



# Racial and Ethnic-Based Differences in Postoperative Nausea and Vomiting Prophylaxis

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## Background

- Postoperative nausea and vomiting (PONV) may be associated with significant adverse events and patient dissatisfaction.

- Thus, PONV prophylaxis is essential in anesthesia practice. Studies across medicine suggest the existence of racial/ethnic-based disparities in the receipt of medications.<sup>2</sup>

- In this study, we aimed to determine whether there were racial/ethnic-based differences in **PONV prophylaxis** of adult patients who had undergone oncologic surgery.

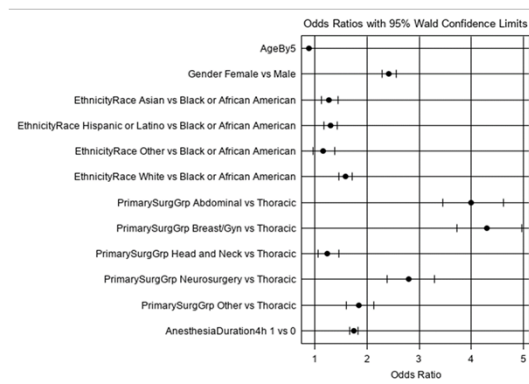
- We hypothesized that **PONV prophylaxis** would not vary across racial/ethnic groups.

## Methods

Multivariable logistic regression was used to assess the association between race/ethnicity and antiemetic administration in the **preoperatively and during surgery**.

## Results

Of the 60,595 patients included, 8431 (14%) were Hispanic/Latino, 3053 (5%) were non-Hispanic (NH)-Asian, 5376 (9%) were NH-Black, 42,533 (70%) were NH-White, and 1202 (2%) belonged to 'Other' NH-racial groups. Median age was 60 years (IQR, 49 – 69) and 56% were female. In the adjusted model, antiemetic administration **preoperatively and during surgery** were each associated with race/ethnicity ( $p < 0.0001$ ). Compared to NH-Blacks, NH-Asians (OR, 1.272 [95%CI, 1.124-1.440]), Hispanics/Latinos (OR, 1.302 [95%CI, 1.181-1.435]), and NH-Whites (OR, 1.582 [95%CI, 1.456-1.720]) had significantly greater odds of receiving an **antiemetic preoperatively** (all  $p < 0.001$ ).



**Table 1: Association between ethnicity/race and status of anti-emetic use with respect to different parameters.**

Odds Ratio Estimates and Wald Confidence Intervals				
Effect	p-value	OREstimate	95%CI for OR	
Age	<.0001	0.863	0.856	0.871
GenderFemale vs Male	<.0001	0.899	0.853	0.947
Ethnicity Race Asian vs Black or African American	0.0822	1.118	0.986	1.267
Ethnicity Race Hispanic or Latino vs Black or African American	<.0001	1.246	1.131	1.373
Ethnicity Race Other vs Black or African American	<.0001	1.664	1.360	2.037
Ethnicity Race White vs Black or African American	0.0036	1.122	1.038	1.213
Primary Surg Grp Abdominal vs Thoracic	0.1200	1.089	0.978	1.214
Primary Surg Grp Breast/Gyn vs Thoracic	0.8044	0.987	0.887	1.098
Primary Surg Grp Head and Neck vs Thoracic	0.3504	0.949	0.850	1.059
Primary Surg Grp Neurosurgery vs Thoracic	<.0001	4.859	3.937	5.998
Primary Surg Grp Other vs Thoracic	0.7572	1.016	0.919	1.124
Minimally Invasive yes vs no	<.0001	1.198	1.131	1.269
Anesthesia Duration4h 1 vs 0	<.0001	1.523	1.451	1.599

**Table 2: Multivariable logistic regression analysis to estimate the effects of important covariates on status of intraoperative anti-emetic use.**

## Results., Contd..

- **During surgery**, Hispanics/Latinos (OR, 1.243 [95%CI, 1.128-1.370]), NH-Whites (OR, 1.127 [95%CI, 1.043-1.218]), and patients of 'Other' NH-race (OR, 1.666 [95%CI, 1.361-2.039]) had significantly greater odds of receiving an antiemetic than NH-Blacks (all  $p < 0.0001$  except  $p=0.0026$  for NH-Whites).

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## Conclusions

In this study, there were significant differences in **PONV prophylaxis** across racial/ethnic groups.

## Discussion

Rodseth et al in a non-controlled observational trial first identified the non-African population as a significant factor for PONV.<sup>2</sup> A large multicenter perioperative outcome analysis led by White et al in 2023 (n= 5.1 million patients), showed that Black patients were less likely to receive perioperative antiemetic administration compared to Asians and White people.<sup>3</sup> Additionally an analysis by Alli et al speculated the possible significance of adding ethnicity to Apfel scoring system.<sup>4</sup>

A genome association evaluated by Reuffert et al found that at least one single nucleotide polymorphism (i.e., either OPRM1 A118G mu-opioid receptor gene and/or HTR3A/HTR3B) associated with PONV. This nuclear variation is comparatively common in black population, making them tolerable to the opioid intensified adverse events.<sup>5</sup> This might be the possible reason for less incidence of PONV and lesser perioperative requirements of antiemetics in black population.

Our results were in accordance with the hypotheses, suggesting the lesser requirement of perioperative antiemetics by the black population compared to other races.

## References

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