Spread Love not Warts

Implementation of an Evidence-Based Initiative to Increase HPV Vaccination Rates.
Disclosures

I have NO actual or potential conflict of interest in relation to this educational activity or presentation.
Objectives

- Understand benefits of newer HPV 9 and newest ACIP recommendations for administration
- Identify 3 effective strategies to increase HPV vaccination rates
- Define common barriers to HPV vaccination
- Discuss the role of marketing efforts to increase HPV vaccination efforts on a college campus
HPV: Background Knowledge

- HPV is the most common sexually transmitted infection
  - 80% of women will be infected by age 50
- Estimated 14 million new cases of HPV annually in U.S. alone which translates to $5-8 billion spent on treatment and prevention
- HPV cancer prevalence reported at 33,000 (U.S.) and 610,000 globally each year
  - 4.8% total worldwide cancer burden

Sources: CDC, 2013; CDC, 2012; Chesson, et al., 2012; Forman et. al, 2012; Hu, et al., 2008
HPV: Background Knowledge

- HPV infection can result in genital warts and cancer (vulvar, cervical, anal, penile, oropharyngeal)
  - Oropharyngeal cancer rates will surpass cervical cancer by 2020
- Safe, effective vaccine provides protection against most significant and oncogenic strains
- Nationally, only 40.2% of females and 8.2% of males aged 19-26 reported having received at least 1 dose of the vaccine
  - 18-26 y.o. in MA- 64% females rec. at least one dose. For men it was 38%.

Sources: CDC, 2015; Chaturvedi et al., 2011, Markowitz et al, 2013
9vHPV vaccine

- Virus like particles (VLP) vaccine that targets 5 additional risk types
  - 6, 11, 16, 18, 31, 33, 45, 52, 58
- Available December 2014- will replace HPV 4
  - 3 dose schedule
    - The second dose should be administered 4 to 8 weeks (minimum interval of 4 weeks) after the 1st dose; the 3rd dose should be administered 24 weeks after the 1st dose and 16 weeks after the 2nd dose (minimum interval of at least 12 weeks).
  - Not given during pregnancy
  - Most common side effects: pain, erythema, swelling at site
### Estimated % of cancers attributed to HPV in the U.S

<table>
<thead>
<tr>
<th>Cancer</th>
<th>HPV attributable % (95% CI)</th>
<th>HPV attributable 16/18% (95% CI)</th>
<th>HPV attributable 31/33/45/52/58% (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical</td>
<td>91 (88-92)</td>
<td>66 (63-69)</td>
<td>15 (12-17)</td>
</tr>
<tr>
<td>Vaginal</td>
<td>75 (63-84)</td>
<td>55 (43-67)</td>
<td>18 (11-30)</td>
</tr>
<tr>
<td>Vulvar</td>
<td>69 (62-75)</td>
<td>49 (41-56)</td>
<td>14 (10-20)</td>
</tr>
<tr>
<td>Penile</td>
<td>63 (52-73)</td>
<td>48 (37-59)</td>
<td>9 (4-17)</td>
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<tr>
<td>Anal</td>
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</tr>
<tr>
<td>Male</td>
<td>89 (77-95)</td>
<td>79 (66-88)</td>
<td>4 (1-13)</td>
</tr>
<tr>
<td>Female</td>
<td>92 (85-96)</td>
<td>80 (70-87)</td>
<td>11 (6-19)</td>
</tr>
<tr>
<td>Oropharyngeal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>72 (68-76)</td>
<td>63 (59-68)</td>
<td>4 (3-7)</td>
</tr>
<tr>
<td>Female</td>
<td>63 (55-71)</td>
<td>51 (43-59)</td>
<td>9 (6-15)</td>
</tr>
</tbody>
</table>

Adapted from S. Lett presentation handouts at Dana Farber Cancer Summit November 6, 2015
# HPV Vaccine Comparison

<table>
<thead>
<tr>
<th>HPV Types Included in Vaccine</th>
<th>6</th>
<th>11</th>
<th>16</th>
<th>18</th>
<th>31</th>
<th>33</th>
<th>45</th>
<th>52</th>
<th>58</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bivalent</td>
<td></td>
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<tr>
<td>Quadrivalent</td>
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<tr>
<td>9-valent</td>
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</tbody>
</table>

These HPV Types Cause:
- Genital warts
- ~66% of Cervical Cancers
- ~15% of Cervical Cancers

