

Driving Under the Influence of Alcohol: Could California Do More to Prevent It?

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The decline in alcohol-related traffic fatalities in the United States is one of the major public-health success stories of recent years. Over the past two decades, the alcohol-related traffic fatality rate declined by 40 percent (denominated by vehicle miles traveled; National Highway Traffic Safety Administration, 2015). Experts attribute this success to an array of policy changes, such as decreasing blood alcohol concentration (BAC) limits, limiting judicial discretion in sanctioning, instituting administrative license revocation, and establishing new driving under the influence (DUI) program requirements (e.g., see Goodwin et al., 2013; Rogers, 1995, 1997; Rogers & Shoenig, 1994; Wagenaar et al., 2007).

While the overall decline in alcohol-related traffic fatalities has been impressive, the personal and societal costs of DUI remain high, the decrease has slowed in recent years, and data

through 2013 suggest that the alcohol-related traffic fatality rate in California is now increasing (National Highway Traffic Safety Administration, 2015). In 2012, alcohol-involved crash fatalities in California increased 7.3 percent; this was followed by an increase of 2.4 percent the following year. In 2013, 1,197 people in California died of alcohol-related traffic incidents (California Department of Motor Vehicles [DMV], 2015, Figure 11).

Of special concern is the role of repeat DUI offenders, who are more likely than first-time offenders to be involved in alcohol-related traffic fatalities. Further, those with multiple DUI convictions are five times more likely to have a diagnosis of alcohol abuse or dependence than the general population (Lapham, Stout, Laxton, & Skipper, 2011). Rates may be even higher than documented because of underreporting among those with repeat offenses (Cavaiola, Strohmets, & Abreo, 2007).

These issues raise the question of whether California could do more to reduce DUI and other threats to public health and safety imposed by repeat DUI offenders. California’s current approach to addressing DUIs largely focuses on reducing the probability that individuals drive while impaired. Although the current approach has had important benefits in reducing alcohol-related traffic fatalities, we argue in this Perspective that future approaches will also need to better target the problem drinking that often underlies impaired driving and other negative outcomes. On other public-health issues, such as restrictions on smoking, California has been at the forefront of important legislation that has resulted in significant improvements in public health across the nation, and there could be an opportunity for a similar role here. Several discussions are already under way on how to further decrease impaired driving in California. The draft California Strategic Highway Safety Plan for 2015–2019 identifies alcohol and drug impairment as an important “challenge area” and establishes an aspirational goal of moving “toward zero deaths.” California’s Alcohol and Drug Impairment Challenge Area team is finalizing an action plan to reduce impaired driving and is considering several strategies, such as educational and social norming programs, timelier and more-comprehensive adjudication of impaired drivers, and enhanced utilization of DUI programs (California Office of Traffic Safety, 2015).

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To build on such efforts, we look at options currently in use statewide and in some California counties, as well as in other states, that are focused especially on repeat DUI offenders. While we do not specifically address impairment caused by drugs other than alcohol, some of the insights for alcohol are applicable to other substances.

The Social and Economic Costs of DUI Remain High

Despite significant progress, alcohol-related traffic fatalities remain a serious public-health problem. Heavy drinking is a leading cause of preventable morbidity and mortality (Stahre, Roeber, Kanny, Brewer, & Zhang, 2014), and DUI is one of the nation’s top risks to public safety (Danaei et al., 2009; Mokdad, Marks, Stroup, & Gerberding, 2004; Roerecke & Rehm, 2013; Shield et al., 2013; World Health Organization, 2011). In 2010, an estimated 4 million individuals were involved in alcohol-related crashes, and an estimated 13.9 billion miles were driven by Americans with BACs above the 0.08 legal limit (Zaloshnja, Miller, & Blincoe, 2013). Nationwide, nearly one-third of all traffic fatalities are alcohol-related, and in California, the rate is even higher, at 40 percent (California Highway Patrol, 2012; California DMV, 2015). Every day, almost 30 people in the United States die in motor vehicle crashes involving an alcohol-impaired driver, which amounts to one death every 48 minutes. Car accidents are the leading cause of death for teens, and about one in four fatal teen traffic crashes involves an underage drinking driver (MADD, 2015; National Highway Traffic Safety Administration, 2013a, 2013b). Impaired driving also affects passengers, pedestrians, and occupants of other

vehicles: For every alcohol- or drug-related traffic fatality, 45 survivors require emergency department care (Blincoe et al., 2002; National Highway Traffic Safety Administration, 2008).

Alcohol-involved crashes in 2010 cost the United States an estimated \$121 billion (Zaloshnja et al., 2013), and a significant portion of the costs of DUI is borne by society rather than the individual offender. Impaired driving costs every adult in the United States almost \$800 per year (Blincoe, Miller, Zaloshnja, & Lawrence, 2015; MADD, 2015). Furthermore, alcohol-involved crashes cost more than crashes not involving alcohol: While only 12 percent of the individuals involved in a traffic crash were in alcohol-involved crashes, their societal cost represented 24 percent of total societal costs of crashes (Zaloshnja et al., 2013). In addition to the medical costs to treat injuries, DUI also results in a host of other social and economic costs, including loss of potential income for people killed in a DUI, costs of incarceration for DUI perpetrators, and costs to enforce and administer the DUI penal system. Each mile driven in 2010 by someone with a BAC in excess of the 0.08 legal limit costs society about \$8.12, compared with \$0.14 for each mile driven soberly.

