Using New Technology and Concepts on the Oldest Addiction on Earth, Alcoholism

features, applications and public health implications

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Abstract

Alcohol is the world's most harmful drug. Its effects are felt collectively throughout the fabric of society. Its insidious toxicity can affect all organs of the body and

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permanently alter brain pathways. For some, it is enjoyed with no repercussion. This is recreational drinking. Most drinkers use alcohol in a way that is always pleasant. In others, alcohol becomes a metaphorical parasite leading to uncontrolled desire, harm, and self-destruction. The definition of alcoholism is most parsimoniously "Repeated harm from use." This distinction has eluded policy makers. The concept of an alcohol purchase license is proposed to make a relatively simple fix to a huge public health issue. Many attempts have been made to control consumption and curb high-risk and heavy use with variable success. In a world of emerging technology, new possibilities for the prevention of serious harm and rehabilitation are possible. In this chapter, the landscape of alcohol policy is reviewed, and a proposal is made for a twenty-first-century solution involving the creation of a licensing system for alcohol use to combat one of the world's most dangerous problems.

Keywords

Public health, Alcohol, Alcohol use disorder, Binge drinking, Public policy, Banned Drinkers Registrar, Alcohol restriction, Addiction, Addiction medicine, Harm reduction

List of Abbreviations

APL	Alcohol purchase license
AUD	Alcohol use disorder
BAC	Blood alcohol content
BDO	Banned Drinkers Order
BDR	Banned Drinkers Register
ICD-10	International Classification of Diseases-10
ID	Identification
USA	United States

Introduction

Alcohol is one of the most destructive drugs on earth. Excessive use is associated with substantial loss of life and monetary cost to society. In 2012, 3.3 million deaths or 5.9% of global deaths were estimated to be attributable to alcohol use (World Health Organization 2014), yet alcohol remains ubiquitous and underregulated with few exceptions globally. In terms of cost to society in monetary expenditure for all drugs, tobacco and alcohol use far exceed all other drugs (Fig. 1). In 2010, tobacco and alcohol were estimated to cost the United States $300 and $249 billion dollars, respectively (U.S. Department of Health and Human Services 2014; Sacks et al. 2015; Xu et al. 2015).

This chapter will focus on alcohol harm reduction. Tobacco use and its associated sequelae are difficult to compare with alcohol use. Alcohol use is complicated and non-homogenous. Most alcohol users drink recreationally. Even among those who

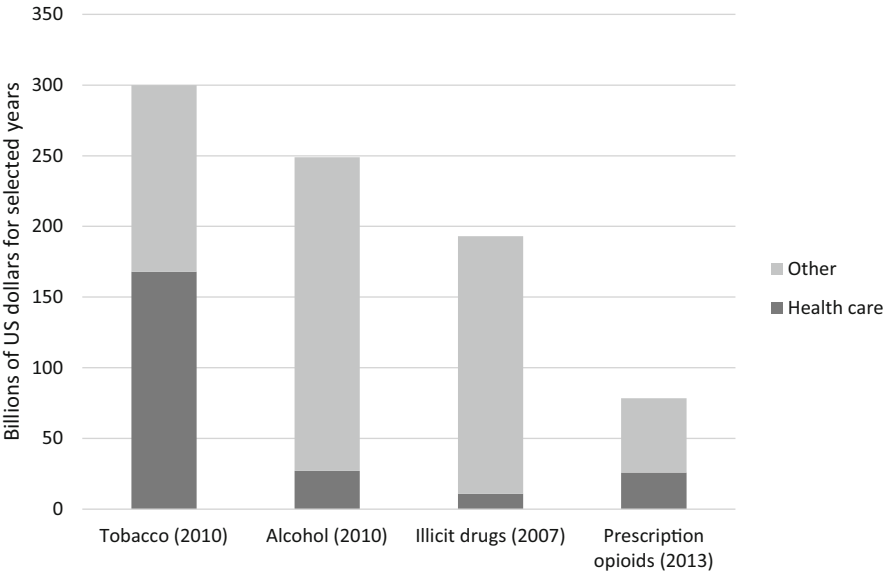

Fig. 1 The cost of drug use in the United States for different drugs in selected years
Data presented as drug (year of available data). "Other" refers to all other harm-related costs involved with drug use including but not limited to loss of productivity, criminal justice, and property damage. Tobacco: (U.S. Department of Health and Human Services 2014) and (Xu et al. 2015). Alcohol: (Sacks et al. 2015). Illicit drug: (National Drug Intelligence Center 2011). Prescription opioids: (Florence et al. 2016)

