

# Operation Immunization

## The HPV Vaccine: The Red Light to Cancer



A toolkit to guide education and discussion about HPV and  
the HPV vaccine on college campuses



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Pharmacy

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## Introduction

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### **What is the purpose of this toolkit?**

In developing this toolkit, the University of Pittsburgh School of Pharmacy student pharmacists aim to guide education and discussion about the Human Papillomavirus (HPV) and its vaccine on college campuses. The purpose of the toolkit is to serve as a resource for universities interested in increasing awareness of HPV on college campuses through educational outreach.

### **How will this toolkit make an impact?**

This toolkit will be a useful means through which interested parties can gain sufficient knowledge about HPV and its vaccine for prevention, and subsequently, communicate this knowledge to their target audiences.

### **How is the toolkit organized?**

The toolkit consists of three main sections. 'Educational Outreach Material' includes information necessary to acquire a baseline understanding of HPV, its implications, and the vaccine. Several useful tips are also provided to aid discussions about these topics. The 'Impact Assessment' and 'Developmental Design' sections provide useful tools to track outreach impact and formatting examples for presentation displays.

### **How can you get more involved?**

Want to support the HPV Vaccination Initiative? The University of Pittsburgh School of Pharmacy welcomes any interested parties to contact the project managers about project implementation on college campuses. They can be contacted via email at [pitthpvinitiative@gmail.com](mailto:pitthpvinitiative@gmail.com).

## Acknowledgements

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The HPV Vaccination Initiative at the University of Pittsburgh School of Pharmacy is the result of the combined efforts of several individuals and organizations. We extend our deepest thanks to the University of Pittsburgh School of Pharmacy for their continued support in encouraging students to develop initiatives that improve the health and lives of those around them. Several faculty members have been instrumental in developing and improving the project from its inception. We extend special thanks to:

- ❖ Melissa A. Somma McGivney, PharmD, FCCP FAPhA – Associate Dean for Community Partnerships, Associate Professor, Pharmacy and Therapeutics  
Dr. McGivney has provided continued assistance with the project's planning and execution.
- ❖ Carolyn Thorpe, PhD, MPH – Assistant Professor, Pharmacy and Therapeutics  
Dr. Thorpe has been crucial to the project's survey development and data analysis.
- ❖ Lucas A. Berenbrok, PharmD – Assistant Professor, Pharmacy and Therapeutics  
Dr. Berenbrok has provided critical review, feedback, and support in the production of the HPV toolkit.
- ❖ Jennifer Bacci, PharmD – Assistant Professor of Pharmacy at University of Washington School of Pharmacy  
Dr. Bacci has provided continued support and counsel during her time as a Community Research Fellow at the University of Pittsburgh School of Pharmacy.



We also wish to express gratitude to the Jewish Healthcare Foundation (JHF). The JHF approached the University of Pittsburgh School of Pharmacy to assist in extending their HPV Vaccination Initiative to include college students. Since then, the JHF has provided numerous educational resources for the student-led educational programs about HPV at the University. We particularly acknowledge Ms. Sue Steele, the HPV Program Coordinator at the JHF. She has been an exceptional mentor during the toolkit production process. To learn more about the Jewish Healthcare Foundation's HPV Vaccination Initiative, please visit [www.hvpittsburgh.org](http://www.hvpittsburgh.org).

Lastly, many University of Pittsburgh student pharmacists from various organizations have been actively involved in the HPV Vaccination Initiative. Their assistance has been crucial in making the initiative and this toolkit possible. In addition to the student members of American Pharmacists Association - Academy of Student Pharmacists (APhA-ASP) and the Student National Pharmaceutical Association (SNPhA), we particularly acknowledge PharmD candidates Alyssa Kunkel and Meicheng Wang. Their combined and continued efforts will help expand the HPV Vaccination Initiative at the University of Pittsburgh to other college campuses in the effort to educate and vaccinate as many students as possible.

