A SHOT TO PREVENT CANCER: 
HOW WE CAN INCREASE HPV VACCINATION IN NEW HAMPSHIRE

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Background

- Human Papillomavirus (HPV) is very common
  - Almost everyone will have HPV at some point in their lives

- Transmitted through intimate skin-to-skin contact

- Some types of HPV can cause several cancers, including:
  - Cervical
  - Oropharyngeal

- The CDC estimates the HPV vaccine could prevent over 90% of cancer cases caused by HPV
# HPV-Associated Cancers in NH

<table>
<thead>
<tr>
<th>Cancer site</th>
<th>1999-2013</th>
<th>Percent of cases probably caused by HPV*</th>
<th>Number of cases probably caused by HPV during 1999-2013 time period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Both Sexes</td>
</tr>
<tr>
<td>Anus</td>
<td>107</td>
<td>202</td>
<td>309</td>
</tr>
<tr>
<td>Oropharynx</td>
<td>748</td>
<td>206</td>
<td>954</td>
</tr>
<tr>
<td>Cervix</td>
<td>624</td>
<td>49</td>
<td>624</td>
</tr>
<tr>
<td>Vagina</td>
<td>49</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Vulva</td>
<td>248</td>
<td>248</td>
<td>248</td>
</tr>
<tr>
<td>Penis</td>
<td>67</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>TOTAL</td>
<td>922</td>
<td>1,329</td>
<td>2,251</td>
</tr>
</tbody>
</table>


*Based on CDC estimates
Trends in HPV-Associated Age-Adjusted Cancer Incidence Rates in NH

NH HPV Vaccination Rates

<table>
<thead>
<tr>
<th></th>
<th>Females and Males</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;1 HPV** (%(95% CI))</td>
<td>HPVUTD** (%(95% CI))</td>
<td>&gt;1 HPV** (%(95% CI))</td>
</tr>
<tr>
<td>US overall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>56.1(+1.3)</td>
<td>62.8(+1.8)</td>
<td>49.8(+1.8)</td>
</tr>
<tr>
<td>2016</td>
<td>60.4(+1.2)**</td>
<td>65.1(+1.7)</td>
<td>56.0(+1.7)***</td>
</tr>
<tr>
<td>HHS REGION I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>69.3(+3.3)</td>
<td>73.0(+4.6)</td>
<td>65.8(+4.6)</td>
</tr>
<tr>
<td>2016</td>
<td>69.9(+3.1)</td>
<td>74.9(+4.0)</td>
<td>65.1(+4.5)</td>
</tr>
<tr>
<td>New Hampshire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>71.9(+5.9)</td>
<td>74.2(+8.8)</td>
<td>69.8(+7.9)</td>
</tr>
<tr>
<td>2016</td>
<td>69.9(+5.9)</td>
<td>70.6(+8.1)</td>
<td>69.3(+8.6)</td>
</tr>
</tbody>
</table>

* Estimated vaccination coverage with selected vaccines and doses among adolescents aged 13-17 years.

† United States, HHS Region I and New Hampshire.

‡ National Immunization Survey-Teen (NIS-Teen), United States, 2015-2016.
Increasing HPV Vaccination is Possible

[Graph showing estimated vaccination coverage with selected vaccines and doses among adolescents aged 13-15 years, by survey year, National Immunization Survey-Teen, New Hampshire, 2008-2016. The graph illustrates the increase in vaccination rates over time, with a revised APD definition and the HP 2020 target.
HPV Prophylactic Vaccines

- Recombinant L1 capsid proteins that form "virus like" particles (VLP)
- Non-infectious and non-oncogenic
- Produce higher levels of neutralizing antibody than natural infection
## HPV Vaccine