Repeat DUI offenders are responsible for a large proportion of the DUI costs. A disproportionate number of DUI fatalities are caused by drivers previously convicted of an alcohol-related motor vehicle offense (Dugosh, Festinger, & Marlowe, 2013), with approximately 40 percent of fatally injured impaired drivers having a history of repeat DUI offenses (Lapham, Skipper, Hunt, & Chang, 2000; White & Gasperin, 2007). Even after a DUI arrest, many individuals continue to drink and drive. In fact,

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those with previous DUI convictions are more likely than first-time offenders to recidivate, and this likelihood increases with the number of prior convictions. For example, based on almost two decades of data from California, 28 percent of first-time offenders recidivated, compared with 35 percent of second-time offenders and 43 percent of those with three or more convictions (California DMV, 2015, Table 12). Further, the full extent of DUI impairment is unknown, because only a small fraction of DUI episodes ever result in an arrest (National Center for Injury Prevention and Control, 2011). One study estimated that one arrest occurs for every 80 trips (Ferguson, 2013), while another study found the probability of arrest to be about 1 in 200 trips (Beitel, Sharp, & Glauz, 2000). Between 50 and 75 percent of convicted impaired drivers continue to drive on a suspended license (DeYoung, 2002; Marowitz, 1998; Williams, Hagen, & McConnell, 1984; Yu & Williford, 1995). In sum, these findings suggest that, to decrease the costs of DUI, policymakers should carefully consider ways to decrease recidivism among first- and second-time offenders.

What Currently Happens After a DUI Conviction in California?

The current California DUI control system relies on imposing immediate license suspension and requiring DUI program attendance for all offenders. Fines and jail terms can also be imposed by the courts. More recently, other approaches have been adopted in some California counties, including restricting driving privileges using an ignition interlock device, mandating substance abuse treatment, and requiring participation in a DUI court.

Responsibilities for sanctioning DUI offenders and enforcing the appropriate penalties are divided between the California courts and the DMV. The DMV is responsible for requirements related to the individual's driving privilege (California DMV, 2011b), while the courts are responsible for DUI criminal proceedings. At the time of DUI arrest, the individual's driver license is typically confiscated immediately by the arresting police officer, and a 30-day temporary license is issued, to allow the individual sufficient time to request a DMV administrative hearing to challenge the suspension or revocation. If the hearing or DMV review shows that there is sufficient basis for the license action (i.e., the individual is found

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to have been properly arrested and to have had a BAC level that was over the legal limit at the time of arrest), the individual receives a suspension for four months (if a first-time offense) or one year (if a repeat offense within 10 years) (California DMV, 2011a). In some cases, the individual may be able to obtain restricted driving privileges sooner by attending a state-licensed DUI program, installing an ignition interlock device, and/or complying with other requirements set forth by law.

Generally, judges at the courts are in charge of setting criminal penalties, such as fines and jail time, while the DMV acts as an enforcement agency for the courts. The DMV's role includes administering the court's post-conviction judicial license suspensions or revocations, requiring DUI program completion, and, if imposed by the courts or otherwise required by law, verifying the installment of and adherence to ignition interlock devices. Lower and upper bounds for fines, DUI program attendance, and jail time are set by state law (General Standards, 2015) and differ for first-time offenders and those with repeat DUIs. DUI programs vary in content, frequency, and duration, but they must provide services that conform to the minimal specifications in Title 9 of the California Code of Regulations (State of California, 2015). The minimum length of the DUI program is established by law and may be increased based on the judge's discretion and the individual's BAC at the time of arrest. Acceptable DUI program content includes educational classes, group counseling, and mandated attendance in other ancillary programs, such as Alcoholics Anonymous or victim impact panels. The latter involves attendance at a panel at which two or three victims speak about how an impaired driving collision affected their lives. DUI programs may also include monthly or bimonthly interviews with a DUI counselor.

For individuals who need a more intensive intervention, DUI programs can make referrals to substance abuse treatment, but they cannot mandate attendance.

In addition to the approaches just described, courts can impose other sanctions on a case-by-case basis, such as vehicle impoundment, home monitoring, jail or prison, community service, fines, or installation of an ignition interlock device (State of California, 2015, Division 11.5). Courts can also require an individual to participate in court-ordered substance abuse treatment. Counties differ in implementing and enforcing these requirements, and in determining what happens if an individual does not comply. California also has nine DUI courts (four in Orange County), which combine treatment for alcohol abuse with frequent judicial monitoring to ensure that alcohol-involved offenders receive the services and support they need to reduce their problem drinking and the associated criminal activity. In a typical DUI court program, participants are closely supervised by a judge and are supported by addiction treatment providers, district attorneys, public defenders, and law enforcement, parole, and probation officers, who work together to provide needed services. Generally, there is a high level of supervision and each court has a standardized program for all the participants. Supervision and treatment may also include drug testing.

