

Compendium of Traffic Safety Research Projects 1985-2013



U.S. Department of Transportation
**National Highway Traffic Safety
Administration**



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16. Abstract <p>Through many name changes, from the Office of Program Development and Evaluation, the Office of Research and Evaluation, to the current, <i>Office of Behavioral Safety Research</i>, our focus has remained on improving the safety of drivers, occupants, pedestrians, and all road users. This office conducts studies, evaluations and projects that include laboratory research, field studies, national surveys, and analyses of observational and archival data. Our work over the past decades has significantly enhanced law enforcement strategies, strengthened community traffic safety programs, informed policy decisions, examined emerging issues, and helped to decrease lives lost to motor vehicle crashes.</p> <p>This compendium contains brief summaries of research on alcohol-involved driving, drug-involved driving, occupant protection (e.g., seat belts, and child safety seats), speed and other unsafe driving behaviors, motorcyclist safety, pedestrian and bicyclist safety, older driver safety, novice and young driver safety, fatigue and distraction, and emergency medical services.</p> <p>This document updates previous versions, both by adding entries since the previous version was released in 1996, and also adding two additional early years – 1985 and 1986. A new feature is that most of the entries in the electronic version of this document include hyperlinks directly to the listed reports.</p>			
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List of Abbreviations

ABIC	Alcohol Breath Ignition Controller
AIS	Abbreviated Injury Scale
ALR	Administrative License Revocation
ALS	Administrative License Suspension
AAMVA	American Association of Motor Vehicle Administrators
BAC	Blood Alcohol Concentration
BAIID	Breath Alcohol Ignition Interlock Devices
BAT	Breath Alcohol Testing
BIA	Bureau of Indian Affairs
BUA	Buckle up America
CAOD	Committee on Alcohol and Other Drugs
CIOT	Click It or Ticket
CPL	Conforming Products List
CSS	Child Safety Seats
DDMP	Drinking Driver Monitor Program
DEC	Drug Evaluation and Classification
DMV	Department of Motor Vehicles
DOT	Department of Transportation
DRC	Day Reporting Center
DRE	Drug Recognition Expert
DRI	Driver Risk Inventory
DUI	Driving Under the Influence
DWI	Driving While Intoxicated/Impaired
DWS	Driving While Driver's License is Suspended
ED	Emergency Department
EMS	Emergency Medical Service
FARS	Fatality Analysis Reporting System (previously Fatal Accident Reporting System)
FBI	Federal Bureau of Investigation
FHWA	Federal Highway Administration
g/dL	Grams per deciliter

GDL	Graduated Driver Licensing
GHB	Gamma-Hydroxybutyrate
GHSA	Governors Highway Safety Administration
HGN	Horizontal Gaze Nystagmus
HVE	High-visibility/ Highly Visible Enforcement
IEP	Impairment Estimation Procedure
ISP	Intensive Supervision Program
KABC	Injury code used for police accident reports: K-killed, A-incapacitating injury, B-non incapacitating evident injury, C-possible injury
LATCH	Lower Anchors and Tethers for Children
LSD	Lysergic acid diethylamide
MADD	Mothers Against Drunk Driving
MAST	Michigan Alcohol Screening Test
MDMA	Methylenedioxymethamphetamine
MIDRIS	Model Impaired Driving Records Information System
MVOSS	Motor Vehicle Occupant Safety Survey
MVC	Motor Vehicle Crash
NASS	National Automotive Sampling System
NCSDR	National Center on Sleep Disorders Research
NHSDA	National Household Survey on Drug Abuse
NHTSA	National Highway Traffic Safety Administration
NOPUS	National Occupant Protection Use Survey
NRS	National Roadside Survey
NTSBE	Nighttime Seat Belt Enforcement
NTIS	National Technical Information Service
NYCPD	New York City Police Department
OBSR	Office of Behavioral Safety Research
ODPR	Office of Driver and Pedestrian Research
OPDE	Office of Program Development and Evaluation
OP sTEP	Occupant Protection Special Traffic Enforcement Program
ORE	Office of Research and Evaluation
OUI	Operating Under the Influence of Intoxicants

OWI	Operating While Intoxicated
PAS	Passive Alcohol Sensing
PBT	Preliminary Breath Tester
PCB	Phencyclidine
PI&E	Public Information and Education
PSA	Public Service Announcement
PSU	Primary Sampling Unit
RID	Remove Intoxicated Drivers
RSP	Ride Service Programs
SADD	Students Against Driving Drunk
SALCE	Substance Abuse/Life Circumstance Evaluation
SBUL	Safety Belt Use Law
SFST	Standardized Field Sobriety Test
SHSO	State Highway Safety Office
sSTEP/ STEP	Special Traffic Enforcement Program
SLA	State Liquor Authority
TGT	Teams-Games-Tournaments
THC	delta-9-tetrahydrocannabinol
TSC	Transportation Systems Center
USDOT	U.S. Department of Transportation
VIP	Victim Impact Panel
WIP	Weekend Intervention Program

Introduction

Updated Annotated Bibliography of Traffic Safety Research Projects

Through many name changes, from the Office of Program Development and Evaluation, the Office of Research and Evaluation, to the current, *Office of Behavioral Safety Research* (OBSR), our focus has remained on improving the safety of drivers, occupants, pedestrians, and all road users. This office conducts studies, evaluations and projects that include laboratory research, field studies, national surveys, and analyses of observational and archival data. Our work over the past decades has significantly enhanced law enforcement strategies, strengthened community traffic safety programs, informed policy decisions, examined emerging issues, and helped to decrease lives lost to motor vehicle crashes.

