

Improving clinician communication to increase adolescent HPV vaccination rates

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ABSTRACT

Despite the proven effectiveness of human papillomavirus (HPV) vaccination, this vaccine is underused in the United States and is associated with many disparities and barriers to acceptance. Adolescent HPV vaccination rates failed to meet the Healthy People 2020 goal of 80% vaccine coverage when nearly all other routine adolescent vaccines met or were near this goal. When introducing the HPV vaccine series, many clinicians use a conversational approach, although years of research show that an announcement approach is more effective at increasing HPV vaccination rates. This article reviews current HPV vaccine communication practices used by clinicians and recommends evidence-based best practices to improve adolescent HPV vaccination rates in the United States.

Keywords: announcement approach, conversational approach, clinician communication, human papillomavirus, vaccination, vaccine acceptance

Learning objectives

- Recognize vaccination communication styles and their effects on HPV vaccine acceptance and uptake.
- Describe the difference between announcement and conversational approaches for HPV vaccination recommendations.
- Outline evidence-based best practices for HPV vaccination communication to improve adolescent HPV vaccination rates.

Human papillomavirus (HPV) is the most common viral sexually transmitted infection (STI) in the United States, with new HPV infections affecting about 13 million patients every year.¹ Infection occurs in both men and women, and the highest prevalence is in women ages 20 to 25 years. In fact, nearly 80% of sexually active women will be infected with one or more HPV strains during their lifetime.² Several high-risk HPV strains cause

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different types of cancers, including cervical, vaginal, vulvar, anal, penile, and head and neck (including oropharyngeal) cancers, which affect an estimated 37,000 patients annually in the United States.³ In 2006, the FDA approved the recombinant HPV 4-valent vaccine (Gardasil 4), the first vaccination against HPV, which protected against the four most dangerous strains of HPV known at that time.⁴ In 2017, the 9-valent vaccine (Gardasil 9) became available to protect against nine HPV strains that cause 90% of all cervical cancers.⁴ The HPV vaccine is given in either a two- or three-dose series based on patient age at first dose and other factors, and the vaccine is administered as a 0.5 mL IM injection into the deltoid muscle or anterolateral area of the thigh.

The CDC recommends initiating the HPV vaccination series for all adolescents ages 11 to 12 years, but vaccination can be started at age 9 years; catch-up vaccination is approved until age 18 years if full vaccination status has not been achieved.⁵ During adulthood, catch-up vaccination is approved until age 26 years.⁶ Some adults ages 27 to 45 years who are not already vaccinated may receive the vaccine after discussing risks and benefits with their healthcare provider; however, this article focuses on adolescent HPV vaccination.

In late 2016, the Advisory Committee on Immunization Practices (ACIP) recommended a revised HPV vaccination schedule for adolescents involving a two-dose series (doses 6 to 12 months apart) if initiated between ages 9 and 14 years.^{5,7} A three-dose series is required if the HPV series is initiated at or after age 15 years, if the patient has an

Key points

- The HPV vaccination series is recommended for all adolescents ages 11 to 12 years.
- Despite being highly effective and safe, the HPV vaccine is underused and is met with resistance in the United States.
- Rates of adolescent HPV vaccination coverage in the United States lag behind all other routine adolescent vaccination rates.
- Using an announcement approach is more effective than using a conversational approach at increasing HPV vaccination initiation among adolescents.

immunocompromising condition, or for those ages 9 to 14 years who received two doses less than 5 months apart.^{5,7} Evidence proves that if HPV vaccines are administered before patients become sexually active, the vaccines are highly effective at protecting patients from most HPV infections, future HPV-related cancers, and associated morbidity and mortality.⁸ Vaccinating adolescents between ages 11 and 12 years based on the ACIP recommendations increases the vaccine’s effectiveness by covering most adolescents who have yet to initiate sexual activity.⁷

Despite the vaccine’s effectiveness and safety, HPV vaccination in the United States is underused and is associated with many disparities based on sex, race or ethnicity, insurance coverage, and location of residence.⁹⁻¹² For years, among adolescents ages 13 to 17 years, males have had a 4% to 5% lower rate of HPV vaccine series completion than females.^{9,10} Sex and racial/ethnic disparities also exist in patient knowledge and awareness of HPV and HPV vaccines.¹² In a 2017 study, males were significantly less likely than females to be aware of HPV and HPV vaccines, although the vaccine was recommended for eligible males beginning in 2011. Additionally, in the same study, non-

Hispanic Black patients and Hispanic patients were found to have lower rates of awareness and knowledge of HPV and HPV vaccines compared with non-Hispanic White patients.

