

## 16. Screening for Oral Cancer

### RECOMMENDATION

There is insufficient evidence to recommend for or against routine screening of asymptomatic persons for oral cancer by primary care clinicians. All patients should be counseled to discontinue the use of all forms of tobacco (see Chapter 54) and to limit consumption of alcohol (see Chapter 52). Clinicians should remain alert to signs and symptoms of oral cancer and premalignancy in persons who use tobacco or regularly use alcohol.

### Burden of Suffering

The term “oral cancer” includes a diverse group of tumors arising from the oral cavity. Usually included are cancers of the lip, tongue, pharynx, and oral cavity. The annual incidence of oral cancer in the U.S. is about 11/100,000 population, with a male/female ratio greater than 2:1.<sup>1</sup> Oral cancer is responsible for 2% of all cancer deaths in the U.S., and it is projected to account for over 28,000 new cases and about 8,400 deaths in 1995.<sup>2</sup>

Fifty-three percent of oral cancers have spread to regional or distant structures at the time of diagnosis.<sup>1</sup> Overall 5-year survival is 52%, but it ranges from 79% for localized disease to 19% if distant metastases are present.<sup>1</sup> The natural history of each type of cancer can be quite different. Cancer of the lip accounts for 11% of new cases of oral cancer but only 1% of deaths. In contrast, cancer of the pharynx accounts for 31% of new cases of oral cancer but 50% of deaths.<sup>1</sup> The median age at diagnosis of oral cancers is 64 years, and 95% occur in persons over age 40. About half of all oropharyngeal cancers and the majority of deaths from this disease occur in persons over age 65.<sup>1</sup>

Use of tobacco in all forms and, to a lesser extent, alcohol abuse are the major risk factors for the development of oral cancer.<sup>3</sup> The risk of oral cancer is increased 6–28 times in current smokers,<sup>4</sup> and the effects of tobacco and alcohol account for 90% of oral cancer in the U.S.<sup>5</sup> In parts of India and Asia where chewing tobacco or betel nut is very common, the incidence of oral cancer is 3 times higher than in the U.S.<sup>5</sup> In several areas of India, oral cancer accounts for 40% of all female cancer deaths.<sup>5</sup> Other risk factors for oral cancer include occupational exposures, solar radiation (for cancer of the lip), and the presence of premalignant lesions such as leukoplakia or erythroplakia.<sup>3</sup> Depending on the degree of histologic

abnormality, up to 18% of cases of leukoplakia may develop into invasive cancers over long-term follow-up.<sup>5</sup> Patients infected with human immunodeficiency virus are at increased risk of oral cancers, most commonly Kaposi's sarcoma and non-Hodgkin's lymphoma.<sup>6</sup>

### Accuracy of Screening Tests

The principal screening test for oropharyngeal cancer in asymptomatic persons is inspection and palpation of the oral cavity. Studies indicate that many oral cancers occur on the floor of the mouth, the ventral and lateral regions of the tongue, and the soft palate, anatomic sites that may be inaccessible to routine visual inspection.<sup>7</sup> The recommended examination technique involves a careful visual examination of the oral cavity and extraoral areas using a dental mirror, retracting the tongue with a gauze pad to visualize hard-to-see areas. It also includes digital palpation with a gloved hand for masses. Complete descriptions of the recommended techniques have been published.<sup>8</sup> There is little information, however, on the sensitivity of this procedure in detecting oral cancer or on the frequency of false-positive results when a lesion is found. The abbreviated oral inspection that is more typical of the routine physical examination is also of unknown accuracy and predictive value. Studies in India and Sri Lanka have shown that nonphysician basic health care workers, given a short course on screening for oral cancer, can identify oral cancers and their precursors.<sup>9,10</sup> Mehta found a 59% sensitivity and 98% specificity for lesions appropriately referred to dentists by the basic health care workers.<sup>9</sup> No outcome data were reported in these studies, and it is unclear how these findings relate to the very different, lower prevalence population of the United States.

Some studies suggest that dentists are more effective than are physicians in routinely performing a complete mouth examination and detecting early-stage oral cancer.<sup>11</sup> Older Americans, the population at greatest risk for oral cancer, visit the dentist infrequently, however; physician visits are much more frequent in older persons.<sup>12</sup> No studies of the sensitivity and specificity of screening for oral cancer by dentists have been reported.

Alternative screening tests for oral cancer have been proposed, such as telenium chloride rinses to stain suspicious lesions,<sup>13,14</sup> but further research is needed to evaluate the accuracy and acceptability of these techniques before routine use in the general population can be considered.

### Effectiveness of Early Detection

No controlled trials of screening for oral cancer that include data on clinical outcomes have been reported. There is consistent evidence that persons with early-stage oral cancer have a better prognosis than those diagnosed with more advanced disease.<sup>1,2</sup> Because of the possible effects

of lead-time and length bias, however, these observational data are not sufficient to prove that screening and earlier detection improve the prognosis in patients with oral cancer. Some authors have questioned the effectiveness of early detection in improving prognosis.<sup>15</sup> Prospective trials of screening for oral cancer, although difficult and expensive to conduct in the general population, might be feasible in high-risk populations in which the incidence of oral cancer is substantially greater.