This compendium contains brief summaries of over 500 studies and projects published by this office from 1985 to 2013. These published studies include research on:

- Alcohol-Involved Driving
- Drug-Involved Driving
- Occupant Protection (e.g., seat belts, and child safety seats)
- Speed and Other Unsafe Driving Behaviors
- Motorcyclist Safety
- Pedestrian and Bicyclist Safety
- Older Driver Safety
- Novice and Young Driver Safety
- Fatigue and Distraction
- Emergency Medical Services

There are a number of ways to access copies of the reports summarized in this Compendium:

As the electronic version of this compendium provides links to most of the reports, if you have an internet connection, simply click on the title to be connected to the full web-based report (in some cases the report itself will display, in other cases a description of the report will initially appear – in this case click on the URL link).

Many reports can also be accessed through our Behavioral Safety Research Library at <http://ntlsearch.bts.gov/repository/ntl/nhtsa/index.shtm>. This is a searchable electronic library of our office's reports. Newer studies can be found on NHTSA's website at <http://www.nhtsa.gov/Driving+Safety/Research+&+Evaluation>.

The National Technical Information Service (NTIS) maintains copies of most of our published reports. Contact NTIS at NTIS.gov or by calling 1-800-553-6847. There may be a fee to obtain a copy of a report.

I. Alcohol Impaired Driving

A) ALCOHOL IMPAIRMENT

Effects of Low Doses of Alcohol on Driving Related Skills: A Review of the Evidence

July 1988, DOT HS 807 280

A large-scale literature review was conducted on the effects of alcohol on driving skills. Evidence of impairment at blood alcohol concentrations (BACs) of .05 g/dL and higher was found with respect to reaction time, tracking, concentrated attention, divided attention, information processing, vision, perception, psychomotor performance and on various driver performance measures. In many of these functional areas, impairment was found to appear at BACs of .02 or .03. The study concluded there is no "safe" limit of BAC, other than zero, for driving-related skills.

AUTHOR: Herb Moskowitz, Christopher D. Robinson

Improving Understanding of Alcohol Impairment and BAC Levels and their Relationship to Highway Accidents

May 1989, DOT HS 807 433

This study analyzed attitudes of the judicial community, including judges, prosecutors and potential jurors, concerning alcohol's impairment of driving abilities. Based on the analyses, educational materials were developed to improve the judicial community's perceptions of these matters.

AUTHOR: SRA Technologies

Alcohol Limits for Drivers: A Report on the Effects of Alcohol and Expected Institutional Responses to New Limits

February 1991, DOT HS 807 692

This is the first of two reports in response to a congressional mandate to study the alcohol concentration at which a driver should be considered under the influence. Relevant findings from the work to date, as well as initial conclusions and recommendations, are presented. This report is based on a review of scientific literature on the influence of BAC' on driver performance and crashes, a review of existing legislation on BAC limits, and data collected on expected institutional response to alternative BAC limits - .08, .04, and .00 g/dL for the general driving public. The final report will take the information developed in all phases of this project and integrate present conclusions and recommendations regarding the setting of specific BAC limits.

NHTSA PROJECT MANAGER: Richard P. Compton

Driving Under the Influence: A Report to Congress on Alcohol Limits

October 1992, DOT HS 807 879

These two reports were prepared in response to a Congressional mandate to conduct a study to determine the blood alcohol concentration (BAC) at or above which an individual who was operating a motor vehicle should be considered to be driving under the influence. The reports discuss scientific literature on the influence of BAC on driver performance and crashes, review the existing BAC legislation, and discuss data on the expected institutional responses to alternative limits such as .08, .04, and .00 g/dL. The reports concluded that all states should consider adopting illegal per se laws at the .08 level for drivers aged 21 and older.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Monroe B. Snyder

A Review of the Literature on the Effects of Low Doses of Alcohol on Driving-Related Skills

January 2000, DOT HS 809 028

In 1988, NHTSA published "*Effects of Low Doses of Alcohol on Driving Related Skills: A Review of the Evidence.*" That report documented studies that found impairment at blood alcohol concentrations (BAC) of .02 to .08 in many behaviors related to driving. This literature review examined the research conducted since that report, including topics such as reaction time, tracking, divided attention, information processing, and psychomotor performance. Results showed that alcohol impairs some driving skills beginning with any significant departure from zero BAC. By BACs of .05 g/dL, the majority of the experimental studies examined reported significant impairment. By .08 g/dL, more than 94% of the reviewed studies showed impairment in the skills they measured.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Herb Moskowitz, Dary Fiorentino

Driver Characteristics and Impairment at Various BACs

August 2000, DOT HS 809 075

This project used alcohol-dosed subjects to experimentally determine the extent to which gender, age, and drinking frequency are associated with driving impairment. The extent of individual differences in driving impairment, and the relationship of driving impairment to the blood alcohol concentration (BAC) for each group tested were determined. Results showed that alcohol significantly impaired performance on some measures at all examined BACs from .02% to .10%. The magnitude of the impairment increased with increasing BAC.