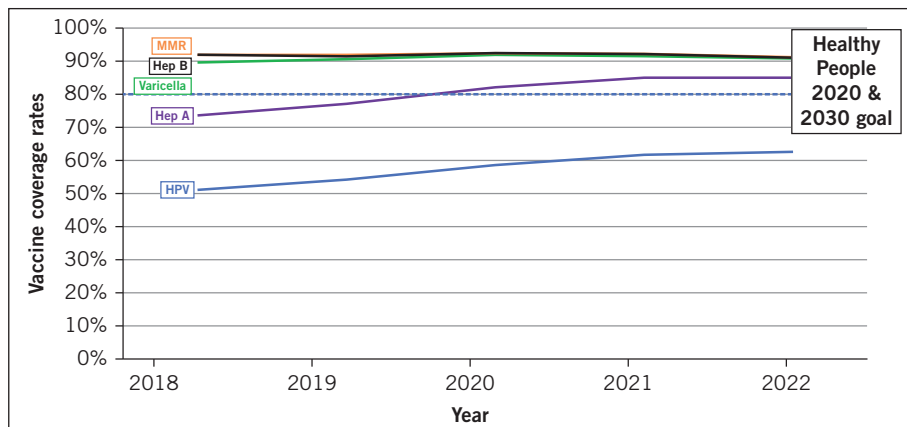
Uninsured adolescents have low HPV vaccine coverage rates compared with adolescents with public or private insurance.⁹ Among adolescents living at or above the poverty level, those living outside a metropolitan area have lower HPV vaccination rates compared with those living in a metropolitan area.^{9,10} Rates of all routine vaccines, including HPV, vary based on the state the adolescent lives in; for example, 38.5% of adolescents living in Mississippi were up-to-date (UTD) on HPV vaccines, compared with 85.2% in Rhode Island.⁹

Healthy People 2020, a 10-year national initiative by the US Department of Health and Human Services’ Community Preventive Services Task Force, aimed to achieve certain benchmarks for all adolescent vaccination rates. Nearly all other routine adolescent vaccines met or were near the Healthy People 2020 goal of 80% vaccine coverage, except for the HPV vaccine.^{13,14} Even today, HPV vaccination coverage rates continue to fall below this suggested benchmark. The goal of reaching 80% vaccine coverage rates in adolescents who receive the recommended doses of the HPV vaccine also has been included in Healthy People 2030.¹⁵ In 2018, 51% of adolescents were considered UTD on their HPV vaccination series; this rate rose to 58.6% in 2020 and to 62.6% in 2022.^{9,10} This indicates a positive trend in adolescent HPV vaccination rates, but much progress needs to be made to achieve the Healthy People 2030 goal of 80%. Although HPV vaccination rates are improving every year, complete (or UTD) and incomplete HPV vaccination coverage rates still lag substantially behind other routine adolescent vaccinations. In 2022, among US adolescents ages 13 to 17 years, only 62.6% were considered HPV UTD, compared with 85% who

were considered UTD for the hepatitis A series and more than 90% who were considered UTD for the measles-mumps-rubella (MMR), hepatitis B, and varicella vaccination series.⁹ UTD adolescent vaccine coverage rates between 2018 and 2022 are shown in Figure 1. In 2022, for incomplete vaccine coverage in this same age group, only 76% had received one or more doses of the HPV vaccine but had not completed the series (depending on the age at initiation and dosage spacing), but 89.9% received one or more dose of the tetanus, diphtheria, and acellular pertussis (Tdap) vaccine and 88.6% received one or more dose

FIGURE 1. Adolescents who received complete (UTD) vaccine coverage, 2018-2022⁹

Complete (UTD) is defined as two or more doses of the hepatitis A, MMR, and varicella vaccines; three or more doses of the hepatitis B vaccine; and three or more of the HPV vaccine (two HPV doses when initiated at age 15 years or younger and with appropriate spacing between doses). Adolescents who received the varicella vaccine had no history of varicella disease. Note that the MMR and hepatitis B lines overlap.



of the quadrivalent meningococcal conjugate (MenACWY) vaccine.⁹ Incomplete adolescent vaccine coverage rates between 2018 and 2022 are shown in **Figure 2**.

