



## Introduction

- Head and neck cancer (HNC), or cancers of the oral cavity, oropharynx, hypopharynx, larynx, nasopharynx, sinuses, and salivary glands, accounts for approximately 3.5 % of all cancers in the US<sup>1</sup>
- Disparities and head and neck cancer outcomes in racial and ethnic minority populations have been well-documented but poorly understood<sup>3</sup>.
- Black Americans bear a greater head and neck cancer burden as they are more likely to present with a higher disease stage and have increased mortality following diagnosis<sup>4,5</sup>.
- This study aims to investigate the impact of race/ethnicity on surgical outcomes after major head and neck surgery using a large national database
- We hypothesize that race is significantly associated with the incidence of postoperative complications after major head and neck cancer surgery.

## Materials and Methods

- American College of Surgeons National Surgical Improvement Program (ACS-NSQIP) database used
- Inclusion criteria: adult patients who underwent major head and neck cancer surgery between 2014 and 2021
- Excluded: 90 years or older, patients who were Native/Alaskan American, Native Hawaiian/Pacific Islander or “some other race” and patients who had a gender identify of “non-binary” (all due to low numbers)
- Continuous variables were presented as mean ± standard deviation and compared using one-way analysis of variance with Bonferroni multiple comparison correction
- Categorical variables were compared using Pearson’s chi-square.
- Multivariate logistic regression controlled for age, sex, BMI, smoking, ASA score, preoperative estimation of morbidity and comorbidities

Complications	OR (95% CI)	p-value
<b>Black</b>		
Overall	1.4 (1.1-1.8)	** 0.004
Sepsis-related	2.0 (1.2-3.3)	** 0.009
Cardiovascular	1.4 (0.6-3.1)	0.361
Pulmonary	1.4 (0.9-1.9)	0.107
Thromboembolic	2.3 (1.2-4.4)	** 0.010
Renal	0.7 (0.2-2.4)	0.589
Wound	1.3 (1.0-1.8)	0.052
Severe Complications	1.7 (1.4-2.1)	** <0.001
Reoperation	1.3 (1.0-1.7)	0.087
Readmission	1.3 (1.0-1.8)	** 0.048
<b>Hispanic</b>		
Overall	0.8 (0.5-1.1)	0.128
Sepsis-related	0.5 (0.2-1.7)	0.304
Cardiovascular	-	-
Pulmonary	0.3 (0.1-0.7)	** 0.009
Thromboembolic	1.3 (0.5-3.6)	0.628
Renal	0.4 (0.1-3.6)	0.350
Wound	0.9 (0.6-1.3)	0.525
Severe Complications	0.5 (0.4-0.7)	** <0.001
Reoperation	0.5 (0.3-0.8)	** 0.007
Readmission	0.8 (0.5-1.2)	0.231
<b>Asian</b>		
Overall	0.9 (0.6-1.3)	0.605
Sepsis-related	0.9 (0.3-2.4)	0.797
Cardiovascular	1.3 (0.4-4.2)	0.704
Pulmonary	1.0 (0.5-1.9)	0.978
Thromboembolic	0.4 (0.1-3.1)	0.402
Renal	1.1 (0.3-4.9)	0.851
Wound	0.9 (0.6-1.4)	0.596
Severe Complications	0.7 (0.5-0.9)	** 0.020
Reoperation	0.4 (0.2-0.7)	0.003
Readmission	0.9 (0.6-1.4)	0.690

**Table 1.** Multivariable logistic regression models evaluating the impact of race on 30-day complications in patients undergoing major head and neck cancer surgery in comparison to the white population.

## Results

### Demographics

- n = 8,372
- White = 68.1%, Black = 6.1%, Hispanic = 4.9%, Asian = 4.0%, unknown/not reported = 17.0%
- Black patients had a higher preoperative probability of morbidity (0.17 vs. ≤0.14), a higher probability of mortality (0.010 vs. ≤0.007), and thirty-day readmission (12.4% vs. ≤8.2%) compared to other patients
- Black patients had higher average LOS (8.8 days vs. ≤5.1) compared to other patients

### Race/Ethnicity and Perioperative Outcomes

- Black patients had significantly higher rates compared to white
  - Overall complication rate: 22.7% vs. 11.4%, P<0.001
  - Pulmonary complications: 8.1% vs. 4.0%, P<0.001
  - Wound complications: 13.8% vs. 6.8%, P<0.001
  - Severe complications: 35.7% vs. 16.7%, P<0.001
  - Sepsis: 4.3% vs. 1.4%, P<0.001
  - Rates of reoperation: 14.2% vs. 8.1%, P<0.001
  - Bleeding requiring transfusion: 19.1% vs. 6.1%, P<0.001

### Multivariate Analysis

- See Table

## Discussion

- In contrast to previous studies reporting no difference in overall complication rates after cancer surgery<sup>8</sup>, our study found significant racial/ethnic disparities in short-term postoperative outcomes
- Black patients had an overall more significant proportion of patients with higher ASA, estimated preoperative probability of mortality, and morbidity.
  - When controlled for demographic factors and comorbidities, Black patients had higher rates of overall complications, sepsis-related complications, thromboembolic complications, severe complications, and readmission
  - Similar findings of increased postoperative complications have been reported after major cardiac, general, vascular, orthopedic, and cancer surgical procedures<sup>8</sup>, and pulmonary lobectomy<sup>7</sup>.
- Similar to our results, previous studies reported somewhat lower risks of complications after major surgery in Hispanics<sup>8</sup>.
- Differences in disease burden or severity, factors such as tumor stage at diagnosis and access to care could account for this disparity and should be further investigated.

## Contact

Jennifer J. Liang, MD (Presenting Author)  
SUNY Downstate Department of Otolaryngology  
Email: Jennifer.liang@downstate.edu

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