<table>
<thead>
<tr>
<th>Quadrivalent/HPV4</th>
<th>9-Valent/HPV9 (Gardasil 9)</th>
<th>Biivalent/HPV2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>9-Valent/HPV9 (Gardasil 9)</td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Merck</td>
<td>GlaxoSmithKline</td>
</tr>
<tr>
<td>Types</td>
<td>6,11,16,18,31,33,45,52,58</td>
<td></td>
</tr>
<tr>
<td>Indications</td>
<td>Same as HPV4</td>
<td></td>
</tr>
<tr>
<td>Contraindications</td>
<td>Same as HPV4</td>
<td></td>
</tr>
<tr>
<td>Schedule (IM)</td>
<td>Same as HPV 4</td>
<td></td>
</tr>
<tr>
<td>Adverse events</td>
<td>Increased incidence of common side effects for females vs. HPV4 (F: erythema at site: 34% v. 26%, swelling at site: 40% v. 29%; M: less with 27%, 25%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Females: Anal, cervical, vaginal and vulvar precancer and cancer; Genital warts**

**Males: Anal precancer and cancer; Genital warts**

**Hypersensitivity to yeast**

**Pregnancy**

**Contraindications**

**Schedule (IM)** 3 dose series: 0, 2, 6 months
Evolution of Recommendations for HPV Vaccination in the United States

Quadrivalent Routine, females 11 or 12 yrs* and 13-26 yrs not previously vaccinated

Quadrivalent Routine, females 11 or 12 yrs* and 13-26 yrs not previously vaccinated

Quadrivalent May be given, males 9-26 yrs

May be given, 22-26 yrs**

October 2016 – ACIP recommendation of 2-dose series if beginning before age 15!

2006 2007 2008 2009 2010 2011 2012

June

October

2015 2016

Quadrivalent (HPV 6,11,16,18) vaccine; Bivalent (HPV 16,18) vaccine

* Can be given starting at 9 years of age; ** For MSM and immunocompromised males, quadrivalent HPV vaccine through 26 years of age

13th Annual Meeting – April 4, 2018 – Cancer Control & Prevention: Integrating Clinical and Public Health Efforts
ACIP Recommendation and AAP Guidelines for HPV Vaccine

- Routine HPV vaccination recommended for both males and females ages 11-12 years
  - Catch-up ages 13-21 years for males; 13-26 for females
  - Permissive use ages 9-10 years for both males and females; 22-26 for males
Updated Schedule – October 2016

CDC now recommends:

Series started before age 15 only needs 2 shots
- 0 and 6 months

Series started 15 and older still need 3 shots
- 0, 2 and 6 months
FRAMING THE CONVERSATION

Talking about HPV Vaccine at Your Clinic
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 men and women. 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 70 million Americans are currently infected with HPV.
FROM THE JOURNALS

Presume parents want HPV vaccines for tweens

Publish date: December 5, 2016

By: Heidi Splete, Frontline Medical News

FROM PEDIATRICS

Clinics in which providers presented human papillomavirus (HPV) vaccination as an assumed part of tween health care had a 5% increase in HPV vaccination coverage, compared
What’s in a Recommendation?

- Studies consistently show that a strong recommendation from you is the single best predictor of vaccination.
  - In focus groups and surveys with moms, having a doctor recommend or not recommend the vaccine was an important factor in parents’ decision to vaccinate their child with the HPV vaccine.
  - Not receiving a recommendation for HPV vaccine was listed as a barrier by mothers.
Make the Message Visible

**HPV CANCER PREVENTION**

1. **HPV Vaccine is Cancer Prevention**
   - HPV vaccine protects against HPV types that most commonly cause anal, oropharyngeal, penile, vaginal, and other cancers.
   - Every year in the U.S., 37,000 people get cancer caused by HPV.
   - That’s 1 person every 22 minutes of every day, all year long.
   - Most of these cancers can be prevented by HPV vaccine.

2. **HPV Vaccine is Recommended at the Same Time as Other Teen Vaccines**
   - Teens need three vaccines at 11 or 12. They protect against whooping cough, cancers caused by HPV and meningitis.
   - Vaccines for other L.V. diseases as well.
   - “Year 4 & 16” is HPV / meningitis.

3. **HPV Vaccine is Best at 11-12 Years**
   - Vaccines have a higher immune response to HPV vaccine than older teens.
   - While there is very little risk of exposure to HPV before age 12, the risk increases over time.

