



## RESEARCH SUMMARY

Date Compiled: May 2018

### Key Takeaways from Included Research

- There is growing global awareness that increased taxes on alcohol are needed to help stem the tide of non-communicable (chronic) diseases. A number of economic analyses show that these tax increases are not “regressive” (i.e., more harmful to poor people) but instead help reduce health disparities.
- Given the progress the U.S. has made with underage drinking, it is now time to utilize a multi-layered, public health approach to reducing excessive alcohol consumption in the college setting. Strategies could include restricting availability at university events and/or screening and counseling for alcohol misuse.
- Data show that campaign contributions from the wine industry to officials running for state offices have increased over time. On average, increases in wine industry campaign contributions in states usually results in decreases in wine excise taxes in those states, and possibly in neighboring states.
- An analysis in 2017 of the websites for national cancer societies in Australia, Canada, Ireland, New Zealand, the UK, and the USA found that only the American (American Cancer Society) and Canadian (Canadian Cancer Society) websites fail to state that alcohol is a group-1 carcinogen and can cause cancer at low doses, and that there is no safe threshold for cancer risk.
- A single episode of binge drinking may cause sleep disruption, according to a rodent study. This study adds to evidence that binge drinking disrupts sleep patterns, which can lead to a host of related health and behavioral issues.
- Alcohol consumption may allow harmful bacteria to flourish in the drinker’s mouth – leading to the development of periodontal diseases and caries, heart disease, and even some cancers (head and neck and gastrointestinal).

### **TAXES FOR HEALTH: EVIDENCE CLEARS THE AIR**

April 2018

Non-communicable diseases (NCDs) [usually called chronic diseases in the U.S.] are the leading cause of premature death in most of the world, and lower income households in most societies bear a disproportionate share of the associated preventable deaths ... Taxes are an underused instrument for the prevention of premature death and disease because they can discourage consumption of products like tobacco, alcohol, and sugary beverages that contribute to cardiovascular disease, cancers, diabetes, mental health problems, and injuries, and are associated with almost 10 million premature deaths each year. Tobacco and alcohol taxes consistently raise prices, reduce consumption, and save lives, while generating additional revenues to support public services ... The global community is beginning to learn the scale of the problem and the role taxes might have in addressing this risk factor ...

In most countries, the burden of preventable NCDs associated with tobacco, alcohol, and obesity is itself regressive. Compared with richer households, people with lower incomes get sick more often and die earlier from consuming tobacco, alcohol, and non-essential energy dense foods ...

**Source:**

Summers, L. H. (2018). Taxes for health: Evidence clears the air. *The Lancet*.

**Full text (free with registration):** [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)30629-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)30629-9/fulltext)

**Related Media Coverage:**

Express (UK): [Chronic diseases can be curbed with 'sin taxes', study finds](#)

South China Morning Post: [Tax tobacco, alcohol, soft drinks to help poor beat lifestyle diseases such as diabetes and strokes, global health leaders urge](#)

**ALCOHOL AWARENESS MONTH AND COLLEGE DRINKING**

April 2018

April is Alcohol Awareness month and it seems like many young people are getting the message. The good news is that they're are drinking less than previous generations. Surveys of 8th, 10th and 12th graders show that rates have been steadily declining. The current cohort of college students are consuming less alcohol than in previous years, and their non-student peers are drinking even less.

There is speculation that the "Generation Z" cohort tend to be conscientious about what they consume and are not interested in repeating the embarrassing antics of earlier generations. They seem to be more accepting of others' choices, including not drinking.

But overuse of alcohol is still taking a big toll on college campuses. According to the National Institute on Alcohol Abuse and Alcoholism:

- About 696,000 students between the ages of 18 and 24 are assaulted by another student who has been drinking.
- About 97,000 students between the ages of 18 and 24 report experiencing alcohol-related sexual assault.
- About 1,825 college students between the ages of 18 and 24 die from alcohol-related unintentional injuries, including motor-vehicle crashes.

The drinking culture can vary from college to college but at schools where spectator sports are big, drinking rates tend to be higher. A study on the correlation between March Madness participation and college drinking found that one-third of students over 21 and one-fourth of underage students engaged in binge drinking when the school team was part of the NCAA Tournament. They also found that when alcohol was less available at sporting events there were fewer "arrests, assaults, ejections from the stadium, and student referrals to the judicial affairs office," – all unfortunate situations that can have an impact on a student's academic future ...

