



The presentation will begin shortly. There will be no audio until then.

HPV Vaccine: Cancer prevention



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All about Human Papillomavirus (HPV)

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HPV infection

- Human papillomaviruses are groups of more than 150 related viruses.
- About 40 types of HPV viruses cause mucosal and genital infections.
- About 80 types of HPV viruses cause cutaneous infection such as common hand and foot warts.

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HPV infection

- Mucosal and genital infections are commonly caused by:
- **Low-risk HPVs:** do not cause cancer but can cause skin warts on or around the genitals or anus.
 - HPV types 6 and 11
 - Cause 90 % of all genital warts
 - **High-risk or oncogenic HPVs:** can cause cancer
 - HPV types 16 and 18
 - Are responsible for the majority of HPV-caused cancers

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Transmission of HPV

- HPV is transmitted through genital contact during vaginal or anal sex.
- HPV may also be transmitted during oral sex and genital-to-genital contact.
- In very rare instance, a pregnant woman with genital HPV infection can transmit the infection to her baby during delivery which can result in the baby developing Recurrent Respiratory Papillomatosis (RRP).

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Transmission of HPV

- HPV infection has also occurred in virgin women. ¹
 - Non sexual mode of transmission might be common.
- HPV can be transmitted even when the infected person has no signs or symptoms.
- Most people infected with HPV are unaware that they have contracted the disease or that they are passing it on to other partners.

¹Tay SK, Ho TH, Lim-Tan SK. Is genital human papillomavirus infection always sexually transmitted? *Aust N Z J Obstet Gynaecol.* 1990 Aug;30(3):240-2

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Epidemiology

- HPV infections are the most common sexually transmitted infections in the United States.
- Recent research indicates that at any point in time, 42.5 % of women have genital HPV infections, whereas less than 7 % of adults have oral HPV infections.

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Incidence of HPV

- In 2008, there were about 14,100,000 estimated new HPV infections in US.
- 49% of the new infections were estimated to be among people 15-24 years.
- People ages 15-24 make up 24% of sexually active population but account for 49% of new HPV infections

• Source: www.cdc.gov/std/stats/sti-estimates-fact-sheet-feb-2013.pdf

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Outcomes of infection with HPV

- Most HPV infections resolve spontaneously.
- In some cases, persistent infections with HPV occur and lead to cancer.
- Infection with one type of HPV does not prevent infection with another types of HPV.
 - No cross-immunity
- Of persons infected with mucosal HPV, 5% to 30% are infected with multiple types of the virus.

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HPV and Cancer

- Cervical Cancer is the most common HPV associated cancer and almost all cervical cancer is caused by HPV.
 - 2nd leading cause of cancer deaths of women in the world.
 - In the US, about 11,000 women get cervical cancer every year and about 4,000 are expected to die from it.
- Vulvar Cancer – about 50% of vulvar cancer is related to HPV infection.

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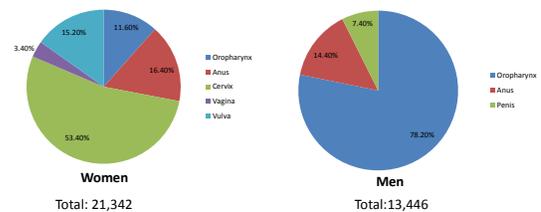
HPV and Cancer

- Vaginal Cancer – about 65% of vaginal cancer is related to HPV infection.
- Penile Cancer – about 35% of penile cancer is related to HPV infection.
- Anal Cancer – about 95% of anal cancer is related to HPV infection.
- Oropharyngeal Cancer (cancer of the mouth and throat) – about 60% of this type of cancer is related to HPV infection.

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Number of new HPV-associated cancers by sex in the United States, 2009



Source: National Program of Cancer Registries and Surveillance

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Warts caused by HPV infection



Source: CDC public health image library

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HPV Vaccines

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HPV Vaccines

- HPV4 (Gardasil)
 - contains types 16 and 18 (high risk) and types 6 and 11 (low risk).
 - approved for females and males 9 through 26 years of age.
- HPV2 (Cervarix)
 - contains types 16 and 18 (high risk).
 - approved for females 10 through 25 years of age.

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HPV Vaccination Schedule

- Routine schedule is 0, 2, 6 months.
- Third dose should follow the first dose by at least 24 weeks.
- Series does not need to be restarted if the schedule is interrupted.
- ACIP recommends routine vaccination at 11 or 12 years of age.
- The vaccination series can be started as young as 9 years of age at the clinician's decision.

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Catch-up vaccination

- Catch-up vaccination is recommended for females 13 through 26 years of age.
- Catch-up vaccination recommended for males 13 through 21 years of age.
- Males aged 22 through 26 years may be vaccinated.
- All immunocompromised males (including HIV infection) and men who have sex with men through 26 years of age should be vaccinated.

