Human Papilloma Virus (HPV) and Oropharyngeal Cancer
Association of State and Territorial Dental Directors (ASTDD)
Policy Statement
Adopted July 10, 2017; Updated February 2026

Summary

Cancer-related illnesses are the second leading cause of death globally, with 10 million deaths attributed to cancer in 2020. Head and neck cancers may develop in the oral cavity, pharynx, larynx, paranasal sinuses, nasal cavity, and salivary glands. Although around 75% of such cases are linked to the use of tobacco and alcohol, the Human Papilloma Virus (HPV) can infect the mouth and throat, and research indicates that 60–70% of oropharyngeal cancers (OPC) are associated with HPV.

HPV, the most common sexually transmitted infection in the U.S., can remain undetected for years before leading to cervical, oral, or oropharyngeal cancers. On any given day, about 26 million Americans have an oral HPV infection; around 2,600 individuals carry a high-risk strain associated with cancer. While HPV is primarily transmitted through sexual contact, limited evidence suggests that non-sexual transmission may occur through close skin-to-skin contact, rendering it a pervasive health issue. However, sexual transmission remains the primary and most well-established pathway.

Because of a range of non-traditional risk factors associated with HPV-related OPC, including a younger age cohort and no history of significant tobacco and alcohol use, diagnosis may be delayed since both patients and practitioners may not be considering and looking for such oral pathology. Symptoms are not always obvious to the individual or to health professionals. Despite the availability of a vaccine for young boys and girls, HPV OPC rates have increased in recent years. Many factors may pose barriers to receiving the vaccine in healthcare settings, including the hesitancy of healthcare providers to discuss HPV in a clinical setting.

This policy statement reviews recommendations for routine HPV vaccination; notes the availability and administration schedule of Gardasil 9, the only HPV vaccine available in the US; discusses the need for integrating effective communication strategies to discuss HPV and the HPV vaccine in clinical settings to build awareness for the risk of HPV-related OPC; and reviews the roles that healthcare professionals and State/Territorial Oral Health Programs (S/TOHP) can play in communicating information and facilitating partnerships regarding HPV and the HPV vaccine. This paper also notes that changes to the scope of practice for licensed dental professionals have allowed them to administer vaccines in dental settings, including the HPV vaccine in some states. Addressing HPV-related OPC through establishing collaborative partnerships can result in an interprofessional workforce that encompasses healthcare professionals and includes immunization staff and pharmacists, who together can help raise public awareness about signs, symptoms, risk factors and changes in the demographics of head and neck cancer, including OPC. Integrating HPV and OPC education into dental and other health professions curricula can increase the comfort level of healthcare providers in addressing HPV and the HPV vaccine in a clinical setting.

The Association of State and Territorial Dental Directors (ASTDD) endorses promotion of the HPV vaccine to reduce the risk of HPV-related oropharyngeal cancer. S/TOHPs can play a critical role in facilitating evidence-based state and community practice interventions and messaging campaigns aimed at effectively promoting the HPV vaccine. A cost-effective approach to promoting overall health in evidence-based state and community practice interventions is to incorporate HPV-related oropharyngeal

cancer awareness strategies into oral health promotion efforts and healthcare professional academic curricula.

Problem

Cancer-related illnesses are the second leading cause of death globally, with 10 million deaths attributed to cancer in 2020.[1] Head and neck cancers may develop in several anatomical regions, including the oral cavity, pharynx, larynx, paranasal sinuses, nasal cavity, and salivary glands. These cancers are influenced by a range of behavioral, environmental, cultural, and viral factors. Around 75% of such cases are linked to the use of tobacco and alcohol.[2] Additional risk factors include genetic disorders, Epstein-Barr virus infection, certain ancestry backgrounds, occupational or radiation exposures, and chewing paan (betel quid).[2]

