Supplemental Online Content

Sun L, Candelieri D, Anglin-Foote T, et al. Cetuximab-based vs carboplatin-based chemoradiotherapy for patients with head and neck cancer. *JAMA Otolaryngol Head Neck Surg*. Published online September 22, 2022. doi:10.1001/jamaoto.2022.2791

This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Coding Definitions

Cohort Definition	
Oropharynx primary site	Keywords (ICDDescription, CPTname): Tonsil, soft palate, base of tongue, retromolar, oropharynx, vallecular, Waldeyer, adenoid, uvula
Baseline comorbidities[1]	
Hypertension	ICD9: 401X, 402X, 403X, 404X, 405 ICD10 I10X, I11X, I12X, I13X, I15X, I16X
Diabetes	ICD9: 250X ICD10: E10X, E11X, E12X, E13X, E14X
Hyperlipidemia	ICD 9: 272.0, 272.1, 272.2, 272.4, 272.5, 272.8, 272.9 ICD 10: E78.0X, E78.1, E78.2, E78.4, E78.5
Atrial fibrillation	ICD 9: 427.3 ICD10: I48.0,I48.1,I48.2,I48.3, I48.4,I48.9
Obesity	ICD-9: 278.0 ICD-10: E66.0,E66.1,E66.2E66.8,E66.9
Carotid artery stenosis	ICD9: 433.10 ICD10: I65.2
Coronary artery disease	ICD9-9-CM 410X, 411X, 412X, 413X, 414X, 429.2, 429.7, V45.82, V45.81 ICD-10-CM I20X, I21X, I22X, I23X, I24X, I25X, Z95.5, Z98.61, Z95.1 CPT Codes: 00566, 33510, 33511, 33512, 33513, 33514, 33515, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33530, 33533, 33534, 33535, 33536, 33572, G8158, G8159, G8161, G8162, G8163, G8164, G8165, G8166, G8167, G8170, G8171, G8172, 92920, 92921, 92924, 92925, 92928, 92929, 92933, 92934, 92937, 92938, 92941, 92943, 92944, 92973, 92975, 92980, 92981, 92982, 92984, 92995, 92996, C9600, C9601, C9602, C9603, C9604, C9605, C9606, C9607, C9608, G0290, G029 Procedure codes ICD-9-CM: 36.03, 36.04, 36.06, 36.07, 36.09, 36.1X, 36.2, 36.3X, 17.55, 00.66 ICD-10-PCS: 02703XX 02704XX 02713XX 02714XX 02723XX 02724XX 2733XX 02734XX 02C03XX 02C04XX 02C13XX 02C14XX 02C23XX 02C24XX 02C33XX 02C34XX 02700XX 02710XX 02720XX 02730XX 02100XX 02110XX 02120XX 02130XX
Renal disease	ICD9: 403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 582.X, 583.X, 585.X, 586., 588, V42.0, V45.1X, V56.X ICD10: I12.0, N03.2-N03.7, N05.2, N05.7, N18.1-N18.9, N25.0, Z49.01, Z49.02, Z94.0, Z99.2

[1]≥2 outpatient or ≥1 inpatient diagnosis codes prior to diagnosis

eTable 2. Characteristics in patients excluded due to overlapping treatment regimens.

Variable		Excluded patients (n=1,421)
Age, median (IQR)		62 (58, 66)
Gender	F	11 (0.8%)
	M	1410 (99.2%)
Race	White	1061 (79.2%)
	Black or African American	258 (19.3%)
	Other	20 (1.5%)
	Missing	*82*
Primary Site	Oropharynx	856 (60.2%)
	Non-oropharynx	565 (39.8%)
Married		520 (36.6%)
Year of Diagnosis[b]	2006-2010	616 (43.3%)
	2011-2015	580 (40.8%)
	2016-2020	225 (15.8%)
Smoking Status	Current smoker	591 (69.2%)
	Former smoker	100 (11.7%)
	Never smoker	163 (19.1%)
	Missing	*567*
Clinical tumor (T) stage	0	24 (1.8%)
	1	145 (10.8%)
	2	406 (30.2%)
	3	366 (27.2%)
	4	403 (30.0%)
	Missing	*77*
Clinical nodal (N) stage	0	200 (14.9%)
	1	187 (13.9%)
	2	871 (64.8%)
	3	86 (6.4%)
	Missing	*77*
ECOG Performance Status	0	322 (39.9%)
	1	405 (50.2%)
	2	61 (7.6%)
	≥3	19 (2.4%)
	Missing	*614*
Charlson Comorbidity Index	0	429 (30.2%)
	1	304 (21.4%)
	≥2	688 (48.4%)
Renal Disease		56 (3.9%)
Hypertension		1021 (71.9%)
Hyperlipidemia		790 (55.6%)
Diabetes		307 (21.6%)
CAD		315 (22.2%)

