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Bernalillo County Department of Behavioral Health Services (DBHS): DWI Enforcement Report

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Introduction

According to the Center for Disease Control and Prevention (CDC), approximately 29 people in the United States die in an alcohol-related motor vehicle accident every day (CDC, 2020). In 2020, 35 people in Bernalillo County died in alcohol related crashes accounting for 32.1% of all traffic related deaths in Bernalillo and 8.8% of all traffic related deaths in New Mexico (TRU, 2020). Bernalillo County law enforcement primarily use direct patrols and underage enforcement to combat DWI's, and less frequently utilize methods including *Superblitz*, saturation checkpoints, and shoulder taps and compliance checks. Before analyzing DWI law enforcement activity in Bernalillo County, this report reviews existing literature on law enforcement methods in the United States and their effectiveness.

The Bernalillo County information in this report is from law enforcement activities funded by the Local Government Division (LGD) of the Department of Finance Administration (DFA) through the allocation of Local DWI (LDWI) funds. The LDWI program provides funding for services in eight different areas including: screening, treatment and detoxification services, enforcement, prevention, compliance monitoring/ tracking, alternative sentencing, coordination planning and evaluation, and domestic violence. The goal of the program is to reduce DWI, alcoholism, alcohol abuse, and alcohol-related domestic abuse on a local level.

According to the LDWI Administrative Guidelines, the LDWI programs funds overtime only (no benefits) enforcement activities including direct patrols and sobriety checkpoints, as well as warrant roundups and underage drinking activities (DFA-LGD, 2020a).

In FY2020, New Mexico Local DWI programs funded 512 check points, directed patrols, and other enforcement activities resulting in 350 DWI arrests. In addition, there were 32 open container citations and 11 under-21 possession or consumption citations (DFA-LGD, 2020b). This report documents activities funded in Bernalillo County for 10 months of FY2020 (August 2019 thru May 2020) but no data for the other 2 months of FY2020 (July 2019 and June 2020). As a point of comparison, in calendar year 2019 there were 10,376 DWI arrests in New Mexico (TRU, 2019). Using this calendar year 2019 DWI arrest count and the 350 DWI arrests made in FY2020 using LDWI funds, approximately 3.4% of all DWI arrests in New Mexico may be the result of LDWI funded law enforcement activities.

In this report we evaluate data from LDWI funded activities as reported on Exhibit "I" Enforcement Activity Report" forms. The previous LDWI evaluation for Bernalillo County conducted by Torres et al. (2016) also included law enforcement data reported on Exhibit "I" Enforcement Activity Report forms, as well as four other forms: Law Enforcement Activity Report, Activity Report Form (LDWI Program), Shoulder Taps Daily Report Log, Party Patrol Daily Report Log.

In Fiscal Year 2020 the total LDWI expenditures were $18.2 million: $12.8 million were distribution funds, $2.6 million were competitive grants, and $2.77 million was provided to six counties, including Bernalillo County, for social detoxification programs and alcohol treatment. Approximately 3% of the LDWI budget, or $642,803, was expended on law enforcement activities (DFA-FGD, 2020b).

In New Mexico DWI arrests have recently decreased, but in Bernalillo County they have increased. From calendar year 2015 through 2019, arrests in New Mexico decreased by 6.9%, but in Bernalillo County they increased by 7.5%. In 2019 Bernalillo County accounted for approximately 27.4% of all DWI arrests in the state. Unfortunately, alcohol-involved crash rates and fatality rates have also increased overall in 2019 per 100,000 population and per 100 million vehicle miles traveled (TRU, 2019).

This report only documents those activities funded by LDWI funds in Bernalillo County.

Literature Review

From the Surgeon General's Workshop on Drunk Driving over three decades ago, Voas and Lacey, (1989) released a report assessing the current state of DWI enforcement practices in the United States and gave recommendations for improvement. The recommendations include increasing the use of sobriety checkpoints, using alcohol screening test devices and lowering the legal BAC limit, etc. (Voas and Lacey, 1989). Along with these recommendations, Voas and Lacey (1989) noted the significance of public perception that impaired-drivers will be detected, created by program publicity through media, community coalitions, and citizen activist groups like Mothers Against Drunk Driving (MADD) that facilitate legislation and deter drunk driving. These recommendations are still relevant. This literature review assesses the current state of knowledge on DWI enforcement by reviewing extant literature for context and highlighting recent research on current enforcement methods, their effectiveness, and the impact of police and civilian roles. We note unresolved questions in the field and directions for future research.

Three Approaches to Enforcement

This section assesses three primary approaches utilized by law enforcement to reduce alcohol-impaired driving: routine patrols, saturation patrols, and sobriety checkpoints. The enforcement methods in the United States rely on deterrence theory, which suggests the key factors to change behavior through deterrence are severity, certainty, and swiftness of consequences (Beccaria, 1764; Nagin, 2015; Richard et al., 2018). Of the three, certainty and swiftness of consequences have been found to be the most effective components, with severity being less important (Richard et al., 2018; Nagin, 2015).