The Human Papilloma Virus (HPV) can infect the mouth and throat. Recent research indicates that 60–70% of oropharyngeal cancers (OPC) are associated with HPV.[3] OPC affects the middle section of the pharynx, specifically the back of the throat, including the soft palate, base of the tongue, and tonsils.[3] After the initial infection subsides, HPV-related cancer can take years to develop.[3]

HPV is the most common sexually transmitted infection in the U.S., yet can remain undetected for years before leading to conditions such as cervical, oral, or oropharyngeal cancers.[3] Data from the National Health and Nutrition Examination Survey (NHANES) show that, on any given day, about 26 million Americans have an oral HPV infection, with around 2,600 individuals carrying a high-risk strain associated with cancer.[4] According to the Centers for Disease Control and Prevention (CDC), 75% of Americans who are of reproductive age have likely been exposed to HPV.[5] The epidemiology of OPC has shifted with HPV emerging as a significant etiological factor compared to the traditional risk factors with tobacco and alcohol use.[6] While HPV is primarily transmitted through sexual contact, limited evidence suggests that non-sexual transmission may occur through close skin-to-skin contact. However, sexual transmission remains the primary and most well-established pathway. [7] This implies that almost everyone could encounter HPV at some point in their lives. HPV's widespread presence raises the risk of infection. Individuals who are not sexually active can still acquire the virus, rendering it a pervasive health issue.[7]

Because of a range of non-traditional risk factors associated with HPV-related OPC, including a younger age cohort and no history of significant tobacco and alcohol use, diagnosis may be delayed since both patients and practitioners may not readily be considering and looking for such oral pathology. HPV-related OPCs are often harder to detect than tobacco-related cancers because their symptoms are subtle, painless, and located near the back of the throat, making early detection and diagnosis more difficult than other oral cavity cancers.[8]

Many head and neck cancer patients, including those whose cancer is attributed to HPV, develop lifelong disabilities because of the extreme nature of the treatment.[9] Most HPV infections are asymptomatic and spontaneously cleared by the immune system within the first 2 years, but at least 15 of more than 100 viral types are characterized by high oncogenicity.[10] Most HPV infections are cleared by the immune system within 1–2 years. In some cases, the virus may persist in a latent state and potentially reactivate later.

According to the Oral Cancer Foundation, the best way to screen for head and neck cancers, including HPV-related OPC, is through a visual and tactile exam given by a medical or dental professional.[8] However, while traditional visual and tactile examinations remain standard components of head and neck cancer screening, detection of oropharyngeal cancers can be challenging because the location of the oropharynx deep inside the neck makes it less accessible to direct visualization and palpation. The exam should be accompanied by a thorough medical history asking about signs and symptoms of OPC along with possible exposure specific to HPV. An oral health professional or physician should evaluate any symptoms that persist for two or more weeks including a sore in the mouth that does not heal, pain that does not go away, a white or red patch, persistent sore throat or lump/swelling of unknown origin. Persistent problems should be assessed for a definitive diagnosis.

According to the Oral Cancer Foundation, approximately 12,000 Americans aged 15-24 contract HPV each day.[8] Yet despite the availability of a vaccine for young boys and girls, HPV OPC rates have increased in recent years.[8] Many factors may pose barriers to receiving the vaccine in healthcare settings, including the hesitancy of healthcare providers to discuss HPV in a clinical setting. It is likely that dental professionals, while routinely screening for oral cancer, may not be recommending the HPV vaccine to their patients because: (1) they may be unaware of HPV-related OPC; (2) they may be aware of HPV-related OPC but not about the vaccine and its purported use and effectiveness; and (3) perhaps the most likely reason, dental professionals may feel uncomfortable discussing HPV since it is often perceived as a sexually transmitted disease.