Abbreviations: IQR, interquartile range; ECOG, Eastern Cooperative Oncology Group.
[a]Median (interquartile range) for continuous variables; n (percentage of nonmissing data) for categorical variables.
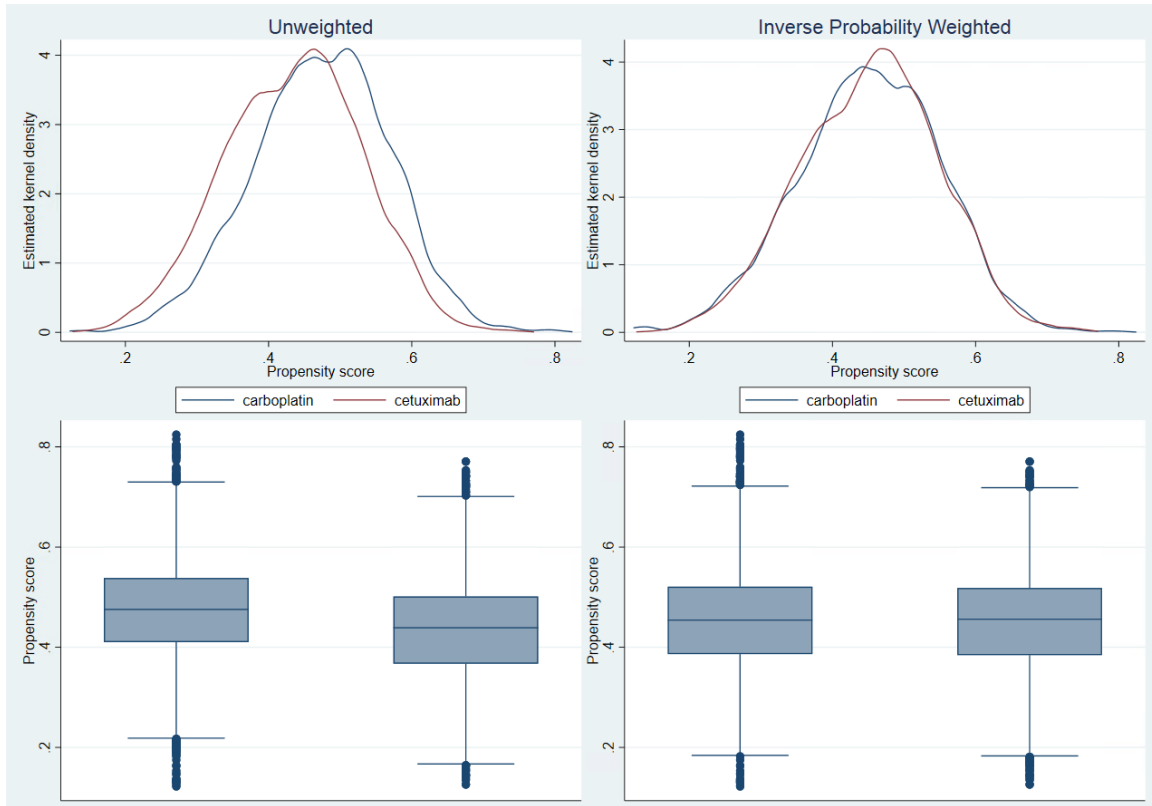
eTable 3. Pre and post inverse probability weighting covariate standardized mean differences.