CDC, 2015
ACIP Recommendations for HPV vaccine

- Vaccinate males and females at 11-12 years
- Catch up those previously unvaccinated, or missing dose
  - Females: age 13 through 26 years
  - Males: age 13-21 years
    - High risk males 21-26 (MSM, immunocompromised including HIV)

- Vaccine selections
  - Females: 9vHPV, 4vHPV, or 2vHPV
  - Males: 9vHPV or 4 vHPV

**vaccination can start at age 9
**Boosters not necessary
**Not recommended to provide HPV9 if already completed 3dose HPV4 series

MMWR 2015;64, 300-4
Updated ACIP Recommendations

Age

- Routine vaccination at age 11 or 12 years*
- Vaccination recommended through age 26 for females and through age 21 for males not previously vaccinated
- Vaccination recommended for men through age 26 who have sex with men (MSM) or are immunocompromised (including persons HIV-infected)

Formulation by gender (assuming availability)

<table>
<thead>
<tr>
<th></th>
<th>9vHPV</th>
<th>4vHPV</th>
<th>2vHPV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Females</strong></td>
<td>✔ ✔</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td><strong>Males</strong></td>
<td>✔ ✔</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
</tr>
</tbody>
</table>
National HPV Vaccine Goals

- Healthy People 2020
  - 80% of males and females aged 13-15 will receive 3 doses of HPV vaccine

- ACHA Healthy Campus Initiative
  - Increase the proportion of students who report completing human papillomavirus/HPV vaccination by at least 10%
HPV VACCINATION IS THE BEST WAY TO PREVENT MANY TYPES OF CANCER
MANY ADOLESCENTS HAVEN'T STARTED THE HPV VACCINE SERIES

NATIONWIDE
4 OUT OF 10 GIRLS ARE UNVACCINATED
National coverage is 69%
Coverage by state:
- 40% or less
- 50-59%
- 60-69%
- 70% or greater

NATIONWIDE
6 OUT OF 10 BOYS ARE UNVACCINATED
National coverage is 42%
Coverage by state:
- 29% or less
- 30-39%
- 40-49%
- 50% or greater

Percentage of adolescent girls who have received one or more doses of HPV vaccine*

Percentage of adolescent boys who have received one or more doses of HPV vaccine*

IMPROVING HPV VACCINATION RATES WILL HELP SAVE LIVES.
A high national Tdap vaccination rate of 88% shows that it is possible to achieve high HPV vaccination coverage.

*Estimated coverage with ≥1 dose of Human Papillomavirus (HPV) vaccine, either quadrivalent or bivalent, among adolescents aged 13-17 years. National Immunization Surveys—Teen (NIS-Teen), United States, 2014
Source: MMWR July 31, 2015

www.cdc.gov/hpv
Global HPV Picture

Global Cervical Cancer Mortality Rates

HPV Vaccine Three-Dose Coverage Among Girls in High-Income Countries
- Australia: 71.2%
- United Kingdom: 60.4%
- United States: 33.4%

Numbers of U.S. Cancers and Genital Warts Attributed to HPV Infections
- Cervix: 11,500
- Anus: 1,600
- Vulva: 1,600
- Juvenile-Onset RRP: 820
- Vagina: 500
- Penis: 400
- Genital Warts: 160,000
- Includes Males and Females
Setting

- Student Health Services employs 4 FT NPs, 2 admin. staff
- 10,000 students enrolled
- 2,500 reside on campus
- 500 international students from 69 countries
- Average 5,000 patient visits per year
Local Vaccine Data

Self-reported HPV vaccine history collected at the student health services, spring semester 2014
Overarching goal-

To increase campus Human Papillomavirus (HPV) awareness and vaccination rates in the student population of males and females age 18-26 during the fall semester, 2014.
Aims

1. Prevent missed opportunities for providing HPV vaccine during all clinical encounters by utilizing the EHR for providers and appointment reminders for patients.
2. Increase the frequency of HPV vaccine recommendations during all patient encounters.
3. Increase community exposure to HPV vaccine awareness and accessibility through multi-component marketing and communication strategies.

