HPV Prevention & Treatment in Special Populations: HPV in Sexual and Gender Minority Populations

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Presenter

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## Disclosures

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<th>Disclosure</th>
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**Learning Objectives**

*By the end of this presentation, you will be able to:*

- Discuss the burden of HPV infections in general and in sexual/gender minority populations specifically

- Describe the relationship between HPV and cancer, and how that relationship is modulated in sexual and gender minority populations, and other co-morbidities for which SGM are at risk

- Explain the potential benefits, myths, and barriers of HPV vaccination in general, and for SGM populations in particular

- Discuss barriers to implementation of vaccination in current practice, and how to address them

- Review of Latest HPV Vaccine Guidelines
HPV Overview
HPV Epidemiology – 2017

• HPV is the most common sexually transmitted disease in the US\(^1\)

• Nearly all sexually active people will get HPV at some time\(^2\)
  - \(~79\) million Americans currently infected with HPV\(^*\)
  - \(~14\) million people become newly infected each year\(^*\)

• Most new HPV infections occur in individuals 15–24 years old\(^3\)

• Prevalence of any genital HPV 42.5% among adults aged 18–59 years (2013–2014)\(^4\)
  - 80% sexually active women infected with HPV by age 50\(^2\)
  - Estimated 17,600 women and 9,300 men diagnosed with HPV-related cancer each year in US\(^2\)

\(^*\)Estimates from the pre-vaccine era; the current incidence/prevalence is likely much lower, especially in persons <25 years


- Average of 38,793 HPV-associated cancers diagnosed annually
- 30,700 new cancers attributable to HPV
  - 19,200 among females
  - 11,600 among males
- Of the 30,700 cancers attributable to HPV
  - 28,500 cancers (93%) attributable to high-risk HPV types preventable with 9-valent HPV vaccine
  - 24,600 cancers (80%) attributable to high-risk HPV types 16 and 18

## Estimated Proportion of Cancers Attributed to HPV in the US

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>HPV Attributable %</th>
<th>HPV 16/18 Attributable %</th>
<th>HPV 31/33/45/52/58 Attributable %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical</td>
<td>91</td>
<td>66</td>
<td>15</td>
</tr>
<tr>
<td>Vaginal</td>
<td>75</td>
<td>55</td>
<td>18</td>
</tr>
<tr>
<td>Vulvar</td>
<td>69</td>
<td>49</td>
<td>14</td>
</tr>
<tr>
<td>Penile</td>
<td>63</td>
<td>48</td>
<td>9</td>
</tr>
<tr>
<td>Anal Male</td>
<td>89</td>
<td>79</td>
<td>4</td>
</tr>
<tr>
<td>Anal Female</td>
<td>92</td>
<td>80</td>
<td>11</td>
</tr>
<tr>
<td>Oropharyngeal Male</td>
<td>72</td>
<td>63</td>
<td>4</td>
</tr>
<tr>
<td>Oropharyngeal Female</td>
<td>63</td>
<td>51</td>
<td>9</td>
</tr>
</tbody>
</table>
HPV Transmission

- Virus can be transmitted through skin-to-skin contact, via sexual intercourse and direct genital contact:
  - Vaginal/penile penetrative intercourse (*primary*)
  - Receptive anal intercourse
  - Non-penetrating sexual activities, including oral-genital contact

Risk Factors Associated with HPV Infection

**BIOLOGICALLY BASED**

**Host Factors**
- Age at first menarche
- Age at sexual debut
- Coinfection with other STIs
- HIV infection
- Immunosuppression
- Micronutrient deficiencies
- Genetic polymorphisms

**Viral Factors**
- HPV type
- Coinfection with multiple HPV types
- Viral load

**BEHAVIORALLY BASED**

**Sexual History-Related Factors**
- Lifetime number of sex partners
- Recent new partner
- Older sex partner
- Oral contraceptive use >5 years
- Pattern of condom use
- Parity
- Partner’s number of partners
- Marital status

**Substance Use-Related Factors**
- Heavy alcohol use
- Current or previous cigarette use

Intersectionality and HPV

**Intersectionality**: An approach that addresses the way gender and other social identities affect life

- Based on social justice; aims to address issues of marginalized groups (inclusion/exclusion)

