



EVALUATION OF LAW ENFORCEMENT USE OF DRIVER LICENSE CARD READERS TO IMPROVE DETECTION OF SUSPENDED AND REVOKED DRIVERS AT DUI/LICENSE CHECKPOINTS

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14. ABSTRACT *Introduction.* Driving privilege suspension and revocation are known to improve traffic safety, but research suggests the majority of suspended or revoked (SR) drivers continue to drive while they are SR. These drivers are about three times more likely to be involved in crashes and to cause a fatal crash. In most U.S. states, drivers arrested for driving under the influence of alcohol or drugs (DUI) are subject to immediate driver license (DL) card confiscation by law enforcement. Drivers SR for other reasons are typically mailed notices directing them to surrender their DL cards to the licensing agency, yet they frequently do not comply. At DUI checkpoints in California, and many other U.S. states, law enforcement officers briefly inspect drivers' DL cards and check for signs of intoxication. Hence, such checkpoints are deemed DUI/License status checkpoints. Previous research found that about 41% of SR drivers contacted at such checkpoints avoided detection for SR driving because they illegally retained possession of their DL cards. In this study, DL card readers with the capacity to identify and alert officers to drivers with SR statuses were used at the checkpoints. The purpose was to evaluate the utility of implementing this type of technology on a broader scale.

Method. Checkpoint police officers used DL card readers that contained lists of SR drivers that would alert if a card was scanned that matched a DL number on the list. Data for 13,530 drivers were recorded. Subsequently, license statuses of contacted drivers were verified and compared to checkpoint citation records.

Results. About 3% (n=384) of drivers contacted at the checkpoints were SR. Seventy-one percent of them were detected and cited for driving while SR. There were no differences in detection rate as a function of the suspension/revocation reasons. Significant differences were found in detection rate as a function of whether drivers' DL numbers were on the SR list.

Conclusion. SR drivers' ability to pass undetected through DUI/License checkpoints weakens both the specific and general SR driving deterrence of checkpoints, and may diminish the effectiveness of suspension and revocation for reducing the crash risk posed by problem drivers. These findings show that despite technical limitations, a list-based DL card reader can improve the detection rate of SR drivers by law enforcement. Future studies that evaluate scanning technologies capable of real-time license validity verification are warranted.

15. SUBJECT TERMS Suspended; Revoked; Card Reader; Countermeasure; Law Enforcement; Checkpoints

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PREFACE

This project is a part of the California Traffic Safety Program and was made possible through the support of the California Office of Traffic Safety, and the National Highway Traffic Safety Administration. This report was prepared by the Research and Development Branch of the California Department of Motor Vehicles. The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of California or the National Highway Traffic Safety Administration.

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This project was conducted under the supervision of Scott Masten, former Research Manager II/Acting Research Chief. Sergeant Chris Prince of the Sacramento Police Department Metro-DUI Enforcement Team was instrumental in developing, piloting, and coordinating the checkpoint data collection procedures. The officers of the team collected the data – their assistance in ensuring quality data collection was critical to the project’s success. Eric Chapman, Research Program Specialist II, extracted the data for the suspended and revoked driver lists. Debra Barbiaux Atkinson, former Staff Services Manager I, conducted the driver record history searches to categorize the reasons for suspension or revocation. Douglas Rickard, Associate Governmental Program Analyst, proofread and ensured proper formatting of the report.

EXECUTIVE SUMMARY

Introduction

Although suspension and revocation of driving privileges have been shown to improve traffic safety, research suggests that the majority of suspended or revoked (SR) drivers continue to drive while they are SR. These SR drivers are about three times more likely to be involved in crashes and to cause a fatal crash.

In California, and most other U.S. states, drivers arrested for driving under the influence of alcohol or drugs (DUI) are subject to immediate driver license (DL) card confiscation by law enforcement. Drivers SR for other reasons are typically mailed notices directing them to surrender their DL cards to the licensing agency, yet they frequently do not comply. Typical procedures at DUI checkpoints in California, and many other U.S. states, include both inspections of DL cards and checking for signs of intoxication during brief contacts with law enforcement officers. Hence, such checkpoints are deemed DUI/License status checkpoints.

In Sacramento, California, the Sacramento Police Department Metro-DUI Enforcement Team (SacPD) has a “zero-tolerance” policy regarding SR drivers who enter their checkpoints; when detected as being SR, these drivers are cited for violation of driving while SR (California Vehicle Code [CVC] §14601), and their vehicles are towed and impounded for up to 30 days. However, many drivers fail to surrender their DL cards to the Department of Motor Vehicles (DMV) upon suspension or revocation as required by law, potentially allowing them to pass through checkpoints undetected as driving while SR.

Because checkpoint procedures are designed to minimize the total time that drivers are detained from entry to exit, the license validity of most drivers who enter checkpoints is not verified using electronic access to licensing agency records. Rather, the typical procedure for checking license status on the checkpoint line involves only a brief visual inspection of DL cards by the law enforcement officers. Only drivers who present an expired DL card, a suspect DL card (e.g., one that appears fraudulent or does not appear to belong to the driver), or who present no DL card, are detained for verification of license status using the California Law Enforcement Telecommunications System (CLETS), which accesses DMV license status and other data. Therefore, it is possible for SR drivers who illegally retain possession of their DL cards to escape detection at checkpoints.

Previous research found that when law enforcement officers used only visual inspection of DL cards on the checkpoint line, about 41% of SR drivers entering SacPD's DUI/License checkpoints were able to avoid detection for SR driving, because they illegally retained possession of their DL cards (CVC §14610).

In this study, electronic handheld identification card readers were used by SacPD to scan the DL cards of drivers who came through DUI/License checkpoints. The scanners had the capacity to immediately identify most SR drivers who presented illegally retained DL cards to the checkpoint law enforcement officers. The purpose of the study was to evaluate the utility of employing this type of technology on a broader scale at checkpoints and during routine law enforcement traffic stops.

Method

SacPD used electronic identification card readers to screen for possible invalid license status for 13,530 drivers who voluntarily entered DUI/License checkpoints in Sacramento, California. The card readers contained lists of the DL numbers of SR drivers with Sacramento County ZIP Codes, and were programmed to alert officers when DL cards of drivers with SR driving privileges were presented and scanned. All drivers thus "flagged" by the scanners were directed to the checkpoint triage area where officers verified these drivers' license statuses by querying CLETS.

The license statuses of the drivers contacted at the checkpoints were subsequently checked against the licensing database of the DMV, and compared with arrest and citation data from the checkpoints. The percentages of SR drivers who passed through the checkpoints undetected (i.e., were not cited for driving while suspended [CVC §14601]) were calculated both overall and separately by the particular reasons the drivers were SR (e.g., DUI, failure to appear for court dates, or non-driving related reasons).

Results

DMV records showed that about 3% ($n=384$) of the drivers contacted at the checkpoints were SR. About 71% of these SR drivers were detected and cited for CVC §14601. Twenty-nine percent were able to pass through the checkpoints undetected, for reasons detailed below. There were no differences in detection rate as a function of the reasons for suspension or revocation.