How Well Are Current Approaches to Reducing DUI Recidivism Working?

Evidence indicates that, of the approaches currently being used in California, the most effective sanction to date is license suspension in combination with DUI program participation, although most of the benefit has been attributed to the license suspension component. Below, we discuss in more detail what is known

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about the effectiveness of these and other approaches used in California.

Statewide DUI Practices

Driver license suspension. Many studies have shown the benefits of license suspension or restriction. Evaluations in California and throughout the nation have demonstrated reductions in both DUI recidivism and car crashes as a result of administrative license actions (Rogers, 1995, 1997; Rogers & Shoenig, 1994; Wagenaar et al., 2007). Between 1987 and 1996, California counties experimented with different combinations of license suspension and DUI program attendance, which allowed for a quasi-experimental evaluation of their impact. These studies showed that the strongest sanction combination was license suspension and mandated DUI program participation; as a result, in 1996, both were required for all offenders (DeYoung, 1995; Helander, 1989; Marowitz, 1998; Peck, 1987).

DUI programs. Although program attendance in combination with license suspension has been shown to be effective, the evidence is mixed on the benefit of DUI programs alone in pre-

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venting recidivism (Wells-Parker, Bangert-Drowns, McMillen, & Williams, 1995). Studies conducted prior to 1996 in California showed that first offenders attending DUI programs had slightly lower DUI recidivism rates than offenders not attending DUI programs (DeYoung, 1995; Helander, 1989; Marowitz, 1998; Peck, 1987). However, among individuals convicted of alcohol-related reckless driving in California in 2011, there was no significant difference in the rates of one-year crash and DUI incidents between those who were court-assigned to a DUI program and those who were not (California DMV, 2015). It is important to note that these data reflect whether the person was assigned to the DUI program, not whether they actually attended the DUI program, and do not account for recidivism that may happen after the one-year period.

Complicating the interpretation of DUI program effectiveness is the lack of standardization in how programs implement the requirements. Programs are given wide latitude in how to meet requirements, and there is no standardized assessment or intervention when an individual is identified as having a likely alcohol or drug use disorder. One policy effort currently being considered by the California Department of Health Care Services as part of the

draft Strategic Highway Safety Plan is an evaluation of the effectiveness of the different curricula used in DUI programs, with the goal of using the results to set program standards. We are unaware of any DUI curriculum components that have been evaluated for effectiveness.

The findings on California's current statewide approaches indicate that the state has a strong existing platform for addressing DUI recidivism on which to build, particularly through the license suspension sanction. However, DUI programs vary widely in content and format. The available evidence on their effectiveness is mixed and difficult to interpret.

Practices Used in Some California Counties

As noted, some California counties use additional approaches and sanctions for addressing DUI, including ignition interlock devices, court-mandated substance abuse treatment, and DUI courts.

Ignition interlock devices. Ignition interlock devices have been found to be very effective in deterring impaired driving—as long as they are installed; the effect diminishes after they are removed from the vehicle, and there is very little evidence that these devices alone reduce alcohol consumption (Elder et al., 2011; Government Accountability Office, 2014; Voas, 2015; Willis, Lybrand, & Bellamy, 2004). One outlier is a study by Rauch, Ahlin, Zador, Howard, and Duncan (2011), which randomly assigned 1,927 drivers eligible for relicensure to either the two-year ignition interlock device license restriction program or the “normal and customary sanctions afforded to multiple offenders.” The study found that those assigned to the ignition interlock device program still had a statistically significant reduction in the probability of an alcohol-impaired driving violation two years after the intervention; note,

however, that because of the study enrollment requirements, generalizability is limited. It is also important to note that installation rates for these devices are generally low (Government Accountability Office, 2014). Reasons for the low installation rates include lack of enforcement and monitoring to ensure offender compliance, as well as the fees and penalties that offenders have to pay before they are eligible for interlock-restricted driving privileges.

Court-mandated substance abuse treatment. Although courts can mandate additional specialty substance abuse treatment, monitoring of treatment compliance is inconsistent, as is the implementation of sanctions for noncompliant individuals. Studies done outside of California suggest a modest effect on individuals who are mandated to and do attend treatment (Dill & Wells-Parker, 2006; Nochajski & Stasiewicz, 2006). For example, Donovan, Salzberg, Chaney, Queisser, and Marlatt (1990) found that first-time DUI offenders who participated in cognitive behavioral therapy reported significantly lower alcohol use at 12-month follow-up, compared with individuals who received alcohol and driving education or no treatment.

