

THE LATE NIGHT THREAT

SCIENCE, HARMS, AND COSTS OF EXTENDING BAR SERVICE HOURS



A report from California Alcohol Policy Alliance and Alcohol Justice

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Carson Benowitz-Fredericks, MSPH Research Manager, Alcohol Justice
Bruce Lee Livingston, MPP Executive Director/CEO, Alcohol Justice

EXECUTIVE SUMMARY

Well-conceived trading hour restrictions for bars, restaurants, and nightclubs are one of the fundamental regulatory strategies to prevent alcohol harm. Recently, politicians in the U.S. and other developed nations have, under pressure from the alcohol industry, pushed to strip away these protections. A significant body of literature exists showing that these protections affect rates of late-night violence, intoxicated driving, and other sources of injury and crime. In turn, increased public harm stresses emergency services such as law enforcement and medical personnel. This report details the current state of the science around late night alcohol service and changes in bar closing times.

FINDINGS

- International peer-reviewed research conducted over the past 40 years shows that changes in last call times of 2 hours or more are associated with an increase in alcohol-related automobile crashes and tickets for driving under the influence (DUI).
- Ride-sharing services like Uber and Lyft are insufficient to counter intoxicated driving trends, while night owl mass transportation is largely unavailable.
- Because fatigue and alcohol interact, late-night bar times can create deadly drivers even at the currently legal .08 blood alcohol content (BAC) standard.
- Early morning last calls can overlap with early morning commuters and school activities, removing insulation between late-night drinkers and daytime activity.
- Research in Australia and Norway suggests later last call times increase violence by 17%–50%, while early ones reduce it by 19%–37% per hour of change.
- Because intoxicated drivers travel to seek out open bars late at night, different last call times between areas make alcohol harms “splash” onto all nearby communities.
- Greater late-night drinking makes it harder for police to operate effectively and can severely impact emergency room (ER) capacity.

RECOMMENDATIONS

- Maintain last call times of 2 a.m. or earlier.
- Reject the “local control” rhetoric—don’t create a patchwork of different last call times.
- Policies to promote nightlife should include a full understanding of existing research and the needs of emergency personnel.
- Push for more high-quality research in the United States on bar times.
- If legislators fail to uphold safer nightlife standards, advocate for them at the community level.

1. INTRODUCTION

Year after year, alcohol causes significant injury and loss of life in the developed world. The World Health Organization (WHO) lists alcohol use as the third most significant behavioral cause of death and disease, behind only tobacco and excessive dietary salt.^{1 2} Despite this fact, many countries and many U.S. states have pushed to deregulate alcohol. These loosened restrictions take many forms: failure to adjust taxes to keep up with inflation, approval of global mergers that create mega-brewers with enormous advertising and political power, relaxation of blue laws and attacks on state-controlled outlets.

Notable among this weakening of alcohol control is relaxation or outright elimination of laws restricting bar and club closing times. For example, in 2005, the United Kingdom eliminated its 11 p.m. last call, allowing for some clubs to stay open 24 hours per day.³ Some Canadian jurisdictions have also begun to extend last calls, with members of Toronto's liquor licensing committee (which includes nightlife venue owners) pushing for 4 a.m. closing times.⁴ Legislators are currently considering bills to extend hours in Detroit and Philadelphia as well.

These later hours, once established, are difficult to roll back. Efforts to claw back closing times in Australia have had some important successes but face an uphill battle.⁵ The city of Miami Beach recently tried but failed to enact earlier last calls in its most problematic neighborhoods.⁶ In the U.S., only Greenville County, South Carolina, has enacted earlier closing times in recent years.^{7 8} SEE SIDEBAR I

The movement away from established, common-sense alcohol regulations has struck California as well. California currently has a statewide last call time of 2 a.m. Since 2003, the late-night entertainment industry and its friends in the legislature have floated bill after bill to allow cities or counties to set 4 a.m. last calls. All have failed, thanks in large part to strong opposition from community and statewide co-

alitions. Nonetheless, as of this writing, another such bill, SB 905, written by State Senator Scott Wiener of San Francisco, is being deliberated in 2018.

I. The Five Worst Bars in Greenville County

While many localities in the U.S. are feeling corporate pressures to liberalize alcohol laws, those that already offer extended trading hours are taking note of the damage that comes with it. In the face of dramatic incidences of drunken violence, former Miami Beach Mayor Philip Levine engaged in a high-profile, failed effort to close bars earlier.⁶ But the county of Greenville, South Carolina, stands out for respecting public safety concerns and successfully moving its last call time back from 2 a.m. to 4 a.m.⁷

Greenville County surrounds the city of Greenville, which already closes its bars at 2 a.m. This has led alcohol-seeking locals to flock to a handful of establishments out in the county for late-night drinks. When these "bar-time shoppers" converge on a select few venues, violence erupts. The Greenville County Sheriff's Office noted that, over the course of 2017, 177 calls were made to just 5 specific bars and clubs.⁸

Law enforcement testimonials to the county council were backed by those of families and friends of young people killed in late-night violence in the county. Swayed by the violence, the councilmembers voted 9-2 to restrict closing times.

The decision drew criticism from affected businesses. "We're not going to be able to protect staff, customers, and the community like we have in the past," said Joe McCabe, owner of the Lust Strip Club.⁷

County Councilmember Lynn Ballard noted that arguments that early morning drinking promote customer safety health are old hat. "They used that same argument the last time this was brought up, and all I can say is I don't accept the premise of the argument," he said.⁸

These bills come at a time when the United States is struggling with the growing consequences of drinking. Researchers estimate that rates of alcohol abuse and alcoholism have risen nearly 50% since 2002.⁹ This spike has disproportionately hit women, ethnic minorities, and older Americans. Much of it takes the form of binge drinking, defined as 5 drinks in a 2 hour period for men, 4 drinks for women. In 2015, 37.4 million adults reported binge drinking, with a mean of 53.1 nights of bingeing per year.¹⁰ Alcohol overconsumption costs the United States \$249 billion a year,¹¹ with \$13.5 billion stemming from motor vehicle crashes alone. Healthcare utilization accounts for \$28.4 billion, and violence and other crime \$27.5 billion.

These patterns are echoed in California, where alcohol kills nearly 10,500 residents per year¹² and is a factor in 164,000 hospitalizations annually.¹³ Alcohol costs the California public \$35 billion annually, of which \$14.5 billion comes as direct costs to government.¹¹ As part of the pattern of deregulation, alcohol taxes and fees have failed to keep pace with inflation; the state has not raised alcohol taxes since the early 1990s, and the national government recently voted to cut them despite looming deficits.¹⁴ California recoups only 10% of costs from alcohol harm through taxes and fees.¹⁵ Meanwhile, only 7% of Californians in need of treatment for alcohol are receiving it.¹⁶ This death and loss of quality of life will continue to spiral upwards for as long as policymakers reject common-sense harm mitigation strategies. Last-call times (and, more generally, trading hour restrictions) are a prime example of alcohol harm mitigation strategies.

2. TRADING HOURS OVERVIEW

In public policy terms, last call times qualify as “trading hour restrictions”. These types of laws seek to lessen the impact and consumption of alcohol by creating a no-alcohol sale buffer. In the case of last calls, this buffer affects times of day that bars, nightclubs, and restaurants can legally serve drinks.* In the U.S., last call times are set by individual states. While this has created a patchwork of times by state or locality, most adhere to 1 a.m. or 2 a.m. times. There are some areas with 3 a.m. and 4 a.m. last call times, but many of those offer 24-hour rail transit (e.g., New York City) and/or bear serious burdens from alcohol use (e.g., Miami Beach). Chicago allows service until 5 a.m. in some circumstances, but also mitigates bar times with strong local control by allowing local precincts



to vote themselves dry, which is now the case in 540 out of 2,069 Chicago precincts.¹⁷

* In this report, we use “last call” and “trading hour restriction” interchangeably. As used here, they are synonymous with “closing time,” “bar time/bar hours,” and “close of trading hours.” However, trading hour restrictions can also refer to limitations on days of service, and can apply to liquor stores, groceries, and carry-outs as well.

Regardless of the mandated closing time, research suggests later trading hours for bars mean more alcohol consumption.¹⁸ Far from being controversial, this fact is central to the arguments for later last-call times. Proponents ar-

Just as clawing back hours of sale reduces the impact of drinking, expanding hours of sale worsens it. In 2010, the Centers for Disease Control and Prevention (CDC) brought together a panel of experts led by Jonathan Fielding, MD,

“Extended bar trading hours provide substantial private gain to bar owners from increased sales, nominal tax revenue to a few communities, and both financial and health burdens to [everyone else].”

gue that later last calls bring economic benefits from more alcohol sales. However, increased consumption has both short and long-term economic, public safety, and public health consequences. In the short term, it means increased dangerous driving, violence, noise, and property damage. In the longer term, it means more illness, domestic violence, incarceration, and addiction. Each of these have their own price tag. At best, any economic gains are robbing Peter to pay Paul. At worst, they are killing Peter to pay Budweiser.

Aside from directly preventing population harm, reasonable last call times create a “downtime” that is both protective and productive. By ending alcohol sales in a timely fashion, states lessen the fatigue, a major component in dangerous driving that is greatly worsened by even mild alcohol use. This downtime of no sales relieves the burden on emergency services, as a large number of late-night emergency room (ER) visits and police calls are alcohol-related. This quiet period also ensures that the intoxication and chaos from closing times does not collide with non-partiers during commute hours of the workday.

