

Longitudinal trends in Substance Use Disorder Hospitalizations among Military Health System Beneficiaries, 2000-2014



Nikki R. Wooten, PhD, LISW-CP¹, Jordan A. Brittingham, MSPH¹, Nahid S. Sumi, MS¹, and Diana D. Jeffery, PhD²
¹University of South Carolina, Columbia, SC, ²Defense Health Agency, Falls Church, VA

Funded by the National Institute on Drug Abuse #K01DA037412 (PI: Dr. Wooten)

RESEARCH OBJECTIVE

- This study examined trends in SUD hospitalizations from 2000-2014 among Military Health Systems (MHS) beneficiaries in civilian medical facilities in South Carolina.

BACKGROUND

- Substance use is a significant problem in the U. S. military and is detrimental to psychological health and military readiness. Deployment stressors and psychiatric diagnoses increase risk of substance use problems in military populations.
- Substance use problems in the U. S. military has increased the need for substance abuse treatment. Over the past decade, substance use problems has resulted in increased outpatient visits and hospital bed-days. From 2002-2012, hospitalizations for alcohol use disorders among active duty service members increased 110%.
- An overwhelming majority of substance use treatment for MHS beneficiaries is received in civilian medical facilities compared to military treatment facilities. Yet, little is known about hospitalizations for substance use disorders (SUDs) among MHS beneficiaries.