Routine Patrols

Since the early 1900s United States enforcement has used a traditional behavioral approach, unlike other countries that use a chemistry-based approach with DWI enforcement. Using the behavioral approach, officers target vehicles and apprehend drivers based off of observed actions and characteristics (aberrant or erratic driving, slurred speech, alcohol odor on breath, etc.) and then conduct preliminary breath tests or field tests to verify behavioral evidence of impairment. The contemporary behavioral method used to apprehend impaired drivers generally follows three steps according to Voas and Fell (2013): (1) patrolling officers select a vehicle based on impaired driving, (2) the driver is stopped for a roadside interview and asked to complete a standardized field sobriety test (SFST), and (3) the driver is taken to the police station and asked to perform a voluntary breath test, or if they refuse, receive a license penalty (a one year license revocation). Due to Fourth Amendment protections against unreasonable searches and seizures (without individualized suspicion), the behavioral approach requires officers to establish sufficient probable cause (factors indicating that a driver is impaired) before administering a BAC test to verify the charge.

While passive preliminary breath test devices (PBTs) have been determined constitutional to aid police officers in establishing probable cause in most states including New Mexico, they are not widely used, leaving identification of impaired drivers largely to the discretion of individual officers.

Saturation Patrols

A second behavior-oriented approach, saturation patrols, are conducted by a large number of officers patrolling for impaired drivers in specific locations that commonly have a high number of DWI crashes (Richard et al. 2018). Vehicles are usually targeted when erratic or risky driving such as following too closely, driving aggressively or left of center, and speeding are observed. These patrols deter the general public from driving after drinking by increasing the perceived certainty of impaired-driver detection (ibid.). According to a survey from Century Council (2008), this strategy has been implemented in 44 states, and in Minnesota (2006) with 290 saturation patrols 33,923 vehicles were stopped, and 2,796 impaired drivers were arrested (ibid.). Since the National Highway Traffic Safety Administration (NHTSA) established saturation patrols as a primary method of DWI enforcement in the 1960s through Alcohol Safety Action Projects (ASAPs), they have produced a substantial increase in DWI arrests (Richard et al. 2018; Voas and Lacey, 1989). High-visibility saturation patrols have been found to be very effective for apprehending impaired-drivers, and when paired with publicity and made part of an ongoing saturation patrol program, they significantly reduce alcohol-impaired crashes (Richard et al. 2018).

Publicized Sobriety Checkpoints

Studies show that highly publicized and frequent sobriety checkpoint operations are more effective in producing general deterrence and reducing alcohol-involved crashes than saturation patrols and other roving patrols (Lacey et al. 1999). This third primary approach within the behavioral model, sobriety checkpoints, occur when a predetermined location is used to stop vehicles (either every one or at a regular interval i.e. every three) to check if the driver is impaired (Richard et al. 2018). Unlike saturation patrols, checkpoints to not usually produce substantial increases in arrests but are still the most effective deterrent strategy. Checkpoints are designed (especially in the U.S. where officers cannot administer random mandatory breath tests) to reduce impaired-driving through public perception that there is high probability of detection and arrest. This deterrence is achieved when checkpoints are highly visible, publicized and conducted regularly as part of an ongoing program (Richard et al., 2018). Unfortunately, only 16 states regularly conduct sobriety checkpoints, on a weekly basis (ibid.). It has been estimated that increasing police use of checkpoints across the country could decrease traffic fatalities by at least 8 percent (Fell, 2019).

Research has found sobriety checkpoints are a greater deterrent of driving while intoxicated on the driving population than arrests made through other enforcement activities (Voas and Lacey, 1989). This effectiveness is corroborated by fifteen studies reviewed by the CDC, with checkpoints reducing alcohol-impaired crashes by 9% and a meta-analysis from Erke, Goldenbeld, and Vaa (2009) which showed a reduction of alcohol involved crashes decrease by 17% and all crashes decrease by 10% to 15%. Bergen et al. (2014) also showed checkpoints are effective in deterring impaired driving among high risk populations, including among adults aged 21 to 25 years old.

A recent survey from Fell (2019) found sobriety checkpoints have been proven a highly effective DWI law enforcement strategy but are underutilized in the United States due to police perception that the public is against them. Checkpoints are safer for both officers and the public compared to individual

traffic stops (Fell, 2019) such as those made during routine patrols. The survey found 64.7% of the respondents were in favor of police conducting sobriety checkpoints at least monthly after being educated on the research of checkpoint effectiveness (ibid.). A widely-cited study by Stuster and Blowers (1995) followed four California community checkpoint programs that were supported by locally funded and designed campaigns dedicated to disseminating public information and education on the checkpoint programs. The decrease in alcohol-involved crashes in the checkpoint communities was three and a half times th rate of statewide decrease over the nine-month long campaign (Stuster and Blowers, 1995). The study also showed that checkpoints with fewer staff can be at least as effective as high-staffed checkpoints in deterring impaired-driving. Given public education and support, sobriety checkpoint programs conducted regularly with vigorous publicity are the most effective DWI law enforcement strategy (Ferguson, 2012; Lacey et al., 1999; Richard et al. 2018; Voas and Lacey, 1989).