Statistically significant differences were found in detection rates as a function of whether or not SR drivers' DL numbers were on the scanner SR list. Drivers with Sacramento County ZIP Codes whose DL cards were scanned and DL numbers were on the list were more likely to be detected (94%), whereas drivers with Sacramento County ZIP Codes whose DL cards were scanned and DL numbers were not on the list were more likely to pass through undetected (87%). SR drivers with Sacramento County ZIP Codes whose DL cards were not scanned were more likely to be detected (85%). This was expected as, when drivers' DL cards are not scanned, it is usually because they possess no DL cards to present to law enforcement. In these instances, drivers are always directed to the triage area for real-time checks of license status using CLETS, thereby increasing the likelihood of detection. Finally, SR drivers not residing in Sacramento County, and whose DL numbers were therefore not on the scanner list, were less likely to be detected (67%).

Discussion

Using the electronic identification card readers, law enforcement successfully detected 71% of the 384 SR drivers contacted at the DUI/License checkpoints, while the remaining 29% were able to pass through undetected, usually by presenting DL cards that should have been surrendered at the time of suspension or revocation. These results differ from previous research in which DUI/License checkpoint officers used a standard procedure of visually checking DL cards rather than using identification card readers with the capacity to "flag" SR drivers. In that study, 41% of SR drivers were able to pass through undetected. The scanners employed in this study used a list-based, rather than a real-time, data source for identifying SR drivers, and were therefore limited in capacity to detect SR drivers for several technical reasons. Despite these limitations, they appear to have made a substantial improvement in the detection rate of these drivers.

No differences were found in detection rates of SR drivers as a function of the reasons that had led to the suspensions or revocations. This is contrary to prior research which found that drivers SR for DUI-related reasons were less able to pass through the checkpoints undetected, while those SR for failing to provide evidence of vehicle liability insurance when required, were more likely to pass through undetected. The current finding indicates that even though drivers SR for certain reasons may be more able to retain possession of their DL cards following suspension or revocation, having technology that "flags" those invalid DL cards diminishes SR drivers' ability to use the cards to pass undetected through checkpoints.

Statistically significant differences were found in detection rates as a function of whether or not SR drivers' DL numbers were on the scanner SR list. These findings indicate that having a means to identify SR drivers on the checkpoint line, even if not in real-time, leads to improvements in rates of detection; conversely not being able to identify them allows more to pass undetected, usually because they present DL cards that should have been previously surrendered. It also indicates that technology that would allow real-time access to the CLETS database on the checkpoint line could further reduce the numbers of SR drivers who are able to pass through undetected and continue to drive while SR.

Recommendations

SR drivers' ability to pass through DUI/License checkpoints undetected weakens both the specific and general impacts of checkpoints for deterring SR driving, and may diminish the effectiveness of suspension and revocation actions for reducing the crash risk posed by problem drivers. This study indicates that the use of technology that can quickly identify SR drivers at DUI/License checkpoints and during routine law enforcement traffic stops may reduce the numbers of SR drivers who remain undetected by law enforcement.

The findings of this study show that a list-based DL card scanning system can improve detection rates of SR drivers, although it clearly has limitations, still allowing many of these drivers to continue driving undetected. Future efforts should focus on methods to improve the detection of these drivers. Given the rapidly advancing availability and use by law enforcement of wireless and other technologies, the use of DL card scanning systems that allow real-time access to driver record databases, such as CLETS, at DUI/License checkpoints may be more promising for aiding identification and enforcement, and therefore, warrant further investigation.

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INTRODUCTION

Suspension and revocation of driving privileges are countermeasures intended to reduce the driving risk posed by problem drivers. In California and other U.S. states, licensees can have their driving privileges suspended or revoked (SR) for various reasons related directly (e.g., driving under the influence of alcohol or drugs [DUI]), or indirectly (e.g., failure to carry vehicle liability insurance) to traffic safety, and also for non-driving related behaviors (e.g., failure to pay family support). Compared to validly-licensed drivers, drivers under suspension or revocation for any reason have elevated crash and traffic conviction rates (Gebers & DeYoung, 2002), and are about three times more likely to be involved in, and to cause, fatal crashes (Brar, 2014).

Approximately 1.3 million California licensees are SR at any given time, representing about 4% of all licensed California drivers. Suspension and revocation have been shown to be effective specific and general deterrents for reducing crashes and traffic violations (Masten & Peck, 2004; Wagenaar & Maldonado-Molina, 2007) and for decreasing DUI recidivism (Rogers, 1997; Tashima & Marelich, 1989). Driving while under suspension or revocation in California is a misdemeanor (California Vehicle Code [CVC] §14601), as is being in possession of an invalid driver license (DL) card (CVC §14610). Any vehicle operated by a driver under suspension or revocation is subject to impoundment (CVC §14602.6), and, if the driver has prior convictions for driving while SR and owns the vehicle, forfeiture (CVC §14607.6). Vehicle impoundment is an effective specific deterrent for reducing subsequent traffic convictions and crashes among SR drivers who are caught driving (DeYoung, 1999; Voas & DeYoung, 2002).

Despite these potential consequences, it is estimated that as many as 75% of SR drivers continue driving during their suspension or revocation period (Coppin & Van Oldenbeek, 1965; Lenton, Fetherston, & Cercarelli, 2010; Ross & Gonzales, 1988; Williams, Hagen, & McConnell, 1984), although they report driving less often and more carefully to avoid detection (Clark & Bobveski, 2008; Ross & Gonzales, 1988). Drivers SR for any reason are estimated to represent about 6% of all driving exposure on California roadways (Brar, 2014), suggesting that compared to their numbers, they represent a slightly higher exposure risk than their representation in the population.

Many SR drivers in the U.S. do not surrender their DL cards as required by law when they are notified of their suspension or revocation actions. Drivers in California, and most other U.S. states, are typically ordered to surrender their DL cards when they receive a written order of suspension or revocation from their driver licensing agency. For example, in California the orders are mailed to SR drivers, usually directing them to return any licenses in their possession via mail, by bringing them to a California Department of Motor Vehicles (DMV) office, or, if they do not have possession of their DL cards, to indicate the reason they no longer have them. For DUI offenders in California, and most other states, DL cards are usually confiscated by law enforcement during arrest if an administrative per se (APS) license suspension action is initiated. Or, DL card surrender may be ordered as part of DUI post-conviction suspension or revocation actions, which are again typically implemented by mailed DMV orders. California law requires the state's courts to order the surrender of individuals' DL cards upon convicting them of DUI, and to send the cards along with the conviction information to DMV (CVC §13550). Although judges have the authority to confiscate DL cards during other court proceedings (e.g., convictions for serious driving offenses such as hit and run), they rarely do so.

In all cases where license suspension or revocation orders are served, there exist pathways by which drivers can circumvent the DL card surrender processes. For example, drivers given an APS suspension could apply for a duplicate card prior to when the licensing agency receives and processes the APS notice of suspension, which in California can take up to 10 days after the arrest or detention. In cases when DMV suspension orders are served by mail (the majority of orders), drivers could simply ignore the orders, or acknowledge and return the orders, but falsely claim that their DL cards were lost. The extent to which SR drivers illegally retain possession of their DL cards is unknown, but it is thought to be a frequent occurrence in California, given the large volume of suspension and revocation orders that are returned as undeliverable (estimated to be about 25%), and the fact that many successfully delivered orders are subsequently returned without surrendered DL cards attached. Retaining DL cards may protect SR drivers from detection by law enforcement. That is, for example, if these SR drivers are stopped by law enforcement for traffic violations and the officers do not electronically check their license statuses against licensing agency databases, the drivers may not be detected as being SR.