Parents and healthcare professionals are the key to protecting adolescents from HPV cancers.

**VACCINATE YOUR 11-12 YEAR OLDS.**

www.cdc.gov/vaccines/teens
Just Another Adolescent Vaccine

- Successful recommendations group all of the adolescent vaccines
  - Recommend the HPV vaccine series the same way you recommend the other adolescent vaccines
  - Moms in focus groups who had not received a doctor’s recommendation stated that they questioned why they had not been told or *if the vaccine was truly necessary*
  - Many parents responded that they trusted their child’s doctor and would get the vaccine for their child as long as they received a recommendation from the doctor
Top 5 Reasons for Not Vaccinating Daughter, Among Parents with No Intention to Vaccinate in the Next 12 Months, NIS-Teen 2012

- Not sexually active
- Lack of knowledge
- Safety concerns/side effects
- Not recommended by provider
- Not needed or necessary**

* Not mutually exclusive.
** Did not know much about HPV or HPV vaccine.
Try Saying:

Your child needs three shots today: HPV vaccine, meningococcal vaccine and Tdap vaccine.

You child will get three shots today that will protect him/her from the cancers caused by HPV, as well as to prevent tetanus, diphtheria, pertussis and meningitis.
A Case of Vaccine Hesitancy?

- Parents may be interested in vaccinating, yet still have questions
  - Many parents didn’t have questions or concerns about HPV vaccine
  - A question from a parents does not mean they are refusing or delaying
  - 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
An Anti-Cancer Vaccine

- The “HPV vaccine is cancer prevention” message resonates strongly with parents
  - In focus groups and online panels, mothers wanted more information on the types of HPV cancers
  - In focus groups mothers stated they were influenced to vaccinate their child because HPV vaccine prevents cancer, they had a family history of cervical cancers, and/or because they had a personal experience with cervical cancer
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 the HPV vaccine series today.*
Tell Me Doctor, How Bad is it?

- Disease prevalence is not understood, and parents are unclear about what the vaccine actually protects against
  - Parents in focus groups knew HPV vaccine can prevent cervical cancers, however they lacked knowledge about indications for HPV vaccine other than cervical cancer for girls, all HPV vaccine indications for boys, and the recommended ages to receive HPV vaccine
Try Saying:

*Persistent HPV infection 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.*
Why at 11 or 12 Years Old?

- Parents want a concrete reason why 11-12 year olds should receive HPV vaccine
  - In audience research with moms, almost all respondents were unaware of the correct age range the vaccine was recommended
  - Respondents also missed the concept of vaccinating before sexual activity
Rationale for Vaccinating Early: Protection Prior to Exposure to HPV

- Markowitz MMWR 2007;
- Holl Henry J Kaiser Found 2003;
- Mosher Adv Data 2006
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 routinely recommended childhood vaccines. Similarly, we want to vaccinate children long before they begin any type of sexual activity and are exposed to HPV.

Also HPV vaccine produces a better immune response in preteens than it does in older teens and young women.
Tell parents that *almost everyone gets HPV* and HPV can cause a variety of cancers in women and men

Remind parents that **HPV vaccine is for cancer prevention**

Provide a **strong recommendation for HPV vaccine** when patients are 11 or 12 years old

Listen carefully to and **welcome patient and parent questions** especially about safety
“Novel” and Evidence-Based Interventions

- Provider communication
  - Presumptive recommendation

- Provider reminders
  - In electronic medical record

- Standing orders
  - Nursing staff to provide vaccine to any adolescent due or overdue

- Patient reminders/recalls
  - Letters, emails, text

- Community-based clinics
  - Coordination with local schools
  - Collaboration with school RNs and Public Health
LIVE HPV CANCER FREE

Collaborative working group focused on HPV vaccination in New Hampshire
Key Partners

