

# Oral Cavity Cancer

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**Oral Cavity**

**Nasopharynx**

**Oropharynx**

**Larynx**

**Hypopharynx**



# Oral Cavity Cancer

## 1. Key Clinical Features

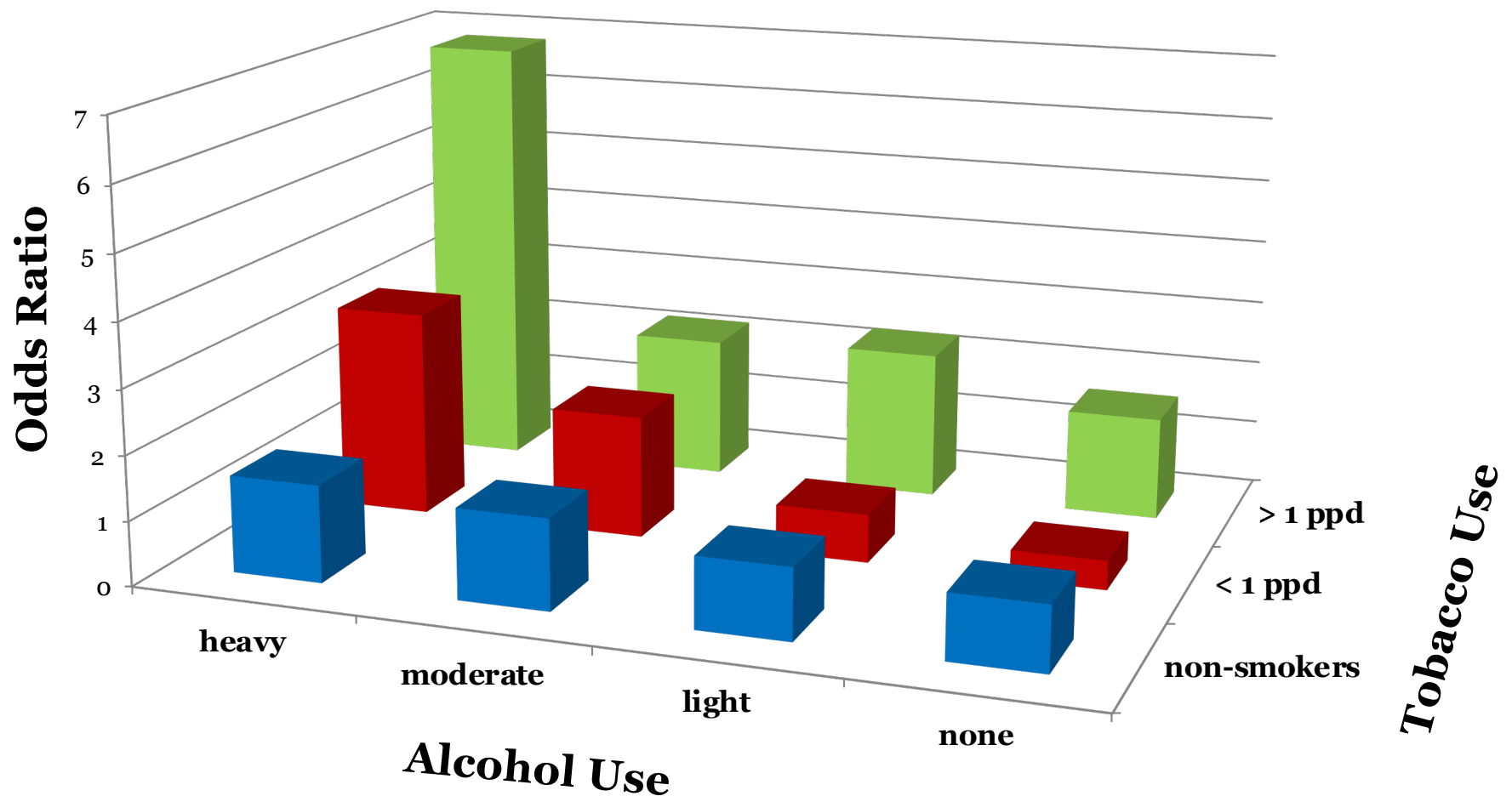
- Risk factors
- Pre-cancerous lesions
- Stage

## 2. Treatment

- Surgery
- Adjuvant therapy

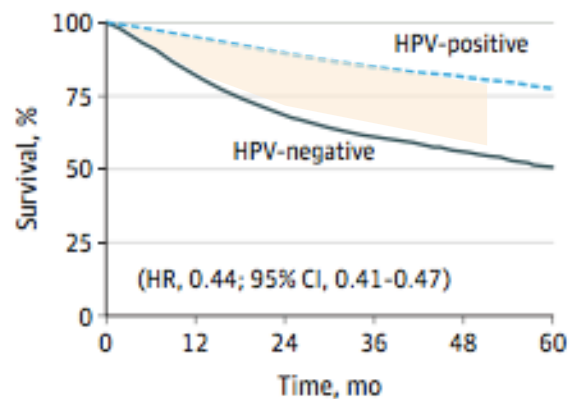
## 3. Surgical quality?

# Carcinogenic Synergism: Tobacco & Alcohol



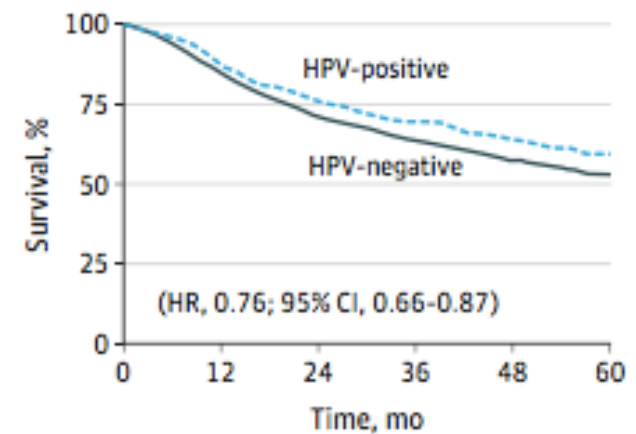
# Prognostic significance of HPV status in Oral Cavity

**A** Oropharynx



No. at risk						
HPV-negative	6041	4615	3040	1642	726	151
HPV-positive	9609	8464	6045	3230	1375	289

**C** Oral cavity

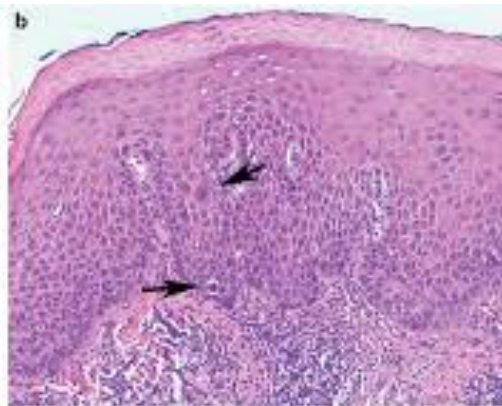


No. at risk						
HPV-negative	6040	4723	3035	1597	645	132
HPV-positive	839	696	426	212	92	13

Unadjusted hazard ratios (HRs) for HPV status and its association with overall survival are shown for each subsite. HPV-positive status is compared with baseline HPV status.

# Other Etiologies

- Chewing tobacco
- Poor dental hygiene
- Betel/araca nut, Paan
- Lichen planus/lichenoid dysplasia





# Oncogenic Progression / Pre-Cancerous Lesions

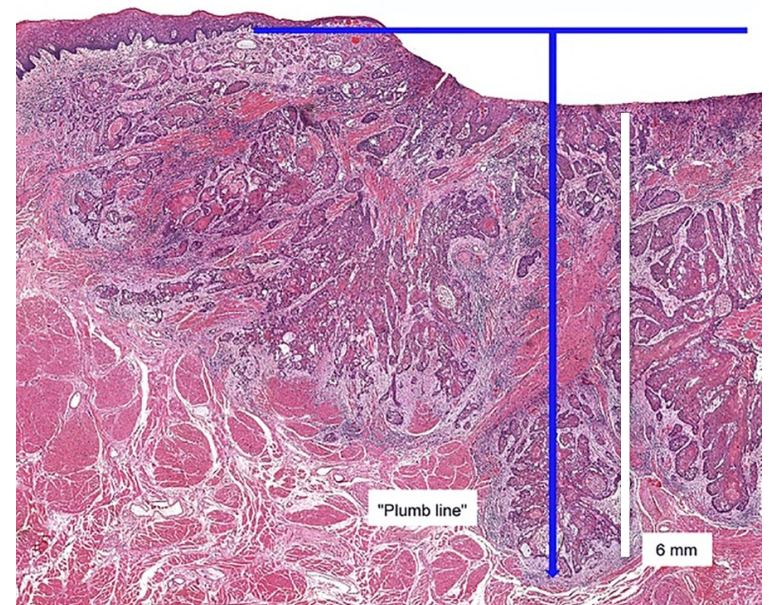
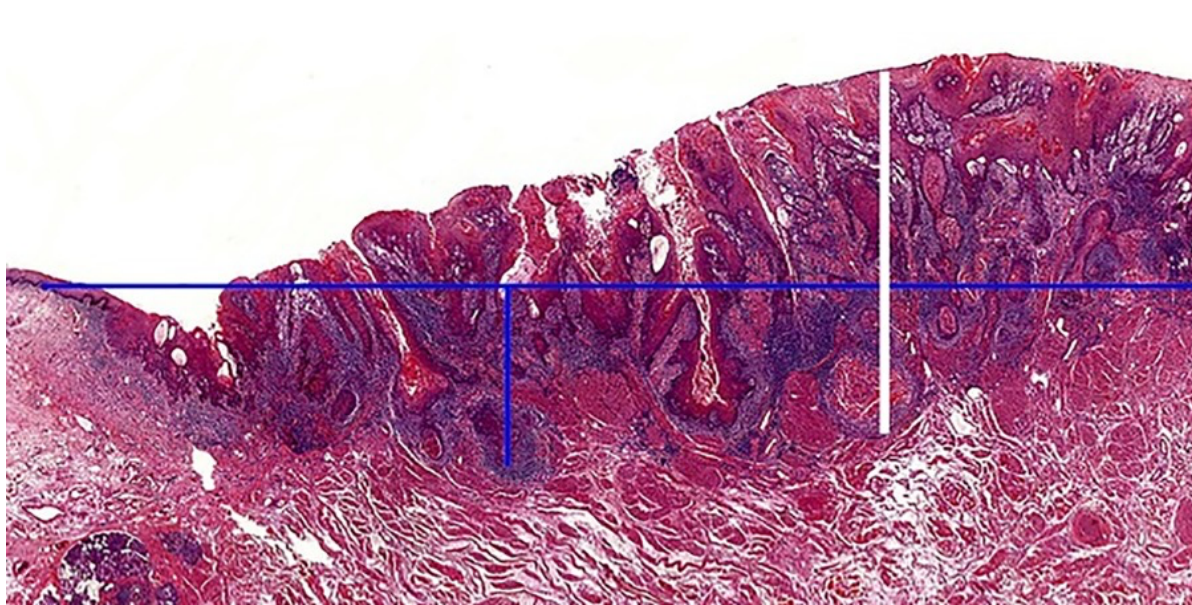