Method

The Advisory Committee on Immunization Practices (ACIP) notes that CDC recommends routine HPV vaccination for girls and boys ages 11 or 12, but the vaccine can be started at age 9.[11] Vaccination is also recommended for everyone through age 26 years if not adequately vaccinated when younger.[11] These vaccines are most effective if given to children before they become sexually active. Some adults ages 27 through 45 years might decide to get the HPV vaccine based on a patient-informed, shared clinical decision made between the healthcare provider and the patient as an individual.[11] The American Academy of Pediatrics includes HPV vaccines in its *Recommended Child and Adolescent Immunization Schedule* (https://tinyurl.com/2vzs9ym5).

Gardasil 9 is the only HPV vaccine distributed in the US.[12] All of the HPV vaccines protect against HPV types 16 and 18 that cause most HPV cancers.[13] Gardasil 9 is given as a series of either two or three doses, depending on age at initial vaccination. For children 9 through 14 years of age, Gardasil 9 can be given using a 2-dose or 3-dose schedule. [12, 13] For individuals 15 to 45 years of age, Gardasil 9 is given as a 3-dose schedule.[12,13] It is recommended that individuals with a weakened immune system receive three doses between 9 and 26 years of age.[13]

Given the intricacies in effectively diagnosing HPV-related OPC in a timely manner, receiving the HPV vaccine at a young age for both boys and girls becomes even more critical. Integrating effective communication strategies to discuss HPV and the HPV vaccine in a clinical setting can build awareness for the possible risk of HPV-related OPC. Healthcare professionals must feel comfortable discussing HPV and the HPV vaccine in their practices. At times discussing sexual concerns in a healthcare setting is difficult, but reframing the message as a cancer prevention strategy can help encourage conversations

with patients. If healthcare providers, particularly dentists and dental hygienists, are uncomfortable discussing the subject of sexually transmitted diseases, emphasizing how the HPV vaccine can reduce the risk of OPC and other cancers may be the most prudent tactic to encourage more providers to discuss this topic and to develop protocols regarding HPV including communication scripting and referrals to other healthcare providers.[14] Webinars and continuing education courses can help healthcare providers learn the most effective communication tools to implement in their practice.

S/TOHPs can play a key role in communicating information regarding HPV and the HPV vaccine. They can facilitate partnerships, including referral relationships among stakeholders. Because of their positioning with external as well as internal partners, S/TOHPs have opportunities to work with medical and dental clinical professionals and their professional associations across the private and public health sectors to craft messages that clinicians can use in discussing HPV and promoting the HPV vaccine. Such messages can include the importance of referrals to primary care medical and dental providers for HPV vaccination, depending on what individual state practice acts allow. These messages might also form the basis of broader, community-based campaigns employing public health approaches, using risk communications techniques and framing appropriate to the intended audiences. Similarly, S/TOHPs' relationships with state health department colleagues in programs such as Chronic Disease and Cancer Prevention enable them to discuss HPV-related oral cancers and for the programs to make their own networks aware of the OPC risk due to HPV. In both situations, the S/TOHP can help develop messages for dissemination on how best to promote use of HPV vaccination in preventing OPC. In the most recent ASTDD Synopses (2023-2024), 62% of the states with a S/TOHP reported collaborating with their chronic disease programs on HPV vaccine efforts.[15]

In recent years, changes to the scope of practice for dentists and dental hygienists have allowed them to administer vaccines in a dental setting, including the HPV vaccine in some states. According to a 2024 article in the Journal of the American Dental Association, before the start of the COVID-19 pandemic, four states – Illinois, Louisiana, Minnesota, and Oregon – authorized dentists to administer the influenza vaccine.[16] During the pandemic, all US states authorized dentists to administer the COVID-19 vaccine to patients as a public health emergency measure.[16] When the public health emergency orders were lifted, dentists were no longer authorized to administer the COVID-19 vaccine. Several states passed legislation that authorized dentists to administer vaccines irrespective of public health emergency status. As of July 2024, five states allow dentists to administer any vaccine; two additional states permit dentists to administer the HPV vaccine. The map shown at the end of this paper outlines the distribution of US states that have authorized dentists to administer vaccines as of July 2024. Several other states may have regulatory or legislative language in process to allow the administration of vaccines in dental settings by licensed oral health professionals.