Elements of Effective Practice

This section reviews elements of evidence-based practices of effective DWI enforcement programs. Contemporary literature on DWI law enforcement strategies generally recommend increasing the use of sobriety checkpoints. Policymakers and external agency readers looking to reduce alcohol-involved crashes and fatalities should pay attention to the vital roles activist and civilian agencies outside law enforcement play in affecting legislation, programs and publicity (Voas and Lacey, 1989).

Frequency, Visibility, and Publicity

Not only does the California Attorney General in the landmark case *Ingersoll v Palmer* note sobriety checkpoints have to be executed with considerable publicity, research also suggests that prior announcement of checkpoints and reaping the benefits of increased publicity increases the deterrence of impaired-driving to the general public (Stuster and Blowers, 1995). Fell et al. (2008) found states with numerous checkpoints or other extremely visible DWI law enforcement activities had a significant 11% to 20% decrease in alcohol-related fatalities.

Most drunk driving trips do not result in arrest. Zoloshnja et al. (2013) found that in 2010, only 1 in 1,016 trips with BAC above the legal limit resulted in a DWI arrest. This limitation in law enforcement capacity to apprehend the large majority of impaired drivers given the commonplace nature of DWI offenses is important:

> "Research has indicated, however, that most impaired drivers never get arrested… Estimates revealed that as many as 2,000 alcohol-impaired driving trips occur for every arrest… *Because the police cannot catch all offenders*, the success of alcohol-impaired driving laws depends on deterring potential offenders by creating the public perception that apprehension and punishment of offenders is probable." (Greene 2003:2, emphasis added)

This supports Richard et al.'s (2018) recent reiteration that sobriety checkpoints, as well as saturation patrols, need to be extensively publicized, frequent, and made visible to be effective.

Staffing, Mobility, and Cost Efficacy

Checkpoints are an effective deterrent strategy which, as Fell and Voas (2013) emphasize, target the entire driving population (212,000,000 million licensed drivers in the United States) rather than specific deterrence strategies like mandating ignition interlocks on offenders' vehicles, which aim to reduce

recidivism in the DWI offender population (300,000 offenders a year are at high risk of repeat offense) (Fell and Voas, 2013). This indicates checkpoints and other such general deterrence targeted at a larger population might be more efficient. General deterrence means the public at large perceives a high risk of detection, and severity, certainty, and swiftness of punishment and therefore avoids committing an offense as opposed to specific deterrence that focuses on detecting and punishing the people that have committed an offense so they avoid repeating the behavior (Fell, 2019; Ferris et al., 2013; Richard et al. 2018). In other words, checkpoints and other general deterrence are more cost effective given limited resources than strategies of specific deterrence aimed at prior offenders. Some jurisdictions overcome the cost of conducting checkpoints by combining resources with other agencies (Richard et al., 2018). Importantly, the study from Stuster and Blowers (1995) showed no significant differences in the decrease of alcohol-involved crashes between four communities that used different configurations of low-staff (3 to 5 officers) versus high-staff (8 to 12 officers) and low and high mobility checkpoints. This indicates that police agencies can make decisions on staffing and mobility of checkpoints according to cost, traffic volume, demographics, and other factors (Stuster and Blowers, 1995).

Analyses of checkpoint programs show that the cost of these operations can be recouped by preventing local alcohol-involved crashes and the associated costs. For example, Stuster and Blowers (1995) found a decrease of 66 alcohol-involved crashes across the four communities compared to the previous year and analyses attribute at least 50 to the experimental checkpoint programs (Stuster and Blowers, 1995). This translates approximately to at least 3 million dollars saved. According to Miller et al.'s 1998 analysis, every $1 invested in using the checkpoint strategy saved the community approximately $6.

Random Breath Testing VS. Selective Breath Testing

According to Fell (2019), random breath testing (RBT) is one of the most immediately effective drunk driving law enforcement strategies. In 2018 the WHO recommended conducting RBT programs similar to those conducted in Australia as a key policy for improving DWI law enforcement (Fell, 2019). Australia's RBT operations include mobile and stationary programs (Ferris et al. 2013). Mobile operations authorize police patrols to pull over any motorist regardless of driver behavior and conduct a breath test while stationary operations involve checkpoints through which motorists are randomly selected and breath tested at a drunk driving bus (ibid.).

In the United States, Fourth Amendment protections against unreasonable searches and seizures requires that officers rely on a behavioral approach to DWI enforcement, and therefore cannot conduct mandatory or evidential breath tests without establishing probable cause. Instead, through publicized checkpoints vehicles are stopped and drivers are not required to take a breath test, instead officers conduct interviews and standardized filed sobriety tests (SFST) to determine if the driver is impaired and should be arrested (Fell, 2019). While two metanalyses showed a significant median decrease in crashes attributable to U.S. checkpoints of approximately 20 percent, a study from Henstridge et al. (1997) (as cited by Fell, 2019) on the use of RBT in several Australian states concluded that RBT programs were twice as effective as these "selective" checkpoints conducted in the United States.