drink excessively (defined as 4 or more drinks for women and 5 or more drinks for men in a single occasion, 8 or more drinks for women or 15 or more drinks a week for men, or any alcohol use for minors or pregnant women), only 10% could be classified as alcohol dependent (Esser et al. 2014). Compare this with tobacco use where around 50% of users meet Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for dependence (Baker et al. 2012).

Alcoholism is most parsimoniously described as "Repeated harm from use." Persistent heavy alcohol use begets addiction, and drinking becomes a literal horror. Once consistent use is established, the ventral tegmental dopaminergic seeking system is permanently changed resulting in craving, an unquenchable seeking feedback loop that may never disappear (Johnson 2013). The affected person often wakes up in withdrawal and must drink immediately. Social, occupational, legal, and medical consequences ensue.

In 2010, the Independent Scientific Committee on Drugs, a UK-based drugs advisory committee, met to review and appraise drug-related societal and self-harm. A variety of legal and illicit drugs were discussed and assigned a score from 0 (no harm) to 100 (the most harm) for a multitude of factors: physical, psychological, and social harms in two general categories – harms to users and others. The score from these categories was added to form a composite harm score. Alcohol was

appraised to cause the most harm with a total score of 72 followed by heroin (55) and crack cocaine (54), methamphetamine (33), cocaine (27), and tobacco (26) (Nutt et al. 2010).

In the United States, alcohol use, particularly high-risk use, is highly prevalent. In 2019, a national survey on drug use and health reported that 56% of respondents 21 years of age and older had used alcohol at least one in the past month, 26% reported binge alcohol use, and 6% reported heavy alcohol use defined as binge drinking on 5 or more days in the past 30 days (SAHMSA 2019). Alcohol use disorder (AUD) as defined by the DSM-5 is highly prevalent as well and grossly undertreated. The National Epidemiologic Survey on Alcohol and Related Conditions III found the 12-month and lifetime prevalence of AUD to be 14% and 29%, respectively (Grant et al. 2015). Among those with lifetime AUD, only 20% were found to have sought treatment.

Binge drinking and heavy alcohol use are associated with innumerable harms at all levels of society and will be further elaborated in the sections to follow. The Gordian knot of alcohol public health policy is the recreational/addiction dichotomy. Increasing the price of alcohol with taxation is the most common intervention. Efficacy is weak. As a political matter, the price of alcohol is paid by all users. Increasing taxes is unlikely to get one elected.

Raising the minimum age to purchase, restrictions on time of sale, and limiting sales outlets, all have been tried with minimal effect. These interventions affect all who drink alcohol, conflating restrictions on recreational users with addicted users. Prohibition has not worked. The seemingly Sisyphean task of creation and implementation of effective public health interventions with a drug that is used both recreationally and addictively requires conceptual clarity and bold action (Tab. 1).

This chapter will provide a brief review of harm related to alcohol use and the public health tactics employed to reduce it. In an era of emerging technology, new lines of action are possible. A proposal for alcohol use licensing in the United States, an alcohol purchase license, and the means of implementing such a program will be discussed.

The Cost of Alcohol-Related Harm

Harm related to alcohol use penetrates all aspects of society and often causes unnecessary premature loss of life and expenditure of money. As described in the introduction, the cost of alcohol use to society, specifically in the United States, is estimated upward of $249 billion dollars per year (Sacks et al. 2015). This estimation is a composite of several categories of cost including but not limited to healthcare, lost productivity (i.e., impaired productivity at work, incarceration, and absenteeism), criminal justice, property damage, and motor vehicle crashes (Fig. 2). Among this cost is an estimated $100 billion direct cost to the US government. In the setting of an industry that is estimated to have a direct economic impact of $122 billion annually (American Beverage Licensees 2018), what is the true value of alcohol use in America?

