

University of Vermont

**UVM ScholarWorks**

---

Family Medicine Clerkship Student Projects

Family Medicine Community

---

2020

## Improving HPV Vaccination Rates

Emily Eichner

*University of Vermont*

Follow this and additional works at: <https://scholarworks.uvm.edu/fmclerk>



Part of the [Medical Education Commons](#), [Primary Care Commons](#), and the [Public Health Commons](#)

---

### Recommended Citation

Eichner, Emily, "Improving HPV Vaccination Rates" (2020). *Family Medicine Clerkship Student Projects*. 538.

<https://scholarworks.uvm.edu/fmclerk/538>

This Book is brought to you for free and open access by the Family Medicine Community at UVM ScholarWorks. It has been accepted for inclusion in Family Medicine Clerkship Student Projects by an authorized administrator of UVM ScholarWorks. For more information, please contact [scholarworks@uvm.edu](mailto:scholarworks@uvm.edu).



# Improving HPV Vaccination Rates

Chittenden County, Vermont

Emily Eichner, MS3

January 2020

# Problem Identification and Public Health Costs

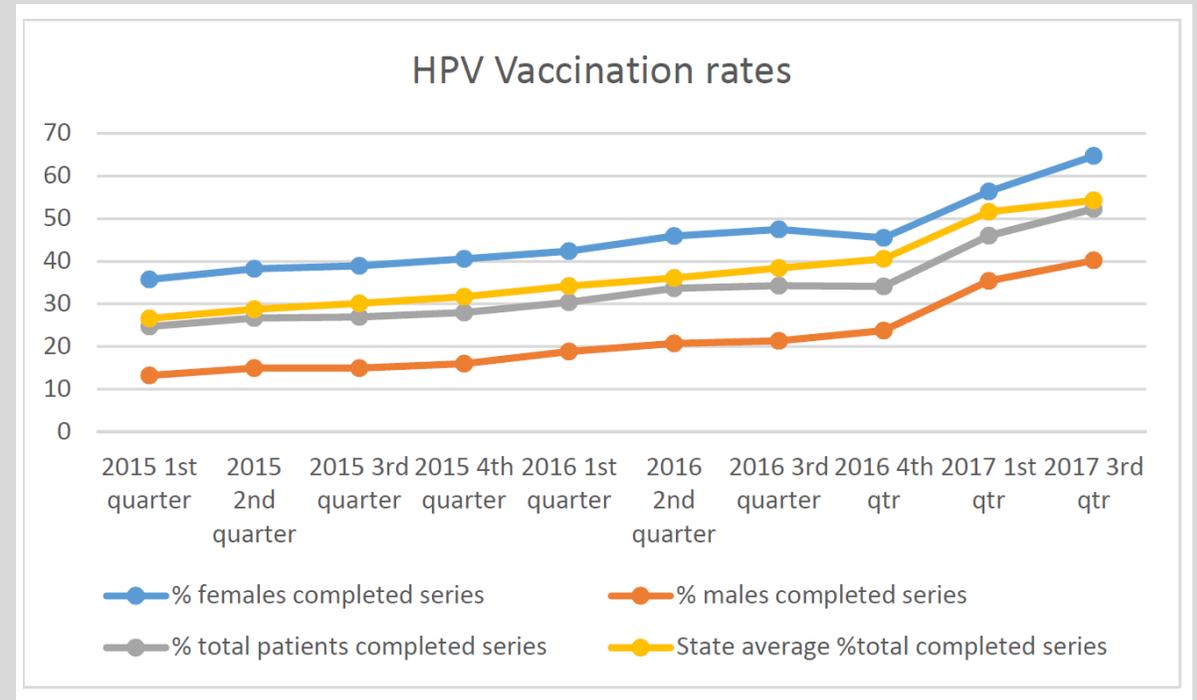
- Human Papillomavirus (HPV) is the most common sexually transmitted infection in United States. Almost all sexually active unvaccinated people will have HPV in their lifetime. <sup>1</sup>
  - HPV can cause genital warts and certain types of cancers
    - 90% of cervical cancers are caused by HPV <sup>2</sup>
    - Vulvar and vaginal (70%), anal (90%), penile (60%) cancers are due to HPV <sup>2</sup>
    - Up to 60-70% of oropharyngeal cancers are linked to HPV. Alcohol and tobacco use in combination with HPV infection increases the risk <sup>2</sup>
- CDC estimates 34,800 HPV-attributable cancers cases occur per year in the US. <sup>3</sup>
- Gardasil-9 Vaccine is FDA approved, given in a 2- to 3-dose series. Demonstrated to be safe and effective at protecting against HPV-related infections and cancers, both cervical and non-cervical. <sup>4,5</sup>
  - Recommended for all children starting ages 11-12 years old. <sup>4</sup>
    - Vaccine is most effective before exposure to virus, making the vaccination of young children vital for prevention. <sup>6</sup>
    - Currently available between ages 9-26. Can be given up to age 45 years, although cost effectiveness above age 26 is not yet clear. <sup>7</sup>
  - Healthy People 2020 goal of 80% of US adolescents 13-15 years old with completed HPV vaccination series. <sup>8</sup>
- Vaccination is cost-effective saving up to \$35,000 per quality-adjusted life year (QALY) gained. <sup>9</sup>
- Barriers to vaccination include parents lack of information about the vaccine, lack of provider recommendation, parents' concern over giving young children a vaccine related to STIs and concern over how vaccination will effect sexual behavior, lack of perceived benefit for males, and difficultly completing the dose series among others. <sup>10</sup>