Objectives

1.1 During the intervention, 80% of all charts will note provider acknowledgement.
1.2 During the intervention, 100% of eligible follow up appointments will be scheduled at initial visit.
2.1 During the QI, 80% of all charts meeting inclusion criteria will receive HPV vaccine recommendation.
3.1 ≥50% of vaccine acceptors will report level of somewhat important–very important as motivation for vaccination based on social marketing campus exposure in a feedback survey.
Inclusion Criteria

- All males and females, aged 18-26, visiting the health services during the 16 week fall semester, 2014, regardless of visit type, with no prior HPV vaccine series completion or medical exemption for vaccination.
5 A’s framework: Patient-Provider Communication

- Ask/Assess- Have you completed the HPV series? What concerns do you have?

- Advise- I think the HPV vaccine is important for you and here is why…

- Agree- Shared decision making with patient to vaccinate

- Assist- Provide immunization at time of visit

- Arrange- Schedule follow up and use reminders

Whitlock, et al., 2002
Patient checks in at health center. Is prompted to answer self-reported HPV vaccine history on kiosk (ASK)

- **Yes**
  - Reports hx of receiving 3 doses
    - Provider begins education (ADVISE)
      - Provider determines individual factors and identifies any patient uncertainty (ASSESS)
        - Trigger text, phone reminder system by making f/u appt. (ARRANGE)
          - End
    - Patient commits to vaccination (AGREE)
      - Provide patient with literature guided by HPM
        - End
  - Reports no vaccine hx or ≤3 doses
    - Provide vaccine and document in EMR (ASSIST)
      - End
- **No**
  - EMR flagged to alert provider

- **End**
Intervention: Acknowledgement and Provider Reminders

- All EHR templates (SOAP notes) edited to include measurable indicators
- Inclusion criteria: aged 18-26, male or female, no documented series completion, no medical contraindication

**Objective:**
Patient check-in survey and/or immunization history reviewed at or before the visit?
- Yes  
- No

**Plan:**
Strong HPV vaccine recommendation provided during the visit?
- Yes  
- No  
- NA (does not meet inclusion criteria or is medically exempt)
Impact of Eliminating Missed Opportunities by Age 13 Years in Girls Born in 2000

Missed opportunity: Healthcare encounter when some, but not all ACIP-recommended vaccines are given. HPV-1: Receipt of at least one dose of HPV. MMWR. 63(29):620-624.
**TIPS FOR COUNSELING COLLEGE STUDENTS ABOUT HPV**

Healthcare provider recommendation is one of the most important factors which influence HPV vaccine decision making for college students. Recommending the HPV vaccine series the same way you recommend other immunizations, such as the flu vaccine, can have a huge impact. Start the conversation by saying, “I see that you have not have started/completed the HPV vaccine series. I think these are really important for you and I want to talk to you about why”.

<table>
<thead>
<tr>
<th>Research States</th>
<th>College students’ report that receiving a strong recommendation for the HPV vaccine from their health provider is one of the most important factors influencing their vaccine decisions. Failing to provide this recommendation is a missed opportunity, and one of the most commonly cited reasons for not getting the vaccine.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Try Saying</td>
<td>It’s important to understand that the HPV infection is one you will almost definitely be exposed to in your lifetime. This is why both men and women should get vaccinated. When the HPV vaccine is given before exposure, it can prevent certain cancers and genital warts. We know that this vaccine is both safe and incredibly effective. That’s why I’m recommending that you receive the HPV vaccine today.</td>
</tr>
</tbody>
</table>
HPV vaccine is cancer prevention.

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

#UCanStopHPV

Evidence-Based HPV Disease Prevention

HPV Vaccine
Intervention: Patient Reminders

- Subsequent HPV vaccine appointments scheduled at 1st encounter
  - Text reminder
  - Email reminder

- Spreadsheet to track immunized students. Missed students received
  - Secure email message reminders
  - Phone Reminders
Intervention: Increase community exposure to HPV awareness and vaccine availability

- Spread Love not Warts campaign
  - Contest: student logo design
  - Marketing, communications, social media
  - Bathroom stall posters
  - Campus outreach
  - Facebook, Twitter
get your HPV Vaccines

SPREAD love NOT warts

salemstate.edu/CHS

#loveXwarts

Designed by student Nikki Vergakes

Campus Campaign
MANY PEOPLE DON'T KNOW

LEARN ABOUT THIS COMMON INFECTION.
Human Papillomavirus (HPV)

If you’ve ever been sexually active, here’s what you need to know.