# AJCC 8<sup>th</sup> Edition

TX	Primary tumor cannot be assessed
Tis	Carcinoma in situ
T1	Tumor $\leq 2$ cm, $\leq 5$ mm depth of invasion (DOI)
T2	Tumor $\leq 2$ cm, DOI $> 5$ mm and $\leq 10$ mm or tumor $> 2$ cm but $\leq 4$ cm, and $\leq 10$ mm DOI
T3	Tumor $> 4$ cm or any tumor $> 10$ mm DOI
T4a	tumor invades adjacent structures only (eg, through cortical bone of the mandible or maxilla, or involves the maxillary sinus or skin of the face); note that superficial erosion of bone/tooth socket (alone) by a gingival primary is not sufficient to classify a tumor as T4
T4b	Very advanced local disease; tumor invades masticator space, pterygoid plates, or skull base and/or encases the internal carotid artery



# Depth of Invasion (Not tumor thickness)



# AJCC 8<sup>th</sup> Edition Nodal Staging

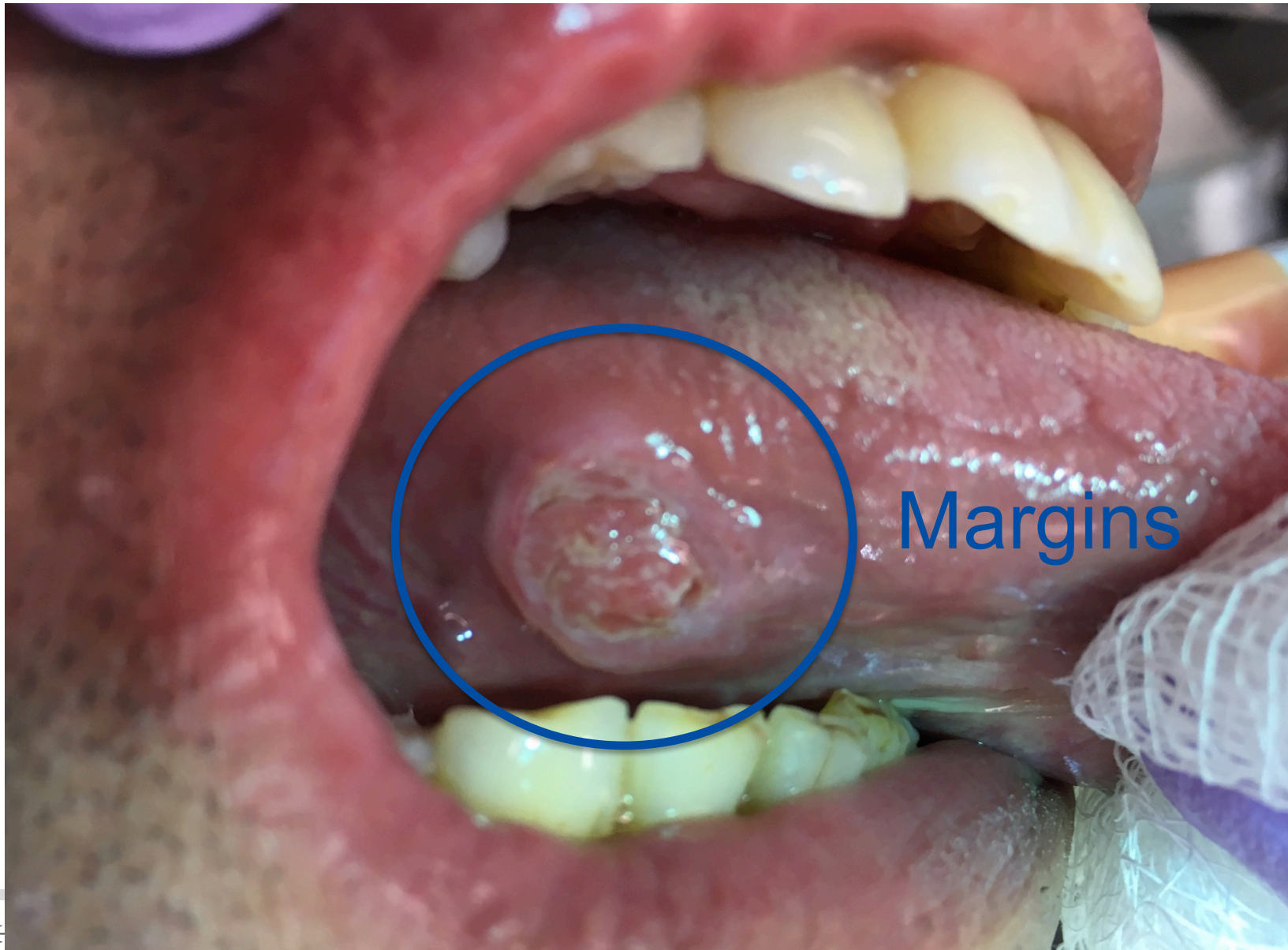
NX	Regional lymph nodes cannot be assessed
No	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension and <b>ENE-negative</b>
N2a	Metastasis in a single ipsilateral or contralateral lymph node 3 cm or less in greatest dimension and <b>ENE-positive</b> ; <i>or</i> metastasis in a single ipsilateral lymph node more than 3 cm but not more than 6 cm in greatest dimension and <b>ENE-negative</b>
N2b	Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension and <b>ENE-negative</b>
N2c	Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension and <b>ENE-negative</b>
N3a	Metastasis in a lymph node more than 6 cm in greatest dimension and <b>ENE-negative</b>
N3b	Metastasis in a single ipsilateral node more than 3 cm in greatest dimension and <b>ENE-positive</b> ; <i>or</i> metastasis in multiple ipsilateral, contralateral, or bilateral lymph nodes, with any <b>ENE-positive</b>



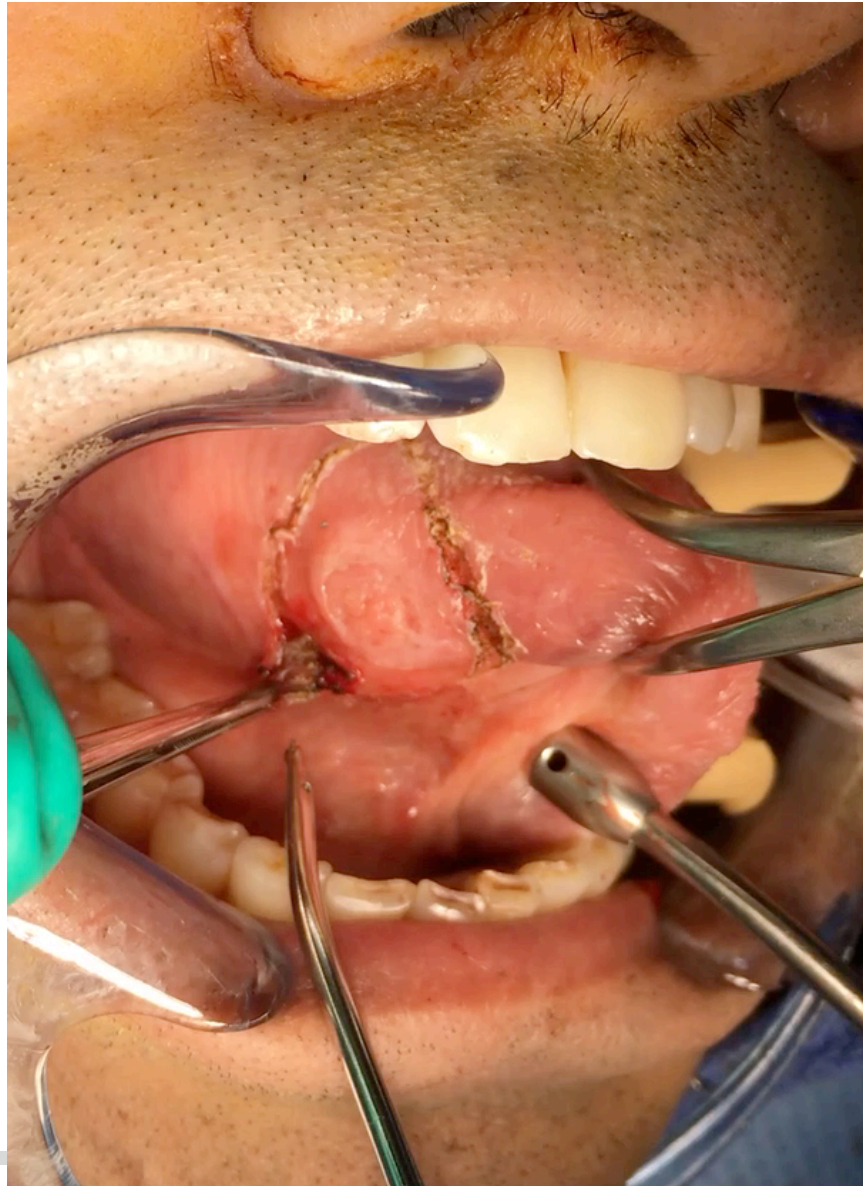
# Staging

Cancer Stage	T Category	N Category	M Category
0	Tis	No	Mo
I	T1	No	Mo
II	T2	No	Mo
III	T1, T2 T3	N1 No, N1	Mo Mo
IVA	T1, T2, T3 T4a	N2 No, N1, N2	Mo Mo
IVB	Any T4b	N3 Any	Mo Mo
IVC	Any	Any	M1

