

INTRODUCTION

Positive margins are an unfortunate but not uncommon outcome in oral cavity squamous cell carcinoma (OCSCC) with rates varying from 2.7% to 15% reported in the literature[1-3]. NCCN guidelines recommend re-resection, radiation, or radiation with systemic therapy as possible options in the event of a positive margin, however radiation and systemic therapy are associated with severe toxicity making counseling and treatment decisions difficult [4].

Single institution studies have demonstrated that positive surgical margins negatively impact survival, however there is a paucity of large-scale studies [1, 3, 3, 5-7]. While many studies have shown that positive margins negatively impact survival [1, 2, 6], other studies have suggested that positive margins may have limited impact [7, 8-9] or that radiation can limit the impact of positive margins [2, 7].

AIM

- Measure the effect of positive margins on survival
- Evaluate the relationship of co-factors, such as radiation, with survival following a positive margin.

METHODS

- Patients with cT1T2N0 OCSCC between 2004-2014 and treated with primary surgical resection in the NCDB were included.
- Patients with pathologic nodes, adjuvant chemotherapy or unknown margin or radiation data were excluded.
- The included patients were separated into eight cohorts for analysis based on margin status (positive/negative), history of neck dissection (ND) for treatment, and treatment with adjuvant

RESULTS

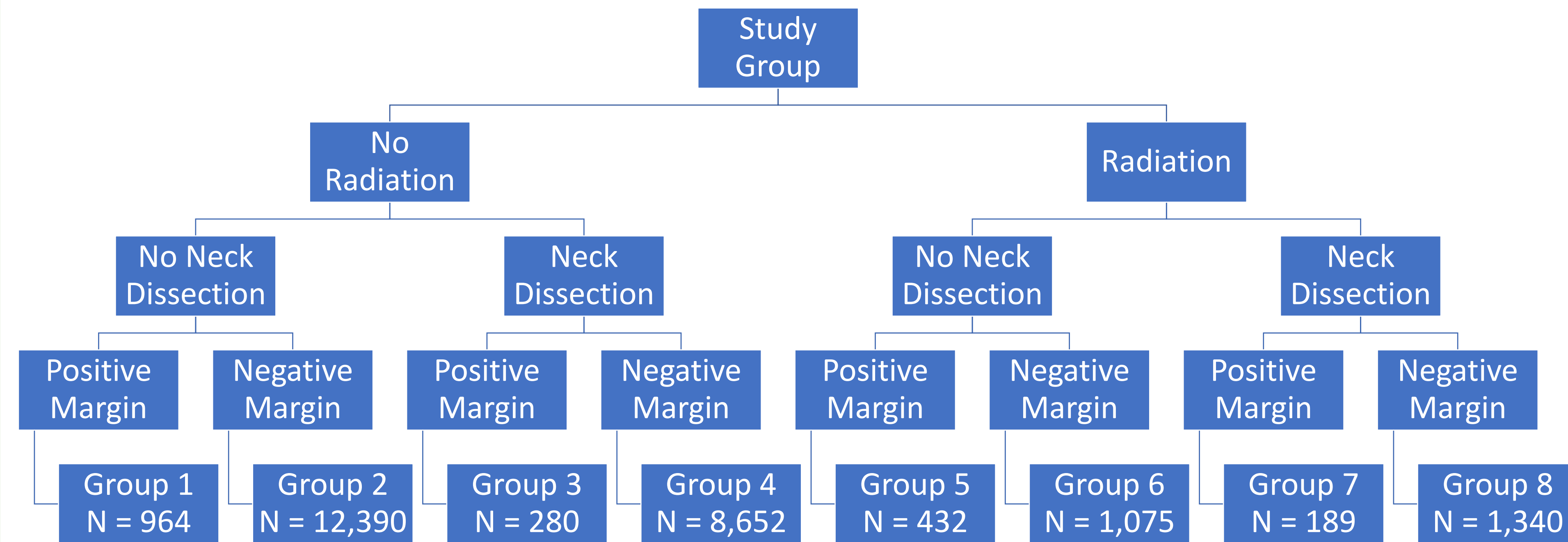


FIGURE 1 Visualization of patient cohorts. Each cohort was created by dividing the total study group (N = 25,322) into one of eight cohorts based on history of neck dissection, adjuvant radiation, and margin status. A total of 25,322 patients were included in the study, with 1,865 reporting positive margins (7.3%) and 3,036 (12.0%) of patients receiving adjuvant RT. The average age of all patients in the study was 63.2 years of age, and 54.4% were male. 68.8% of patients had a T1 tumor and 4.7% had high comorbidity burden.