- American Cancer Society
- Norris Cotton Cancer Center
- Core Physicians
- Dartmouth Geisel School of Medicine
- Dartmouth Primary Care Cooperative Research Network
- Elliot Regional Cancer Center
- Exeter Hospital
- Nashua Division of Public Health and Community Services
- NH Breast & Cervical Cancer Screening Program
- NH Comprehensive Cancer Collaboration
- NH Dental Society
- NH Division of Public Health
  - Cancer Program
  - Oral Health Program
  - Immunization Program
- NH Oral Health Coalition
- NH Pediatric Improvement Project
- Northeast Delta Dental
- Southern NH Area Health Education Center
- Team Maureen
Live HPV Cancer Free

- **Vision:**
  
  A New Hampshire free of HPV cancers

- **Goal:**
  
  Increase the percentage of youth in New Hampshire who complete the recommended HPV vaccination series

- **Initiatives:**
  
  Collaborative in nature
  
  Developed through group brainstorming and consensus
Initiative #1: Provider Education

- “You Are the Key” trainings focused on provider communication
  - 276 providers reached from May 2016 to present
  - 2 trainings with NH CCC funds

- Provider toolkits, Nashua area:
  - Toolkits distributed to all primary care providers (2017)
  - Toolkits to be distributed to Obgyns in April 2018

- School nurse continuing education
Initiative #2: Public Awareness

- *Someone You Love: The HPV Epidemic* film screenings and panel discussions
  - 5 events throughout NH
  - 165 people reached
  - Next event: 4/25 in Nashua
  - Want to host an event in your area?

- Messaging for parents
  - February 2017, Keene area:
    - Newspaper article
    - Radio ads
    - Social media messaging
    - Information sent home with school nurse
  - April 2018, Nashua area:
    - Bus ads
    - Social media ads
    - Health fair booth
  - April 2018, Statewide:
    - *Parenting New Hampshire* article
  - May 2018, Statewide:
    - *Positive Moms* article
Initiative #3: Dental Outreach Pilot

- Training provided to four dental offices

Dental Professionals' Confidence Related to HPV Vaccination (Before & After Training)

![Graph showing confidence scores before and after training for dental professionals recommending vaccination to patients of different age groups.](chart.png)
Initiative #3: Dental Outreach Pilot

TIPS FOR TALKING ABOUT HPV WITH PARENTS AND PATIENTS AT THE DENTAL OFFICE

The HPV vaccine can help prevent cancers of the mouth and throat. This tip sheet is meant to help dental professionals talk with parents and patients about the HPV vaccine.

WHAT CAN I SAY TO PARENTS AND PATIENTS ABOUT THE HPV VACCINE?

The HPV vaccine can help prevent cancers in the mouth and throat. The HPV vaccine is recommended for both males and females, and your child is the right age to get the vaccine. Talk with your child’s doctor about it.

<table>
<thead>
<tr>
<th>PARENTS MAY ASK...</th>
<th>YOUR ANSWER...</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is HPV?</td>
<td>HPV (human papillomavirus) is a very common virus that almost every person will have at some time in their lives. It can cause several types of cancer, including oral and cervical cancers.</td>
</tr>
<tr>
<td>How common is HPV?</td>
<td>Nearly everyone will have HPV in their lifetime and may never even know it.</td>
</tr>
<tr>
<td>What is the most common HPV-related cancer?</td>
<td>In New Hampshire, the most common HPV-related cancer occurs in the mouth and throat, and it is most common in men.</td>
</tr>
</tbody>
</table>
What can YOU do?

- Join Live HPV Cancer Free
- Lead efforts at your organization
- Suggest provider education event at your practice
DISCUSSION

Questions?

If there were a vaccine against cancer, wouldn’t you get it for your kids?

HPV vaccine is cancer prevention. Talk to the doctor about vaccinating your 11–12 year old sons and daughters against HPV.

www.cdc.gov/vaccines/teens
CONTACT INFORMATION

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Justin.Pentenrieder@cancer.org

Jenna Schiffelbein:
Jenna.E.Schiffelbein@dartmouth.edu
A green light for sexual activity?

