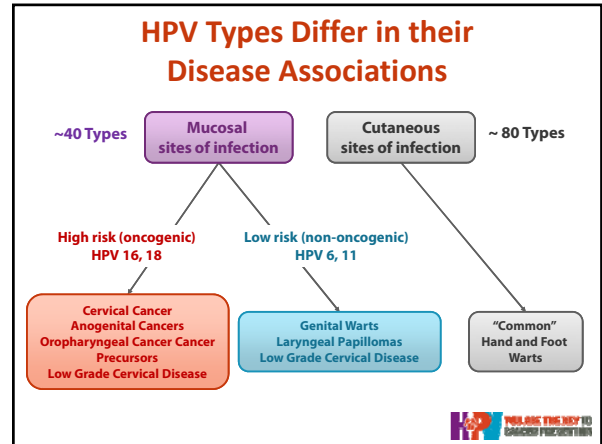


Understanding the Burden

HPV INFECTION & DISEASE

PRESENTED BY:
CHARLES A. SCOTT, MD, FAAP


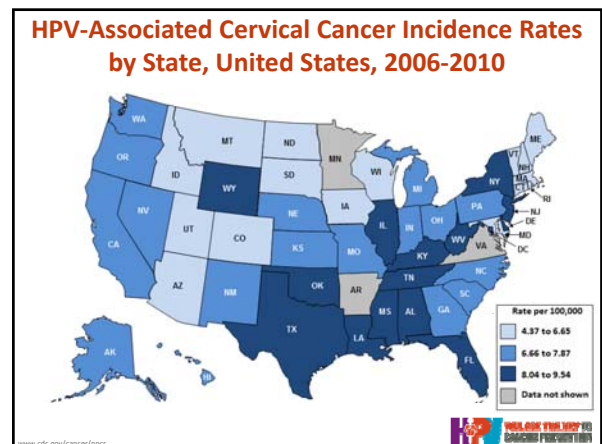
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Cancers Attributed to HPV, U.S.

Cancer site	Average number of cancers per year in sites where HPV is often found			Percentage of cancers per year probably caused by HPV	Average number of cancers per year probably caused by HPV†		
	Male	Female	Both Sexes		Male	Female	Both
Anus	1,549	2,821	4,370	91%	1,400	2,600	4,000
Cervix	0	11,422	11,422	91%	0	10,400	10,400
Oropharynx	9,974	2,443	12,417	72%	7,200	1,800	9,000
Penis	1,048	0	1,048	63%	700	0	700
Vagina	0	735	735	75%	0	600	600
Vulva	0	3,168	3,168	69%	0	2,200	2,200
TOTAL	12,571	20,589	33,160		9,300	17,600	26,900

†Includes cases in both men and women.

26 million: number of girls under 13 years of age in the United States

168,400: number who will develop cervical cancer if none are vaccinated

54,100: number who will die from cervical cancer if none are vaccinated

Adapted from Chesson HW et al, Vaccine 2011;29:8443-50

HPV Vaccine is Underutilized

- A. Stagnant HPV vaccination rates are leaving another generation vulnerable to devastating HPV cancers
- B. HPV vaccination rates are lagging behind the rates of the other vaccines for preteens and teens
- C. High HPV vaccination coverage is possible with the current healthcare structure

For each year we stay at 30% coverage instead of achieving 80%...

