

HPV Vaccination: A Success Story

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Financial Disclosure

I do not have any relevant financial relationships to disclose.



16th Street Community Health Centers

- Sixteenth Street Community Health Centers is a federally qualified health center (FQHC) with 5 locations (four providing medical services) and school clinics throughout the South Side of Milwaukee and Waukesha.
- We participate in the Vaccines For Children program (VFC) and are able to provide vaccines at no charge to all children under 18 (whether insured or not).
- We primarily serve a large Spanish-speaking patient population.



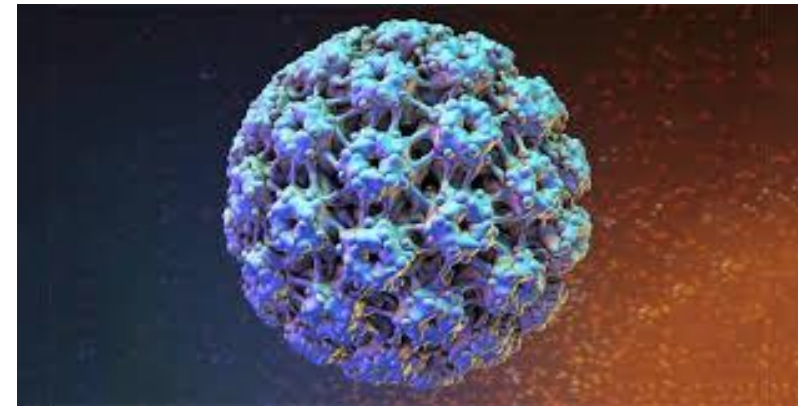
A Brief HPV Vaccine History

HPV and Cervical Cancer Link (1980s-1990s):

- In the late 1970s and 1980s, researchers discovered a strong link between human papillomavirus (HPV) and cervical cancer.
- Dr. Harald zur Hausen's work in the early 1980s showed that HPV was the cause of most cervical cancers, earning him a Nobel Prize in 2008 for this discovery.

Development of the First HPV Vaccine (Early 2000s):

- Research into an HPV vaccine began in the 1990s after it became clear that HPV was the leading cause of cervical cancer.
- Pharmaceutical companies, particularly Merck and GlaxoSmithKline (GSK), began working on vaccine candidates. These vaccines aimed to protect against HPV strains most commonly associated with cancer (e.g., HPV types 16 and 18).



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FDA Approval of Gardasil (2006):

- In 2006, the U.S. Food and Drug Administration (FDA) approved **Gardasil**, the first HPV vaccine, developed by Merck. Gardasil was designed to protect against four HPV types: 6, 11, 16, and 18.
 - **Types 16 and 18** cause around 70% of cervical cancer cases.
 - **Types 6 and 11** cause about 90% of genital warts.
- Initially, the vaccine was recommended for girls and young women between the ages of 9 and 26.



Gardasil 9 (2014):

- In 2014, the FDA approved **Gardasil 9**, an updated version of the original Gardasil vaccine. Gardasil 9 protects against nine HPV types (6, 11, 16, 18, 31, 33, 45, 52, and 58), offering broader protection against more cancer-causing strains.
- Gardasil 9 is now the primary HPV vaccine in use.



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Expansion of Recommendations:

- In 2011, the recommendation for the HPV vaccine expanded to include boys and men. The vaccine protects males from genital warts and cancers caused by HPV, including anal, throat, and penile cancers.
- Today, the vaccine is recommended for both girls and boys starting at age 11 or 12, but it can be given as early as age 9. It is also recommended for adults up to age 26 who did not receive the vaccine when younger. For some adults between the ages of 27 and 45, the vaccine may also be considered after consultation with a healthcare provider.



Global Adoption:

- The HPV vaccine has been introduced in many countries around the world, often as part of routine childhood immunization programs. The global aim is to significantly reduce the incidence of HPV-related cancers, particularly cervical cancer.



HPV Vaccine Rates Over the Years

Initial Vaccination Rates (2006–2010):

- By 2010, vaccination rates among adolescent girls were around **32% for at least one dose**.
- Rates among boys were even lower, as the vaccine was still being widely promoted primarily for females.

Increased Efforts and Awareness (2011–2015):

- In 2011, the CDC expanded its recommendation to routinely vaccinate boys aged 11-12, along with girls.
- Awareness campaigns, partnerships with schools, and endorsements from professional medical organizations helped boost uptake.
- By 2015, about **60% of girls and 40% of boys** had received at least one dose of the vaccine.



HPV Vaccine Rates Over the Years

Changes in Dosage (2016):

- The CDC revised the dosing schedule in 2016, recommending **two doses** of the HPV vaccine for children starting the series before their 15th birthday (instead of the previous three doses).
- This change made it easier for adolescents to complete the vaccine series, contributing to higher completion rates.

Recent Vaccination Rates (2017–2020):

- Vaccination rates continued to rise, particularly after recommendations to make the vaccine part of routine childhood vaccinations.
- As of 2020, **75% of adolescents aged 13–17 had received at least one dose**, and approximately **59% had completed the full series**.





Current Trends and Challenges

- As of 2021, the national coverage rates for HPV vaccination in the U.S. show continued growth, with about **77% of adolescents having received at least one dose** and **61% completing the series**.
- HPV vaccination rates still vary by region, with lower uptake in certain rural and conservative areas due to vaccine hesitancy and access issues.
- Awareness campaigns by organizations like the CDC and WHO have significantly impacted HPV vaccine adoption.
- School-based vaccination programs have helped increase coverage, especially in states with school-entry vaccine requirements.
- Persistent vaccine hesitancy among some parents due to concerns about the vaccine's safety and its association with sexual activity remains a barrier in some communities.
- The COVID-19 pandemic caused a slight disruption in vaccination programs due to delayed routine medical visits.



Our Clinic's Experience

- We started to administer the HPV vaccine when released in 2006. There was approval by the FDA for the vaccine for girls starting at 9 years of age and we were early adapters of this recommendation.
- The FDA approved Gardasil for boys specifically against genital warts in October 2009. After this recommendation was approved, we started to offer it to our male patients (9 and above).
- We also saw many of the challenges seen elsewhere, but being early adapters gave us a head start with our vaccine rates and made us comfortable as a whole to provide the message that the vaccine is for “cancer prevention”.
- As of 2023, **80% of our patients aged 9–17 had received at least one dose**, and approximately **64% had completed the full series**.



Impact of HPV Vaccination

- Rates of cervical cancer have significantly declined in populations with high vaccination coverage. For example, a 2019 study found that the incidence of cervical cancer in vaccinated women was reduced by up to 87% in some cohorts.
- HPV infections, particularly those caused by high-risk strains (HPV 16 and 18), which account for 70% of cervical cancers, have decreased by more than 80% in vaccinated populations.
- HPV-related oropharyngeal cancers have also shown signs of decline, although these reductions are slower compared to cervical cancer due to the longer development time of oropharyngeal cancers.
- There is emerging evidence of declines in other HPV-related cancers, such as anal and penile cancers, though data are more limited compared to cervical cancer.
- Vaccination programs have not only protected those vaccinated but have also contributed to herd immunity, reducing HPV transmission in unvaccinated populations.
- Long-term models suggest that widespread HPV vaccination could prevent millions of cases of cancer globally, with the possibility of eliminating cervical cancer as a public health problem in certain regions by the middle of the century.



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