

Research Brief

Commonwealth Institute of Kentucky | University of Louisville September 2022

An Assessment of Alcohol Use Disorder and Treatment Utilization among Medicaid Beneficiaries in Kentucky

Maiying Kong, PhD; K.B. Kulasekera, PhD; Craig J. McClain, MD, PhD; Riten Mitra, PhD; Subhadip Pal, PhD; Haojiang Huang, PhD; Huirong Hu; Yuchen Han; Melissa Eggen, MPH; Seyed Karimi, PhD

BACKGROUND

Alcohol use disorder (AUD) includes the conditions of alcohol addiction, abuse, and dependence and is the leading substance use disorder among people ages 14 and older in the United States.^{1,2} Nearly 6% of adults ages 18 and older in the United States have AUD, and 48% of alcohol users report engaging in binge drinking and/or heavy alcohol use. Males who drink five or more drinks, or females who drink four or more drinks, on one occasion in the past month are considered binge alcohol users. Heavy alcohol use refers to binge drinking on each of five or more days in the past month.³

In Kentucky, 8.7% of adults over the age of 18, and 2.2% of youth between the ages of 12-17 reported struggling with alcohol dependence or abuse in 2019-2020.⁴ While the rate of alcohol dependence in Kentucky is lower than the national average, (11.0% for adults ages 18 and up, 2.9% for youth ages 12-17), the rate of alcohol-induced deaths in the state has sharply increased over time from 6.6 per 100,000 in 2013 to 14.6 in 2020. The largest increase in the rate of alcohol-induced deaths occurred between 2019 and 2020: from 10.7 to 14.6 per 100,000 deaths.⁵ A national study found that alcohol-related deaths and alcohol-associated liver disease deaths increased by 25.5% and 22.4%, respectively, during the COVID-19 pandemic. The rise in alcohol-associated liver disease most sharply increased among those ages 25-44 years.⁶

Health Impacts of AUD

AUD is associated with significant and costly health conditions such as psychiatric conditions, liver disease, increased risk of cancer, cirrhosis of the liver, and hepatitis.⁷ AUD is also associated with a higher rate of death. In the United States, an estimated 80,000 people die annually from alcohol-related causes, making alcohol the third leading preventable cause of death.⁸ Excessive alcohol consumption, or binge drinking, is costly to the United States and, more locally, Kentucky. One study estimated the cost of excessive alcohol consumption in Kentucky in 2010 at \$3.195 billion. This estimate considered the health care costs of binge drinking (e.g., hospitalization, fetal alcohol syndrome, drugs/services) as well as economic costs in terms of productivity (e.g., impaired productivity at work, mortality, incarceration).⁹

Treatments for AUD

Effective medication-based treatments for AUD have been approved by the Food and Drug Administration (FDA) and include disulfiram, oral naltrexone, extended-release naltrexone, and acamprosate.^{10,11} Non-medication treatments, such as cognitive behavioral therapy, are also considered effective for AUD.¹² Despite the availability of treatments, only 6.7% of adults with AUD utilize medication-based treatments.¹³ In 2019, 8.1% of Kentucky adults over the age of 18 reported

needing, but not receiving, treatment for AUD.¹⁴ There is a clear need to better understand and identify gaps in treatment access and utilization to ensure those with AUD can achieve optimal health outcomes.

METHODS

This study used Kentucky Medicaid claims data from 1/1/2012-12/31/2019 as well as county-level maps to assess geographic variation in AUD

prevalence and treatment use. The sample was limited to individuals ages 14 years and older who had a diagnosis of AUD and alcoholic liver disease (ALD). International Classification of Disease (ICD-9/ICD-10) codes, in conjunction with the Healthcare Common Procedure Coding System (HCPCS) codes, were used to determine whether an individual had received behavioral therapies such as alcohol rehabilitation/detoxification and alcoholism counseling, individual or group psychotherapy, or pharmacotherapy for AUD. Using this information, individual-level datasets were created to identify whether an individual had AUD or ALD and whether they had received treatment.

