

## Screening for Oral Cancer: Recommendation Statement

► See related Putting Prevention into Practice on page 387.

As published by the U.S. Preventive Services Task Force.

This summary is one in a series excerpted from the Recommendation Statements released by the USPSTF. These statements address preventive health services for use in primary care clinical settings, including screening tests, counseling, and preventive medications.

The complete version of this statement, including supporting scientific evidence, evidence tables, grading system, members of the USPSTF at the time this recommendation was finalized, and references, is available on the USPSTF website at <http://www.uspreventiveservices.org/>.

This series is coordinated by Sumi Sexton, MD, Associate Medical Editor.

A collection of USPSTF recommendation statements published in *AFP* is available at <http://www.aafp.org/afp/uspstf>.

### Summary of Recommendation and Evidence

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for oral cancer in asymptomatic adults (*Table 1*).

#### I statement.

See the Clinical Considerations section for additional information and suggestions for practice regarding the I statement.

### Rationale

#### IMPORTANCE

Oral cavity cancer (or oral cancer) and pharyngeal cancer include cancer of the lip, oral cavity, and pharynx (nasopharynx, oropharynx, and laryngopharynx). Ninety percent of all cases of oral cavity and pharyngeal cancer are classified as squamous-cell carcinoma.<sup>1</sup> An estimated 41,380 new cases of and 7,890 deaths from cancer of the oral cavity and pharynx will occur in 2013.<sup>2</sup> At the time of diagnosis, more than 50% of persons with oral and pharyngeal cancer have regional or distant metastases.<sup>3</sup> Screening for oral cancer may be helpful if potentially malignant disorders can be identified earlier and treated successfully.

Oral and oropharyngeal cancer have different causes. Oral cavity cancer is predominantly caused by tobacco and alcohol use. Oropharyngeal cancer, another subset of neck and head cancer, includes human papillomavirus (HPV) as an important risk factor. The incidence and mortality rate of oral cancer have been decreasing in the United States presumably because of reduced tobacco and alcohol use. However, HPV-related oropharyngeal cancer is increasing in incidence. Oropharyngeal cancer includes lesions of the tonsil, oropharynx, and base of the tongue. The epidemiology of HPV-related oropharyngeal cancer is evolving and could have important implications for identifying high-risk populations that might benefit from screening.

### DETECTION

The USPSTF found inadequate evidence that the oral screening examination accurately detects oral cancer.

### BENEFITS OF DETECTION AND EARLY TREATMENT

The USPSTF found inadequate evidence that screening for oral cancer and treatment of screen-detected oral cancer improve morbidity or mortality.

### HARMS OF DETECTION AND EARLY TREATMENT

The USPSTF found inadequate evidence on the harms of screening. No study reported on harms from the screening test or from false-positive or false-negative results. Potential diagnostic harms are primarily related to the harms of biopsy for suspected oral cancer or its potential precursors. Harms of treatment for screen-detected oral cancer and its potentially malignant precursors (leukoplakia and erythroplakia) may result from complications of surgery (first-line treatment), radiation, and chemotherapy. The natural history of screen-detected oral cancer or potentially malignant disorders is unclear; thus, the magnitude of overdiagnosis due to screening is unknown.

### USPSTF ASSESSMENT

The USPSTF concludes that the evidence is insufficient to determine the balance of benefits and harms of screening for oral cancer in asymptomatic adults by primary care providers.

### Clinical Considerations

#### PATIENT POPULATION UNDER CONSIDERATION

This recommendation applies to asymptomatic adults aged 18 years or older who are seen by primary care providers. This recommendation focuses on screening (visual

**Table 1. Screening for Oral Cancer: Clinical Summary of the USPSTF Recommendation**

Population	Asymptomatic adults aged 18 years or older
Recommendation	No recommendation Grade: I statement
Risk assessment	The primary risk factors for oral cancer are tobacco and alcohol use. Additional risk factors include male sex, older age, use of betel quid, ultraviolet light exposure, infection with <i>Candida</i> or bacterial flora, and a compromised immune system.  Recently, sexually transmitted oral human papillomavirus infection has been recognized as an increasing risk factor for oropharyngeal cancer, another subset of head and neck cancer.
Screening tests	The primary screening test for oral cancer is a systematic clinical examination, including inspection and palpation of the oral cavity.
Treatment	Suspected oral cancer or its precursors detected on examination require confirmation by tissue biopsy. Treatment for screen-detected oral cancer includes surgery, radiotherapy, and chemotherapy.
Balance of benefits and harms	The USPSTF found inadequate evidence on the diagnostic accuracy, benefits, and harms of screening for oral cancer. Therefore, the USPSTF cannot determine the balance of benefits and harms of screening for oral cancer in asymptomatic adults.
Other relevant USPSTF recommendations	The USPSTF has made recommendations on counseling to prevent tobacco use and screening for and counseling to reduce alcohol misuse. These recommendations are available at <a href="http://www.uspreventiveservicestaskforce.org/">http://www.uspreventiveservicestaskforce.org/</a> .

NOTE: For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, go to <http://www.uspreventiveservicestaskforce.org/>.  
USPSTF = U.S. Preventive Services Task Force.

inspection and palpation) of the oral cavity performed by primary care providers and not dental providers or otolaryngologists.