Passive Alcohol Sensors

Passive Alcohol Sensors (PASs) are not considered a search because they analyze the air in front of a drivers' face; they do not require the driver to use a mouthpiece or blow into the device (Fell, 2019; Voas and Fell, 2013). PASs are not commonly used because the devices are expensive, and officers claim they

can detect drunk drivers as well as the device. However, according to Ferguson et al. (1995) if officers used PASs at checkpoints, their success in detecting drinking drivers would increase by 50 percent. PASs are particularly useful when officers are required to have a short observation period such as at checkpoints (Fell, 2019).

State and National Programs

A highly successful operation that has been used as a model for implementing checkpoint programs is "Checkpoint Tennessee," implemented in 1994. In an evaluation of the program, Lacey et al. (1999) found that it produced over 20 percent decline in alcohol-related crashes, continuing 21 months after the official program conclusion. The year-long operation conducted a total of 882 checkpoints with 144,299 drivers passing through (Fell et al., 1999). Instead of checkpoints implemented quarterly or bimonthly like in New Mexico and other states, this "sustained checkpoint blitz" conducted four sets of three checkpoints every weekend with vans marked by lights, signs and using PASs and SFSTs to detect impaired drivers (ibid.). Checkpoint Tennessee also conducted five weekends of pervasive, "blitz" checkpoints, with checkpoints in each of the 95 counties (ibid.). The evaluation shows the 12-month program resulted in approximately 9 less alcohol-related fatal car crashes each month, concluding that this kind of highly visible, publicized, and frequent sobriety checkpoint operation can produce greater public awareness and decrease in drunk-driving crashes than strategies using roving patrols (ibid.).

In their evaluation on seven state DWI enforcement programs, Fell et al. (2008) found that out of the seven, four state programs: Georgia, Indiana, Michigan, and Tennessee resulted in significant decreases in fatal crashes. These four states all used a statewide model and three states used highly visible and frequent checkpoints, and the use of paid media (Fell et al., 2008). The program in Georgia is estimated to have saved 60 lives over the implementation phase which included 2,837 checkpoints spanning across all 159 counties and a paid media campaign called *Operation Zero Tolerance* (ibid.). A phone survey found that 70 percent of drivers aged 16 to 34 had heard of *Operation Zero Tolerance* and with aided recall 40 percent of drivers recognized the slogan *You Drink and Drive. You Lose.* (ibid.). Despite wide variation between state methods, and analytical rather than statistical data design, Fell et al. (2008) concluded that the comparison between these state strategies indicate states should (a) use numerous checkpoints or highly visible enforcement activities such as saturation patrols (like in Michigan where checkpoints are prohibited) and instead they conducted at least three mobilized crackdowns a year and (b) fund intensive publicity of the enforcement activities including paid advertising.

Underage Enforcement

While underage drivers are less likely to drive after drinking than adults, due to their inexperience driving, drinking, and combining these activities, they are more likely to be involved in alcohol-related crashes than adults at the same BAC (Hingson et al. 2004). Underage drinking laws prohibit drinking under the age of 21, therefore zero tolerance laws which prohibit drivers under 21 to have any measurable alcohol in their systems are an important part of DWI law enforcement. Raising the minimum drinking age to 21 and adopting zero tolerance laws in all states has significantly reduced underage alcohol-related fatal crashes with studies showing at least a 20% reduction attributable to both laws (Hingson et al., 2004; Voas et al., 2003). Enforcing these laws is highly important because underage drivers with low BACs are more likely to get into crashes and less likely to be detected at checkpoints and routine patrols based on behavioral cues than drivers with low BACs over 21 (Ferguson et al. 2002; Hingson et al., 2004). The

way underage laws are written varies across states and can impede enforcement. For example, in California if underage drivers are suspected of drinking, officers can take a preliminary breath test which can be used as evidence, while in New Mexico implied consent laws mean officers cannot verify charges with evidentiary tests before a DWI arrest or probable cause is established, and in New York zero tolerance violations are often not pursued due to burdensome paperwork (Ferguson et al. 2002). However, underage enforcement strategies help regulate underage alcohol sale and distribution through activities such as compliance checks and shoulder tap operations. Community intervention programs are also shown to be effective in reducing underage drinking and driving (Hingson et al., 2004).

In a recent study, George et al. (2020) evaluated the effect of conducting compliance checks on underage alcohol-involved crashes over ten years (2006 to 2016) in South Carolina. Compliance checks used a confidential informant (or minor-decoy) under 21 years old to test if retail establishments would sell them alcohol, reducing sales to underage people by ticketing or arresting those that violate the minimum legal drinking age (George et al. 2020). The study found by tracking the rate of compliance checks conducted over the 10-year period that an increase in compliance checks produced a statistically significant decline in drinking and driving crashes (ibid.). The study compared a 76 month "pre-stable" phase of low exposure to compliance checks to the following "stable phase," 78 months of increase and stabilization of sustained compliance check exposure supported through stable funding (ibid.). The second period of frequent compliance checks saw a significant 29% decline in alcohol-related crashes among underage drivers (ibid.). This study showed enforcement of the minimum age drinking law through activities like compliance checks can have a significant effect reducing alcohol-related crashes.