In addition to license status checks during routine traffic stops, another enforcement measure that is used to deter suspended and revoked driving is law enforcement checkpoints. For example, although the primary purpose of DUI checkpoints is to provide general deterrence against DUI (National Highway Traffic Safety Administration [NHTSA], 2008), another of their important functions is to detect persons driving while SR and remove them from the road. This results

from the fact that procedures at DUI checkpoints in California, and many other U.S. states, typically include inspecting DL cards (Brown, 1991). Hence, these checkpoints are, in fact, combined DUI/License status checkpoints in California, and many other states.

The interaction between law enforcement officers and drivers who enter DUI/License checkpoints in California, and other U.S. states, is usually brief (under 30 seconds), and typically involves the officers observing drivers for signs of alcohol and/or drug impairment, as well as visually checking whether the drivers' DL cards appear to be valid (Brown, 1991). There is no way to know that drivers are under suspension or revocation just by looking at their DL cards. Yet, because checkpoint procedures are designed to minimize the total time that drivers are detained from entry to exit, the license validity of most drivers who enter checkpoints is not checked using real-time electronic access to licensing agency records. Under the current DL card screening method used during DUI/License checkpoints in most U.S. jurisdictions, SR drivers who have not properly surrendered their DL cards will only be identified if they are detained for further DUI screening, if they present an expired DL card, or if they present no DL card for inspection. Therefore, many SR drivers in California, and elsewhere, may pass through these checkpoints undetected, potentially weakening both the specific and general impact of the checkpoints for deterring suspended and revoked driving, and potentially diminishing the effectiveness of suspension and revocation actions for reducing the driving risk posed by problem drivers.

Parrish and Masten (2015) found that about 41% of SR drivers passing through checkpoints within the City of Sacramento, California were able to avoid detection for SR driving, because they illegally retained possession of their DL cards. Given the prevalence and high-risk nature of suspended and revoked drivers in general, improved means of identifying and removing them from the road is a desirable traffic safety objective. In this study, electronic identification card readers, identified by Parrish and Masten (2015) as a possible enforcement tool, were used to scan the DL cards of drivers who came through DUI/License checkpoints. The scanners had the capacity to immediately identify most SR drivers who presented illegally retained DL cards to the checkpoint law enforcement officers. The purpose of the current study was to evaluate the utility of employing this type of technology on a broader scale at checkpoints and during routine law enforcement traffic stops.

METHOD

Study Timeframe and Location

SacPD conducted 26 DUI/License checkpoints within the City of Sacramento, California between October 30, 2013 and September 13, 2014. This checkpoint program was funded by a grant from the California Office of Traffic Safety (OTS). Following pilot data collection from 3 checkpoints, subsequent data for the study were collected at 17 of the 26 checkpoints. Six checkpoints for which data were not collected or used were either special multi-agency checkpoints ($n=2$), or occurred past the data collection period specified in this study's OTS grant ($n=4$). All 26 checkpoints followed the same law enforcement procedures (described below), including those that were multi-agency.

Law Enforcement DUI/License Checkpoint Procedures

The procedures followed by SacPD during DUI/License checkpoints are detailed in this section.

Traffic at the checkpoint locations is funneled down to one lane, with an adjacent lane coned off to provide standing space for law enforcement officers and volunteers who distribute DUI-related literature to drivers at the end of each contact. Eight to ten uniformed law enforcement officers stand spaced at approximately one-car-length intervals in this adjacent lane. The lead vehicle entering the checkpoint is stopped, causing the vehicles behind it to come to a stop, creating a group of vehicles to be checked. Each officer standing in the adjacent lane approaches a vehicle, asks the driver to present his or her DL card, and quickly checks for indications of alcohol or drug impairment. The contacts are brief, generally less than 30 seconds. Drivers in the line with DL cards that appear to be valid and who show no signs of impairment are allowed to exit the checkpoint once the lane clears in front of their vehicles. Drivers who present an expired DL card, a suspect DL card (e.g., one that appears to be fraudulent or does not appear to belong to the driver), or who present no DL card, are directed into a triage area where officers verify the drivers' license status using the California Law Enforcement Telecommunications System (CLETS) which accesses DMV license data. Drivers showing signs of impairment are taken into the triage area for further DUI screening. When all contacted vehicles have exited the checkpoint, the next group of vehicles is stopped, and the procedure is repeated. Drivers detained for license status issues or DUI testing are either issued a citation, arrested, or released, depending on their status after further screening. SacPD has a "zero-

tolerance” policy regarding suspended and revoked drivers at the checkpoints; if SR drivers are detected, regardless of the reason for the suspension or revocation, they are always cited and their vehicles are towed and impounded for up to 30 days.

Checkpoint Electronic Driver License Card Screening and Data Collection Procedures

SacPD electronically captured the DL numbers of all drivers who presented a DL card at 17 DUI/License checkpoints from December 2013 through August 2014, using Veriscan M-310 Handheld identification card readers. These card readers, capable of reading data for licenses and identification cards issued in all U.S. states, scan 2-dimensional bar codes or magnetic stripes on the cards. For this study, they were specially programmed by the Veriscan software programmers to also scan the 1-dimensional barcodes on DL cards, which are less prone to corruption than the magnetic stripes on older DL cards. The card readers were programmed to accept lists of DL numbers of SR drivers, to compare each scanned DL card to the list, and to produce a warning message when a match was encountered. The lists were created by DMV prior to each checkpoint using the SR driver data available in the DMV database, and were typically current within 3 to 35 days of each checkpoint. The card readers’ functionality was effective up to approximately 65,000 DL numbers; therefore, the lists were limited to the DL numbers of SR drivers residing within the County of Sacramento, and to drivers whose suspension or revocation became effective on or after January 1, 2009.

For DL cards that could not be read by the card readers (typically because the 1- or 2-dimensional bar codes and magnetic stripes were damaged), or in cases when officers did not have immediate access to one of the scanners in use at the checkpoint operation, the officers recorded the DL numbers on paper logs created for this purpose. About 3.6% of licenses were not read by the card readers. In cases where drivers did not have a DL card in their possession, officers searched for the drivers’ license information in CLETS, and obtained and recorded their DL numbers on the log for those that had DL numbers in the system.

In cases where drivers presented valid-appearing DL cards that generated SR warning messages upon scanning, the drivers were directed into the triage area (along with those who presented expired, suspect, or no DL cards) to have their license statuses verified against the current data on the DMV licensing database. Except for the added step of scanning or hand-recording the DL numbers of contacted drivers, officers did not alter their usual checkpoint procedures described above.

Data Processing and Analysis

Data were downloaded from the card readers after each checkpoint, and copies of citations and arrest logs were collected. DL numbers and other identifying information from the card readers, paper logs, citations, and arrest logs were compiled into a database, and total counts of DL card checks were compared to police volunteer staff's independent counts of vehicles that passed through the checkpoints. Typically the DL number counts were within 6% of the independent counts of vehicles, indicating that the officers did indeed record the DL numbers for most contacted drivers.

