

Blood Alcohol Levels of Las Vegas Tourists Requiring ED Services



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Introduction


Las Vegas, Nevada is well known for tourism. The resorts, clubs, bars, restaurants and casinos often lend themselves to overindulgence and substance use, especially alcohol. This is particularly burdensome in the Emergency Department (ED).

This study examines the blood alcohol content (BAC) of non-residents of Las Vegas presenting to the emergency department and it’s correlations.

Methods & Analysis

 **7,374 adult patients** at HCA hospitals in the Las Vegas area
 **1/1/2016 to 12/31/2022**

 **Inclusion criteria:** BAC >0.001 on initial testing
Exclusion criteria: residing outside the United States, missing zip codes, repeat encounters, age <18; also, uncollected urine drug screen (UDS).

 **Analysis of Variance** (ANOVA) compared means for a continuous outcome variable (BAC) between multiple groups (division of residence).

Latent Mixture Model Analysis (LMMA) created by a combination of latent profile analysis and latent class analysis [1].

Results

- 1

Mean BAC does not vary between states when controlling for age, sex, race, or arrival method to the ED (p=0.2966, Figure 1).
- 2

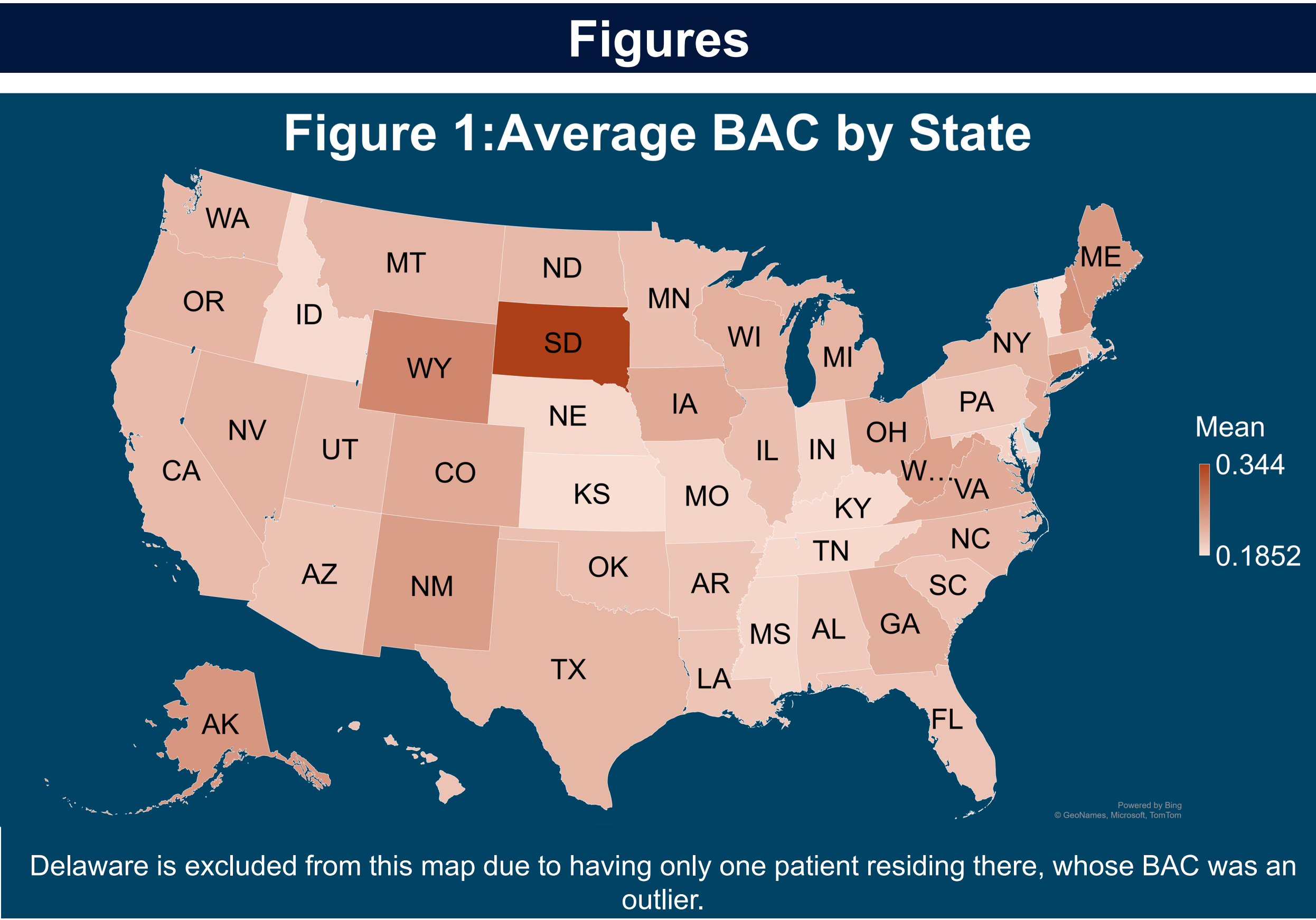
Younger age, male sex, white race versus black, and arrival by EMS all correlated with significantly higher BAC (Figure 2).
- 3

