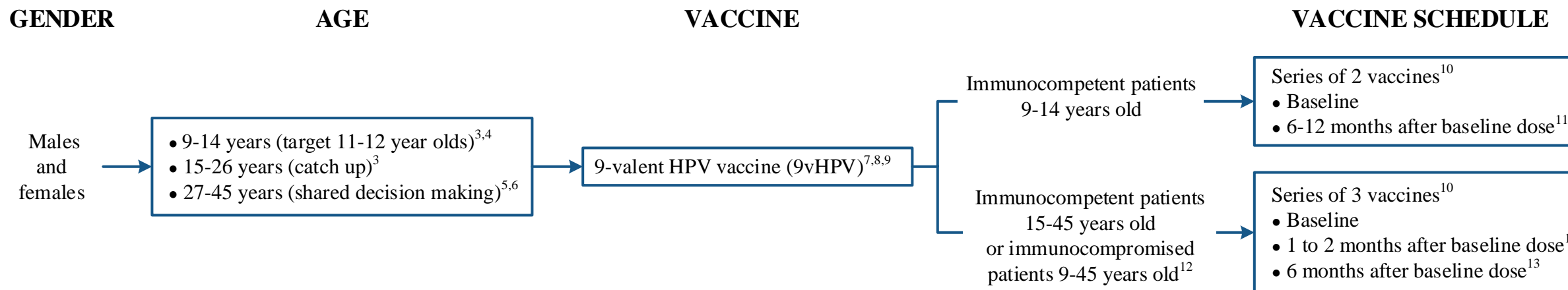


Human Papillomavirus (HPV) Vaccination for Prevention of HPV-Related Cancers^{1,2}

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.



¹ Although primarily used to prevent cervical dysplasia/cancer, anal pre-cancer/cancer, vaginal pre-cancer/cancer, vulvar pre-cancer/cancer, and anal/genital warts associated with certain HPV types, HPV vaccination may also reduce the risk of other HPV-related premalignant and malignant lesions of the oropharynx and penis. In 2020, the FDA approved an expanded indication for 9vHPV (Gardasil® 9) for the prevention of oropharyngeal cancers caused by HPV types 16, 18, 31, 33, 45, 52, and 58. A confirmatory trial showing prevention is currently underway.

² Vaccines for Children Program covers full HPV vaccination series for those that qualify. Adult Safety Net services may cover uninsured individuals 19-45 years of age.

³ MD Anderson **strongly recommends** that all males and females age 9-26 get the HPV vaccine. The Advisory Committee on Immunization Practices (ACIP) recommends a target age of 11-12 years old to complete the series. It is strongly recommended that the series of two vaccines be completed before age 15. Patients age 15-26 require a three-shot series.

⁴ Efficacy of vaccine has been shown starting at 9 years of age

⁵ The HPV vaccination may be considered for males and females age 27-45 after a discussion with their clinician of the benefits and limitations of the vaccine for individuals in this age range. Individuals should be counseled regarding decreased effectiveness of the vaccine in those who are sexually active and already infected with one of the types of HPV in the vaccine.

⁶ 9vHPV is not FDA approved for use in males or females > 45 years of age. There is no information on the efficacy and prevention of outcomes for this population.

⁷ Absolute contraindications: anyone allergic to the vaccine components or its delivery system. Most common adverse events were mild or moderate and were most commonly injection-site reactions. Due to fainting risk, it is recommended that recipient lie down for 15 minutes after injection. No deaths have been observed related to the HPV vaccination.

⁸ HPV vaccines are not recommended for use in pregnant women. If a woman is found to be pregnant after initiating the vaccination series, the remainder of the series should be delayed until completion of pregnancy. Pregnancy testing is not needed before vaccination. If a vaccine has been administered during pregnancy, no intervention is needed. Accidental pregnancy injection should be reported to the vaccine company.

⁹ 9vHPV is not a live vaccine; it contains vaccine like particles (VLPs) 6, 11, 16, 18, 31, 33, 45, 52, 58 for use in males, females, immunocompromised and those not vaccinated previously or who have not completed the full series of vaccinations

¹⁰ Those individuals who have not received the full series of vaccinations should complete the series with 9vHPV before 45 years of age. If the vaccine schedule is interrupted, the vaccination series does not need to be restarted. If the first dose of any vaccine was given before the 15th birthday, vaccination should be completed with 9vHPV according to a 2-dose schedule. If the first dose of the vaccine was given on or after the 15th birthday, vaccination should be completed with the 9vHPV according to a 3-dose schedule. Vaccine efficacy has been shown to last 8 to 10 years; there is no evidence at this time that a booster is needed.

¹¹ The minimum interval is 5 months between the 1st and 2nd dose. If the 2nd dose is given earlier than 5 months, a 3rd dose should be administered.

¹² Those with immunocompromising conditions, including HIV infection, should receive 3 doses of the vaccine

¹³ The minimum interval is 4 weeks between 1st and 2nd doses of vaccine. Minimum interval of 24 weeks between 1st and 3rd doses of vaccine. Doses received within a shorter-than-recommended dosing interval should be readministered.

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SUGGESTED READINGS

- Lei, J., Ploner, A., Elfström, K., Wang, J., Roth, A., Fang, F., . . . Sparén, P. (2020). HPV vaccination and the risk of invasive cervical cancer. *The New England Journal of Medicine*, 383(14), 1340–1348. <https://doi.org/10.1056/NEJMoa1917338>
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This screening algorithm is based on majority expert opinion of the HPV Vaccination work group at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

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