**HPV through lens of intersectionality**: 

- **NOT ONLY** how biological sex impacts HPV (and associated cancer) incidence rates and vaccine policies, **but also**

- How race and ethnicity, gender identity, gender expression, sexual orientation, sexual and other behaviors, and socioeconomic status combine to influence HPV risk awareness, vaccination, screening, detection, and treatment

Taking a Sexual History

- Routine sexual history:
  - Essential part of health history
  - Part of a focused history in other clinical circumstances

- All adults and adolescents regardless of gender identity, orientation, or sexual practices

- Opportunity to educate and counsel and connect patients to appropriate care

Sexual Risk Assessment: The “Five Ps”

Partners
Practices/Substance Use
Past History of STIs
Protection from STIs
Pregnancy Plans
Algorithm for Conducting a Sexual History

1. Set the Stage
   - Bring up the sexual history as part of the overall history
   - Explain that you ask these questions of all patients
   - Ensure confidentiality

2. 3 Screening Questions
   - Have you been sexually active in the last year?
   - Do you have sex with men, women, or both?
   - How many people have you had sex with in the past year?

3. MULTIPLE PARTNERS, NEW PARTNER
   - STDI/HIV protection
   - Partners
   - Substance use
   - History of STIs
   - Trauma/violence
   - Pregnancy plans/protection
   - Sexual function and satisfaction
   - Other concerns

3. LONG-TERM MONOGAMOUS PARTNER
   - Pregnancy plans/protection
   - Trauma/violence
   - Sexual function and satisfaction
   - Other concerns

3. NOT SEXUALLY ACTIVE
   - Past partners (if patient is new)
   - Any questions or concerns
HPV in Sexual and Gender Minority (SGM) Populations

Diagram of Sex and Gender

**BIOLOGICAL SEX**
*(anatomy, chromosomes, hormones)*
- male
- intersex
- female

**GENDER IDENTITY**
*(psychological sense of self)*
- man
- genderqueer/bigender
- woman

**GENDER EXPRESSION**
*(communication of gender)*
- masculine
- androgynous
- feminine

**SEXUAL ORIENTATION**
*(romantic/erotic response)*
- attracted to women
- bisexual/asexual
- attracted to men

Center for Gender Sanity. Available at: http://www.gendersanity.com/diagram.html.
Sexual and Gender Minorities (SGMs)

- Lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) population increasingly referred to as SGMs

- SGMs represent growing and medically underserved population

- Span all races, ethnicities, ages, socioeconomic status, and regions

- SGMs more likely to encounter discrimination in society at large and from their healthcare providers

- SGM patients likely to remain silent about important health issues

- Many healthcare professionals lack knowledge of SGMs’ healthcare needs

- Asking clients about their gender identity can be a helpful step in initiating a therapeutic relationship

SGM Inclusive Counseling Strategies

- Asking and using each patient’s preferred name, pronouns, and anatomical terms

- Taking an adequate sexual history and providing relevant sexual health counseling

- Describing cervical cancer screening as a non-gendered cancer screening procedure

- Explaining the mechanics of speculum examination/screening to the extent preferred by each individual

- Reviewing and utilizing methods elected by the patient to minimize emotional and physical discomfort and maintain their locus of control throughout the encounter

Barriers to HPV Information and Treatment for SGMs

- Accessing Health Insurance Coverage
- Confidentiality Issues
- Stigmatization
- Cost
- HCPs’ Lack of Knowledge and Negative Attitudes
HPV in Women Who Have Sex With Women (WSW)

- High-risk HPV infection more common among non-heterosexual women vs heterosexual women: 37.7% vs 27.9%\(^1\)
- Cervical cancer prevalence also higher among bisexual (41.2%) and lesbian (16.5%) vs heterosexual (14.0%) women\(^2\)
- Rates of HPV vaccination appear to differ significantly between WSW and heterosexual women\(^3\)
  - 2006–2010 NSFG sampled 12,279 women (aged 15–44)
    - 84.4% reported having heard of HPV vaccine
    - 33.2% of bisexual women, 28.4% of heterosexual women, and 8.5% of lesbians initiated HPV vaccine