4,400: number of future cervical cases we will not prevent

1,400: number of cervical cancer deaths we will not prevent

Recommendations for Administration

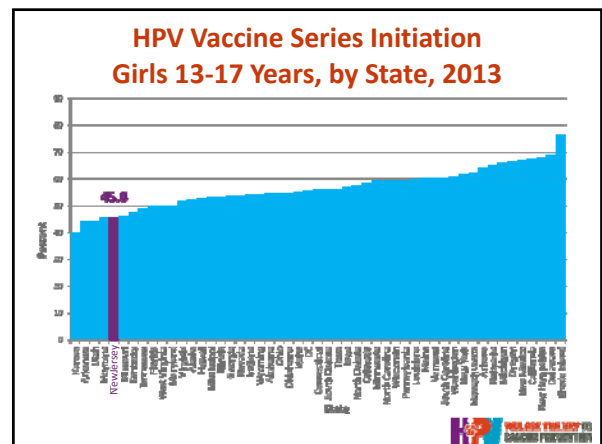
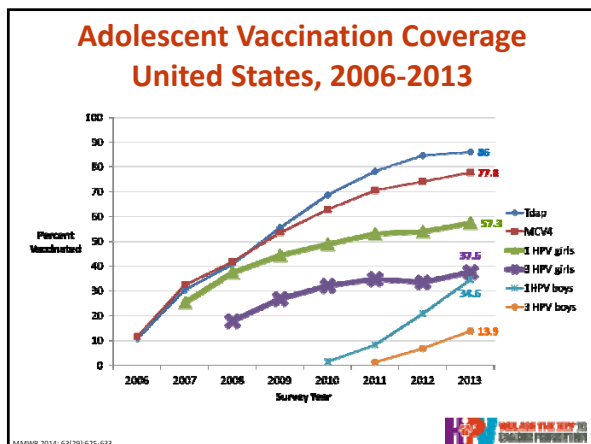
ACIP Recommendations for HPV Vaccination:

ACIP outlines an age-based (vs. risk-based) vaccination policy^{1,2}

<p>Males: qHPV Vaccination¹</p> <p>Routine: 11 or 12 year olds Catch up: 13–21 year olds Special populations: 22–26 year olds*</p>	<p>Females: HPV Vaccination²</p> <p>Routine: 11 or 12 year olds Catch up: 13–26 year olds</p>
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* Males and females: 9- and 10-year-olds can be vaccinated^{1,2}

ACIP = Advisory Committee on Immunization Practices; qHPV = quadrivalent HPV
*See the ACIP Recommendations for further information about Special Populations
© Centers for Disease Control and Prevention (CDC), Blood Alcohol Risk Rep. (2011) (2010) 1100-1104. © Centers for Disease Control and Prevention (CDC), High-Risk HPV Risk Rep. (2012) (2012) 017-018.



Why Vaccinate Early?

- ▶ Younger Adolescents come into offices more often
 - ▶ Easier to initiate and complete the series
 - ▶ If delay in completion, pick up where left off (don't restart)
- ▶ Other vaccinations are being done as well (safely given concomitantly with other adolescent vaccines)
- ▶ Non-Inferior antibody response (actually more robust)
- ▶ Catch them before sexual debut/potential exposure
- ▶ Consider starting the discussions about all adolescent vaccines earlier to prepare

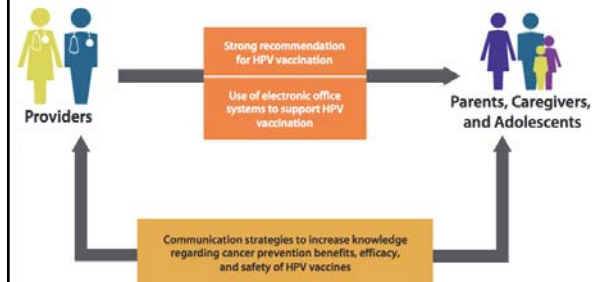


Newly Approved HPV Vaccine GARDASIL 9

- ▶ Current Gardasil with 4 strains covered (2 oncogenic strains, 2 genital wart strains)
- ▶ NEW GARDASIL 9 with 5 additional oncogenic strains covered (same 2 wart strains)
 - ▶ HPV Cancer protection now approaching 90%
 - ▶ Genital wart protection remains > 90%
 - ▶ Approved for females 9 - 26; males 9 - 21



HOW TO ACCELERATE HPV VACCINE UPTAKE IN THE U.S.