## Timeline

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Step 1: Prepare survey for students to track impact and submit for IRB approval

- Anticipated Duration: 2-3 months
- [Reference](#)

Step 2: Review educational content about HPV and the HPV Vaccine

- Ensure project lead and team members are familiar with content
- Anticipated duration: 1 week
- [Reference](#)

Step 3: Prepare educational posters for educational outreach

- Example presentation can be found at link on page 19
- Anticipated Duration: 3-5 days
- [Reference](#)

Step 4: Contact residence hall directors and assistants to organize educational outreach events

- Anticipated Duration: varied
- At times, scheduling events in residence halls is met with much receptiveness and efficiency
- At other times, finding availability with residence hall directors is difficult due to conflicting events booked in advance
- We suggest scheduling educational outreach events in the summer before the school year

Step 5: Host an educational outreach event

- Providing snacks helps encourage students to attend the event
- Anticipated event duration: 2 hours

## Learning Objectives

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1. To educate and inform the college-aged catch-up population about the Human Papillomavirus, its health implications, and the HPV vaccine
2. To create awareness and foster discussion in order to de-stigmatize Human Papillomavirus and HPV vaccine
3. To provide additional resources that facilitate further self-guided research and patient-initiated discussion with health professionals
4. To increase HPV vaccination rates in the college-aged catch-up population in the Pittsburgh area

## Educational Curriculum

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### Five Stations

1. General Information about HPV
  - a. To give general education about the virus and its transmission
  - b. To stress the prevalence of HPV in both men and women
2. HPV in Women
  - a. The role of HPV in certain cancers acquired in women
  - b. Preventive strategies and screening methods
3. HPV in Men
  - a. Emphasize the prevalence of the virus in males
  - b. The role of HPV in certain cancers acquired in men
  - c. The need for preventive vigilance in men due to lack of screening methods
4. The HPV Vaccine/ Resources
  - a. Provide step-by-step breakdown of how to access the vaccine
  - b. Provide locations where those interested can receive the vaccine
5. Myth/Misconceptions
  - a. Dispel common myths and misconceptions about HPV, the HPV vaccine, and its health consequences in men and women

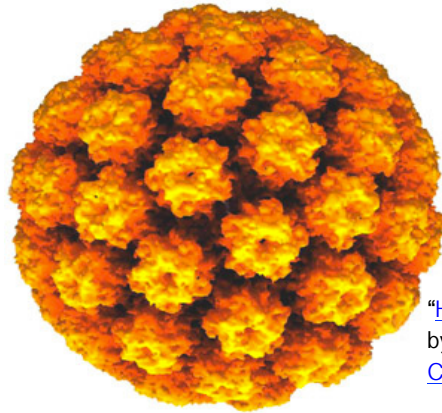


## General Information about HPV

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### What is HPV?

- HPV is a virus that is transmitted through sexual intercourse or intimate skin-to-skin contact



[“HPV: Human Papillomavirus”](#)  
by [ajcann](#) is licensed under  
[CC BY-NC 2.0](#)

### Who gets HPV?

Nearly all sexually active women *and* men!

- About 79 million Americans are currently infected with HPV (as of 2008)
- About 14 million Americans are newly infected every year (as of 2008)
- About 360,000 Americans get genital warts every year
- It is the **most common** STI (sexually transmitted infection)
- Most sexually active men and women will get HPV at least once during their lives

### Types of HPV

- ~100 different types
  - ~60 HPV strains cause warts on the hands and / or feet
  - ~40 HPV strains are sexually transmitted via mucous membranes in and around genital areas
    - Most of these strains do not cause serious health complications
- High Risk Strains: HPV 6, 11, 16, and 18
  - All of these strains are covered by the quadrivalent and 9-valent vaccine

### How is HPV spread?

- Through vaginal, anal, or oral sexual contact with someone who has the virus
  - Infection can spread even if an individual has only one sexual partner

### What are the symptoms of HPV?

- There are no signs or symptoms of HPV in an infected individual

- Signs for complications from HPV may not occur for years after initial infection

#### How does HPV affect the body?

- In 90% of cases, the body naturally clears the virus within 2 years of being infected
- When the virus does not clear the body, though, HPV can cause serious complications

#### What serious complications can HPV cause?

- Genital warts and cancers in both men and women
- Types of cancers:
  - > 90% Cervical (women)
  - ~70% Vulvar (women)
  - ~70% Vaginal (women)
  - >60% Penile (men)
  - >90% Anal (men & women)
  - ~70% Oropharyngeal (men & women)
    - This is cancer that occurs in the back of the throat including the base of the tongue and tonsils

#### Resources

[What is HPV? - CDC](#)

[HPV FAQ - CDC](#)

[Link Between HPV and Cancer](#)

[Symptoms of HPV - CDC](#)