Historically, the primary focus of HPV vaccines has been on reducing cervical cancer. However, increased awareness should focus on the prevention of OPC in the entire population. SOHPs and other public health programs can address HPV-related OPC through the establishment of collaborative partnerships resulting in an interprofessional workforce that encompasses healthcare professionals and includes immunization staff and pharmacists. Together, they can help raise public awareness about signs, symptoms, risk factors, and changes in the demographics of head and neck cancer, including OPC. Further, this integrated workforce can counsel patients about the HPV vaccine and how it can help reduce the risk of HPV-related OPCs. For example, offering head and neck cancer screenings for

targeted, high-risk populations during an immunization clinic also might create an important opportunity to discuss the increasing trends of OPC and HPV.

Another innovative approach in a clinical setting is to generate pop-ups in the Electronic Health Record (EHR) to notify the provider if a patient has not received the HPV vaccine. The provider can take the opportunity to discuss the benefits of the vaccine and provide additional resources for the parent or patient to make an informed decision. If the dental clinic has a medical clinic co-located as with Federally Qualified Health Centers, community clinics, a medical school or clinic near a dental school, a warm handoff to the medical staff can help increase the uptake of the HPV vaccine.

Findings from the State of Oral Health Equity in America survey report that more than one-half of the respondents (56.7%) agreed that dental care providers are qualified to educate patients about the HPV vaccine.[16] Adults who responded to the survey were more likely to support the role of the dental care provider in HPV education if they had an increased knowledge of HPV and had received a recommendation from the dental provider for the vaccine.[17] Most respondents (59.4%) reported feeling comfortable discussing the HPV vaccine with a dental care provider.[17] This number increased to nearly 75% with respondents who had HPV knowledge and had received an HPV vaccine recommendation from the dental care provider.[17] Findings from this study reflect the overall positive response of adults in favor of discussing HPV and the HPV vaccine with their dental care provider.

The next generation of healthcare professionals needs to be well versed in the emerging evidence as it relates to HPV and OPC. A study published in the Journal of Cancer Education in 2020 assessed the knowledge of HPV related OPC and HPV vaccination in 15 dental programs (dental and dental hygiene schools) across the US. Only 20% of the students had adequate knowledge of HPV and OPC with an average score of 55%.[18] Less than half of the students had adequate HPV vaccine knowledge with an average score of 65%.[18] The study highlights the need to integrate education on HPV and OPV and the benefits of the HPV vaccine in all dental professional school curricula. Finally, and perhaps most important, integrating HPV and OPC education into dental, dental hygiene and other health professions curricula can increase the comfort level of healthcare providers in addressing HPV and the HPV vaccine in a clinical setting.

Policy Statement

The Association of State and Territorial Dental Directors (ASTDD) endorses promotion of the HPV vaccine to reduce the risk of HPV-related oropharyngeal cancer. State/Territorial Oral Health Programs (S/TOHPs) can play a critical role in facilitating evidence-based state and community practice interventions and messaging campaigns aimed at effectively promoting the HPV vaccine. Through external and internal partners, S/TOHPs can help develop collaborative partnerships and referral networks that can empower an interprofessional workforce of dental and medical practitioners to promote use of the HPV vaccine for their patients and increase the rates of completion of the HPV vaccination series. A cost-effective approach to promoting overall health in evidence-based state and community practice interventions is to incorporate HPV-related oropharyngeal cancer awareness strategies into oral health promotion efforts and healthcare professional academic curricula.

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Note: All citations and links were accurate as of the date of posting.