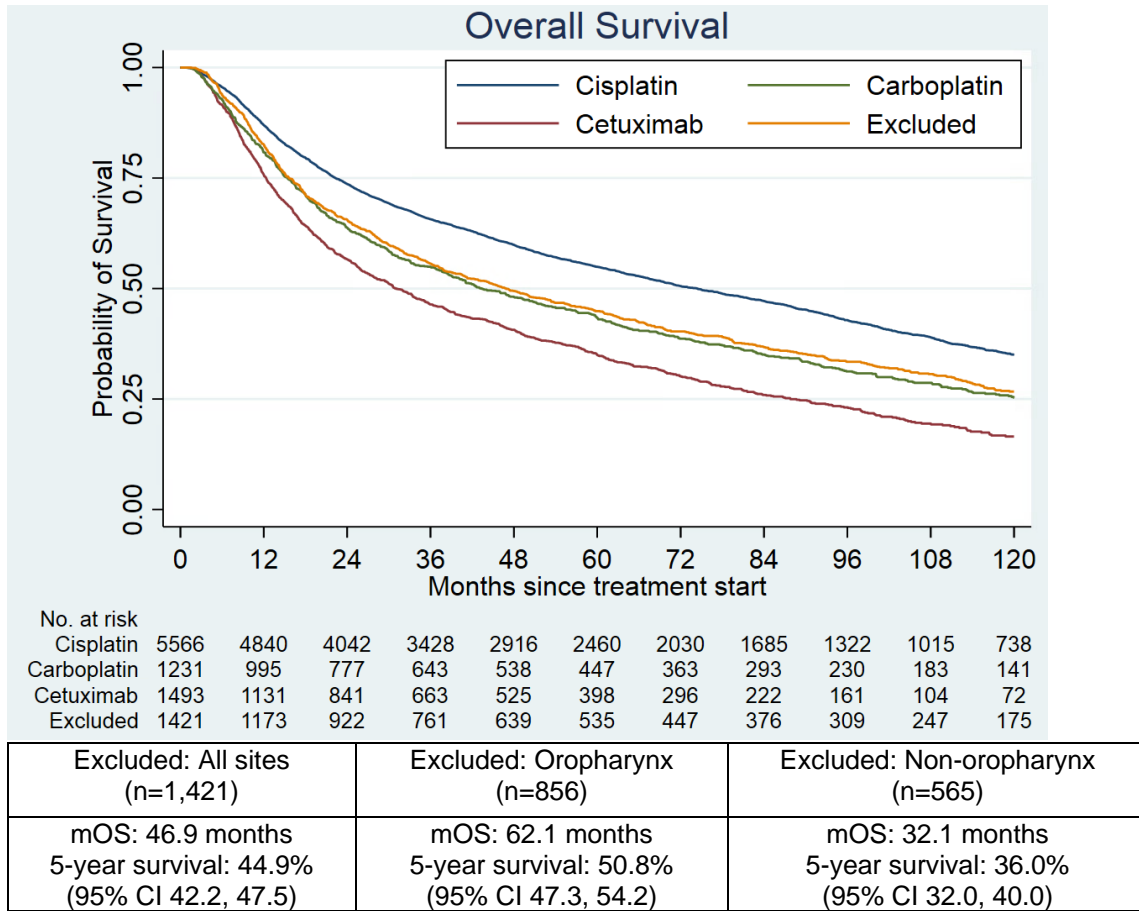|	Pre-weighted populations			Post-inverse probability weighted populations		
	Carboplatin	Cetuximab	SMD	Carboplatin	Cetuximab	SMD
Age	64.49	66.80	-0.273	66.79	65.76	0.004
Male	0.99	0.99	-0.073	0.99	0.99	-0.001
Race			-0.049			-0.002
White	0.82	0.80		0.81	0.81	
Black or African American	0.17	0.19		0.18	0.18	
Other	0.02	0.02		0.02	0.02	
Oropharynx primary	0.55	0.59	-0.084	0.57	0.57	0.000
Married	0.39	0.39	0.001	0.39	0.39	0.002
Year of Diagnosis			-0.094			0.036
2006-2010	0.43	0.39		0.40	0.40	
2011-2015	0.38	0.39		0.38	0.39	
2016-2020	0.19	0.22		0.23	0.21	
Smoking status			-0.128			0.005
Current	0.36	0.40		0.36	0.41	
Former	0.08	0.09		0.09	0.09	
Never	0.10	0.16		0.12	0.14	
Clinical T stage			-0.054			0.002
T0	0.02	0.01		0.02	0.01	
T1	0.11	0.11		0.10	0.12	
T2	0.34	0.29		0.33	0.30	
T3	0.26	0.29		0.26	0.029	
T4	0.23	0.23		0.24	0.22	
Clinical N stage			-0.033			-0.003
N0	0.21	0.20		0.20	0.21	
N1	0.14	0.15		0.15	0.15	
N2	0.55	0.54		0.56	0.54	
N3	0.05	0.05		0.04	0.05	
ECOG Performance Status			0.034			0.064
0	0.19	0.24		0.20	0.24	
1	0.24	0.25		0.25	0.25	
2 or greater	0.06	0.08		0.07	0.08	
Charlson Comorbidity Index			-0.163			-0.002
0	0.24	0.19		0.21	0.21	
1	0.19	0.16		0.17	0.17	
2 or greater	0.57	0.66		0.62	0.62	
Hypertension	0.73	0.77	-0.076	0.76	0.75	0.005
Hyperlipidemia	0.61	0.63	-0.042	0.62	0.62	0.006
Diabetes	0.25	0.29	-0.087	0.27	0.27	0.008
CAD	0.31	0.34	-0.067	0.32	0.32	0.001
Renal disease	0.10	0.14	-0.119	0.12	0.12	-0.004

SMD, Standardized mean difference

Mean for continuous variables; proportion for categorical variables are displayed.

eFigure 1. Pre and post inverse probability weighting kernel density and box plots of propensity scores.

Kernel density and box-and-whisker plots showing improved balance of pseudo-populations after inverse probability treatment weighting (R) compared to original unweighted populations (L).

eFigure 2. Survival in patients excluded due to overlapping treatment regimens.

Overall Survival

	Excluded: All sites (n=1,421)	Excluded: Oropharynx (n=856)	Excluded: Non-oropharynx (n=565)
	mOS: 46.9 months 5-year survival: 44.9% (95% CI 42.2, 47.5)	mOS: 62.1 months 5-year survival: 50.8% (95% CI 47.3, 54.2)	mOS: 32.1 months 5-year survival: 36.0% (95% CI 32.0, 40.0)

Kaplan-Meier curves and survival statistics for patients excluded due to inability to uniquely categorize systemic treatment regimen.