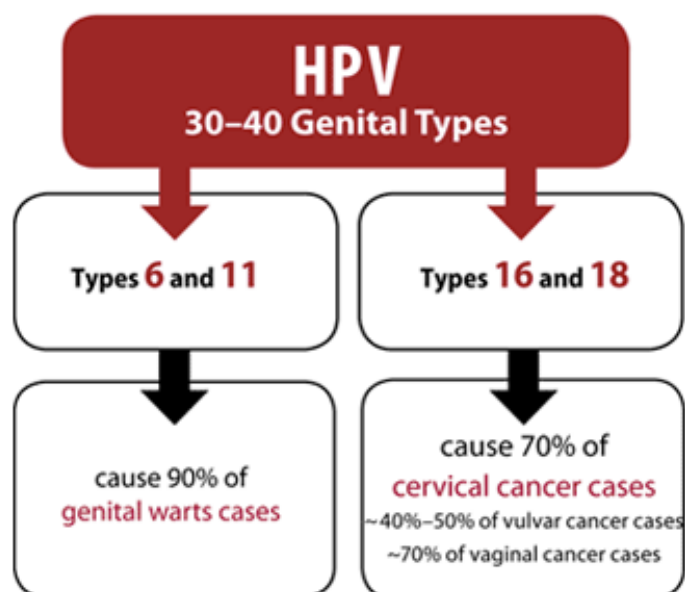


Image via [Belo Medical Group](#)

## HPV in Women

What is the biggest risk of lingering HPV in women?

- Cervical cancer

How does cervical cancer form in women?

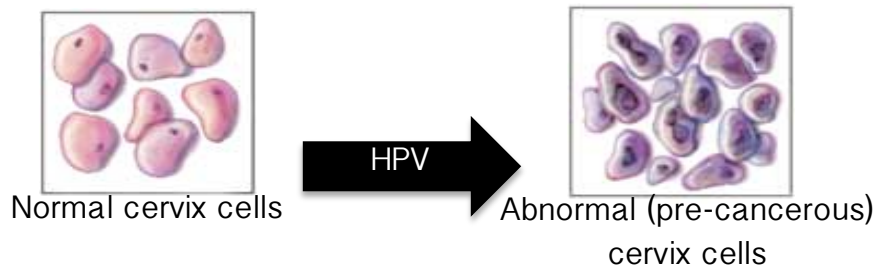
- HPV infects the genitals, including a woman's cervix
- HPV can cause normal cervix cells to turn abnormal (pre-cancerous)
- Precancerous cells can eventually lead to cervical cancer

How can women protect themselves from HPV and cervical cancer?

- Limit number of sex partners
- Choose a sex partner with few to no prior sex partners
- Choose not to smoke cigarettes
- Use condoms correctly and consistently during sexual activity
- Receive regular cervical screenings
- Receive the HPV vaccine!

How can women be screened for abnormal cervix cells?

- Regular pap tests performed by a physician
  - Screens a sample of cells from cervix for any abnormalities
    - An abnormal pap test does *not* necessarily indicate cervical cancer
- The HPV test performed by a physician
  - Screens for the HPV virus in the cervix cells
    - A positive HPV test does *not* necessarily indicate cervical cancer



Modified image idea via the [CDC](#)

When should women receive the HPV vaccine?

- The recommended age for the vaccine is for girls 11-12 years old
- Women can receive the vaccine up to age 26
  - The vaccine can still be beneficial in women already sexually active!

### What HPV vaccines are available to women?

- 9-valent protects against nine HPV strains that most commonly lead to cervical cancer and genital warts
- Bivalent protects against two HPV strains that most commonly lead to cervical cancer

### Resources

[HPV and Cancer](#)

[HPV and Cancer - CDC](#)

[The HPV Vaccine for Young Women](#)

## HPV in Men

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### How does HPV affect men?

- Lingering HPV in the male body can lead to genital warts and anal, penile, and oropharyngeal cancer

### What is oropharyngeal cancer?

- Cancer at the back of the throat and/or base of the tongue
- Men are twice as likely to have oral cancers than women
- There is an alarming rise in the number of oropharyngeal cancer cases being seen in men
- *Recent studies predict that the cases of HPV-contracted oropharyngeal cancer in men will exceed those of cervical cancer in women by 2020*

### How can men protect themselves from HPV?

- Condom use can reduce the spread of HPV but does not provide complete protection of exposed skin
- The HPV vaccine!