In 2013 Redlands, California implemented "Responsible Redlands," using a variety of strategies: minor-decoy and shoulder tap operations, responsible beverage service (RBS) trainings, more sobriety checkpoints and saturation patrols, identification scanners to find fakes, and a publicity campaign (Fell et al., 2018). The evaluation found that these strategies resulted in a decrease in underage drinking and driving violations (to 0 in 2013, 2014, 2015) and a significant 50% decrease in DWI arrests from 2007 to 2015 (ibid.).

Another study measured the impact of two different college-town community underage enforcement targeted strategies, finding that publicity campaigns coordinated with high-visibility enforcement using flashlight PASs increased the perception in the under-21 population that they risked being stopped if driving drunk (Johnson, 2016). The community interventions each used significant publicity, especially in educating the public about the use of PASs which Johnson (2016) theorizes could be an important general deterrent, convincing the public that the new enforcement strategy has meaningfully changed and more drivers will be detected and punished. Both communities held press conferences to begin the program and tied in the use of PASs through demonstrations and media slogans (*Have You Seen the Light, and Buzzkill Flashlight: From Bumpin' to Buzzkill at the Speed of Light*) (Johnson, 2016). They also coordinated campaign advertisements, radio public service announcements, etc. with special enforcement activities of roving patrols or high-visibility checkpoints (ibid.). Through web surveys of under 21-year-olds a statistically significant decrease in students who said they've driven after driving in the past year was found between the baseline and during the intervention period and follow up year (ibid.). They found a statistically significant increase in underage drivers' perceived risk of being stopped after three drinks and being stopped driving drunk. While the roadside breath alcohol tests did not find a significant number of zero-tolerance violations, they did find an 8% reduction in all DWI violations which indicated general

deterrence among the whole driving population from the high-visibility enforcement coordinated with expansive publicity even when targeted at underage drivers.

Directions for Future Research

In a recent article on approaches for reducing alcohol-impaired driving, Fell (2019) identifies multiple areas where further research is needed on effective strategies and promising technology. Enforcement strategies including refusing to serve obviously intoxicated patrons in establishments with alcohol, and enforcement of the minimum legal drinking age have been shown effective but are not widely and consistently used (Fell, 2019). Further studies on intensity and duration of strategic intervention could be helpful in encouraging widespread implementation (ibid.). Random breath testing legislation (a strategy adopted in Australia) has been recently introduced in Canada; if future evaluations provide further indications of effectiveness it could be brought to the United States (ibid.). The introduction of Uber is associated with a decline in DWI arrests and alcohol-related crashes in several cities, but properly designed, controlled studies that are scientifically rigorous are needed to further research effectiveness of alternative transportation options in decreasing DWI. Lowering the legal BAC limit to at least 0.05 g/dL for adults generally reduces the number of drinking drivers involved in all fatal crashes, and has been adopted in most industrialized nations (ibid.). Currently only Utah has a 0.05 g/dL BAC and Fell's (2019) survey indicated low public support for adopting this legislation, so more public information and education on the effectiveness of this strategy is needed. Finally, technological advancements such as passive alcohol sensors have already begun to indicate effective general deterrence but more research is needed. The development of Driver Alcohol Detection System for Safety (DADSS), one of which passively detects alcohol in the breath of the driver, indicates a potential future with all vehicles equipped to decrease impaired driving (ibid.). This technology, along with automated features in automated driver systems need extensive study to monitor developments and determine how they can potentially help eliminate alcohol-impaired driving or help impaired drivers avoid crashes (ibid.).

Passive Alcohol Sensors have been recommended to improve officer's ability to detect impaired drivers and establish probable cause. Studies have shown that officers are unable to detect impairment over the legal limit through behavioral tests and observation in over half of drivers they come into contact with (Voas and Lacey, 1989) however in New Mexico, "deputies from the participating agencies stated they did not like the PAS devices" (Ramirez et. al, 2014, 43). Studies indicate that the use of PASs would significantly improve officers' ability to detect drinking drivers, especially heavy drinkers that rely on a high tolerance to avoid detection through behavioral tests, underage drivers with low BAC, and publicity of PAS device use should increase general deterrence (Fell, 2019; Voas and Lacey, 1989), however more research on the efficacy of PAS use especially on deterrent effect if use is well publicized, is needed.