Table 1 Logic model of selected alcohol control policies and their proposed impact on drinker groups

Intervention	Drinker Group	Drinker group explicitly targeted?
Advertising restrictions	Heavy	-
	Binge	x
	Low-risk	x
	Youth	x
	Secondary suppliers	x
Minimun age requirement	Heavy	-
	Binge	-
	Low-risk	-
	Youth	x
	Secondary suppliers	x
Minumum price requirement and taxation	Heavy	x
	Binge	x
	Low-risk	x
	Youth	x
	Secondary suppliers	x
Legal BAC limits and penalities for drunk driving	Heavy	x
	Binge	x
	Low-risk	x
	Youth	x
	Secondary suppliers	-
Government monopoly of production, import, export and retail sales	Heavy	x
	Binge	x
	Low-risk	x
	Youth	x
	Secondary suppliers	x
Alcohol purchase license	Heavy	x
	Binge	x
	Low-risk	-
	Youth	x
	Secondary suppliers	x

Groups defined as follows: secondary suppliers, distributors of alcohol; youth, 21 years and younger; low risk, alcohol use below the Dietary Guidelines for Americans alcohol intake recommendations; and binge and heavy, binge drinking on 5 or more days in the past 30 days. "x" denotes a targeted group; "-" denotes unaffected. BAC, blood alcohol content

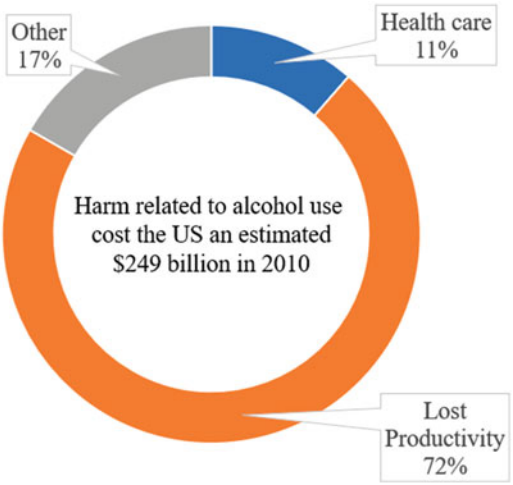

Fig. 2 Percentage breakdown of estimated cost related to harm from alcohol use in the United States in 2010
Sections are labeled as title of category and percentage of total cost. "Other" category includes criminal justice costs, crime-related property damage, motor vehicle crashes, fire losses, and fetal alcohol syndrome. Graph adapted from data presented in Sacks et al. (2015)

Years of alcoholic drinking cause chronic diseases and conditions. Shield et al. (2013) identified 25 chronic diseases and conditions listed in the International Classification of Disease (ICD)-10 that are attributable to alcohol use alone (Shield et al. 2013). These diseases and conditions affect all areas of the body including the neuropsychiatric, gastrointestinal, and cardiovascular systems. Additionally, alcohol has been implicated as a key contributor to as many as 200 other diseases and conditions including a variety of malignant neoplasms, degenerative neurologic condition, diabetes, heart disease, and stroke. In 2010, alcohol-attributable injury, cancer, and liver cirrhosis were estimated to have caused 1,500,000 deaths and 51,898,400 potential years of life lost globally (Rehm and Shield 2013). This loss of life is unacceptable and frequently preventable.

The hostile side of alcoholism is traumatic by imposing harm to others. There is repeated demonstration of associations between alcohol use and violent crimes (~ 40% of cases (Greenfeld and Henneberg 2001)), family and domestic violence (24% to 54% (Mayshak et al. 2020)), suicide attempts (22% (Parks et al. 2014)), traffic-related deaths (28% (National Highway Traffic Safety Administration 2017)), and innumerable other events. The loss of life, psychologic impact, and monetary loss are often priceless and irreplaceable.