# Primary Tumor Surgery

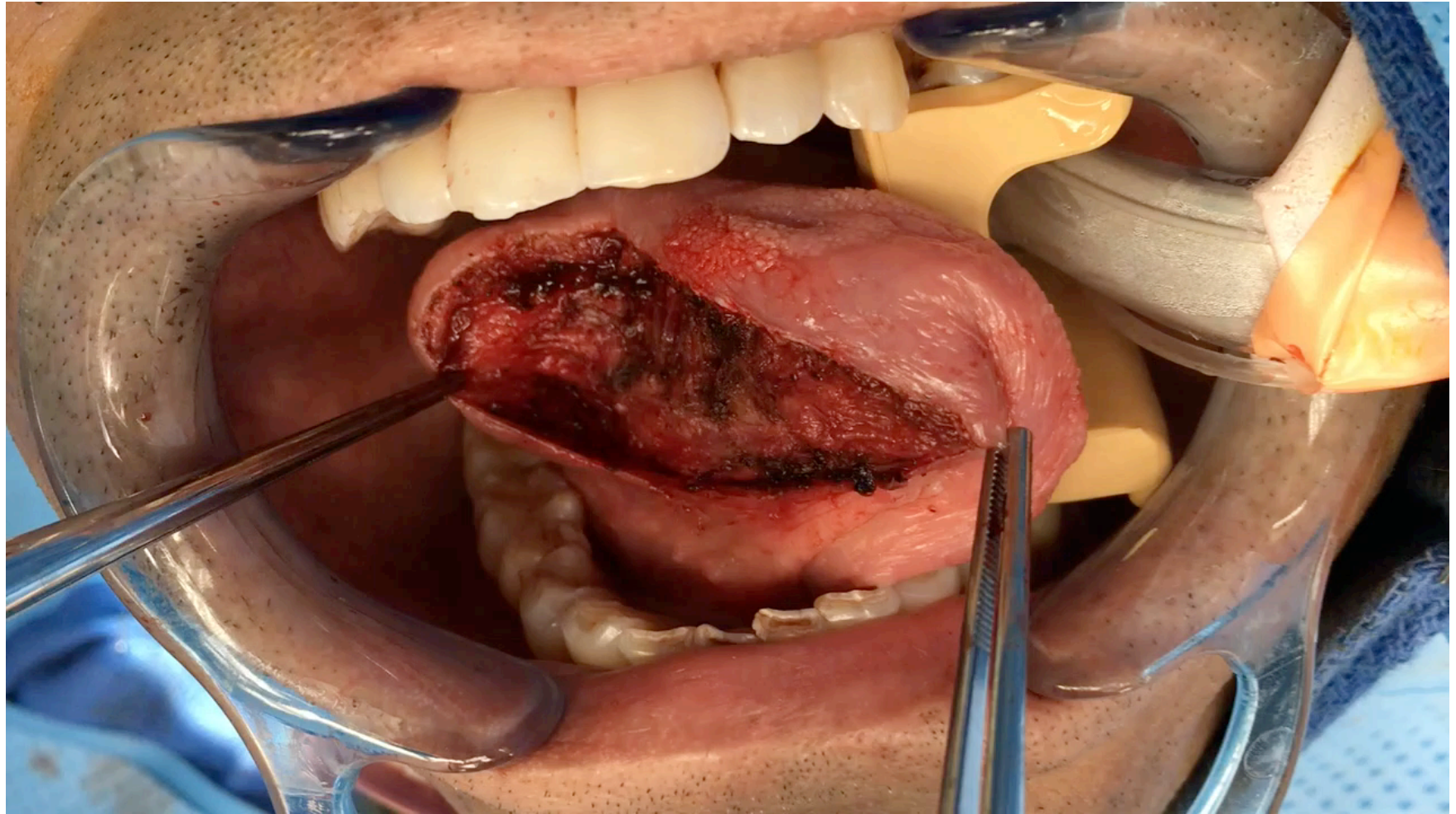


# Tumor





# Tumor



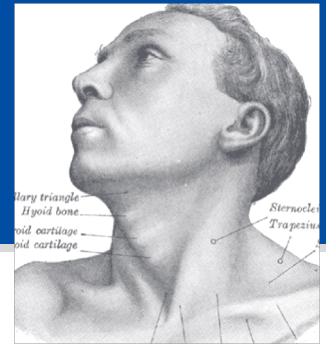


# Margins



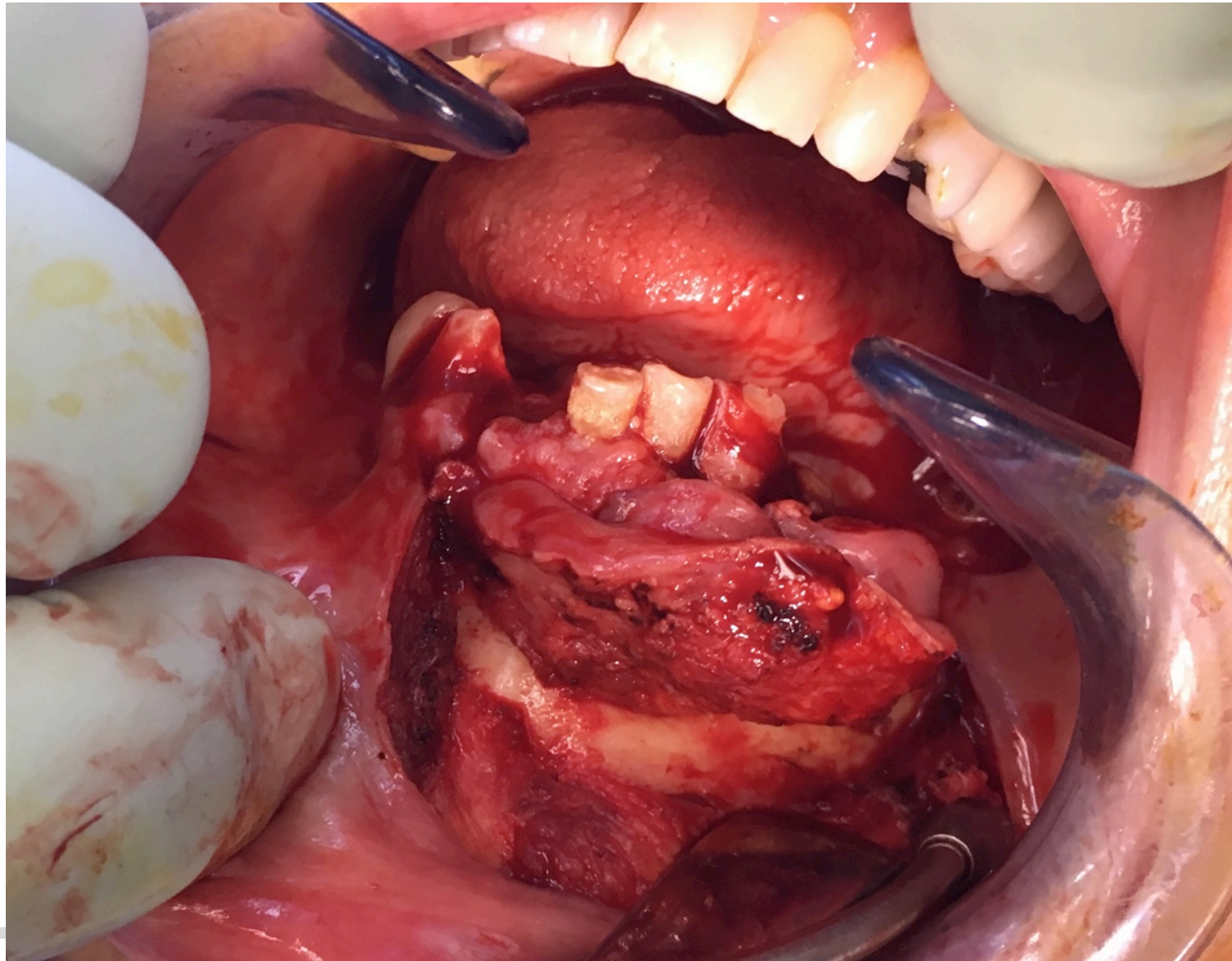
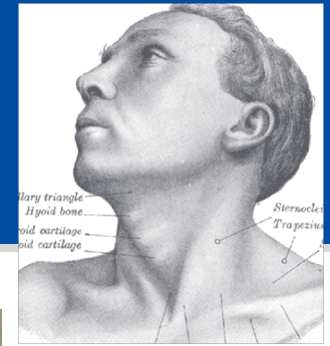


