Waiting for the Stop Sign to Turn Green: Contemporary Issues on Drug and Alcohol Impaired Driving Policy

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Abstract
Impaired driving has been a considerable social problem in the U.S. for decades, but efforts to reduce it have stalled after the initial reductions in the 1980’s. As a result, legislators continue to develop more polices aimed at deterring impaired driving. Although alcohol has historically been the focus of these efforts, recently there has been increased concern about marijuana impaired driving policies as well. However, alcohol and marijuana impaired driving differ in many ways. This paper explores the costs and benefits of new zero-tolerance policies such as the reduction of the per-se Blood Alcohol Concentration (BAC) level from .08 to .05 for alcohol and the establishment of similar per-se limits for marijuana. These policies are not based on actual impairment and reflect a net widening effect that will criminalize unimpaired drivers, divert criminal justice resources away from the most problematic impaired drivers, and will have little impact on impaired driving crashes. As such, they have the potential to do more harm than good.

Keywords  Impaired driving · DUI · DWI · Marijuana legalization · Deterrence · Fatal crashes

Impaired driving has been a problem ever since the invention of the automobile (Lerner, 2011). As a result, policymakers are consistently proposing new and stricter policies to reduce/eliminate this problematic behavior. While these efforts have historically focused on alcohol, concerns regarding marijuana impairment have increased after legalization in some states. As a result, policymakers have attempted to directly apply the alcohol solution/model to cannabis impaired driving, but this is problematic since these two behaviors differ in many ways (Kleiman et al., 2018). In fact, there is a common joke within popular culture that drunk drivers will often run a stop sign while a high/stoned driver will wait for it to turn green that alludes to the differences in driving behavior. As such, this paper discusses recent controversies...
involving reductions in the per-se Blood Alcohol Content (BAC) level to 0.05 for Driving Under the Influence (DUI-Alcohol) and establishing per-se limits for DUI-Marijuana.

Per-se legislation assumes that a driver is under the influence and their ability to drive safely is impaired at or above a certain level. Thus, the state does not need to prove the person was impaired, but only that this legal threshold of presumed impairment has been met or exceeded (Ross, 1994). The per-se BAC limit for alcohol is the classic example, and it has been changed several times over the years. For example, upon recommendation from the American Medical Association in 1939, the per-se BAC limits were set at 0.15 and have subsequently been lowered to 0.10 in the 1960’s, and then to 0.08 in the 1980s (Lerner, 2011). However, in 2013, the National Transportation Safety Board (NTSB) recommended that the states lower the threshold even more to a BAC level to 0.05. Utah became the first state to enact this legislation in 2017 (see Utah Code § 41-6a-502) and Mothers Against Drunk Driving (MADD) also endorsed the policy for the first time in 2019 (MADD Media, 2019). Though it may be controversial to label a driver as a criminal for having as little as two drinks, the policy seems to be gaining some momentum.

All 50 states already have broad legislation that criminalize driving while impaired by any substance (e.g. alcohol or drugs), and these effect-based laws require the state to prove the person’s ability to drive safely was impaired by that substance (also known as actual impairment) (Armentano, 2013; Kleiman et al., 2018; NCSL, 2017). In fact, this was the standard impaired driving legislation for alcohol prior to the invention of the breathalyzer (Lerner, 2011), and DUI-Drug prosecutions continued to use this approach until recently. However, more recently, some states have implemented zero tolerance and per-se laws that allow for the conviction of drivers with level of the active ingredient in marijuana (THC—Δ⁹-tetrahydrocannabinol) or it’s metabolites that exceeds the limit regardless of the actual impairment of the driver (NCSL, 2017). These limits are also much stricter than the current per-se limits for alcohol. Thus, policymakers have attempted to apply a stricter version of the solution for alcohol impairment to marijuana impairment, despite crucial differences in detectability, pharmacokinetics, and impact of traffic safety between the two types of impairment (see Kleiman et al., 2018).