Another area that poses significant risk to increasing roadside traffic crashes (RTC) is impairment from drugs other than alcohol, as well as drugs mixed with alcohol. A review of international epidemiological research from 1998 to 2015 found 72 total studies (published in English) on the effects of various drugs on driving (Gjerde et al., 2015). The review found that after alcohol, amphetamine use has a well-documented statistically significant association with increased RTC, found in 8 out of 10 studies and a strong trend observed in the other 2. Other drugs with statistically significant association found in the majority of available studies are cocaine, cannabis, benzodiazepines, z-hypnotics, opioids, and some antidepressants (8 out of 13 studies) while multiple drug use is found to increase RTC compared to single drug use (ibid.). While a previous review from Gjerde (2000) only found 15 such articles before 1998, the

increased pool of research has raised many more questions. The studies reviewed all have different designs and many covariates (confounding or interacting variables) such as gender, mental health, personality, etc. that aren't controlled for (ibid.). It is difficult to design studies with these variables in mind because they are very contextual, for example therapeutic drug use might be associated with lower crash risk than driving unmedicated in some instances. Gjerde et al. (2015) also found a large number of studies to have low statistical power, and a very important variable, blood drug concentration, is mostly ignored entirely due to lack of statistical power. According to the DRUID Project and similar reports, while alcohol is still associated with the highest crash risk than any other single drug, the highest increase in crash risk is associated with alcohol mixed with other drugs (ibid.) This combination of alcohol and drug use and impaired driving needs to be further researched, and more comprehensive and localized studies on drugs use and driving need to be designed to investigate variables such as demographics and type of drug use.

Conclusion

This literature review summarizes three primary approaches to DWI law enforcement: routine patrols, saturation patrols, and sobriety checkpoints, within the context of the behavioral approach used in the United States. It explains these activities grounded in (specifically general) deterrence theory. We discuss how elements of effective practice (visibility, frequency, and publicity) are vital for enforcement activities to build public perception of certainty, swiftness, and severity of detection and punishment. It also discusses enforcement programs in relation to factors including staffing, mobility and cost, international strategies including RBT, and technological advancement and public support. Relevant state and national programs are reviewed for results and indications of effective practice. Finally, extant literature raises directions for future research concerning the intensity and duration needed for effective interventions enforcing alcohol distribution laws (RBS, MLDA), education of the public on reducing BAC limits, and enforcement activities like sobriety checkpoints and the potential of RBT. Further research is needed on alternative transportation options, PAS devices, and monitoring new technology like DADSS and autonomous vehicles.

Data Analysis

Alcohol is a leading contributor of traffic crash fatalities in New Mexico. The UNM Geospatial and Population Studies Traffic Research Unit (TRU) reported 425 traffic fatalities in 2019 in the state, an increase from 392 fatalities in 2018. In 2019, 35% (149) of all traffic crash fatalities were alcohol-related. As mentioned, Bernalillo County reported 35 fatalities related to alcohol, amounting to 32.1% of all reported traffic fatalities in the county (TRU, 2019).

The data provided in this section compiles data collected from one form regarding DWI enforcement in Bernalillo County and funded by Bernalillo County through the Local Government Division of the N.M. Department of Finance Administration using LDWI funds as described earlier. As noted earlier LDWI funds account for a small percent of all DWI arrests and activities focused on reducing the incidence of drinking and driving in New Mexico and Bernalillo County.

A majority of the enforcement activities were conducted by the Albuquerque Police Department (APD). APD conducted 74 of the activities and the Bernalillo County Sheriff's Department (BCSD) was responsible for conducting 46. As noted earlier the N.M. LDWI programs funded 512 activities in FY

2020, meaning the forms we received account for 23.4% of all LDWI enforcement activities in the state. In a review of the start time and end times on the forms most activities were 4 hours in length.

The data we received was documented on the "Exhibit "I" Enforcement Activity Report" form which organized the type of data based on the enforcement activity. The form documented whether the activity used was direct patrol, underage enforcement, checkpoints, or other which included shoulder taps, shoulder tap/compliance checks, and *Superblitz*. While forms were consistently completed, the distribution of forms over the 10 months varied.

Sobriety checkpoints and saturation patrols were described above in the literature review and their descriptions are not repeated here. New Mexico started a Mobile Strike Unit (MST) in 2004 which addresses issues of underage enforcement including alcohol sales to minors, underage alcohol consumptions, source investigations (in which officers identify the source of illegally distributed alcoholic beverages and alcohol provided to minors, already intoxicated people, or people in serious incidents and DWI), and adherence to state laws (Ramirez et al., 2014). Other enforcement strategies carried out by the MST are compliance check and shoulder tap operations, which use minor decoys to catch alcohol establishments and adults providing minors with alcohol (ibid.). *Superblitzes* are periods of high intensity law enforcement operations coordinated with high intensity media campaigns including paid and earned coverage (ibid).

Data from the enforcement activity reports show the distribution of these six different enforcement activities. Table 1 shows the types of enforcement activity from August 2019 to May 2020. Direct patrols (59.2%) accounted for the majority of all activities during the review period, followed by underage enforcement (21.7%). Overall, direct patrols and underage enforcement accounted for 80.9% of all enforcement activities. Checkpoints and shoulder tap/compliance checks occurred much less frequently and together accounted for 3.3% of all activities.

Enforcement activities resulted in arrests and citations which are reported in detail later in this review. In total 194 arrests and 692 citations were made. The majority of arrests and citations were made during direct patrols followed by *Superblitz*. This table also reports the number of arrests and citations per activity. On average, checkpoints produced the largest number of arrests per activity followed by *Superblitz*, while direct patrols produced the largest average number of citations per activity followed by checkpoints. Shoulder taps, shoulder tap/compliance checks and underage enforcement produced very few arrests and citations.