The license statuses of the drivers contacted during each checkpoint were subsequently checked against the licensing database of the DMV, and compared with arrest and citation data from the checkpoints. The percentages of SR drivers who passed through the checkpoints undetected (i.e., were not cited for violating CVC §14601) were calculated both overall and separately by the particular reasons the drivers were SR (e.g., DUI, failure to appear for court dates, or non-driving related reasons). Because drivers' privileges can be simultaneously SR for multiple reasons, the earliest suspension or revocation actions still in effect that should have required surrender of the DL cards were used to classify the reasons for the suspensions or revocations. Note that for drivers with out-of-state licenses, it was not possible to determine license status in their home states because these records are not present in the DMV database.

The drivers' reasons for suspension or revocation were grouped into 8 categories for presentation purposes:

1. failure to appear (FTA)/failure to pay (FTP) reasons, which are due to failures to appear for court hearings or pay court-levied fines;
2. DUI-related reasons, which are related to convictions for DUI;
3. financial responsibility-related reasons, which are associated with failures to provide proof of vehicle liability insurance under required conditions, such as for crash involvements reported to the DMV;
4. non-driving related reasons, which are for issues such as failure to pay family support, or for graffiti convictions (i.e., CVC §13202.6);

5. APS-related reasons, which are typically due to arrests or detentions of drivers with blood alcohol concentrations in excess of the legal limits for their age, probation status (i.e., CVC §23254), or license class;
6. negligent operator (NegOp)/serious offender reasons, which are related to the accumulation of excessive demerit points for traffic violation convictions and at-fault crashes, or due to convictions for serious driving violations (e.g., hit-and-run crashes or reckless driving);
7. physical and mental (P&M) conditions/lack of skill reasons, which are due to P&M impairments that affect safe driving ability (e.g., dementia), or poor driving skills not otherwise linked to a known condition; and,
8. out-of-state suspension/revocation reasons, which are due to California-licensed drivers being SR in another state as indicated on the National Driver Register Problem Driver Pointer System (PDPS).

RESULTS

A total of 13,530 drivers were contacted at the 17 DUI/License checkpoints. Overall, 92.3% had valid California driving privileges, 2.8% were SR, 2.2% were unlicensed or had expired DL cards, 2.6% were licensed out-of-state, and 0.1% had license statuses that could not be determined; Figure 1 and Table 1 present these data. License status could not be determined when DL numbers were not read by the card readers due to damaged bar codes, and when the officers made errors while entering DL numbers on the paper logs. Overall, at least 5.0% of contacted drivers had licensure problems that would have been of interest to law enforcement, had they all been detected during the checkpoints.

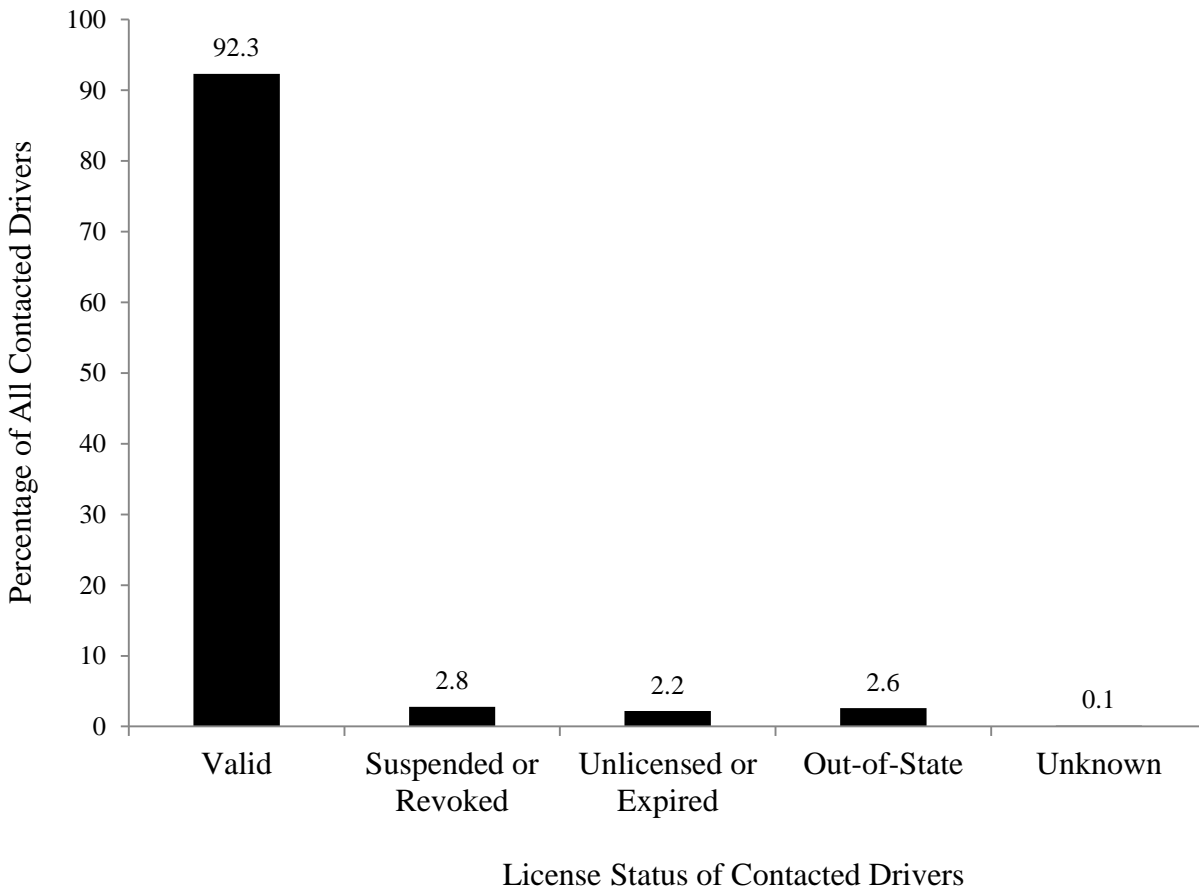


Figure 1. Combined license status distribution of drivers contacted at all checkpoints.

Table 1

License Status of Drivers Contacted at each Checkpoint in Sacramento, California

Checkpoint number	Valid		Suspended or revoked		Unlicensed or expired		Out-of-state		Unknown ^a		N
	n	%	n	%	n	%	n	%	n	%	
1	671	94.2	15	2.1	14	2.0	11	1.5	1	0.1	712
2	818	91.6	34	3.8	22	2.5	19	2.1	0	0.0	893
3	457	92.9	13	2.6	14	2.8	8	1.6	0	0.0	492
4	366	92.7	13	3.3	9	2.3	7	1.8	0	0.0	395
5	331	89.7	18	4.9	11	3.0	9	2.4	0	0.0	369
6	587	95.4	10	1.6	11	1.8	7	1.1	0	0.0	615
7	918	89.7	47	4.6	33	3.2	24	2.3	1	0.1	1,023
8	829	93.8	14	1.6	18	2.0	23	2.6	0	0.0	884
9	944	93.9	17	1.7	10	1.0	33	3.3	1	0.1	1,005
10	605	85.7	56	7.9	32	4.5	13	1.8	0	0.0	706
11	522	89.4	26	4.5	20	3.4	16	2.7	0	0.0	584
12	865	92.9	21	2.3	27	2.9	18	1.9	0	0.0	931
13	776	94.6	18	2.2	4	0.5	22	2.7	0	0.0	820
14	1,018	91.1	30	2.7	28	2.5	40	3.6	2	0.2	1,118
15	1,164	92.7	27	2.1	26	2.1	37	2.9	2	0.2	1,256
16	852	92.4	15	1.6	12	1.3	42	4.6	1	0.1	922
17	759	94.3	10	1.2	13	1.6	23	2.9	0	0.0	805
Total	12,482	92.3	384	2.8	304	2.2	352	2.6	8	0.1	13,530

Note. Included are 441 drivers (3.3%) who were contacted at two or more different checkpoints, or who passed through the same checkpoint two or more times. Percentages do not all add to 100% due to rounding.