STUDY OBJECTIVES

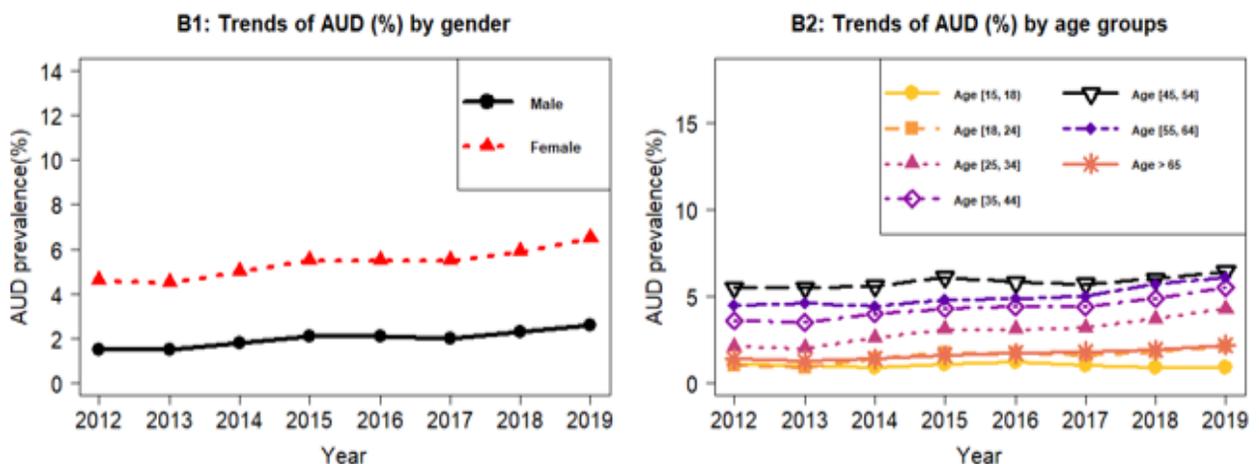
- Assess the geographic variation of AUD prevalence among Kentucky Medicaid beneficiaries
- Identify risk factors for AUD
- Assess the use of AUD treatment

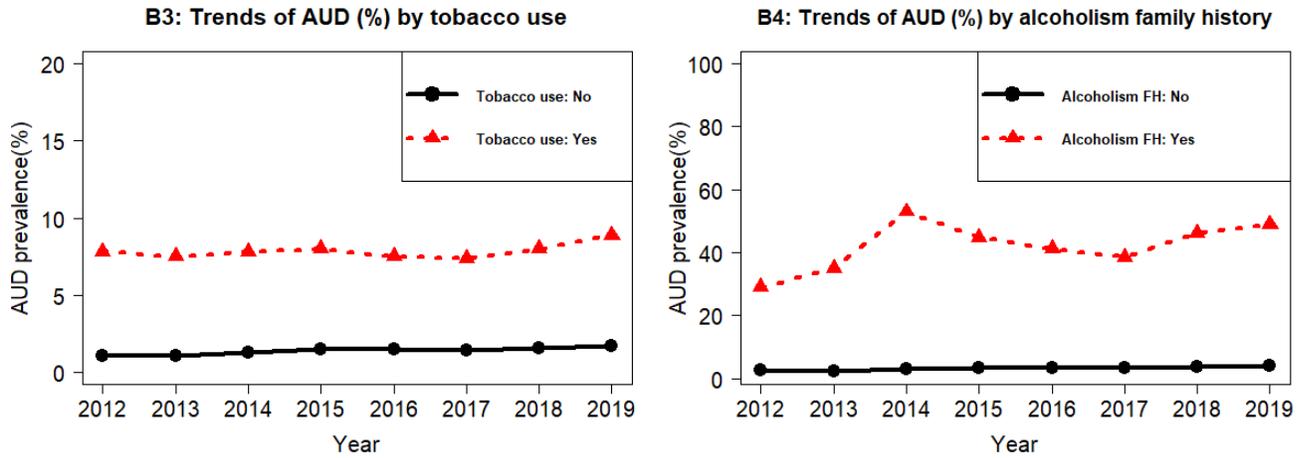
Multiple logistic regression models were used to examine the impact of different treatments for AUD. Descriptive statistics were used to summarize the association between outcomes and treatment groups (namely, no AUD treatment, psychotherapy only, medication only, both psychotherapy and medication) for those with AUD.

KEY FINDINGS

Among Kentucky Medicaid beneficiaries, the prevalence of AUD increased from 2.58% in 2012 to 4.21% in 2019. Of those with AUD, 24% to 28% had alcohol-associated organ diseases such as alcohol-induced mental disorders, alcoholic cardiomyopathy, and liver disease. Non-Hispanic Blacks, those living in urban areas, males, individuals between the ages of 45 and 54 years, and individuals who used tobacco had higher prevalence of AUD. Individuals with a family history of alcoholism were almost 1.5 times more likely than those without a family history of alcoholism to have AUD (Figure 1).

