



# Health Policy Brief

Tobacco, alcohol and health series

## Health impacts of **excessive alcohol use** in Ohio

Advancing evidence-informed policies to reduce excessive alcohol use is one of the most powerful things public and private leaders can do to improve health, increase road safety and decrease violence across Ohio communities. If proven alcohol prevention strategies are implemented, Ohioans can live longer and healthier lives. For example, school-based programs that equip adolescents with skills to delay alcohol use can prevent young people from engaging in risky binge drinking and progressing to heavy drinking in adulthood. That generational change can, in turn, lead to fewer families losing loved ones to car crashes, violence and liver disease.

HPIO's **2021 Health Value Dashboard™** reported that Ohio has a higher rate of excessive drinking than most other states. A rise in alcohol-related deaths and growing awareness of the dangers of coerced alcohol use through hazing emphasize the importance of reducing excessive drinking among young people and adults.

### 3 key findings for policymakers

- **Reducing excessive alcohol use** is a powerful way to improve health, advance health equity and reduce healthcare spending.
- **Systemic barriers to health**, such as pandemic-related stress, discrimination and targeted marketing, drive trends and disparities in excessive alcohol use.
- **Public and private partners** can implement proven strategies to protect communities from the harms of excessive alcohol use and keep young people from becoming dependent on alcohol or other drugs.

## How does alcohol use affect health and healthcare spending?

### How does alcohol use impact health outcomes?




Alcohol use contributes to significant negative health consequences across all ages (see figure 1).

Alcohol use during pregnancy is linked to fetal alcohol spectrum disorders (FASDs), which cause symptoms in children such as low body weight, sleep problems and learning disabilities.<sup>1</sup> Alcohol use during adolescence has negative consequences on the developing brain and can lead to poor academic performance, mental health problems and heavy drinking later in life.<sup>2</sup> Alcohol use in adulthood poses an increased risk for many health consequences including cardiovascular disease, cancers, liver disease, learning and memory problems, mental health problems and alcohol use disorder.<sup>3,4</sup> Alcohol use also contributes to violence, motor vehicle crashes, family problems and unemployment.<sup>5</sup>

### Terms used in this brief

- **Binge drinking:** A pattern of alcohol use that brings blood alcohol concentration levels to 0.08% or more. This is usually defined as consuming four drinks or more for women and five drinks or more for men on a single occasion, generally within about two hours.<sup>6</sup>
- **Heavy drinking:** Consuming eight drinks or more per week for women and 15 drinks or more per week for men.<sup>7</sup>
- **Excessive alcohol use:** Includes binge drinking, heavy drinking, any alcohol use by individuals under the age of 21 years (minimum legal drinking age) and any alcohol use by pregnant women.<sup>8</sup>

Figure 1. **Health consequences of alcohol**

<b>Alcohol<sup>9, 10, 11, 12</sup></b>	
<b>Perinatal period</b> 	<ul style="list-style-type: none"> <li>• Fetal alcohol spectrum disorders (FASDs)</li> <li>• Miscarriage and stillbirth</li> </ul>
<b>Infants, children and adolescents</b> 	<ul style="list-style-type: none"> <li>• Poor academic performance</li> <li>• Mental health problems (depression, anxiety, sleep disturbance, self-injury and suicidal behavior)</li> <li>• Heavy drinking in adolescence can lead to heavy drinking into adulthood</li> <li>• Injuries (motor vehicle crashes, domestic violence, etc.)</li> </ul>
<b>Adults and all ages</b> 	<p><b>Acute</b></p> <ul style="list-style-type: none"> <li>• Injuries (motor vehicle crashes, falls, drowning, burns)</li> <li>• Violence (homicide, suicide, sexual assault, intimate partner violence)</li> <li>• Alcohol poisoning/overdose</li> <li>• Risky sexual behaviors</li> </ul> <p><b>Chronic</b></p> <ul style="list-style-type: none"> <li>• Cardiovascular disease (heart disease, high blood pressure, stroke)</li> <li>• Cancer (breast, mouth, throat, esophagus, voice box, liver, colon and rectum)</li> <li>• Digestive problems (pancreatitis, gastritis, liver disease)</li> <li>• Weakened immune system</li> <li>• Learning and memory problems</li> <li>• Mental health problems (depression and anxiety)</li> <li>• Social problems (family disruption, unemployment)</li> <li>• Alcohol use disorder or dependence</li> </ul>