^aUnknown license statuses were due to DL cards not scanning, or DL numbers being recorded incorrectly by law enforcement officers.

Among the 384 SR drivers contacted (identified in Table 1), the most common reason for suspension or revocation was FTA/FTP (56.8%). The next most common reasons were for DUI convictions (16.4%), failure to provide proof of financial responsibility when required (9.1%), non-driving related reasons (6.8%), APS arrests (6.0%), NegOp or serious driving offenses (1.8%), P&M conditions or lack of driving skill (1.6%), and out-of-state suspensions or revocations (1.6%); see Figure 2 and Table 2. Therefore, the majority of SR drivers contacted at the checkpoints (93.2%) had their driving privileges SR for reasons that were directly or indirectly related to traffic safety issues.

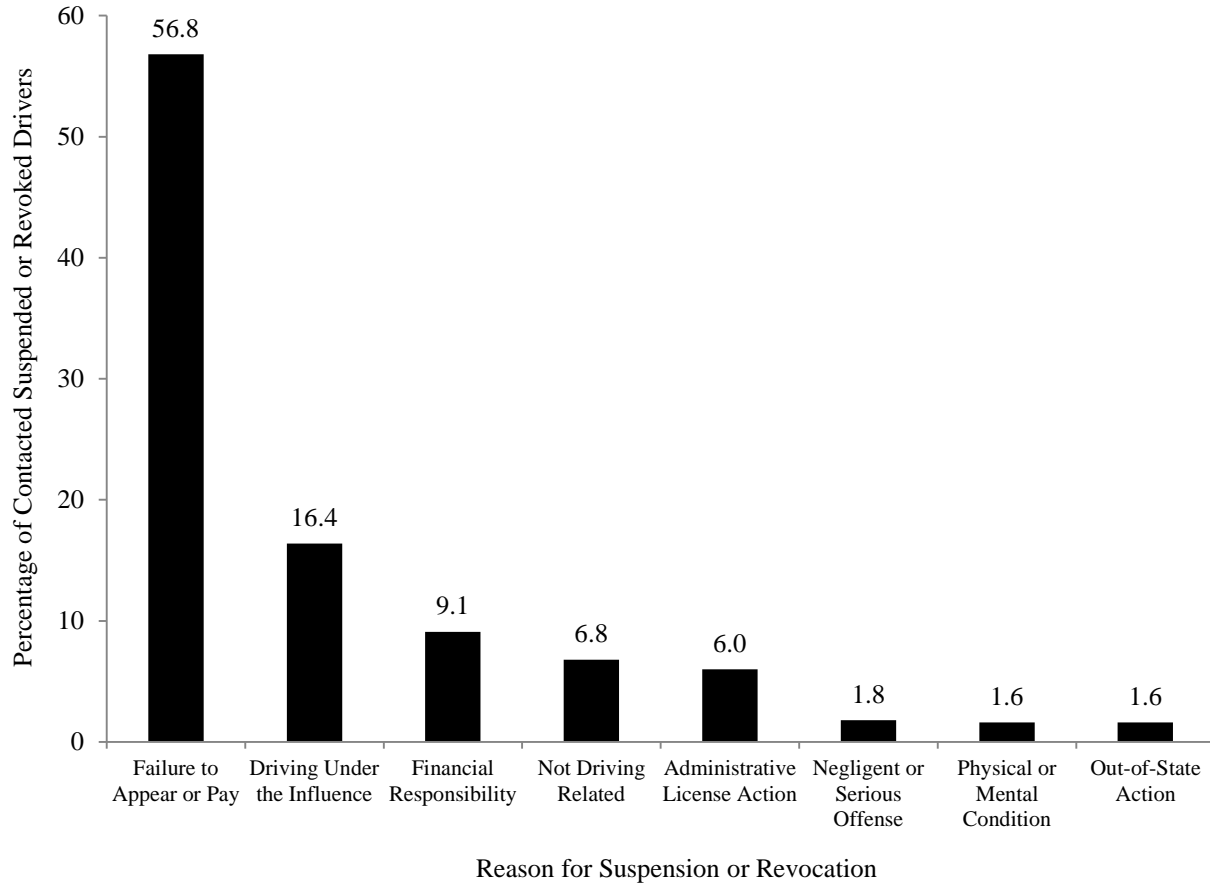


Figure 2. Distribution of reasons drivers contacted at checkpoints were suspended or revoked.

The majority (71.1%) of the SR drivers contacted at the checkpoints were detected and cited for CVC §14601 by law enforcement, while 28.9% were neither detected nor cited for driving while SR (Table 2). The percentages detected as driving while SR (Figure 3) differed as a function of the reason for the suspension or revocation only for the drivers SR due to an out-of-state suspension or revocation $\chi^2(7, N = 384) = 16.07, p = .024$. Although there were few such drivers ($n = 6$), none were cited for driving while SR. However, this finding was anticipated as SacPD does not issue CVC §14601 citations at DUI/License checkpoints if the suspension or revocation is originated by an out-of-state licensing agency. Therefore, although these drivers are by definition “undetected,” the proportion of undetected SR drivers is actually slightly lower than that reported above.

Table 2

Detection of Suspended or Revoked Drivers Contacted at Checkpoints as a Function of Suspension/Revocation Reasons

Suspension or revocation reason	Detected		Undetected		Total	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Failure to appear in court or pay court fines	155	71.1	63	28.9	218	56.8
DUI conviction related	48	76.2	15	23.8	63	16.4
Failure to provide proof of insurance	25	71.4	10	28.6	35	9.1
Non-driving related	20	76.9	6	23.1	26	6.8
Administrative per se license action related	16	69.6	7	30.4	23	6.0
Negligent operator points/serious offender	5	71.4	2	28.6	7	1.8
Physical & mental conditions/lack of skill	4	66.7	2	33.3	6	1.6
Out-of-state suspension or revocation	0	0.0	6	100.0	6	1.6
Total	273	71.1	111	28.9	384	100.0

Note. The detection rate differed significantly according to suspension/revocation reason, $\chi^2(7, N = 384) = 16.07$, $p = .024$. Boldface percentage indicates the most overrepresented suspension/revocation reason in the column, based on having a standardized adjusted residual with an absolute value ≥ 2.0 .