In a recent joint report, the Foundation for Alcohol Research and Education and the Institute for Alcohol Studies gave trading hour restrictions the highest marks of all policy options for reducing alcohol harm.¹⁹ The authors praised hour-of-sale restrictions for being evidence-based, cost-effective, and easy to introduce and promote in areas with extensive alcohol-related crime and violence.

one of the most influential figures in our modern understanding of public health. This panel, called the U.S. Community Preventive Services Task Force, was charged with creating a coherent narrative from the body of trading hour research, which spans over 50 years of studies from four continents. They found that for every 2-hour increase in last call time, vehicle crash injuries, ER admissions, and alcohol assault and injury all increased substantially. The Task Force judged the evidence sufficient to recommend against any efforts to permit later trading hours.²⁰

This evidence has led many leading public health and safety institutions to recommend trading hour restrictions, including:

- World Health Organization
- National Academies of Sciences
- United States Surgeon General
- Centers for Disease Control and Prevention
- Substance Abuse and Mental Health Services Administration

This report examines the harms from trading hour liberalization from three perspectives: 1) vehicle crashes and dangerous driving; 2) violence, injury, and emergency services; 3) how alcohol harm from one city can “splash” onto many surrounding communities.

Peer-reviewed scientific evidence links increases in intoxicated driving and violence and injury to changes in last call times. The Splash Effect

is a model introduced here of how alcohol harm radiates out from a late-night party district in one city through neighboring communities. Through the Splash Effect, the damage from drinking becomes an economic burden on surrounding cities while the city with the extended last call party district enjoys the tax revenue. Despite these distinctions, however, one simple truth underlies them all: excessive drinking harms individuals, and makes it easier for them to harm others. From an economic perspective, extended bar trading hours provide substantial private gain to bar owners from increased sales, nominal tax revenue to a few communities, and both financial and health burdens to all other communities, the public, and the state. Local private profit causes regional public harm.

3. MOTOR VEHICLE CRASHES

a. Costs to U.S. & California

Motor vehicle crashes take over 32,000 lives per year. These wrecks cost the country \$380 million annually in direct medical costs.²¹ Much of this can be attributed to drinking and driving, which remains an epidemic in the United States. In 2015, 10,265 people died in alcohol-related crashes. That averages out to 28 deaths a day, or 1 death every 51 minutes.²² All these deaths are preventable.

In California, the problem is clearly getting worse. The death rate from alcohol-related crashes keeps rising every year. Between 2014 and 2016, the number of fatal crashes involving a legally impaired driver (over 0.08% BAC) went up 21%.²³ By comparison, the population of California grew only 1.6% over that span.²⁴ In 2016, over 27,000 crash-related injuries or deaths involved alcohol, almost 2,000 more than in the previous year.²³

The causes of this dramatic spike in roadway deaths remain unclear. California State Office of Traffic Safety experts theorize that a better economy means more Californians are driving.

Alternatively, the recent shocks to the economy may have stripped law enforcement funding.²³ Regardless of the cause, it mirrors a country-wide tendency to drink recklessly. As noted above, alcohol use disorders in the U.S. have spiked in recent years.⁹ California urgently needs lawmakers to address the crisis on the highways. They can start by not actively pursuing policies like extended last calls that threaten to make things worse.

b. Peer-Reviewed Research on DUI

Efforts to document the effects of trading hours on intoxicated driving and crashes date back nearly 50 years and span 3 continents. However, multiple expert reviewers^{18 25 26} point to 2 series of peer-reviewed papers looking at closing time-related harm in Australia as being well-designed and compelling. Between 1988 and 1990, D. Ian Smith of the Western Australia Drug and Alcohol Authority found that a 4-hour delay in last call led to an 11.5% increase in crash injuries.²⁷ Subsequent loosening of trading hour restrictions led to a further 8.5% increase in injury crashes during the 4 hours following bar closing time.²⁸ When examining a 1977 Tasmanian law allowing unrestricted closing times, Smith found an 11% increase in traffic injuries.²⁹

More recently, Chikritzhs and Stockwell looked at outcomes in Perth, Australia. In 1988, Perth extended last call times from 12:00 a.m. to 1:00 a.m. for some hotels. The researchers compared patrons leaving hotels with the standard last call with those taking advantage of the extra hour of drinking time. They found a 51.3% increase in alcohol-related road crashes.³⁰ Men in particular had significantly higher BACs when leaving the extended-hour hotels.³¹

Researchers in the United States have too rarely embraced opportunities to look at alcohol-related traffic crashes and fatalities caused by last call differentials. However, multiple studies have confirmed that later last call times are associated with arrests for driving under the influence (DUI). A team looking at bars in New York found

that the later the last call time, the more first-time DUI arrests were made.³² Another paper looking at Minnesota's 2003 decision to extend hours from 1 a.m. to 2 a.m. likewise found that DUI stops increased significantly.³³

Only one study, a 2014 analysis of the aftermath of England and Wales's 2003 decision to allow 24-hour alcohol sales, found a decrease in traf-

consumption of alcohol and so increases the associated costs related to worse health, poorer family relations and greater absenteeism."³⁴

c. When Inebriation Meets Fatigue

While the absolute quantity of alcohol imbibed is a major predictor of dangerous driving, lack of sleep itself creates risky situations. The AAA

Foundation for Traffic Safety estimates that 109,000 injury crashes and 6,400 fatal crashes each year involve a sleep-deprived driver.³⁷ In a lab environment, sleep deprivation can affect ability to safely drive an automobile nearly as severely as drinking.³⁸ Any environment which promotes driving while sleep deprived will increase the rate of vehicle crashes, injuries, and fatalities. The particular effects of alcohol on the central nervous system significantly exacerbate these risks.



“ The underslept and buzzed group had noticeable difficulties staying in their lane. Yet the participants did not feel any more tired. And all of this happened at a legal BAC level. ”

fic crashes in those countries as compared to Scotland.³⁴ The reduction was primarily seen in younger drivers. However, the researchers' initial analysis was statistically insignificant; positive findings only emerged after data from various jurisdictions were weighted more or less heavily.[†] Other findings from the U.K., including a working paper from the same lead investigator, Colin P. Green, suggest that consumption and other alcohol harms have risen significantly.³⁵

[†] In fact, in the time period immediately preceding the policy change, Scotland had been experiencing a more rapid decline in intoxicated auto crashes than had England or Wales.

As a research team in the U.K. discovered in 2003, it does not take a lot of fatigue or a lot of alcohol to create dangerous driving conditions.³⁹ The scientists took a group of young men and asked them to drive sober and well rested; after having 1-2 drinks; after getting 5 hours of sleep; and after both drinking and undersleeping. The results were striking. Compared to the underslept and lightly buzzed groups, the underslept and buzzed group had noticeable difficulties staying in their lane. Yet the participants did not feel any more tired. And most importantly, all of this happened at a legal BAC level.

In short, tiredness makes tipsy drivers into dangerous drivers; alcohol makes tired drivers into

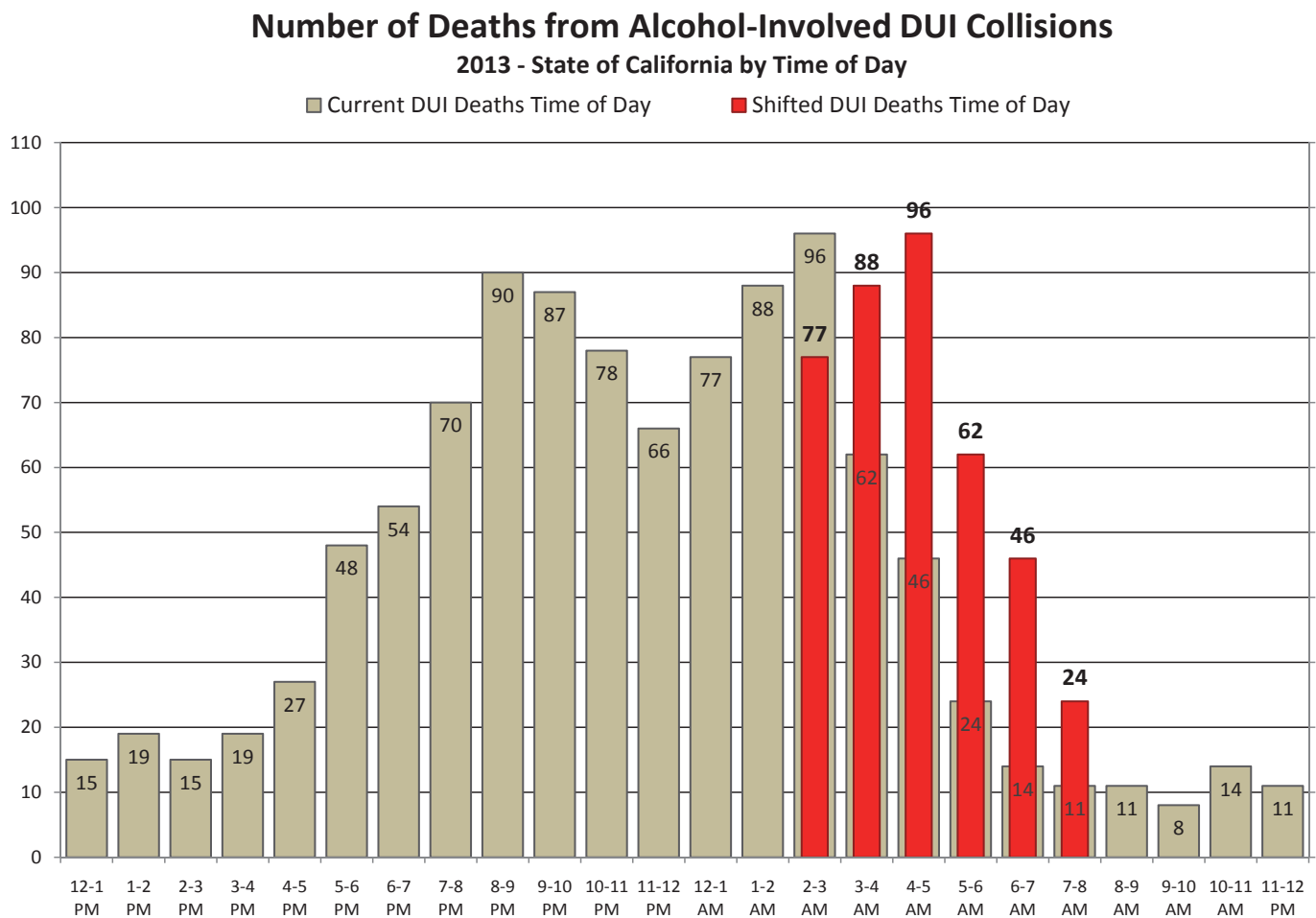
deadly drivers. This is caused by the unusual action alcohol has in the brain. Because of its disinhibiting and euphoric effects, many drinkers find it stimulating. However, this emotional “up” can mask alcohol’s depressant effects on the central nervous system. The stimulation is felt during the period when BAC levels are rising, while the sedation is felt more strongly as they fall. The alcohol from any given drink peaks in the bloodstream 60-90 minutes after imbibed. Therefore, patrons drinking up until last call will still be experiencing the “upper” effects. The stimulation then recedes as they are behind the wheel, leaving natural fatigue significantly worsened by alcohol-induced sedation. As the U.K. sleep-and-alcohol experiment demonstrated, even a couple extra hours of wakefulness weigh heavy when drinking.