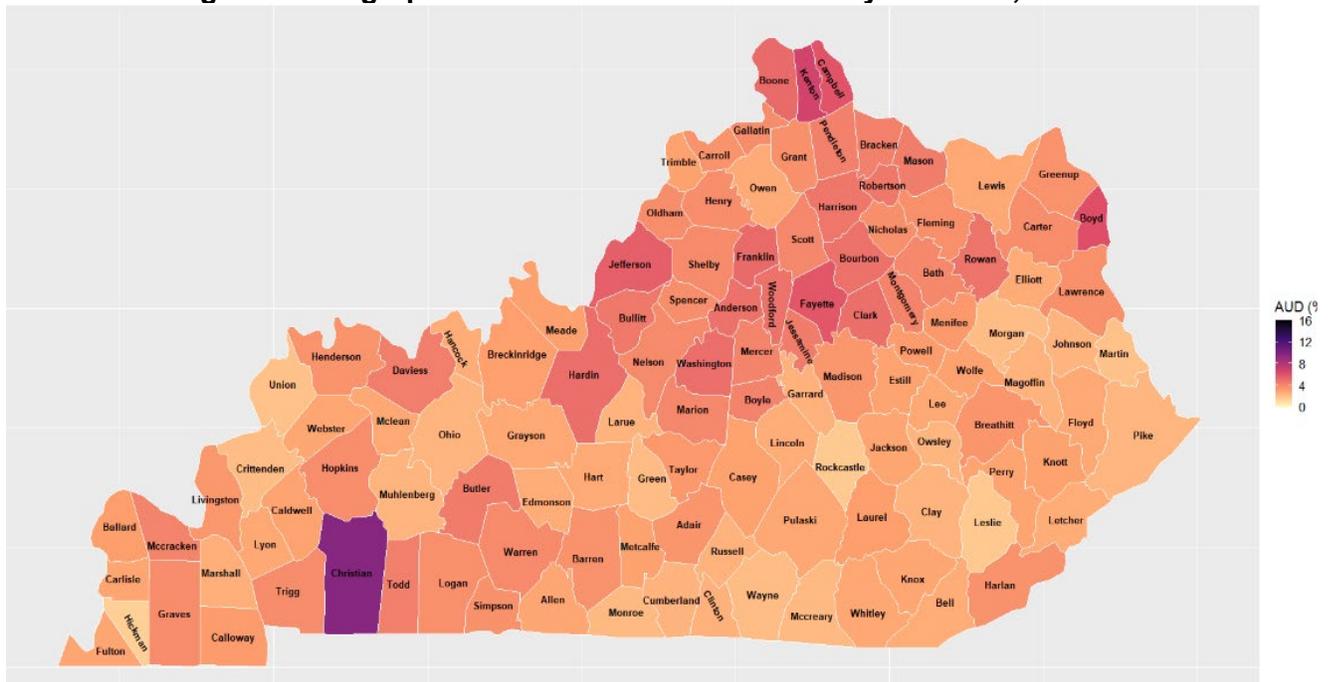
Figure 1. Trends in AUD among Kentucky Medicaid Beneficiaries, 2012-2019





There was variation in AUD by geography, with the highest rates in Louisville and surrounding areas, the Northern Kentucky-Cincinnati area, and Fayette and Franklin Counties. Christian County had the highest AUD prevalence among all counties (Figure 2).

Figure 2. Geographic Variation of AUD in Kentucky Counties, 2019



Alcohol Associated Liver Disease

Among those with alcohol-associated liver disease (ALD), 73% and 12% had a diagnosis of cirrhosis and hepatitis, respectively. Overall, ALD has increased over time, with increases observed specifically in alcoholic hepatitis and liver damage. Males had a higher prevalence of ALD than females (Figure 3). Prevalence of ALD increased with age but peaked at ages 55-64 (Figure 4). Medical costs for individuals with ALD (median of \$3,000) were much higher than for individuals without ALD (median of \$1,000) (Figure 5).