The issues of lowering the BAC level for alcohol and the still developing legislation about marijuana impairment pose significant controversy. These policies certainly reflect a well-intended desire to make the roadways safer. However, the impact they have on impaired driving crashes is questionable and they may also create unintended consequences, perpetuate inequality, and even result in wrongful convictions in some cases. For example, under a 0.05 BAC law, drivers can be convicted of DUI for drinking as little as two drinks prior to driving and while showing no signs of intoxication. At the same time, due to issues with marijuana detection, metabolism, and a stricter per-se limit, some DUID legislation is conducive to the arrest of drivers with no detectable amount of drugs in their system and/or conviction of drivers weeks after their last use of marijuana.
Lowering the Per-Se Limit to 0.05

The NTSB indicates that reducing the per-see BAC limit to 0.05 will lead to significant reductions in alcohol related crashes, injuries, and fatalities (NTSB, 2013). However, there are several issues with this claim that lead one to question it’s validity. In fact, while low BAC is associated with some increased crash risk, the risk is the same as cellular phone use while driving which is not a criminal offense (Strayer et al., 2006; Talpins, 2014). Drivers with a low BAC level also comprise an exceedingly small proportion of fatal crashes in the United States. For example, drivers with a low-level BAC do not contribute to very many crashes, they cause even fewer of these crashes, and it is questionable whether this legislation would even deter them in the first place.

Table 1 presents the percentage of fatal crashes in the United States that involve a driver with various BAC levels (see National Highway Traffic Safety Administration, 2019). This table illustrates that a large majority of fatalities involve drivers with very high levels of intoxication (BAC 0.15+) or no alcohol at all (BAC = 0.00). In fact, those drivers with a low BAC (< 0.08) make up less than five percent (4.8%) of fatal crashes in the U.S, and those that would be affected by this legislation (BAC 0.05—0.07) make up about half of these (2.4%). Thus, the potential impact of the 0.05 BAC law on fatal crashes in the U.S. is limited (see also Stringer, 2018).

Along with illustrating that drivers with low BAC make up a very small proportion of crashes, Table 1 also illustrates an important fact that is often overlooked due to the stigmatization of impaired driving: that the vast majority of fatalities do not involve ANY alcohol whatsoever. This is crucial information for a few reasons. For example, it demonstrates that this policy is focusing on a very small percentage of the much larger traffic safety problem (Gusfield, 1984). These data also remind us that there are many other causes of fatal crashes that do not involve alcohol, and this is critical to remember when interpreting alcohol related crash data.

Specifically, alcohol related crashes suffer from what is known as the malevolence assumption (Gusfield, 1985). This assumption is that often when there is an alcohol involved crash it is often assumed to be the cause of the crash (Gusfield, 1985). Although this may be a fair assumption to make for drivers with very high BAC levels, the probability that alcohol was the causal factor in these low BAC crashes is actually pretty low (see Stringer, 2018). For example, if a distracted driver runs the stop sign and hits another vehicle driven by a driver with a 0.05 BAC level, the BAC level would not be the cause of the crash. As such, those crashes involving

| BAC Level | Frequency | Percent |
|-----------|-----------|---------|
| BAC = .00 | 22,338    | 67%     |
| BAC = .01–.07 | 1,608 | 5%     |
| BAC = .08–.14 | 2,963 | 9%     |
| BAC = .15+ | 6,273    | 19%     |
| Total     | 33,244   | 100%    |

Table 1  U.S. Fatal motor vehicle crashes in 2019
a low BAC driver are frequently not caused by the driver’s alcohol consumption, but likely some other factor.

Although the potential for a direct effect of a 0.05 BAC law on fatal crashes is limited given the aforementioned issues, some scholars suggest that the law will have a general deterrent effect for potential drivers at all BAC levels (see Fell & Voas, 2013). While there may be some relationship between lower BAC laws (the change from 0.10 to 0.08) and lower crashes in some instances (see Fell & Voas, 2014; Wagenaar et al., 2007; Voas et al., 2000), the assertion that a lower BAC law will result in general deterrence from DUI is rather simplistic and ignores many important factors. Specifically, deterrence generally focuses on increasing individual perceptions of certainty, severity, and celerity of punishment, but it is unclear how changing the per-se BAC level will influence this for drivers at all BAC levels. For example, it is doubtful that the decisions of the most problematic drivers with high BAC levels (BAC > 0.15) will be affected at all by changing the limit from 0.08 to 0.05. Contrarily, this policy appears to be widening the net to arrest drivers that would not have been previously targeted.