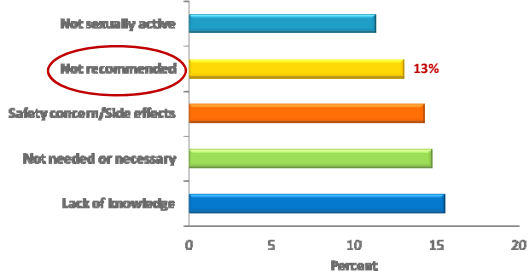
HPV Vaccine Communications During the Healthcare Encounter

- ▶ HPV vaccine is often presented as 'optional' whereas other adolescent vaccines are recommended
- ▶ Some expressed mixed or negative opinions about the 'new vaccine' and concerns over safety/efficacy
- ▶ When parents expressed reluctance, providers were hesitant to engage in discussion
- ▶ Some providers shared parents' views that teen was not at risk for HPV and could delay vaccination until older

Goff S et al. Vaccine 2011;10:7343-9
Hughes C et al. BMC Pediatrics 2011;11:74



Top 5 reasons for not vaccinating daughter, among parents with no intention to vaccinate in the next 12 months, NIS-Teen 2012



CDC. National and State Vaccination Coverage Among Adolescents Aged 13-17 Years - United States, 2012. MMWR 2014; 63(20):405-408.



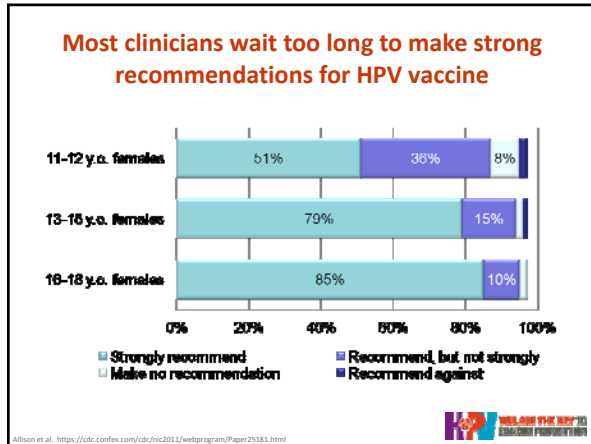
Strength of Clinician Recommendation Influences Intent to Vaccinate

	Strongly rec'd against it	Rec'd against it	Talked about it but did not offer a rec	Rec'd it	Strongly rec'd it	Did not discuss it
Got/will get	3.7%	1.1%	11.8%	36.4%	33.7%	13.4%
Will not get	5.9%	5.1%	21.2%	15.3%	7.6%	44.9%
Unsure	0.0%	1.5%	15.7%	20.9%	8.2%	53.7%
Don't know	2.0%	0.7%	8.5%	19.6%	5.2%	64.1%

2012 SummerStyles (HealthStyles) Survey

#WeCanStopHPV



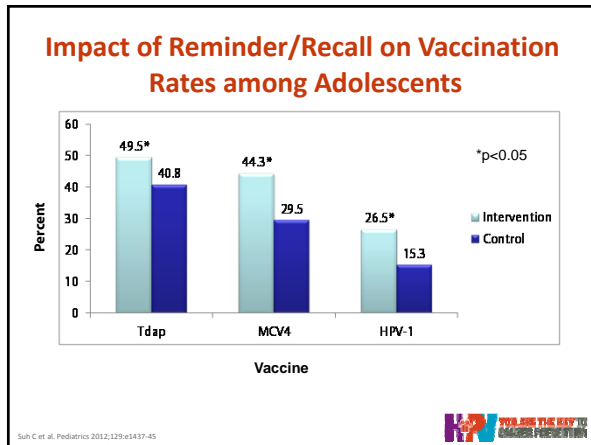


Tips and Time-savers for Talking with Parents about HPV Vaccine

Recommend the HPV vaccine series the same way you recommend the other adolescent vaccines. For example, you can say "Your child needs these shots today," and name all of the vaccines recommended for the child's age.