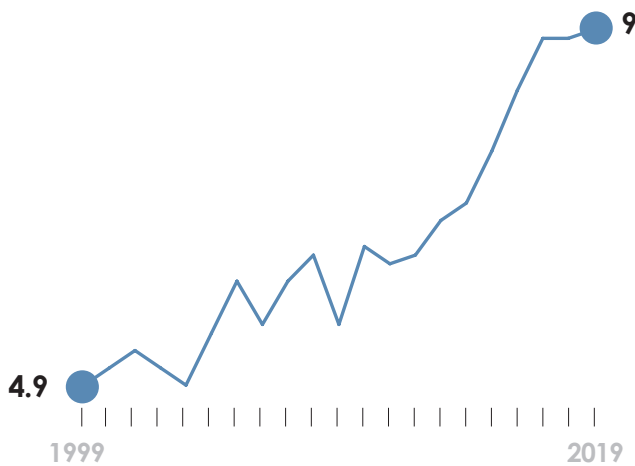
Alcohol-involved deaths increased dramatically over the past decade (see figure 2).<sup>13</sup> This trend in Ohio is consistent with national increases in deaths related to alcohol, other drugs and suicide—often referred to as “deaths of despair.” A recent [Ohio University analysis](#) concluded that diseases of despair (drug overdoses, suicide and alcohol-related liver disease combined) were the sixth leading cause of death in Ohio from 2010-2019, increasing 89.2% during that period.<sup>14</sup>

## Alcohol and cancer

There is strong evidence that drinking alcohol can cause several types of cancer. During digestion, the body breaks alcohol down into a chemical called acetaldehyde, which damages DNA. When DNA is damaged, cells can grow out of control and create a cancerous tumor.<sup>15</sup> Decreasing alcohol consumption can substantially reduce the risk of common cancers, such as:

- Breast cancer
- Colorectal cancer
- Liver cancer
- Esophageal cancer<sup>16</sup>

Figure 2. Alcohol-involved deaths\*, rate per 100,000 people, Ohio, 1999-2019



\* "Alcohol-involved deaths" are defined by the Centers for Disease Control and Prevention (CDC) using ICD-10 codes describing 100% alcohol-attributable deaths driven by long-term alcohol use (e.g., alcoholic cardiomyopathy, alcoholic hepatitis, alcohol-induced pancreatitis), as well as acute causes of death (e.g., alcohol poisoning).

**Source:** Data from the State Health Access Data Assistance Center (SHADAC) State Health Comparison



### How does alcohol use affect COVID-19 infection?

Health problems associated with alcohol use (see figure 1) contribute to increased risk of SARS-CoV-2 infection and severe COVID-19 illness.<sup>17</sup> For example, altered immune function caused by alcohol use can increase susceptibility to infection<sup>18</sup>, and individuals who excessively use alcohol are at increased risk of hospitalization, acute respiratory distress syndrome (ARDS), pneumonia and death associated with COVID-19 compared to those without any substance use disorders.<sup>19,20,21</sup>