NHTSA Project Manager: Paul Tremont

AUTHOR: Herbert Moskowitz, Marcelline Burns, Dary Fiorentino, A. Smiley, Paul Zador

Effects of Alcohol on Motorcycle Riding Skills

December 2007, DOT HS 810 877

This report describes a study designed to measure the effect of alcohol on a broad set of basic riding skills. Riding skills were assessed on a test track with task scenarios based on the Motorcycle Safety Foundation's training program. Performance was characterized in terms of riding strategy. The results showed that observable changes in motorcycle control and rider behavior as a result of alcohol intake indicate impairment. In general, intoxicated riders demonstrated longer response times and adopted larger tolerances leading to more task performance errors.

NHTSA Project Manager: Marvin M. Levy

Author: Janet I. Creaser, Nicholas J. Ward, Michael E. Rakauskas, E. Boer, Craig Shankwitz, F. Nardi

B) ALCOHOL IMPAIRED DRIVING: PROBLEM IDENTIFICATION

Alcohol and Highway Safety 1989: A Review of the State of Knowledge

March 1990, DOT HS 807 557

This report was the fourth in a series of NHTSA-sponsored reviews of this field, beginning in 1968 with a Report to Congress and subsequently updated in 1978 and 1985. The focus of this report was on new developments and trends in the field since the last review and covers documents published from January, 1983 through November, 1989. It deals with the entire spectrum of alcohol safety topics, from problem definition to problem solution. The report contains four chapters that deal respectively with the magnitude of the crash problem, the effects of alcohol on the human body and driving performance, characteristics of persons who drink and drive, and programs directed at reducing the incidence or consequences of drinking driving. The report's major conclusions and its recommendations for research are provided in an additional chapter. As part of the review, over 2,000 documents were identified and 756 were retained as references. Citations for these references are provided in two separate bibliographies.

NHTSA PROJECT MANAGER: Richard P. Compton

Drinking and Driving in the United States: The 1996 National Roadside Survey

January 2000, DOT HS 809 019

This was a jointly sponsored study with the Insurance Institute for Highway Safety to determine the proportion of drivers on the roads on Friday and Saturday nights impaired by alcohol. Previous national surveys were conducted in 1973 and 1986. In 1973, 13.7% of the drivers on roads on Friday and Saturday nights had blood alcohol concentrations (BACs) exceeding .05 g/dL with 5.1% at BACs greater than or equal to .10 BAC. In 1986, these proportions dropped significantly to 8.4% (BAC = .05+) and 3.2% (BAC = .10+). Compared to previous surveys, the 1996 survey showed further decreases to 7.7% (BAC = .05+) and 2.8% (BAC = .10+), but these were not significantly different from 1986. The proportion of drivers with any alcohol (BAC = .01+) decreased significantly from 36.1% in 1973 to 25.9% in 1986 to 16.9% in 1996.

NHTSA PROJECT MANAGER: Jim Fell

AUTHOR: Robert B. Voas, Wells, D. C. Lestina, A. Williams, M. Greene

Relative Risk of Fatal Crash Involvement by BAC, Age and Gender

April 2000, DOT HS 809 050

The objective of this study was to re-examine and refine estimates for alcohol-related relative risk of driver involvement in fatal crashes by age and gender as a function of blood alcohol concentration (BAC) using recent data. This study, based on Fatality Analysis Reporting System (FARS) data used logistic regression methods to estimate age and gender specific relative risk of fatal crash involvement as a function of the BAC of fatally-injured and surviving drivers. Findings showed the relative risk of involvement in a fatal passenger vehicle crash increased steadily with increasing driver BAC in every age and gender group among both fatally-injured and surviving drivers.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Paul L. Zador, S. A. Krawchuk, Robert B. Voas

Ethnicity and Alcohol-Related Fatalities: 1990 to 1994

June 2000, DOT HS 809 068

This study compared the percentage of each ethnic group's fatal crashes that were alcohol-related. The comparison showed that Caucasian Americans, African Americans, and Hispanic Americans had approximately the same proportion of alcohol-related fatalities, while Native Americans and Asian-Pacific Islanders had higher and lower alcohol-related fatalities, respectively. Among drivers over 40 years, African Americana drivers and pedestrians tended to have higher percentages of alcohol-related fatalities than Caucasian Americans.