Impact of Positive Margin on Survival

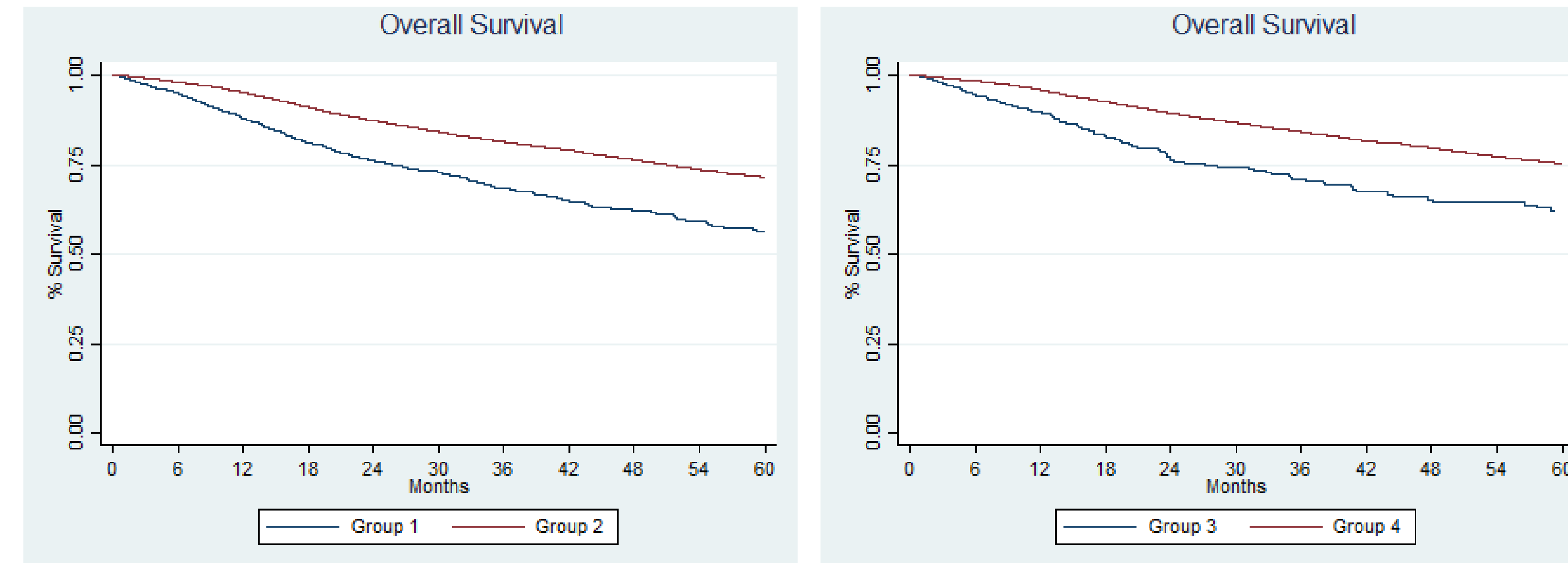
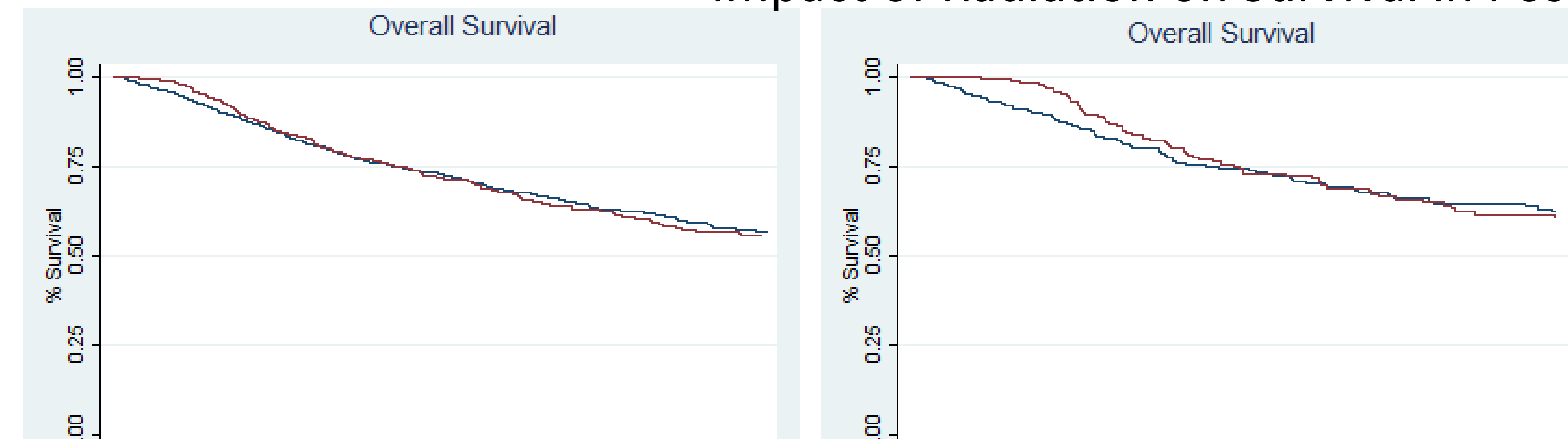