# Description of Need in Host Community

## A family medicine practice in Chittenden County, VT

- 3<sup>rd</sup> Quarter 2019:
  - For 13-15 yr old patients, 69.2% had received at least one dose of HPV vaccine compared to 69.2% for state level. <sup>11</sup>
  - 50.8% had completed the HPV series compared to 52.2% for state level. <sup>11</sup>
- Remains below national goal of 80%
- Male vaccination rates are well below female rates (over 20% difference)
- Significant percentage of patients who started series have not completed it. <sup>11</sup>
  - Indicates need for interventions to increase completion rates

## Host Clinic Data from 2015-2017 <sup>11</sup>



# Community Perspective on Barriers to HPV Vaccination in Host Clinic

- Family Physician at host clinic: “We need a better way to motivate boys and parents of young boys to vaccinate because the benefit to the community is substantial. However, it can be harder for them to see the personal benefit to vaccination, which is contributing to lower vaccination rates in males.”
- Physician Assistant at host clinic: “Parents often struggle with the concept of vaccinating young children against infections related to sexual activity. Also, completing the series can be difficult, and there is need for further education and improvements in scheduling to increase completion rate.”

# Intervention and Methodology

- Obtained data on HPV vaccination rates at the host clinic
- Discussed with providers at the host clinic what challenges to vaccination are faced in their community.
- Researched literature on national HPV vaccination goals and barriers to success. Compared this to the barriers faced by the host clinic, and potential opportunities for interventions
- A patient educational brochure was developed based on the identified need for more information regarding the importance and benefits for vaccinating children.



“This will be useful in our clinic!”

“There is always a need for more patient education materials. This topic is definitely an area of need.”

# Brochure and Responses

## HPV Vaccine Saves Lives

HPV vaccination is a safe way to protect your child’s future as an adult against certain types of cancers

**Both Boys and Girls should be vaccinated**



By vaccinating you:  
✓ Ensure safer communities  
✓ Lower rates of HPV infections, complications, and cancers

For More Info:  
Visit [www.cdc.gov/hpv](http://www.cdc.gov/hpv)  
for information on HPV infections, HPV cancers, vaccination, vaccination safety, and more

## Protect Your Daughters’ and Sons’ Future

What if there was an easy way to prevent your child from getting certain cancers in adulthood?



The HPV Vaccine  
Easy  
Safe  
Make the decision to support your child’s future

## Human Papillomavirus (HPV) Vaccine

HPV Vaccine is cancer prevention



## HPV Infection

- Very common infection that most adults are exposed to in their lifetime
- About 79 million Americans currently infected
- Can cause many types of cancers including:
  - Cervical cancer
  - Anal cancer
  - Vaginal and Vulvar cancer
  - Penile Cancer
  - Throat and Mouth Cancer

Estimated 34,800 cases of HPV related cancers per year.

In addition to cancers, HPV can also cause genital warts.

However, most infections do not have any symptoms at all, and with time, will resolve on their own.

But importantly, even if there are no symptoms, HPV can still be spread to other people through intimate contact.