The assertion that this legislation will lead to general deterrence and aggregate reductions in drunk driving is also ignores nearly three decades of deterrence research, possibly due to the lack of consideration of criminological research by traffic safety scholars (see DeMichele et al., 2014). Deterrence theory is an individual level theory of criminal decision making (see Pogarsky & Laughran, 2016), and there is no evidence that this legislation, or any other, will impact individual level perceptions of risk (see Apel, 2013; Pickett & Roche, 2016; Pogarsky and Laughran, 2016) and have any indirect impact on the decision to drink and drive. However, proponents of this policy assume that not only will this policy impact these factors, but it will do so in such a prolific and widespread manner that will generate aggregate level reductions in fatal alcohol related crashes. Furthermore, this argument ignores important individual factors such as personal and vicarious experiences that impact perceptions of risk such as experiences with punishment and punishment avoidance (see Stafford & Warr, 1993), as well as the differential deterrability of offenders (see Jacobs, 2010; Herman & Pogarsky, 2020). As such, the argument that lowering the BAC level will effectively generate general deterrence and save a lot of lives has some limitations, and is, at the very least, an oversimplification of a much more complex and multifaceted decision-making process that leads from policy to fatal crashes (see Zylman, 1968).

Nonetheless, since the state of Utah implemented this new policy in December of 2018, it is also helpful to examine the empirical data on alcohol related crashes pre/post implementation. Figure 1 presents data on the percentage of fatal and all other crashes that are alcohol related in the state of Utah from 2010 through 2021. The trend line for all alcohol related crashes does not appear to shift in the years after 2018, but there does appear to be a reduction in fatal alcohol related crashes in 2019. While these data for 2019 appear promising, fatalities appear to return to their normal levels/trajectory in 2020 and 2021. This phenomenon has been illustrated before with the change to 0.08 BAC, where there was an initial reduction in crashes following the legislation implementation, but the effects did not persist over time (Mann et al., 2001). The 2020 and 2021 crashes are particularly interesting since some have
noted significant reductions in impaired driving during the COVID-19 lockdowns (Piquero et al., 2021), so these numbers may have been lowered by the COVID-19 protocols. The proportion of drivers with low BAC in Utah is also similar to the national data presented above, and the year prior to enacting the lower BAC legislation in Utah (2016) only 8% (3) of drivers in fatal crashes tested positive for a BAC level between 0.05 and 0.07, but 89% (32) had a BAC above 0.08 (Mower, 2017).

Although it is questionable whether widening the net of impaired driving control to presume those above 0.05 are impaired will achieve its goal of reducing DUI crashes, there are also some possible collateral consequences to consider. Net widening has some obvious impacts on the criminal justice system such as increased arrests, court cases to process, offenders to incarcerate, etc. (Talpins, 2014). As such, agencies may be forced to divert limited resources from other areas if increased resources and budgets are not provided (Hurley, 2014; Talpins, 2014). In fact, Candy Lightner, the founder of M.A.D.D., opposed lowering the BAC level from 0.10 to 0.08 because it would divert police officers and resources away from addressing the real problem, the high BAC drivers most often involved in crashes (Lerner, 2011).

This policy may also increase race and gender inequality in impaired driving arrests (see Schwartz & Rookey, 2008; Kagawa et al., 2021). For example, Schwartz and Rookey (2008) indicated that the previous BAC limit change increased the proportion of women in DUI arrests by criminalizing the often less-serious (Lower BAC) drinking and driving behavior of women (Schwartz & Rookey, 2008). Correspondingly, alcohol has diverse effects on women and men that are related to differences in metabolism and body weight. For example, if an average 200-pound man and a 170-pound woman both drink two glasses of wine at a dinner over the period of an hour and a half, the man will be below the BAC limit (0.03%) and the woman above it (0.05%) (American Addiction Centers, 2021). Thus, the woman who drinks...
two glasses of wine is a criminal and the man is not. Moreover, although the Field Sobriety Tests used to detect impairment have been subjected to some criticisms due to false positives and subjectivity (see Rubenzer, 2008), only one of three is a reliable predictor of low BAC (McKnight et al., 2002; Talpins, 2014), which may also contribute to inequality and the arrest of innocent people.

In sum, low BAC drivers pose the same risk to public safety as talking on a cellular phone, are involved in a very small fraction of crashes, are at fault in even fewer of them. Thus, they do not pose a considerable problem to traffic safety that warrants net-widening of DUI legislation to criminalize this behavior. Interestingly, this legislation is also not supported by some former MADD executives (see Talpins, 2014; Hurley, 2014), and the founder of MADD (see Lerner, 2011). As such, the BAC limit should remain at the current level, and any drivers with actual impairment below the per-se limit can be prosecuted under the actual impairment statutes, rather than creating a presumption of impairment at such a low BAC level.