# Alveolar Ridge

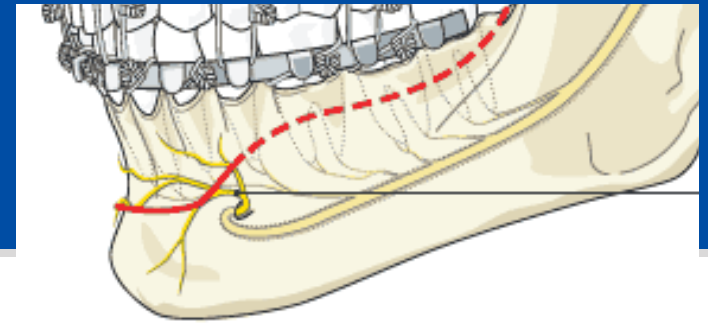




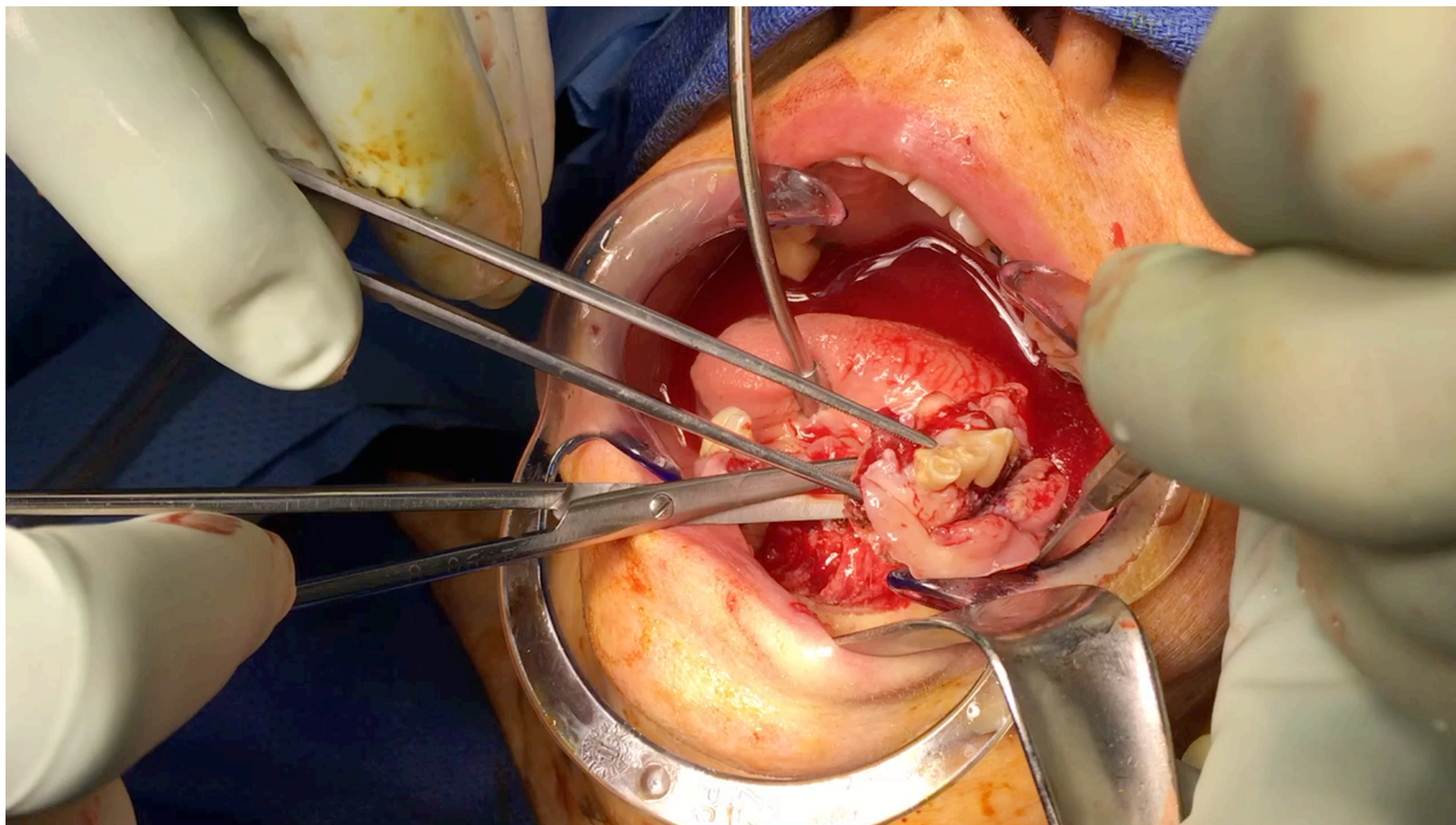
# Alveolar Ridge



# Tooth Roots/Mental Nerve

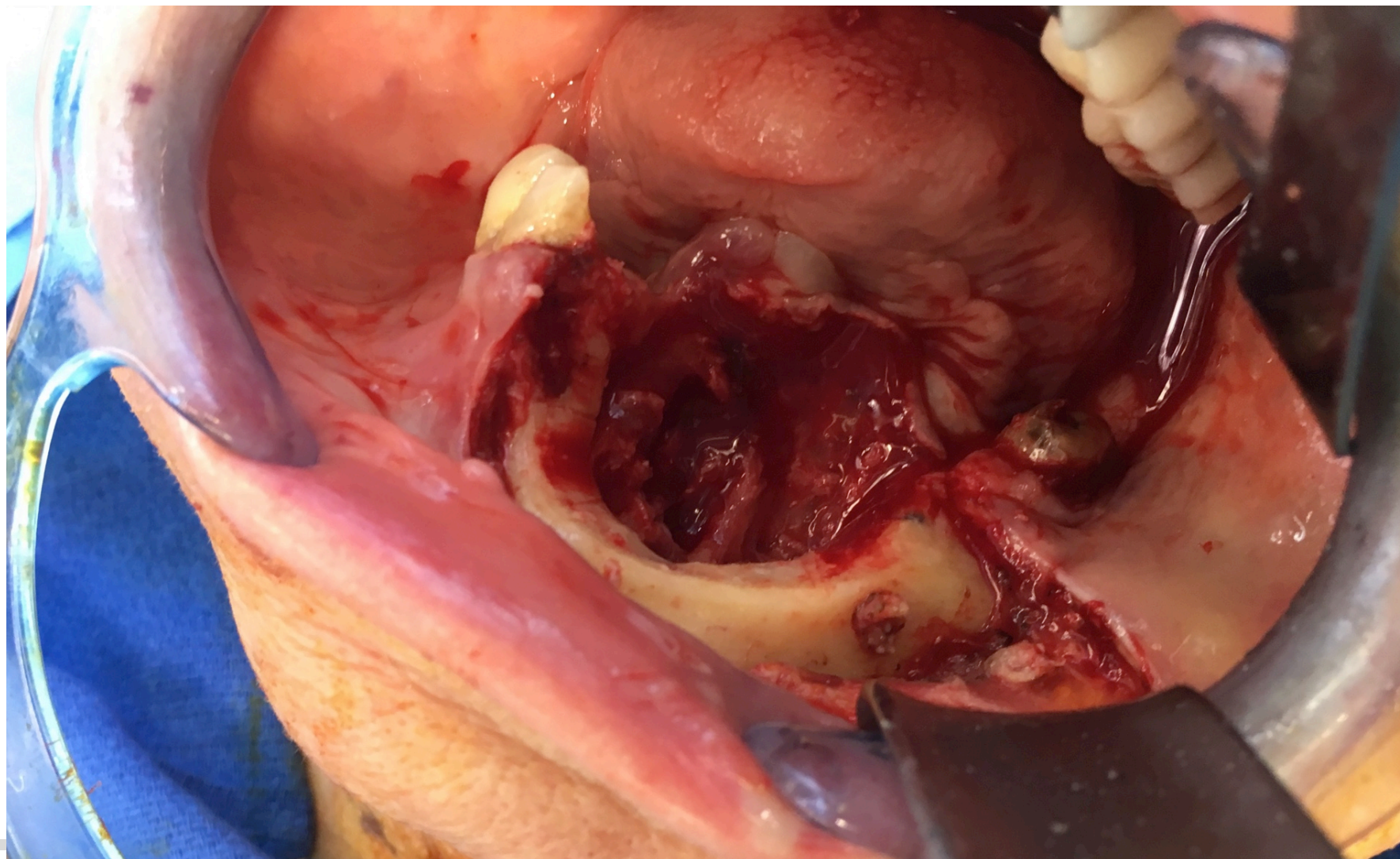
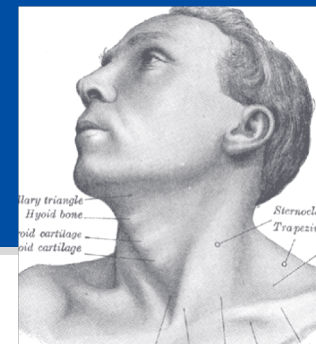








