Exploring Current Practices, Knowledge, and Attitudes Regarding HPV and Vaccine among Minnesota Dentists and Hygienists

Cyndee Stull, MSDH
Clinical Assistant Professor
Human Papillomavirus

#1
80-90%
50%
14 million
200
12
16 and 18

7%
70%
50%
9,000
225%
50%
HPV-caused cancers

- Cervical
- Anal
- Vulvular
- Vaginal
- Penile
- Oropharyngeal Squamous Cell Carcinoma (OPSCC)
Who gets HPV infections?

- Sexually active
- More likely in those who have many partners
- Younger age at sexual debut
- Oral sex (oropharyngeal cancer)
Epidemiologic Changes in Oropharyngeal Cancer

- 51,540 new cases estimated in 2018
- Seer-9 (1973-2012)
  - 30.4% oral cancer decrease
  - 46.3% oropharyngeal increase
- 2005-2014
  - 1% increase in white males
  - 2% decrease in black males

American Cancer Society, 2018; Javadi et al., 2016; Mehta, et al., 2010
Epidemiologic Changes in Oropharyngeal Cancer

- Bimodal age distribution
  - 55-64
  - 30-34
- HPV-positive OPSCC patients are generally 5 years younger than HPV-negative OPSCC
- Non-smokers are 15 times more likely to present with HPV positive tumors

American Cancer Society, 2018; Javadi et al., 2016; Mehta, et al., 2010
HPV is the leading cause of oropharyngeal cancer
HPV-Associated Oropharyngeal Cancer Rates by Race, Ethnicity, and Sex, United States, 2009–2013
Oral vs Oropharyngeal Cancers
Projected number of HPV-positive oropharyngeal cancer rates compared to cervical cancer rates

Pytynia et al., 2014
Projected number of HPV-positive oropharyngeal cancer rates compared to HPV-negative oral cancer rates

Pytynia et al., 2014
There is no standardized screening test shown to reduce incidence or death due to oropharyngeal cancer

- No protocol for routine cytologic testing or test to predict conversion of high-risk infections
- Difficult to see oropharyngeal area and access for brush sampling
- Some evidence for oral rinse sampling
- Secondary prevention (visual/tactile screening exams)
Risk Factors for HPV-associated Oropharyngeal Cancer

- Younger age at sexual debut
- Oral sex
- Multiple partners

For HPV-infected individuals, these factors increase the risk of oropharyngeal cancer and reduce outcomes of cancer treatment:

- Smoking and alcohol use
- Poor oral hygiene
- Compromised immune system
- Chronic Inflammation
- Delayed clearance of HPV infection
Signs and Symptoms of OPSCC

- Sore throat
- Earaches
- Hoarse throat
- Enlarged lymph nodes
- Swallowing pain/globus sensation
- Weight loss
- **OR** no symptoms of infection/symptoms do not show up for decades
Vaccination

- Shown to prevent cervical cancer
- Effective against HPV-16 and other types associated with oral infection
- 9-valent vaccine (January, 2017):
  - Two dose schedule (0, 6-12 months) initiated before age 15 for boys and girls
  - Ages 15-26: 3 doses (0, 1-2 months, 6 months)
Vaccine uptake among female adolescents

Female adolescents receiving 3+ doses of HPV vaccine by age 13–15 years (percent) By Total


Data Source: National Immunization Survey-Teen (NIS-Teen); Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases and National Center for Health Statistics (CDC/NCIRD and CDC/NCHS)

Error Bar (I) represents the 95% confidence interval
Additional footnotes may apply to these data. Please refer to footnotes below the data table for further information.
Vaccine uptake among male adolescents

Male adolescents receiving 3+ doses of HPV vaccine by age 13–15 years (percent)

By Total


Data Source: National Immunization Survey-Teen (NIS-Teen); Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases and National Center for Health Statistics (CDC/NCIRD and CDC/NCHS)

Error Bar [I] represents the 95% confidence interval

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Reasons for poor vaccine uptake

NIS-Teen, 2006-2012
The Dental Professional’s Role

- Knowledgeable
- Patient Education
- Prevention
  - Secondary
  - *Primary
Opportunities to effect change in vaccine uptake

- The strongest influence on vaccine uptake is provider recommendation
  - Strength of recommendation matters
- Strength of patient/provider relationship matters
- Recent healthcare visit matters
- Parent/patient knowledge matters
  - Efficacy, safety, risk perception
Factors influencing medical provider recommendation

● Ineffective messaging
  ○ Lack of confidence in knowledge
  ○ Discomfort with HPV discussions
● Support from professional association
● Sex of provider
● Risk stratification
● Reimbursement concerns
Factors influencing dental provider recommendation

- Lack of knowledge
- Lack of perceived role in HPV prevention
- Discomfort with HPV discussions
- Open operatory design
- Potential for sexual harassment accusations
- Lack of standard of care guidelines
Study of Minnesota Dentists and Hygienists
Purpose