Identification and Interception of AUD

The burden of identification and treatment has traditionally fallen on the primary healthcare system as the self-injurious parts of heavy alcohol use, namely, liver cirrhosis, hypertension, sleep, and mood disorders, are commonly screened for and tended to. Unfortunately, the above-listed complications tend to present after the establishment of AUD and would be better treated with prevention than penance.

AUD should be identified and treated as a chronic disease. Failure to identify and treat is no different than any other disease and can lead to serious and often fatal outcomes down the line. Reasonable standardized screening should be started early, and initiation of therapy, pharmacologic or elsewise, should be explored as soon as concern is raised.

Unfortunately, this not frequently the case. In a 2013 cross-sectional analysis of ambulatory care users, only 71.1% received alcohol use assessment. Of those who were identified as high risk or dependent, only 2.9% and 7.0%, respectively, were offered further information or intervention (Glass et al. 2016). We cannot depend on primary care alone to identify and proscribe harmful alcohol use.

Barriers to Treatment of AUD

A 2019 systematic review of barriers to treatment for alcohol dependence defined several significant contributors including shame and stigma, the need to continue drinking, lack of perception for treatment need, and a variety of structural barriers (Fig. 3). To effectively reduce harm related to alcohol use, policies will need to transcend these barriers.

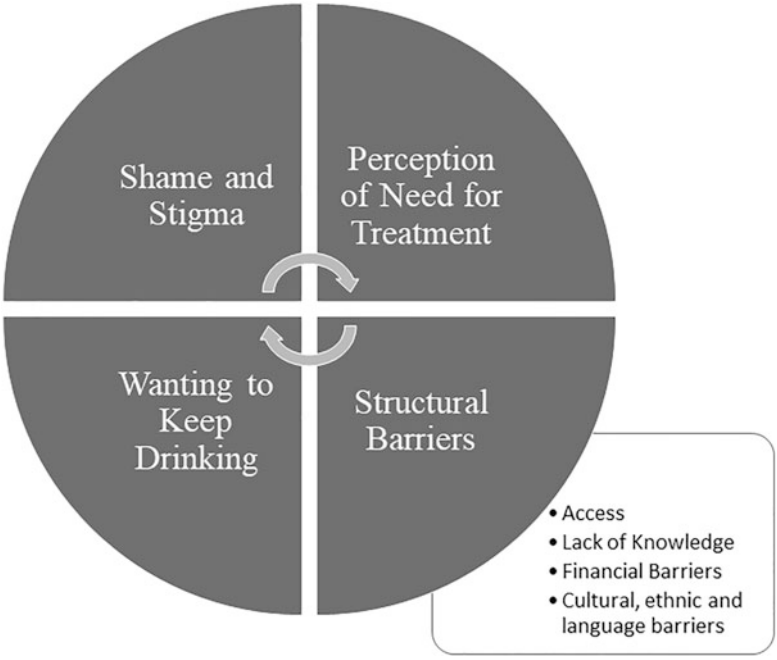

Fig. 3 Common barriers to treatment of alcohol dependence
Adapted from Barriers to Treatment for Alcohol Dependence in the *Journal of Drug and Alcohol Research by* May et al. (2019)

A Tale of Two Drinkers

The distribution of alcohol consumption is preposterously skewed in the United States. The top 10% of drinkers in the United States drink over half of the alcohol consumed per year, while those in the next 60% drink less than one drink per week. The lower 30% consume none at all (Cook 2007). Which group of drinkers would alcohol producers and distributors prefer to be impacted?

The Economics of Alcohol Consumption Deterrence

Most historic alcohol harm minimization policies focus one of two models: total consumption and full-cost models. Both affect the entire population. The total consumption model, supported by Lederman's single distribution theory, proposes that alcohol usage by quantity per capita follows a log-normal curve (Schaffer and Lederman 1965). Therefore, by reducing the average amount of alcohol consumed per capita, binge drinking, heavy alcohol use, and its sequelae would be reduced as well. Several policies have been implemented based on this proposition and have seen variable success - (e.g., minimum price requirements (O'Donnell et al. 2019) and increased taxation (Elder et al. 2010; Gehrsitz et al. 2020), advertising restrictions (Anderson et al. 2009), government alcohol monopolies (Nelson 1990), and prohibition (Blocker Jr 2006).