AUTHOR: Robert B. Voas, A. Scott Tippetts, Deborah A. Fisher

Drinking and Driving Trips, Stops by the Police, and Arrests: Analyses of the 1995 Survey of Drinking and Driving Attitudes and Behaviors

December 2001, DOT HS 809 184

This report described an analysis of the 1995 NHTSA survey data to assess self-reported drinking and driving prevalence using two key definitions -- driving within 2 hours of drinking alcohol and driving over the legal blood alcohol concentration (BAC) limit. Using FBI crime reports, this report also presented national estimates on drink-driving arrest rates.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

Author: Paul Zador, Sheila Krawchuk, Brent Moore

Determination of Characteristics of Fatally Injured Drivers

December 2001; DOT HS 809 380

This study used data from the 1993 National Mortality Followback Survey, linked with Fatality Analysis Reporting System data, the 1996 National Roadside Survey and the 1993 National Survey of Drinking and Driving Attitudes and Behavior to estimate driver risk of fatal crashes based on driver characteristics. Results showed that the risk of being killed in a single-vehicle crash was about 3 times as great for drivers who drink and drive at least weekly. Drivers with Blood Alcohol Concentrations (BAC) of 0.10% or higher are 64 times as likely as those with BACs under 0.05% to be in a crash in which they are killed; drivers who do not use lap or shoulder belts are about 13 times as likely to be in a fatal crash as drivers who wear both lap and shoulder belts. The study concluded that alcohol and seat belt use are the strongest predictors of drivers' risk of involvement in crashes in which they are killed.

AUTHOR: Susan P. Baker, Li-Hui Chen

Crash Risk of Alcohol-Involved Driving

September 2005

A case-control study was conducted in Long Beach, California and Fort Lauderdale, Florida to examine the relative crash risk associated with drivers' blood alcohol concentrations (BACs). Data were obtained for drivers involved in 2,871 crashes of all severities. Two control drivers for each crash driver were sampled a week after the crash at the same location, on the same day of the week and at the same time of day. For both groups of drivers, a research team recorded observations, administered a brief questionnaire and obtained breath specimens for BAC measurements. Statistically significant risk occurred at .04 BAC g/dL and small, non-significant elevations occurred at BACs closer to zero. Relative risk models were also produced for age groups and alcohol consumption levels.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Richard D. Blomberg, Raymond C. Peck, Herbert Moskowitz, Marcelline Burns, Dary Fiorentino

Pilot Test of New Roadside Survey Methodology for Impaired Driving

January 2007, DOT HS 810 704

National Roadside Surveys collected breath samples from drivers to determine the prevalence of alcohol-positive drivers. This study developed and tested procedures to also estimate the prevalence of drug-positive driving, through the collection and analysis of oral fluid and blood samples from the nighttime weekend driving population. The findings indicated that this form of expanded roadside survey was feasible in the United States.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Tara Kelley-Baker, Debra Furr-Holden, Katharine Brainard, and Christine Moore

2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Methodology

December 2009, DOT HS 811 237

[see also [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results](#) December 2009, DOT HS 811 248; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Drug Results](#), December 2009, DOT HS 811 249; Results of the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers, Research Note, July 2009, DOT HS 811 175]

This report presented the methodology from the 2007 National Roadside Survey of Alcohol and Drug Use. Over 9,000 randomly-selected on-road drivers participated. Data was collected across 60 sites representative of the U.S. Drivers were requested to provide breath, oral fluid, and blood samples. Lab analyses were then conducted to determine the prevalence of alcohol- and drug-positive drivers in the U.S.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Tara Kelley-Baker, Debra Furr-Holden, Robert Voas, Christine Moore, Katharine Brainard, A. Scott Tippetts, Eduardo Ramirez, Pedro Torres, and Amy Berning

2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results

December 2009, DOT HS 811 248

[see also 2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Methodology, December 2009, DOT HS 811 237; 2007 National Roadside Survey of Alcohol and Drug use by Drivers: Drug Results, December 2007, DOT HS 811 249; Results of the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers, Research Note, July 2009, DOT HS 811 175]

This report presented results from the 2007 National Roadside Survey of Alcohol and Drug Use. Over 9,000 randomly-selected on-road drivers participated. Data was collected across 60 sites representative of the U.S. Breath test results indicated a continued downward trend in alcohol-positive of drivers on weekends.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Tara Kelley-Baker, Debra Furr-Holden, Robert B. Voas, Eduardo Romano, Pedro Torres, A. Scott Tippetts, Anthony Ramirez, Katharine Brainard, Amy Berning

Results of the 2007 National Roadside Survey of Alcohol and Drug use by Drivers: Research Note

July 2009, DOT HS 811 175

[see also [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Methodology](#), December 2009, DOT H 811 237; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results](#), December 2009, DOT HS 811 248; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Drug Results](#), December 2009, DOT HS 811 249]

National Roadside Surveys have been conducted approximately every 10 years since 1973 to estimate the prevalence of alcohol-positive driving on US roads. The methodology of the 2007 survey was enhanced to also, for the first time, estimate the prevalence of drug-positive drivers. This Research Note summarizes the results from survey. Over 9,000 randomly-selected on-road drivers participated, and data was collected across 60 sites representative of the US. There was a downward trend in alcohol-positive drivers from past decades. Using the combined results of either or both oral fluid and blood tests, 16.3% of the nighttime drivers were drug-positive.

