

Disparity in Naloxone Administration During Emergency Medical Services

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Introduction: Deaths from drug overdose have been identified as a significant public health burden in the United States in recent years. Opioid-involved drug overdose deaths have increased rapidly in Florida and nationwide. The growing number of overdose deaths suggests that primary prevention efforts need to be strengthened and augmented. To reduce deaths through any means available, attention has focused on the ability of emergency medical services (EMS) providers to save lives at the scene of an opioid drug overdose. However, little information was available on the disparity in naloxone administration by emergency medical service providers.

Objective: To investigate the potential disparity in naloxone administration during an emergency medical service.

Method: 2017 to 2018 NEMSIS Version 3.3.4 records from the Florida EMSTARS data system were used. Study sample, suspected opioid overdose, was then further selected if provider's primary/secondary impressions or cause of injury included one of the following: ICD-10CM F11, T40.1-T40.4, T40.60, T40.69. Administration of naloxone during EMS transport was used as the primary outcome. We then performed multivariate logistic regression models to measure the association between naloxone administration and patient's gender, race/ethnicity. Total Glasgow coma score, respiratory rate and age were adjusted for confounding effects across all models, due to their high impacts on the outcome.

Result: There were a total of 6,285 suspected overdose cases within the two-year period, 61.72% were male; 85.48% Whites, 8.34% Blacks and 5.68% Hispanics; the median age was 36 years old. Among all the suspected overdose, 59.22% (3,722 cases) were administered naloxone.

According to the Kruskal-Wallis Test, the distribution of Wilcoxon score for total Glasgow coma score among race/ethnicity had no statistical significance ($p=0.471$), which concluded, despite the fact that Whites consisted of the majority part of the sample, the distribution of patient's level of responsiveness remained similar among races. Regression model (c -statistic= 0.835 , which implied a strong predictability) indicated that the odds of naloxone administration were higher among Whites than among Blacks (adjusted odds ratio [AOR] = 1.57 ; CI: 1.19 - 2.06 ; $p=0.0013$). There was no statistical significance found between gender. The model also indicated that there were approximate 25% (AOR= 0.750 ; CI: 0.735 - 0.765 ; $p<0.0001$) decrease and 2% (AOR= 0.979 ; CI: 0.967 - 0.991 , $p=0.0006$) decrease in 1 unit increase among Glasgow coma score and respiratory rate respectively, these decreases remained true among different races.

Conclusion: The results of this study reveal that Blacks are often disadvantaged in receiving naloxone in the case of a suspected opioid overdose during emergency medical service which could result in poorer survival outcomes. Reducing this gap could help prevent overall opioid overdose death and promote health equity.