DUI courts. There is growing quasi-experimental literature suggesting that DUI courts yield positive results, and the National Transportation Safety Board (2013) has described these courts as a “proven strategy” for addressing repeat DUI offenders. In California, a study of the San Joaquin County DUI court showed that, compared with traditional probation, DUI court participants had lower rates of recidivism and alcohol- or drug-related collisions (Carey, Mackin, & Finigan, 2011). However, a systematic review of the evidence from across the United States by Mitchell, Wilson, Eggers, and MacKenzie (2012) noted that, while the quasi-experimental evaluations found strong and consistent indications that DUI courts reduced recidivism, results from random-

ized experimental evaluations have been more ambiguous. At least one randomized study did not show evidence of an impact (MacDonald, Morral, Raymond, & Eibner, 2007), although this result may have been due to contamination between the DUI court and the control condition (the latter also had judicial status hearings), and the fact that the evaluation was conducted shortly after the court was implemented (Marlowe, 2012).

The three approaches just described have all shown some benefits. In the cases of ignition interlock devices and mandated substance abuse treatment, the results are highly dependent on the level of implementation, which varies widely and, in many cases, is not closely monitored. More research is needed to understand the effectiveness of all three approaches.

Other Options for Addressing DUI Recidivism

Other approaches used to address DUI in both California and other states focus on the substance abuse that underlies much DUI recidivism. These methods include DUI court combined with medication-assisted therapy, ignition interlock device combined with pharmacotherapy treatment, and 24/7 Sobriety programs.

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DUI court with medication-assisted therapy. In the mid-1990s, the Butte County DUI court in Northern California started offering a medical treatment track for repeat offenders (Stevens, Harberts, Pfeifer, & Redmond, 1999). Under this program, a judge assesses the offender's DUI history, BAC, pattern of alcohol use, and other alcohol-related offenses, such as being a minor in possession of alcohol or public intoxication. Based on these criteria, the judge subsequently chooses from a number of available sanctions, such as mandatory Alcoholics Anonymous meetings, frequent court reviews, referral to the county's Alcohol and Drug Services program, residential treatment, or ingestion of Antabuse (which creates unpleasant reactions when drinking alcohol) or oral naltrexone (a treatment for alcohol dependence in combination with psychosocial therapy). Initially set up as a 90-day trial, the naltrexone treatment sanction was subsequently made a permanent sentencing option after an exploratory evaluation found that the drug had positive effects on alcohol-related crimes compared with participants either treated with Antabuse or going through traditional sentencing programs. Similarly, a small study of two DUI courts in Michigan and Missouri (Finigan, Perkins, Zold-Kilbourn, Parks, & Stringer,

In 24/7 Sobriety programs, individuals who are arrested or convicted of an alcohol-involved offense are ordered to abstain from alcohol and are subject to frequent alcohol testing with swift, certain, and modest sanctions for failing or skipping a test, typically a day or two in jail.

2011) found that alcohol-dependent offenders who received monthly injections of naltrexone were three times less likely to be rearrested as those receiving standard care.

Ignition interlock device with pharmacotherapy treatment. Pharmacotherapy used in combination with an ignition interlock device is another potentially promising option, although more evidence is needed on the effectiveness of this approach. In a preliminary evaluation, Lapham and McMillan (2011) found that individuals with an alcohol use disorder who were either repeat DUI offenders or had an ignition interlock device on their car for at least six months responded positively to monthly naltrexone injections. Daily drinks decreased by 77 percent, and average drinks per drinking day decreased by 39 percent during the three-month treatment. However, the study suffered from very low sample sizes, the lack of a control group, and self-selection of participants into the intervention group, potentially biasing the results.

24/7 Sobriety. In 24/7 Sobriety programs, individuals who are arrested or convicted of an alcohol-involved offense are ordered to abstain from alcohol and are subject to frequent alcohol testing with swift, certain, and modest sanctions for failing or skipping a test, typically a day or two in jail. 24/7 Sobriety started as a pilot program in a handful of South Dakota counties in 2005, and by the end of 2013, more than 25,000 unique 24/7 Sobriety participants in South Dakota had accumulated more than 4 million days without a confirmed drinking event (for a similar calculation based on older data, see Kilmer & Humphreys, 2013). Kilmer, Nicosia, Heaton, and Midgette (2013) found that after 24/7 Sobriety was operational in a county, the total number of repeat DUI arrests dropped 12 percent, the total number of arrests for domestic violence dropped 9 percent, and collisions involving men ages 18–40

dropped 4 percent (though the collisions figure was significant only at the 10-percent level). A preliminary analysis of the 24/7 Sobriety program in Montana also yielded encouraging results with respect to rearrest rates (Midgette & Kilmer, 2015).

While 24/7 Sobriety has not yet been evaluated in a randomized-controlled trial, an experimental evaluation of a similar program focusing on illegal drug consumption yielded positive results (Hawken & Kleiman, 2009). In spring 2015, the U.S. Department of Justice designated 24/7 Sobriety a “promising” program in its evidence-based practices portal, CrimeSolutions.gov. Important questions remain about whether 24/7 Sobriety can work in more-urban environments (Fisher, McKnight, & Fell, 2013), and researchers are paying close attention to the 24/7 pilot recently implemented in Jacksonville, Florida (by area, the largest city in the contiguous 48 states) and a related program in London (see Walker, 2015).