### At what age can boys receive the HPV vaccine?

- Boys can receive the vaccine as young as 9 years old
- However, the vaccine is generally recommended for ages 11-12

### Until what age can men receive the HPV vaccine?

- Until 21
- May be recommended until age 26 for those considered high risk
  - MSM – men who have sex with men
  - HIV positive or immunocompromised individuals

### Resources

[HPV and Men - CDC](#)

[Oropharyngeal Cancer](#)

[Oropharyngeal Cancer - CDC](#)

Chaturvedi AK, Engels EA, Pfeiffer RM, et al. Human papillomavirus and rising oropharyngeal cancer incidence in the United States. *J Clin Oncol*, 2011;29:4294-301.

## The HPV Vaccine / Resources

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### What is the HPV vaccine?

- The vaccine is an injection series for males and females containing inactive virus protein injected into the arm muscle to protect against HPV

### Who is the HPV vaccine for?

- Recommended for boys and girls between ages 11-12
- Can be administered to females between 9-26 years old
- Can be administered to males between 9-21 years old (or up to 26 years old, if indicated)
- HPV vaccines are not recommended for use in pregnant women

### What are the different types of HPV vaccines?

- Bivalent – protects against HPV types 16 and 18 (females only)
- Quadrivalent – protects against HPV types 6, 11, 16, and 18
- 9-valent – protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52, 58

### How is the HPV vaccine administered?

- The vaccine is a three-part series
  - First dose
  - Second dose: 1-2 months after first
  - Third dose: 6 months after first

### Are there any major safety concerns with the vaccine?

- The CDC and FDA have approved the HPV vaccines as safe and effective
  - Vaccines are still closely monitored by both agencies after they are distributed
- Common side effects: pain, swelling, and redness at the injection site, headache, nausea, muscle/joint pain

### Where can I receive the HPV vaccine?

- Primary care physician
- Closest CVS MinuteClinic
- Closest Walgreen's Walk-in Clinic
- Student health centers

### Step-by-step instructions on receiving the HPV vaccine:

1. Call your medical insurer and ask if they cover the HPV vaccine.
  - a. Ask if there is a copayment – a fixed cost for a covered health care service
2. Schedule an appointment with either your physician or pharmacist
3. Follow up with the healthcare provider to receive all three doses of the vaccine!
  - a. Doses received at 0, 2-3, and 6 months

### Resources

[HPV Vaccine Information](#)

[Copayment Information](#)

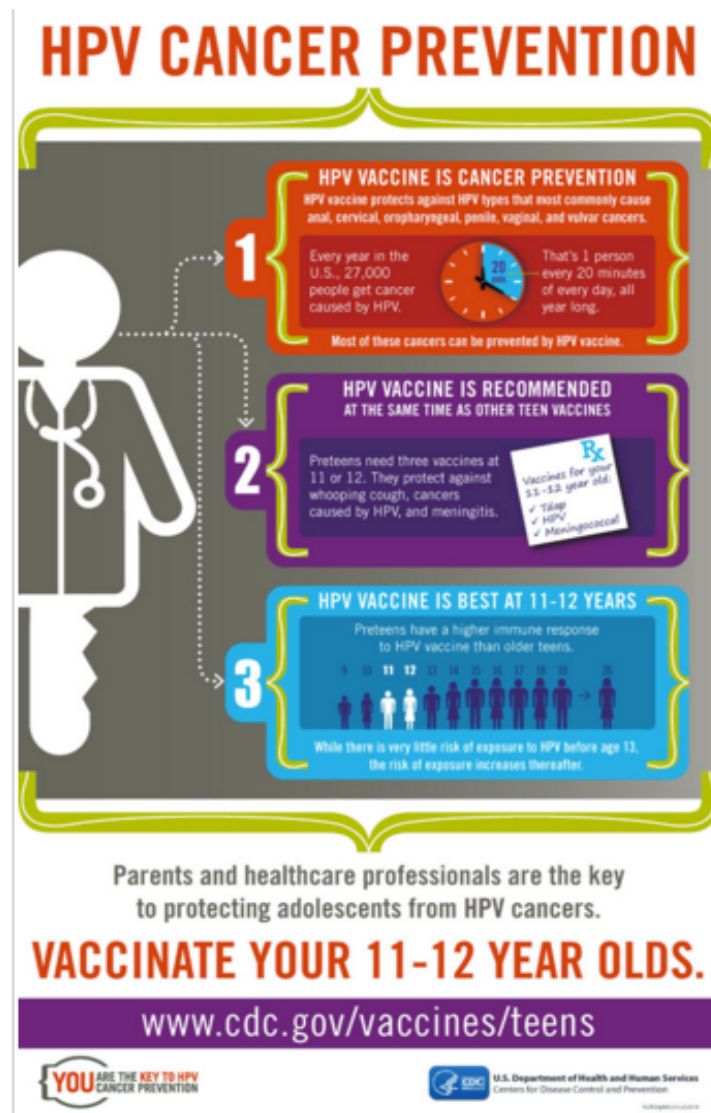


Image via the [CDC](#)