**Source:** Healthy Alcohol Marketplace

**Free full text:** <http://healthyalcoholmarket.com/wordpress/>

## **WINE INDUSTRY CAMPAIGN CONTRIBUTIONS AND WINE EXCISE TAXES: EVIDENCE FROM U.S. STATES**

April 2018

Given the growing importance of the wine industry in the United States, wine special interests are on the rise. Data shows that campaign contributions from the wine industry to officials running for state offices have increased over time. Given this reality, one can expect wine excise tax to remain low in states that receive higher campaign contributions. In addition, there are theoretical and empirical reasons to believe that these tax rates are interdependent based on Tiebout competition and yardstick competition. Based on this reasoning, one can hypothesize wine excise tax rates to be spatially dependent. In this study, I test this hypothesis using state-level campaign contributions data from the National Institute on Money in State Politics and Distilled Spirits Council of the United States, Inc. and find that there is strong statistical evidence of spatial dependence between state wine excise tax rates.

### **Source:**

Pokharel, S. B. (2018). Wine industry campaign contributions and wine excise taxes: Evidence from US States. *Journal of Wine Economics*, 13(1), 3-19.

**Full free text:** <http://www.wine-economics.org/aawe/wp-content/uploads/2018/04/Vol13-Issue01-Wine-Industry-Campaign-Contributions-and-Wine-Excise-Taxes-Evidence-from-U.S.-States-Shree-B.-Pokharel.pdf>

### **Related Media Coverage:**

Forbes: [A New Study Says State Political Campaign Contributions Affect Wine Excise Taxes](#)

## **NATIONAL CANCER SOCIETIES AND THEIR PUBLIC STATEMENTS ON ALCOHOL CONSUMPTION AND CANCER RISK**

April 2018

### **Abstract**

**Background and aims:** Studies have shown that alcohol consumption is a risk factor for oral, pharyngeal, laryngeal, esophageal, liver, colon, rectal, and breast cancer. It would therefore be expected that cancer prevention organizations would incorporate these facts into their public stance on the consumption of alcohol. The aims of this study were to: 1) assess how national cancer societies in developed English-speaking countries (i.e., English-speaking countries belonging to the Organization for Economic Co-operation and Development (OECD)) communicate alcohol-related cancer risk to the public and 2) compare whether these organization's advocacy of increased alcohol taxes is in line with their advocacy of tobacco tax increases to reduce cancer risk.

**Methods:** We searched the websites of the following national cancer organizations for all statements related to the relationship between alcohol consumption and cancer risk: Cancer Council Australia, Canadian Cancer Society, Irish Cancer Society, Cancer Society New Zealand, Cancer Research UK, and the American Cancer Society. A categorical system was developed to code the qualitative data for health statements, alcohol consumption recommendations, and tax policy recommendations. Websites were analysed in 2017.

**Results:** All organizations with the exception of the American Cancer Society and Canadian Cancer Society state that alcohol is a group 1 carcinogen and that even low-level alcohol consumption increases risk for some cancers. Additionally, while the American Cancer Society supports increasing

tobacco taxes through its cancer action network, it has not advocated for increased alcohol taxes in relation to support for tobacco tax increases.

**Conclusion:** Analysis in 2017 of the websites for national cancer societies in Australia, Canada, Ireland, New Zealand, the UK, and the USA -- including Cancer Council Australia (CCA), the Canadian Cancer Society (CCS), the Irish Cancer Society (ICS), Cancer Society New Zealand (CSNZ), Cancer Research UK (CRUK), and the American Cancer Society (ACS) -- shows that only the ACS and CCS websites fail to state that alcohol is a group-1 carcinogen and can cause cancer at low doses, and that there is no safe threshold for cancer risk.

**Source:** Amin, G., Siegel, M., & Naimi, T. (2018). National cancer societies and their public statements on alcohol consumption and cancer risk. *Addiction*.

## **A SINGLE EPISODE OF BINGE ALCOHOL DRINKING DISRUPTS SLEEP HOMEOSTASIS TO CAUSE SLEEP DISRUPTIONS**

April 2018

### **Abstract**

**Introduction:** Binge alcohol drinking, a risky pattern of alcohol consumption, is highly prevalent in United States. Due to its high prevalence and significant association with severe long-term health and social consequences, binge drinking is considered a major public health issue. Binge alcohol drinking causes severe sleep disruptions. Sleep disruptions in alcoholics are associated with increased risk for substance abuse. How does binge alcohol consumption affect sleep regulation to cause sleep disruptions?