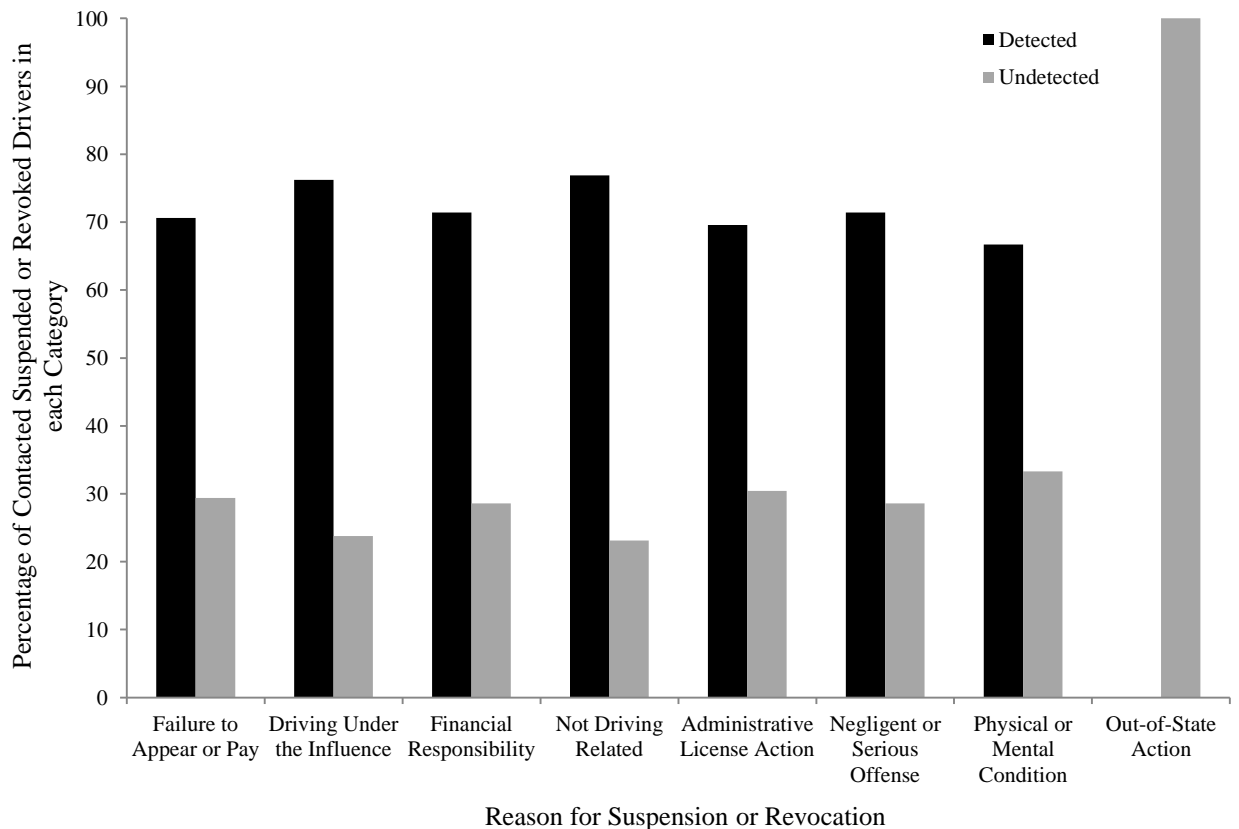


Figure 3. Differences in law enforcement detection of drivers suspended or revoked for various reasons.

Among the 384 SR drivers contacted at the checkpoints, statistically significant differences in detection for SR driving were found among those whose DL numbers were on the scanner SR list and those that were not. Drivers with Sacramento County ZIP Codes whose DL cards were scanned and DL numbers were on the list were more likely to be detected (94.0%), whereas drivers with Sacramento County ZIP Codes whose DL cards were scanned and DL numbers were *not* on the list were more likely to pass undetected (87.2%). SR drivers with Sacramento County ZIP Codes whose DL cards were not scanned were more likely to be detected (85.2%). This was expected as, when drivers' DL cards are not scanned, it is usually because they possess no DL cards to present to law enforcement. In these instances, drivers are always directed to the triage area for real-time license status checks using CLETS, thereby increasing the likelihood of detection. Finally, SR drivers not residing in Sacramento County, and therefore, not referenced on the scanner lists, were less likely to be detected (67.2%), $\chi^2(3, N = 384) = 174.02$, $p = .000$; see Table 3 and Figure 4.

Table 3

Detection of Suspended or Revoked Drivers Contacted at Checkpoints as a Function of Drivers' License Numbers' Presence on the Scanner Suspended or Revoked Driver List

Checkpoint SR driver group	Detected (cited 14601)		Undetected (not cited 14601)		Total	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Sacramento County ZIP Code, DL card scanned, on SR list	142	94.0	9	6.0	151	39.3
Sacramento County ZIP Code, DL card scanned, not on SR list	6	12.8	41	87.2	47	12.2
Sacramento County ZIP Code, DL card not scanned	104	85.2	18	14.8	122	31.8
Not Sacramento County ZIP Code	21	32.8	43	67.2	64	16.7
Total	273	71.1	111	28.9	384	100.0

Note. The rate of detection differed significantly according to driver group, $\chi^2(3, N = 384) = 174.02$, $p = .000$. Boldface percentages indicate the most overrepresented groups in the columns, based on having standardized adjusted residuals with absolute values ≥ 2.0 .

Of the 47 cases that had Sacramento County ZIP Codes and would have been expected to be on the scanner list but were not, 14 (29.8%) had suspension or revocation effective dates that were within 30 days of the checkpoint date. Because new data for the list were generated monthly, a case with an effective date of suspension or revocation that was within 30 days prior to a checkpoint had a high likelihood of being excluded from that month's list. Additionally, 8 cases

(17%) had suspension or revocation effective dates that were prior to January 1, 2009, the date prior to which no data were accessed for inclusion on the lists.