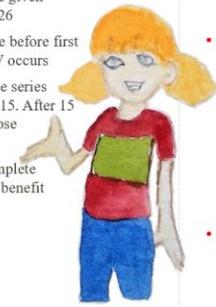
**Both males and females can get infected, spread infection, or get HPV related cancers**

## HPV Vaccine

- Safe
- **Males and Females benefit**
- Effective at decreasing risk of infection of many HPV strains
- Significantly decreases the occurrence of certain types of cancers

**Gardasil-9** – common brand name

- ❖ recommended to start ages 11-12, but can be given between ages 9-26
- ❖ Important to give before first exposure to HPV occurs
- ❖ Given in a 2-dose series if started before 15. After 15 years, it is a 3-dose series
- ❖ Important to complete series to get full benefit



*Ask your child’s doctor about starting your child’s vaccine series. Be sure to schedule follow-up to complete the series*

## Commonly Asked Questions



- **When should my child get the vaccine?**  
A: Recommended to start 11-12 years. If started then, it is only 2-doses. If not started until 15 or older, it becomes 3-doses. It’s important to get all the doses at the scheduled times.
- **Why does my young child need this vaccine as they aren’t engaged in behaviors that expose them to HPV?**  
A: The vaccine is much better at preventing cancers when it is given young, before exposure to HPV occurs. This allows young immune systems to develop protection, so they can be safe when reaching adulthood.
- **Why should boys get this vaccine as I thought it only protected against cervical cancer?**  
A: Boys benefit from this vaccine. HPV can cause penile, anal, and throat/mouth cancers, and genital warts. Also, it can reduce their risk of spreading infection to others, helping decrease the rates of these cancers in the community.

# Evaluation of Effectiveness and Limitations

- The measurement of vaccination rates in future quarters can be compared to current rates to see if there was an improvement.
- Evaluating the amount of brochures taken from the clinic can gauge interest in the information, and help determine the best locations to present them (patient rooms, waiting room/front desk, bathrooms, handed out by staff).
- Limitations of this project
  - Due to the short time scope of this project, there was an inability to adequately measure the effectiveness in improving vaccination rates. This can be evaluated in the future
  - Does not study whether there are better methods for delivering this information to patients, along with how to best get this information to the patients on the fence about vaccination, whose decisions are most likely to be impacted by further education.
  - Only addresses patient education of the identified obstacles. Does not address other barriers such as scheduling for completion of series, provider interactions, individual cost barriers, and many others

# Recommendations for Future Interventions/Projects

- Creating an automatic scheduling system for follow-up doses upon initiation of the first dose in the series
- Creation of other methods for delivering the information such as posters. Information from the brochure could also be adapted to the clinic's website for patients to access online.
- Expanding this educational initiative to other places such as schools, or pharmacies.

# References

1. Centers for Disease Control and Prevention. "HPV and Men - Fact Sheet". Retrieved from <https://www.cdc.gov/std/hpv/stdfact-hpv-and-men.htm>. 1/5/2020.
2. Centers for Disease Control and Prevention. "Cancers Associated with Human Papillomavirus (HPV)". Retrieved from [https://www.cdc.gov/cancer/hpv/basic\\_info/cancers.htm](https://www.cdc.gov/cancer/hpv/basic_info/cancers.htm). 1/5/2020.
3. Centers for Disease Control and Prevention. "How Many Cancers Are Linked with HPV Each Year?". Retrieved from <https://www.cdc.gov/cancer/hpv/statistics/cases.htm>. 1/5/2020.
4. Centers for Disease Control and Prevention. "HPV (Human Papillomavirus) VIS". Retrieved from <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/hpv.html>. 1/5/2020.
5. Centers for Disease Control and Prevention. "Human Papillomavirus (HPV) Vaccine Safety". Retrieved from <https://www.cdc.gov/vaccinesafety/vaccines/hpv-vaccine.html>. 1/5/2020.
6. Centers for Disease Control and Prevention. "Vaccinating Boys and Girls." Retrieved from <https://www.cdc.gov/hpv/parents/vaccine.html>. 1/5/2020.
7. Laprise JF., Chesson HW., Markowitz LE., Drolet M., Martin D., Benard E., Brisson M. Effectiveness and Cost-Effectiveness of Human Papillomavirus Vaccination Through Age 45 Years in the United States. *Ann Intern Med*. 2019 Dec 10.
8. Healthy People 2020. "Immunization and Infectious Diseases". Office of Disease Prevention and Health Promotion. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives>. 1/5/2020.
9. Meites E., Szilagyi PG., Chesson HW., Unger ER., Romero JR., Markowitz LE. Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices. *Morbidity and Mortality Weekly Report*. August 16, 2019. 68(32); 698-702.
10. Holman DM., Benard V., Roland KB., Watson M., Liddon N., Stokley S. Barriers to Human Papillomavirus Vaccination Among US Adolescents: A Systematic Review of the Literature. *JAMA Pediatr*. 2014 Jan;168(1):76-82.
11. Immunization Registry. Vermont Department of Health