**ASSESSMENT OF RISK**

Tobacco and alcohol use are major risk factors for oral cancer. A total of 20% to 30% of cases of oral cancer worldwide are attributable to cigarette smoking.<sup>1</sup> In the United States, up to 75% of cases of oral cancer may be attributable to tobacco and alcohol use.<sup>4</sup> Additional risk factors include male sex, older age, use of betel quid, ultraviolet light exposure, infection with *Candida* or bacterial flora, and a compromised immune system.<sup>1</sup>

Sexually transmitted oral HPV infection (HPV-16) has recently been recognized as an increasingly important risk factor for oropharyngeal cancer. In the United States,

the prevalence of oropharyngeal cancer due to oral HPV infection is probably as high as 80% to 95%.<sup>5</sup> The prevalence of oral HPV infection is associated with age, sex, number of sexual partners, and number of cigarettes smoked per day. The effect of multifactorial risk assessment and screening for risk factors on oral cancer morbidity and mortality is unknown.<sup>1</sup>

**SCREENING TESTS**

The primary screening test for oral cancer is a systematic clinical examination of the oral cavity. According to the World Health Organization and the National Institute of Dental and Craniofacial Research, an oral cancer screening examination should include a visual inspection of the face, neck, lips, labial mucosa, buccal mucosa, gingiva, floor of the mouth, tongue, and palate. Mouth

mirrors can help visualize all surfaces. The examination also includes palpating the regional lymph nodes, tongue, and floor of the mouth. Any abnormality that lasts for more than 2 weeks should be reevaluated and considered for biopsy.<sup>1,6</sup>

Oropharyngeal cancer is difficult to visualize and is usually located at the base of the tongue (the back third of the tongue), the soft palate (the back part of the roof of the mouth), the tonsils, and the side and back walls of the throat. A comprehensive examination of the oropharynx may require referral to a dental provider or specialist, which is outside the scope of this recommendation.

Additional tests proposed as adjuncts to the oral cancer screening examination include toluidine blue dye staining, chemiluminescent and autofluorescent lighting devices, and brush cytopathology. These screening and adjunct tests have not been adequately tested in primary care nondental settings. Although there is interest in screening for oral HPV infection, medical and dental organizations do not recommend it. Currently, no screening test for oral HPV infection has been approved by the U.S. Food and Drug Administration (FDA). Evaluating the accuracy of tests that detect oral HPV infection is a potentially promising area of research.

#### **SUGGESTIONS FOR PRACTICE REGARDING THE I STATEMENT**

This recommendation is intended for primary care providers and does not pertain to dental providers or otolaryngologists. Dental care providers and otolaryngologists may conduct a comprehensive examination of the oral cavity and pharynx during the clinical encounter. In deciding whether to screen for oral cancer, primary care providers should consider the following factors.

*Potential Preventable Burden.* Up to 75% of cases of oral cancer may be attributed to tobacco and alcohol use.<sup>4</sup> Since 1979, the incidence rate of oral cavity cancer in the United States has been decreasing because of the reduced consumption of alcohol and smoking prevalence.<sup>1</sup>

During this period, the incidence of HPV-positive oropharyngeal squamous-cell carcinoma has increased. Cancer registry data

have shown that from 1988 to 2004, HPV-negative oropharyngeal cancer has decreased from 2.0 cases to 1.0 case per 100,000 persons and HPV-positive oropharyngeal cancer has increased more than 3-fold from 0.8 case to 2.6 cases per 100,000 persons.<sup>7</sup> The overall prevalence of oral HPV infection is estimated to be 6.9% in adults aged 14 to 69 years in the United States. However, HPV prevalence can be as high as 20% for persons who have more than 20 lifetime sexual partners or currently use tobacco (more than 1 pack of cigarettes per day).<sup>8</sup>

The prevalence of type-specific HPV-16 oral infection is estimated at 1% in adults aged 14 to 69 years (an estimated 2.13 million infected persons).<sup>8</sup> Human papillomavirus-16 is associated with approximately 85% to 95% of cases of HPV-positive oropharyngeal cancer.<sup>5</sup> Therefore, the increasing role of oral HPV infection as a risk factor for oropharyngeal cancer may warrant future assessment of the independent effect of HPV-16 on incidence and outcomes of oropharyngeal cancer and the health effect of screening persons who are HPV-16-positive.

*Potential Harms.* Suspected oral cancer or its precursors (such as erythroplakia, due to its high risk for transformation to cancer) detected through examination require confirmation by tissue biopsy, which may lead to harms. Harms of treatment of screen-detected oral cancer and its potential precursors (leukoplakia and erythroplakia) may result from complications of surgery, radiotherapy, and chemotherapy. The natural history of screen-detected oral cancer is not well-understood, and as a result, the harms from overdiagnosis and overtreatment are unknown.

*Current Practice.* In a 2008 survey of U.S. adults, 29.4% of those aged 18 years or older reported ever having an oral cancer examination in which a physician, dentist, or other health professional pulled on their tongue or palpated their neck. It is unknown what percentage of these examinations were conducted by dentists rather than physicians or other health professionals. Adults aged 40 years or older are more likely to have ever had an examination than those aged 18 to 39 years, despite smoking status. Adults who are most at risk for oral cancer (current

smokers aged  $\geq 40$  years) are less likely to have ever had an oral cancer examination than former smokers or adults who have never smoked.<sup>1</sup>

**OTHER APPROACHES TO PREVENTION**

The USPSTF recommends that clinicians screen all adults for tobacco use, recommend against tobacco use, and provide tobacco cessation interventions for those who use tobacco products.<sup>9</sup> The USPSTF also recommends screening and behavioral counseling interventions in primary care settings to reduce alcohol misuse by adults.<sup>10</sup>

This recommendation statement was first published in *Ann Intern Med.* 2014;160(1):55-60.

The "Other Considerations," "Discussion," "Update of the Previous USPSTF Recommendation," and "Recommendations of Others" sections of this recommendation statement are available at <http://www.uspreventiveservicestaskforce.org/Page/Topic/recommendation-summary/oral-cancer-screening1>.

The USPSTF recommendations are independent of the U.S. government. They do not represent the views of the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Public Health Service.

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