

# Opioid and Benzodiazepine Utilization Patterns in Metropolitan and Rural Texas

Robert W. Hutchison<sup>a</sup> and Joseph M. Carhart<sup>b</sup>

<sup>a</sup> Department of Pharmacy Practice, School of Pharmacy, Texas A&M Health Science Center, Round Rock, TX, USA

<sup>b</sup> jcarhart@bamboohealth.com Bamboo Health, Epidemiologist, Louisville, KY, USA

Correspondence to: R. Hutchison, College of Pharmacy, Texas A&M University, 3950 North AW Grimes Rd, Office 313-S Round Rock, Texas 78665 USA. E-mail: [hutchison@tamu.edu](mailto:hutchison@tamu.edu)

## Introduction

The nationwide implementation of Prescription Drug Monitoring Programs (PDMPs) has aimed to reduce the prevalence of dangerous prescription drug combinations, such as concomitant opioid and sedative dispensations.

Although many drugs are implicated in overdose deaths, opioids and concomitant sedatives have contributed to overdose in both rural and urban communities.

Individuals in rural areas, however, are up to 5-fold more likely than their urban counterparts to experience adverse outcomes related to opioids (1-5).

## Methods

Data were extracted from the Texas PDMP public use data file, which warehouses all Schedule II, III, IV, and V controlled substance prescriptions in Texas and for Texas residents obtaining prescriptions from a pharmacy located in another state.

Drug type (e.g., opioid, benzodiazepine) was defined based on the descriptions supplied to the Food and Drug Administration (FDA), by the manufacturer or distributor, or as identified in DailyMed or First Databank.

Overlapping opioid and benzodiazepine combinations were defined as any calendar day during which a patient had at least one opioid and benzodiazepine dispensation on hand, which was ascertained from the dispensation filled at date and the prescription's day's supply.

## Results



Figure 1 - Opioid and Benzodiazepine medications with overlapping days per 90 days

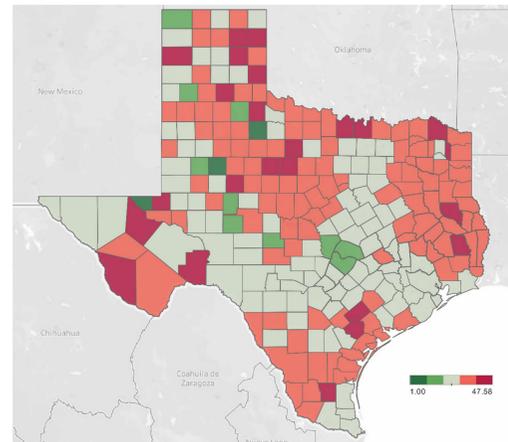


Figure 2 - Counties in Texas with the highest number of overlapping days

Patients from rural communities had a higher average number of overlapping days per 90 days compared to their urban counterparts (Figure 1) ( $\bar{X}$  Rural = 33.4 vs.  $\bar{X}$  Urban = 25.1).

Providers who practiced in rural areas prescribed opioid and benzodiazepine medications more often than their urban peers (i.e., an average of 8.3 more overlapping days per 90-day period; Figure 1) and providers from these areas prescribed roughly the same average number of overlapping days per 90 days regardless of whether they had an active vs inactive PDMP account.

Overall, twenty-four counties in the state had > 38 overlapping days per patient, per 90-day period (dark red in Figure 2) and 67% (n = 16) of these counties were > 50% rural. 37.5% of the 24 counties bordered other states and 55.6% of these 9 counties were > 50% rural.

Two counties, Cottle (100% rural) and Throckmorton (100% rural), had the highest average number of overlapping days (> 48 per 90-day period) during the study.

## Conclusion

Taking both opioid and benzodiazepine prescriptions is associated with increased overdose risk.

Rural patients had more benzodiazepine & opioid days overlap than urban patients. The prevalence was higher among older adults and providers who practice in rural areas (average 8.3 more days per quarter).

Our findings in Texas indicate a slight downward trend in overlapping days for both rural and urban areas over the last year of measurement. However, rural areas are still significantly higher.

## Health Equity

Our results highlight three areas of persistent healthcare disparities for patients residing in rural Texas:

- **Screening:** providers from rural areas are more likely to prescribe the same volume of overlapping opioid and benzodiazepine combinations regardless of their PDMP account status. This indicates a greater need for provider education on the technology available for quickly screening patients (e.g., Innovative PDMP analytical solutions, The SBIRT (screening, intervention, referral to treatment) clinical tool) for referral to appropriate mental health services.
- **Affordability:** the cost of healthcare is inversely correlated with its utilization and residents from rural areas are more likely to be uninsured or underinsured. Moreover, rural residents covered by private insurance are more likely than urban residents to have a high-deductible health plan. Our results support both of these points, as rural patients who had overlapping opioid and benzodiazepine combinations were more likely than urban residents to self-pay for the care they received.
- **Harm-Reduction:** whenever possible, providers from rural areas are encouraged to seek alternative therapies to opioid analgesic treatment for chronic pain and benzodiazepines for common psychological conditions.

## References

1. Hedegaard, H. and M.R. Spencer, Urban-Rural Differences in Drug Overdose Death Rates, 1999-2019. NCHS Data Brief, 2021(403): p. 1-8.
2. Bensley KMK, Kerr WC, Barnett SB, Mulia N. Postmortem screening of opioids, benzodiazepines, and alcohol among rural and urban suicide decedents. J Rural Health. 2022 Jan;38(1):77-86. doi: 10.1111/jrh.12574. Epub 2021 Apr 5. PMID: 33817837; PMCID: PMC9732055.
3. Altekruze, S.F., et al., Socioeconomic risk factors for fatal opioid overdoses in the United States: Findings from the Mortality Disparities in American Communities Study (MDAC). PloS one, 2020. 15(1): p. e0227966.
4. Cragg, A., et al., Risk factors for misuse of prescribed opioids: a systematic review and meta-analysis. Annals of emergency medicine, 2019. 74(5): p. 634-646.
5. Morales DA, Barksdale CL, Beckel-Mitchener AC. A call to action to address rural mental health disparities. J Clin Transl Sci. 2020 May 4;4(5):463-467. doi: 10.1017/cts.2020.42. PMID: 33244437; PMCID: PMC7681156.