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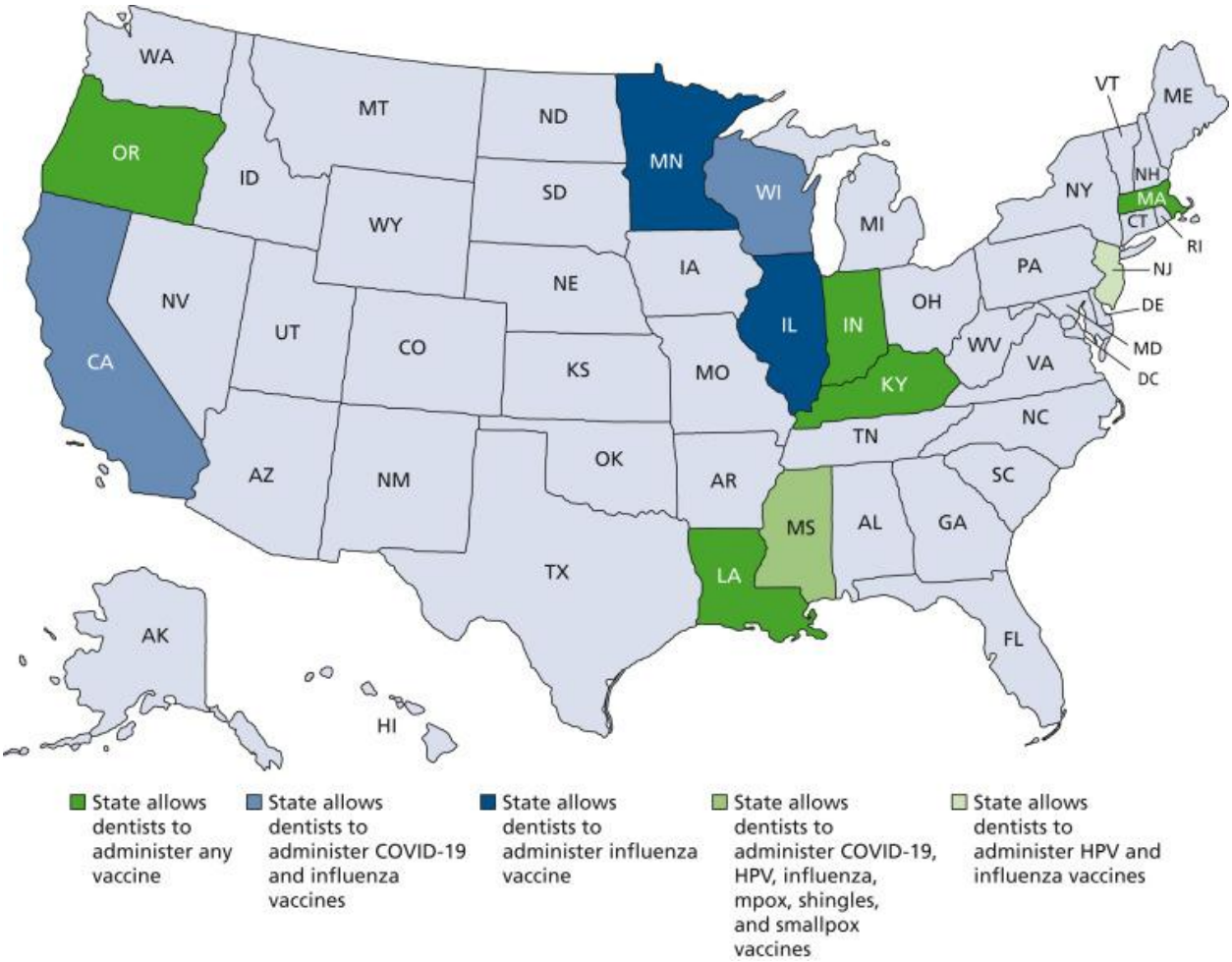
Resources for Continuing Education or Webinars:

1.CareQuest Institute for Oral Health: https://www.carequest.org/
2. National HPV Vaccination Roundtable: https://hpvroundtable.org/
3. American Cancer Society: HPV Vaccination Initiatives. https://www.cancer.org/health-care-professionals/hpv-vaccination-information-for-health-professionals/our-hpv-vaccination-initatives.html



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