Now imagine a Friday night with a 4 a.m. last call. Patrons who commute to be at work at 8 a.m. could easily have been up for 19 or 20 hours by that point. At this level of sleep deprivation, even someone following all the rules and keeping a “moderate” BAC can be a legitimate danger, even while remaining legal to drive. It is past time policymakers took fatigue and alcohol seriously. A driver sobering up at 4 a.m. after significantly overconsuming alcohol, or worse, one with a BAC still over .08, is a wreck waiting to happen.

d. Ride Sharing Is Not the Solution

The narrative that ride sharing can solve the DUI issue is initially compelling but ultimately self-serving, especially for the companies

Figure 1. Temporal distribution of alcohol-related driving fatalities, time-shifted for a 4 a.m. last call.



Data: An additional 25 deaths where hour is unknown are not reflected in this chart
 California Highway Patrol - Statewide Integrated Traffic Records System (SWITRS)
<http://bit.ly/chp-switrs-2013-dui-injury-death> - Tables 5K and 5L

by PourSafe.com 6/2017
 CC BY-SA 4.0 <http://bit.ly/sharealike40>

“ **In New York State, each additional hour of liquor sales meant 4.75 more violent crimes per 100,000 residents. Violence from sales after 1 a.m. cost the state nearly \$200 million annually—not including New York City.** ”

poised to make money from it. However, the massive, ongoing spike in alcohol-related traffic deaths in California needs real solutions, not nice stories. The fact remains that late-night service on BART and the L.A. Metro is nonexistent, and local bus service is skeletal at best. California is a very large state, with very large cities. Just crossing the Los Angeles area can cost \$100 or more round-trip, not counting the “surge pricing” that occurs during periods of high demand.



Without effective public transit, and with long-distance car services prohibitively expensive for exactly the kind of revelers late-night hours are meant to attract, the lure of driving after drinking will remain strong. SEE APPENDIX I

e. Fatal DUI in the Morning Commute

The overconsumption of alcohol, fatigue’s effect on driving performance, and the Splash Effect (see below) all combine to put non-drinkers at risk. We know from U.K. data that extended last calls create more alcohol-related problems from 3 a.m. to 6 a.m.⁴⁰ Since some of these “bar-time shoppers” will be traveling from up to an hour away to attend late-night venues, alcohol-related crashes will snarl traffic during morning rush hours. Worse, these dangerous drivers are more likely to be on the road when kids are making their way to school. This creates a major specter of lost productivity and lost lives.

Figure 1 projects the distribution in times that fatal crashes from impaired driving would occur in California, assuming last call times were changed from 2 a.m. to 4 a.m.

4. OTHER INJURIES

a. Violence

While dramatic and important for public safety, alcohol-related car crashes are only a part of the harm caused by overconsumption. An analysis of hospital records from 2006 shows that street violence and self harm (both accidental and deliberate) often follows alcohol use. Alcohol was implicated in 164,083 Californians admitted to the hospital for alcohol-related injuries.¹³ In 2006 alone, alcohol was involved in the deaths of 1,174 Californians by homicide and 772 by suicide.⁴¹ These effects are exacerbated in vulnerable populations, particularly youth and/or ethnic minorities. Costs for alcohol-related injury approached \$4.8 billion in 2015, while the consequences of alcohol-related crime accounted for another \$5.1 billion.¹¹

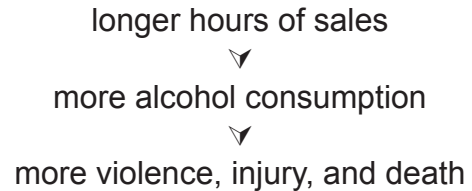
The evidence linking violence and injury to last call times is strong. In Norway, the “normal” last call time is 1 a.m., but some municipalities have extended it while others have retracted it. Both changes had noticeable effects on assaults.

Extending hours increased assaults by 17% per extra hour; reducing hours decreased them by 19% to 21% per hour.⁴²

Few other studies have had the opportunity to observe both increases and decreases. However, effects on violence have been noted in many other settings. A New York State research team found that each additional hour of liquor sales meant 4.75 more violent crimes per 100,000 residents. Violence from liquor sales after 1 a.m. cost the state nearly \$200 million annually, and that analysis did not even include New York City.⁴³

In Sydney, Australia, restrictions clawing back trading hours in 2 entertainment districts lowered violence by up to 45%.⁴⁴ Further north in Newcastle, Australia, pulling back last call times from 5 a.m. to 3 a.m. resulted in a 37% reduction in assaults.⁴⁵ In Perth, assaults rose by 50% at outlets that extended their hours. This corresponded with a notable rise in how much liquor was drunk at those outlets.⁴⁶

Little if any evidence supports this. An analysis of a 2009 attempt to mitigate public nuisance in San Marcos, TX, through extending bar closing times from 12 a.m. to 2 a.m. showed that these policies resulted in more, not fewer, conflicts between residents and drinkers.⁵² Any comprehensive public safety strategy needs to bear this simple flowchart in mind:



b. Medical & Emergency Services Impact

Alcohol-related injuries create singularly challenging situations for medical personnel. Doctors in the U.K. estimate that as much as 70% of weekend emergency room admissions are alcohol-related.⁵³ Extended trading hours do not just generate more assaults, they send more

people to hospitals. After the U.K. stripped away trading hour restrictions, late night hospital admissions increased 15% and alcohol-related admission increased 276%.³⁶ Conversely, in the year after Newcastle, Australia, set earlier last call times, there were 344 fewer night-time injuries treated in local ERs.⁵⁴

Late last calls also burden ambulance services. After a 2009 policy letting bars in certain parts of Amsterdam stay open later, there was

a 34% rise in ambulance calls in the early morning.⁴⁸ These calls are disruptive and costly to the neighborhoods in which they occur, and eat up the limited resources of frontline medical staff. In worst-case scenarios, overloaded ERs can decline to admit new patients, sending the ambulances to trauma units in hospitals in other areas. As a symptom of lack of local control, these diverted ambulances can greatly increase medic response times in both regions, one of which may have never elected late last calls.

Similar up-ticks in injuries were noticed with extensions to last calls in Windsor, Ontario,⁴⁷ Amsterdam, Netherlands,⁴⁸ Reykjavik, Iceland,⁴⁹ and the United Kingdom.³⁶ In South America, restricting trading times lowered murder rates in Brazil and Colombia.^{50 51}

In recent years, the idea that promoting over-consumption in bars instead of in private homes somehow reduces alcohol harm has gained popularity as a justification for later last call



II. Alcohol in the Emergency Room: A Doctor's Take

Craig Smollin, MD, is an Associate Clinical Professor of Emergency Medicine at the University of California, San Francisco, and the Medical Director for the Poison Control Center at San Francisco General Hospital. As a toxicologist at the principal public hospital in San Francisco County, he deals regularly with the impact of alcohol. He spoke with Alcohol Justice about the challenges it creates for the ER.

Q: How much time is spent with alcohol-related patients?

A: "Emergency physicians spend a significant amount of time caring for patients with either acute alcohol intoxication or injuries that are a result of acute alcohol intoxication. Somewhere around one or two in the morning is the period of time when [the emergency room] is at its peak intensity with respect to these patients. If it's been a really busy night a lot of these patients may linger into the morning and we are signing them out to our colleagues who continue their care into the next shift."



Q: Are these hand offs a problem?

A: "Whenever you have a transition of care from one team to another, there is always the potential for loss of information and medical errors. ... Even if we are doing this well, when you are transitioning from one team to another we acknowledge that it is a high risk period of time for patient care."

Q: How do emergency rooms keep from getting overloaded?

A: "When it gets really busy, [hospitals] may go on what's called 'diversion,' which means they don't accept ambulance traffic ... until they feel like it's safe again to open the doors. This becomes a problem in emergency medicine, because when a hospital goes on diversion it means that those ambulances have to go somewhere else and another hospital is being taxed and it can cause a chain reaction."

Q: What behaviors can make intoxicated patients particularly hard to treat?

A: "Intoxicated patients can be a particular challenge to manage. They may have a serious medical condition, but because they are intoxicated they can't provide you with the critical pieces of information necessary to make an accurate diagnosis. They also present difficult challenges due to their behavior. I can recount numerous occasions when I have had to forcibly keep an intoxicated patient in the emergency department who's acting altered and agitated. Not infrequently they end up having bleeding in their brain from trauma. Those [cases] can be stressful because you basically have to decide that you're going to take someone's free will away from them."