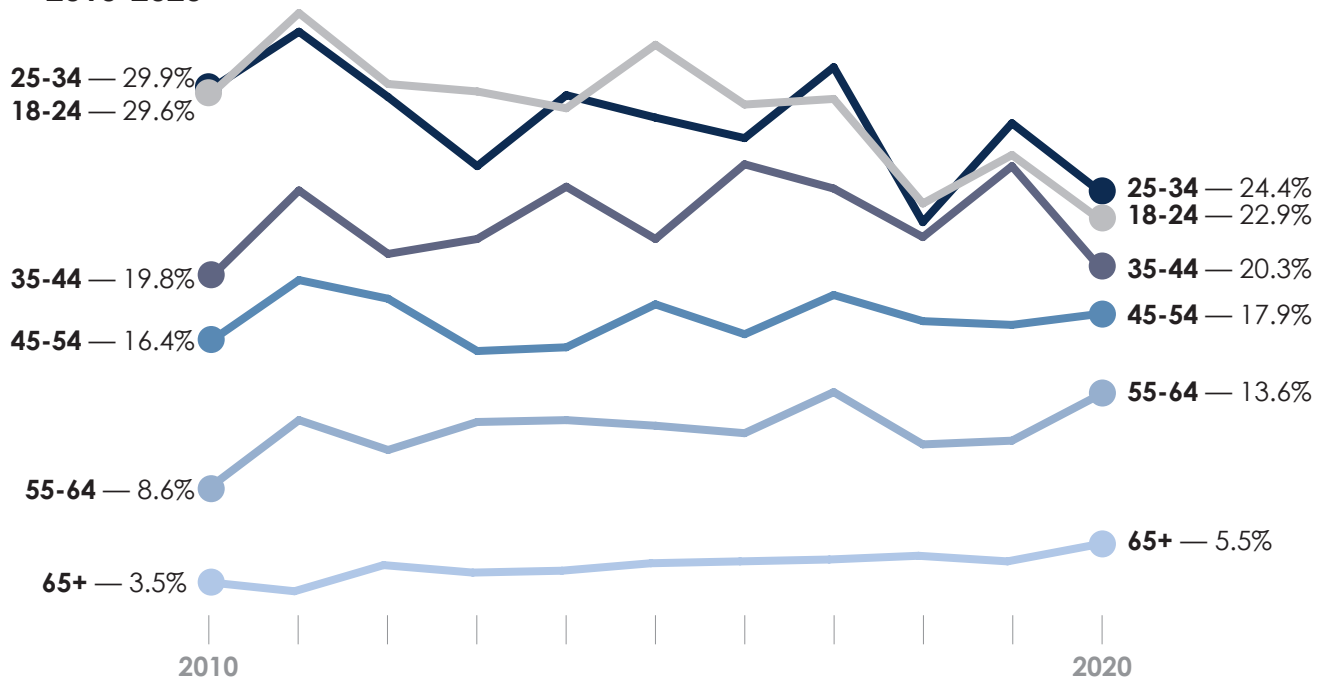
### How does excessive alcohol use impact healthcare spending?

There are significant healthcare costs associated with alcohol use and excessive drinking. In 2010, excessive alcohol use was estimated to cost the U.S. \$249 billion, with costs to the healthcare system totaling \$28 billion and additional losses of \$179 billion and \$25 billion in workplace productivity and criminal justice, respectively.<sup>22</sup> More recently, HPIO analysis found that excessive drinking is associated with \$10 billion in annual losses for Ohio (healthcare, workplace productivity and criminal justice costs), when adjusted for 2020 dollars.<sup>23</sup>

### What are recent trends in alcohol use in Ohio?

Differences in binge drinking by age have declined over the past decade, with rates falling for younger Ohioans and increasing for older Ohioans (see figure 3). Across different age groups, the most notable increases in adult binge drinking from 2010 to 2020 were among adults ages 55-64 and 65+. There were also notable increases among multi-racial and Hispanic Ohioans.<sup>24</sup> At the same time, there has been a clear shift in drinking patterns among men and women. While binge drinking remains more common among males than females, the percent of Ohio women who reported binge drinking during the past month increased 15% from 2010 to 2020, compared to a 17% decline for men during that time.<sup>25</sup>

Figure 3. Percent of adults who binge drank in the past 30 days, by age, Ohio, 2010-2020





Source: Behavioral Risk Factor Surveillance Survey, CDC

### Ohioans most at risk

Due to factors such as trauma, discrimination and marketing strategies (described below), some groups of Ohioans are at higher risk of alcohol use and the associated harms. Figure 4 lists groups with rates of binge and heavy drinking that are at least 30% higher than Ohio overall.

Figure 4. Ohioans most at risk for alcohol-related harms

	<b>Binge drinking</b> 4+ drinks for women and 5+ drinks for men within 2 hours	<b>Heavy drinking</b> 8+ drinks for women and 15+ drinks for men per week
<b>Youth</b> 	<ul style="list-style-type: none"> <li>12th grade youth*</li> <li>Youth who are gay, lesbian or bisexual</li> <li>Youth who are not sure of their sexual identity*</li> </ul>	N/A
<b>Adult</b> 	<ul style="list-style-type: none"> <li>Young adults (ages 19-34)</li> <li>People without insurance</li> <li>Adults who are gay, lesbian, bisexual or a sexual orientation other than straight**</li> </ul>	<ul style="list-style-type: none"> <li>People with 14 or more poor mental health days in the past month**</li> <li>Adults who are gay, lesbian, bisexual or a sexual orientation other than straight**</li> </ul>

\*2019 Youth Risk Behavior Survey (YRBS)

\*\*HPIO analysis of 2018-2020 Behavioral Risk Factor Surveillance System (BRFSS) data (pooled years)

Source: Data is from the 2019 Ohio Medicaid Assessment Survey (OMAS), unless otherwise identified.

