fect was observed. A more recent study supports the use of a one-percent TB solution as a useful adjunct for the discovery of occult carcinomas of the esophagus during panendoscopic evaluation of patients with squamous cancer of the head and neck.³

Zila Pharmaceuticals, to which one of us (Arthur Mashberg) acts as a consultant on the use of TB, has an FDA investigational new drug clearance and is conducting multicenter clinical studies based on studies by one of us (AM) of the use of toluidine blue rinse as an adjunct to clinical impressions in the diagnosis of squamous carcinoma in a high-risk population. Zila has submitted further evidence to the FDA of lack of toxicity. In experimental studies, TB was administered to male and female rats at dosage level of 0, 10, and 100 mg/kg and did not produce any mortalities or adverse effects on body weight gain, feed consumption, and hematologic or biochemical values. Histopathologic examination revealed no abnormalities or lesions. All tissue examined were within normal limits. The low dose used in the study was 100 times the expected exposure of TB as used in our regimen. The high dose of 100 mg/kg represents about 1,000 times the expected dose of .09 mg/kg.

Pending FDA approval, TB is not yet available in the United States for commercial distribution as a diagnostic. Currently, it is usually compounded as a one-percent solution, in multidose amounts, by institutional pharmacies (i.e., federal hospitals, universities, etc.) on prescription from the clinician.

References
1. Docket No. FDC-D114; NDA no. 8-683 Federal Register Doc. 68-11259. Filed Sept. 16, 1968.
2. Mashberg A: Final evaluation of toluidine chloride rinse for screening of high-risk patients with asymptomatic squamous carcinoma. J Am Dent Assoc 1983;106:319-333.
3. Hix WR, Wilson WR: Toluidine blue staining of the esophagus: A useful adjunct in the panendoscopic evaluation of patients with squamous cell carcinoma of the head and neck. Arch Otolaryngol Head Neck Surg 1987;113:864-865.

Treatment of Head and Neck Cancer

To the Editor:

In their article “Treatment of Cancer of the Head and Neck” in the November/December issue,¹ the authors include a table that states that the malignant-to-benign ratio for minor salivary gland tumors of the oral cavity is four to one. This ratio only holds true for specific anatomic sites (tongue, floor of mouth, and retro-molar region) whereas the vast majority of intraoral tumors occur in the palate and the upper lip. Several large reviews totaling over 4,000 tumors of minor salivary gland origin have concluded that the oral malignant-to-benign ratio is less than one to one.²⁻⁴

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References
1. Shah JP, Lydiatt W: Treatment of cancer of the head and neck. CA Cancer J Clin 1995;45:352-368.
2. Ellis GL, Auclair PL, Gnepp DR: Surgical Pathology of the Salivary Glands. Philadelphia, WB Saunders, 1991.
3. Eveson JW, Cawson RA: Tumours of the minor (oropharyngeal) salivary glands: A demographic study of 336 cases. J Oral Pathol 1985;14:500-509.
4. Waldron CA, el-Mofty SK, Gnepp DR: Tumors of the intraoral minor salivary glands: A demographic and histologic study of 426 cases. Oral Surg Oral Med Oral Pathol 1988;66:323-333.
Authors’ Reply:
We have read the letter of Dr. Tilashalski commenting on our article with particular reference to the incidence of malignant versus benign tumors in minor salivary glands. Dr. Tilashalski is right in pointing out that the incidence of malignant tumors of minor salivary gland origin in the “oral cavity” is low, particularly in the setting of a dental practice or oral surgical practice in a dental school. The references he has cited all originate from reports in the literature from dental/oral surgical departments of major institutions.

Our paper, however, reports the treatment of cancer of the head and neck. Within this broad category, we have included not only tumors of the oral cavity but minor salivary gland tumors that arise in the nasal cavity, paranasal sinuses, pharynx, and larynx. Clearly the incidence of malignant tumors of minor salivary origin in paranasal sinuses and pharynx is much higher than in the oral cavity. It is indeed exceedingly rare to see a benign tumor of minor salivary origin in the nasal cavity, paranasal sinuses, or the pharynx.

In addition to the above, the pattern of referrals of patients to an institution or an individual will reflect in the incidence of benign versus malignant distribution in minor salivary gland tumors. Reports from dental schools of dental surgery and oral surgery practices will clearly reflect an incidence heavily biased toward benign tumors because most small and benign lesions are likely to be reported to and treated by dental and oral surgical specialists. On the other hand, reports from major cancer centers and head and neck tumor services will reflect a higher incidence of malignant tumors of minor salivary origin, not only in the entire head and neck area but also in the oral cavity. In a report from Memorial Sloan-Kettering Cancer Center by Spiro et al., an incidence of 82 percent of malignant tumor of minor salivary gland origin was reported in a group of 459 patients. In that series, even in the palate and lip, the distribution between malignant and benign tumors was two to one. Luna et al. in a report from the M.D. Anderson Cancer Center found 75 percent of 68 patients having malignant tumors of minor salivary gland origin in the oral cavity.

Therefore, the reported incidence in the literature between benign and malignant tumors of minor salivary gland origin in the head and neck region remains variable, depending on the authors and their specialties as well as the institutions—whether they are from a dental school, general surgical or otolaryngologic department, or a tertiary care cancer center.

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References
1. Chaudhry AP, Labay GR, Yamane GM, et al: Clinico-pathologic and histogenetic study of 189 intraoral minor salivary gland tumors. J Oral Med 1984;39:58-78.
2. Spiro RH, Thaler HT, Hicks WF, et al: The importance of clinical staging of minor salivary gland carcinoma. Am J Surg 1991;162:330-336.
3. Luna MA, Stimson PG, Bardwil JM: Minor salivary gland tumors of the oral cavity: A review of 68 cases. Oral Surg Oral Med Oral Pathol 1968; 25:71-86.