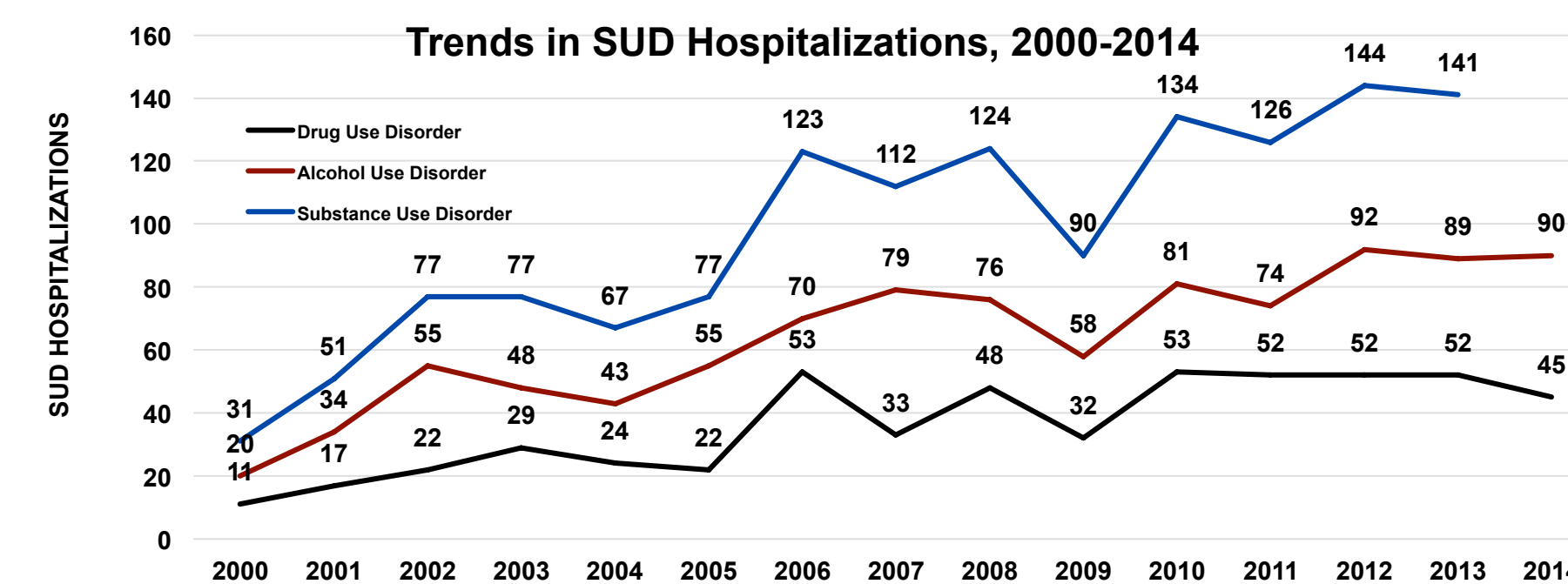
METHODS

- Using a longitudinal design, the sample included all medical claims for hospitalizations with a primary diagnosis of MDC 20 (alcohol/other drugs) and the MHS as the primary/secondary payer.
- MHS beneficiaries, aged 18-59, in civilian hospitals in SC were examined from January 1, 2000 to December 31, 2014.
- SUD hospitalizations were any hospital admissions with MDC 20 primary diagnosis. Alcohol use disorder (AUD) hospitalizations were any hospital admissions with an AUD primary diagnosis based on ICD-9 codes. Drug use disorder (DUD) hospitalizations were any hospital admissions with a DUD primary diagnosis based on ICD-9 codes.
- Emergency department (ED) visits were categorized as 0, 1-2, 3+.
- SUDs bed-days were categorized as ≤ 7 days, 8-14 days, and ≥ 15 days. Time was measured in years from 2000-2014.
- Descriptive statistics were computed by AUD, DUD, and total SUD hospitalizations.
- A total of 1,509 SUD hospitalizations [964 (63.9%) AUD and 545 (36.1%) DUD hospitalizations] were included in the analytic sample.
- To evaluate SUD hospitalization trends from 2000-2014, a random intercept mixed effects model was estimated.

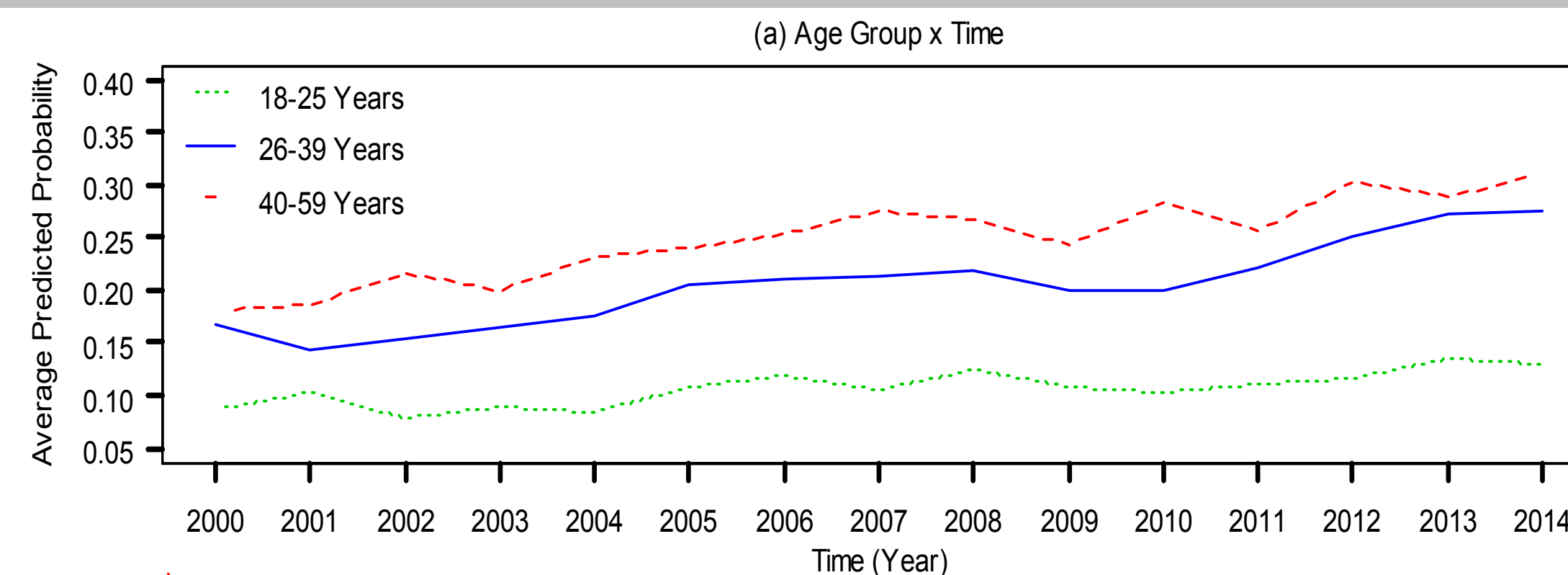
RESULTS

- From 2000-2014, 964 (63.9%) AUD and 545 (36.1%) DUD hospitalizations occurred among 708 (60.6%) and 461 (39.4%) unique MHS beneficiaries, respectively. MHS beneficiaries hospitalized for AUD were most often male (54.5%) and 40-59 years (58.3%) compared to those hospitalized for DUD. SUD bed-days had a positive trend over time—increasing from a mean of 4.8 days in 2000 to 7.2 days in 2014.
- Among AUD hospitalizations, alcohol dependence/alcoholism (67.2%) was the most common primary diagnosis followed by alcohol abuse (24.1%). Among DUD hospitalizations, opioid abuse/dependence (29.1%) was the most common primary diagnosis followed by drug withdrawal/drug-induced mental disorder (25.7%).