# Rounded Osteotomy



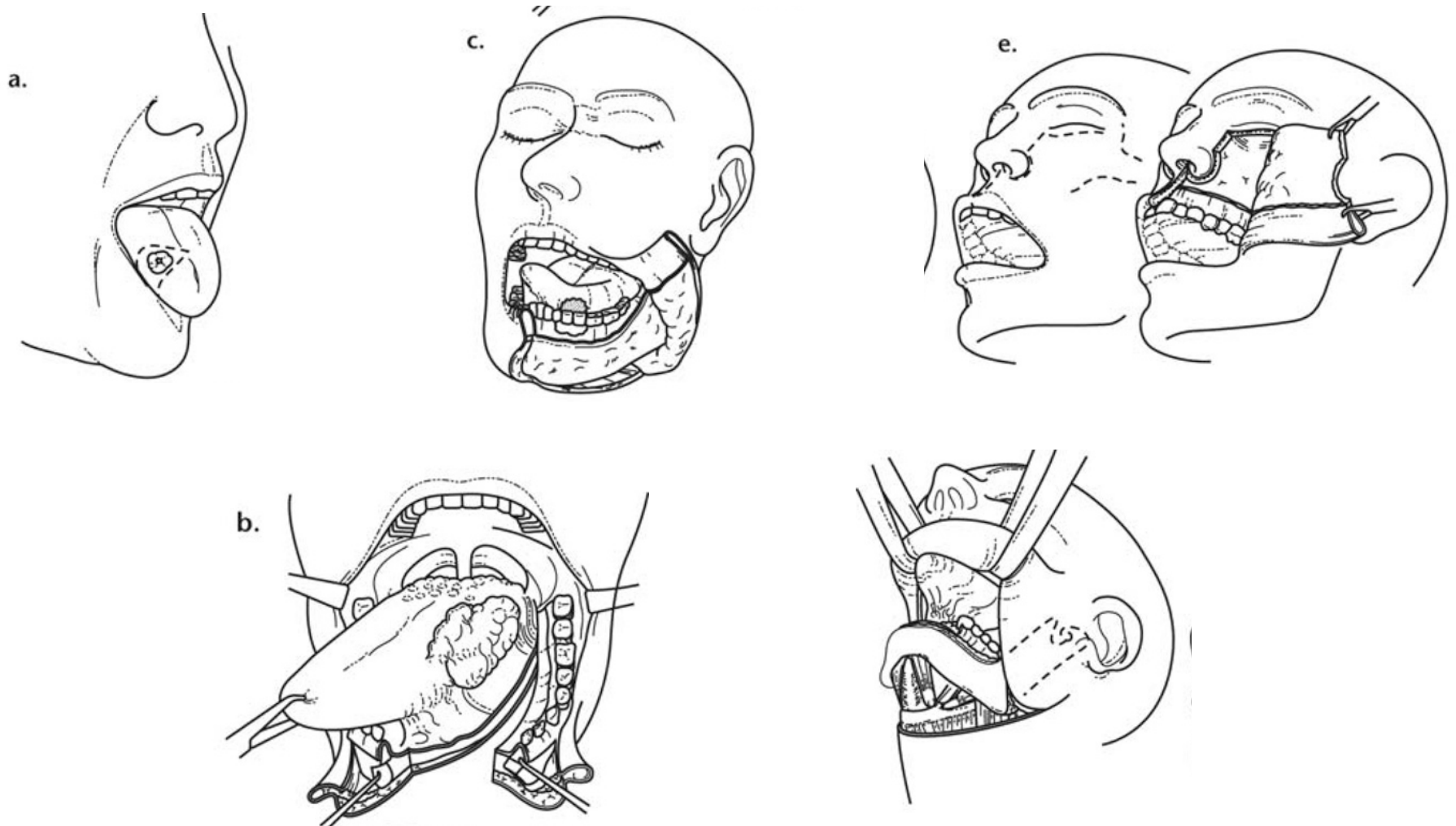




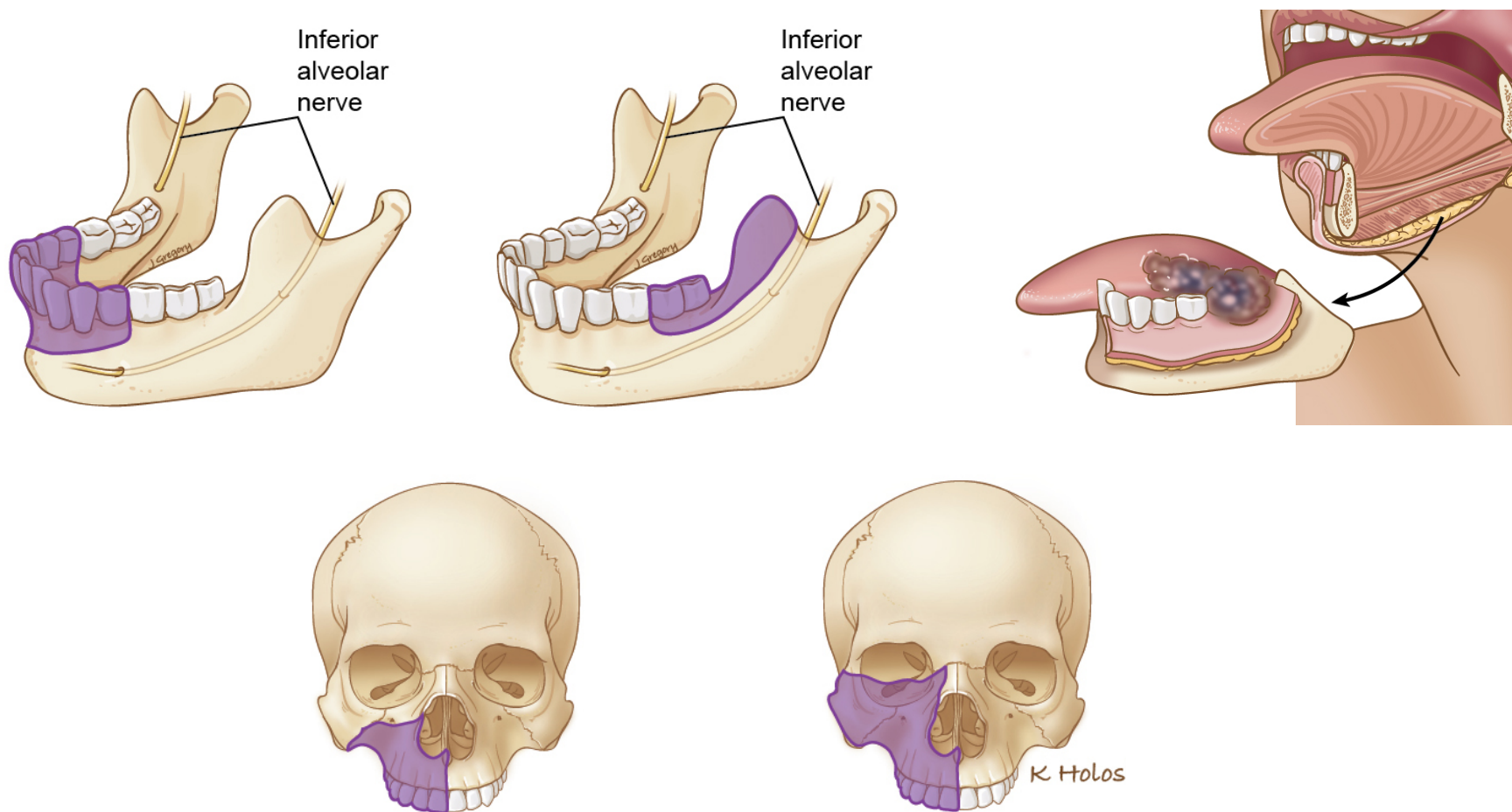




# Ladder of Exposure



# Ladder of Resection



# Margins as a surgical quality measure

Positive margins rates vary by:

- Specific hospital
- Case volume

Table 4. Comparison of Treatment Factors Between Academic or Research Programs and Nonacademic Programs

Variable	%		P Value
	Academic or Research Programs	Nonacademic Programs	
Neck dissection	59.2	40.1	<.001
Radiation therapy	15.7	20.7	<.001
Chemotherapy	2.9	2.7	.73
Positive tumor margins	5.5	8.6	<.001
Facility case volume >10 per year	94.8	50.1	<.001
Insurance			<.001
Private	48.6	45.9	
None	5.7	3.8	
Medicaid	6.5	4.5	
Medicare	38.3	45.1	
Other government	0.9	0.8	



# Margins in Early Stage Oral Cancer are Associated with Survival

**Table 3. Multivariable Analysis of the Association of Treatment Factors With Overall Survival**

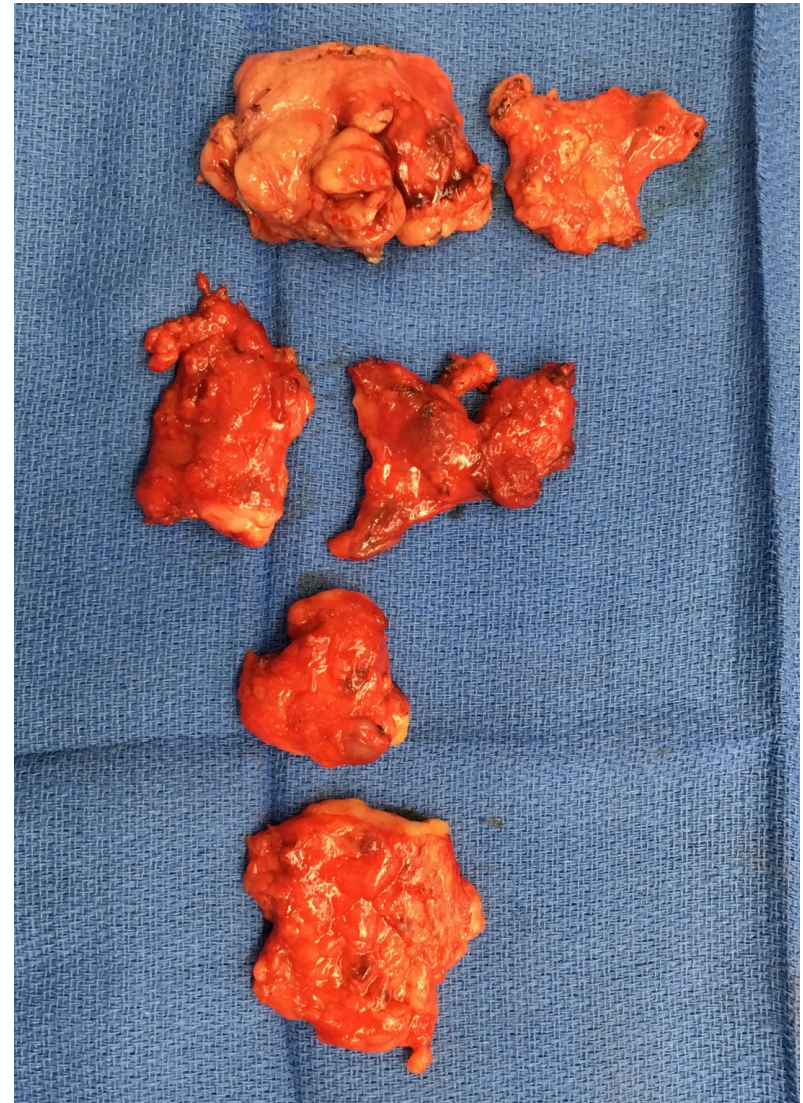
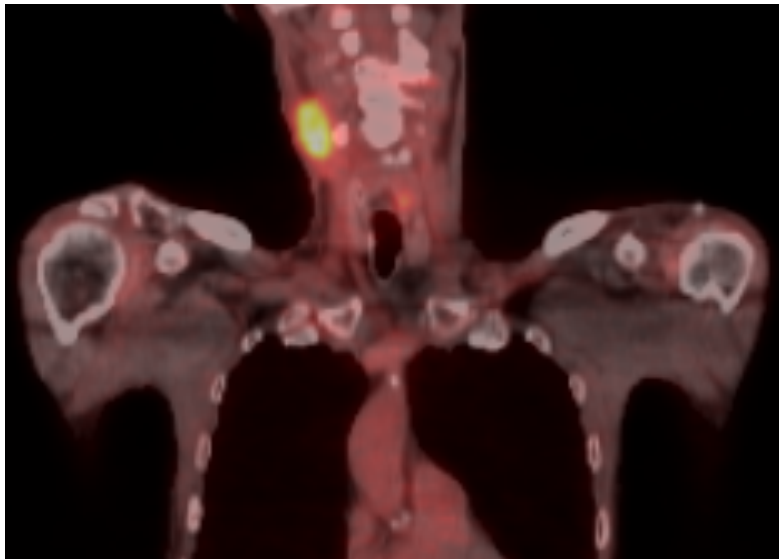
Variable	Hazard Ratio (95% CI)	P Value
Neck dissection		.003
No	1 [Reference]	
Yes	0.85 (0.76-0.94)	
Radiation therapy		<.001
No	1 [Reference]	
Yes	1.31 (1.16-1.49)	
Chemotherapy		.03
No	1 [Reference]	
Yes	1.34 (1.03-1.75)	
Facility type		.03
Academic or research program	1 [Reference]	
Nonacademic program	1.13 (1.01-1.26)	
Insurance		<.001
Private	1 [Reference]	
None	1.18 (0.88-1.58)	
Medicaid	1.96 (1.60-2.39)	
Medicare	1.45 (1.25-1.69)	
Other government	1.42 (0.83-2.42)	
Tumor margins		.005
Negative	1 [Reference]	
Positive	1.27 (1.08-1.49)	