Marijuana Legalization and Impaired Driving

Despite research showing that marijuana impairment is less dangerous than alcohol (Simmons et al., 2020), legislation to control it is more restrictive. Research on marijuana indicates that it is related to mild cognitive (Hart et al., 2001) and driving impairment (Arkell et al., 2020; McCartney et al., 2021). Interestingly, a recent meta-analysis comparing marijuana to alcohol impairment indicates that this impairment does not meet or exceed the impairment seen with alcohol BAC concentrations of 0.04 to 0.06 (Simmons et al., 2020). In fact, studies often find that unlike alcohol impaired drivers, marijuana impaired drivers are aware of their impairment and compensate for it by driving slower, increasing following distance, making fewer attempts to pass, etc. (Brooks-Russell et al., 2021; Sewell et al., 2009; Simmons et al., 2020). Although marijuana using drivers may be safer in some respects, this does not apply to all driving behaviors and drivers cannot account for all marijuana induced deficits (e.g. increased reaction time to emergencies or other unexpected occurrences) through behavior modification (see Asbridge et al., 2012, Li et al., 2012; Rogeberg & Elvik, 2016; Sewell et al., 2009). Thus, while marijuana impairment may be safer than alcohol (e.g. it is safer to wait for the stop sign to turn green than to run it), but it is still less safe than driving sober.

There are also mixed findings on the relationship between marijuana legalization and increased marijuana related crashes and/or fatalities. For example, some find that marijuana legalization does not impact crashes (Aydelotte et al., 2017; Callaghan et al., 2021; Sevigny, 2018), but the implementation of commercial marijuana sales does (Aydelotte et al., 2019; Monfort, 2018). Although the results may indicate that it takes some time to observe changes in crashes after legalization (Aydelotte et al., 2019), it may be the commercial sales themselves that create this relationship via increased availability/opportunity. Legalization of marijuana, in and of itself, may not lead to the substantial increases in marijuana use necessary to detect aggregate change in crashes because it does not lead to increases in marijuana availability and the opportunity for motivated offenders (see Cohen & Felson, 1979; Felson,
However, once commercial sales began, citizens that previously had no means of acquiring marijuana (through a previously illicit market) could now do so at the local dispensary.

Twelve states have implemented zero tolerance laws allowing for the conviction of an individual with ANY detectable level of a drug (e.g. marijuana) or its metabolites in the driver’s body (NCSL, 2017). Although all states have a zero-tolerance alcohol BAC level (0.02) for drivers under the age of 21, this approach is especially problematic for marijuana because it stays in the body for much longer than alcohol. Studies have shown that residual THC can be detected in blood for several days (Karschner et al., 2009; Skopp & Pötsch, 2008), and up to 30 days in regular users (Bergamaschi et al., 2013), after ingestion of the drug and long after the psychoactive effects of the drug have worn off. The inactive metabolite THC-COOH (11-nor-9-carboxy-THC) is also detectable in blood for up to 33 days after last use (Bergamaschi et al., 2013). Thus, since zero tolerance legislation allows for the conviction for DUID for the presence of ANY level of THC or metabolites, drivers could be convicted for driving up to 33 days after the last time they used marijuana. Conversely, since the 11-OH-THC metabolite provides a more valid measure of recent marijuana use than others, legislation should focus on testing for this metabolite to reduce convictions based on prior use, or better yet eliminate the zero-tolerance legislation.

Four states (Colorado, Illinois, Montana, and Washington) have enacted per-se THC (Δ9-tetrahydrocannabinol) limits of 5 ng/ml of blood, and in two states (Ohio and Nevada) the per-se limit is 2 ng/ml of THC (NCSL, 2017). Because these per-se limits for marijuana are so low, they are not much better than zero tolerance and in some ways are essentially the same thing. In fact, the National Highway Traffic Safety Administration (2008) classifies these per-se states under the zero-tolerance category. This is especially true of Ohio and Nevada and research shows that their per-se limit for THC (2 ng/ml) and THC-COOH (the inactive metabolite) can be met after up to 9 and 19 days of abstinence, respectively (Bergamaschi et al., 2013). Although some studies show no impairment below 0.10 ng/ml, the impairment from the 7–10 ng/ml range is considered similar to a 0.05 BAC and this has generated some concern (Grotenhermen et al., 2007). More specifically, the impairment from THC at 8.2 ng/ml of blood is considered equivalent to a BAC level of 0.05, 13.1 ng/ml equals a BAC of 0.08, and 20 ng/ml is like a 0.10 BAC (Hartman et al., 2015). Therefore, the per-se limits for THC are much stricter than those for alcohol, and those that use any amount of marijuana are at great risk of conviction regardless of their actual impairment (see McCartney et al., 2021).