The full-cost model of alcohol consumption uses a different approach (Gruenewald 2011). The full cost of alcohol is defined as convenience of purchase plus monetary cost. Therefore, by reducing availability, or convenience, through tactics such as employing a paternalistic minimum age requirement, restricting places and times of sale, or raising prices through various policies mentioned above, the overall use of alcohol should decrease.

What each of these models fail to consider is the individual nature of alcohol addiction and the context of alcohol use and its by-products (i.e., domestic violence, impaired driving, property damage, etc.). There is no use of the difference with this approach between recreational and addictive use.

With alcohol now more accessible than ever, alcohol policy needs to improve. The advent of new and emerging technologies allows for exciting opportunities in the realm of harm minimization. Careful consideration of the moral implications of harm minimization techniques, such as restriction of liberties, should be reviewed carefully as to not slide into authoritarianism under the guise of utilitarianism.

The Harm Principle

Justifying the restriction of liberties, such as drinking alcohol, is not an easy task. John Stuart Mill approached a framework for moralistic, as opposed to paternalistic, restriction of liberties in his philosophical essay *On Liberty* (Mill 1869; Brink 2018). He proposed that, in the spirit of harm reduction, restriction of personal liberties is

justifiable if it will prevent someone from acting immorally or prevent someone from risking non-consensual harm to someone else. The dilemma of implementation is defining genuine harm versus simple offense. Mill described harm as an action capable of causing injury or one which poses a threat to protected liberties. Mill described three basic liberties in this work that should be protected including freedom of thought and emotion, freedom to pursue tastes, and freedom to unite.

For the sake of simplification, let's take the case of alcohol. If a person were to drink too much and make gaudy disrespectful jokes, this may be merely offensive which Mill may argue you have the right to offend and be offended (although there could be a case to be made for psychological harm). If this same person were to then assault a non-consenting person physically or get behind the wheel and drive away while impaired, Mill may support a case for government intervention.

A Model for Improvement: Australia's Banned Drinkers Registrar

The Banned Drinkers Registrar (BDR) is an alcohol supply reduction measure first implemented in 2011 in the Northern Territory of Australia. The aim of the measure was to reduce the harm associated with binge and heavy alcohol use though the implementation of a registry, or official list, of banned drinkers. Those placed on the BDR would be banned from purchase, possession, or consumption of alcohol for the duration of their "Banned Drinker Order" (BDO).

A BDO can be obtained through police referral, court order, other qualified personnel such as social works or child protection workers, or self-application. A BDO can be issued for any of the following concerns:

- Apprehension by police for alcohol-related offences
- Three alcohol-related protective custodies or alcohol infringement notices in 2 years
- Alcohol-related domestic violence
- Court order
- Referral by authorized personnel such as a doctor, nurse, family member, or child protection worker
- Self-referral

Once served a BDO, a duration of 3, 6, or 12 months is assigned. The duration is dependent on offence or self-preference and can be extended at any time for violation of the order. At the time of sale, individuals are verified against the list and if identified as having a BDO are prevented from sale (Smith 2018).

At the recent 24-month evaluation, outcomes appear favorable. Noticeable reductions in contact with the justice system (down-trending since inception), improved health outcomes (as evidenced by increased admission to sobering up shelters, self-referrals, and admission to rehab facilities), and reduced harm for problem drinkers (including reduction in violence surrounding take-away outlets) are evident (Ernst and Young Oceania Evaluation Practice Network 2020).

A Proposal for an Alcohol Purchase License

Licensing for public health safety is not a new idea. Mandatory licensing for motor vehicle drivers in the United Kingdom can be traced back to as early as 1903 (Northcliffe 1906). Features of this license included a minimum age limit, stipulations for suspension in the setting of provable or potential harm (i.e., speeding or dangerous driving), and regulations regarding motor car use. Licensing is now commonplace in many aspects of society and is used to prove qualifications through appropriate regulatory services for a variety of recreations (i.e., hunting, fishing, and motor vehicle operation) and occupations (i.e., medical, legal, cosmetology, and construction). The implementation of an alcohol purchase license could provide an opportunity for alcohol education and awareness, rehabilitation services, and individualized repercussions for alcohol-related harm which is a unique feature of this proposal.