Although additional evaluation is warranted for some of these options, they could present useful opportunities for building upon California’s existing approaches for reducing DUI recidivism.

Concluding Thoughts

Despite significant progress, alcohol-related crashes and fatalities remain a serious public-health problem. While California’s current approach to DUI recidivism largely focuses on reducing the probability that individuals drive while impaired, we believe that future approaches to prevent recidivism will also need to reduce the problem drinking that often underlies impaired driving. Emerging evidence from 24/7 Sobriety programs suggests that, for some individuals, frequent monitoring with credible threats may be enough to reduce heavy drinking and DUI arrests. However, for others arrested and convicted of a DUI, this will involve develop-

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ing standardized assessments to identify those with an alcohol use disorder, and then ensuring that they receive effective and appropriate treatment.

Taking steps to enhance California’s DUI policies now may be particularly timely because of the increased coverage for substance abuse treatment provided by the recently enacted Patient Protection and Affordable Care Act and the Mental Health Parity and Addiction Equity Act (Humphreys & Frank, 2014). In addition, many evidence-based treatments for alcohol use disorders have been developed and disseminated, including medication-assisted therapy. For individuals with alcohol or drug use disorders convicted of a DUI, expanded access to efficacious treatment could provide an opportunity to address the underlying disorder leading to the DUI conviction, reducing the harms to the impaired driver, their family, and society.

In this Perspective, we have discussed several options that are available to the State of California for preventing recidivism among individuals arrested and convicted of a DUI. It is likely that different programs will be needed to address different types of individuals, although, at this point, there is insufficient

As legislators consider ways to further reduce the harms from alcohol misuse, they may want to authorize studies to determine which approaches (e.g., administrative sanctions, ignition interlock devices, 24/7 Sobriety programs, pharmacotherapies, or some combination) work best for first-time versus reoffenders, or for those with an alcohol use disorder versus those without.

evidence about which types of programs work best for which individuals. The efficacy of these programs could vary—for example, by age of offender, number of prior DUI convictions, and whether the individual suffers from a substance abuse and/or mental health condition.

So what should California do next? We believe that studies are needed to assess and compare the effectiveness and cost-effectiveness of these new strategies for addressing repeat DUI offenders. The 2015–2019 California Strategic Highway Safety Plan, with its emphasis on trying new approaches, creates an opportunity to test some of these ideas. More than a decade ago, the California DMV called for a randomized controlled trial to

determine the efficacy of using pharmaceutical treatments for convicted DUI offenders (Helander, 2002), but, to date, definitive studies have yet to be conducted, and there are no studies comparing the costs of different approaches. As legislators consider ways to further reduce the harms from alcohol misuse, they may want to authorize studies to determine which approaches (e.g., administrative sanctions, ignition interlock devices, 24/7 Sobriety programs, pharmacotherapies, or some combination) work best for first-time versus reoffenders, or for those with an alcohol use disorder versus those without. It will be imperative that these studies look beyond traditional DUI recidivism outcomes and examine other consequences associated with alcohol misuse, such as domestic violence and other injuries and accidents.

The bottom line is that alcohol misuse and dependence can have terrible consequences that go far beyond the individual who drinks. The DUI conviction is a prime opportunity for California to address the problem of alcohol misuse. California has been at the forefront of important legislation and policies that have resulted in huge improvements in public health. With the development of new treatments and strategies for reducing alcohol misuse and expanded coverage for substance abuse treatment under the Affordable Care Act, it is time for California to address the problem drinking that underlies many episodes of DUI recidivism. California can, and must, do more.