NSFG=National Survey of Family Growth

Cervical Screening for WSW

- WSW often screened at lower rates than heterosexual women\(^1,2\)
- HPV has been detected in 13-30% of WSW, including women who reported never having a male sexual partner.\(^3\)
- Pre-cancerous cervical lesions have been detected in SMW who report no previous sex with men.\(^3\)
- Routine cervical cancer screening should be offered to all women, regardless of sexual orientation.\(^3\)

Cervical Cancer Screening in WSW (Cont.)

- Lesbians screened at rates 5–18% lower than heterosexual women\(^1,2\)

- No cervical cancer screening guidelines include language or considerations for SMW\(^3\)

- Question: Should cervical cancer screening guidelines\(^3,4\)
  - ...be modified to address sexual minority status?
  - ...include explicit language that addresses healthcare vulnerability of lesbian and bisexual women?

HPV in Transgender Patients

(Trans)Women (Male-to-Female)
- Transgender females require HPV prevention just like other populations
- HPV vaccine recommended for transgender women through age 26
- Transgender women with neovagina can still be infected with HPV

(Trans)Men (Female-to-Male)
- All persons with a cervix are at risk for cervical cancer and should receive routine cytology screening per national guidelines
- Cervical cancer screening/speculum exams may be especially difficult for trans men
  - Access: confidentiality, stigma, and discrimination
  - Negative experiences with health care
  - Consider issues around vaginal penetration and possible gender dysphoria

STD Risk in Transgender College Students

- Transgender students had $5.6x$ greater odds of an STI than cisgender students.
- Demographic characteristics and behaviors (sexual and substance use) partially mediated STI risk.
- Students who experienced discrimination in the past year had $7.8x$ greater odds of an STI than students who did not experience discrimination.
- Experienced discrimination fully accounted for elevated STI risk.

HPV in MSM

- 30-fold increased risk for anal HPV infection in MSM who are HIV+¹
- Men with immunosuppressive conditions (including HIV) and men who engage in receptive anal intercourse are more likely to develop HPV-related cancers²
- Survey data indicate that MSM are willing to use self-administered screening tests for anal dysplasia³
- HPV vaccination is indicated in MSM through age 26 years if not vaccinated when younger⁴
- HPV vaccination of MSM (even in the year after initiation of anal sex) reduces AIN¹

Screening for HPV in Men

- No current guidelines on screening men for HPV
- No FDA-approved tests to detect HPV in men
- CDC does not recommend routine testing/screening for HPV or HPV-related disease before signs/symptoms for:
  - Anal cancer
  - Penile cancer
  - Throat cancer
What is an Anal Pap Smear (APS)?

- Some experts support screening for anal intraepithelial neoplasia (AIN) in high-risk patients\(^1,2\)
- Anal Pap smear (APS) similar to cervical Pap smear\(^3\)
- Anal cytology by Palefsky method comparable to cervical cytology in sensitivity and specificity\(^4\)
- You must have a system in place to manage abnormal results (high resolution anoscopy [HRA], treatment)
- 8-year study of >5,000 HIV+ persons will investigate screening for HPV-related anal cancer\(^2\)

# HPV Vaccination in Males

<table>
<thead>
<tr>
<th>Population</th>
<th>Vaccination Age</th>
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<tbody>
<tr>
<td>All boys</td>
<td>At age 11 or 12 yrs (or as young as 9 yrs)</td>
</tr>
<tr>
<td>Older boys and young men</td>
<td>Through age 21 yrs (if not vaccinated when younger)</td>
</tr>
<tr>
<td>Non-MSM</td>
<td>22-26 yrs (electively)</td>
</tr>
<tr>
<td>MSM and immunocompromised persons</td>
<td>Through age 26 yrs (if not vaccinated when younger)</td>
</tr>
</tbody>
</table>

*The optimal time to get HPV vaccine is prior to HPV exposure.*

Racial/Ethnic Disparities in HPV and Vaccinations

- Black and Latino men and women:
  - Greater rates of HPV-related cancers
  - More advanced disease

