INTRODUCTION AND BACKGROUND
Currently, the Centers for Disease Control and Prevention (CDC) and Advisory Committee on Immunization Practices (ACIP) recommend all adolescents aged 11-12 years be routinely immunized with three doses of the HPV vaccine; catch-up vaccination is recommended for those 13-26 years of age who have not previously been immunized or who have not completed the full vaccine series. A 2011 CDC press release reported that HPV vaccination rates are significantly lower than rates of other recommended adolescent vaccines. Only 48.7% of girls aged 13-17 received at least one HPV vaccine, and only 32% had received the entire three dose series.

One contributing barrier is parental concern about the impact of HPV vaccination on sexual behaviors. Specifically, that girls may perceive themselves to be protected and less at risk for sexually transmitted infections (including HPV) and more likely to engage in earlier sexual practices. Investigators have observed that parents who were concerned about the potential impact on the HPV vaccine on sexual practices were less likely to have their daughters vaccinated.

QUESTION AND PICO
Does HPV vaccination promote earlier sexual debut in adolescent females?

P = Adolescent females
I = HPV vaccination
C = No HPV vaccination
O = Earlier sexual debut

LITERATURE SEARCH
A literature search was performed using the NCBI PubMed database. The initial search terms included a combination of “adolescents,” “sexual initiation,” and “HPV vaccination.” Our search was limited to studies published within the last 10 years. A total of 18 results were found under the search term “adolescents, HPV vaccination and sexual initiation”, and studies were chosen based on relevance and included international and U.S. studies. Additional articles were found from the references in these studies.

HPV vaccination and sexual debut in adolescent females
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CITATION | STUDY DESIGN | PATIENTS | KEY FINDINGS | LIMITATIONS
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Mullins TLK, et al 2016 | Longitudinal study, self-administered surveys post-HPV vaccination | 112 sexually experienced females aged 13-21 from an urban, hospital-based adolescent primary care office, Cincinnati Children’s Hospital Medical Center | Vaccinated girls continued to have a perceived personal risk of STIs other than HPV and a perceived need for safer sexual behaviors in the 30 months of the study. This perceived risk was not associated with subsequent sexual behavior or positive STI diagnosis. | Limited generalizability: low-income, urban population

Smith L, et al 2015 | Population-based, retrospective cohort study | 280,493 girls analyzed based on their eligibility for Ontario's grade 8 HPV vaccination program implemented in 2007. 128,712 eligible for the program and 131,781 ineligible. | 5.9% outcomes of interest identified and measured in this study. | Potential for underreporting: not all pregnancies may have been reported to physician

Marchand E, et al 2013 | Retrospective cohort, self-reported survey | 114 female community college students in Los Angeles, CA, between the ages of 18 and 26. | 45% of women vaccinated reported they actually had their sexual debut prior to receiving the vaccine. | Potential for underreporting or recall bias.

Ruz-Sternberg, A. M. & Pinzon-Rondon, A. M. 2014 | Cross-sectional design, self-administered questionnaire. | 1436 women (231 adolescents, 1205 women aged 18-26) in private university and 3 private high schools in Bogota, Columbia. | Vaccinated and unvaccinated women who had sex were similar with respect to the initiation of sexual intercourse before 15 years of age, number of sexual partners, and use of alcohol or drugs at last intercourse. However, vaccinated women were more likely to report consistent condom use, use of family planning, and routine Pap smear screening. | Somewhat limited distribution related to influenza epidemic with home students not responding as well as in-class students.

Matteo, M., et al 2014 | Cross-sectional design, postal self-administered questionnaire. | 350 female students first-year high school students randomly selected among 13 high schools (median age 18) | Vaccination had taken place after first sexual intercourse for most. The HPV-vaccinated group were more sexually active and reported more one-night stands. Differences in sexual behaviors between vaccinated and non-vaccinated groups in regards to condom use, STIs or other sexual experiences. | Recall bias about previous sexual experiences as well as confidentiality concerns (questionnaires requiring names)

Hansson B, et al 2014 | Cross-sectional, self-reported. | 49,247 women living in Denmark, Norway, and Sweden aged 18-46, 3,805 of which received the HPV vaccine | There was no statistically significant correlation between HPV vaccine administration and age of sexual debut Women who did not receive the HPV vaccine were more likely to not use contraceptive during sexual debut than those who had received the vaccine. | Limited power study

CONCLUSIONS
A parental fear and barrier to HPV vaccination is the belief that vaccination may promote a false sense of protection from STIs and earlier sexual initiation. Our review of recent literature addressing this issue demonstrated that HPV vaccination did not significantly change the age of sexual initiation when compared to unvaccinated girls. In fact, girls post- HPV vaccination had greater understanding of their risk of non-HPV STIs. Additionally, they were more likely to report condom use and undergo Pap smear screening.

HPV vaccination provides another opportunity for providers to discuss safe sexual practices with adolescents. Information and counseling about STIs, especially regarding cause and effect of HPV infection, remains a crucial component of the clinical encounter.

RECOMMENDATIONS
Physicians should feel comfortable advising parents that research has shown that HPV vaccination does not promote earlier sexual behavior.

The message that needs to be repeated is that condom use and limiting the number of casual partners have been shown to be protective measures, and that second sexual prevention, such as PAP smears tests, is still important despite immunization.

Most vaccinated adolescents continue to receive the vaccinations after initiation of sexual activity, which decreases the effectiveness of the vaccine. Initiation of the HPV vaccination before sexual debut at the age of 11-12 is currently the most protective measure to protect adolescents from HPV.

REFERENCES

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