References

- Beitel, G. A., Sharp, M. C., & Glauz, W. D. (2000). Probability of arrest while driving under the influence of alcohol. *Injury Prevention, 6*(2), 158–161.
- Blincoe, L. J., Miller, T. R., Zaloshnja, E., & Lawrence, B. A. (2015, May). *The economic and societal impact of motor vehicle crashes, 2010* (revised). (Report No. DOT HS 812 013). Washington, DC: National Highway Traffic Safety Administration.
- Blincoe, L. J., Seay, A. G., Zaloshnja, E., Miller, T. R., Romano, E. O., Luchter, S., & Spicer, R. S. (2002). *The economic impact of motor vehicle crashes, 2000*. (Report No. DOT HS 809 446). Washington, DC: National Highway Traffic Safety Administration.
- California Department of Motor Vehicles. (2011a). *Arrest for driving under the influence DUI general information*. Retrieved June 5, 2015, from <https://www.dmv.ca.gov/portal/dmv/detail/dl/driversafety/dsalcohol>
- . (2011b). *Driver safety information medical conditions and traffic safety*. Retrieved June 5, 2015, from https://www.dmv.ca.gov/portal/dmv/?1dmy&uril=wcm:path:/dmv_content_en/dmv/dl/driversafety
- . (2015). *Annual report of the California DUI Management Information System*. Sacramento, CA.
- California DMV—See California Department of Motor Vehicles.
- California Highway Patrol. (2012). *2012 annual report of fatal and injury motor vehicle traffic collisions*. Sacramento, CA. Retrieved September 23, 2015, from <https://www.chp.ca.gov/programs-services/services-information/switrs-internet-statewide-integrated-traffic-records-system/switrs-2012-report>
- California Office of Traffic Safety (2015). *Strategic Highway Safety Plan*. Sacramento, CA.
- Carey, S., Mackin, J., & Finigan, M. (2011). *What works: Best practices in adult drug courts: New findings from the latest research*. National Drug Court Resource Center. Retrieved September 23, 2015, from <http://www.ndcrc.org/content/what-works-best-practices-adult-drug-courts-new-findings-latest-research>
- Cavaiola, A. A., Strohmets, D. B., & Abreo, S. D. (2007). Characteristics of DUI recidivists: A 12-year follow-up study of first time DUI offenders. *Addictive Behaviors, 32*(4), 855–861.
- Danaei, G., Ding, E. L., Mozaffarian, D., Taylor, B., Rehm, J., Murray, C. J., & Ezzati, M. (2009). The preventable causes of death in the United States: Comparative risk assessment of dietary, lifestyle, and metabolic risk factors. *PLoS Medicine, 6*(4), e1000058.
- DeYoung, D. J. (1995). *An evaluation of the effectiveness of California drinking driver programs*. Sacramento, CA: California Department of Motor Vehicles.
- . (2002). An evaluation of the implementation of ignition interlock in California. *Journal of Safety Research, 33*(4), 473–482.
- Dill, P. L., & Wells-Parker, E. (2006). Court-mandated treatment for convicted drinking drivers. *Alcohol Research and Health, 29*(1), 41.
- Donovan, D. M., Salzberg, P. M., Chaney, E. F., Queisser, H. R., & Marlatt, G. A. (1990). Prevention skills for alcohol-involved drivers. *Alcohol, Drugs & Driving, 6*(3–4): 169–188.
- Dugosh, K. L., Festinger, D. S., & Marlowe, D. B. (2013). Moving beyond BAC in DUI. *Criminology & Public Policy, 12*(2), 181–193.
- Elder, R. W., Voas, R., Beirness, D., Shults, R. A., Sleet, D. A., Nichols, J. L., Compton, R., & Task Force on Community Preventive Services. (2011). Effectiveness of ignition interlocks for preventing alcohol-impaired driving and alcohol-related crashes: A Community Guide systematic review. *American Journal of Preventative Medicine, 40*(3), 362–376.

- Ferguson, S. A. (2013). Revisiting the framework for an integrated model. *Transportation Research Circular*, No. E-C174. Washington, DC: Transportation Research Board of the National Academies.
- Finigan, M. W., Perkins, T., Zold-Kilbourn, P., Parks, J., & Stringer, M. (2011). Preliminary evaluation of extended-release naltrexone in Michigan and Missouri drug courts. *Journal of Substance Abuse Treatment*, 41(3), 288–293.
- Fisher, D. A., McKnight, A. S., & Fell, J. C. (2013). *Intensive DWI supervision in urban areas—Feasibility study*. (No. DOT HS 811 861). Washington, DC: National Highway Traffic Safety Administration.
- General Standards, California Code of Regulations, Title 9, Article 1 (2015). Retrieved February 3, 2015, from [https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IF7F6BC10D45311DEB97CF67CD0B99467&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)&bhcp=1](https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IF7F6BC10D45311DEB97CF67CD0B99467&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)&bhcp=1)
- Goodwin, A., Kirley, B., Sandt, L., Hall, W., Thomas, L., O'Brien, N., & Summerlin, D. (2013). *Countermeasures that work: A highway safety countermeasures guide for State Highway Safety Offices*. (7th ed.). (Report No. DOT HS 811 727). Washington, DC: National Highway Traffic Safety Administration.
- Government Accountability Office. (2014, June). *Traffic safety: Alcohol ignition interlocks are effective while installed; less is known about how to increase installation rates*. (GAO-14-559). Washington, DC.
- Hawken, A., & Kleiman, M. (2009). *Managing drug involved probationers with swift and certain sanctions: Evaluating Hawaii's HOPE: Executive summary*. Washington, DC: National Criminal Justice Reference Services.
- Helander, C. J. (1989). *Development of a California DUI management information system*. (No. CAL-DMV-RSS-89-121). Sacramento, CA: California Department of Motor Vehicles.
- . (2002). *DUI countermeasures in California: What works and what doesn't, with recommendations for legislative reform*. (Report No. CAL-DMV-RSS-02-197). Sacramento, CA: California Department of Motor Vehicles.
- Humphreys, K., & Frank, R. G. (2014). The Affordable Care Act will revolutionize care for substance use disorders in the United States. *Addiction*, 109(12), 1957–1958.
- Kilmer, B., & Humphreys, K. (2013). Losing your license to drink: The radical South Dakota approach to heavy drinkers who threaten public safety. *Brown Journal of World Affairs*, 20, 267.
- Kilmer, B., Nicosia, N., Heaton, P., & Midgette, G. (2013). Efficacy of frequent monitoring with swift, certain, and modest sanctions for violations: Insights from South Dakota's 24/7 Sobriety Project. *American Journal of Public Health*, 103(1), e37–e43.
- Lapham, S. C., & McMillan, G. P. (2011). Open-label pilot study of extended-release naltrexone to reduce drinking and driving among repeat offenders. *Journal of Addictive Medicine*, 5(3), 163–169.
- Lapham, S. C., Skipper, B. J., Hunt, W. C., & Chang, I. (2000). Do risk factors for re-arrest differ for female and male drunk-driving offenders? *Alcoholism, Clinical and Experimental Research*, 24(11), 1647–1655.
- Lapham, S. C., Stout, R., Laxton, G., & Skipper, B. J. (2011). Persistence of addictive disorders in a first-offender driving while impaired population. *Archives of General Psychiatry*, 68(11), 1151–1157.
- MacDonald, J. M., Morral, A. R., Raymond, B., & Eibner, C. (2007). The efficacy of the Rio Hondo DUI court: A 2-year field experiment. *Evaluation Review*, 31(1), 4–23.