AUTHOR: Richard Compton, Amy Berning

C) DRINKING-DRIVING LEGISLATION

Drunk Driving Laws and Enforcement: An Assessment of Effectiveness

February 1986, DOT HS 807 348

This monograph reviewed sanctions and enforcement techniques that are applied through the legal system in an effort to reduce the incidence of drunk driving.

AUTHOR: American Bar Association: Section of Criminal Justice

Alcohol Beverage Server Liability and the Reduction of Alcohol-Related Problems: Evaluation of Dram Shop Laws

June 1990; DOT HS 807 628: Summary Report

June 1990, DOT HS 807 629: Final Report

This project was an evaluation of the potential for legal liability of alcoholic beverage servers to stimulate preventative serving practices and thus reduce alcohol-related traffic crashes. The study found that in states with higher liability exposure for servers, there was more publicity about such liability, greater awareness and concern among licensed establishment owner/managers, and differential serving practices in comparison to states with low liability. Time series analysis in one state, Texas, which had experienced a dramatic change in server liability and significant accompanying publicity, had a significant drop in alcohol-related crashes.

NHTSA PROJECT MANAGER: Richard Compton

AUTHOR: H. Holder, A. Wagenaar, R. Saltz, J. Mosher, K. Janes

An Assessment of the Effects of Implementing and Publishing Administrative License Revocation for DWI in Nevada

April 1990; DOT HS 807 600

This report summarized the effects of publicizing administrative license revocation for driving while intoxicated (DWI) in Nevada. The law calls for confiscation of the driver's license at the time of arrest for drivers whose chemical test results are at or above an alcohol concentration of .10 g/dL blood alcohol concentration (BAC), or who refuse to submit to a chemical test. Results showed a significant reduction in alcohol-related and nighttime crashes at the time the overall public information and enforcement campaign was fully implemented. Alcohol-related crashes were reduced by 12%.

AUTHOR: John H. Lacey, J. Richard Stewart, Lauren M. Marchetti, Ralph K. Jones

The Effects Following Implementation of .08 BAC Limit and Administrative Per Se in California

August 1991, DOT HS 807 777

This project examined the effects of lowering the illegal blood alcohol concentration (BAC) limit from .10 g/dL to .08, and implementing an administrative per se law in California. The two new laws, and the associated publicity, reduced the number of expected alcohol-related fatalities by 12% in 1990. The police and courts required only minimal changes to accommodate the .08 law.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Research and Evaluation Associates

Implied Consent Refusal Impact

September 1991, DOT HS 807 765

The study examined the rates at which driving while intoxicated (DWI) arrestees in all states refuse to submit to a chemical test to determine how effective the implied consent laws are in encouraging test submissions, and to assess the impact of refusals on DWI enforcement and adjudication. The study concluded that there was a potential test refusal problem in much of the nation. On average, about one arrestee in five (19%), refused the test. But refusal rate varied widely among states, from a low of 2% (in Hawaii) to a high of 71% (Rhode Island). The study recommended strong traffic law system action against refusers to include criminal sanctions for some hard core refusers.

AUTHOR: Ralph K. Jones, Hans C. Joksch, Connie H. Wiliszowski

Lower BAC Limits for Youth: Evaluation of the Maryland .02 Law: Summary

March 1992, DOT HS 807 859

This project studied the impact of new lower blood alcohol concentration (BAC) limit legislation for drivers under 21, coupled with special publicity emphasizing penalties. Implementation of the law was associated with a significant reduction in young crash-involved drivers judged to have been drinking. The study further found that the public information and education campaign enhanced the effect.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Richard D. Blomberg

Lower BAC Limits for Youth: Evaluation of the Maryland .02 Law

March 1992, DOT HS 807 860

This study examined the effects of special drinking driving sanctions aimed at youthful drivers under the age of 21 years. This purpose was accomplished by focusing on a Maryland law which restricted driving by those under 21 to a blood alcohol concentration (BAC) less than 0.02% rather than the 0.10% prevailing limit for older drivers. The specific objectives were to: 1) evaluate the impact of adoption of the sanction; 2) mount a public information and education (PI&E) campaign in selected counties to attempt to potentiate the effects of the sanction; and 3) evaluate any added benefit of the, PI&E. Crash data were used statewide and in six experimental counties.

AUTHOR: Richard D. Blomberg

Effectiveness of the Ohio Vehicle Action and Administrative License Suspension Laws

January 2000, DOT HS 809 000

This study evaluated the simultaneous implementation of an administrative license suspension (ALS) law and a vehicle immobilization law in Ohio to reduce impaired driving. The full driving record of every operator with a DUI conviction was analyzed. The results indicated that following the implementation of the vehicle action law, there were fewer DUI offenses committed by multiple DUI offenders. Evaluation of the ALS law indicated that it increased the proportion of first offenders receiving a license suspension from 60% to 99%, and the proportion of second offenders suspended from 85% to 99%.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Robert B. Voas, A. Scott Tippetts, Eileen Taylor