If this same concept for alcohol were to be implemented, the basis would be similar to that of driving and guns. Most users are safe and responsible. We don't want to impinge on responsible alcohol users any more than on responsible drivers or responsible gun users. We need to target those whose drinking is dangerous.

The license concept is related to the nature of alcohol addiction. The addicted person urgently wants the drug even as they know it is harming them. At times, the person with alcohol addiction is hospitalized for complications of drinking – withdrawal seizures, delirium tremens, alcoholic pancreatitis, hepatitis, myopathy, neuropathy, cognitive impairment, cerebellar degeneration, and car crashes – and buys alcohol on the way home. The nature of progression is that the worse the complications, the more ferocious the denial. As people get sicker from alcoholism, their prognosis worsens. The return to drinking becomes more certain.

Often the harms from alcoholism are experienced in the social surround. Partners are abused in drunken rages. Children are mistreated and neglected. Pedestrians and motorists are injured and killed by drunk drivers. Crimes are committed while intoxicated.

General consumption of alcohol is not a concern. The individual and social costs of alcoholism are. The license concept honors autonomy but proscribes hostile and dangerous intoxicated behaviors.

Application of an Alcohol Purchase License

The first step to establish a licensing system is to identify a regulating agency. In the case of the alcohol purchase license in the United States, County Health Departments would be most appropriate as certain aspects of licensing will require legal intervention and would be an unnecessary burden for the state or federal court system. A system such as this would require a central database to be created and maintained.

The next step is establishing a reliable and accessible form of identification (ID). For the sake of convenience and lack of redundancy, IDs could be linked to already existing state-issued ID cards. For example, in New York State, any resident of any age can

receive a non-driver's ID, and any resident above the age of 16 can apply for a New York driver license if desired. At the age of 21, the legal minimum drinking age in the United States, individuals could apply for alcohol purchase licensure. The New York State license is already used by other agencies for licensing, credentialing, and designations, for example, hunting and fishing, passports, boating, and organ donor status. After issuance and at the time of sale, an active alcohol license would need to be verified. To encourage compliance, an easily accessible scanner, via phone applications or state-provided device, could offer an efficient confirmation or denial process.

Features of an Alcohol Purchase License

At the time of issuance, a "drinkers" safety course could be required and offer important information for new alcohol users regarding the short-term and long-term effects of alcohol use, local and state alcohol laws and regulations, alcohol addiction, and information regarding resources for rehabilitation. In a sense, the APL is the inverse of the BDR. All interested individuals would start on the database and be removed as deemed necessary after qualifiable offenses.

In practice, all distributors of alcohol would be required to scan the patrons ID at the time of sale. Current law in New York State does not require mandatory identification at the time of sale; however, it is highly encouraged as the burden of selling to minors, a misdemeanor, falls on the seller. For this reason, it is common practice for most establishments to blanket ID all customers. This means liquor stores, grocery stores, and bars and restaurants would have to scan the ID to see if the customer is eligible to buy.

A key feature of the alcohol purchase license is not its distribution but rather its ability to make privilege tangible and the opportunity for revocation explicit. In other words, if one is a bad driver, one can lose their driver's license. If one is a bad drunk, one can lose their alcohol purchase license. In the setting of immoral behavior or harm to self or others, through a legal process, the alcohol purchase license could be revoked. The dilemma becomes, what constitutes immoral behavior or harm to self or others?

Example criteria for loss of alcohol purchase license:

- Hospital visits for alcohol-related illnesses that indicate that alcohol use cannot be resumed safely: withdrawal seizures, delirium tremens, severe alcohol-related disease such as cirrhosis, alcoholic pancreatitis, alcoholic myopathy, and severe alcohol-related cognitive disorder. Physicians would be mandated reporters to the Banned Drinkers Register.
- Two convictions for driving while intoxicated.
- Alcohol-related family or domestic partner abuse.
- Alcohol-related felony conviction.
- Self-referral.