# Take Aways: Margins

- Margin status in early oral cancers vary independent of patient and disease factors
- High volume centers have fewer positive margins
- Negative margins are independently associated with survival

# Management of the Neck

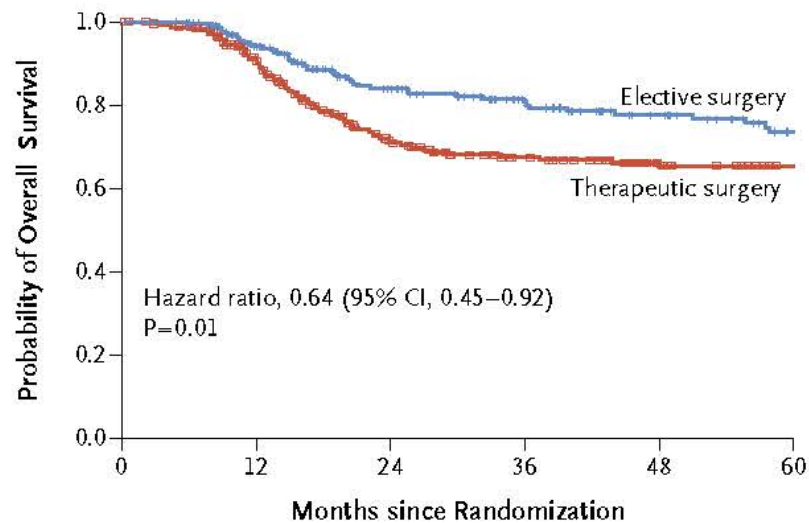


## ORIGINAL ARTICLE

# Elective versus Therapeutic Neck Dissection in Node-Negative Oral Cancer

Anil K. D'Cruz, M.S., D.N.B., Richa Vaish, M.S., Neeti Kapre, M.S., D.N.B.,  
 Mitali Dandekar, M.S., D.N.B., Sudeep Gupta, M.D., D.M.,  
 Rohini Hawaldar, B.Sc., D.C.M., Jai Prakash Agarwal, M.D.,  
 Gouri Pantvaidya, M.S., D.N.B., Devendra Chaukar, M.S., D.N.B.,  
 Anuja Deshmukh, M.S., D.L.O., D.O.R.L., Shubhada Kane, M.D.,  
 Supreet Arya, M.D., D.N.B., D.M.R.D., Sarbani Ghosh-Laskar, M.D., D.N.B.,  
 Pankaj Chaturvedi, M.S., F.A.I.S., Prathamesh Pai, M.S., D.N.B., D.O.R.L.,  
 Sudhir Nair, M.S., M.Ch., Deepa Nair, M.S., D.N.B., D.O.R.L.,  
 and Rajendra Badwe, M.S., for the Head and Neck Disease Management Group

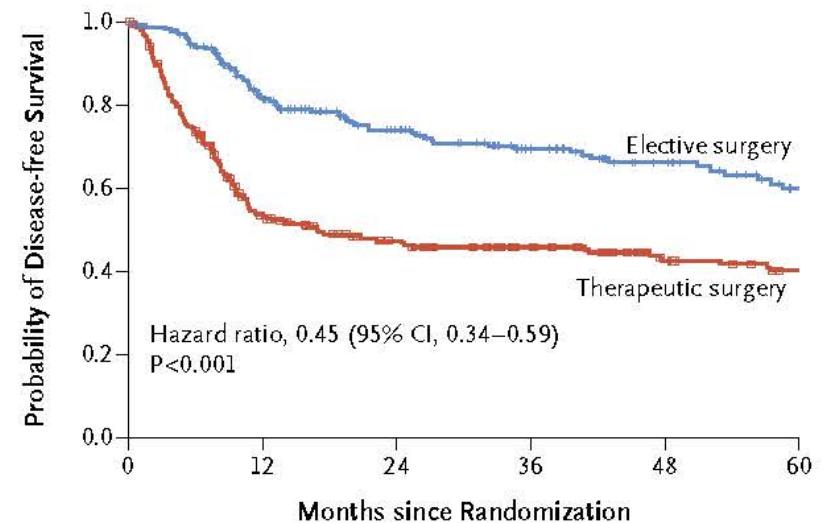
## A Overall Survival



### No. at Risk

Elective surgery	243	195	143	110	86	67
Therapeutic surgery	253	197	129	105	86	74

## B Disease-free Survival

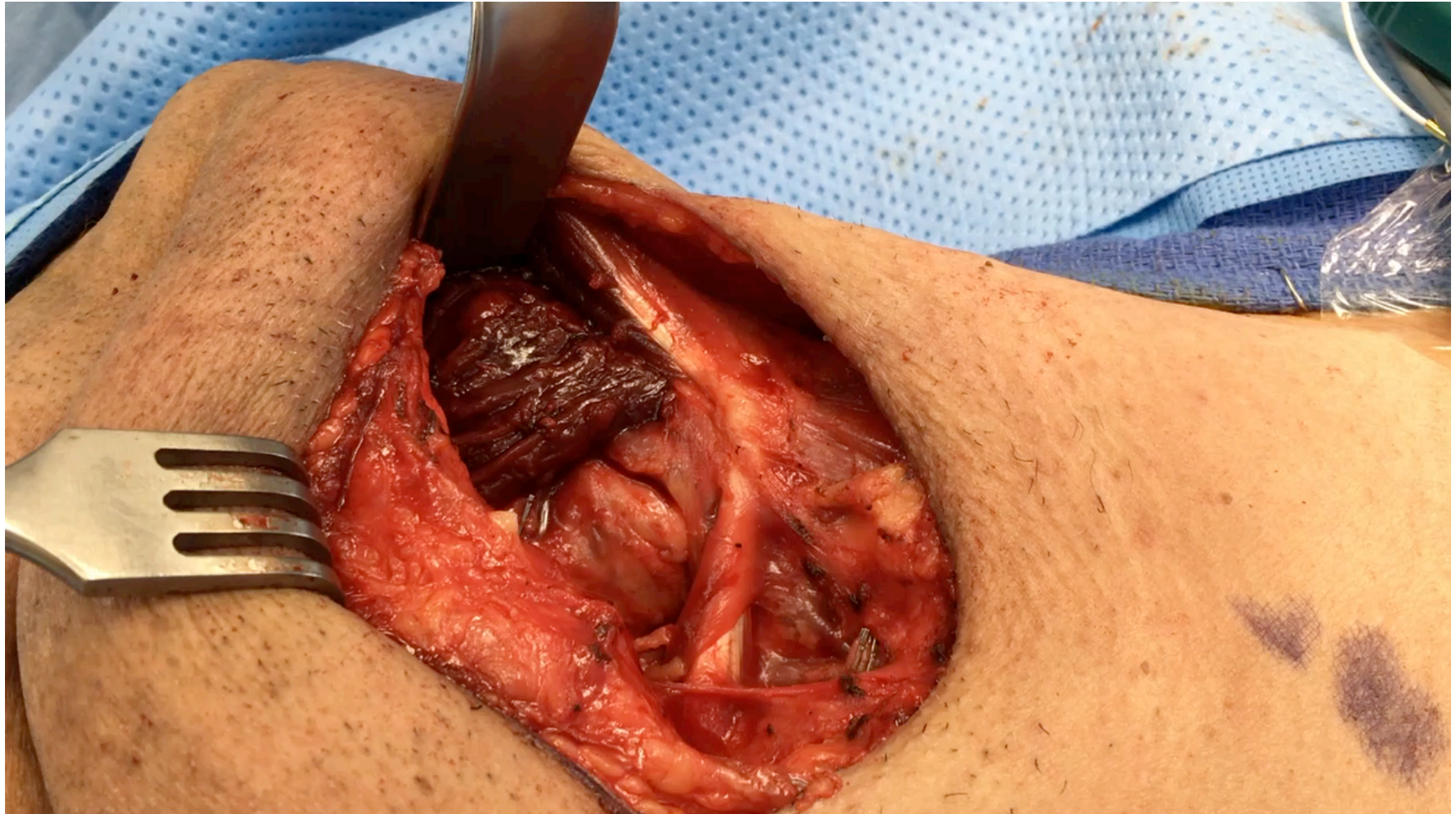
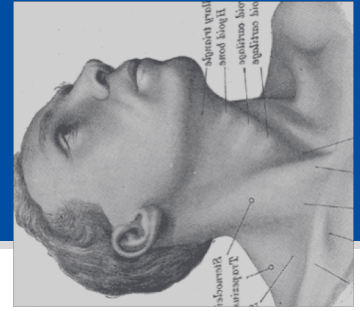