This article highlights differences and summarizes drivers of low HPV vaccination rates. HPV vaccine acceptance is associated with many barriers at the clinician, parent/caregiver, and patient level.^{11,13,16-19} Lack of a strong clinician recommendation and parental reluctance toward the HPV vaccine are among the leading reasons for poor adolescent HPV vaccination rates.^{17,18} Other clinician-associated drivers of low adolescent HPV vaccination

rates include inadequate awareness and knowledge of HPV and the HPV vaccine, overestimation of vaccine hesitancy by parents, and clinician recommendation against the HPV vaccine to patients and their parents.²⁰ On the positive side, higher perceived effectiveness of HPV vaccines has been associated with stronger clinician recommendations and greater HPV vaccine acceptance and intention to vaccinate.²¹

Evidence-based best practice recommendations can help clinicians improve how they approach HPV vaccination introduction and communication for patients ages 9 to 18 years so that they can improve HPV vaccination rates in the United States.

BARRIERS TO VACCINE ACCEPTANCE

Barriers to vaccine acceptance exist for all parties involved in the HPV vaccination decision-making process: the patient, the parents or caregivers, and the clinician.^{11,13,14,19,22}

Parents may express concerns about vaccinating their children against HPV if they lack knowledge about HPV and the vaccine's effectiveness and have concerns about vaccine safety.^{14,22} Additionally, the HPV vaccine prompts discussion of a topic that some parents and clinicians may be uncomfortable discussing: sexual activity. Many parents believe the HPV vaccine is not necessary for an adolescent who is not yet sexually active.^{22,23} Some parents oppose HPV vaccines because of concerns that HPV vaccination may encourage sexual activity, despite no evidence to support this concern.¹⁶

Clinicians may overestimate parental HPV vaccine concerns and hesitancy, and may wish to avoid uncomfortable discussions with parents.^{13,22} Studies show that physicians who are uncomfortable discussing HPV vaccines and believe that parents do not value this vaccine give lower-quality HPV vaccine recommendations.^{21,24} Clinicians who perceive more parental concerns about the HPV vaccine are less likely to give a strong recommendation for the vaccine.²⁵ As a result, parents interpret weak recommendations for the HPV vaccine as a sign of clinician ambivalence, which

promotes delaying HPV vaccination for their adolescents.²⁴

Another barrier for clinicians discussing HPV vaccines is the time requirement. It can take twice as long to discuss HPV vaccines compared with discussing other vaccines such as Tdap.¹³ Clinical schedules and patient appointment time allotment can lead to clinicians running behind for a myriad of reasons. The delays can impede a discussion about such a sensitive topic, especially if clinicians have experienced longer appointments when discussing this vaccine with patients in the past.

The fourth barrier to HPV vaccine acceptance is related to the patient (the vaccine recipient). A 2021 systematic review by Zheng and colleagues reviewed self-reported barriers to HPV vaccination acceptance among adolescents and young adults ages 9 to 26 years.¹⁹ This systematic review included 13 studies of male and female patients conducted in the United States and 10 other countries.¹⁹ Several of the patient-reported barriers were similar to the parent/caregiver barriers, including a lack of awareness of HPV or the HPV vaccine, concerns about the vaccine's safety and efficacy, concerns about adverse vaccine reactions, and concerns related to vaccine costs or insurance coverage.¹⁹ Some unique patient-reported barriers include not wanting to accept the HPV vaccine because of objections or concerns about the vaccine from family members, friends, or their clinician; feeling too shy to discuss the vaccine with their parents or clinician; a fear of needles or pain; a past negative experience with vaccines; religious reasons or concerns; and a busy school and activity schedule preventing ease of scheduling vaccine appointments.¹⁹