Evaluation of New Mexico's Anti-DWI Efforts

February 2000, DOT HS 809 024

This study examined the effects of New Mexico's omnibus anti-driving while intoxicated (DWI) legislation of 1993-1994, combined with a strong sobriety checkpoint program. Although the specific effects of each individual component of the effort could not be determined because of multiple simultaneous interventions, time series analyses indicated a 19% reduction in drunk driving fatal crashes.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: John H. Lacey, Ralph K. Jones

On DWI Laws in Other Countries

March 2000, DOT HS 809 037

This report provides information on drinking and driving laws and sanctions in many countries, including Australia, Canada, France, Sweden, the United Kingdom, and the United States. The report included information on illegal blood alcohol concentration (BAC) levels, minimum purchase age for alcohol, age of driving licensure, standard sanctions for first offenses and for multiple offenses, the imposition of more severe sanctions for drivers with higher BACs, graduated licensing systems, and systems for the re-granting of licenses. Additionally, social attitudes about drinking and driving were discussed.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: Kathryn Stewart

Zero Tolerance for Youth - Four States' Experience

June 2000, DOT HS 809 053

Zero tolerance laws prohibit alcohol in a driver under the age of 21. As of June 1998, all states and the District of Columbia had set a blood alcohol concentration (BAC) limit of .02 g/dL or lower for drivers under the age of 21. The exact limit varies by state. This project examined the effect of zero tolerance laws on alcohol-related crashes and fatalities in Maine, Oregon, Florida, and Texas. The project also examined obstacles in implementing and enforcing the laws and identified possible solutions and strategies for improvement. The study indicated that when there are strong laws and enforcement, there can be a decrease in youth crashes.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Ralph K. Jones, Connie H. Wiliszowski

Effectiveness of the Illinois .08 Law

December 2000, DOT HS 809 186

This report presented the effect of Illinois' .08 g/dL per se blood alcohol concentration (BAC) law passed in 1997, on alcohol-related crashes and the criminal justice system in the State. The main objectives of the study were to determine the awareness of the .08 law, and its effect on the number of drinking drivers in crashes. Results indicated that the number of drivers in fatal crashes with positive BACs in Illinois decreased by 13.7% after implementation of the law, with little impact on the operation of the criminal justice or the drivers licensing systems.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Robert B. Voas, Eileen Taylor, Tara Kelley-Baker, A. Scott Tippetts

Evaluation of Enhanced Sanctions for Higher BACs: Summary of States' Laws

March 2001, DOT HS 809 215

Many states have a statute, regulation, or rule that provides for additional or more severe sanction for driving while intoxicated (DWI) offenders with a "high" blood alcohol concentration (BAC). States vary in terms of the high-BAC threshold, which ranges from .15 g/dL to .20, and the types, severity, and complexity of sanctions. This report summarized each state's law.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Anne T. McCartt

Evaluation of "Use and Lose" Laws

June 2001, DOT HS 809 285

The objective of this study was to determine the highway safety effects of Use and Lose laws in terms of subsequent motor vehicle crashes and arrest for alcohol and drug violations. "Use and Lose" means that if you use alcohol or other drugs, you will lose your license. The study was conducted in Missouri and Pennsylvania. For Missouri, the results indicated that license suspension was not applied as often as in cases with driving while intoxicated (DWI) arrests. On the other hand, in Pennsylvania, license suspension for non-DWI arrests was more common. License suspension was recommended for the high-risk youthful drivers.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Robert G. Ulmer, V.I. Shabanova, David F. Preusser

Legislative History of .08 Per Se Laws

July 2001, DOT HS 809 286

This study examined the strategies used to pass .08 g/dL blood alcohol concentration (BAC) legislation in four states. The report noted the problems that were faced and how obstacles were overcome. The study also looked at two states that attempted, but were not able (at the time of the study), to pass .08 laws.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Carlos Rodriguez-Iglesias, Connie H. Wiliszowski, John H. Lacey

Effectiveness of the Illinois .08 Law: An Update with 1999 FARS Data

December 2001, DOT HS 809 382

In December 2000, NHTSA published a report on the effectiveness of the .08 g/dL blood alcohol concentration (BAC) law implemented by Illinois in 1997. That report covered data from the Fatality Analysis Reporting System (FARS) through 1998. It indicated that there was evidence that the .08 law reduced the number of drinking drivers in fatal crashes by 13.7%. This study updated the results, using additional months of data. The result, using a covariate analysis over a 30-month period, affirmed the positive effects of the law.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Robert B. Voas, A. Scott Tippetts, Eileen Taylor

Evaluation of Open Container Legislation

April 2002, DOT HS 809 426

This study examined the highway safety impact of laws that prohibit open containers of alcoholic beverages in the passenger compartment of motor vehicles, commonly referred to as “Open Container Laws.” Analysis of data obtained from four States showed a decline in proportions of alcohol related fatal crashes in three of the four states examined.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: Jack Stuster, Marcelline Burns, Dary Fiorentino