Notes: "Most at risk" is defined as groups with prevalence at least 30% higher than Ohio overall for adults (OMAS and BRFSS) or youth (YRBS). Gay, lesbian and bisexual response options are different in the BRFSS and the YRBS and are not included in OMAS. Gender identity is not included in the YRBS and the BRFSS transgender sample size is small.

## What drives trends and disparities in alcohol use?

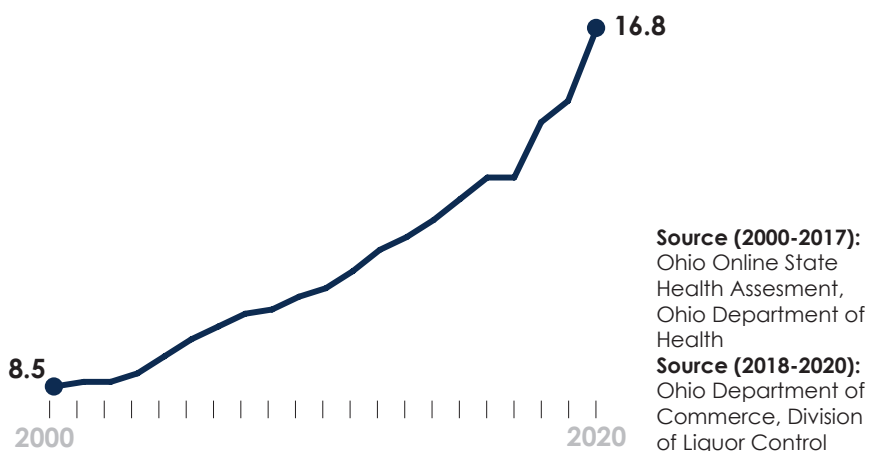
Many factors drive trends and disparities in alcohol use, including the COVID-19 pandemic, toxic stress, trauma, poor mental health, marketing and retail density. This section explores key findings from analysis of Ohio data, as well as a brief summary of research describing the policy-relevant factors that contribute to changes over time in alcohol use and differences between groups.

### COVID-19 pandemic

The pandemic appears to have accelerated alcohol consumption trends that began during the past decade. The sharp increase in the amount of liquor sold in Ohio from 2017 to 2020 (see figure 5) indicates that an existing upward trend in alcohol consumption may have been exacerbated by social isolation and stress during the pandemic.

Research indicates that people who already drank heavily prior to 2020 were more likely to increase their alcohol consumption and that caregiving responsibilities, stress, depression and anxiety were associated with increased substance use during the COVID-19 crisis.<sup>24</sup> Heavy drinking may have increased more for women than for men during the pandemic<sup>27</sup>, which also reflects trends that predate 2020. Increased psychological distress linked to factors such as pandemic-related isolation, caregiving responsibilities and domestic violence may have contributed to increased drinking among women.<sup>28</sup>

Figure 5. Liquor sales in Ohio (millions of gallons), by year



### Trauma and toxic stress

Repeated exposure to traumatic events creates toxic stress that can cause lasting poor physical and mental health outcomes, including excessive drinking.<sup>29</sup> Adverse childhood experiences (ACEs), including abuse, neglect and household challenges, such as substance use by a parent, are a key measure of childhood trauma. HPIO analysis estimates that if ACEs were eliminated in Ohio, 19% of heavy drinking could be prevented.<sup>30</sup> Additional analysis finds that exposure to four or more ACEs increases the odds of reported binge and heavy drinking later in life compared to those with less exposure to ACEs.<sup>31</sup>

### Poor mental health and discrimination

**Mental health and stress.** Alcohol use disorder and mental health conditions often co-occur. Stress and trauma, among other environmental factors, can lead to the development of both mental health conditions, like depression, and substance use disorders through physiological changes to the body.<sup>32</sup> As a result, those diagnosed with alcohol use disorder were 2.3 times more likely to have major depressive disorder and 1.7 times more likely to have dysthymia (chronic, long-lasting depression) than those without alcohol use disorder.<sup>33</sup>