COMPARING OTHER ROUTINE VACCINES

Although the HPV vaccination series is recommended by many professional organizations, current HPV vaccination rates in US adolescents reflect that the HPV vaccine is not universally accepted by adolescents, their parents, or both, compared with other routine vaccines. Other recommended

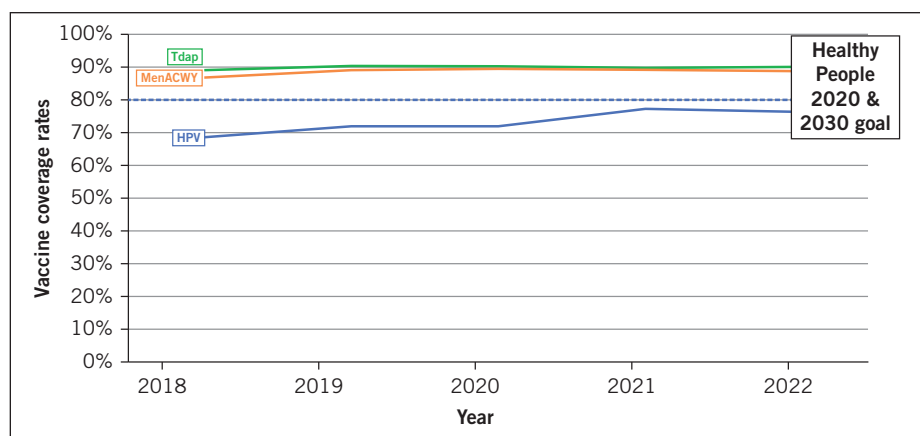


FIGURE 2. Adolescents with incomplete vaccine coverage, 2018-2022⁹

Complete coverage for the HPV vaccine is two or three doses, depending on initiation age and dosage spacing; for MenACWY, one dose and a booster; and for Tdap, typically two doses.

adolescent vaccines such as the meningococcal and tetanus vaccines are largely accepted by patients, parents, and clinicians with minimal concerns or need for discussions about safety and efficacy.¹⁴ Aside from the many barriers to the HPV vaccine, several clinician factors affect HPV vaccination implementation. Clinician communication style and strength directly affect patient and parental perceptions and attitudes about the vaccine, as well as HPV vaccine acceptance.^{14,17} Research shows that clinicians treat HPV vaccination differently than other adolescent vaccines in various ways that likely discount HPV vaccination's value.²⁶ These include how the vaccine is introduced (the approach), the order in which it is recommended, the strength of the vaccine recommendation, and focusing on certain patient characteristics to emphasize the need for vaccination.^{17,18,26} All of these differences affect HPV vaccine acceptance by adolescents and their parents. One study included surveys of pediatricians and family practice physicians in 48 of the 50 US states that asked about their perceptions of and communication practices around routine adolescent vaccinations for patients ages 11 and 12 years.²⁶ More clinicians highly endorsed Tdap (95%) and meningococcal (87%) vaccines than HPV vaccines (73%).²⁶

ANNOUNCEMENT OR CONVERSATION?

When introducing the HPV vaccine series, clinicians may use a conversational approach with patients and their parents. A conversational or participatory approach includes introducing the vaccine and engaging parents in an open-ended discussion about it before a decision to vaccinate is made.²⁷ For example, the clinician may say, "Now that your child is 11 years old, they are due for the following four vaccinations: Tdap, influenza, HPV, and meningitis. Have you heard of these vaccines before and what questions or concerns do you have about any of them?" Choosing to use a conversational approach can unintentionally convey that the HPV vaccine is optional rather than recommended.

An alternative method of introducing the need for vaccination is via an announcement or presumptive approach. This style involves the use of a short statement that the child is due for a vaccine and assumes that parents are ready for them to be vaccinated.²⁸ For example, "Now that your child is 11 years old, they should receive four vaccinations at the end of the visit today: HPV, Tdap, influenza, and meningitis. These help protect your child from cancers caused by HPV and from tetanus, diphtheria, pertussis, influenza, and meningitis."