Once admitted, intoxicated patients are among the most complicated to treat, even for acute injuries. They may resist treatment, have difficulty understanding questions and instructions, provide inaccurate information surrounding the injury or illness, and engage in inappropriate

or aggressive behavior that disrupts the entire trauma unit.⁵⁵ Dr. Craig Smollin of the San Francisco General Hospital Trauma Center spoke with Alcohol Justice about some of the challenges that high volumes of intoxicated admissions can create. SEE SIDEBAR II

c. Police Impacts

Properly staffing late-night enforcement is expensive. The later it gets, the more it costs. In 2015, Cape Coral, Florida, a medium-sized resort town with around 180,000 residents, opted to allow 3 bars to stay open until 4 a.m. The city's chief of police estimated that the extended-hour licenses would require 5 additional full-time staff to control the resulting harm.⁵⁶ A major city like downtown Los Angeles could need ten times that many, plus additional costs to the highway patrol and the jurisdictions of towns touched by L.A.'s Splash Effect (see below). The cost to police, however, is counted in more than just dollars.

makes victims more vulnerable, and makes following up with both witnesses and suspects far more difficult.⁵⁸

These problems are exacerbated in a late night environment. Law enforcement personnel refer to schedules involving late night hours as "shift work," and regard it as a major job stressor, ahead of such notable shocks as "use of force," "accident in patrol cars," "aggressive crowds," and "physical injury on job".⁵⁹ The immediate symptom of this stressor is fatigue. Fatigue is already all too common in police departments, with 53% of officers reporting getting less than 6.5 hours of sleep a night. Fatigue leads to work accidents and mental errors that can harm of-

“Alcohol intoxication increases the severity of assaults and other crimes, makes victims more vulnerable, and makes following up with witnesses and suspects far more difficult.”



Crowds of intoxicated individuals form a distinct enforcement challenge. Police are trained to recognize that intoxicated individuals are unpredictable, more likely to be noncompliant, and less amenable to de-escalation and conflict resolution strategies.⁵⁷ Alcohol intoxication increases the severity of assaults and other crimes,

and reduce their ability to evaluate and defuse tense situations.⁶⁰ Since other stressors, including verbal and physical confrontation or witnessing violence, can disrupt sleep, late-night policing in a chaotic, alcohol-suffused environment creates a vicious circle.

Often, this cycle creates temporary burnout. However, burnout can be permanent, leading to retirement, worsening staffing crunches and depriving the force of institutional

knowledge. In the more severe cases, repeated, unaddressed exposures to fear, violence and death can result in clinical post-traumatic stress disorder, the same symptoms experienced by combat personnel.⁶¹ The triple jeopardy of intoxication, fatigue, and stress makes extended trading hours a no-win morass for law enforcement.

5. THE SPLASH EFFECT— PARTY ZONES NEGATE LOCAL CONTROL

a. Which Locals, What Control?

“Local control” is a politically charged term. Local control has been used to allow communities to protect themselves from industries, products, or policies that hurt their citizens. For instance, local control policies allowed cities to curb smoking while the state legislatures remained in the grip of Big Tobacco. However, the appeal of the term sometimes lets big money pass policies that actually strip control away from local residents. Trading hour policies are one such set of deceptive policies.

On the one hand, an individual city could choose to let its bars stay open all night while its neighbor reasonably closes them down at 2 a.m. On the other hand, nothing keeps residents of the second city from driving to the city with later hours and returning home dangerously inebriated. The city with the reasonable last call actually loses some control over alcohol harm in their community. Research on neighboring cities with different last call times shows exactly this kind of “bar-time shopping” behavior.

b. “Bar-Time Shopping”

A series of studies examined the neighboring towns of Windsor, Ontario and Detroit, Michigan. Initially, Detroit maintained a later last call time than Windsor. When Windsor pushed their trading hours to match Detroit’s, alcohol-related fatal crashes rose in Windsor and fell in Detroit.⁶² The cars in those crashes were more likely to have Canadian plates. This strongly suggests that Windsor residents had been driving across the border for the extra hour of drinking and now were returning to their homes with that extra hour of alcohol in their blood. Similarly, a New York study looking

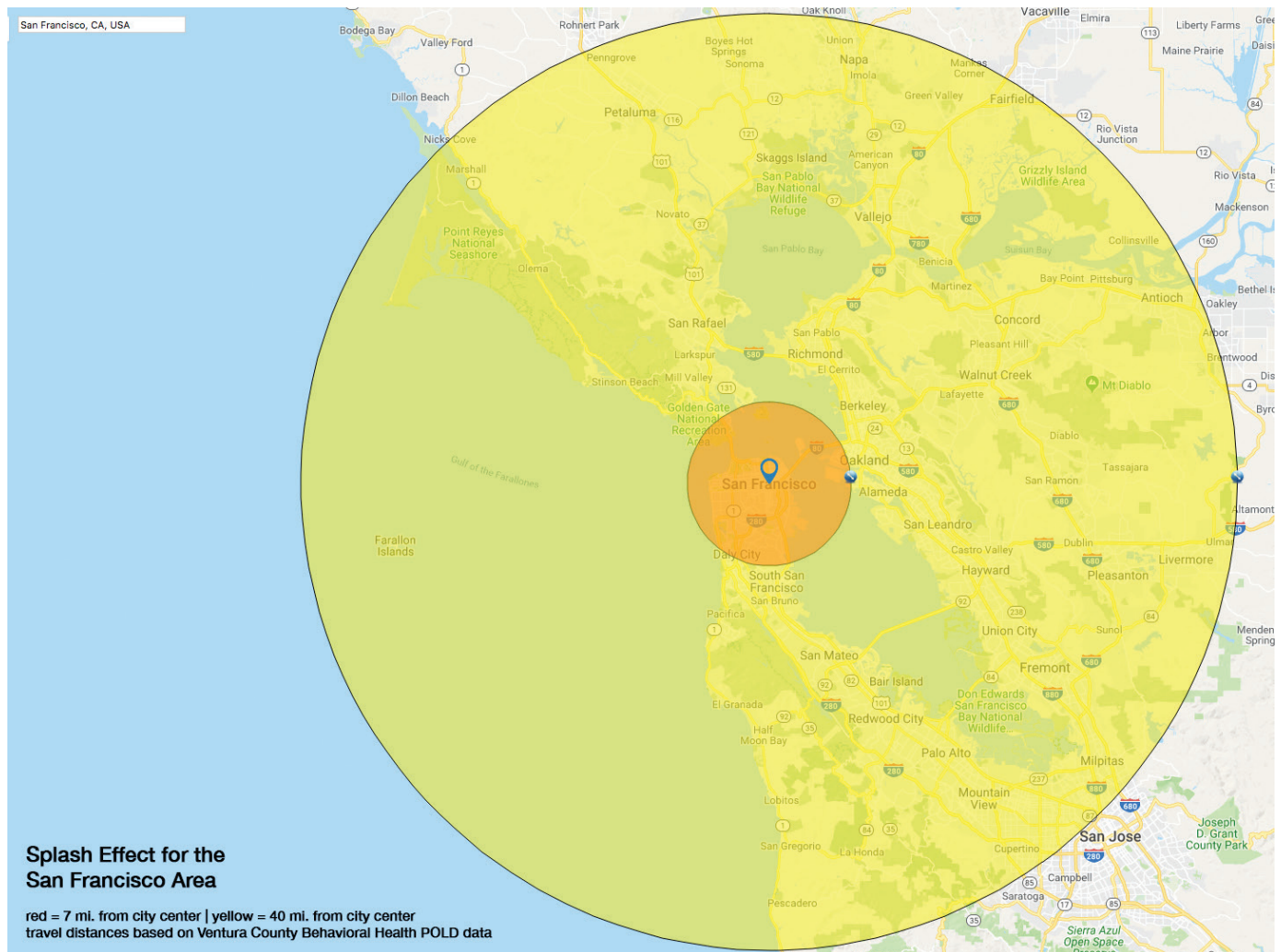
at first-time DUIs found that drivers were more likely to get caught in areas where adjacent counties mandated different last-call times.³² A patchwork of different last-call times encourages this kind of “bar-time shopping.”



“Antone’s” by Jeremy Brooks via Flickr, licensed under CC BY 2.0

This behavior may change tourists and business visitors from being a major economic resource for many California cities to a source (or victim) of harm from impaired driving. According to the San Francisco Tourism Board, 25.1 million tourists came through San Francisco in 2016, but only 41% (approximately 10 million) actually stayed in the city.⁶³ Studies show that tourists visiting a place primarily for its “party reputation” drink much more than those visiting

Figure 2. Estimated area impacted by San Francisco's Splash Effect.



for other reasons.⁶⁴ This makes it inevitable that some of the revelers drawn by the 4 a.m. party promise would stay in outlying towns, drink recklessly, then drive back late into the night.