- MADD. (2015). *Statistics*. Retrieved February 3, 2015, from <http://www.madd.org/statistics/#sthash.5rqjHkZ.dpuf>
- Marlowe, D. B. (2012). *The facts on DWI courts*. Washington State Sentencing Guidelines Commission. Retrieved September 23, 2015, from http://www.ofm.wa.gov/sgc/meetings/2014/04/fact_on_DWI%20_courts_NC_.pdf
- Marowitz, L. A. (1998). Predicting DUI recidivism: Blood alcohol concentration and driver record factors. *Accident; Analysis and Prevention*, 30(4), 545–554.
- Midgette, G., & Kilmer, B. (2015). *The effect of Montana's 24/7 Sobriety program on DUI re-arrest: Insights from a natural experiment with limited administrative data*. Santa Monica, CA: RAND Corporation. (WR-1083-MHP). Retrieved September 23, 2015, from http://www.rand.org/pubs/working_papers/WR1083.html
- Mitchell, O., Wilson, D. B., Eggers, A., & MacKenzie, D. L. (2012). Assessing the effectiveness of drug courts on recidivism: A meta-analytic review of traditional and non-traditional drug courts. *Journal of Criminal Justice*, 40(1), 60–71.
- Mokdad, A. H., Marks, J. S., Stroup D. F., & Gerberding, J. L. (2004). Actual causes of death in the United States, 2000. *JAMA*, 291(10), 1238–1245.
- National Center for Injury Prevention and Control. (2011). *Policy impact: Alcohol impaired driving*. Atlanta, GA: Centers for Disease Control and Prevention, Division of Unintentional Injury Prevention. Retrieved February 3, 2015, from <http://www.cdc.gov/motorvehiclesafety/pdf/policyimpact-alcohol-a.pdf>
- National Highway Traffic Safety Administration. (2008). *Motor vehicle traffic crashes as a leading cause of death in the United States, 2005*. Washington, DC: National Center for Statistics and Analysis.
- . (2013a). *Traffic safety facts 2011: Overview*. Washington, DC.
- . (2013b). *Traffic safety facts 2011: Young drivers*. Washington, DC.
- . (2015). *Fatality Analysis Reporting System (FARS) encyclopedia: Fatalities and fatality rates by state, 1994–2012*. Retrieved February 3, 2015, from <http://www-fars.nhtsa.dot.gov/States/StatesFatalitiesFatalityRates.aspx>
- National Transportation Safety Board. (2013). *Safety report. Reaching zero: Actions to eliminate alcohol-impaired driving*. (NTSB/SR-13/01, PB2013-106566). Washington, DC.
- Nochajski, T. H., & Stasiewicz, P. R. (2006). Relapse to driving under the influence (DUI): A review. *Clinical Psychology Review*, 26(2), 179–195.
- Peck, R. C. (1987). *An evaluation of the California drunk driving countermeasure system: An overview of study findings and policy implications*. (No. CAL-DMV-RSS-87-112). Sacramento, CA: California Department of Motor Vehicles.
- Rauch, W. J., Ahlin, E. M., Zador, P. L., Howard, J. M., & Duncan, G. D. (2011). Effects of administrative ignition interlock license restrictions on drivers with multiple alcohol offenses. *Journal of Experimental Criminology*, 7(2), 127–148.
- Roerecke, M., & Rehm, J. (2013). Alcohol use disorders and mortality: A systematic review and meta-analysis. *Addiction*, 108(9), 1562–1578.
- Rogers, P. N. (1995). *An evaluation of the effectiveness of California's 0.08% blood alcohol concentration limit and administrative per se license suspension laws*. Vol. 1, *The general deterrent impact of California's 0.08% blood alcohol concentration limit and administrative per se license suspension laws*. (Report No. 158). Sacramento, CA: California Department of Motor Vehicles.
- . (1997). *An evaluation of the effectiveness of California's 0.08% blood alcohol concentration limit and administrative per se license suspension laws*. Vol. 2, *Specific deterrent impact of California's 0.08% blood alcohol concentration limit and administrative per se license suspension laws*. (Report No. CAL-DMV-RSS-97-167). Sacramento, CA: California Department of Motor Vehicles.