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HPV Vaccine Special Situations

- Vaccine can be administered
 - abnormal Pap Test
 - positive HPV DNA test
 - genital warts
 - immunosuppression
 - breastfeeding

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HPV Vaccine Contraindication and Precautions

- Contraindication
 - severe allergic reaction to a vaccine component or following a prior dose.
- Precaution
 - moderate or severe acute illnesses (defer until symptoms improve).

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HPV Vaccination During Pregnancy

- HPV vaccine should not be given during pregnancy.
 - No need to do pregnancy test prior to vaccination.
- Initiation of the vaccine series should be delayed until after completion of pregnancy.
- If a woman is found to be pregnant after initiating the vaccination series, remaining doses should be delayed until after the pregnancy.
- If a vaccine dose has been administered during pregnancy, there is no indication for intervention.
- Women vaccinated during pregnancy should be reported to the respective manufacturer.

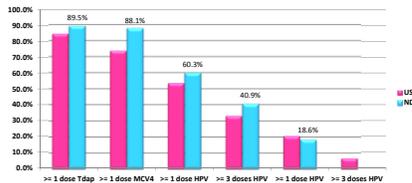
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Adolescent Vaccination

- The ACIP recommended age for HPV vaccination coincides with the recommended age for other adolescent vaccines, Tdap (tetanus, diphtheria and acellular pertussis) and MCV4 (meningococcal conjugate vaccine), but the rate of vaccination for HPV is much lower than both Tdap and MCV4.

2012 Rates for the United States and North Dakota



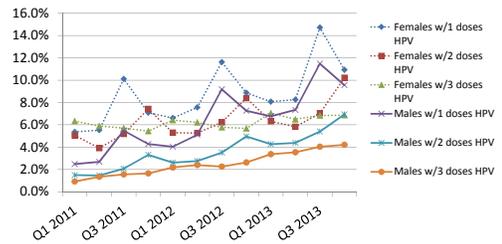
* Rates for males with 3 or more doses of HPV vaccine not available for 2012

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NDIIS HPV Rates

11 – 12 year old adolescents

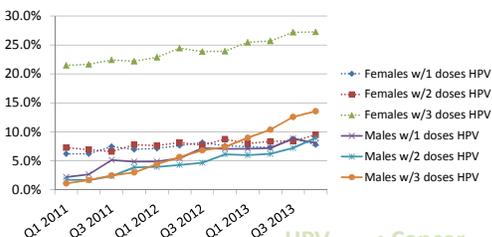


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NDIIS Rates continued...

13 - 15 year old adolescents

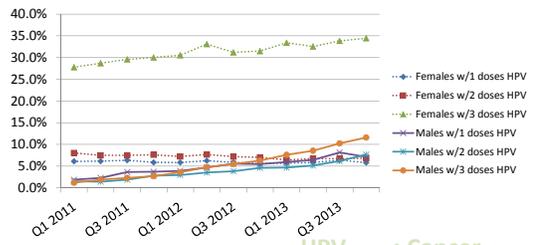


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Rates continued...

16 – 18 year old adolescents



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NIS Rates

- The National Immunization Survey (NIS) is a random-digit-dialing survey conducted yearly by the CDC.
- Provides estimates of vaccine coverage for children, teens and adults at a national, state and local level.
- HPV data was collected starting in 2008 and only included females 13-17 years of age
- Limited information about HPV vaccination for teenage males is available for 2012.

Females with >=1 dose HPV Vaccine

Year	United States (NIS)	North Dakota (NIS)	NDIS
2008	~35%	~40%	~30%
2009	~40%	~45%	~35%
2010	~45%	~50%	~40%
2011	~50%	~55%	~45%
2012	~55%	~60%	~50%

Females with >=3 doses HPV vaccine

Year	United States (NIS)	North Dakota (NIS)	NDIS
2008	~15%	~20%	~10%
2009	~20%	~25%	~15%
2010	~25%	~30%	~20%
2011	~30%	~35%	~25%
2012	~35%	~45%	~30%

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Barriers to HPV vaccine

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Myths and Misconceptions

1. People know about HPV vaccine and if they want it, they will ask for it.

- Research has shown that approximately 60% of parents have no prior knowledge of HPV vaccine.
- Educational studies have indicated that 75% of parents report an increase in knowledge of HPV as well as an increase in vaccine acceptance after having been given just a one page fact sheet about HPV.

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Myths Continued...

2. Getting kids vaccinated against HPV will encourage sexual activity.

- A recent study looking for any correlation between HPV vaccination and sexual activity-related outcomes (i.e. pregnancy, sexually transmitted infection testing or diagnosis and contraceptive counseling) found that HPV vaccination during the ACIP recommended ages was not associated with an earlier onset of sexual activity or an increase in sexual activity-related outcome rates.