Figure 3. Trends for ALD by Gender, Kentucky Medicaid Beneficiaries, 2012-2019

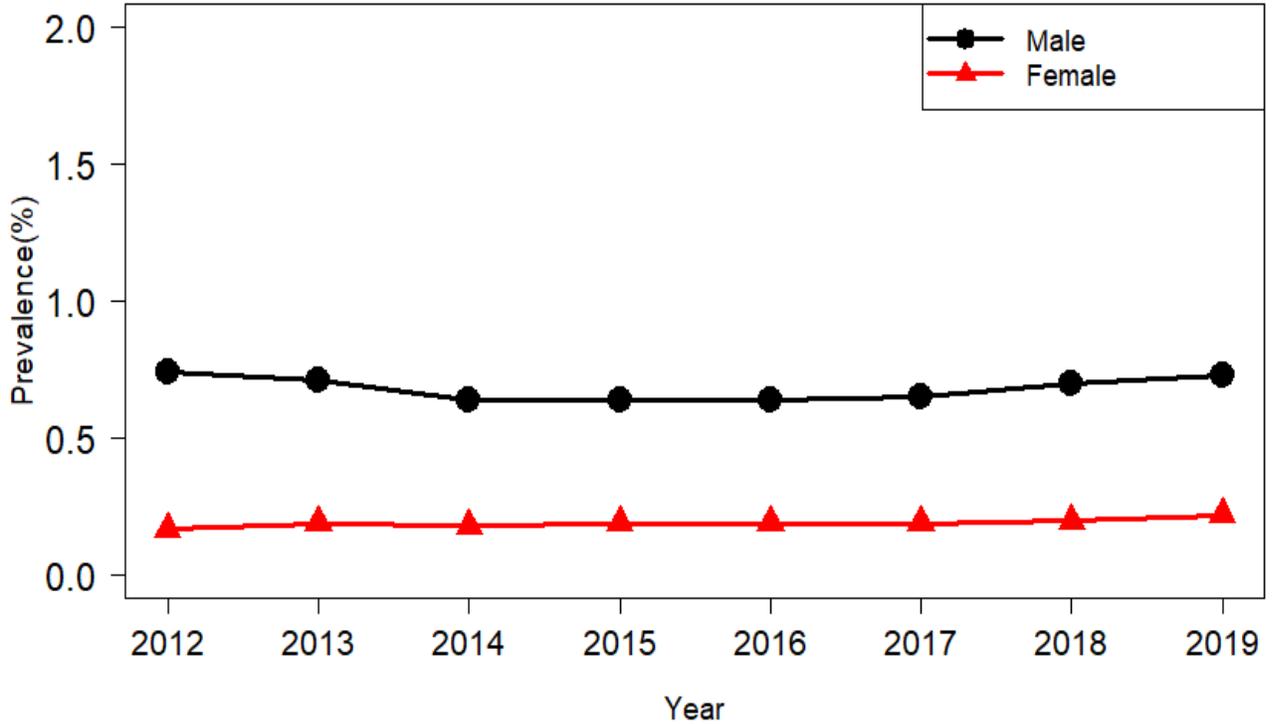


Figure 4. Trends for ALD by Age Group, Kentucky Medicaid Beneficiaries, 2012-2019