- Rogers, P. N., & Shoenig, S. E. (1994). A time series evaluation of California's 1982 driving-under-the-influence legislative reforms. *Accident Analysis & Prevention*, 26(1), 63–78.
- Shield, K. D., Gmel, G., Kehoe-Chan, T., Dawson, D. A., Grant, B. F., & Rehm, J. (2013). Mortality and potential years of life lost attributable to alcohol consumption by race and sex in the United States in 2005. *PLoS One*, 8(1), e51923.
- Stahre, M., Roeber, J., Kanny, D., Brewer, R. D., & Zhang, X. (2014). Contribution of excessive alcohol consumption to deaths and years of potential life lost in the United States. *Preventing Chronic Disease*, 11(130293).
- State of California. (2015, January). *2015 California Vehicle Code: Through the 2014 legislative session*. Sacramento, CA: Department of Motor Vehicles. Retrieved February 3, 2015, from https://www.dmv.ca.gov/portal/wcm/connect/c3d57c91-d5e5-4af7-96d0-d9470b4262f3/veh_code.pdf?MOD=AJPERES
- Stevens, D., Harberts, H., Pfeifer, J. E., & Redmond, I. (1999). Appendix B: The Butte County ReVia Project. In J. Tauber & C. W. Huddleston (Eds.), *DWI/Drug Courts: Defining a National Strategy* (pp. 31–41). Alexandria, VA: National Drug Court Institute.
- Voas, R. B. (2015). Enhancing the use of vehicle alcohol interlocks with emerging technology. *Alcohol Research: Current Reviews*, 36(1), 81–89.
- Wagenaar, A. C., Maldonado-Molina, M. M., Erickson, D. J., Ma, L., Tobler, A. L., & Komro, K. A. (2007). General deterrence effects of US statutory DUI fine and jail penalties: Long-term follow-up in 32 states. *Accident Analysis & Prevention*, 39(5), 982–994.
- Walker, P. (2015, July 28). “Sobriety tag” pilot scheme to be extended nationwide. *The Guardian*. Retrieved September 23, 2015, from <http://www.theguardian.com/society/2015/jul/27/sobriety-tag-scheme-for-people-who-commit-booze-linked-crimes-extended>
- Wells-Parker, E., Bangert-Drowns, R., McMillen, R., & Williams, M. (1995). Final results from a meta-analysis of remedial interventions with drink/drive offenders. *Addiction*, 90(7), 907–926.
- White, W. L., & Gasperin, D. L. (2007). The “hard core drinking driver” identification, treatment and community management. *Alcoholism Treatment Quarterly*, 25(3), 113–132.
- Williams, R. L., Hagen, R. E., & McConnell, E. J. (1984). A survey of suspension and revocation effects on the drinking-driving offender. *Accident Analysis & Prevention*, 16(5), 339–350.
- Willis, C., Lybrand, S., & Bellamy, N. (2004). Alcohol ignition interlock programmes for reducing drink driving recidivism. *The Cochrane Database of Systematic Reviews*, (4), CD004168.
- World Health Organization. (2011). *Global status report on alcohol and health*. Geneva.
- Yu, J., & Williford, W. R. (1995). Drunk-driving recidivism: Predicting factors from arrest context and case disposition. *Journal of Studies on Alcohol*, 56(1), 60–66.
- Zaloshnja, E., Miller, T. R., & Blincoe, L. J. (2013). Costs of alcohol-involved crashes, United States, 2010. *Association for the Advancement of Automotive Medicine*, 57: 3–12.

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About This Perspective

While the rate of alcohol-related traffic fatalities declined nationally over the past two decades, California's rate began to rise again in 2011. This Perspective considers whether California could do more to reduce driving under the influence (DUI) and other threats to public health and safety imposed by repeat DUI offenders. California's current approach to addressing DUIs largely focuses on reducing the probability that individuals drive while impaired. In this Perspective, we argue that future approaches will also need to better target the problem drinking that underlies impaired driving and other negative outcomes. We consider strategies currently in use statewide and in some California counties, as well as in other states. Many options are discussed, including ignition interlock devices, DUI courts, the 24/7 Sobriety program, and substance use treatment, including pharmacotherapy, for those with an alcohol use disorder. At this point, there is insufficient evidence about which types of programs work best for which individuals. Research is needed to assess the effectiveness and cost-effectiveness of these new strategies for addressing repeat DUI offenders.

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