The process for revocation would require legal or medical involvement. In the setting of driving while intoxicated, domestic violence, and felonies, a qualified officer of the law or legal professional could testify for license suspension at the time of initial

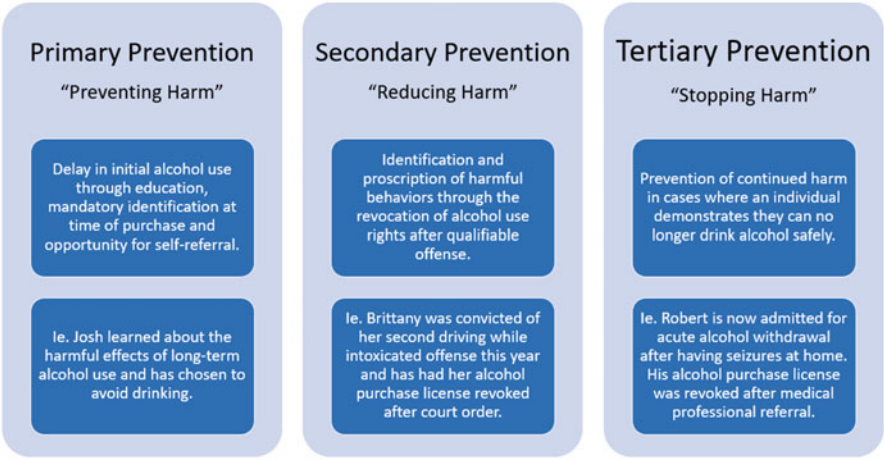

Fig. 4 The interception between prevention and harm reduction in the implementation of an alcohol purchase license with accompanying theoretical examples

court hearing. In the case of medical indications, such as a hospitalization for alcohol-related disease that demonstrates the person cannot safely consume alcohol, a referral would be made to the court system for revocation. Physicians and medical facilities would be "mandated reporters," similar to the process for observed child abuse where if one sees hostile, dangerous behavior, it must be reported to a social service agency.

Following revocation of the alcohol purchase license, appropriate information and medical referral could be made for treatment initiation. Refining strict harm-based criteria will allow for targeted harm reduction for those most affected by the alcohol use, the perpetrator and those around them.

In the setting of self-referral, an individual may desire, for any reason, to have their APL revoked. The most common reason would be that an individual decides that they have alcoholism and that they would like to stop drinking. In the setting of addiction, this offers an amazing opportunity to keep recovery honest and promotes accountability. Revocation of APL voluntarily could be reversed without adjudication at the discretion of the individual.

In summary, the implementation of an alcohol purchase license system provides opportunities for primary, secondary, and tertiary prevention of alcohol use and its sequelae (Fig. 4).

Duration and Adjudication

At baseline, the duration of APL revocation would remain 5 years. While it is understood alcohol use disorder is a chronic relapsing disorder, a period of this duration should allow enough time to explore treatment options if desired and reestablish healthy habits. At the end of this period, the individual would be free to reapply for license renewal after appropriate drinker's safety remediation and

formal social work evaluation to assess for resolution of harm-inciting behaviors. In the case of chronic and terminal medical conditions such as decompensated liver cirrhosis and alcohol-related neurocognitive decline, that day may never come. In the event an individual would like to challenge initial APL revocation, they may appear before a judge for hearing regarding their dispute.

How to Implement

Implementation starts through community education, engagement, and organization. Buy-in from strong organizations with similar missions such as Mothers Against Drunk Driving and Alcoholics Anonymous would be key to the success program funding, creation, and implementation.

Potential Pitfalls of an Alcohol Purchase License

The alcohol purchase license will not end alcoholism. It is a concept that falls under harm reduction. It puts a speed bump on the road to relapse. Instead of buying a quart of vodka after hospital discharge for withdrawal seizures, because the alcohol purchase license has been revoked, finding someone else to buy is required, or one has to travel to another state where one can buy without a state license. This means that liabilities include drunk driving back from the other state. Additionally, straw purchases, or illegal alcohol purchase on behalf of another, homebrew, and adherence to strict identification guidelines are loopholes that could be exploited and should be addressed separately through legal involvement and/or heavy fines for offending individuals.