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Myths continued...

3. The vaccine is not safe.

- Prior to the FDA licensing the vaccines, nearly 60,000 men and women were studied to ensure the safety.
- Both the FDA and CDC monitor vaccine safety continually after licensure.
- Fainting and redness and swelling at the injection site are the two most common side effects of this vaccine.
 - Having the patient sit or lie down for 15 minutes after getting the shot can help decrease the incidence of fainting. Mild fever is also a fairly common side effect but is not a cause for concern.

References: <http://www.cdc.gov/vaccines/imz/ndis/>
<http://www.fda.gov/oc/ohrt/2009/090909.htm>

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Myths continued...

Safety...

- More than 7 years of post-licensure vaccine safety monitoring in the US provide continued evidence of the safety of HPV4.
- Data on the post-licensure monitoring in other countries for both vaccines provide continued evidence of the safety of the vaccines.

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Myths continued...

4. The vaccine doesn't really work.

- Studies on HPV4 efficacy showed:
 - Nearly 100% vaccine efficacy in preventing cervical, vulvar and vaginal pre-cancers and genital warts caused by the types of HPV in the vaccines in women.
 - 90% efficacy in preventing genital warts and 75% efficacy in preventing anal pre-cancers in men.

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Myths continued...

5. Males don't need to be vaccinated against HPV because they can't get cervical cancer.

- Although male cancers related to HPV infection are less common than female cancers, the strains of HPV the vaccine protects against can still help in the prevention of:
 - 400 HPV related penile cases annually
 - 1,500 HPV related anal cases annually
 - 5,600 HPV related oropharyngeal cases annually
- Women benefit from vaccination of male indirectly due to reduced risk of transmission.

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Myths continued...

6. Males and females who are already sexually active will not benefit from this vaccine.

- Because HPV vaccine protects against more than 1 type of HPV, individuals who may have been exposed to any strain of HPV through sexual activity can still benefit from the vaccine's protection against other strains of the disease.

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Myths continued...

7. Often parents say "my teen is not sexually active, so he/she does not need HPV vaccine."

- Boys and girls need to develop immunity before exposure.
- Vaccine is more effective at younger age.
- The incidence of HPV is high in ages 15-24 years.

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Other barriers

Some providers are not offering the HPV vaccine

- Research consistently shows that a provider's recommendation to vaccinate is the single most influential factor in determining whether a parent gets their child vaccinated.
- A strong recommendation from providers is important.

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Other barriers

Some parents say "the vaccine is not required for school entry"

- Inform parents about the importance of the vaccine.
- Since the HPV vaccine was introduced in 2006, vaccine-type HPV prevalence has declined 56% among female teenagers 14-19 years of age.

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Other barriers

The way providers make the recommendation also matters

- o One of the best ways to reach parents is to recommend HPV vaccine in the same way you recommend any other vaccine.
 - o Try saying, "Today your child needs 3 vaccines... Tdap, MCV and HPV."
- o HPV vaccine is cancer prevention message also resonates with parents.

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“what you say and how you say it matters. A half-hearted recommendation to a patient may not only result in the patient leaving your practice unvaccinated but may lead the patient to believe that HPV vaccine is not as important as the other adolescent vaccines.”

Taken from a letter recently written to address providers on HPV vaccine from ACIP members available at:
http://www.immunize.org/letter/recommend_hpv_vaccination.pdf

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Coming up! New HPV vaccine



- o Merck is in the process of licensing a new HPV vaccine. **9-valent HPV vaccine (V503)**
- o V503 includes five more HPV types (31, 33, 45, 52, 58) in addition to the four original HPV types (6, 11, 16, 18) in GARDASIL.
- o In clinical trials it prevented approximately 97 percent of cervical, vaginal and vulvar pre-cancers caused by HPV types 31, 33, 45, 52, and 58.
- o ACIP may recommend the vaccine in 2015.

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The ND immunization conference



- Registration for the North Dakota Immunization Conference (July 15 and 16, 2014 in Bismarck, ND) is now available at <http://und.edu/academics/extended-learning/conference-services/immunization/index.cfm>

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Questions

Type your question into either of the chat windows at your right.

After the presentation, questions may be sent to:

- | | |
|---------------------|-------------------------|
| Molly Howell | mahowell@nd.gov |
| Abbi Pierce | apierce@nd.gov |
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Or call 701.328.3386 to speak to someone in the Immunization

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Post-test

- Post-test
 - Nurses interested in continuing education credit, visit www.ndhealth.gov/immunize/posttest/
 - Successfully complete the five-question post-test to receive your certificate.
 - Credit for this session will be available until Wednesday, **April 26th**.

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