c. Place of Last Drink (POLD) Reports

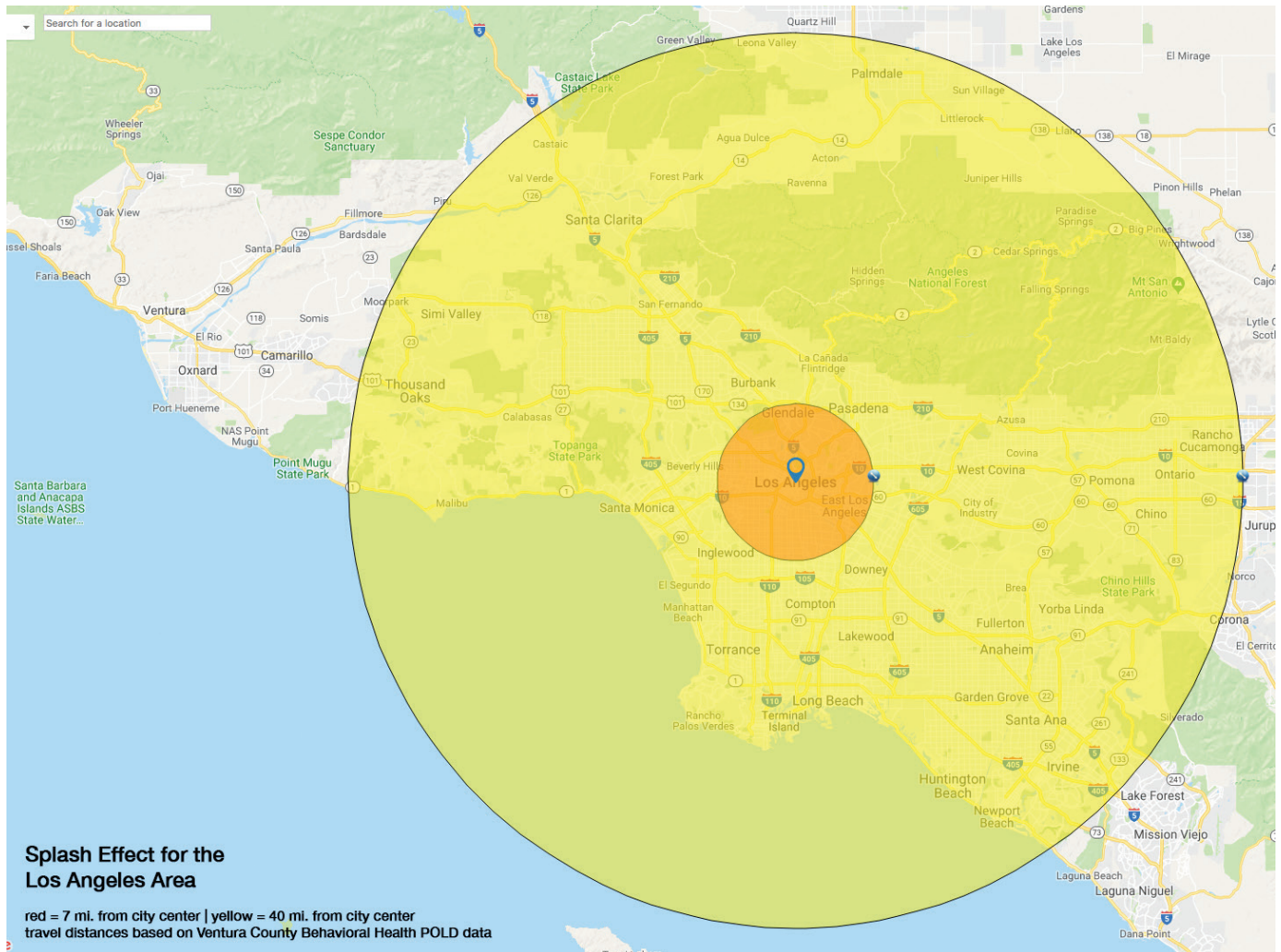
Even without extended last call times, we know that drivers will travel surprising distances after drinking. Ventura County Behavioral Health has an ongoing project documenting the place of last drink (POLD) for drivers in DUI diversion. The most recent version of this report found that drivers had traveled an average of 7 miles before being arrested. That alone would take most drivers leaving downtown San Francisco into Oakland or Marin or Daly City. An impaired driver leaving West Hollywood quickly becomes Glendale or Santa Monica's problem. Some drivers, however, reported traveling 40 to 150 miles.⁶⁵

These ranges make it impossible to restrict alcohol harms to one county, much less one city. Looking at Ventura County residents cited after leaving a bar, restaurant, or nightclub, 31% reported crossing county lines.⁶⁶ Looking at just younger drivers brings the behavior into sharper relief. Among younger drivers, approximately 9% of 20–26 year-olds were returning from Santa Barbara (in Santa Barbara County) or Hollywood (in Los Angeles County).[‡] Using Google Maps to measure the travel from the nearest cities in Ventura County, Santa Barbara is 27 miles west of the city of Ventura, and Hollywood is 34 miles east of Thousand Oaks.

Imagine that “bar-time shopping” radiating out from major cities in California at 4 a.m. Drivers leaving San Francisco could end up in Petaluma

‡ Over 10% of 18–20 year-olds cited for DUI reported returning from a bar/restaurant/nightclub in Hollywood. Bar trading hours do not only affect those of legal drinking age.

Figure 3. Estimated area impacted by Los Angeles's Splash Effect.



or San Jose, two counties away. Drivers leaving L.A. could end up in Simi Valley, San Bernardino, or Irvine in an hour or less. Between these drivers and their destinations lie 10 or more cities and hundreds of other drivers. Yet the only civic gain from late last calls is the extra sales tax in the coffers of the specific cities sponsoring the extended night hours.

Outlying communities subject to a party district's Splash Effect, far from having local control, are left with nothing but damage and death.

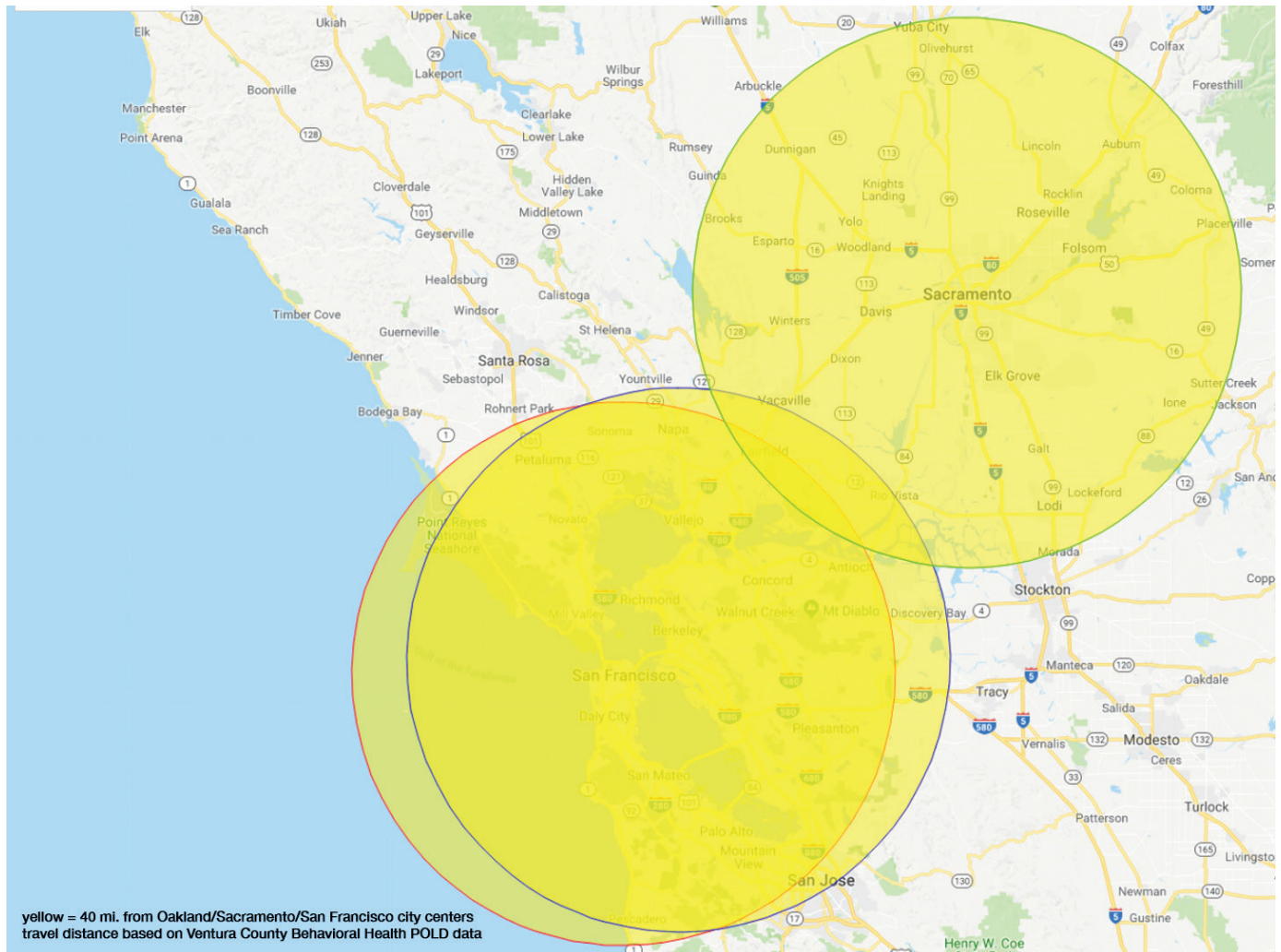
Figures 2 and 3 estimate the Splash Effect of extended last call times on the communities surrounding San Francisco and Los Angeles.

Figure 4 estimates the Splash Effect for Northern California, accounting for late-night party zones in San Francisco, Oakland, and Sacramento.

6. RESEARCH AVENUES

The U.S. has demonstrated a reckless lack of political will to research the impact of trading hours on public health, despite the alcohol industry's dogged pursuit of late-night drinking. Indeed, policymakers seem to run away from the challenge. For instance, California State Senator Scott Wiener gutted 2017's SB 384, which would have convened a panel of experts to study late night bar hours. Instead, he authored SB 905, which would allow 7 cities to establish late night bar hours. Those 7 cities encompass 6.3 million people, or 16% of the state's population. Assuming the combined statistical areas of all 7 cities are subject to the "Splash Effect", fully 76% of Californians are impacted. Supporters have framed the bill as a "pilot," but there is no plan and no funding to collect and analyze data from the "experiment".

Figure 4. Estimated area impacted by the combined Splash Effect of Oakland, Sacramento, and San Francisco.



That would leave us no smarter than we began. Much of what we know comes from Europe, Australia, and South America. While these studies strongly suggest that later closing times for bars and clubs mean more consumption, violence, and dangerous driving, it is important to understand the cultural context in which these things occur. The legislative independence enjoyed by U.S. states further muddies the waters. Not all states invest the same resources on alcohol prevention, DUI prevention and enforcement, alcohol abuse education and recovery, or basic infrastructure including public transportation, any one of which could mask or exacerbate the effects of last call times. Lastly, ethical and economic constraints make certain kinds of data—including in-hospital BACs and place-of-last-drink data—exceptionally hard to gather.⁶⁷ All of this generates “fog” as to the real effects of alcohol control such as trading hours. Yet rep-

resentatives of the alcohol industry are only too happy to draw favorable conclusions from chaos.