## Myths and Misconceptions

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**Myth: HPV is rare.**

- HPV is the most common sexually transmitted infection
- Nearly all men and women contract HPV at some point in their lives
- HPV has no signs or symptoms – it is usually cleared from body naturally within 2 years
  - You might never know you had the virus

**Myth: Boys don't need the vaccine – HPV only causes cervical cancer.**

- HPV can also cause anal, vaginal, vulvar, penile, and certain throat cancers in men *and* women
- HPV causes genital warts in men *and* women
- The vaccine protects against these complications in both men and women
- The vaccine also prevents the spread of HPV to your partner(s)

**Myth: Young children don't need a vaccine protecting against an STI.**

- The recommended age for the vaccine in boys and girls is 11-12
- This is *before* any sexual encounters (before possible exposure to HPV)

**Myth: The HPV vaccine causes harmful side effects – even infertility in girls!**

- The vaccine's safety has been studied and verified by the FDA and CDC
- No significant safety concerns
- May experience pain at site of injection, headache, nausea
- No link between vaccine and infertility (protection against abnormal cervix cells can actually protect *against* infertility)

**Myth: You can only get HPV if you have sex.**

- HPV is transmitted through skin-to-skin contact (any genital contact)
  - You do not have to engage in sex to contract HPV.
- Condoms can help reduce the spread of HPV but HPV can still spread from areas not covered by a condom

**Myth: I can't get the HPV vaccine because I've already had sex or I've already had HPV.**

- There are many types of HPV
  - The vaccine is still recommended to protect yourself from HPV types most commonly linked to cancer or genital warts
- If you've already started the series, you can continue right where you left off
  - You do not have to start over



**HPV vaccine**  
is **CANCER PREVENTION.**  
[www.cdc.gov/vaccines/teens](http://www.cdc.gov/vaccines/teens)



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

Image via The [CDC](http://www.cdc.gov)

## Challenging Scenarios during Educational Sessions

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### Scenario 1

**Attendee:** I get that HPV is a big problem and can cause cancer. But isn't it a really rare occurrence to actually get HPV?

**Possible Response:** HPV is the most common sexually transmitted infection (STI). Almost all men and women contract it at some point in their lives. Your body usually clears HPV on its own, but sometimes the infection can remain in your body and, years later, cause cancer.

### Scenario 2

**Attendee:** I've heard that HPV only causes cervical cancers, so why should males care about HPV?

**Possible Response:** HPV can cause cervical, vaginal, vulvar, penile, anal, and some forms of throat and neck cancers in men and women. HPV can also cause genital warts in both males and females. Not receiving the vaccine also means the possibility of spreading cancer-promoting strains of HPV to all sexual partners!

### Scenario 3

**Attendee:** I always use a condom.

**Possible Response:** HPV is easily transferred through skin-to-skin contact (rather than through body fluids like many other STDs). Anyone engaging in sexual activity involving some form of genital contact with a partner who has HPV can get the virus. Condoms can lower the risk of HPV infection if used correctly, but HPV can still affect areas not covered by a condom (the throat/mouth, for example).

### Scenario 4

**Attendee:** I've read a lot of stuff about the HPV vaccine causing major problems in people who've received it. Crazy sicknesses, even infertility.

**Possible Response:** The HPV vaccine has been carefully studied for safety. It's been shown to have similar (mild) side effects as other vaccines given to patients aged 9-26. Common effects are dizziness, pain at administration, and irritation at injection site. No link has been shown to exist between the vaccine and infertility. In fact, the vaccine could indirectly help protect against infertility, as HPV can cause abnormalities in the cervix that can harm fertility.

#### Scenario 5

**Attendee:** I'm too old to get the vaccine.

**Possible Response:** The HPV vaccination is recommended for females until age 26 and until age 21 for males (men at higher risk are recommended to receive the vaccine until age 26). Even if you've started the vaccine series and haven't finished, you can continue the next dose where you last left off. You do not have to "restart," no matter how long since your last shot.