Several studies have found that using an announcement approach is associated with higher rates of HPV vaccine acceptance compared with using a conversational approach.^{27,29} In a study by Brewer and colleagues, 30 pediatric and family medicine clinics in North Carolina were randomly assigned to receive a 1-hour announcement training, conversational training, or no training (control group) for introducing HPV vaccines.²⁷ Six months after

the training occurred, the North Carolina Immunization Registry was used to evaluate changes in HPV vaccination initiation rates (receiving one or more dose) for patients ages 11 or 12 years.²⁷ Increases in HPV vaccination rates were more significant (by 5.4%) in the clinics that received announcement training compared with clinics that received no training.²⁷ Additionally, 6-month coverage rates did not differ between the conversation training group and the control group.²⁷

The announcement approach is commonly employed for all other childhood vaccines.²⁷ Perhaps this difference alone explains why all other vaccination rates are higher than HPV vaccination rates. In one study, 65% of pediatricians and only 42% of family practitioners *always* or *almost always* used an announcement approach when discussing HPV vaccines, leaving room for improvement.²² Some clinicians, however, prefer beginning HPV vaccination discussions using a conversational approach because it engages parents in a shared decision-making process and builds trust and rapport.²⁷ Dempsey and colleagues caution that using an announcement or presumptive approach for all patients could harm parent/clinician relationships by not including parents in the decision-making process.²⁹ An early study about parental acceptance of vaccines based on clinician communication found that using an announcement approach is associated with lower parental satisfaction with the medical visit than when a conversational approach is used.³⁰ Additionally, presenting the HPV vaccine as optional led to more lengthy discussions about vaccine risks and benefits, longer patient visits, and higher rates of parental hesitancy and vaccine refusal or delay.^{21,26} In one study, 50% of clinicians self-reported that they prefer to offer the HPV vaccine as optional for patients ages 11 and 12 years, and that discussions about the HPV vaccine typically last more than 3 minutes—almost twice as long as discussions about the Tdap vaccine.²⁶

VACCINE ORDER IMPLIES IMPORTANCE

Many clinicians have a habit of discussing vaccines in a certain order when presenting them to patients. The order of vaccine introduction conveys the importance of each vaccine; the vaccines mentioned last may be viewed as less important than those mentioned first.^{13,26} One study showed that 64% of clinicians reported discussing adolescent vaccines in a particular order, with Tdap being discussed first and HPV last.²⁶

Clinicians may use an announcement approach for routinely accepted vaccines such as Tdap and meningitis, and may unintentionally switch to a conversational approach for HPV vaccination. This may be due to perceived or misguided beliefs that the patient or parents may hold about this vaccine or from other previous experiences the clinician has had when discussing HPV vaccination with other patients. However, the way in which a clinician introduces each vaccine can influence patient and parent perceptions.

RECOMMENDATIONS BASED ON INDIVIDUAL CHARACTERISTICS

Several studies show that rather than using a standard routine vaccination approach, some clinicians recommend the HPV vaccine based on certain patient characteristics. This risk-based approach to HPV vaccination means that clinicians suggest this vaccine more frequently to patients they believe to be at higher risk for acquiring the HPV infection, including older adolescents (who are more likely to be sexually active than younger adolescents) or those living in poverty.^{8,13,24} One problem with using a risk-based approach, aside from using stereotypes based on the clinician's beliefs about the patient and their behaviors, is that clinicians are unable to accurately predict the initiation of sexual activity and may miss potentially vulnerable populations.