U.S. researchers have missed many chances to perform “natural experiments” by observing communities that have changed their last call policies before and after the change. Yet as Cape Coral, FL, and Greenville County, SC, demonstrate, these opportunities occur regularly. Civic and academic researchers will embrace these opportunities if properly motivated. It falls on public health and safety advocates to

- 1) continue to press for high-quality research on the effects of trading hour restrictions;
- 2) insist that the data from other developed nations be taken seriously, as the consequences can save lives, and;
- 3) challenge the baseless claims made by Big Alcohol’s surrogates and late-night profiteers.

7. CONCLUSION

Extending last call times raises alcohol consumption, since selling more alcohol is the intent of extending bar hours. The attractions of a late last call—more time to drink, more time to party, more people gathering there when the other bars have closed—are also sources of injury and community disruption. California has long had a 2 a.m. last call. Despite this, alcohol-related harm is steadily rising. There is no cavalry coming to clean up the mess. There is no magic app that will stop dangerous driving, violence, or injury. Fifty years of research spanning four continents shows that relaxed trading hours will hurt cities, neighborhoods, and people. Legislators, researchers, and community health advocates have to be ready to fight for closing times as a pillar of alcohol safety.

8. RECOMMENDATIONS

- The evidence of cost and harm are clear, and the rational choice is to further restrict last calls, not to extend bar times until 4 a.m. or later.
- Legislators at state capitals, city councils and county boards need to collect and understand the large numbers of studies that have been accomplished that show significant harms from adding more trading hours and the benefits from rolling back trading hours.
- Both private and public sectors need to work more closely with public health researchers to measure, describe, and advise on the impacts of trading hours and the promotion of nightlife policies that do not increase alcohol-related harms.
- Evidence on bar time harm needs to be welcomed by legislators, with specific requests made for ER staff, police, sheriffs, EMTs, and neighborhood residents to testify about the harms resulting at current bar times and what they expect from extensions.
- Local control arguments for extending trading hours are opportunistic and cynical. Alcohol harm does not obey geographic borders. Creating a patchwork of different trading hour regulations does not isolate the damage, it encourages drinkers to drive long distances while dangerously intoxicated. This encourages “bar-time shopping” and creates a “Splash Effect,” spreading alcohol harm to every nearby community.
- In the face of multiple ongoing campaigns to favor private profit over public health, local public health and safety advocates need to be alert for efforts to overturn trading hour regulations. If legislators fail to protect their constituents’, these advocates must be prepared to educate their community about the effects of bar closing times, and stop last call extensions at the local level.



APPENDIX I

Uber and Lyft: A Surge of Empty Promises

The majority of urban areas in the United States suffer from poor public transit option, especially late at night. While many advocates for late-night drinking claim Uber, Lyft, and other ride-sharing services will make up for that deficit, there is little to no evidence that this is true. Nevertheless, Uber and Lyft are consistent supporters of late last-call times in California.

The most optimistic study shows that Uber decreased DUI fatalities by about 6 in 100 in California. Yet even these modest gains disappear during “surge pricing”.⁶⁸ Surge pricing is a built-in aspect of most ride-sharing programs wherein prices rise during periods of high demand. The study specifically names 2 a.m.–California’s universal last call as of 2018—as a time in which surge pricing is frequently in effect.

But the findings from that study may already be out of date. A 2016 study aggregated data from the 100 most populous metropolitan counties in the U.S., comparing those with Uber service to those without. It found no difference in alcohol-related traffic fatalities, nor in crash fatalities in general.⁶⁹ A third study published in 2018 looked at four metropolitan areas, and found that non-fatal alcohol-related crashes went down in some but not others, yet there was no difference in overall injury crashes.⁷⁰ Importantly, that study did not concentrate on fatal injury crashes, which are much more likely to happen on freeways instead of city streets.⁷¹



Most likely the effects of Uber, Lyft, and their ride-sharing ilk are highly variable. Regardless of the causes of this variation, however, these services are nowhere near sufficient to stem the steadily rising tide of alcohol-related crash deaths. In fact, usage patterns for ride-sharing show they will do almost nothing for the impaired drivers most likely to be in a catastrophic wreck.

A 2017 study from UC Davis attempted to measure who uses the services, and when. It found that it is predominantly used by urban residents. Only 7% of suburban residents reported being users of ride-sharing apps.⁷² The reasons are self-evident: requesting a car to take you from the suburbs to the city center is prohibitively expensive. Yet some of these people will want to party until 4 a.m. Instead of taking a car from Thousand Oaks to West Hollywood or from Campbell to San Francisco, they will drive. And these travelers, not the people already residing in San Francisco or West Hollywood, are the ones who will crash at freeway speeds.

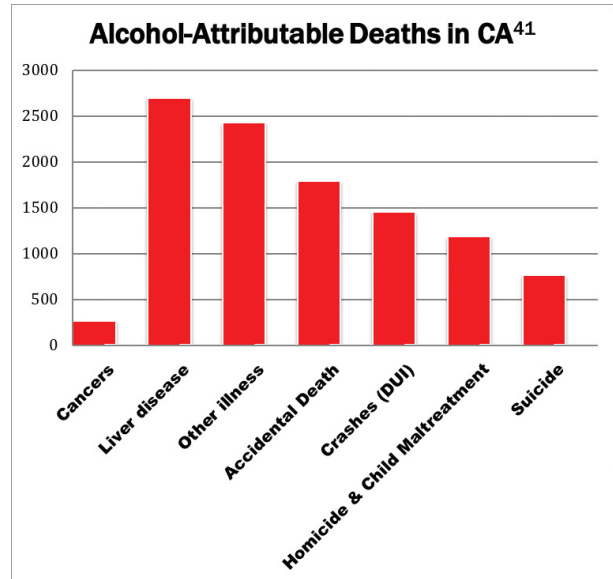
Knowing this, it is imperative that legislators stop treating ride sharing as a substitute for evidence-based road safety policy. Cities need to reduce alcohol use, increase public transportation, and step up DUI and overservice enforcement. Only the laziest leadership thinks Californians can just press a button on an app and watch alcohol-related fatalities get whisked away.

APPENDIX II

Impact of Alcohol on California—Fast Facts

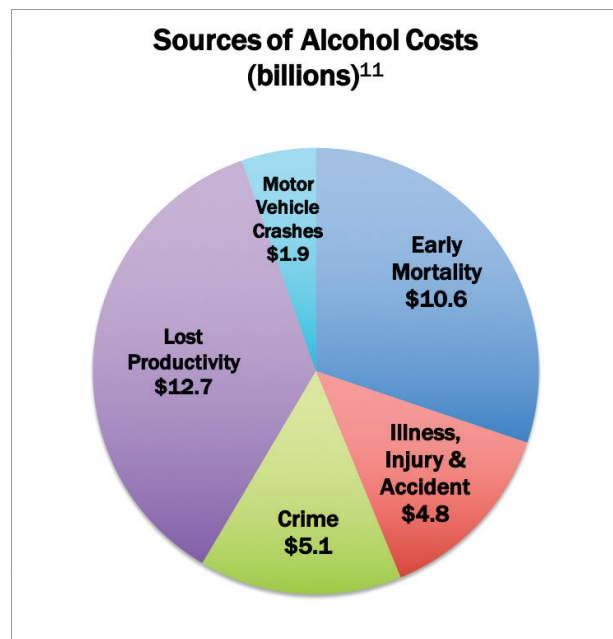
HARM

- Deaths: 10,492¹²
- 1 in 10 alcohol-attributable deaths nationwide are in CA¹²
- 1 alcohol-related death per hour
- Hospitalizations and ER visits: 164,083¹³
- Potential Years of Life Lost: 301,060¹²
- Californians receiving treatment for alcohol use: 159,000¹⁶
- Alcohol use disorders have increased 49% since 2002⁹



COST

- Cost to public: \$35 billion annually¹¹
 - ❖ Government services: \$14.5 billion
 - ❖ Binge drinking: \$25.8 billion
 - ❖ California pays 20% more than national average
- Percentage of costs recouped through taxes and fees: 10.2¹⁵
- California ranks last out of 50 states in charging for harm¹⁵