#### Scenario 6

**Attendee:** So, I probably already have/have had HPV. What's the point of getting the vaccine now?

**Possible Response:** While most HPV infections occur shortly after sexual contact with an infected partner, you may not have been exposed to HPV or the cancer- and wart-causing strains of HPV. Even if you've already been exposed to HPV, you can still protect yourself from different strains by receiving the HPV vaccination.

#### Scenario 7

**Attendee:** I've heard that the vaccine is expensive. I'm not paying for that.

**Possible Response:** Most major insurances will cover the entire cost of the vaccine. You can call your insurer for a personalized description of your coverage. If you don't have private insurance or insurance through your University and are under the age of 19, you may be eligible for full coverage under the federally funded Vaccines for Children program.

## Tips for Open Discussions about HPV and the HPV Vaccine

- Stick to the facts. Try not to use vague or inexact language, but be aware of your audience.
  - Example, “The HPV vaccine has been proven to be safe.” Versus “Studies have shown no link between the HPV vaccine and infertility.”
- Use an appropriate mix of seriousness and humor. We want people to understand why the HPV vaccine is important, but we also want them to feel comfortable listening and asking questions.
- Always have all educators know where and how attendees can receive the vaccine.
- Try to be relatable and personable with attendees. Most students volunteering their time to learn about HPV do not want a lecture, but are willing to have a conversation about the subject if it is a two-way conversation.
- Retain your composure, even if someone is misinformed or aggressive. You have the facts. Let them know you’re willing to talk to them about the subject more if they feel comfortable with an open discussion.
- Have fun and know that you’re making a difference!



Image via the [CDC](#)

## Surveys

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### Our Plan

At the University of Pittsburgh, a team of students and faculty distributed a preliminary survey to gain perspective of students' understanding of HPV and the HPV vaccine. Based on responses from ~600 students, an educational initiative about HPV was created to be presented in University residence halls.

Currently, our team has created new surveys to be distributed to students attending our HPV educational sessions. With permission, students will be sent follow-up surveys after attending an educational session (one, six, and twelve month follow-up). Data gathered from these surveys will help determine the progress of two project goals: 1) improving students' understanding of HPV and its health consequences 2) increasing reported HPV vaccination incidences among the student population.

### Research

All survey content must be approved by an Institutional Review Board (IRB) prior to distribution among human participants (students). More information about the IRB application and approval process can be found at

<http://www.apus.edu/community-scholars/institutional-review-board/apply.htm>

### Who to Contact

For questions or additional information about our surveys, please contact Dr. Carolyn Thorpe, PharmD, at the University of Pittsburgh School of Pharmacy. (ctthorpe@pitt.edu)

## Poster Design

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The layout and design of posters for a HPV Vaccination Initiative can be found at this link:

<https://drive.google.com/folderview?id=0Bwt7KAzaWSWWR0p3d283NHNsclk&usp=sharing>

Poster content and pictures of completed posters are included.

For questions or assistance with poster design, please contact Nayanika Basu ([nab100@pitt.edu](mailto:nab100@pitt.edu)), PharmD Class of 2018, at the University of Pittsburgh School of Pharmacy.

## References

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- ❖ American Cancer Society
  - [HPV \(Human Papilloma Virus\)](#)
  - [HPV Vaccines](#)
- ❖ The Center for Disease Control
  - [Human Papilloma Virus](#)
  - [HPV FAQ](#)
  - [What is HPV? - CDC](#)
  - [Link Between HPV and Cancer](#)
  - [Symptoms of HPV - CDC](#)
  - [The HPV Vaccine for Young Women](#)
  - [Infographics](#)
  - [HPV and Men - CDC](#)
  - [Oropharyngeal Cancer - CDC](#)
  - [HPV Vaccine Information](#)
- ❖ US Food and Drug Administration
  - [Gardasil 9](#)
- ❖ Planned Parenthood
  - [HPV at a Glance](#)
- ❖ National Cancer Institute
  - [Oropharyngeal Cancer](#)
  - [HPV and Cancer](#)
- ❖ [Copayment Information](#)
- ❖ Chaturvedi AK, Engels EA, Pfeiffer RM, et al. Human papillomavirus and rising oropharyngeal cancer incidence in the United States. *J Clin Oncol*, 2011;29:4294-301.