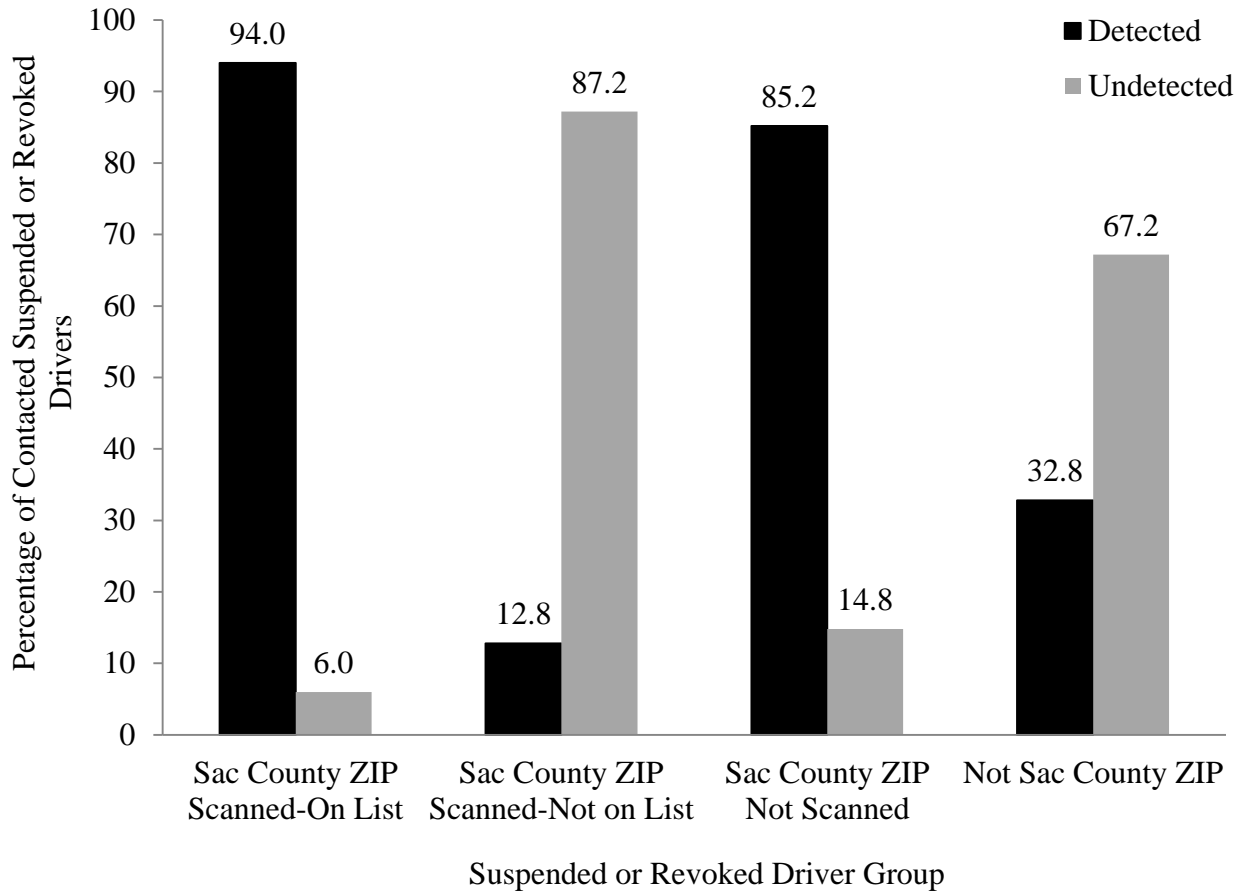


Figure 4. Differences in law enforcement detection of SR drivers as a function of whether or not drivers' DL numbers were on the scanner suspended/revoked list.

DISCUSSION

General Discussion of Findings

Previous research has shown that a large proportion of SR drivers may be passing through DUI/License checkpoints undetected by law enforcement, because they present valid-appearing DL cards that should have been surrendered at the time of suspension or revocation of their driving privileges (Parrish & Masten, 2015). In this study, SacPD used electronic identification card readers to scan the DL cards of drivers who came through DUI/License checkpoints in the City of Sacramento, California, over a 9-month period from 2013 through 2014. The card readers contained lists of the DL numbers of SR drivers with Sacramento County ZIP Codes, and were programmed to alert officers when a DL card of a driver with SR driving privileges was presented and scanned. All drivers thus “flagged” by the scanners were directed to the checkpoint triage area where officers verified these drivers’ license statuses by querying CLETS, which accesses DMV license data. The purpose of the study was to evaluate the utility of employing this type of technology on a broader scale at checkpoints and during routine law enforcement traffic stops.

Seventy-one percent of the 384 SR drivers contacted at the checkpoints were successfully detected by law enforcement; the remaining 29% were able to pass through undetected, usually because they presented DL cards that should have been surrendered at the time of suspension or revocation. Previous research in which DUI/License checkpoint officers used a standard procedure of visually checking DL cards, rather than using DL card readers with the capacity to “flag” SR drivers, found that 41% of SR drivers passed through undetected (Parrish & Masten, 2015). The scanners employed in this study used a list-based, rather than a real-time data source for identifying SR drivers, and were therefore limited in capacity to detect SR drivers, for several technical reasons. Despite this limitation, they appear to have made a substantial improvement in the detection rate of these drivers. Parrish and Masten (2015) were unable to determine the license status for 2.2% of drivers contacted at checkpoints because of the high rate of DL cards that failed to scan, and the DL numbers were therefore either recorded incorrectly, or not recorded at all, by law enforcement officers. In the present study only 0.1% ($n=8$) of contacted drivers’ statuses were unable to be determined, indicating that this study’s addition of the 1-dimensional bar code scanning capability increased the number of DL cards that could be successfully scanned, particularly for older DL cards with damaged magnetic stripes, thereby reducing error in the DL number recording process.

No differences were found in rates of detection of SR drivers as a function of the reasons for the suspensions or revocations. This is contrary to Parrish and Masten (2015) who found that drivers SR for DUI-related reasons were less able to pass through the checkpoints undetected, while those SR for failing to provide evidence of vehicle liability insurance when required were more likely to pass through undetected. This study's findings indicate that even though drivers SR for certain reasons may be more able to retain possession of their DL cards following suspension or revocation, having technology that "flags" those valid-appearing (but invalid) DL cards diminishes these drivers' ability to use them to pass undetected through checkpoints. None of the drivers with out-of-state suspensions or revocations ($n=6$) were cited for violation of CVC §14601, and therefore appear in the data as undetected. DMV may or may not recognize other states' suspensions, depending on various points of law. California law enforcement may enforce out-of-state suspensions (typically the California Highway Patrol will do so, because their traffic stops involve a check of PDPS). However, in practice, SacPD does not issue citations for out-of-state suspensions at DUI/License checkpoints. These drivers then, are not really "undetected" as they would not have been cited for CVC §14601. Therefore the actual proportion of undetected SR drivers is slightly lower than that reported.

Statistically significant differences were found in detection rates as a function of whether or not SR drivers' DL numbers were on the scanner SR list. Functionally, there were four categories formed on the basis of three factors: (1) whether or not the drivers' license records had a Sacramento County ZIP Code, (2) whether or not the DL cards were scanned, and (3) whether the drivers' DL numbers were on the scanners' SR list at the time of the checkpoint. The first category, drivers with Sacramento County ZIP Codes whose DL cards were scanned and DL numbers were on the list ($n=151$), were more likely to be detected (94.0%), whereas drivers with Sacramento County ZIP Codes whose DL cards were scanned but DL numbers were *not* on the list ($n=47$) were more likely to pass through undetected (87.2%). SR drivers with Sacramento County ZIP Codes whose DL cards were not scanned ($n=122$) were more likely to be detected (85.2%). Finally, SR drivers not residing in Sacramento County, and therefore not on the scanner lists ($n=64$), were less likely to be detected (67.2%).

The vast majority of SR drivers in the first category were detected. Of the nine who were not cited for violation of CVC §14601, three were arrested for DUI. Therefore, although by definition they were undetected, they were in fact caught. SacPD officers arresting drivers for DUI will often not issue the CVC §14601 citation at the checkpoint due to the need to process these cases as efficiently as possible, particularly if they occur near the closing time of the

checkpoint. Typically the district attorney will charge the driver with CVC §14601, as well as DUI, when the case comes to them.

Of the 47 cases that had Sacramento County ZIP Codes, and therefore, would have been expected to be on the scanner list but were not, 14 (29.8%) had suspension or revocation effective dates that were within 30 days of the checkpoint date. Because new data for the lists were generated monthly, cases with suspension or revocation effective dates within 30 – 35 days prior to the checkpoints had a high likelihood of being excluded from the lists for those checkpoints. Additionally, 8 cases (17%) had suspension or revocation effective dates that were prior to January 1, 2009 (a few going back more than 20 years). No suspension or revocation actions prior to January 1, 2009 were accessed for inclusion on the scanner lists. The scanners were limited in data capacity to approximately 65,000 cases, therefore, this starting date was selected to maintain their functionality by preventing the lists from becoming too large. The remaining 25 cases (53.2%) likely missed inclusion on the lists due to data extraction methodologies for determining ZIP Codes. For example, the initial data were extracted using a code for county. Because ZIP Code zones can cross counties, an individual might have a ZIP Code defined as “Sacramento County” for this study, yet reside in an adjacent county and therefore would not have been part of the initial data extraction. Mailing addresses are also notoriously out-of-date in the DMV database because, although California law requires drivers to notify DMV of changes of address within 10 days (CVC §2503.2(d)), they frequently fail to do so.