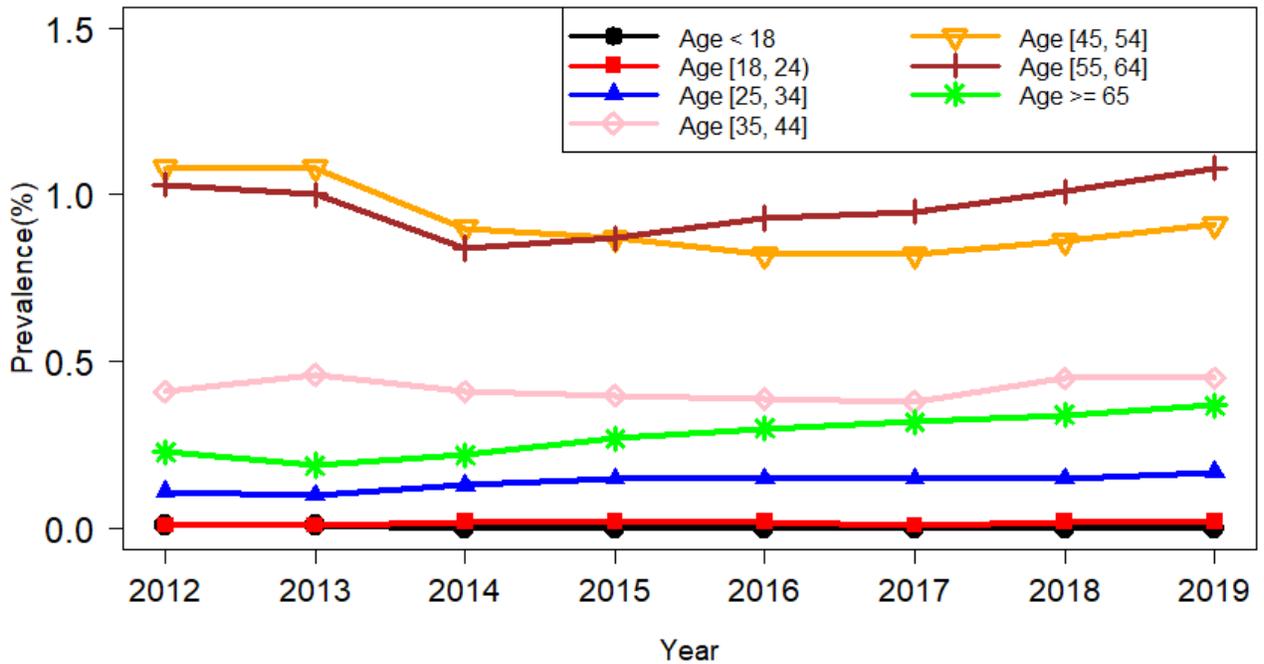
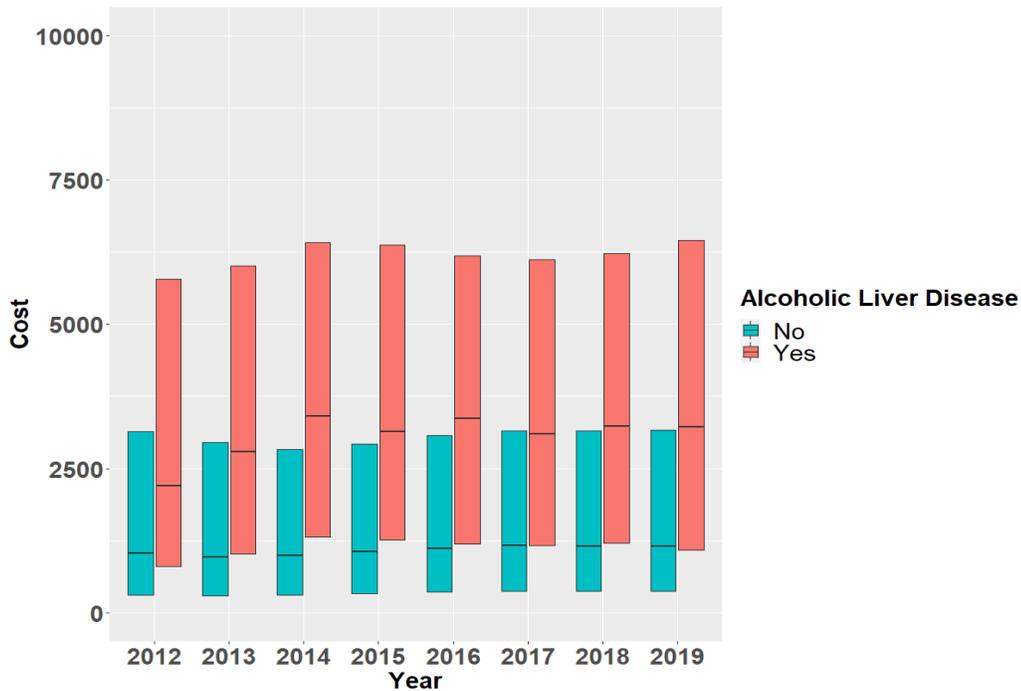


Figure 5. ALD-Related Medical Expenses, Kentucky Medicaid Beneficiaries, 2012-2019

AUD Treatment

Treatments for AUD include medication as well as psychosocial treatments such as counseling. For this study, four FDA-approved drugs were assessed (disulfiram, oral naltrexone, extended-release naltrexone, and acamprosate) in addition to psychosocial treatment. The overall use of medication-based treatment of AUD has increased among Kentucky Medicaid beneficiaries from 2.9% in 2012 to 8.1% in 2019. Counseling treatment has increased significantly from 1.6% in 2012 to 19% in 2019, with the largest increase among those who use counseling for at least three hours per session, three times per week. Females were more likely to use medication and counseling-based AUD treatment as compared to males though they were less likely to use rehabilitation/detoxification methods. Non-Hispanic whites had the highest use of treatment across all types. Non-Hispanic Black individuals had the lowest use of medication-based treatment, and Hispanic individuals had the lowest use of psychotherapy as well as the lowest overall treatment use. Individuals with a family history of alcoholism were more likely to use AUD treatment.