From 2000-2002, SUD hospitalizations progressively increased from 31 to 77, remained stable from 2002-2005, peaked at 144 in 2012, and then declined to 135 in 2014. Overall, SUD hospitalizations increased from 2000-2003, decreased in 2004, increased again from 2005-2008, decreased significantly in 2009 and then again in 2011 followed by an increase in 2012. Trends in AUD and DUD hospitalizations were fairly consistent with over SUD hospitalization trends, but the proportion of DUD hospitalizations compared to AUD hospitalizations was highest in 2006 and 2011.

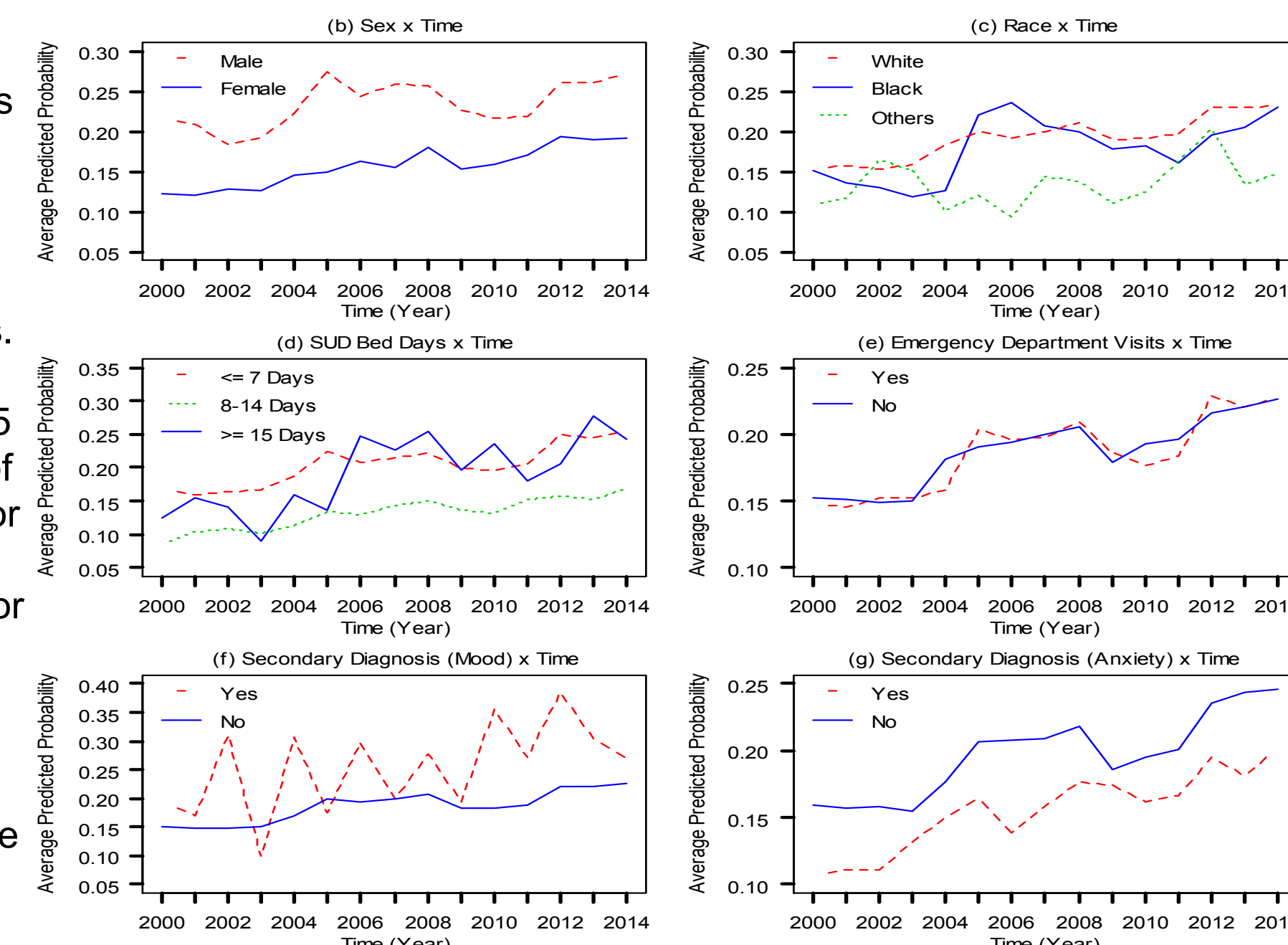


MIXED EFFECTS MODEL



From 2000-2014, SUD hospitalizations increased by 5% annually (OR=1.05, 95% CI: 1.03-1.06). The probability of SUD hospitalizations increased over time for all age groups and both men and women. MHS beneficiaries aged 40-59 years and 26-39 years had a higher probability of SUD hospitalizations than those aged 18-25 (Figure a). MHS beneficiaries aged 26-39 years had 2.80 (95% CI: 2.35-3.33) and those aged 40-59 years had 3.72 (95% CI: 3.16-4.38) greater odds of hospitalization than those aged 18-25 years.

From 2000-2014, females had a 51% (OR=0.49, 95% CI: 0.43-0.56) lower probability for a SUD hospitalization than males (Figure b). Trends in the probability of SUD hospitalizations increased over time for all race/ethnic groups (Figure c). Blacks had a 25% (OR=0.76, 95% CI: 0.63-0.91) lower probability and other racial/ethnic minorities had a 34% (OR=0.66, 95% CI: 0.51-0.87) lower probability of SUD hospitalizations than Whites. A SUD hospitalization for 8-14 days consistently resulted in a 43% (OR=0.57, 95% CI: 0.49-0.67) lower probability and for ≥ 15 days in a 39% (OR=0.61, 95% CI: 0.48-0.79) lower probability of SUD hospitalization over time compared to being hospitalized for ≤ 7 days (Figure d). ED visits resulted in no differences in the probability of SUD hospitalizations (Figure e) though the trend for both groups increased over time. Having a co-occurring mood disorder did not have a notable effect on the probability of SUD hospitalizations compared to not having a co-occurring mood disorder (Figure f). However, having a co-occurring anxiety disorder resulted in a 18% (OR=0.82, 95% CI: 0.70-0.95) decline in the probability of SUD hospitalizations over time (Figure g).