Additional Considerations

There are several elements of a program such as the APL that should be carefully monitored. First, quantity and frequency of alcohol purchase should not be monitored with this system; while a key component of this proposal is harm reduction, it cannot be reliably estimated based on quantity or frequency alone especially in the setting of no appreciable harm. Second, the APL database should not be linked to medical records in order to protect patient privacy. Lastly, the APL database should be stored in an encrypted, Health Insurance Portability and Accountability Act of 1996-compliant database for the sake of confidentiality and should be secured with distributive database technology such as blockchain to mitigate risk for tampering.

Applications to Other Areas of Addiction

The alcohol purchase license, as described, would be of help to other areas of addiction. Alcohol addiction is frequently comorbid with other drug addictions. Removing the harm from alcohol may reduce deaths from other addictive drugs

such as alcohol/benzodiazepine overdoses or alcohol/opioid overdoses. Identifying alcohol addiction and facilitating treatment at a specialty service may allow all addictions present to be addressed.

Applications to Other Areas of Public Health

There are many prime examples of harm minimalization through licensing as discussed in the main text (driver's license, gun license, hunting and fishing permits). Not all harm reduction should be approached though means of credentialing or licenses. Unique to alcohol use in the United States is its ubiquitous use and delayed minimum purchase age (21). With new legal drinkers entering the alcohol economic sphere each year, a golden opportunity for primary prevention through means of education is presented. Drinking, as with driving and gun ownership, is a privilege; when abused, they can incite serious and sometimes fatal harm to users and those around them. In an age of emerging technology, new approaches to harm reduction should be explored and employed.

Mini-dictionary of Terms

- **Gordian knot.** A metaphor originating from the life of Alexander the Great. It is meant reflect a problem of impossible difficulty that is solved easily by bold and decisive action.
- **Health Insurance Portability and Accountability Act of 1996.** A US statute created to ensure the confidentiality, integrity, and security of health information in the modern age of electronic health records.
- **John Stuart Mill.** A nineteenth-century English philosopher, economist, and politician.
- **Sisyphean task.** A metaphor based in Greek mythology meant to represent a laborious and futile task.
- **Ventral tegmental dopaminergic seeking system.** Also known as the mesolimbic dopamine pathway, it provokes exploratory behaviors. It is a contributor to the experience of "cravings" and the promotion of drug seeking behavior in alcoholism. It is also the pathway for drinking dreams that show seeking alcohol even when asleep.

Key Facts About Alcohol Use

- Most alcohol use is recreational; this means that there is no harm from use.
- Ten percent of alcohol users drink half of the alcohol.
- Alcoholism or addiction to alcohol is most parsimoniously defined as "repeated harm from use" and affects all aspects of society including social, occupational, legal, and medical.

- Recreational use hurts no one. Alcoholism not only hurts the person who drinks but is hostile toward those in the social environment. The family of the person with alcoholism suffers daily. Persons with alcoholism miss work or work while drinking. The legal system is impacted via arrests for drunken behavior. These behaviors are both symptoms of a disease and at the same time crimes. As the condition progresses, medical complications ensue in the context of ever-denser denial complicated by cognitive impairment.
- At an extreme, one is hopelessly addicted when cognitive impairment makes using interpersonal interventions impossible. The person with alcoholism then drinks themselves to death unless they become so impaired that they can no longer obtain the drug.

Summary Points

- Alcohol presents significant harm to self and others and was evaluated to be the most harmful drug in the world.
- Harm related to alcohol use is financially costly, ~ $249 billion per year in the United States, and at the same time costly to persons with alcoholism, ~ 3.3 million deaths per year around the globe.
- Screening for and treatment of alcohol use disorder are often overlooked and incomplete.
- Harm reduction strategies have been attempted with variable success, but all employ similar strategies which tend to punish those who use responsibly.
- New technologic advances allow for new techniques and an exciting opportunity to individualize harm reduction for those who need it most. This is the concept of the alcohol purchase license.

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