Table 1: Types of Enforcement Activity, August 2019 – May 2020

Type of Enforcement	Count	Percent	Arrests	Citations	Arrests per Activity	Citations per Activity
Checkpoint	3	2.5%	18	10	6	3.3
Direct Patrol	71	59.2%	133	649	1.9	9.1

Shoulder Tap	7	5.8%	6	1	0.9	0.1
Shoulder Tap / Compliance Check	1	0.8%	0	1	0.0	1.0
Superblitz	12	10.0%	31	31	2.6	2.6
Underage Enforcement	26	21.7%	6	0	0.2	0.0
Total	120	100%	194	692	1.6	5.8

Table 2 reports similar data as Table 1 but by 5 month reporting periods from August 2019 to December 2019, and January 2020 to May 2020. The data shows a large number of enforcement activities between August 2019 and December 2019, compared to a much smaller number in the second 5 month period.

Table 2: Types of Enforcement Activity with Five-Month Breakdown, August 2019 – May 2020

	August 2019 – December 2019		January 2020 – May 2020	
Types of Enforcement	Count	Percent	Count	Percent
Checkpoint	3	2.9%	0	0.0%
Direct Patrol	60	58.3%	11	64.7%
Shoulder Tap	1	1.0%	6	35.3%
Shoulder Tap / Compliance Check	1	1.0%	0	0.0%
Superblitz	12	11.7%	0	0.0%
Underage Enforcement	26	25.2%	0	0.0%
Total	103	100.0%	17	100.0%

The enforcement activity forms categorize the type of arrests as well as other activities. The following lists the types of arrests noted on the activity forms. All enforcement activity forms organized data on the number of arrests made during enforcement activities.

- DWI Arrests
- Misdemeanor Arrests
- Felony Arrests
- Drug Arrests

The N.M. Department of Finance and Administration provides a LDWI Annual Report which reports data on DWI arrests. According to this annual report, 350 DWI arrests were made in FY2020. The following table displays the total number of arrests that occurred between August 2019 and May 2020 from enforcement activities documented on the activity forms.

Unsurprisingly, DWI arrests accounted for the largest number of arrests (108 arrests), followed by misdemeanor arrests (81). Four felony and 1 drug arrest were made.

Using LDWI funded law enforcement activity and data, DWI arrests accounted for 30.9% of all DWI arrests made in Bernalillo County in this time frame (barring the lack of activity forms for 2 months of FY2020). Suggestions from the previous report from 2016 included taking away an option for

categorizing arrests as "other," which has been implemented, and adapting the forms to categorize felony and misdemeanor arrests, which has not been implemented.

Table 3: Type of Arrests August 2019 – May 2020

Type of Arrests	Count	Percent
DWI	108	55.7%
Misdemeanor	81	41.8%
Felony	4	2.1%
Drug	1	0.5%
Total	194	100%

Table 4: Types of Arrests by Year (August 2019 – May 2020)

	August 2019 – December 2019		January 2020 – May 2020	
Type of Arrests	Count	Percent	Count	Percent
DWI	95	56.5%	13	50.0%
Misdemeanor	70	41.7%	11	42.3%
Felony	2	1.2%	2	7.7%
Drug	1	0.6%	0	0.0%
Total	168	100%	26	100%

All of the enforcement activity forms documented data on citations issued. The following list is the categories of citations issued from August 2019 to May 2020. All of the enforcement activity reports collected data on the number of citations issued.

- Open container citations
- Seatbelt Citations
- Written Warnings
- Warrants served
- Under 21 Possession consumption citations
- Child restraint Citations
- Speeding Citations
- Uninsured Motorists
- Suspended / Revoked
- Reckless Driving
- Other Citations

Table 5 describes the type of citations reported during the review period. Almost 54% of the citations were reported as "other". The form should be adapted to reduce the use of the "other" category and to provide instructions to discourage the use of the "other" category. Four categories: "open container citations," "Written Warnings," Warrants served," and "possession consumption," had zero data recorded for the time period in this report. Perhaps these should be replaced with citation categories that currently fall under other.

Table 5: Types of Citations August 2019 – May 2020

Type of Citations	Count	Percent
Seatbelt	4	0.6%
Child Restraint	2	0.3%
Speeding	203	29.3%
Uninsured Motorists	88	12.7%
Suspended/ Revoked	23	3.3%
Reckless Driving	2	0.3%
Other	370	53.5%
Total	692	100%

Table 6: Types of Citations by Year (August 2019 – May 2020)

	August 2019 – December 2019		January 2020 – May 2020	
Types of Citations	Count	Percent	Count	Percent
Seatbelt	4	0.6%	0	0%
Child Restraint	2	0.3%	0	0%
Speeding	200	30.0%	3	11.5%
Uninsured Motorists	85	12.8%	3	11.5%
Suspended/ Revoked	21	3.2%	2	7.7%
Reckless Driving	2	0.3%	0	0%
Other	352	52.9%	18	69.2%
Total	666	100%	26	100%

Discussion and Conclusion

The literature review outlined the three primary law enforcement approaches in deterring alcohol-involved driving. They are:

- Routine patrols
- Saturation patrols
- Sobriety checkpoints

These three approaches rely on deterrence theory, which stresses the *certainty* of apprehension and punishment of impaired-drivers as being the most significant deterrent to the general public (Nagin, 2015). Supporting this, high-visibility enforcement strategies like saturation patrols and sobriety checkpoints are shown to be most effective when they are well-publicized and conducted regularly (Richard et al., 2018).