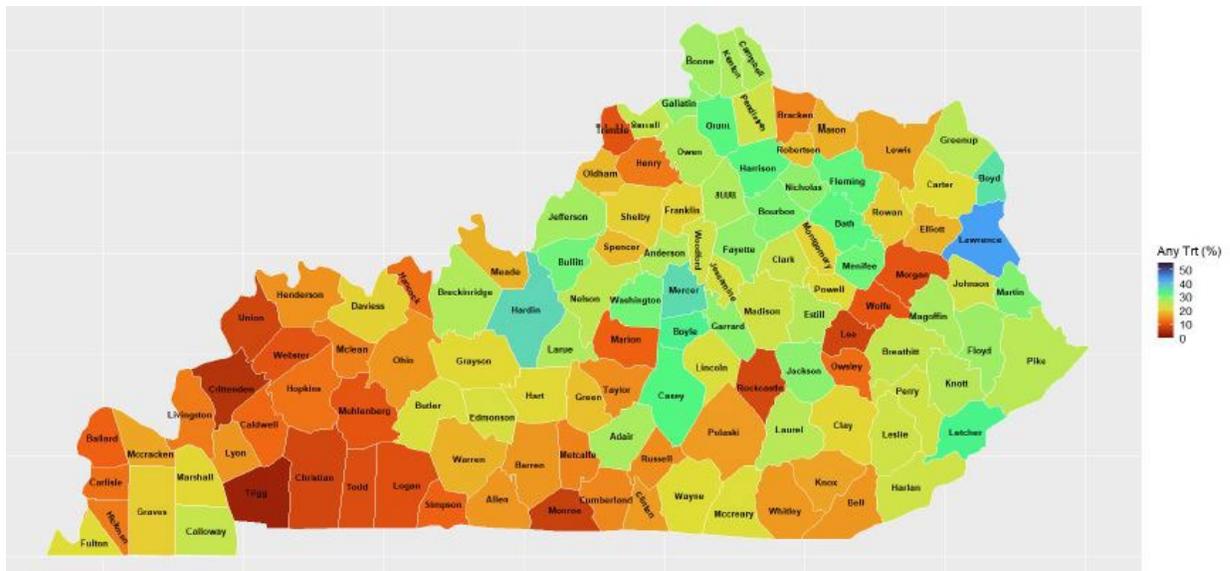
KEY FINDINGS

- As individuals age, the likelihood of progressing from AUD to organ disease increases
- Females were less likely than males to progress from AUD to organ disease
- Individuals with congestive heart failure were more likely to progress to organ disease, while those with dementia, rheumatoid disease, and opioid use disorder were less likely
- Individuals who received counseling were much less likely to be hospitalized or use the emergency department

Geographic treatment use disparities were also observed, with those living in rural areas less likely to use AUD treatment than those living in urban areas. County-level maps from 2019 show AUD treatment use and type throughout the Commonwealth, with the lowest rates of any treatment in the

Western Kentucky region and the highest rates in Northern and Eastern Kentucky (Figure 6).

Figure 6. AUD Treatment Use, Kentucky Medicaid Beneficiaries, 2019



ADDRESSING AUD THROUGH POLICY AND PRACTICE INTERVENTIONS

Excessive alcohol use contributes significantly to physical and psychological illness, injury and death, and a wide array of social and economic harms. Policy and practice interventions can ease the burden of adverse alcohol-related outcomes. Robust and comprehensive interventions are best implemented at multiple levels. Some examples of effective policies to address AUD include:

1. Individual level

- a. **Screening, Brief Intervention, and Referral to Treatment for Substance Use Disorder (SBIRT):** Clinical providers can use SBIRT to screen for patients who are at risk for AUD. An alcohol-specific tool, the AUDIT, can be used with a patient to identify the severity of alcohol use and suggest strategies for addressing the patient's needs.¹⁵ Because alcohol use during pregnancy is a leading cause of birth defects in the United States, providers caring for pregnant people should routinely screen for alcohol use and refer them to treatment.¹⁶
- b. **Brief motivational interventions:** These interventions may occur via mail, online, or in person and are designed to enhance motivation and commitment to change problematic alcohol use. Interventions provide direct and individualized feedback specific to a person's alcohol use, including harm-reduction skills, general education about alcohol, and comparisons of self-reported drinking behavior to a specific reference group (e.g., typical male, typical college student).¹⁷
- c. **Medication-assisted treatment:** This study found that medication-based treatment, while effective, is not fully utilized by all who can benefit. While specific barriers among the Medicaid population studied here are unknown, other research identifies one

significant barrier as a gap in provider knowledge about medications to treat AUD.^{18,19} Expanding and supporting provider education, particularly among providers who do not typically work in addiction medicine (e.g., primary care providers), has the potential to increase access to medication-based treatment for AUD. Psychotherapy is an important component of medication-assisted treatment and can support the development of positive behaviors as an individual recovers from AUD. It can also address underlying depression or anxiety disorders, often at the root of AUD.²⁰