- Parents may be concerned that vaccinating may be perceived by the child as permission to have sex
  - In focus groups, some parents expressed concern that in getting HPV vaccine for their child, they would be giving their child permission to have sex
  - This was one of the top four reasons respondents gave when asked why they would not vaccinate their daughter
  - A few parents expressed that while they wanted their child to “wait to have sex” they understood that might not be the case
Receipt of HPV vaccine does not increase sexual activity or decrease age of sexual debut

- Kaiser Permanente Center for Health Research
- 1,398 girls who were 11 or 12 in 2006, 30% of whom were vaccinated, followed through 2010
- No difference in markers of sexual activity, including
  - Pregnancies
  - Counseling on contraceptives
  - Testing for, or diagnoses of, sexually transmitted infections
Try saying:

Multiple research studies have shown that getting the HPV vaccine does not make kids more likely to be sexually active.

These studies have also shown that getting the HPV vaccine does not make kids more likely to start having sex a younger age.
But she’s too young!

- 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
  - In focus groups, some moms couldn’t understand how their child could become infected even if they waited until marriage to have sex
  - Some moms stated that they didn’t think HPV infection was very common because they had never heard that it was or didn’t know anyone who had an HPV infection or HPV disease
Try saying:

Even if your child waits until marriage to have sex or only has one partner in the future, he/she could still be exposed if his/her future partner has engaged in any type of sexual activity with another person.

We don’t wait until exposure occurs to give any other routinely recommended vaccine. HPV vaccine is also given when kids are 11 or 12 years old because it produces a better immune response at that age. That’s why it is so important to start the shots now and finish them in the next 6 months.
Would you give it to your child?

- Emphasizing your personal belief in the importance of HPV vaccine helps parents feel secure in their decision
  - Some respondents in focus groups stated that they would feel more comfortable knowing that the doctor had vaccinated their own child or was planning to (if the child was <11)
  - Respondents in an online survey stated that knowing that oncologists supported the recommendation made them more likely to get their child vaccinated
Try saying:

I strongly believe in the importance of this cancer-preventing vaccine.

I have given HPV vaccine to my son/daughter (or grandchild/niece/nephew/friend's children).

Experts, such as the American Academy of Pediatrics, cancer doctors, and the CDC, also agree that getting the HPV vaccine is very important for your child.
Scared of side effects

- Understanding that the side effects are minor and emphasizing the extensive research that vaccines must undergo can help parents feel reassured
  - Moms in focus groups stated concerns about both short term and long term vaccine safety as a reason that they would not vaccinate their child
  - Respondents were not aware that HPV vaccine was tested in adolescents and adults and were concerned that their child’s fertility could be affected by the vaccine
Try saying:

*HPV vaccine has been very carefully studied by scientific experts and it’s safety is continually monitored.*

*This is not a new vaccine and for years HPV vaccine has been shown to be very effective and very safe. HPV vaccine has a similar safety profile to the meningococcal and Tdap vaccines.*

*Like other shots, side effects can happen, but most are mild, primarily pain or redness in the arm. This should go away quickly, and HPV vaccine has not been associated with any long-term side effects.*
Try saying:

Since 2006, about 57 million doses of HPV vaccine have been distributed in the U.S., and in the years of HPV vaccine safety studies and monitoring, no serious safety concerns have been identified.

There is no data to suggest that getting HPV vaccine will have an effect on future fertility. However, persistent HPV infection can cause cervical cancer and the treatment of cervical cancer can leave women unable to have children.

Even treatment for cervical pre-cancer can put a woman at risk for problems with her cervix during pregnancy which could cause preterm delivery or problems.
When do we come back?

- Many parents do not know that the full vaccine series requires more than 1 shot
- Your reminder will help them to complete the series
  - In focus groups, most respondents did not know the dosing schedule for HPV vaccine
Try saying:

*I want to make sure that your son/daughter receives all 2 (or 3) shots of HPV vaccine to give them the best possible protection from cancer caused by HPV infection.*

*Please make sure to make appointments for the second and third shots on the way out, and put those appointments on your calendar before you leave the office today!*