

ABSTRACT

This study focused on exploring the relationship between Kentucky providers and opioid prescribing rates, including medication for opioid use disorder (MOUD) patterns for opioid use disorder (OUD). This is key to understanding the impact of providers and identifying areas of improvement. This retrospective, cohort study compiled data through CCTS (The Center for Clinical and Translational Science) to analyze opioid and MOUD prescribing patterns in the University of Kentucky healthcare system, particularly comparing the differences between nonrural and rural counties in Kentucky. Using self reported zip codes and age demographics, a Fisher's exact test was used to find a significant difference between age groups, locations and MOUD prescriptions for nonrural and rural groups. Oxycodone was found to be the most prescribed drug overall. MOUD prescription rates were compared in nonrural and rural counties and had a p value of <0.0001 with MOUD making up 12.4% of prescriptions in nonrural patients and 5.7% of prescriptions for rural patients.

PURPOSE OF STUDY

The purpose of this research is to understand opioid and medication for opioid use disorder prescription patterns to better educate providers to improve patient care in rural and nonrural counties of Kentucky.

INTRODUCTION

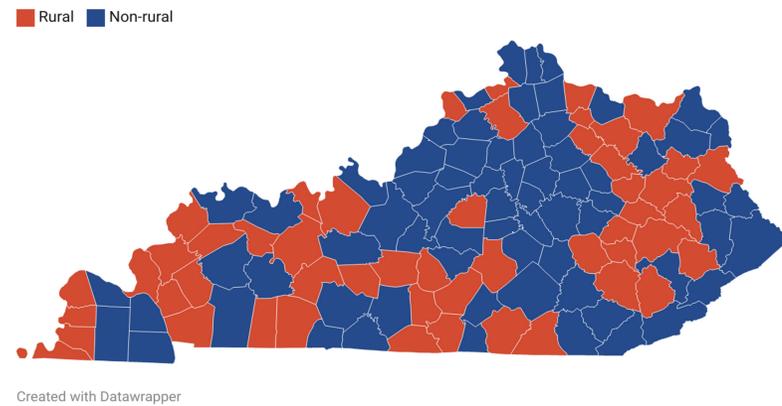
- Opioid drug overdose deaths in Kentucky increased 14.5% in 2021.¹
- Kentucky is one of the four states with the highest rates of prescriptions for 30 days or more.⁸ Nationally, opioid prescriptions filled per person decreased by 3.8%, but changes in length of prescriptions make it difficult to link to changes in opioid misuse.⁸
- Based on estimates of advanced care providers rural patients treated for opioid misuse can increase by 10,777 if more eligible PAs and NPs obtain their DEA waiver MOUD training.¹³

METHODS

- This is a retrospective cohort study by CCTS protocol on adults ages 18 and up who have received opioid and MOUD prescriptions in nonrural and rural counties of Kentucky.
- Rural counties were defined as a population less than 10,000 or a population greater than 10,000 with a population density below 50.
- Nonrural counties were defined as a population over 10,000 or a population density greater than 50.
- Age categories include 18-24, 25-30, 31-40, 41-50, 51-60, 61-70, and 70+.
- For each subcategory, differences in the rates were analyzed using a Fisher's Exact Test, as appropriate for the sample size, as well as visual plots. P-values were obtained from Fisher's exact test to determine significance of prescription rates.