**Methods:** Adult male C57BL/6J mice were used as animal model. Four experiments were designed. The first experiment verified binge pattern of alcohol self-administration. Second experiment monitored the effects of binge alcohol consumption on spontaneous sleep-wakefulness. The third experiment evaluated the effects of binge alcohol consumption on electrophysiological and biochemical indicators of sleep homeostasis using sleep deprivation-recovery sleep paradigm. The fourth experiment examined expression of genes controlling sleep homeostasis.

**Results:** Our results are as follows: 1) when allowed to self-administer alcohol in a non-stressful environment, mice consumed alcohol in a binge pattern. 2) While sleep-wakefulness remained unchanged during binge drinking session, significant increase in NREM sleep was observed during 4 hours of dark period post-binge. Although the timing of sleep onset (at lights-on) remained unaffected, increased wakefulness, reduction in NREM and REM sleep was observed during subsequent sleep (light) period. 3) Mice exposed to binge drinking did not develop sleep pressure during sleep deprivation. Cortical theta power and basal forebrain adenosine levels did not increase during sleep deprivation; NREM sleep and NREM delta power did not increase during recovery sleep. 5) While binge alcohol drinking did not affect the expression of adenosine kinase and A1 receptor, expression of equilibrative nucleoside transporter 1 (ENT1) was significantly reduced.

**Conclusion:** These results suggest that binge alcohol consumption induced downregulation of ENT1 expression may disrupt sleep homeostasis and cause sleep disturbances.

**Source:**

Sharma, R., Sahota, P., & Thakkar, M.M. (2018). A single episode of binge alcohol drinking disrupts sleep homeostasis to cause sleep disruptions. *Sleep*, 41(S1), A87.  
<https://doi.org/10.1093/sleep/zsy061.222>

**Free full text:**

<https://www.tandfonline.com/doi/full/10.1080/24694452.2018.1431105?scroll=top&needAccess=true&>

**DRINKING ALCOHOL IS ASSOCIATED WITH VARIATION IN THE HUMAN ORAL MICROBIOME IN A LARGE STUDY OF AMERICAN ADULTS**

April 2018

**Abstract**

**Background:** Dysbiosis of the oral microbiome can lead to local oral disease and potentially to cancers of the head, neck, and digestive tract. However, little is known regarding exogenous factors contributing to such microbial imbalance.

**Results:** We examined the impact of alcohol consumption on the oral microbiome in a cross-sectional study of 1044 US adults. Bacterial 16S rRNA genes from oral wash samples were amplified, sequenced, and assigned to bacterial taxa. We tested the association of alcohol drinking level (non-drinker, moderate drinker, or heavy drinker) and type (liquor, beer, or wine) with overall microbial composition and individual taxon abundance. The diversity of oral microbiota and overall bacterial profiles differed between heavy drinkers and non-drinkers ( $\alpha$ -diversity richness  $p = 0.0059$  and  $\beta$ -diversity unweighted UniFrac  $p = 0.0036$ ), and abundance of commensal order Lactobacillales tends to be decreased with higher alcohol consumption (fold changes = 0.89 and 0.94 for heavy and moderate drinkers,  $p$  trend = 0.005 [ $q = 0.064$ ]). Additionally, certain genera were enriched in subjects with higher alcohol consumption, including *Actinomyces*, *Leptotrichia*, *Cardiobacterium*, and *Neisseria*; some of these genera contain oral pathogens, while *Neisseria* can synthesize the human carcinogen acetaldehyde from ethanol. Wine drinkers may differ from non-drinkers in microbial diversity and profiles ( $\alpha$ -diversity richness  $p = 0.048$  and  $\beta$ -diversity unweighted UniFrac  $p = 0.059$ ) after controlling for drinking amount, while liquor and beer drinkers did not. All significant differences between drinkers and non-drinkers remained after exclusion of current smokers.

**Conclusions:** Our results, from a large human study of alcohol consumption and the oral microbiome, indicate that alcohol consumption, and heavy drinking in particular, may influence the oral microbiome composition. These findings may have implications for better understanding the potential role that oral bacteria play in alcohol-related diseases.

**Source:**

Fan, X., Peters, B. A., Jacobs, E. J., Gapstur, S. M., Purdue, M. P., Freedman, N. D., et al. (2018). Drinking alcohol is associated with variation in the human oral microbiome in a large study of American adults. *Microbiome*, 6(1), 59.

**Free full text:** <https://microbiomejournal.biomedcentral.com/articles/10.1186/s40168-018-0448-x>

**Related Media Coverage:**

Medical News Today: [Alcohol promotes disease by altering oral bacteria](#)