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# Position Statement on Human Papillomavirus (HPV) Vaccination for Prevention of HPV-Related Oropharyngeal Cancer

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The rate of new diagnoses of Human Papillomavirus (HPV)-related oropharyngeal (i.e. tonsil and base of tongue) squamous cell carcinoma (OPSCC) has been increasing at a dramatic rate in the United States, with HPV now being observed in over 70% of these tumors[1,2,3]. Recent data suggests that the incidence of HPV-related OPSCC now exceeds that of HPV-related cervical cancer in the United States[4]. Despite these statistics, public awareness of HPV-related OPSCC remains low[5].

Since 2006, the Food and Drug Administration (FDA) has approved three commercially available vaccines to prevent HPV infection: Gardisil-4 (Merck & Co.), Cervarix (GlaxoSmithKline), and recently, Gardisil-9 (Merck & Co.). Gardisil-9 is currently recommended by the Centers for Disease Control (CDC) Advisory Committee on Immunization Practices (ACIP) for use in females between 9 to 26 years of age and males between 9 to 21 years of age, with the option to vaccinate up to age 26 for certain high-risk individuals[6]. Moreover, the FDA recently expanded the indications for use in both men and women up to 45 years of age.

These HPV vaccines are safe, with numerous large studies and over 10 years of follow-up demonstrating that severe adverse events are very rare and occur at a rate similar to other adolescent vaccines[7,8,9,10,11]. In addition, vaccine efficacy for preventing oral HPV infections has been shown to be up to 93%, suggesting the potential to prevent HPV-related OPSCC[12,13]. While these vaccines have clearly demonstrated the ability to reduce anogenital HPV infection and premalignant lesions, a trial evaluating for prevention of HPV-related OPSCC or even a precursor lesion has not been done. This is primarily due to the inability to reliably screen for oropharyngeal premalignancy, the relative rarity of OPSCC, and the resulting need for prohibitively large numbers of individuals to enroll in such a trial. However, a recent meeting by the International Agency for Research on Cancer and the United States National Cancer Institute suggested that prevention of persistent oral infection of 6 months or longer may be an appropriate endpoint to consider for vaccine indication[14].

Despite the safety of these vaccines and their potential benefit, uptake in the United States, especially in males, has been poor[13,15,16,17], with lack of physician recommendation and low public awareness being contributing

factors[18,19]. Low male vaccination rates are particularly relevant since males make up the vast majority of patients who develop HPV-related OPSCC[1,20].

Without a definitive change to current HPV immunization practices, the consensus is that the recent trends in HPV-related OPSCC will continue. Therefore, based on the observed link between HPV infection and OPSCC and the safety and efficacy shown of the currently available HPV vaccines in preventing oral HPV infection, The American Head and Neck Society, The American Academy of Otolaryngology – Head and Neck Surgery and The Head and Neck Cancer Alliance strongly encourage HPV vaccination of both boys and girls for prevention of OPSCC and anogenital cancers. We hope that this endorsement will result in more widespread implementation of these vaccines, especially in males, and thus decrease the future burden of HPV infection and HPV-related OPSCC.

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