### No. at Risk

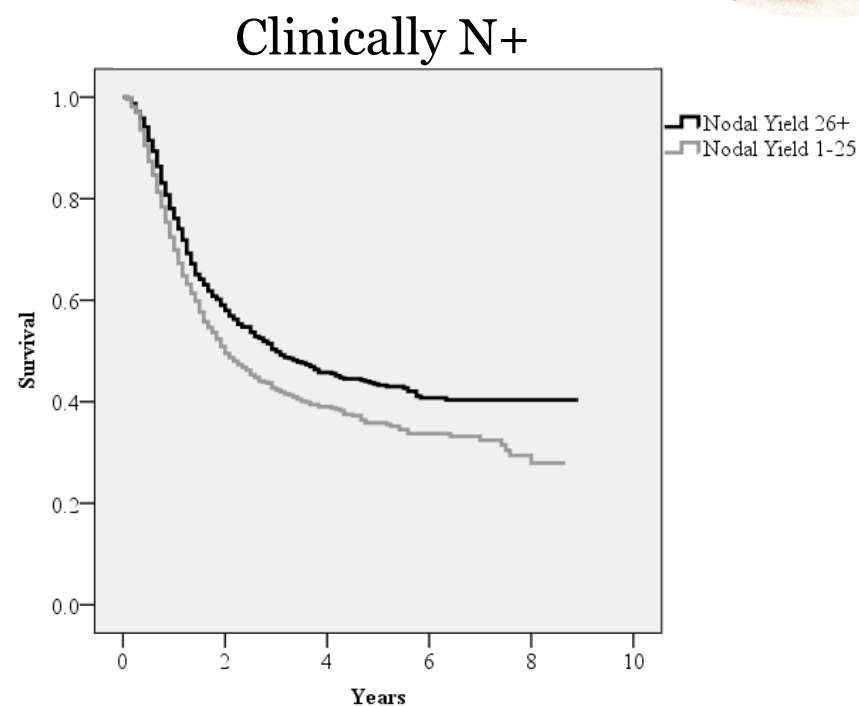
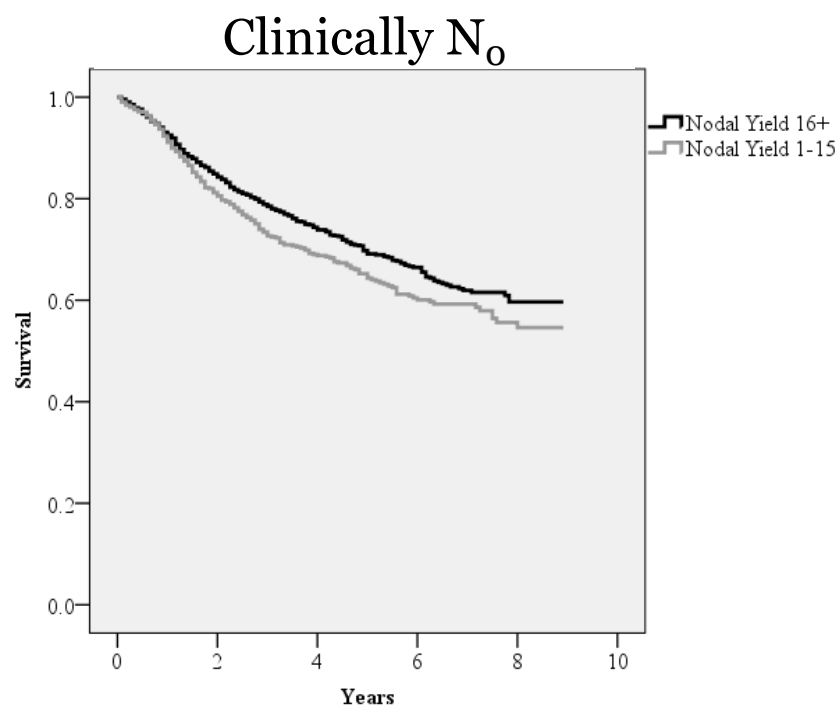
Elective surgery	243	170	126	94	71	52
Therapeutic surgery	253	120	91	77	61	51



# Level I (Perfacial LN's) / Marginal Branch



# Lymph Node Yield is Associated with Survival



Node yield varies by treatment center:

- Facility type (academic/research or community)
- Case volume

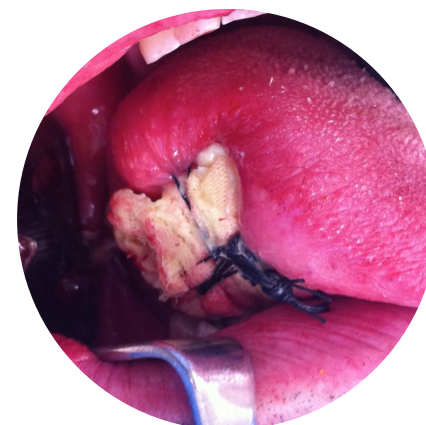
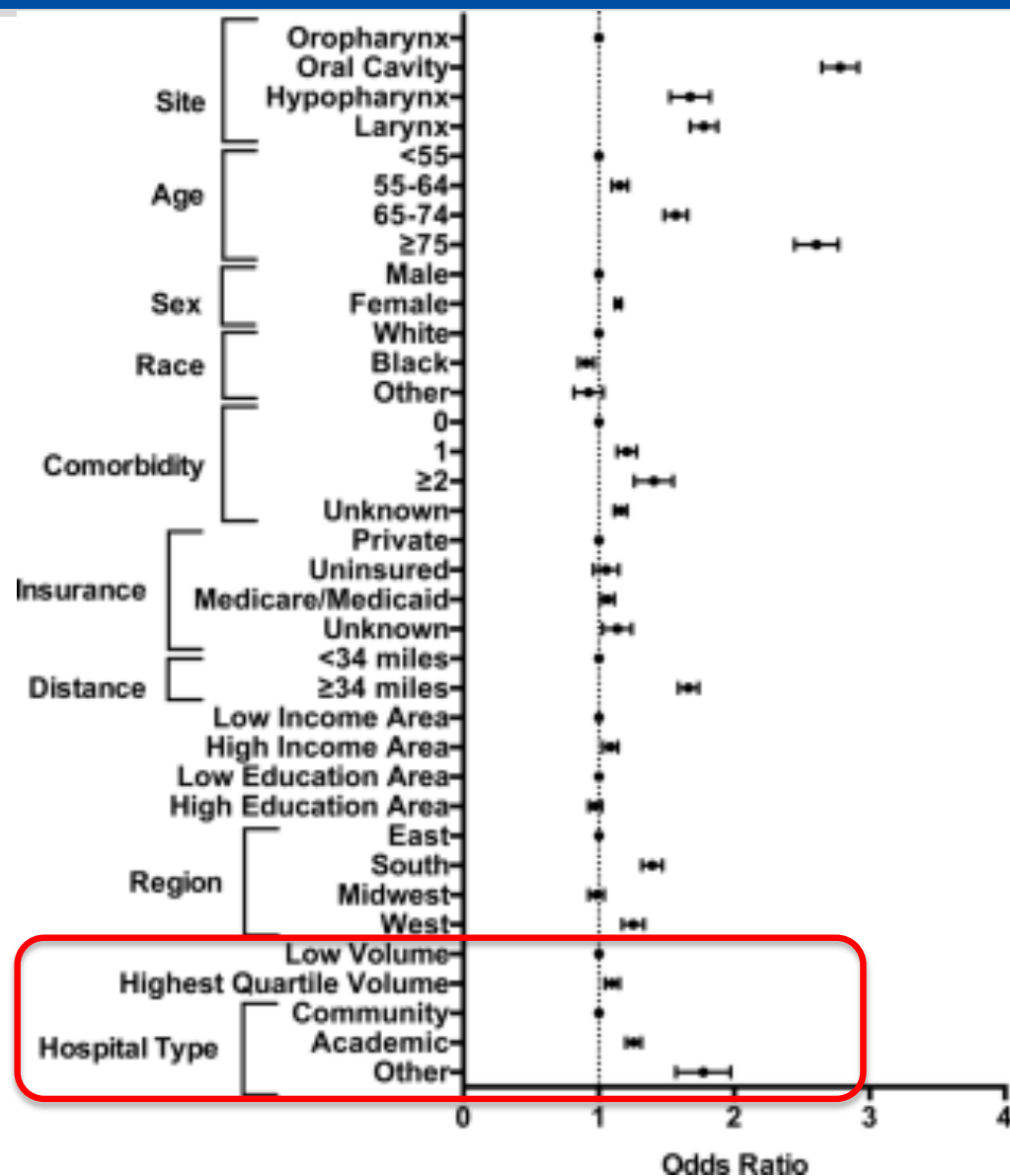
# Take Aways: Neck Dissection