Bernalillo County funds

- Checkpoints
- Direct Patrols
- Shoulder Taps

- Shoulder Tap / Compliance Checks
- Superblitz
- Underage Enforcement

The LDWI services funded in Bernalillo County during the review period were primarily direct patrols and underage enforcement. Bernalillo County also funded checkpoints, shoulder taps and compliance checks, and *Superblitzes*. During the review period (August 2019 through May 2020), 3 checkpoints, 7 shoulder taps, 1 shoulder tap/compliance check, 12 *Superblitzes*, 26 underage enforcements, and 71 direct patrols were funded. A little over 59% of activities during the review time period were direct patrols and 21.7% were underage enforcements.

According to extant literature, enforcement strategies like sobriety checkpoints and patrols are most effective general deterrents when they are frequent (conducted weekly), highly visible, and well publicized through coordinated media campaigns and paid media (Fell et al., 2018; Johnson, 2016; Richard et al., 2018; Voas & Fell, 2013). Several high-intensity or "blitz" operations (3 or so a year) are also proven effective (Fell et al., 1999; Fell et al., 2008). Recommendations for effective DWI enforcement strategies include increasing high-visibility checkpoints, including frequent low-staff checkpoints.

The behavioral system as opposed to chemistry-based system in use in other countries, relies on individual officer discretion in selecting and identifying impaired drivers using aberrant driving and other behavioral cues (Voas and Lacey, 1989). Police officers fail to detect over half of the alcohol-impaired drivers over the legal BAC they come in contact with (Voas and Lacey, 1989) but using PAS devices improves officer detection of alcohol-impaired drivers especially those with high tolerance and zero-tolerance violations (Fell, 2019; Fell et al., 1999, Ferguson et al., 1995; Johnson 2016).

As noted previously, only a fraction of the DWI arrests and activities focused on decreasing the incidence of drinking and driving in New Mexico are funded by LDWI funds in Bernalillo County. Also, only 3% of the state's FY2020 LDWI funding was allocated to law enforcement. However, LDWI funded activities resulted in approximately 3.4% of all DWI arrests in the state. The 120 activity forms received in this report on Bernalillo County account for approximately 23% of all DWI enforcement activities and 31% of DWI arrests in N.M. funded by LDWI.

While studies show that high-visibility checkpoints are the most effective DWI enforcement strategy for general deterrence, the LDWI data in Bernalillo County provided in this report shows only 3 checkpoints in 10 months. While LDWI activities are a small percentage of all DWI enforcement, this may indicate lower checkpoint frequency than is associated with effective enforcement. The 3 checkpoints in 10 months is also a decrease in use of checkpoints compared to the last Bernalillo County DWI Enforcement Report: over a period of 30 months from July 2013 to December 2015, Torres et al. (2016) were provided with data showing 21 checkpoints conducted, or to compare, approximately 7 checkpoints each 10 months.

As noted earlier, the previous report on LDWI funded law enforcement activities in Bernalillo County received data from six different forms (Torres et al., 2016), while this report only used data from one. The last evaluation was limited in what it was able to report due to inconsistencies between the data documented and completion of different forms (ibid.), however this report is limited by the lack of data previously documented on other forms. The previous report included the number of vehicles checked

during checkpoints and saturation patrols, and the number of shoulder taps attempted in "Party Patrol Logs" as well as types of administrative activities documented (CNAU referrals, number of parties dispersed, etc.) (Torres et al. 2016), all of which were not provided for this report. Given the evidential value of visible and frequent police enforcement activities in deterring alcohol-involved driving using these strategies, these data would be helpful to more accurately measure the extent and impact of activities like direct patrols, *Superblitzes* and checkpoints, as well as reveal the rate at which arrests and citations were given. Using only data on arrests as a measure of effective enforcement is "completely circular and useless" in trying to "determine the actual reduction in alcohol-related crashes" (Voas and Lacey, 1989, 10). Since the primary purpose of checkpoints is to deter impaired-driving, not increase arrests, the number of vehicle contacts is a better measure of effectiveness (Richard et al., 2018). If the enforcement activity report form was adapted to also record the number of vehicles checked this data would be at least as important as the number of arrests made.

The previous report mentioned ambiguity in the data due to the significant use of the "Other" category that obscures the type of citations and arrests (Torres et al., 2016). The Enforcement Activity Forms provided from FY2020 did not include an "Other" category for arrests, which greatly improved the quality of data. However, the "Other citations" category remained and comprised over 50% of the citations. Removing this ambiguity as well would improve enforcement documentation further in future.

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