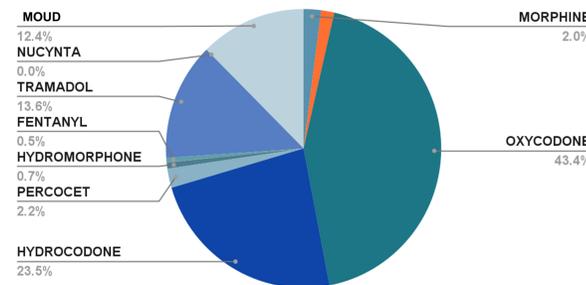
RESULTS

Rural Non-rural County Classification Map



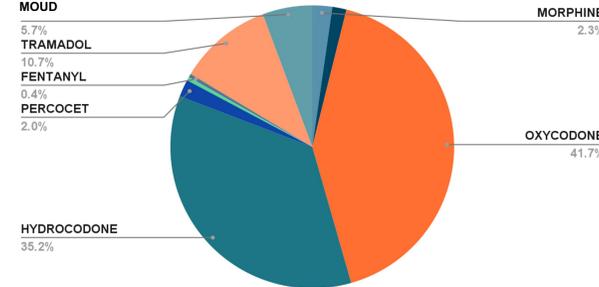
Nonrural Prescription Counts

Figure 1



Rural Prescription Counts

Figure 2



The charts show the percent of each opioid prescribed in rural and nonrural counties. Medications for Opioid Use Disorder (MOUD) categories include Buprenorphine, Methadone, Naltrexone and Vivitrol.

Rural vs. Nonrural

Opioids	P-Value
BUPRENORPHINE	<0.0001
CODEINE	0.747
FENTANYL	0.0354
HYDROCODONE	<0.0001
HYDROMORPHONE	<0.0001
LORTAB	1
MOUD	<0.0001
MEPERIDINE	1
METHADONE	0.0044
MORPHINE	0.1198
NALTREXONE	<0.0001
NUCYNTA	0.1519
OXYCODONE	<0.0001
OXYMORPHONE	0.0003
PERCOCET	0.0229
TRAMADOL	<0.0001
VIVITROL	<0.0001

Age Categories

Opioid	P-value
BUPRENORPHINE	<0.0001
CODEINE	<0.0001
FENTANYL	<0.0001
HYDROCODONE	<0.0001
HYDROMORPHONE	<0.0001
LORTAB	0.6143
MOUD	<0.0001
MEPERIDINE	0.5507
METHADONE	<0.0001
MORPHINE	<0.0001
NALTREXONE	<0.0001
NUCYNTA	<0.0001
OXYCODONE	<0.0001
OXYMORPHONE	<0.0001
PERCOCET	<0.0001
TRAMADOL	<0.0001
VIVITROL	<0.0001

DISCUSSION

- Most rural and nonrural opioid prescriptions patterns were statistically but not clinically significant.
- Most prescribed opioids: Hydrocodone, oxycodone, and tramadol.
- MOUD prescriptions were statistically and clinically significant making up 5.7% of prescriptions in rural patients and 12.4% of prescriptions in nonrural patients.
- Patients between 25-40 years of age had the highest prescribed MOUD medications with the trend decreasing linearly from 41+ years of age.
 - Opioid misuse is prevalent at all ages, and the lack of care for patients with OUD later in life should be a focus for provider education.
- Providers should be educated on prescription trends to help identify at risk groups.
 - Educating providers showed a 2.44% decrease in opioid prescriptions and came with little to no risk.¹⁰
- Physician Assistants and other eligible providers should obtain MOUD waivers to fulfill the need of MOUD options
 - Rural areas showed a greater increase in MOUD waivers obtained by providers but have less overall providers.¹⁸

MOUD

Methadone, Buprenorphine, Vivitrol, and Naltrexone

CONCLUSION

- As healthcare providers, it is important to recognize patterns and trends related to opioid misuse within Kentucky.
- This study aimed to provide insight on differences in prescribing patterns throughout the state and can be used as an educational tool for current and future clinicians
- Increasing the number of providers who can offer medication assisted therapy can help the opioid epidemic.

FUTURE STUDIES AND LIMITATIONS

- Examine opioid prescription rates from other hospitals and healthcare systems to better represent Kentucky.
- Consider other factors including transportation, economic stability, insurance, and distance to recovery centers.
- Opioid prescribing patterns within subspecialties of medicine in Kentucky.

REFERENCES