Enhanced Sanctions for Higher BACs: Evaluation of Minnesota's High-BAC Law

May 2004, DOT HS 809 677

This report presented the results the systematic examination of the implementation and effects of Minnesota’s high blood alcohol concentration (BAC) sanctioning system. Data on alcohol test results, case dispositions, and recidivism were obtained from the state’s driver license files, and interviews were conducted with experts on Minnesota’s driving while intoxicated (DWI) laws and practices. Minnesota’s law appears to have been successful in increasing the severity of case dispositions for high-BAC offenders, although the severity declined over time. There also was evidence of an initial effect on recidivism among high-BAC first offenders.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Anne T. McCartt, Veronika S. Northrup

Evaluation of Lower BAC Limits for Convicted OUI Offenders in Maine

December 2004, DOT HS 809 827

This study evaluated the effectiveness of a lower blood alcohol concentration (BAC) limit for drivers convicted of operating under the influence of intoxicants (OUI) in Maine. The law made it illegal for an OUI offender to drive with any amount of alcohol in the blood. The evaluation included a process evaluation of the law's effect on the State's traffic law enforcement efforts, and an impact evaluation of the law's effect on OUI recidivism and traffic crashes. The study found the law had little effect on OUI enforcement processes or resource requirements, but contributed to a reduction of convicted OUI offenders in fatal crashes in general, and in alcohol-related fatal crashes in particular.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, Carlos Rodriguez-Iglesias

D) DWI DETECTION, INVESTIGATION, AND ENFORCEMENT

Pilot Test of Selected DWI Detection Procedures for Use at Sobriety Checkpoints

April 1985, DOT HS 806 724

This study was designed to evaluate a variety of potential screening procedures police officers could use at sobriety checkpoints to discriminate between impaired and sober drivers. The potential checkpoint screening procedures examined included the horizontal gaze nystagmus test, observations of driving and stopping behavior, the driver's personal appearance, a divided attention task, and a passive alcohol sensor. The study showed that police officers were able to identify impaired drivers using the horizontal gaze nystagmus test along with their standard procedure, and that the passive sensor, divided attention task, and observations of the driver's personal appearance were useful tools in identifying drinking drivers.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Richard P. Compton

Evaluation of Charlottesville Checkpoint Operations

May 1985, DOT HS 806 989

From December 30, 1983 to December 31, 1984 the Charlottesville Police Department implemented a driver's license and sobriety checkpoint program. During this period, 94 checkpoint operations were conducted. 23,615 cars were stopped and 1% (290) of the drivers was arrested for Driving While Impaired (DWI). Phone surveys of Charlottesville drivers demonstrated that over 95 percent of the drivers at risk (those who drank and also drove at night) were aware of the program. A 13% reduction in alcohol-related crashes provided evidence that the checkpoint program was effective.

AUTHOR: Robert B. Voas, Eugene Rhodenizer, Cheryl Lynn

Laboratory Testing of Two Prototype In-Vehicle Breath Test Devices

August 1985, DOT HS 806 821

This report presents the results of laboratory testing of two recently developed prototype in-vehicle breath test devices. These devices were designed to prevent persons with alcohol on their breath from driving a car. The devices tested were the Soberlyzer and the Alcohol Breath Ignition Controller (A.B.I.C.). In addition to alcohol sensors, these devices had features to determine whether the sample was a true breath sample. The Soberlyzer had a temperature sensor designed to check whether the sample being introduced was the same temperature as human breath. The A.B.I.C. had a pressure switch designed to check whether the force activating the system was as strong as human breath.

PROJECT MANAGER: Various

AUTHOR: James F. Frank

The Likelihood of Acetone Interference in Breath Alcohol Measurement

September 1985, DOT HS 806 922

This report dealt with the possibility of acetone interference in breath alcohol measurements. The researchers reviewed more than 28,000 driving while impaired (DWI) arrest reports to evaluate the incidence of measurable levels of acetone on the breath of DWI arrestees; it reviewed the medical literature to determine the reported levels of acetone on the breath of diabetic and dieting patients; and it determined the acetone concentration required to produce minimal blood alcohol concentration (BAC) readings on the few commercially available breath test devices that cannot distinguish acetone from ethanol. The report concluded that the issue of acetone presence in breath alcohol testing has no practical significance in traffic law enforcement.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Arthur L. Flores, James F. Frank

Workshop on In-Vehicle Alcohol Test Devices

September 1986, DOT HS 807 145

This brief report described a one-day workshop on in-vehicle alcohol test devices held on September 17, 1986 in Washington, DC. This was the first such workshop bringing together manufacturers, legislators, researchers, safety-related program personnel and the public to learn about the developments to-date about in-vehicle alcohol test devices. The report described the topics covered and included a list of attendees.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Monroe B. Snyder

Laboratory Testing of Alcoscan Saliva-Alcohol Test Strips

October 1986, DOT HS 807 059

This report described a 1986 laboratory evaluation of Alcoscan saliva-alcohol test strips. Precision and accuracy testing and performance testing were conducted under extreme ambient temperatures in a laboratory. The high variability in blood alcohol concentration (BAC) estimates, coupled with a high proportion of false positives, suggested that the technology was not satisfactory for screening purposes in traffic law enforcement. The utility of the device, even for private citizens, was also questioned. [Note: Alcoscan is no longer available on the market].