People with mental health conditions can turn to alcohol as a form of self-medication to cope with toxic stress. However, alcohol use can worsen symptoms of mental health conditions over time.<sup>34</sup> In Ohio, people who self-reported a high number of days (14 or more) when their mental health was “not good” were 1.3 times more likely to report binge drinking and 1.5 times more likely to report heavy drinking than people who reported 13 or fewer days of “not good” mental health in a month (see figure 6).<sup>35</sup>

**Discrimination.** Lesbian, gay and bisexual youth in Ohio are more likely to binge drink.<sup>36</sup> Discrimination, such as homophobia and transphobia, is a primary driver of alcohol use for these youth.<sup>37</sup> Experiences of discrimination, including familial rejection, bullying, harassment and gender stereotypes, can increase stress, negatively affect mental health and contribute to the use of alcohol by LGBTQ+ youth to cope.<sup>38</sup>

In 2019, lesbian, gay and bisexual youth in Ohio were over two times more likely to report feeling sad or hopeless almost every day for two or more weeks than Ohio youth overall. They were also over 1.5 times more likely to binge drink than Ohio youth overall.<sup>39</sup>

## Marketing and retail density

### Alcohol marketing, young adults and women.

Alcohol marketing often targets young adults. Because perceptions of alcohol-related peer behaviors and attitudes are a primary motivator of alcohol use, marketing via social media is especially effective at encouraging young people to start drinking.<sup>40</sup> Young women are particularly targeted with advertising for fruity alcoholic soda drinks<sup>41</sup> or alcoholic beverages with fewer calories or less sugar.<sup>42</sup>

### Alcohol retail density and communities of color.

Alcohol retail density refers to the number of alcohol-selling outlets (e.g., bars, liquor stores, convenience stores) by area or population. Restrictions on alcohol retail density through licensing or zoning processes are associated with lower rates of consumption, violent crime, underage drinking, intimate partner violence and child abuse.<sup>43</sup> A national study found that urban census tracts with higher proportions of poor, Black and Latino residents had greater density of alcohol retailers.<sup>44</sup> Reducing alcohol retail outlet density can have a significant positive impact on the health of these communities, and can protect residents from disproportionate downstream harms.

## Data gaps and limitations

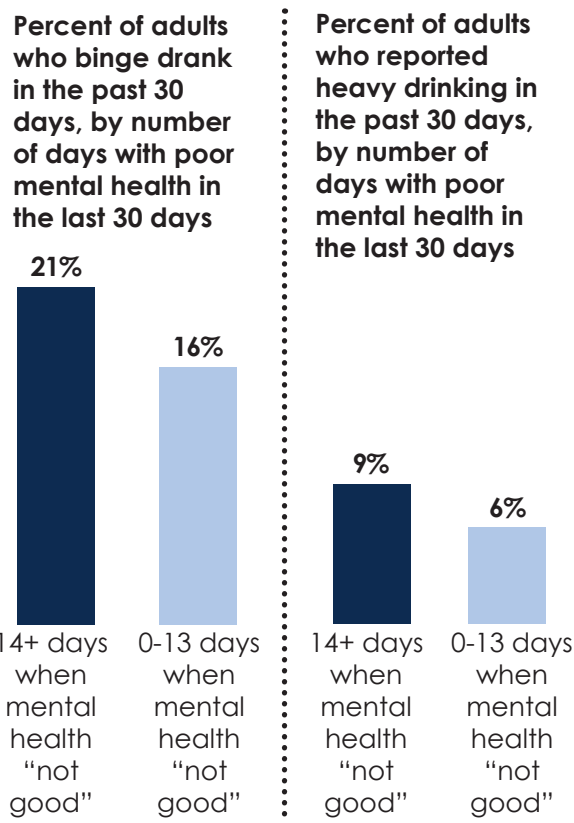
There are gaps in available alcohol use data in Ohio that limit information about trends and disparities. First, there is a disconnect between trends in self-reported alcohol use captured by household surveys and actual alcohol sales data, which may be a better indicator of consumption. Recent increases in liquor sales (see figure 5), for example, are far larger than reported alcohol consumption results in the Behavioral Risk Factor Surveillance Survey (BRFSS) indicate. It is possible that the binge and heavy drinking measures from the survey data provide an incomplete picture of drinking behavior.