For the SR drivers with Sacramento County ZIP Codes whose DL cards were not scanned, it was expected that a higher proportion would be detected, as when drivers’ DL cards are not scanned it is usually because they possess no DL card to present to law enforcement. All such drivers are directed to the triage area for real-time license status checks using CLETS, and when found to be SR, these drivers are cited.

The findings for each of the 4 categories above are consistent with the expectation that having a means to identify SR drivers on the checkpoint line, even if not in real-time, leads to improvement in detection rates, while not being able to identify them allows more to pass undetected, usually by presenting DL cards that should have been previously surrendered.

Study Limitations

The drivers contacted at DUI/License checkpoints presented in this study are from a single geographic region of the state. Therefore, the results presented here do not necessarily generalize to other California cities, counties or regions, or to jurisdictions outside the state. However, to the extent that DUI/License checkpoint procedures are similar across California—as might be expected if all California agencies follow the functional and legal guidelines for checkpoints recommended by NHTSA and the courts (*Ingersoll v. Palmer*, 1987; NHTSA, 2006)—there is no reason to suspect that SR drivers possessing valid-appearing DL cards would have any more or less difficulty passing undetected through checkpoints in other California jurisdictions if law enforcement were to use a similar list-based technology for scanning DL cards. Also, given that DMV order-of-suspension procedures are uniform throughout California, it seems likely that the rates of illegal retention of DL cards among suspended and revoked drivers are similar statewide. Finally, while DL cards are typically only visually checked at DUI checkpoints conducted in other U.S. states (Brown, 1991), the procedures presented in this study should be replicated in other states to determine whether the detection rates of SR drivers are similar at checkpoints conducted outside of California.

Recent DMV estimates indicate that approximately 4% of licensees statewide and 5% of licensees in Sacramento County are SR at any given time. Using quasi-induced exposure methods, Brar (2014) estimated that SR drivers represent about 6% of the driving exposure on California roadways, suggesting that compared to their numbers, they represent a slightly higher exposure risk than their representation in the population. The percentage of SR drivers who were contacted at the checkpoints (2.8%) underestimates the state and county percentages for several reasons. First, some drivers who are SR actually cease driving altogether, and others choose to drive less often to avoid detection (Clark & Bobveski, 2008). Second, drivers are alerted by signage that they are approaching checkpoints and are allowed to avoid them by making legal turns before entering the coned-off checkpoint entrances. It seems reasonable to surmise that SR drivers may be more inclined to avoid entering checkpoints, although the extent to which this occurs is unknown. Furthermore, all drivers, including those who are SR, may avoid checkpoints altogether through advance notice from news reports, websites, social media, or other communications. For example, as part of its DUI general deterrence strategy, the Sacramento Police Department gives 24-hour notice on their website and typically issues press releases about upcoming checkpoints. Given all these reasons, the estimates of suspended and revoked drivers from the present study should be considered, at best, a conservative lower-bound estimate of the prevalence of SR drivers who continue driving.

Conclusions and Recommendations

Prior research found that about 59% of SR drivers passing through DUI/License checkpoints were detected using the standard method of law enforcement officers visually checking DL cards. In this study, which employed a list-based electronic scanning system of DL card checks, 71% of the SR drivers were detected, cited, and had their vehicles towed and impounded for up to 30 days.

As in previous research, the number of SR drivers contacted at the DUI/License checkpoints was not large. However, any time SR drivers are able to pass through DUI/License checkpoints without being detected and cited, it weakens both the specific and general impacts of checkpoints for deterring suspended and revoked driving, and may diminish the effectiveness of suspension and revocation actions for reducing the crash risk posed by problem drivers. While license suspension and revocation reduces subsequent crashes and traffic violations among SR drivers (Masten & Peck, 2004), the majority of SR drivers continue to drive anyway (Coppin & Van Oldenbeek, 1965; Williams et al., 1984; Lenton et al., 2010; Ross & Gonzales, 1988). The effectiveness of driving-related penalties is greatly dependent upon drivers' perceptions of the likelihood of being caught (NHTSA, 2008), as reflected by the fact that SR drivers who continue to drive have reported driving less often and more carefully to avoid detection (Clark & Bobveski, 2008; Ross & Gonzales, 1988). Nonetheless, the evidence suggests that drivers under suspension or revocation perceive their risk of detection for continued driving to be very low (Knoebel & Ross, 1997). To the extent that they are indeed able to avoid detection while they drive, they will likely continue to do so, posing an elevated traffic safety risk (Brar, 2014; Gebers & DeYoung, 2002). Furthermore, those who are able to drive undetected avoid other consequences that are effective for controlling the risk of problem drivers, such as vehicle impoundment (DeYoung, 1999; Voas & DeYoung, 2002). The potential effectiveness of checkpoints—which are one of the few strategies available for deterring SR driving and reducing the associated elevated traffic safety risk—is undermined if SR drivers are able to avoid detection because they present illegally-retained DL cards to law enforcement and continue driving without penalty. This, and other studies, clearly show that drivers under suspension or revocation for various reasons continue to drive (Coppin & Van Oldenbeek, 1965; Williams et al., 1984; McCartt, Geary, & Berning, 2003). Therefore, law enforcement and licensing agencies are strongly urged to attempt to maximize DL card surrender upon suspension or revocation. It is also recommended that they improve the detection of SR drivers during checkpoints and routine traffic stops, to reduce this mechanism of non-detection, and to increase SR drivers' perceptions of the likelihood of being caught.

DUI/License checkpoints are general deterrents for drinking and driving that are associated with reductions in alcohol-related crashes (DeYoung, 2013; NHTSA, 2008). Ignition interlock devices (IIDs)—a countermeasure that is increasingly being used in an attempt to control DUI recidivism—have been shown to reduce recidivism and alcohol-related crashes among offenders while they are installed in their vehicles (DeYoung, Tashima, and Masten, 2005; Elder et al., 2011). However, this sanction is limited by the fact that many DUI offenders choose to remain SR rather than install IIDs (DeYoung et al., 2005; Elder et al., 2011). Like other SR drivers, those who do not install IIDs likely continue to drive. Hence, the effectiveness of IID programs like the one in California is also undermined to the extent that these SR drivers are able to avoid detection because they present illegally-retained DL cards to law enforcement. A DL card scanning system with real-time driver record access could also help to identify drivers who are under IID restriction and who drive vehicles without the required device.

The findings of this study show that a list-based DL card scanning system can improve rates of detection of SR drivers, although it clearly has limitations and still allows many of these drivers to continue driving undetected. Future efforts should focus on methods to improve the detection of these drivers. Given the rapidly advancing availability and use by law enforcement of wireless and other technologies, the use of DL card scanning systems that allow real-time access to driver record databases such as CLETS at DUI/License checkpoints may be more promising for aiding identification and enforcement, and therefore, warrant further investigation.

Although the findings of this study indicate that a substantial percentage of SR drivers are able to avoid detection at DUI/License checkpoints, even with a list-based DL card scanning system, it is important to note that they also show that checkpoints do indeed result in the detection and, at least temporary, removal of large numbers of SR drivers from the road. Using identification card readers that can identify SR drivers in real-time has the potential to make these checkpoints even more effective.

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