DISCUSSION

- From 2000-2014, SUD hospitalizations among MHS beneficiaries in South Carolina civilian medical facilities quadrupled and occurred most often for alcohol dependence/alcoholism, alcohol abuse, opioid abuse/dependence, and drug withdrawal/drug-induced mental disorder.
- Overall, SUD hospitalizations increased by 5% annually for all age groups, both men and women, and for all racial and ethnic minorities.
- Specifically, MHS beneficiaries who were male, White, and ages 26-59 had the highest probability of having SUD hospitalizations over time.
- Women, racial/ethnic minorities, and MHS beneficiaries with a comorbid anxiety disorder and a SUD hospitalization for more than one week had a lower probability of having SUD hospitalizations over time.
- However, ED visits and a comorbid mood disorder were not predictive of SUD hospitalizations over time.
- Perhaps the severity, chronicity, and clinical presentation of comorbid anxiety diagnoses, such as posttraumatic stress disorder (based on DSM-IV-TR criteria)—a highly prevalent diagnosis among MHS beneficiaries, are assessed as higher risk and problematic alcohol use is considered self-medicating to alleviate anxiety symptoms, which may decrease the likelihood of SUD hospitalizations.
- Alcohol problem prevention and early identification of substance use problems such as opioid abuse/dependence may decrease the need for inpatient substance abuse treatment among adult MHS beneficiaries.

ACKNOWLEDGEMENTS

This study was funded by the National Institute on Drug Abuse (NIDA #K01DA037412, PI: Dr. Wooten). Data are from the records of the South Carolina Revenue and Fiscal Affairs Office, Health and Demographics. Their authorization to release this information does not imply endorsement of this study or its findings by either the Division of Research and Statistics or the Data Oversight Council. The authors acknowledge the assistance of Chris Finney in preparing the data extract for analysis. The opinions and assertions herein are those of the authors and do not necessarily reflect the official views of the U. S. Department of Defense, NIDA, or the National Institutes of Health. Contact: Dr. Wooten, nwooten@sc.edu.