2. Population level

- a. **Prevention education:** Evidence-based educational programs are available for all ages, from elementary school to college students. One of these programs, *Raising Healthy Children*, found reductions in heavy alcohol use six years after the completion of the intervention.²¹ A comprehensive listing of evidence-based programs and outcomes can be found [here](#).
- b. **Increase the price of alcohol:** Excise taxes are levied on a single good or service, with costs passed on from the purchaser to the consumer. Alcohol is subject to excise taxes at the federal and state level, as well as state sales tax. Excise taxes for alcohol are generally charged per gallon. For instance, the Kentucky excise tax for distilled spirits with 6% or less alcohol content is \$0.25/gallon.²² Evidence indicates that increasing the excise tax on alcoholic beverages can reduce alcohol misuse, including reducing the number of alcohol-related car fatalities.^{23,24}

KENTUCKY LEGISLATIVE ACTION

In March 2022, House Bill 752 was introduced by Representative Chad McCoy. This bill proposed decreasing the excise tax on distilled spirits up to 14% alcohol content from \$1.92/gallon to \$0.25/gallon, which is the current excise tax on spirits up to 6%.²⁵ This bill was introduced in the House but died in Committee.

CONCLUSION

Alcohol use and misuse are on the rise nationally and in Kentucky. This study explored the prevalence and impact of AUD among Medicaid beneficiaries in Kentucky and found that while AUD and ALD are increasing, treatment utilization remains low. There are opportunities to further explore specific barriers and facilitators for treatment among those with AUD in Kentucky to better target strategies to ease the burden of alcohol use. Population-based educational, clinical, and policy strategies can address alcohol misuse and treatment beyond the individual and may improve the overall health and well-being of the population as well as address economic losses to the Commonwealth as a result of alcohol misuse.

CONTACT INFORMATION

For more information about this issue brief or to learn more about the Commonwealth Institute of Kentucky, please contact:

Email: cik@louisville.edu

Website: <https://louisville.edu/sphis/departments/cik>

REFERENCES

- ¹ National Institute on Alcohol Abuse and Alcoholism. (n.d.). Understanding Alcohol Use Disorder. <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/understanding-alcohol-use-disorder>
- ² Substance Abuse and Mental Health Services Administration (SAMHSA). (2018). The National Survey on Drug Use and Health. <https://www.samhsa.gov/data/report/slides-2018-nsduh-annual-national-report>
- ³ Cargiulo T. (2007). Understanding the health impact of alcohol dependence. *American journal of health-system pharmacy : AJHP : official journal of the American Society of Health-System Pharmacists*, 64(5 Suppl 3), S5–S11. <https://doi.org/10.2146/ajhp060647>.
- ⁴ Kaiser Family Foundation. State Health Facts. Individuals Reporting Alcohol Dependence or Abuse in the Last Year, 2019-2020. <https://www.kff.org/other/state-indicator/individuals-reporting-alcohol-dependence-or-abuse-in-the-past-year/?currentTimeframe=0&sortModel=%7B%22colld%22:%22Location%22,%22sort%22:%22asc%22%7D>.
- ⁵ Kaiser Family Foundation. State Health Facts. Alcohol Induced Deaths. <https://www.kff.org/other/state-indicator/alcohol-induced-death-rate-per-100000-population/?activeTab=graph¤tTimeframe=0&startTimeframe=11&selectedRows=%7B%22states%22:%7B%22kentucky%22:%7B%7D%7D%7D&sortModel=%7B%22colld%22:%22Location%22,%22sort%22:%22asc%22%7D>.
- ⁶ White, A. M., Castle, I. P., Powell, P. A., Hingson, R. W., & Koob, G. F. (2022). Alcohol-Related Deaths During the COVID-19 Pandemic. *JAMA*, 327(17), 1704–1706. <https://doi.org/10.1001/jama.2022.4308>.
- ⁷ O’Shea RS., Dasarathy, S., McCullough, AJ. (2010). Practice guideline committee of the American Association for the study of liver diseases and the practice parameters committee of the American College of Gastroenterology. Alcohol liver disease. *Hepatology*, 51(1), 307-28.
- ⁸ Cargiulo T. (2007). Understanding the health impact of alcohol dependence. *American journal of health-system pharmacy : AJHP : official journal of the American Society of Health-System Pharmacists*, 64(5 Suppl 3), S5–S11. <https://doi.org/10.2146/ajhp060647>.
- ⁹ Sacks, J. J., Gonzales, K. R., Bouchery, E. E., Tomedi, L. E., & Brewer, R. D. (2015). 2010 National and State Costs of Excessive Alcohol Consumption. *American journal of preventive medicine*, 49(5), e73–e79. <https://doi.org/10.1016/j.amepre.2015.05.031>.
- ¹⁰ Wackernah, R. C., Minnick, M. J., & Clapp, P. (2014). Alcohol use disorder: pathophysiology, effects, and pharmacologic options for treatment. *Substance abuse and rehabilitation*, 5, 1–12. <https://doi.org/10.2147/SAR.S37907>.
- ¹¹ Abuse A, Consensus A. (2016). Medications for alcohol use disorder. *American Family Physician*, 93(6), 457-65.
- ¹² Carroll, K. M., & Kiluk, B. D. (2017). Cognitive behavioral interventions for alcohol and drug use disorders: Through the stage model and back again. *Psychology of addictive behaviors : journal of the Society of Psychologists in Addictive Behaviors*, 31(8), 847–861. <https://doi.org/10.1037/adb0000311>.
- ¹³ Substance Abuse and Mental Health Services Administration (SAMHSA). National Survey on Drug Use and Health (NSDUH). 2015 (NSDUH-2015-DS0001) Public-Use File Dataset. Available at: <https://www.datafiles.samhsa.gov/study-dataset/national-survey-drug-use-and-health-2015-nsduh-2015-ds0001-nid16894>.
- ¹⁴ Kaiser Family Foundation. (2019-2020). State Health Facts. Individuals Reporting Needing but Not Receiving Treatment for Alcohol Use in the Past Year. <https://www.kff.org/other/state-indicator/individuals-reporting-needing-but-not-receiving-treatment-for-alcohol-use-in-the-past-year/?currentTimeframe=0&sortModel=%7B%22colld%22:%22Location%22,%22sort%22:%22asc%22%7D>.
- ¹⁵ SBIRT. Tools. <https://www.sbirt.care/tools.aspx>.
- ¹⁶ National Institute on Alcohol Abuse and Alcoholism. (June 2021). Fetal Alcohol Exposure. [https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/fetal-alcohol-exposure#:~:text=not%20be%20present,-,Alcohol%2DRelated%20Birth%20Defects%20\(ARBD\),hearing%3B%20and%20reduced%20immune%20function](https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/fetal-alcohol-exposure#:~:text=not%20be%20present,-,Alcohol%2DRelated%20Birth%20Defects%20(ARBD),hearing%3B%20and%20reduced%20immune%20function).
- ¹⁷ Cronce, J. M., & Larimer, M. E. (2011). Individual-focused approaches to the prevention of college student drinking. *Alcohol research & health : the journal of the National Institute on Alcohol Abuse and Alcoholism*, 34(2), 210–221.