HPV is spread by skin-to-skin contact during intimate moments. Nearly every person who engages in sexual contact with another person during their lifetime will be exposed to HPV. Most will have no symptoms. HPV causes genital warts, and more importantly, cancer. A safe and effective vaccine can help protect both men and women against the most serious types of HPV.

FACT: AT LEAST 70% OF SEXUALLY ACTIVE PEOPLE WILL GET HPV.

TALK TO YOUR HEALTHCARE PROVIDER ABOUT HOW THIS COMMON VIRUS CAN AFFECT YOUR HEALTH.

There are more than 40 different types of human papillomavirus (HPV), a common virus. Some types can infect the genital area of men and women. They are passed on by skin-to-skin contact. Most people who have intimate contact will get genital HPV and not even know it. Usually, genital HPV is harmless. It has no symptoms. And it goes away on its own. But, genital HPV infection can cause problems such as genital warts and cancers that occur “below the belt.”

HPV is also the most common cause of oral-throat cancers.

The easiest way to prevent HPV is not to have sex. If you decide to be sexually active, limit the number of partners you have. Condoms are not 100% effective in preventing all types of HPV infection. The HPV vaccine has been shown to be both safe and effective in protecting against some of the most serious types of HPV infection.

Both men and women should get vaccinated with the HPV vaccine.
Both men and women should know about the link between HPV and genital warts and cancer.
Women should talk to their healthcare provider about getting a pap test.
And partners should talk openly about HPV. Spread Love not Warts.

For more information visit the counseling and health service (CHS) website salemstate.edu/chs/26901.php, or your vaccine visit the student health portal chaporal.salemstate.edu or call CHS at 978-543-6413.

HUMAN PAPILLOMAVIRUS (HPV)

IF YOU'VE EVER BEEN SEXUALLY ACTIVE
HERE’S WHAT YOU NEED TO KNOW.

HPV is spread by skin-to-skin contact during intimate moments. Nearly every person who engages in sexual contact with another person during their lifetime will be exposed to HPV. Most will have no symptoms. HPV causes genital warts, and more importantly, cancer. A safe and effective vaccine can help protect both men and women against the most serious types of HPV.

Bathroom Stall Campaign

Salem State University
<table>
<thead>
<tr>
<th>Aim</th>
<th>Intervention</th>
<th>Evaluation Methods</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent missed opportunities</td>
<td>EHR template reminders to acknowledge vaccine history</td>
<td>EHR reports of provider adherence to protocol</td>
<td>80% of notes will indicate provider acknowledgement</td>
</tr>
<tr>
<td>Increase patient reminders</td>
<td>Schedule f/u appt. to trigger email/text reminders</td>
<td>Chart audits for adherence to protocol</td>
<td>100% off follow up visits will be scheduled at initial visit</td>
</tr>
<tr>
<td>Increase the frequency of vaccine recommendation</td>
<td>EHR template reminders to provide vaccine recommendation</td>
<td>EHR reports of provider adherence to protocol</td>
<td>80% of eligible patients will receive recommendation</td>
</tr>
<tr>
<td>Increase community awareness</td>
<td>Campus wide marketing and communication</td>
<td>Anonymous feedback survey for reported motivations</td>
<td>≥50% will indicate somewhat – very important motivation</td>
</tr>
</tbody>
</table>
## Provider based objectives and outcomes

<table>
<thead>
<tr>
<th>Total # visits to health center during fall semester, 2014</th>
<th>Yes # (%)</th>
<th>No # (%)</th>
<th>NA based on inclusion criteria # (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=2041 (includes all visits) N= 950 meet inclusion criteria</td>
<td>1877 (92%)</td>
<td>164 (8%)</td>
<td>----</td>
</tr>
</tbody>
</table>

### Objective 1- Provider acknowledged HPV vaccination history at every clinical encounter

| | 1877 (92%) | 164 (8%) | ---- |

### Objective 2- Provider gave strong HPV vaccine recommendation if patient met inclusion criteria

| | 769 (38%) | 181 (9%) | 1091 (53%) |
| | **81% after NA removed** | **19% after NA removed** | |

### Objective 3- Follow up appointment made for subsequent HPV vaccine doses at initial appointment

| | 135 (84.5%) | 11 (7%) | 12 (8%) |
| | **92.5% after NA removed** | **7.5% after NA removed** | |
Intervention Population Overview
N=950