REFERENCES

- World Health Organization. Noncommunicable diseases fact sheet. Available from: <http://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>. 2018. Accessed June 1, 2018.
- GBD 2013 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: A systematic analysis for the Global Burden of Disease Study 2015. *Lancet*. 2016;388(10053):1659-1724. doi: 10.1016/S0140-6736(16)31679-8.
- Sullivan K. At British Pubs, a toast to new law. *Washington Post*. November 25, 2005. Available from: <http://www.washingtonpost.com/wp-dyn/content/article/2005/11/24/AR2005112401075.html>. Accessed June 1, 2018.
- Szlarski C. Night owls push for year-round later last calls at Toronto bars. *Toronto Star*. December 26, 2017. Available from: <https://www.thestar.com/news/gta/2017/12/26/night-owls-push-for-year-round-later-last-calls-at-toronto-bars.html>. Accessed June 1, 2018.
- Brook B. Melbourne lockout laws were dumped in months, while Brisbane looks to trial laws modelled on Sydney. *News.com.au*. February 9, 2016. Available from: <https://www.news.com.au/finance/business/other-industries/calls-for-melbourne-to-look-again-at-alcohol-restrictions-as-brisbane-examines-lockouts/news-story/53de7a25306574f24cb23b91fc394ad8>. Accessed June 1, 2018.
- Diaz J. Party on: Miami Beach residents reject 2 a.m. alcohol ban on Ocean Drive. *South Florida Sun-Sentinel*. November 8, 2017. Available from: <http://www.sun-sentinel.com/features/fl-fea-ocean-drive-alcohol-ban-rejected-by-voters-20171108-story.html>. Accessed May 3, 2018.
- Walters H. Greenville County bar closing times change this week; here's what you need to know. *Greenville News*. February 25, 2018. Available from: <https://www.greenvilleonline.com/story/news/2018/02/25/greenville-county-bar-closing-times-change-week-heres-what-you-need-know/352841002/>. Accessed May 3, 2018.
- Walters H. Some Greenville County bar owners are upset by new closing time. *Greenville News*. January 16, 2018. Available from: <https://www.greenvilleonline.com/story/news/2018/01/16/some-greenville-county-bar-owners-upset-new-closing-time/1020160001/>. Accessed May 3, 2018.
- Grant BF, Chou SP, Saha TD, Pickering RP, Kerridge BT, Ruan WJ, Huang B, Jung J, Zhang H, Fan A, Hasin DS. Prevalence of 12-month alcohol use, high-risk drinking, and DSM-IV alcohol use disorder in the United States, 2001-2002 to 2012-2013: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *JAMA Psychiatry*. 2017.
- Kanny D, Naimi TS, Liu Y, Lu H, Brewer RD. Annual total binge drinks consumed by U.S. adults, 2015. *Am J Prev Med*. 2018;54(4):486-496. doi: 10.1016/j.amepre.2017.12.021.
- Sacks JJ, Gonzales KR, Bouchery EE, Tomedi LE, Brewer RD. 2010 national and state costs of excessive alcohol consumption. *Am J Prev Med*. 2015;49(5):e79.
- Gonzales K, Roeber J, Kanny D, Tran A, Saiki C, Johnson H, Yeoman K, Safranek T, Creppage K, Lepp A, Miller T, Tarkhashvili N, Lynch K, Watson JR, Henderson D, Christenson M, Geiger SD. Alcohol-attributable deaths and years of potential life lost—11 states, 2006-2010. *MMWR Morb Mortal Wkly Rep*. 2014;63(10):213-216.
- California Department of Public Health, Epidemiology and Prevention for Injury Control Branch and Office of Applied Research and Analysis, California Department of Alcohol and Drug Programs. California State Epidemiological Profile: Alcohol, Tobacco, and Other Drug Consumption and Consequences. Sacramento, CA: California Department of Public Health. 2009. Available from: http://www.dhcs.ca.gov/provgovpart/Documents/CA_State_EPI_Profile_June_09_-_final_8-24-09.pdf. Accessed June 1, 2018.
- Benowitz-Fredericks C. Tax cut impacts of S. 236 / H.R. 747 (Craft Beverage Modernization and Tax Reform Act of 2017). San Rafael, CA: Alcohol Justice. 2017. Available from: <https://alcoholjustice.org/images/reports/reports-full/CraftBevImpact-2.pdf>. Accessed May 3, 2018.
- Shafer H. Optimal U.S. state alcohol excise taxes to recover government cost of excessive consumption. *World Med Health Policy*. 2014;6(3):231-241.
- Substance Abuse and Mental Health Services Administration. Behavioral health barometer: California, 2015. HHS Publication No. SMA-16-Baro-2015-CA. Rockville, MD: Substance Abuse and Mental Health Services Administration. 2015.
- City of Chicago. Liquor moratorium districts—Dry precincts. Chicago Data Portal Web site. <https://data.cityofchicago.org/Community-Economic-Development/Liquor-Moratorium-Districts-Dry-Precincts/3cpd-5xpf/data>. Updated 2012. Accessed Mar 28, 2018.
- Popova S, Giesbrecht N, Bekmuradov D, Patra J. Hours and days of sale and density of alcohol outlets: Impacts on alcohol consumption and damage: A systematic review. *Alcohol Alcohol*. 2009;44(5):500-516.
- Foster J, Harrison A, Brown K, Manton E, Wilkinson C, Ferguson A. Anytime, anyplace, anywhere? Addressing the physical availability of alcohol in Australia and the UK. London and Canberra, Australia: Institute of Alcohol Studies & Foundation for Alcohol Research and Education. 2017.
- Hahn RA, Kuzara JL, Elder R, Brewer R, Chattopadhyay S, Fielding J, Naimi TS, Toomey T, Middleton JC, Lawrence B, Task Force on Community Preventive Services. Effectiveness of policies restricting hours of alcohol sales in preventing excessive alcohol consumption and related harms. *Am J Prev Med*. 2010;39(6):590-604.
- Centers for Disease Control and Prevention. Motor vehicle crash deaths: How is the U.S. doing? Vital Signs Web site. <https://www.cdc.gov/vitalsigns/pdf/2016-07-vitalsigns.pdf>. Updated July 6, 2016. Accessed June 3, 2018.
- Centers for Disease Control and Prevention. Impaired driving: Get the facts. Motor Vehicle Safety Web site. https://www.cdc.gov/motorvehiclesafety/impaired_driving/impaired-driv_factsheet.html. Updated 2017. Accessed June 3, 2018.
- California Office of Traffic Safety. 2017 California Annual Report. Sacramento, CA: California Office of Traffic Safety. 2018.
- California Department of Finance. E-5 population and housing estimates for cities, counties and the State—January 1, 2011–2018. Sacramento, CA: California Department of Finance. 2018. Available from: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>. Updated May 2018. Accessed June 3, 2018.

Science, Harms, and Costs of Extending Bar Service Hours

25. Stockwell T, Chikritzhs T. Do relaxed trading hours for bars and clubs mean more relaxed drinking? A review of international research on the impacts of changes to permitted hours of drinking. *Crime Prev Community Safety*. 2009;11(3):153-170.
26. Wilkinson C, Livingston M, Room R. Impacts of changes to trading hours of liquor licences on alcohol-related harm: A systematic review 2005–2015. *Public Health Res Pract*. 2016;26(4).
27. Smith DI. Effect on casualty traffic accidents of the introduction of 10 p.m. Monday to Saturday hotel closing in Victoria. *Aust Drug Alcohol Rev*. 1988;7(2):163-166.
28. Smith DI. Effect on casualty traffic accidents of changing Sunday alcohol sales legislation in Victoria, Australia. *J Drug Iss*. 1990;20(3):417-426.
29. Smith DI. Effect on traffic accidents of introducing flexible hotel trading hours in Tasmania, Australia. *Addiction*. 1988;83(2):219-222.
30. Chikritzhs T, Stockwell T. The impact of later trading hours for hotels on levels of impaired driver road crashes and driver breath alcohol levels. *Addiction*. 2006;101(9):1254-1264.
31. Chikritzhs T, Stockwell T. The impact of later trading hours for hotels (public houses) on breath alcohol levels of apprehended impaired drivers. *Addiction*. 2007;102(10):1609-1617.
32. Schofield TP, Denson TF. Temporal alcohol availability predicts first-time drunk driving, but not repeat offending. *PLoS One*. 2013;8(8):e71169.
33. Bouffard LA, Bergeron LE, Bouffard JA. Investigating the impact of extended bar closing times on police stops for DUI. *J Crim Justice*. 2007;35(5):537-545.
34. Green CP, Heywood JS, Navarro M. Did liberalising bar hours decrease traffic accidents? *J Health Econ*. 2014;35:189-198.
35. Green CP, Hollingsworth BP, Paniagua MN. Longer opening hours, alcohol consumption and health. Lancaster University Management School, Economics Department, Working Papers: 100181794, 2015. Lancaster, UK: Lancaster University Management School. 2015. Available from: [http://www.research.lancs.ac.uk/portal/en/publications/longer-opening-hours-alcohol-consumption-and-health\(484ef734-844c-4417-ad6f-835059a896b9\).html](http://www.research.lancs.ac.uk/portal/en/publications/longer-opening-hours-alcohol-consumption-and-health(484ef734-844c-4417-ad6f-835059a896b9).html). Accessed May 3, 2018.
36. Newton A, Sarker SJ, Pahal GS, Van den Bergh E, Young C. Impact of the new UK licensing law on emergency hospital attendances: A cohort study. *Emerg Med J*. 2007;24(8):532-534.
37. Tefft BC. Prevalence of motor vehicle crashes involving drowsy drivers, United States, 2009–2013. Washington, DC: AAA Foundation for Traffic Safety. 2014. Available from: <https://aaafoundation.org/prevalence-motor-vehicle-crashes-involving-drowsy-drivers-united-states-2009-2013/>. Accessed June 4, 2018.
38. Fairclough SH, Graham R. Impairment of driving performance caused by sleep deprivation or alcohol: A comparative study. *Hum Factors*. 1999;41(1):118-128.
39. Horne JA, Reyner LA, Barrett PR. Driving impairment due to sleepiness is exacerbated by low alcohol intake. *Occup Environ Med*. 2003;60(9):689-692.
40. Humphreys DK, Eisner MP, Wiebe DJ. Evaluating the impact of flexible alcohol trading hours on violence: An interrupted time series analysis. *PLoS One*. 2013;8(2):e55581.
41. Stahre M, Simon M. Alcohol-related deaths and hospitalizations by race, gender, and age in California. *Open Epidemiol J*. 2010;3(1):3-15.
42. Rossow I, Norström T. The impact of small changes in bar closing hours on violence. The Norwegian experience from 18 cities. *Addiction*. 2012;107(3):530-537.
43. Schofield TP, Denson TF. Alcohol outlet business hours and violent crime in New York State. *Alcohol Alcohol*. 2013;48(3):363-369.
44. Menéndez P, Kypri K, Weatherburn D. The effect of liquor licensing restrictions on assault: A quasi-experimental study in Sydney, Australia. *Addiction*. 2017;112(2):261-268.
45. Kypri K, Jones C, McElduff P, Barker D. Effects of restricting pub closing times on night-time assaults in an Australian city. *Addiction*. 2011;106(2):303-310.
46. Chikritzhs T, Stockwell T. The impact of later trading hours for Australian public houses (hotels) on levels of violence. *J Stud Alcohol*. 2002;63(5):591-599.
47. Vingilis E, McLeod AI, Stoduto G, Seeley J, Mann RE. Impact of extended drinking hours in Ontario on motor-vehicle collision and non-motor-vehicle collision injuries. *J Stud Alcohol Drugs*. 2007;68(6):905-911.
48. Goeij M, Veldhuizen EM, Buster MC, Kunst AE. The impact of extended closing times of alcohol outlets on alcohol-related injuries in the nightlife areas of Amsterdam: A controlled before-and-after evaluation. *Addiction*. 2015;110(6):955-964.
49. Ragnarsdóttir T, Kjartansdóttir A, Davídsdóttir S. Effect of extended alcohol serving-hours in Reykjavik. In: Room R, ed. *The Effects of Nordic Alcohol Policies: What Happens to Drinking and Harm When Alcohol Controls Change?* NAD Publication No. 42. Helsinki, Finland: Nordic Council for Alcohol and Drug Research. 2002.
50. Duailibi S, Ponicki W, Grube J, Pinsky I, Laranjeira R, Raw M. The effect of restricting opening hours on alcohol-related violence. *Am J Public Health*. 2007;97(12):2276-2280.
51. Sánchez ÁI, Villaveces A, Krafty RT, Park T, Weiss HB, Fabio A, Puyana JC, Gutiérrez MI. Policies for alcohol restriction and their association with interpersonal violence: A time-series analysis of homicides in Cali, Colombia. *Int J Epidemiol*. 2011;40(4):1037-1046. doi: 10.1093/ije/dyr051.
52. Chamlin MB, Scott SE. Extending the hours of operation of alcohol serving establishments: An assessment of an innovative strategy to reduce the problems arising from the after-hours consumption of alcohol. *Crim Justice Policy Rev*. 2014;25(4):432-449.
53. Parkinson K, Newbury-Birch D, Phillipson A, Hindmarch P, Kaner E, Stamp E, Vale L, Wright J, Connolly J. Prevalence of alcohol related attendance at an inner city emergency department and its impact: A dual prospective and retrospective cohort study. *Emerg Med J*. 2016;33(3):187-193.
54. Miller P, Curtis A, Palmer D, Busija L, Tindall J, Droste N, Gillham K, Coomber K, Wiggers J. Changes in injury-related hospital emergency department presentations associated with the imposition of regulatory versus voluntary licensing conditions on licensed venues in two cities. *Drug Alcohol Rev*. 2014;33(3):314-322.
55. D Malone, T Friedman. Drunken patients in the general hospital: Their care and management. *Postgrad Med J*. 2005;81(953):161-166. doi: 10.1136/pgmj.2004.024703.