To put these THC levels into context, males weighing 150 pounds that ingest 19 mg of marijuana (the average size of a marijuana cigarette) are estimated to have a blood serum concentration of 4.9 ng/ml after three (3) hours (Grotenhermen et al., 2007). However, because the estimate varies across users (Confidence Intervals = 3.1 and 7.7 ng/ml), some users are estimated to be as high as 7.7 ng/ml after three hours. In regular users it may also take longer, up to 10 h, for residual THC concentrations to decline below 5 ng/ml (Grotenhermen et al., 2007). Females also have longer
THC and 11-OH-THC detection windows than males (Bergamaschi et al., 2013), which can also contribute to gender inequality. Thus, Grotenhermen et al. (2007) recommended a higher per-se THC limit of 7 -10 ng/ml to prevent convicting drivers who drove after the psychoactive impairment had worn off (> 3 h).

Although police can conduct an objective test of a driver’s BAC level via a Preliminary Breath Test (PBT) prior to making an arrest for DUI-Alcohol, there is no reliable test for marijuana or other drugs. As a result, some officers are trained as Drug Recognition Experts (DREs) that use a 12-step protocol to assess the impairment of DUID suspects (Hartman et al., 2016). This evaluation is based an eye examination, divided attention tests, vital signs, etc. (IACP, n.d.). Unfortunately, like the Standardized Field Sobriety Tests (SFSTs) (Papafotiou et al., 2005), these tests are very subjective and result in high rates (about 30%) of false positives (Heishman, et al., 1996, 1998; Shinar & Schechtman, 2005). As a result, DRE officers mistakenly believe that a person is under the influence of drugs about 30 percent of the time in these experiments (see Owusu-Bempah, 2014). In fact, there have been a several of examples in the media of people being arrested for failing these subjective tests only to be exonerated later when their chemical tests come back completely negative for all drugs (see e.g. ACLU-Georgia, 2021). As such, in situations where no chemical test is performed the possibility for wrongful convictions is great.

In sum, several potential problems exist within the current policies aimed at marijuana impaired driving. These mainly revolve around establishing a reasonable per-se limit, the extended period that THC and its metabolites can be detected after the drug has worn off, and the subjectivity and false positives associated with the DRE protocol and SFSTs. Legislation is largely, if not completely, based on a zero-tolerance approach. This approach allows for the arrest and conviction of drivers who may not be under the influence of marijuana (see McCartney et al, 2021) but have simply used marijuana at some point during the detection window.

Conclusion

Impaired driving is certainly a concerning and dangerous behavior that society rightfully wishes to reduce or even eliminate, if possible. However, the policies outlined herein take a rather punitive approach toward reducing it, and it remains questionable whether they will achieve the goal of substantially improving road safety. Among other things, the impact of these policies is limited due to the focus on driver’s that do not pose a considerable threat to traffic safety. Nonetheless, these policies are also likely to result in unintended consequences and are grounded in the outdated and oversimplistic punitive ideas of general and specific deterrence advocated by traffic safety scholars (see Fell & Voas, 2013; Watson & Mann, 2016).

Drug and alcohol control policies have certainly been no exception to the punitive approach toward crime (see Inciardi, 2008; MacCoun & Reuter, 2001; Musto, 1999) and these policies are also likely related to punitive sentiments toward crime (Ramirez, 2013) and impaired driving (Applegate et al., 1996). While alcohol use is subject to considerable stigmatization by some segments of society, it is also widely accepted by others (Gusfield, 1996). Unfortunately, the stigmatization of impaired
driving has evolved far beyond the stigmatization of alcohol use itself and impaired drivers are treated as a ticking time bomb that will inevitably crash unless stopped (Gusfield, 1981). However, this could not be further from the truth in cases of low BAC drivers that consumed two glasses of wine a dinner (see also Ross, 1992; Stringer, 2018). Conversely, marijuana use was still highly stigmatized, and most did not favor its legalization until recent years (Stringer & Maggard, 2016). Marijuana impaired driving may also represent an interaction between two highly stigmatized behaviors – drug use and impaired driving. As such, this heightened stigmatization is illustrated in the stricter legislation toward marijuana impaired drivers compared to alcohol.