- Received Rec. (N=769)
  - unduplicated = 464 (avg. age 20.63)
  - 40.7% Male, 22.8% Female, 12.9% International, 17% Hispanic-Latino, 13.8% White, 38.3% Black-AA, 43.3% Asian

- No Rec. received (N=181)
  - unduplicated = 152 (avg. age 20.4)
  - 41.4% Male, 17% Female, 12.9% International, 17% Hispanic-Latino, 13.8% White, 38.3% Black-AA, 43.3% Asian

- Vaccine pop. (N=158)
  - unduplicated=120 (avg. age 21.5)
  - 43.3% Male, 28.3% Female, 34% International, 26.4% Hispanic-Latino, 28.3% White, 34% Black-AA, 26.4% Asian

- Survey responders (N=53)
  - (avg. age 21.47)
  - 34% Male, 34% Female, 28.3% International, 26.4% Hispanic-Latino, 28.3% White, 34% Black-AA, 26.4% Asian
Patient Feedback
Survey Results- Motivations for Vaccination

- **HPV event attendance**: 66% (not at all - not very important 1-2), 13.20% (neutral 3), 9.40% (somewhat - very important 4-5)
- **Other**: 84.90% (not at all - not very important 1-2), 1.90% (somewhat - very important 4-5)
- **Webpage**: 37.60% (neutral 3), 30.20% (somewhat - very important 4-5)
- **Social media**: 32% (neutral 3), 30.20% (somewhat - very important 4-5)
- **Friends-family**: 39.60% (neutral 3), 37.70% (somewhat - very important 4-5)
- **Previous provider**: 35.80% (neutral 3), 43.40% (somewhat - very important 4-5)
- **Bathroom posters**: 15.10% (not at all - not very important 1-2), 18.90% (neutral 3), 52.80% (somewhat - very important 4-5)
- **NP recommendation**: 7.50% (not at all - not very important 1-2), 3.80% (neutral 3), 85% (somewhat - very important 4-5)
Summary

- A total of 158 HPV vaccines administered over the 16 week intervention
  - Represents a 13 fold increase from previous semester
  - 120 individual patients vaccinated
    - Disparate groups reached (International and males)
  - 8% series completed (n=12)
  - 80% received follow-up dose on-schedule
Limitations and Considerations

- Difficult to obtain accurate baseline HPV vaccine history
- Insurance barriers
- Competing clinical demands
- Schedule challenges for follow up visits
- Consider campus culture when budgeting
- Long term internal enthusiasm may wane
Interpretations and Conclusions

- Evidence-based interventions effective
  - Males and international students impacted
- Patient motivations consistent with previous findings in the literature
- Limited additional resources required
- Easily replicated at other student health centers
Resources to support Immunization Practices
Human Papillomavirus (HPV)

For Clinicians

KNOW THE FACTS
Get information on the burden of HPV cancers, the importance of HPV vaccination, and how to help parents overcome hesitancy about HPV vaccine.

COMMIT TO THE CAUSE
Find ways to help improve HPV vaccination rates by promoting vaccination in your offices. Get CDC resources to help raise awareness among parents about the importance of HPV vaccine for preventing cancer.

LEAD THE CONVERSATION
Learn how to successfully communicate about HPV vaccine with the parents of your preteen patients, as well as how to become an HPV vaccination champion with your colleagues and in your community.

www.cdc.gov/hpv
## Self-Assessment Questionnaire

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> In comparing HPV4 vaccine to HPV 9, the overall benefits in decreasing cancer risk is greater for men versus women.</td>
<td><strong>True</strong></td>
</tr>
<tr>
<td><strong>2.</strong> ACIP recommendations for vaccination suggest males and females can be given either HPV4 or 9 vaccines up to age 26.</td>
<td><strong>True</strong></td>
</tr>
<tr>
<td><strong>3.</strong> The ideal age to vaccinate against the HPV virus, regardless of vaccine selected, is age 11-12 for both boys and girls?</td>
<td><strong>True</strong></td>
</tr>
<tr>
<td><strong>4.</strong> Healthy People 2020 goals aim to increase HPV vaccination rates by 10% for males and females?</td>
<td><strong>True</strong></td>
</tr>
<tr>
<td><strong>5.</strong> Strong provider recommendation is one of the most powerful motivators for vaccine acceptance.</td>
<td><strong>True</strong></td>
</tr>
</tbody>
</table>