LMMA created 3 distinct patient profiles (Figures 2, 3, 4, 5, 6):

Class 1 (*n*=380, 12%) characterized by the longest length of stay, most likely to test positive for benzodiazepines on UDS, and most likely to test positive for opioids on UDS (“**Concomitant Medical Issue**”).

Class 2 (*n*=890, 29%) characterized by most likely to test positive for co-ingestion on UDS, had highest percentage of black patients, and lowest BAC level (“**Co-ingestion**”).

Class 3 (*n*=1806, 59%) characterized by the highest BAC, the shortest length of stay, and the lowest levels of co-ingestion with THC, methamphetamines and opioids on UDS (“**Acute Alcohol Intoxication**”).



Class 1			Class 2			Class 3		
LOS_CAT			LOS_CAT			LOS_CAT		
0			0			0		
1			1			1		
2+			2+			2+		
SEX_CAT			SEX_CAT			SEX_CAT		
Female			Female			Female		
Male			Male			Male		
RACE_C			RACE_CAT			RACE_CAT		
White			White			White		
Black			Black			Black		
Other			Other			Other		
BENZ_RE			BENZ_RES			BENZ_RES		
No			No			No		
Yes			Yes			Yes		
THC_RE			THC_RES			THC_RES		
No			No			No		
Yes			Yes			Yes		
COC_RE			COC_RES			COC_RES		
No			No			No		
Yes			Yes			Yes		
MTH_RE			MTH_RES			MTH_RES		
No			No			No		
Yes			Yes			Yes		
OPI_RES			OPI_RES			OPI_RES		
No			No			No		
Yes			Yes			Yes		
NATG_R			NATG_REG			NATG_REG		
South			South			South		
SW			SW			SW		
West			West			West		
MW			MW			MW		
MA			MA			MA		
NE			NE			NE		
BAC	0.13	0.00	BAC	0.11	0.00	BAC	0.28	0.00