56. Bumb F. City of Cape Coral rejects extended bar hours reconsideration. *News-Press*. April 4, 2016. Available from: <https://www.news-press.com/story/news/2016/04/04/cape-coral-rejects-bar-hours-reconsideration/82610196/>. Accessed May 3, 2018.
57. Garner G. Handling people under the influence. *Police*. December 1, 2006. Available from: <http://www.policemag.com/channel/patrol/articles/2006/12/the-winning-edge.aspx>. Accessed May 3, 2018.
58. Evans JR, Schreiber Compo N, Russano MB. Intoxicated witnesses and suspects: Procedures and prevalence according to law enforcement. *Psychol Public Policy Law*. 2009;15(3):194.
59. Violanti JM, Aron F. Ranking police stressors. *Psychol Rep*. 1994;75(2):824-826. doi: 10.2466/pr0.1994.75.2.824.
60. National Institute of Justice. Officer work hours, stress and fatigue. Office of Justice Programs Web site. <https://www.nij.gov/topics/law-enforcement/officer-safety/stress-fatigue/Pages/welcome.aspx>. Updated 2012. Accessed May 3, 2018.
61. Carlier IV, Lamberts RD, Gersons BP. Risk factors for post-traumatic stress symptomatology in police officers: A prospective analysis. *J Nerv Ment Dis*. 1997;185(8):498-506.
62. Vingilis E, McLeod AI, Seeley J, Mann R, Voas R, Compton C. The impact of Ontario's extended drinking hours on cross-border cities of Windsor and Detroit. *Accid Anal Prev*. 2006;38(1):63-70.
63. San Francisco Travel. San Francisco travel reports record-breaking tourism in 2016. San Francisco Travel Web site. <http://www.sftravel.com/article/san-francisco-travel-reports-record-breaking-tourism-2016>. Updated Jan 28, 2017. Accessed June 4, 2018.
64. Josiam BM, Hobson JP, Dietrich UC, Smeaton G. An analysis of the sexual, alcohol and drug related behavioural patterns of students on spring break. *Tour Manag*. 1998;19(6):501-513.
65. EVALCORP. Ventura County—Place of last drink (POLD) survey findings. Oxnard, CA: Ventura County Behavioral Health. 2017. Available from: http://venturacountylimits.org/resource_documents/Ventura%20County%20Place%20of%20Last%20Drink%20Survey%20Findings%202016.pdf. Accessed June 1, 2018.
66. EVALCORP. Ventura County place of last drink survey. Spotlight: Bars, clubs and restaurants. Oxnard, CA: Ventura County Behavioral Health. 2009. Available from: <http://www.evalcorp.com/resources/publications/selected-publications/POLD-Spot-2009.pdf>. Accessed June 1, 2018.
67. National Academies of Sciences, Engineering and Medicine. Data surveillance needs and opportunities. In: Teutsch S, Geller A, Negussie Y. (Eds.) Getting to zero alcohol-impaired driving fatalities: A comprehensive approach to a persistent problem. Washington, DC: The National Academies Press. 2018.
68. Greenwood BN, Wattal S. Show me the way to go home: An empirical investigation of ride-sharing and alcohol related motor vehicle fatalities. *MIS Q*. 2017;41(1):163-187.
69. Brazil N, Kirk DS. Uber and metropolitan traffic fatalities in the United States. *Am J Epidemiol*. 2016;184(3):192-198.
70. Morrison CN, Jacoby SF, Dong B, Delgado MK, Wiebe DJ. Ridesharing and motor vehicle crashes in 4 US cities: An interrupted time-series analysis. *Am J Epidemiol*. 2017;187(2):224-232.
71. Insurance Institute for Highway Safety, Highway Loss Data Institute. Roadway and environment: Urban/rural comparison. IIHS HLDI Web site. <http://www.iihs.org/iihs/topics/t/roadway-and-environment/fatalityfacts/roadway-and-environment>. Updated 2016. Accessed Jun 4, 2018.
72. Clewlow RR, Mishra GS. Disruptive transportation: The adoption, utilization, and impacts of ride-hailing in the United States. Research Report—UCD-ITS-RR-17. Davis, CA: University of California, Davis, Institute of Transportation Studies. 2017.

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VISION

We envision healthy communities free of the alcohol industry's negative impact.

MISSION

We promote evidence-based public health policies and organize campaigns with diverse communities and youth against the alcohol industry's harmful practices.

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AUTHORS

Carson Benowitz-Fredericks, MSPH
Bruce Lee Livingston, MPP

24 Belvedere Street
San Rafael, California 94901

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and California Alcohol Policy Alliance

June, 2018

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MISSION

The California Alcohol Policy Alliance (CAPA) shall unite diverse organizations and communities in California to protect health and safety, and prevent alcohol-related harm through statewide action.

PLATFORM

- Raise the price of alcohol through taxes and fees, supporting the “Charge for Harm” concept that the industry should pay for treatment, prevention and all other costs to government.
- Limit alcohol advertising in all media, especially on government-controlled property and where children or targeted populations are exposed.
- Make the California Department of Alcoholic Beverage Control effective, efficient, transparent, and accountable to public health and safety concerns of the community, and not to cater to industry profits and license expediency, through policies that reduce alcohol outlet density and increase funding for alcohol control, regulation, and enforcement.
- Eliminate product lines (such as alcopops and malt liquors) oriented to underage youth and vulnerable or targeted populations.
- Reduce the allowable blood alcohol content for drivers as “Point .05 Saves Lives”.

STEERING COMMITTEE

- | | |
|---|------------------------------|
| Asian American Drug Abuse Program, Inc. | Jeanne Shimatsu |
| Behavioral Health Services, Inc. | Gilbert Mora |
| Koreatown Youth and Community Center | Gennesis Jerez |
| Paso por Paso | Johnny Whitaker |
| Pueblo y Salud | Ruben Rodriguez |
| Tarzana Treatment Centers, Inc. | Dr. José Salazar |
| The Wall Las Memorias Project | Richard Zaldivar, CAPA Chair |
| United Coalition East Prevention Project/Social Model | Socorro Chacón |
| Women Against Gun Violence | Margot Bennett |
| Institute for Public Strategies | Brenda Simmons |
| Mountain Communities Family Resource Center | Anne Weber Burnaugh |
| Project SAFER | Kim O’Neil |
| Reach Out | Omar Gonzalez |
| San Marcos Prevention Coalition | KC Strang |
| Santee Solutions | Carol Green |
| ADAPT San Ramon Valley | Patty Hoyt |
| Center for Human Development | Jaime Rich |
| Center for Open Recovery | Fay Zenoff |
| Alcohol Justice | Larry Meredith |
| California Council on Alcohol Problems | Rev. Jim Butler |
| Friday Night Live Partnership | Jim Kooler |
| Lutheran Office of Public Policy | Mark Carlson |

STAFF

- | | |
|-----------------------------------|--|
| Sara Cooley, Advocacy Manager | 734-646-4575 sarac@alcoholjustice.org |
| Jorge Castillo, Advocacy Director | 415-257-2488 jorgec@alcoholjustice.org |

177 E. Colorado Blvd., 2nd Floor, Pasadena, CA 91105