- ¹⁸ Leung, J. G., Narayanan, P. P., Markota, M., Miller, N. E., Philbrick, K. L., Burton, M. C., & Kirchoff, R. W. (2022). Assessing Naltrexone Prescribing and Barriers to Initiation for Alcohol Use Disorder: A Multidisciplinary, Multisite Survey. *Frontiers in psychiatry*, 13, 856938. <https://doi.org/10.3389/fpsy.2022.856938>.
- ¹⁹ Im, G. Y., Mellinger, J. L., Winters, A., Aby, E. S., Lominadze, Z., Rice, J., Lucey, M. R., Arab, J. P., Goel, A., Jophlin, L. L., Sherman, C. B., Parker, R., Chen, P. H., Devuni, D., Sidhu, S., Dunn, W., Szabo, G., Singal, A. K., & Shah, V. H. (2021). Provider Attitudes and Practices for Alcohol Screening, Treatment, and Education in Patients With Liver Disease: A Survey From the American Association for the Study of Liver Diseases Alcohol-Associated Liver Disease Special Interest Group. *Clinical gastroenterology and hepatology : the official clinical practice journal of the American Gastroenterological Association*, 19(11), 2407–2416.e8. <https://doi.org/10.1016/j.cgh.2020.10.026>.
- ²⁰ Patel, A. K., & Balasanova, A. A. (2021). Treatment of Alcohol Use Disorder. *JAMA*, 325(6), 596. <https://doi.org/10.1001/jama.2020.2012>.
- ²¹ Substance Abuse and Mental Health Services Administration (US), & Office of the Surgeon General (US). (2016). *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*. US Department of Health and Human Services.
- ²² Kentucky Department of Revenue. (April 2022). Instructions for Monthly Report of Distillers, Rectifiers, or Bottlers. [https://revenue.ky.gov/Forms/73A525\(1\)\(4-22\)rev.pdf](https://revenue.ky.gov/Forms/73A525(1)(4-22)rev.pdf).
- ²³ World Health Organization. SAFER Initiative. <https://www.who.int/initiatives/SAFER/pricing-policies>.
- ²⁴ Substance Abuse and Mental Health Services Administration (US), & Office of the Surgeon General (US). (2016). *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*. US Department of Health and Human Services.
- ²⁵ Kentucky General Assembly. Kentucky HB752. <https://apps.legislature.ky.gov/record/22rs/hb752.html>