Figure 3: BAC Levels & Class Types

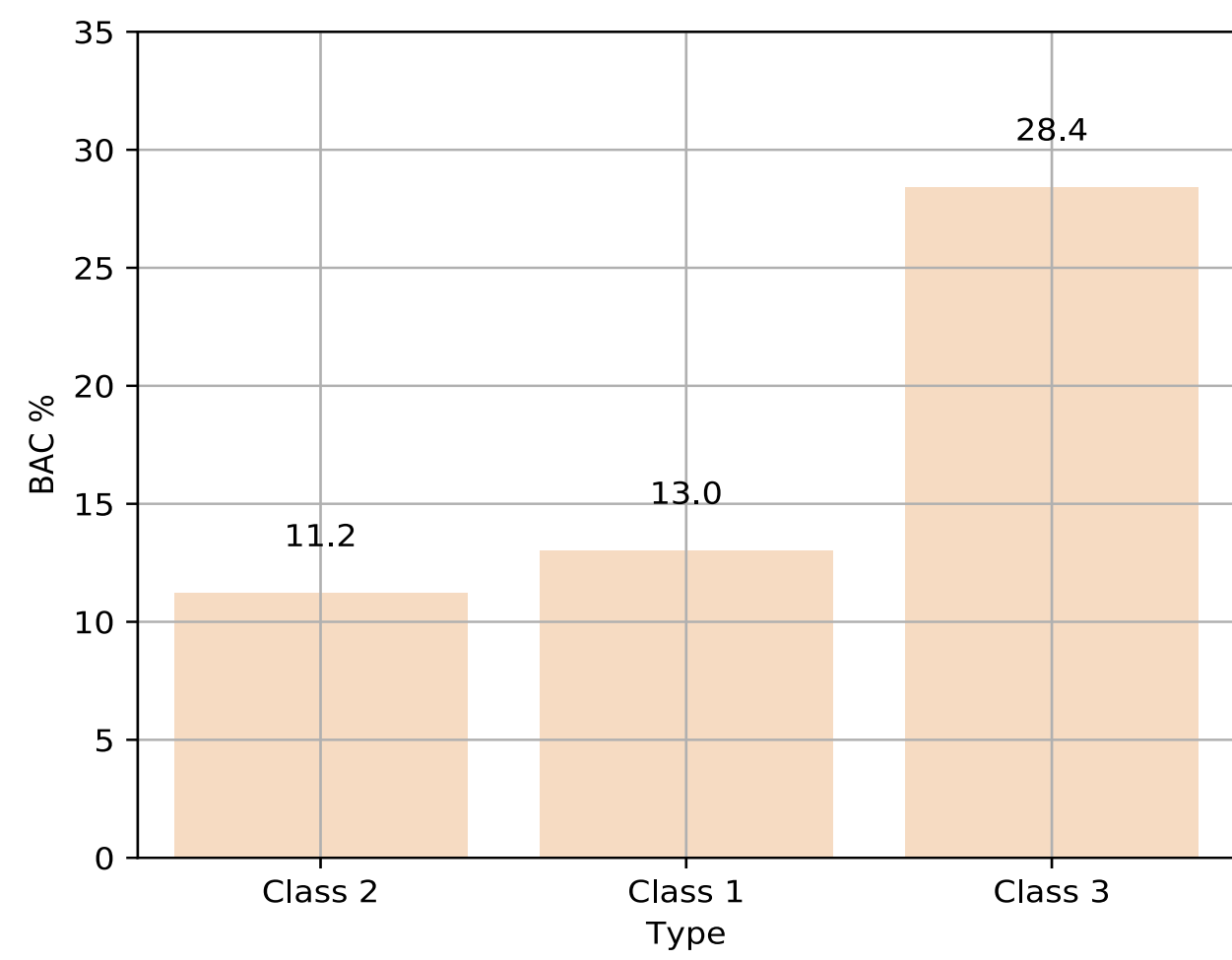


Figure 4: Race & Class Types

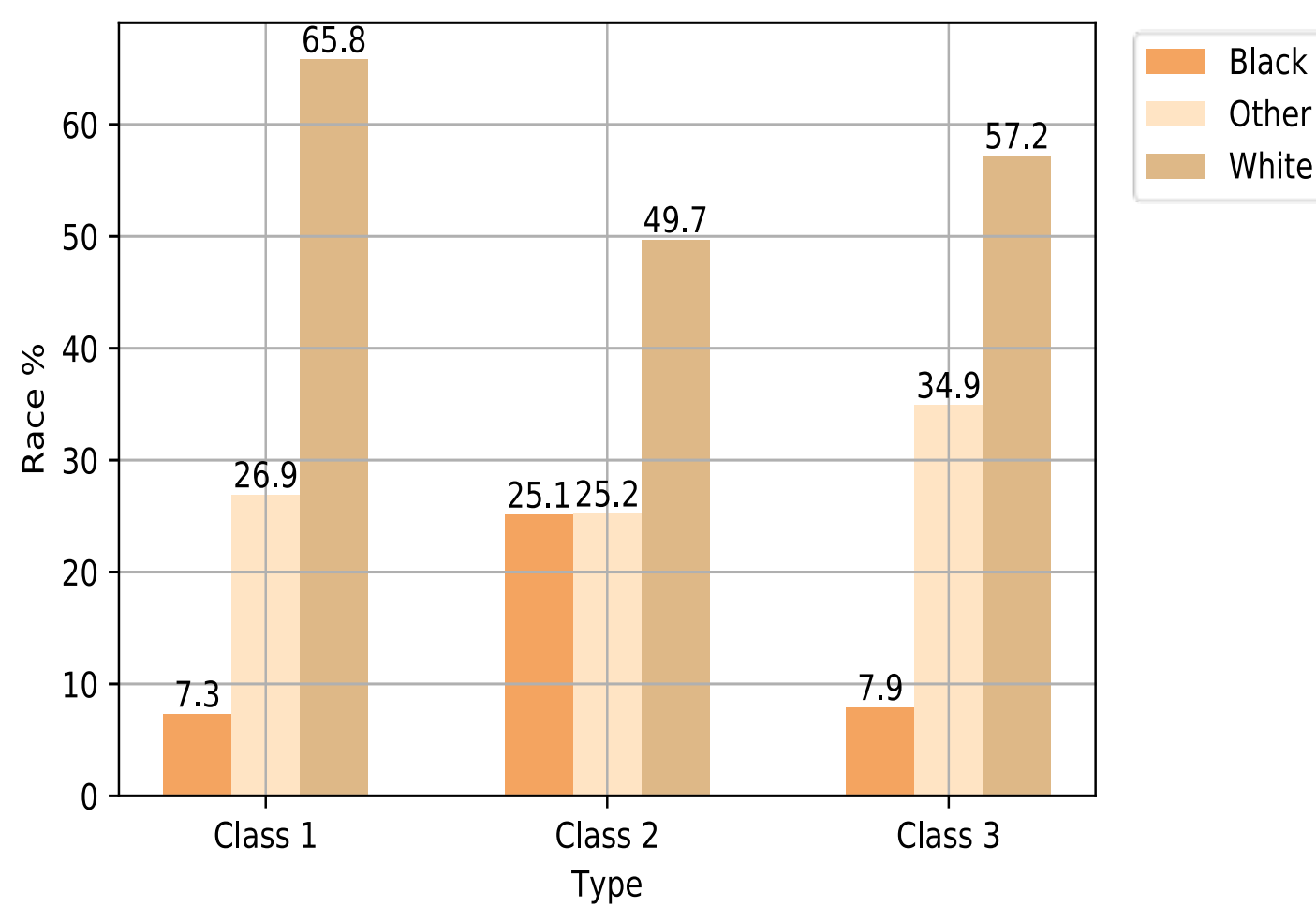


Figure 5: Race & Class Types

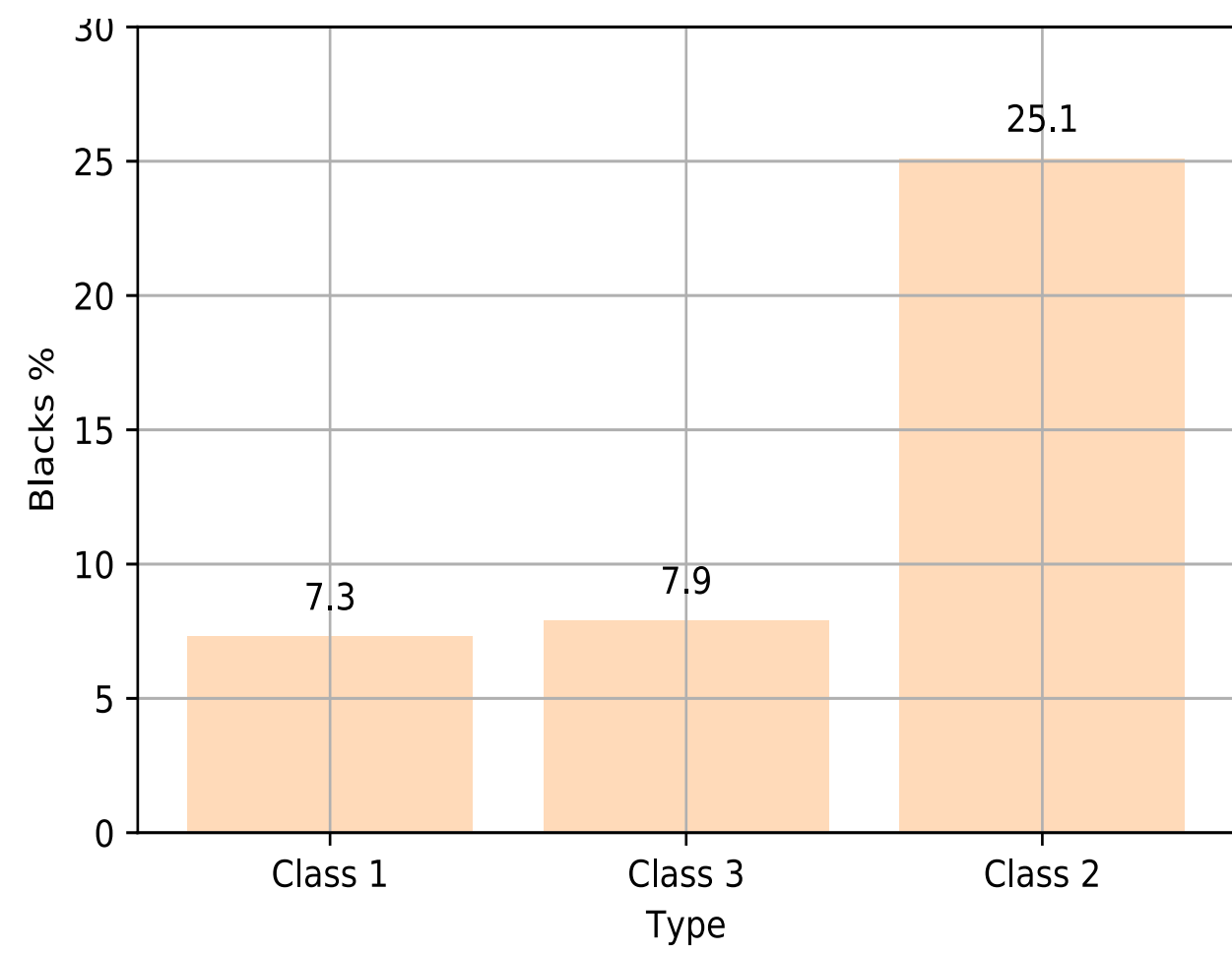
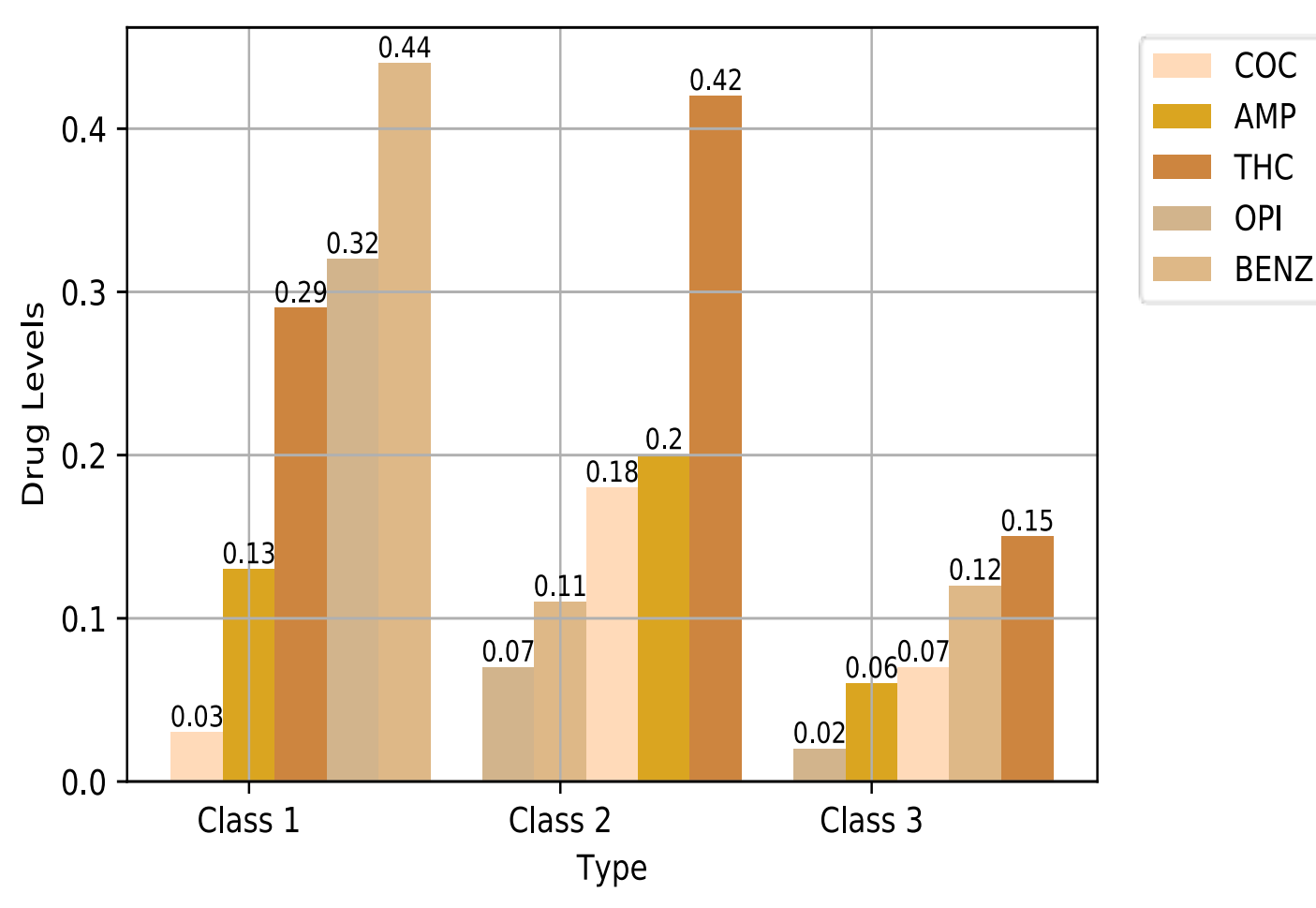




Figure 6: Drugs & Class Types



Conclusions

 **This study identifies patients at ED presentation who may be at higher risk for high BAC levels.** It is pertinent to the discussion of unconscious and conscious biases surrounding the demographics of intoxicated patients in the ED. Las Vegas tourism, travel service, and Emergency Medical Serves may all utilize this information in their roles.

 **Limitations** include data from a single hospital group, a lack of data from other hospitals in the las Vegas area, and practice variability among ED clinicians.

References

- Sinha P, Calfee CS, Delucchi KL. Practitioner's Guide to Latent Class Analysis: Methodological Considerations and Common Pitfalls. Crit Care Med. 2021;49(1):e63-e79. doi:10.1097/CCM.000000000000471



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