Several studies have examined treatment of oral leukoplakia, a form of premalignancy, as a means of preventing oral cancer. Primary treatment of oral leukoplakia and prevention of second primary lesions in patients with treated oral cancer have been studied in several randomized, placebo-controlled chemoprevention trials of high-dose isotretinoin (13-cis-retinoic acid).<sup>16–18</sup> These studies demonstrated that isotretinoin was effective in promoting remission of leukoplakia and preventing the occurrence of second primary oral cancers.<sup>17</sup> Leukoplakia relapsed in a majority of cases within 3–6 months after discontinuation of therapy, however, and the rate of toxicity of treatment was high (mild to moderate side effects in up to 79% of patients). A trial of alternate maintenance therapies after isotretinoin induction for leukoplakia suggested that low-dose isotretinoin was more effective in maintaining remissions than  $\beta$ -carotene and caused fewer side effects than high-dose therapy: 12% of participants experienced severe toxicity and 42% had moderate toxicity from low-dose isotretinoin, including dry skin, cheilitis, and conjunctivitis.<sup>18</sup>

Uncontrolled trials using  $\beta$ -carotene demonstrated variable reductions (up to 71%) in the occurrence of oral leukoplakia and mucosal dysplasia.<sup>19–21</sup> In a randomized trial, however, the majority of patients with leukoplakia progressed during  $\beta$ -carotene treatment.<sup>18</sup> Although side effects of  $\beta$ -carotene are minimal, older male smokers who took  $\beta$ -carotene for 5–8 years experienced slightly higher rates of lung cancer and overall mortality in a recently completed trial in Finland.<sup>22</sup> Research is currently in progress on alternative agents (e.g., vitamin E) and combinations of therapies.<sup>23</sup>

### Recommendations of Other Groups

The American Cancer Society recommends a cancer checkup that includes oral examination every 3 years for persons over age 20 and annually for those over age 40.<sup>24</sup> The Canadian Task Force on the Periodic Health Examination concluded that there was insufficient evidence to include or exclude screening for oral cancer in the periodic health examination of persons in the general population, but suggested that annual oral examination by a physician or dentist should be considered for persons over 60 with risk factors for oral cancer (e.g., smokers and regular drinkers).<sup>25</sup> Although the National Institutes of Health no longer issue specific clinical

guidelines regarding screening for oral cancer, both the National Cancer Institute and the National Institute of Dental Research support efforts to promote the early detection of oral cancers during routine dental examinations.<sup>8,26</sup>

### Discussion

Primary prevention strategies, such as counseling patients regarding the use of tobacco and alcohol, may have a greater impact on the morbidity and mortality associated with oral cancer than measures aimed at early detection. There is good evidence that tobacco use and excessive consumption of alcohol are both independent and synergistic risk factors for oral cancer.<sup>3</sup> Over 90% of oropharyngeal cancer deaths are associated with smoking.<sup>5</sup> In addition to smoking and alcohol, oral cancer is also associated with the use of snuff and chewing tobacco.<sup>27</sup>

Oral cancer is a relatively uncommon cancer in the United States. Even among high-risk groups such as smokers, oral cancer accounts for a relatively small proportion (<2%) of all deaths.<sup>4</sup> Available screening tests for oral cancer are limited to the physical examination of the mouth, a test of undetermined sensitivity, specificity, and positive predictive value. Despite the strong association between stage at diagnosis and survival, there are few controlled data to determine whether routine screening in the primary care setting leads to earlier diagnosis or reduced mortality from oral cancer. Given the significant morbidity and mortality associated with advanced oral cancer and its treatment, clinicians may wish to include careful examinations for oral cancer in asymptomatic persons at significantly increased risk for the disease (see Clinical Intervention); direct evidence of a benefit of screening in any group, however, is lacking. It is also appropriate to refer patients for regular visits to a dentist, for whom complete examination of the oral cavity is often more feasible (see Chapter 61).

### CLINICAL INTERVENTION

There is insufficient evidence to recommend for or against routine screening of asymptomatic persons for oral cancer by primary care clinicians ("C" recommendation). Although direct evidence of a benefit is lacking, clinicians may wish to include an examination for cancerous and precancerous lesions of the oral cavity in the periodic health examination of persons who chew or smoke tobacco (or did so previously), older persons who drink regularly, and anyone with suspicious symptoms or lesions detected through self-examination. All patients, especially those at increased risk, should be advised to receive a complete dental examination on a regular basis (see Chapter 61). All adolescent and adult patients should be asked to describe their use of tobacco (Chapter 54) and alcohol (Chapter 52).

Appropriate counseling should be offered to those persons who smoke cigarettes, pipes, or cigars, those who use chewing tobacco or snuff, and those who have evidence of alcohol abuse. Persons with increased exposure to sunlight should be advised to take protective measures when outdoors to protect their lips and skin from the harmful effects of ultraviolet rays (see Chapter 12).

The draft update of this chapter was prepared for the U.S. Preventive Services Task Force by Paul S. Frame, MD, based on materials prepared for the Canadian Task Force on the Periodic Health Examination by Carl Rosati, MD, FRCSC.

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