Second, reliable trend data on youth drinking has been hampered by limited participation in the Youth Behavior Risk Survey (YRBS), which was not able to report results in 2015 or 2017. BRFSS methodology changes to the heavy drinking measure also make it challenging to document changes over time. Third, data on alcohol use among some ethnic groups is limited by small sample sizes (Asian, Native American, etc.). Finally, while questions about sexual orientation have been added to the YRBS and BRFSS in recent years, small sample sizes and lack of data on transgender Ohioans remain a challenge to adequately describe alcohol use trends among sexual and gender minorities.

## What works to reduce alcohol-related harms?

Decades of research have led to a strong understanding of what works to prevent youth drinking, reduce excessive alcohol use, increase access to addiction treatment and reduce alcohol-impaired driving and alcohol-related violence. See the [What Works to Reduce Excessive Alcohol Use matrix](#) for a comprehensive list of effective strategies.

Figure 6. **Mental health, binge drinking and heavy drinking, Ohio, 2020**



Source: Behavioral Risk Factor Surveillance Survey, CDC

Ohio has made some progress in advancing these strategies (see figure 7) but can do more to strengthen alcohol-related policies. The [Centers for Disease Control and Prevention](#), for example, identifies Ohio's low excise taxes on beer and wine as areas where state policy does not align with evidence for what works to improve health.<sup>45</sup>

Figure 7. **Examples of effective strategy implementation across sectors**

<p><b>Businesses: Other retailers</b></p> 	<p><b>Tobacco and alcohol marketing: Montgomery County Alcohol, Drug and Mental Health Services (ADAMHS) Board</b></p> <p>The <a href="#">Conscious Retailer Program</a> builds a public/private partnership between the ADAMHS Board, tobacco and alcohol retailers and prevention providers to reduce advertisements for tobacco and alcohol products at retail stores. Retailers are incentivized by the ADAMHS Board with advertising and social media campaigns recognizing them as a community partner if they reduce tobacco and alcohol marketing and use through methods such as:</p> <ul style="list-style-type: none"> <li>• Tobacco and alcohol signage covering 20% or less of store windows</li> <li>• Posting age-restriction signs for purchasing products</li> <li>• Reducing point-of-sale advertising</li> </ul>
<p><b>Law enforcement</b></p> 	<p><b>Enhanced enforcement of laws prohibiting underage alcohol sales: Lake County Sheriff Department</b></p> <p>Crossroads Behavioral Health partnered with the Lake County Sheriff Department to conduct retailer compliance checks to deter underage alcohol sales.</p>
<p><b>Schools</b></p> 	<p><b>Screening Brief Intervention and Referral to Treatment (SBIRT): Norwood City Schools</b></p> <p>Norwood was among the first school districts to conduct screening for alcohol and drug use using the SBIRT tool. They combine SBIRT with standard scoliosis screening in grades 6, 7, 8 and 9 and connect students with resources to prevent substance use disorder.</p>

### Policy recommendations

Stronger implementation of evidence-based strategies would improve the health of Ohioans, advance equity and reduce healthcare spending, including:

- **Enhanced enforcement to prevent underage sales:** Local entities, including partnerships between law enforcement and youth-serving organizations, can conduct retail compliance checks to ensure stores do not sell alcohol to people under age 21.
- **School-based alcohol prevention:** K-12 schools can implement evidence-based, universal prevention programs to provide students with information and skills to reduce youth drinking. Colleges and universities can launch social norms campaigns to reduce misperceptions of alcohol use and reduce binge drinking.
- **Regulation of alcohol outlet density:** Local governments can limit the number and concentration of alcohol outlets by area or population through licensing or zoning processes.
- **Alcohol taxes:** State policymakers can increase the excise tax rates on beer, wine and liquor.
- **Screening:** Healthcare providers and schools can implement Screening, Brief Intervention and Referral to Treatment (SBIRT) to intervene early in order to prevent alcohol dependence among youth and adults.
- **Tailored addiction treatment:** Addiction treatment providers can develop treatment services for people with alcohol use disorder that meet the needs of LGBTQ+ Ohioans, young adults, people with poor mental health and others most at risk for alcohol-related harms.
- **Ignition interlocks:** State policymakers can require ignition interlocks for first offense of alcohol-impaired driving.

Lessons learned from alcohol can inform future drug policy in Ohio, including potential legalization of recreational cannabis. See

### Tobacco, Alcohol and Health: Implications for Future Cannabis Policy

to learn more about policy options to develop an equitable and effective approach to cannabis.



# Acknowledgements

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## Notes

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