Parents may be interested in vaccinating, yet still have questions. Taking the time to listen to parents' questions helps you save time and give an effective response. CDC research shows these straightforward messages work with parents when discussing HPV vaccine—and are easy for you or your staff to deliver.

- CDC RESEARCH SHOWS:** The "HPV vaccine is cancer prevention" message resonates strongly with parents. In addition, studies show that a strong recommendation from you is the single best predictor of vaccination.
- TRY SAYING:** HPV vaccine is very important because it prevents cancer. I want your child to be protected from cancer. That's why I'm recommending that your daughter/son receive the first dose of HPV vaccine today.
- CDC RESEARCH SHOWS:** Disease prevalence is not understood, and parents are unclear about what the vaccine actually protects against.
- TRY SAYING:** HPV can cause cancers of the cervix, vagina, and vulva in women, cancer of the penis in men, and cancers of the anus and the mouth or throat in both women and men. There are about 26,000 of these cancers each year—and most could be prevented with HPV vaccine. There are also many more precancerous conditions requiring treatment that can have lasting effects.
- CDC RESEARCH SHOWS:** Parents want a concrete reason to understand the recommendation that 11–12 year olds receive HPV vaccine.
- TRY SAYING:** We're vaccinating today so your child will have the best protection possible long before the start of any kind of sexual activity. We vaccinate people well before they are exposed to an infection, as is the case with measles and the other recommended childhood vaccines. Similarly, we want to vaccinate children well before they get exposed to HPV.
- CDC RESEARCH SHOWS:** Parents may be concerned that vaccinating may be perceived by the child as permission to have sex.
- TRY SAYING:** Research has shown that getting the HPV vaccine does not make kids more likely to be sexually active or start having sex at a younger age.
- CDC RESEARCH SHOWS:** Parents might believe their child won't be exposed to HPV because they aren't sexually active or may not be for a long time.
- TRY SAYING:** HPV is so common that almost everyone will be infected at some point. It is estimated that 79 million Americans are currently infected with 14 million new HPV infections each year. Most people infected will never know. So even if your son/daughter waits until marriage to have sex, or only has one partner in the future, he/she could still be exposed if their partner has been exposed.



HPV Vaccine is Cancer Prevention

#WeCanStopHPV

For more information, visit:
cdc.gov/vaccines/YouAreTheKey
cdc.gov/vaccines/teens

Email questions or comments to
CDC Vaccines for Preteens and Teens:
PreteenVaccines@cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

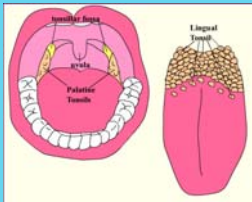
HPV AND ITS ROLE IN HEAD AND NECK CANCER

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HUMAN PAPILLOMA VIRUS

- Lifetime risk of acquiring HPV is 80%
 - 90% of people have transient infection
 - 10% fail to clear and develop chronic infection
- There are over 100 subtypes of HPV
 - 60 cutaneous subtypes → common wart
 - 40 mucosal types
 - HPV 16 and 18 → high risk → cervical and oropharyngeal cancer
 - HPV 6 and 11 → low risk → low grade dysplasia in larynx and cervix
- 1% of the US population carry HPV 16. It is 3 times more common in men than women.
- It is thought that Oral and oropharyngeal HPV is acquired through oral sex and open mouthed (French) kissing

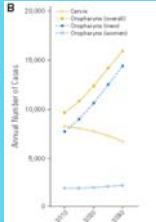
RISING INCIDENCE OF OROPHARYNGEAL CANCER



HPV related cancer in the head and neck is found in the oropharynx, namely in the lymphoid tissue of the **palatine tonsils** and the **lingual tonsils** in the base of the tongue.