Differences in HPV vaccination recommendations have been found based on the patient's sex, age, socioeconomic status, and race.^{13,22} Clinicians are more likely to support and recommend HPV vaccination for girls than boys.^{8,21,24} Multiple studies found that clinicians always or almost always recommended HPV vaccination at a much higher frequency to older adolescents (ages 14 to 17 years) than to younger adolescents (ages 11 to 13 years).^{22,25} Parents received fewer HPV vaccination recommendations if their children were younger, male, of racial/ethnic minorities, or of a lower socioeconomic status.²¹ Parents of male adolescents and younger children (ages 11 to 12 years) were less likely to receive high-quality clinician recommendations compared with parents of females or older children (ages 13 to 17 years).³¹ Girls were recommended the HPV vaccine 2.5 times more than boys, and older girls (age 17 years) were more likely to be recommended HPV vaccines than younger girls (age 13 years), confirming the

works of clinicians, 89% of pediatricians and 79% of family practice physicians reported that more adolescents under age 15 years completed the HPV series when only a two-dose series was required, compared with a three-dose series.²² Additionally, clinicians were found to discuss cancer prevention with higher priority when discussing HPV vaccines with female patients and discuss genital wart and STI prevention more often with boys.²¹

The clinician's practice setting also plays a role in HPV vaccine communication differences. Clinicians practicing in pediatrics were found to recommend the HPV vaccine nearly two times more often to younger adolescents (ages 11 to 13 years) and four times more often to older adolescents (ages 14 to 17 years) than clinicians who did not practice in pediatrics.²⁵ In the study by Kempe and colleagues, pediatricians (65%) were more likely than family practice physicians (42%) to use an announcement approach than a conversational approach when introducing HPV vaccines to adolescents of all ages.²² Pediatricians also gave stronger recommendations to vaccinate than family practice physicians to adolescents of all ages.

EFFECTS OF RECOMMENDATION STRENGTH AND STYLE

There are proven differences in patient and parent acceptance rates of HPV vaccines based on the communication approach that clinicians use to introduce it. It is not as simple as just having clinicians recommend that all adolescents in the suggested age range receive the HPV vaccine. The nuances of the clinician's language and tone, the strength of the vaccination endorsement, timeliness based on published vaccine guidelines, consistency (using a standard routine versus risk-based approach), and urgency of the vaccine recommendation have significant effects on the chances a vaccine is accepted and received.^{17,21,29} Strong clinician endorsements are the strongest predictor of parental decisions to initiate HPV vaccination for their adolescents with less questioning of the clinician's recommendation.^{7,8,17,21} In one study, when parents received a high-quality or strong recommendation for the HPV vaccine from a clinician, they were seven times more likely to agree that the vaccine was safe and twice as likely to state that they were not concerned about adverse vaccine reactions, compared with parents who did not receive a strong clinician recommendation.¹⁷ Parents reported that a clinician's statement that the HPV vaccine was not recommended for their child was a main reason that their adolescent had not received the HPV vaccine.^{13,17}

Physicians report a greater than 50% deferral or refusal rate of the HPV vaccine in patients ages 11 to 12 years when they do not use strong vaccine recommendations or when they do not use an announcement/presumptive approach.²² Receiving high-quality clinician recommendations correlated with HPV vaccination initiation and decreased vaccine refusal or delay by parents.^{21,31}

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use of a risk-based approach by clinicians.⁸ Using a risk-based approach does not follow the ACIP's age-based vaccine schedule, which indicates that the ideal age to vaccinate against the HPV virus is between ages 11 and 12 years. The new two-dose schedule, when initiated before age 15 years, facilitates improved initiation and completion of the HPV series.²² The two-dose schedule is as effective and is easier to complete than the three-dose schedule required for older adolescents and adults.²² In a study by Kempe and colleagues involving surveys of net-

BEST PRACTICES

For clinicians providing care to adolescents, suggested best practices for HPV vaccination include:

- Use an announcement approach for vaccine introduction
- Consider a participatory conversation, as an alternative to an announcement approach when appropriate
- Discuss the HPV vaccine as *indicated* rather than *elective* or *optional*
- Convey a strong recommendation for the vaccine
- Discuss this routine vaccine in the same way as all other indicated vaccines
- Follow ACIP age-based recommendations for all vaccinations
- Avoid discussing this vaccine last in the list of routine vaccinations
- Emphasize the vaccine's role in cancer prevention rather than the relationship to sexual activity.