- Racial/ethnic disparities in HPV vaccination persist

- Vaccine uptake in adolescent females
  - *Initiation* rates similar for Black, white, and Latina females
  - *Completion* rates lower for Black vs white females

- Non-Latino Black males
  - Low health literacy about HPV
  - Least likely to get HPV vaccine

# HPV Vaccines Licensed in US

<table>
<thead>
<tr>
<th>VLPs</th>
<th>Bivalent 2vHPV</th>
<th>Quadrivalent 4vHPV</th>
<th>9-valent 9vHPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule</td>
<td>16, 18</td>
<td>6, 11, 16, 18</td>
<td>6, 11, 16, 18, 31, 33, 45, 52, 58</td>
</tr>
<tr>
<td>Approved ages</td>
<td>Females 9-25 years</td>
<td>Females 9-26 years, Males 9-26 years</td>
<td>Females 9-26 years, Males 9-26 years</td>
</tr>
</tbody>
</table>

VLPs = virus-like particles
Review of Latest HPV Vaccine Guidelines
Updated HPV Vaccination Recommendations of the ACIP

Routine vaccination for *ALL* adolescents at age 11 or 12 years*

Recommended for females 13–26 years and for males 13–21 years not adequately vaccinated when they were younger

Males aged 22 through 26 years may be vaccinated

For children with a history of sexual abuse, routine HPV vaccine beginning at age 9 years

For MSM, routine vaccination as for all males, and vaccination through age 26 years for those not adequately vaccinated previously

For transgender persons, routine vaccination as for all adolescents, and vaccination through age 26 years for those not adequately vaccinated previously

For persons with primary or secondary immunocompromising conditions, vaccination with 3 doses of HPV vaccine for males and females aged 9–26 years

*Ideally, adolescents should be vaccinated *before* exposure to HPV

ACIP=Advisory Committee on Immunization Practices.
# Recommended Number of Doses and Intervals for HPV Vaccine

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommended No. of HPV Vaccine Doses</th>
<th>Recommended Interval Between Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons initiating HPV vaccination age 9–14 years (except immunocompromised persons)</td>
<td>2</td>
<td>0, 6–12 months&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Persons initiating HPV vaccination age 15–26 years and Immunocompromised persons initiating HPV vaccination age 9–26 years</td>
<td>3</td>
<td>0, 1–2, 6 months&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
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</table>

<sup>a</sup>In a 2-dose schedule, the minimum interval between the first and second doses is 5 months. If the second dose is administered after a shorter interval, a third dose should be administered a minimum of 12 weeks after the second dose and a minimum of 5 months after the first dose.

<sup>b</sup>In a 3-dose schedule, the minimum intervals are 4 weeks between the first and second doses, 12 weeks between the second and third doses, and 5 months between the first and third doses. If a vaccine is administered after a shorter interval, it should be readministered after another minimum interval has elapsed since the most recent dose.
HPV Vaccine Algorithm

Is the patient age 11-12?

- NO: See recommendations for patients outside this age range

- YES: Has the patient received any doses of HPV vaccine?

  - NO: 11- to 12-year olds should receive two doses of HPV vaccine 6–12 months apart

  - YES: More than one?

    - NO: VACCINATE

      - YES: Two doses or three doses?

        - Two doses: VACCINATE

          - YES: Three doses

          - NO: Administered at least 5 months apart?

            - YES: The series is complete

            - NO: VACCINATE

              - YES: Patient should receive a third dose of HPV vaccine 6-12 months after the first dose to complete the series

              - NO: The series is complete

Patients Who Previously Completed a 3-Dose or 2-Dose HPV Vaccination Series

Is additional vaccination with 9vHPV recommended for persons who have completed a 3-dose or 2-dose series with either 4vHPV or 2vHPV?

- No ACIP recommendation for additional 9vHPV doses for persons who previously completed a series of 4vHPV or 2vHPV

If a person desires protection against the five additional types prevented by 9vHPV and has completed the 4vHPV series, what issues should be considered?