FIGURE 2 Kaplan-Meier survival curves to compare the impact of positive margin on survival. Groups 1 and 2 were treated with primary surgery of the local site without neck dissection. Groups 3 and 4 were treated with primary surgery of the local site with neck dissection. Groups 1 and 3 reported positive margins. Overall survival was statistically significant within each comparison (HR=1.63, p<0.001; HR=1.76, p<0.001).

	Groups 1 + 2		Groups 3 + 4	
	Hazard Ratio	p	Hazard Ratio	p
Age	2.85 (2.65-3.05)	<0.001	2.21 (2.02-2.42)	<0.001
Sex			0.85 (0.78-0.94)	<0.001
T stage	1.63 (1.51-1.75)	<0.001	1.44 (1.32-1.56)	<0.001
High CDS	1.82 (1.61-2.07)	<0.001	1.53 (1.30-1.81)	<0.001
Positive Margin	1.45 (1.31-1.61)	<0.001	1.62 (1.33-1.99)	<0.001

TABLE 1 Groups 1+2 and groups 3+4 were combined into a single cohort for multivariate analysis, displayed above. Sex was not included in groups 1+2 due to insignificance on univariate analysis. Positive margin remained correlative with survival in both combined cohort models. CDS = Charlson-Deyo Score

Impact of Radiation on Survival in Positive Margin Patients



	Groups 1 + 5		Groups 3 + 7	
	Hazard Ratio	P	Hazard Ratio	P
Age	2.84 (2.37-3.42)	<0.00	1.56 (1.16-2.09)	0.003
Sex	1.05 (0.90-1.24)	0.500	1.07 (0.79-1.45)	0.638
T stage	1.62 (1.38-1.90)	<0.00	1.24 (0.91-1.67)	0.170

FINDINGS

- Positive margins convey a HR of 1.45-1.62 on multivariate analysis.
- Age, Tstage, and comorbidities correlate with survival on multivariate analysis
- Adjuvant RT does not show a significant improvement in survival in patients with a positive margin.
- Adjuvant RT does not correlate with survival on univariate analysis..

CONCLUSION

- Positive margins result in a 11-15% reduction in 2- and 5-year survival.
- Surgical re-resection of a positive margin or adjuvant chemoradiotherapy should be considered when feasible.

REFERENCES

1. Binahmed, A., R.W. Nason, and A.A. Abdoh, *The clinical significance of the positive surgical margin in oral cancer*. Oral Oncol, 2007. **43**(8): p. 780-4.
2. Fridman, E., et al., *The role of adjuvant treatment in early-stage oral cavity squamous cell carcinoma: An international collaborative study*. Cancer, 2018. **124**(14): p. 2948-2955.
3. Buchakjian, M.R., et al., *Association of Main Specimen and Tumor Bed Margin Status With Local Recurrence and Survival in Oral Cancer Surgery*. JAMA Otolaryngol Head Neck Surg, 2016. **142**(12): p. 1191-1198.
3. Colevas, A.D., et al., *NCCN Guidelines Insights: Head and Neck Cancers, Version 1.2018*. J Natl Compr Canc Netw, 2018. **16**(5): p. 479-490.
4. Loree, T.R. and E.W. Strong, *Significance of positive margins in oral cavity squamous carcinoma*. Am J Surg, 1990. **160**(4): p. 410-4.
5. Buchakjian, M.R., et al., *Independent Predictors of Prognosis Based on Oral Cavity Squamous Cell Carcinoma Surgical Margins*. Otolaryngol Head Neck Surg, 2018. **159**(4): p. 675-682.
6. Zelefsky, M.J., et al., *Postoperative radiation therapy for squamous cell carcinomas of the oral cavity and oropharynx: Impact of therapy on patients with positive surgical margins*. International Journal of Radiation Oncology*Biophysics, 1993. **25**(1): p. 17-21.
7. Kademani, D., et al., *Prognostic factors in intraoral squamous cell carcinoma: the influence of histologic grade*. J Oral Maxillofac Surg, 2005. **63**(11): p. 1599-605.
8. McMahon, J., et al., *Influence of condition of surgical margins on local recurrence and disease-specific survival in oral and oropharyngeal cancer*. British Journal of Oral and Maxillofacial Surgery, 2003. **41**(4): p. 224-231.