Using an announcement style to introducing the HPV vaccine normalizes this routine vaccine for patients and their parents and increases the likelihood that they will consent to vaccination.²⁷ Announcing the HPV vaccine as an indicated medical treatment has been found to be more effective than using a conversational approach at increasing HPV vaccine initiation among adolescents.^{17,27,28,32} Clinicians who use an announcement approach have been found to have higher-quality vaccine endorsements than those using a conversational approach.²⁴ When a clinician recommends the HPV vaccine as being *indicated* rather than *elective* or *optional*, vaccination rates are higher.³² Overall, introducing HPV vaccines as the standard of care led to low levels of parental hesitancy and high levels of vaccine acceptance.²¹ Bundling vaccines prevents clinicians from offering the HPV vaccine as different or optional and instead presents the vaccines as a group recommended for the adolescents' health based on the suggested age-based vaccine schedule.¹⁸ A historical study by Opel and colleagues recommends avoiding a conversational approach "if it leads to fewer children being fully vaccinated and/or vaccinated on time."³⁰

Using "brief, strong, [and] unambiguous language to introduce the HPV vaccine" is a suggested best practice.¹⁷ The American Academy of Pediatrics (AAP), in its 2017 HPV vaccination implementation guidance, stated that a strong clinician recommendation increased the chance of HPV vaccine acceptance by patients and their parents.⁷ This guidance by the AAP provides an example of how to present the HPV vaccine that is consistent with using an announcement approach. Clinicians should present the HPV vaccine like any other vaccine and avoid drawing inadvertent special attention to it.^{14,21} Basing vaccine recommendations on the patient's presumed risk of acquiring the disease (risk-based approach) or on certain patient characteristics are techniques that are not used for any other routine adolescent vaccination and do not follow the standard of care. Clinicians should resist the temptation—intentional or not—to use these techniques when

determining the necessity of a vaccine. Also consider the order when presenting recommended vaccines: Listing HPV last may imply less importance, even if this is not intended.¹³ Additionally, for all patients, emphasize the role of the HPV vaccine in cancer prevention rather than the relationship between HPV and sexual activity.⁷

IMPROVING CLINICIAN TRAINING ON VACCINE COMMUNICATION

Improving clinician attitudes and knowledge about the HPV vaccine can improve vaccination rates among adolescents. Treating the HPV vaccine differently than all other routine adolescent vaccines, although generally unintended, is linked to lower rates of HPV vaccination compared with all other routine adolescent vaccines. Several clinical studies have evaluated the effect of clinician training on HPV vaccination rates. Bernstein and colleagues implemented a communication initiative to ensure that all clinicians were giving consistent, confident, and presumptive messages about the HPV vaccine and effective recommendations about cancer prevention.²³ This initiative included a 1-hour education session that emphasized the role of HPV vaccination as cancer prevention and allowed clinicians time to practice their use of an announcement approach when discussing the HPV vaccine.²³ The training included a 15-minute simulated case-based scenario created by the AAP.^{23,33} A two-arm controlled study by Malo and colleagues randomized clinics to receive one of two interventions: announcement training or conversation training.²⁸ After the 1-hour training sessions, clinicians in both intervention groups offered stronger, more urgent, and more consistent messages about the importance of HPV vaccination.²⁸ However, clinicians in the announcement training group felt that using their training approach was more feasible and saved them time when discussing HPV vaccination with patients, compared with clinicians in the conversation training group.²⁸ One month after the training occurred, clinicians in the announcement group felt that using this communication strategy increased HPV vaccine acceptance in their clinic or practice.²⁸

CONCLUSION

The rates of HPV-related cancers are a public health concern in the United States, making it imperative to increase HPV vaccination rates. Current methods of recommending HPV vaccination are preventing clinicians from meeting vaccine coverage targets and causing disparities in HPV vaccination rates compared with other routine adolescent vaccines. Clinicians must change their communication tactics and implement best practices for HPV vaccination recommendations.

Research suggests that vaccine training programs for clinicians increase HPV vaccination rates in adolescents.²⁷⁻²⁹ Educating clinicians about the best practices surrounding HPV vaccination communication and putting these best

practices into action will improve adolescent HPV vaccination rates in the United States. By providing consistent and strong recommendations to every patient and following the national recommended age-based vaccination schedule, clinicians can increase HPV vaccination rates among US adolescents. **JAAPA**

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