RISING INCIDENCE OF OROPHARYNGEAL CANCER

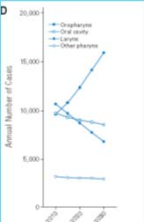


Annually in the US, over **10,000** new cases of oropharyngeal cancer can be attributed to HPV. **HPV is now the leading cause of oropharyngeal cancer worldwide** (versus smoking/alcohol). In the US, over **80%** of cases are attributed to HPV infection.

Incidence is projected to **rise dramatically** and also dramatically surpass that of cervical cancer in women.




RISING INCIDENCE OF OROPHARYNGEAL CANCER



Rates of all other head and neck cancers are decreasing, reflecting the decline in smoking behaviors.

Risk factor	Relative risk of developing oropharyngeal cancer
Alcohol	5.5x
Smoking	19.5x
Smoking + alcohol	56.5x
Chronic HPV infection	230x




WHY THE INCREASE?

Rising number of people choosing to have oral sex in the era of HIV

- 5 fold risk of acquiring oropharyngeal cancer in patients with a history of 5 or more oral sexual partners
- ?increase in rates of high risk HPV subtypes

The new normal patient with oropharyngeal cancer:




- Middle aged (40-59) married white male
- History of multiple sexual partners with inconsistent barrier use.
- Higher socioeconomic status
- Likely non smoker or minimal smoker, nondrinker



PRESENTATION

Typical HPV oropharynx cancer:
 Not painful, soft, fleshy
 Develops deep in tonsil crypts metastasizes early
 >90% present already with neck metastasis

Non-HPV related cancer:
 Firm, indurated and painful
 Bleeds easily, friable
 Causes symptoms early

SYMPTOMS

Neck mass
 Persistent sore throat
 Difficulty swallowing
 Painful swallowing

Ear pain
 Voice change
 Weight loss




PROGNOSIS

HPV related oropharyngeal cancer has **significantly better survival**

- HPV pos. + <10 pack year tobacco → 90% survival
- HPV neg. + significant tobacco history → 30% survival

Clinical trials underway to see if treatment can be modified for the HPV positive cancer patient



PREVENTION

Education, Education, Education


- Patients
- Parents
- Physicians

Modify sexual behavior?

Vaccination*

*Vaccine efficacy in preventing oral HPV infection has not been investigated, although numerous studies have shown decreased HPV infection in other sub-sites – anal, genital, cervical

Screening Tests – research ongoing. Not currently available.



THANK YOU.

QUESTIONS?

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Bosch FX et al. Comprehensive control of human papilloma virus infections and related diseases. *Vaccine* 31 Supple 7:H1-31. 2013.

Chai, R. C., Lambie, D., Verma, M. and Punyadeera, C. Current trends in the etiology and diagnosis of HPV-related head and neck cancers. *CANCER MEDICINE*. doi: 10.1002/cam4.424. 2015

Chaturvedi, A et al. Human Papilloma Virus and rising Oropharyngeal cancer incidence in the United States. *Journal of Clinical Oncology* 29:4294-4301. 2011.

Wesley R. et al. Initial Symptoms in Patients With HPV-Positive and HPV-Negative Oropharyngeal Cancer. *JAMA Otolaryngol Head Neck Surg*. 2014;140(5):441-447

Human Papilloma Virus (HPV) and Oropharyngeal cancer fact sheet. *Centers for Disease Control and Prevention*. www.cdc.gov/std/hpv/stdfact-hpvandoralcancer.htm