- Majority of all HPV-associated cancers that can be prevented by vaccination are caused by HPV 16 or 18, which are prevented by 9vHPV*
- The benefit of protection against five additional types targeted by 9vHPV is mostly limited to females for prevention of cervical cancers or precancers caused by the less common strains (31, 33, 45, 52, and 58). This is because only a small percentage of HPV-associated cancers in males is due to the five additional types prevented by 9vHPV
- Available data show no serious safety concerns in patients vaccinated with 9vHPV after having received 3 doses of 4vHPV

*Estimated 24,600 HPV-associated cancers are caused by HPV 16 or 18, and 3,800 by the five additional types prevented by 9vHPV; almost all cancers caused by the five additional types occur in women (3,100)
Patients Who Previously Completed a 3-Dose or 2-Dose HPV Vaccination Series (Cont’d.)

**What data are available on efficacy and immunogenicity of 9vHPV when administered after a complete 3-dose series of another HPV product?**

- Results of a study of females given 3 doses of 9vHPV (previously received 3 doses 4vHPV), >98% subjects developed antibodies to all 5 additional HPV types
- No data on immunogenicity or efficacy of 9vHPV administered after 2-dose series

HPV Vaccine Timing

- HPV vaccine is most effective when administered before HPV exposure\(^1\)
- Most individuals get HPV infections shortly after becoming sexually active for first time\(^2,3\)
- HPV vaccine produces a better immune response in preteens than in older adolescents\(^4\)

Case Study: Eric

- 22-year-old male
- Reason for visit to health center is for an STI “screen” (learned that a recent sex partner positive for syphilis)
- Patient is asymptomatic and has no notable past medical history
Case Study 2: Eric (Cont’d.)

- What are the best next steps in the management of this patient?

- While the patient is concerned about his risk for syphilis, are there other things you should be concerned about with respect to his exposure?

- What information do you need to better understand his risks for STI?
HPV Vaccination in Men Who Have Sex With Men (MSM)

- For MSM, vaccination reduces AIN even when not started until a year after initiation of sex\(^1\)

- Vaccine efficacy against HPV - 6, -11, -16, or -18–related AIN between 50% and 75%\(^2\)

- Efficacy may be higher in men negative for these 4 HPV strains at time of vaccination\(^2\)

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Q & A
Key Takeaways - HPV

- **HPV is the most common sexually transmitted infection** in the US, affecting nearly all sexually active people at some time.

- Of the 30,700 cancers attributable to HPV, **the vast majority are preventable** with 9-valent HPV vaccine.

- **Sexual history should be taken** from all adults and adolescents, **regardless** of gender identity, sexual orientation, or sexual practices.

- **Important barriers to HPV information** among SGMs include cost, accessing health insurance coverage, confidentiality issues, stigmatization, and HCPs’ lack of knowledge/negative attitudes.
Key Takeaways - HPV, continued

- Men who are immunocompromised and who have receptive anal sex more likely to develop HPV-related cancers

- The optimal time to get the HPV vaccine is prior to HPV exposure

- HPV vaccine series requires 3 injections given over 6 months; booster doses are not currently recommended
Additional Resources

- **Association of Reproductive Health Professionals (ARHP)**: www.arhp.org
  - Register for upcoming online webinars – www.arhp.org/Professional-Education


- **National LGBT Health Education Center**: http://www.lgbthealtheducation.org/

- **Promote awareness of HPV among MSM/transgender**: www.We-Are-1.com/hpv

- **Promote awareness of cervical cancer screening among transgender men**: http://www.checkitoutguys.ca/

- **GLMA**: www.glma.org
ARHP Resources

• Additional ARHP webinars and Clinical Minutes available on-demand on www.arhp.org

• Educational slide decks on http://core.arhp.org/
Upcoming Webinars on HPV

Please join us for upcoming HPV Webinars:

• HPV in Women
  – Thursday, October 26, 2017, 4-5 PM (EST)

• HPV in Special Populations
  – Thursday, November 16, 2017, 4:30pm-5:30 PM (EST)

• HPV FAQ Roundtable
  – Tuesday, November 21, 2017, 3:30-4:30 PM (EST)

Sign-up at www.arhp.org/professional-education