- Nodal yield varies by treatment center independent of patient and disease factors
- High volume centers have higher nodal yield
- Higher nodal yield is independently associated with survival

# Adjuvant Therapy

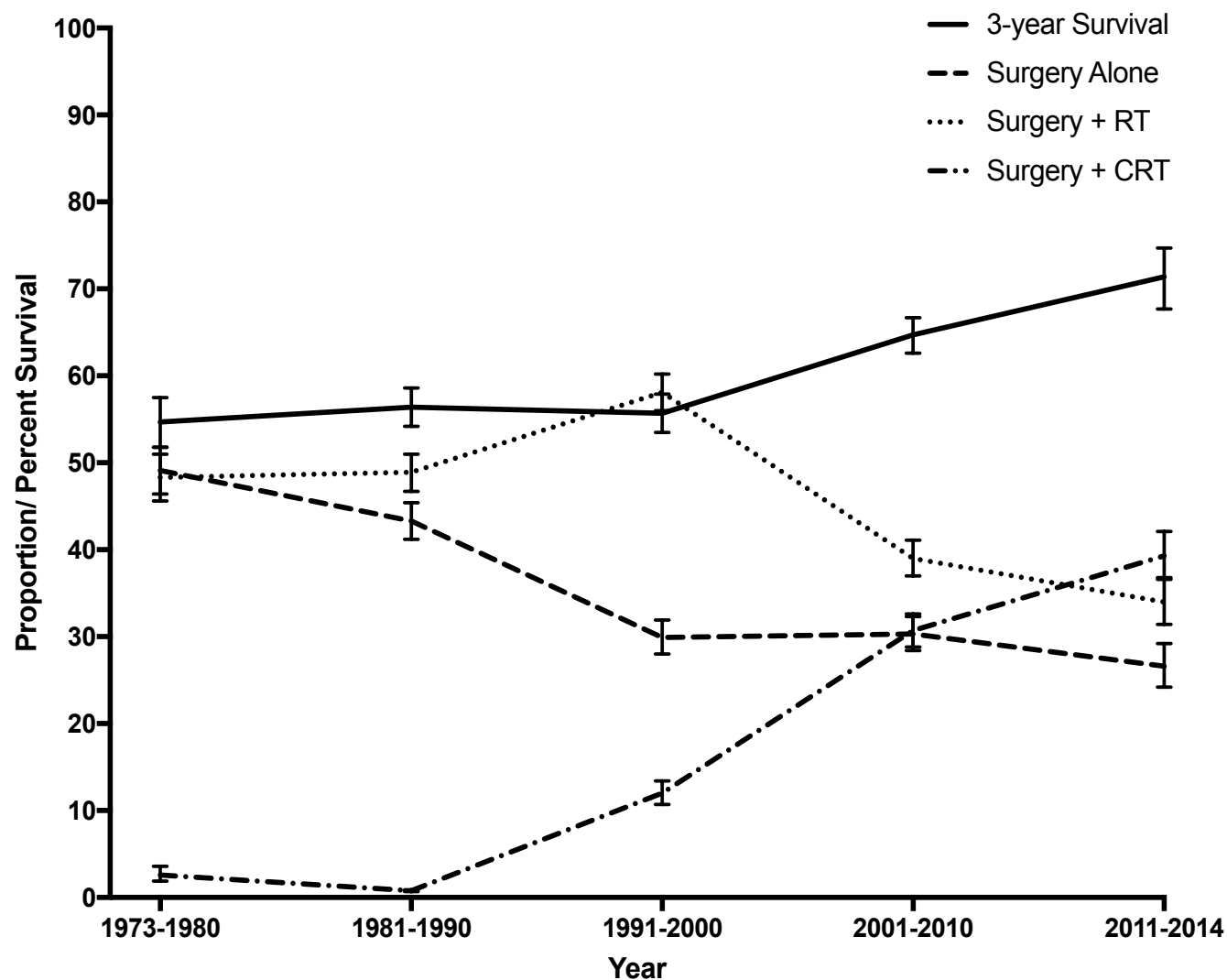
- Early Stage Disease (I + II)
  - Perineural invasion
  - Lymphovascular invasion
  - Positive margins (!)
- High Stage Disease (III + IV)
  - T3 or T4
  - N2 or greater
  - Positive margins
  - Extracapsular extension

# Receipt of Adjuvant Therapy Varies by Treatment Site

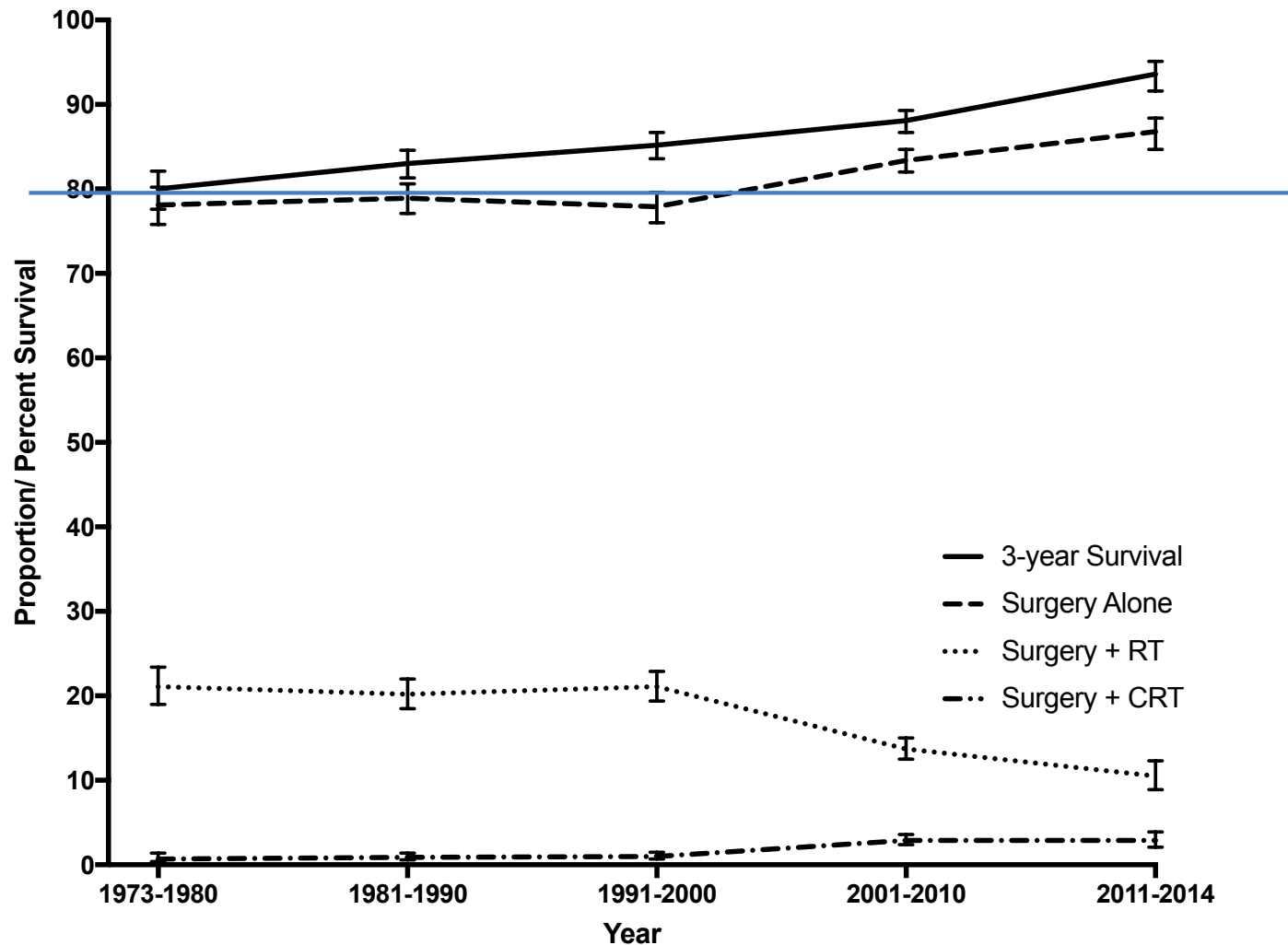




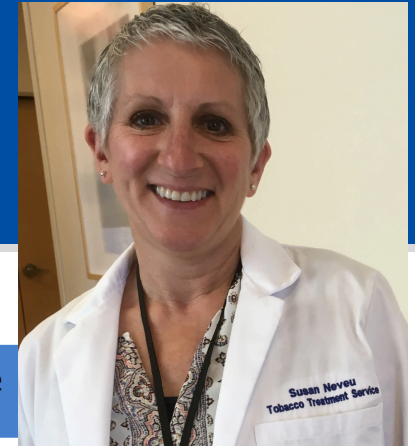
# Prognosis for High Stage Oral Cancer



# Prognosis for Early Stage Oral Cancer



# Smoking Cessation



		Counseled to Quit	Not Counseled	P value
Tobacco Related Cancer	Yes	57.3	42.3	0.64
	No	54.7	45.3	
Type of Cancer				0.80
	<i>Head and Neck</i>	77.5	22.5	
	<i>Breast</i>	63.7	36.3	
	<i>Cervix</i>	66.0	34.0	
	<i>Ovary</i>	20.3	79.7	
	<i>Uterus</i>	58.3	41.7	
	<i>Prostate</i>	55.8	44.2	
	<i>Bladder</i>	49.3	50.7	
	<i>Kidney</i>	51.8	48.3	
	<i>Thyroid</i>	46.9	53.1	
	<i>Colorectal</i>	55.7	44.4	
	<i>Testicular</i>	57.3	42.7	
	<i>Lymphoma/Leukemia</i>	51.1	48.9	
	<i>Lung</i>	44.6	55.4	
	<i>Melanoma</i>	55.2	44.8	
	<i>Other</i>	51.8	48.3	



Thank you