To understand the current practices, knowledge, and attitudes of dental providers toward HPV and vaccine will inform educational and advocacy efforts.
Materials and Methods

- Winter of 2016-17
  - Random selection of 750 dentists and 750 dental hygienists in Minnesota
  - 32 question survey (2 mailings)
    - Current practices
    - Attitudes
    - Knowledge
    - Future Efforts
Results
<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Respondents, % (N = 318)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32.08</td>
</tr>
<tr>
<td>Female</td>
<td>66.98</td>
</tr>
<tr>
<td>Unanswered</td>
<td>0.94</td>
</tr>
<tr>
<td><strong>Profession</strong></td>
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<tr>
<td>Dental Hygienist</td>
<td>51.89</td>
</tr>
<tr>
<td>Dentist</td>
<td>46.86</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1.26</td>
</tr>
<tr>
<td><strong>Year of Graduation</strong></td>
<td></td>
</tr>
<tr>
<td>1960’s</td>
<td>2.83</td>
</tr>
<tr>
<td>1970’s</td>
<td>12.26</td>
</tr>
<tr>
<td>1980’s</td>
<td>14.78</td>
</tr>
<tr>
<td>1990’s</td>
<td>19.81</td>
</tr>
<tr>
<td>2000’s</td>
<td>24.84</td>
</tr>
<tr>
<td>2010 - Present</td>
<td>20.13</td>
</tr>
<tr>
<td>Unanswered</td>
<td>5.35</td>
</tr>
<tr>
<td><strong>Practice Type</strong></td>
<td></td>
</tr>
<tr>
<td>Academic Setting</td>
<td>5.66</td>
</tr>
<tr>
<td>Public Health Setting</td>
<td>5.97</td>
</tr>
<tr>
<td>Private Practice (Solo or Group)</td>
<td>81.76</td>
</tr>
<tr>
<td>Managed Care Organization</td>
<td>1.26</td>
</tr>
<tr>
<td>Other</td>
<td>4.09</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1.26</td>
</tr>
</tbody>
</table>
Current Practices

- 91.82% Perform Oral Cancer Examinations
- 44.03% Discuss risk factors for oropharyngeal cancer
- 20.75% Discuss HPV as a risk factor
- 9.12% Discuss HPV vaccination
  - Don’t remember to discuss
  - Not qualified to discuss HPV
  - Not within professional role
Knowledge

- 7 Questions on respondents knowledge of HPV infection and vaccination
- Correct response score was 4.3/7
- Small positive correlation between knowledge and attitude scores
<table>
<thead>
<tr>
<th>Statement</th>
<th>Respondents, % (N = 318)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All types of HPV infection can lead to oropharyngeal cancer.</td>
<td>28.93/63.21/7.86</td>
</tr>
<tr>
<td>2. The tongue is the principal oropharyngeal cancer site associated with HPV.</td>
<td>37.42/53.14/9.43</td>
</tr>
<tr>
<td>3. HPV is a relatively uncommon sexually transmitted infection.</td>
<td>8.81/85.53/5.66</td>
</tr>
<tr>
<td>4. HPV is associated with a much improved prognosis for patients with oropharyngeal cancer.</td>
<td>33.33/56.92/9.75</td>
</tr>
<tr>
<td>5. Oropharyngeal cancer is associated more with males than females.</td>
<td>44.65/48.74/6.60</td>
</tr>
<tr>
<td>6. Patients with a history of HPV infection should not be offered the HPV vaccine.</td>
<td>25.47/64.78/9.75</td>
</tr>
<tr>
<td>7. Most patients with HPV experience symptoms of the infection.</td>
<td>5.35/88.99/5.66</td>
</tr>
</tbody>
</table>
Attitudes

- 66.36% Do not feel comfortable discussing HPV with patients and parents
- 56.91% believe HPV discussions should be the sole responsibility of medical providers
- Do not agree on whether or not sexual practices need to be discussed

HOWEVER….

- The majority (82.39%) believe that HPV conversations are appropriate and would help their patients
Future Efforts

Respondents endorse supportive actions of professional associations

- Policy
- Educational opportunities for clinicians and patients
- Public awareness
Discussion
Opportunity for improved provider-focused educational efforts

- HPV infection and role in oropharyngeal cancer
- Vaccine
- Communication strategies
  - Framed as cancer prevention
  - Health literacy framework
  - HPV question on medical history can be a conversation starter
Opportunity to contribute to primary prevention of HPV-related cancers and increase vaccine uptake

- 2-dose schedule (0, 6-12 months) concurrent with AAPD periodicity of examination guidelines
- Vaccine advocacy/reminders at 6 month appointments
- Vaccine administration in dental setting
Summary

● The incidence of HPV-positive oropharyngeal cancer continues to increase
● HPV vaccination uptake is far below national goals
● Dental providers can play an important role in HPV cancer prevention
● Provider knowledge, attitudes, and practices can be improved through training and professional association support
● Future research should focus on provider training in communication, collaboration between dental and medical providers, and patient acceptance of HPV advocacy in dental setting
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