# Treating the Epidemic of Oral Cancer. The Dental Provider's Role in Early Diagnosis and Management

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## Introduction

April is Head and Neck Cancer Awareness Month to nationally recognize a collection of cancers that include the oral cavity, head, and neck. In 2023, it is estimated that 54,540 people will be diagnosed with oral and oropharyngeal cancer, and 11,580 will die from this disease. The majority of these cancers are diagnosed as squamous cell carcinoma, although other variations may also be identified. Despite public education, head and neck cancers often continue to be diagnosed as an advanced stage cancer in greater than 50% of patients, significantly impacting morbidity and mortality associated with this disease. Dental practitioners play a critical role in the early detection and diagnosis of precancerous lesions and oral cavity cancer.

Historically, oral cancer has been associated with the male population, particularly those who use tobacco and alcohol. Practitioners now recognize that there has been a dramatic increase in oral cancer rates diagnosed in the population aged 40 years and younger. This increase is not associated with the traditional risk factors such as tobacco and alcohol use. The increase in this subset of patients is clearly associated with the Human Papillomavirus (HPV) and is also mirrored by an increase in oropharyngeal malignancies such as base of tongue and tonsillar cancer. Fortunately, the prognostic indicators show an increased rate of survival with HPV related cancers.

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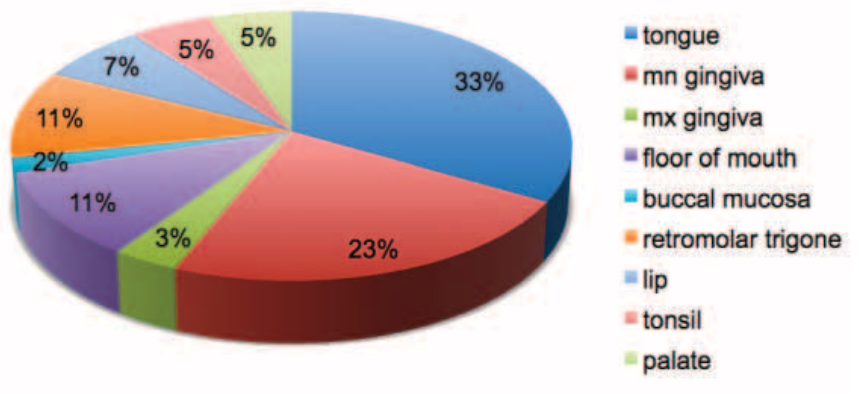
The mean age at diagnosis of oral cancer is 64 years of age, with more than 20% of cases now occurring in people younger than 55 years. The current five-year survival rates are 83% when the disease is localized, 55% when metastasis to regional lymph nodes has occurred, and 32% with distant spread of disease. The overall five-year survival rate of head and neck cancer has been shown around 60%. Unfortunately, the majority of patients present with advanced stage disease. At present, there are limited methods for early detection, with patients often detected during a routine dental examination by dental professionals.

**Figure 1. Anatomic Location of Squamous Cell Carcinoma.**




## Risk Factors

It is well established that the use of tobacco products and alcoholic beverages contribute to an increased risk of developing oral cancer. As many as two-thirds of oral cancer cases may be attributed to tobacco use and alcohol consumption. Additionally, the combination of tobacco and alcohol together creates a cumulative effect on the risk of developing oral cancer. This, in part, is due to increased mucosal inflammation, with alcohol consumption increasing

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the carcinogenic effects of tobacco. Patient age, tumor stage, and use of tobacco and alcohol are prognostic factors for recurrence and second primary recurrence.

Although still an uncommon occurrence, an alarming trend is the increase in oral cancer development in the young adult population. This may be related to the increasing incidence of HPV 16, 18, and 31, which has been shown to be causative for oropharyngeal carcinoma and linked to a 2.2 times increased risk for developing carcinoma. Although the incidence of non-HPV-related cancers has remained stable, the incidence of cancer associated with HPV increases annually.

## Signs and Symptoms

Oral cancer may present with a variety of signs and symptoms, including pain, dysphagia (swallowing difficulty), non-healing ulcers, red and white lesions, and indurated masses. Other symptoms may include bleeding, dental mobility, odynophagia (pain with swallowing), unilateral otalgia (ear pain), motor and sensory nerve disturbances (facial numbness or movement changes), masses, and cervical lymphadenopathy (enlarged neck nodes). (Table I.)

It is important to recognize that often the signs and symptoms of early oral cancer are vague and non-specific. Early-stage tumors may have few or limited symptoms that develop slowly with time. As dental providers, patients with exam findings should follow up in two weeks. If symptoms or a lesion persist, then biopsy should be considered or patient referred for a head and neck oncological exam with an oral and maxillofacial surgeon or ENT provider.