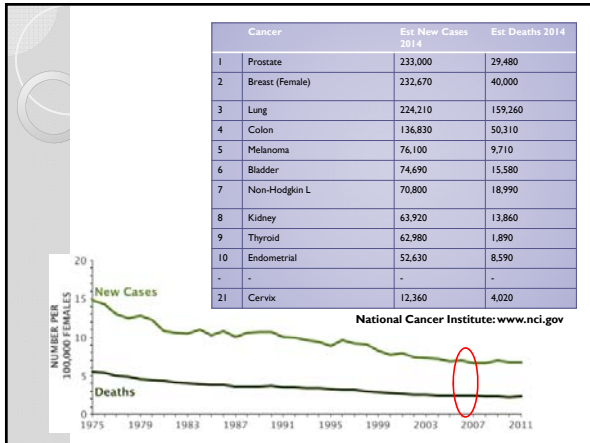
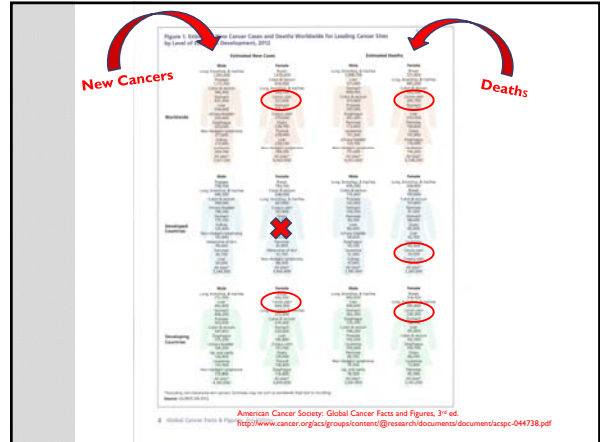
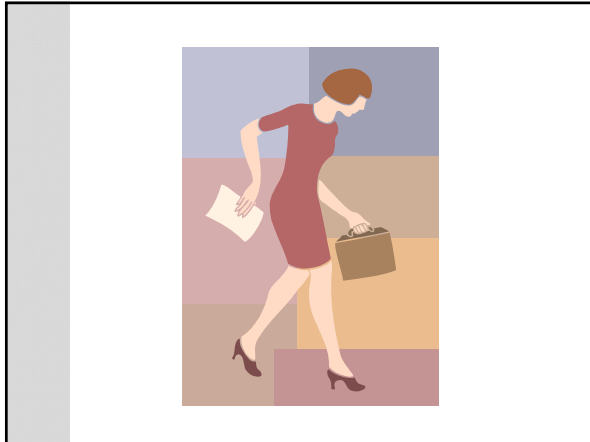
HPV: Trends in the GYN Office

Eric B. Grossman, MD, FACOG



What do we really want to do?

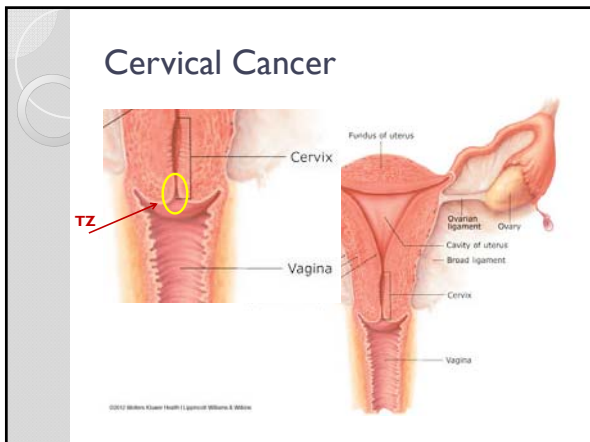
- Prevent cervical cancer
 - Easiest GYN cancer to prevent
 - Screening PAP
 - HPV co-testing
 - Management of CIN
- CDC: 12,000 women in US
 - HPV main cause of cervical cancer
- Vaccine – to prevent the virus that causes the cells to transition to CIN and cancer



Ideal Time for Vaccination

- Recommended age 11-12yo
- “Catch Up” vaccination up to age 26
- Lower rate of HPV vaccination completion on catch-up schedule¹
 - 56% finished the vaccine series within 2 years
- Pregnancy associated with non-completion¹
- HVP vaccination on a catch-up schedule may be improved by pregnancy prevention/contraception¹
- Importance of completing vaccination schedule early