To develop effective policies aimed at reducing impaired driving, effort should be made to view the problem objectively rather than in light of the stigmatization associated with alcohol, marijuana, and impaired driving. To that end, it is important to recall that research indicates that marijuana impaired driving and low BAC driving is no more dangerous than driving while talking on the phone (Kleiman et al., 2018; Strayer et al., 2006; Stringer, 2018; Talpins, 2014). In fact, Talpins (2014) points out that encouraging drivers to be as safe as possible is quite different from criminalizing behavior that is not unreasonably dangerous. As such, a more reasonable approach might be to treat marijuana impaired driving and/or low BAC driving as a traffic violation (Kleiman et al., 2018) or continue to use the effect based non per-se statutes to prosecute cases of actual impairment (see Armentano, 2013; Hurley, 2014).

It is also important to take the limited criminal justice resources available into consideration, as Candy Lightner did in her assertion that widening the net to criminalize drivers with lower BAC levels would divert attention from the real problem drunk drivers (Lerner, 2011). The criminal justice system is already dedicating considerable resources toward impaired driving, and 1,024,508 DUI arrests were made in 2019 (UCR, 2019). In fact, more arrests were made for DUI than any other offense except for all drug arrests (1,558,862) and simple assaults (1,025,711) (UCR, 2019). Widening the net to include low BAC drivers and non-impaired marijuana users will be very likely to increase these numbers if it is enforced. As such, these policies may produce a considerable strain on the already limited resources of the criminal justice system that will require diversion of resources from other areas.

Rather than widen the net to criminalize more behavior that will fall to the police to enforce, it may be helpful to explore alternative social policies that address the root causes of the social problem instead of placing all the responsibility on the police (see Vitale, 2021). Additionally, the police cannot prevent all drunk driving and crashes, and will reach a point of diminishing returns on their efforts (Stringer, 2019). To this end, Ross (1992) argued that the impaired driving problem is the result of the interaction of two social problems: drug/alcohol abuse and traffic safety. Thus, addressing these problems has the potential to impact those drivers that should be the focus of impaired driving policy (the high BAC drivers that contribute to a large percentage of crashes).

There is a reason why New York city has the lowest rate of impaired driving in the country, and it is not because no one is drinking or using drugs. Rather, it is because they don’t need to drive everywhere because they have many other
transportation methods available such as walking, public transportation, taxi’s, etc. Correspondingly, impaired drivers often do not manifest the same mental intent that is associated with other crimes and have been referred to as potentially motivated offenders (Stringer et al., 2019). Instead, many DUI offenders often just want to get home, which makes them more willing to accept alternative methods of transportation. In addition, the increased availability of ride sharing service such as Uber and Lyft are promising and convenient alternatives to impaired driving (see Morrison et al., 2021), and some areas have even begun to subsidize them to offer free rides to impaired persons (see Byck, 2021; Christian, 2015). As such, policymakers may wish to explore ways to provide more alternative transportation methods to those that may be impaired.

Research also consistently shows that substance use disorder (SUD) is a strong predictor of chronic drunk driving (DeMichele et al., 2016; Goodfellow & Kilgore, 2014; Stringer, 2021a, b). Thus, drug and alcohol addiction play a significant role in the social problem, however, public health resources and the availability of treatment for these disorders is not widely available for those with limited financial means. In fact, in 2020 there were 28.3 million people with an alcohol use disorder and 18.4 million with an illicit drug use disorder in the U.S., but only 2.6 million (6.5%) received treatment for this disorder (SAMSHA, 2021). Thus, if those with SUD could be treated and remain abstinent this would greatly reduce the number of impaired drivers and crashes as well.

In conclusion, the zero tolerance policies outlined above will considerably widen the net of what is currently considered criminal impaired driving in the U.S. and have very little potential for any meaningful impact on the harms associated with impaired driving. As a result, while based on good intentions, they have the capability of doing more harm than good. Although marijuana tends to be associated with greater social stigma than alcohol, it appears to be somewhat less dangerous and policymakers should recognize that perhaps waiting for a stop sign to turn green is, indeed safer than running a stop sign. Rather than criminalizing behavior altogether that is no more dangerous than talking on the phone, the effect-based laws can be used to prosecute anyone that is actually impaired, or low BAC and marijuana use could be treated as a traffic violation. In fact, if policymakers implemented the traffic citation approach, the fines could fund policies to address addiction and traffic safety. However, criminalizing these behaviors will likely only lead to the refilling of the jails and prison populations that have seen some relief due to marijuana legalization.

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