## Treatment

Once there is clinical suspicion of oral cancer, the gold standard for diagnosis is a tissue biopsy. A biopsy will help determine the type of

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### Table I. Clinical Signs and Symptoms of Oral Cancer

White, red, or speckled lesions
Non-healing ulcer
Duration of greater than two weeks
Lesion without cause or trigger
Non-specific pain
Dysphagia
Otalgia
Masses or lumps
Central ulceration
Indurated borders
Indistinct borders
Cervical lymphadenopathy
Dysesthesia or paresthesia
Loose teeth
Bleeding

### Table II. Staging of Oral Cancer.*

**Clinical Exam/History**
Size of Lesion
Palpable Lymph Nodes

**Laboratory**
CBC with differential
Basic Metabolic Profile (BMP)
Liver Function Tests (LFTs)
PT/INR

**Imaging**
CT scan
PET scan
Orthopantomograph
Flexible endoscopy (when indicated)

**TNM Staging lip, oral cavity, and p16 (HPV)-negative oropharynx cancer**

**Primary tumor**
- T0: Cancer within epithelium and has not grown into deeper layers
- T1: Primary tumor <2 cm or smaller
- T2: Primary tumor 2-4 cm
- T3: Primary tumor >4 cm
- T4: Invasion of tumor into adjacent structures (eg, muscle, skin, bone, nerves)

**Nodal status**
- N0: No regional lymph node metastasis
- N1: Metastasis to a single ipsilateral lymph node (<3 cm)
- N2a: Metastasis to a single ipsilateral lymph node (3-6 cm)
- N2b: Metastasis to multiple ipsilateral lymph nodes (<6 cm)
- N2c: Metastasis to bilateral or contralateral lymph nodes (<6 cm)
- N3: Metastasis to any lymph node (>6 cm)

**Distant metastasis**
- Mx: Cannot be assessed
- M0: No distant metastasis
- M1: Distant metastasis

**Staging**
- Stage 1: T1N0M0
- Stage 2: T2N0M0
- Stage 3: T3N0M0, T1N1M0, T2N1M0, T3N1M0
- Stage 4: Any T4 lesion, any N2 or N3 lesion, any M1 lesion

**TNM Staging p16 (HPV)-positive oropharynx cancer**

**Primary tumor**
- T1-T2: Primary tumor <4 cm or smaller
- T3-T4: Primary tumor >4 cm or invasion of tumor into adjacent structures (eg, muscle, skin, bone, nerves)

**Nodal status**
- N0: No regional lymph node metastasis
- N1: <4 lymph nodes involved
- N2: >4 lymph nodes involved

**Distant metastasis**
- Mx: Cannot be assessed
- M0: No distant metastasis
- M1: Distant metastasis

**Data from AJCC Cancer Staging Manual*

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cancer and guide treatment. The patient should undergo a standardized staging evaluation, which may include CT imaging, a PET scan, lab work, and other tools to determine a clinical stage. To ensure high quality multidisciplinary treatment, it is important for all patients to have multidisciplinary treatment planning at tumor board. All subsequent treatment is guided by the patient's stage. Early staged oral cancer is primarily managed with surgical resection of the primary tumor and management of the neck, when tumors and patients are amenable to surgery. The principal goal is to obtain wide, tumor-free margins, and therefore surgical expertise and quality can greatly effect patient outcomes.

Late-staged tumors and cancer with high-risk features may require surgery along with the recommendation for adjuvant post-operative radiation and chemotherapy. High risk features include close or positive surgical margins, perineural invasion, angiolymphatic invasion, cervical metastasis, or extracapsular spread. Treatment of oral cancer requires an individualized, interdisciplinary, and collaborative approach to improve the cure rate and quality of life of the patients. Coordination of treatment needs to occur between surgical, medical, and dental disciplines to optimize treatment outcomes and survival rates. This team approach provides a medium that allows for efficient clinical care of patients and increased opportunities for treatment and research.

The treatment of head and neck cancer may negatively impact mastication, swallowing and speech, appearance and many other aspects of identity. Therefore, immediate reconstruction of the surgical defect created during tumor resection is beneficial in maintaining quality of life. Although surgical changes and life-long effects of chemoradiation are often inevitable, the goals of treatment include optimizing the functional outcomes when possible.

## Conclusion

It is critically important for dental practitioners to have a heightened awareness of oral cavity cancers or clinically suspicious lesions. It is often general dental practitioners, dental specialists, and community oral and maxillofacial surgeons who make the initial diagnosis of oral cancer. It is the responsibility of the entire dental community to be diligent with providing oral cancer screenings, biopsies, and expeditious referral to practitioners with expertise in the management of these tumors.

Thorough examinations, particularly in patients with risk factors, will greatly improve survival rates and minimize the complexity of oncologic treatment when patients are diagnosed with precancerous lesions.

To celebrate Head and Neck Cancer Awareness Month there are several statewide initiatives for 2023 started to promote awareness, early detection, and honor patients and their families who have been affected by oral or head and neck cancer.

April screening events have been coordinated in clinic locations throughout Minnesota, including Minneapolis, St. Cloud, Duluth, Brainerd, and Rochester. The 35W and Lowry bridges will be lit on April 21st and 22nd in burgundy, the color designated to represent head and neck cancer.

We welcome everyone to join us on an awareness walk for head and neck cancer around Lake Bda Mka Ska on May 21st. Further information can be found at www.mnofs.com/foundation

Please contact Dr Kademani for further information on events or to refer a patient for care.