¹Perry R, Rankin K, Yu M, Harwood B. Factors Associated With Human Papilloma Vaccination Completion on a Catch-Up Schedule. *Obstet Gynecol* 2014;124:76-81



Cervical Cancer

- Treatments:
 - ****Radiation therapy****
 - Long term pelvic damage to vagina, bowel, bladder
 - Can be debilitating
 - Surgical – conization, hysterectomy, radical hysterectomy
 - Chemotherapy
- Pregnancy – special considerations

Preventing Cervical Cancer

- HPV increasingly important in screening protocols
- 2004 survey: 99% clinicians knew that HPV was associated w/cervical cancer²
- 91% knew of HPV tests available
- 21% “ever used” HPV testing
- Many reported “inappropriate use” of testing strategies

²Irwin K, Monano D, Kasprzyck D, Carlin L, Freeman C, Barnes R, Jain N, Christian J, Wolters C. Cervical Cancer Screening, Abnormal Cytology Management and Counseling Practices in the United States. *Obstet Gynecol* 2006;108:397-409

- High Risk HPV Types:
 - Type 16,18, 31,33,35,39,45,51,52,56,68,59,68,69,73,82
 - Type 16 is associated with 50% of cervical cancers
 - Types 16 & 18 together account for 70% (also 70% of anal cancers)
- Low risk
 - 6 & 11 covered by Gardasil (not by Cervarix)
 - Associated with condyloma, not cancers
 - Not part of screening protocols

Changing Strategies...

- 2006 study: “Adolescents with abnormal cytology have a high incidence of CIN2/3 and high rates of abnormal cytology after LEEP”³
- No cases of cancer identified
- “majority of HPV infection are transient”

³Case A, Rocconi R, Straughn M, Wang W, Roark K, Waltman E, Huh W. Cervical Intraepithelial Neoplasia in Adolescent Women: Incidence and Treatment Outcomes. *Obstet Gynecol* 2006;108:1369-1374

Changing Strategies

- Current ASCCP Guidelines (2013)
 - PAP’s starting at age 21
 - b/t 21-24, ASCUS or LGSIL – OK to observe and repeat cytology 12 months
 - Co-testing HPV for all women ≥30
 - Negative PAP but Positive HPV 16/18 → colposcopy
- Adolescent management –
 - Not even getting PAP’s at this age
 - Not enough time for HPV effects
 - High risk for exposure due to risky behaviors

- E6 and E7 proteins are expressed at much higher levels than found in benign lesions
- HR HPV testing w reflex E6/E7mRNA

www.genpathdiagnostics.com

Considering New Guidelines (again)

- **Use of Primary High-Risk Human Papillomavirus Testing for Cervical Cancer Screening: Interim Clinical Guidance.** *Obstet Gynecol* 2015;125:330-337
- “A negative HR-HPV test provides greater reassurance of low CIN3 risk than a negative cytology result”
- “primary HR-HPV screening can be considered as an alternative to current US cytology-based cervical cancer screening methods.”
- but...
- Current guidelines DO NOT include HR-HPV testing alone (i.e. without cytology)

Summary

- Goal of vaccines is to prevent cervical damage and subsequent cancer due to HR-HPV strains
- Screening protocols increasingly leaning on HR-HPV status
- Protocols will ease follow up testing for women who remain HR-HPV negative
- Best time to start HPV vaccine series is 11-12 yo


Thank you

Eric B. Grossman, MD, FACOG

advocare Premier Ob/Gyn
of South Jersey

Kristen Zeleny, MS, LCSW

Personal Statement





HPV Vaccine is Cancer Prevention

Contact:
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Phone: (609) 842-0014
Immunizenj.org

For more information, visit:
cdc.gov/vaccines/YouAreTheKey
cdc.gov/vaccines/teens

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.