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: James F. Frank, Arthur L. Flores

Enforcement and Public Information Strategies for DWI General Deterrence: Arrest Drunk Driving

December 1986, DOT HS 807 066

This project studied the impact of comprehensive enforcement programs, employing checkpoints, special squads, Preliminary Breath Testers (PBTs), etc. on public perception of the risk of being caught, and alcohol-related crash involvement. Findings indicated that intensified public information and sustained command emphasis were necessary to maximize effectiveness. Programs implemented in Clearwater and Largo, Florida proved especially effective.

NHTSA PROJECT MANAGER: no info

AUTHOR: John H. Lacey, Lauren M. Marchetti, J. R. Stewart, Carol L. Popkin, Peter V. Murphy

**Evaluation of Innovative State and Community Alcohol Projects:
Breath Alcohol Testing Program Effectiveness, Impact and Transferability**

March 1987, DOT HS 807 124

Breath Alcohol Testing (BAT) programs in Albuquerque and Santa Fe, New Mexico were evaluated in regard to effectiveness, impact, and transferability of the special driving while intoxicated (DWI) enforcement squads and their use of BAT Mobiles. Squad activity effectiveness was measured by using DWI arrests.

AUTHOR: Brian D. Woods

**Enforcement and Public Information Strategies for DWI General Deterrence:
The Boise City, Idaho Experience**

August 1987, DOT HS 807 191

The report summarized the results of a field test in Boise, Idaho to implement a driving while intoxicated (DWI) general deterrence program, by combining enforcement with public information and education to heighten public awareness of the enforcement. The intent was to increase the public's perceived risk of arrest for DWI, and thus deter people from drinking and driving.

NHTSA PROJECT MANAGER: Maria Vegega, Richard P. Compton, Ted Anderson

AUTHOR: John H. Lacey, Lauren M. Marchetti, J. R. Stewart, Carol L. Popkin, Peter V. Murphy

Potential for Application of Corneal Retinal Potential Measurements to Detect Alcohol and Drug Use: A Report to Congress

May 1988, DOT HS 807 282

In response to Congress, NHTSA undertook a test of a new alcohol and drug testing technology - one which measured and interpreted the "corneal retinal potential," an electrical field created by the body's visual system. These electrical signals may be a tool for identifying persons under the influence of alcohol and drugs -- the rationale being that the substances affect the balance system, which might be reflected in corneal retinal potentials. The new technology resided in a single commercial device which experienced a lapse in its developmental schedule during the NHTSA review, thus preventing actual testing in time for the report. Review of existing evidence suggested that a device could be developed as an indicator of drug use, although many hurdles exist before it could be a useful tool for traffic law enforcement.

NHTSA PROJECT MANAGER: Alfred J. Farina

AUTHOR: Alfred J. Farina

Second Workshop on In-Vehicle Alcohol Test Devices

April 1988, DOT HS 807 299

This brief report described a second one-day workshop on new developments in the state of the art of in-vehicle alcohol test devices. The workshop was held in Washington, D.C. on October 14, 1987. The purpose of the workshop was to serve as an opportunity for information exchange about recent developments in State and local applications of this technology. More than seventy people from outside the Federal government attended, representing a wide range of interests, perspectives and knowledge. The workshop covered five topic areas: legislation and on-going programs, recent and new developments in devices, certification testing for new devices, on-going and planned field evaluation research, and information needs and methods for exchange. The report highlighted the one-day workshop and includes a list of the attendees.

Laboratory Evaluation of Two Passive Alcohol Sensor Devices

December 1988, DOT HS 807 394

"Passive" alcohol sensing (PAS) devices are designed to detect the presence of alcohol in a person's normally-expelled breath, that is, one is not required to blow into a mouthpiece as with conventional breath test devices. NHTSA tested two devices (Lion Alcolmeter PAS, and a modified version of the Alcolmeter, the P.A.S.) in laboratory studies. Each device was able to discriminate among differing alcohol air samples to a useful degree under laboratory conditions. Testing confirmed the need for strict adherence to recommended operating procedures regarding storage temperatures, avoidance of crosswinds, and proper measurement distance. However, the laboratory conditions do not reflect all the factors relevant to use of these devices under operational conditions.

NHTSA PROJECT MANAGER: Alfred J. Farina

AUTHOR: Alfred J. Farina

Enforcement and Public Information Strategies for DWI Deterrence: The Indianapolis, Indiana Experience

July 1988, DOT HS 807 434

This report summarized a field test in Indianapolis, Indiana to achieve Driving While Impaired (DWI) general deterrence by combining enforcement efforts with public information and education. The goal of the project was to increase the public's perceived risk of arrest for DWI, deter them from DWI, and decrease alcohol-related crashes. Data indicated heightened awareness of DWI enforcement, increased perceived risk of arrest, and a reduction in reported drinking and driving. However, the data did not show a reduction in police reported alcohol-related crashes attributable to the program.

NHTSA PROJECT MANAGER: Ted Anderson

AUTHOR: John H. Lacey, Lauren M. Marchetti, J. R. Stewart; Carol L. Popkin, Peter V. Murphy, Roy E. Lucke, Ralph. K. Jones, Paul A. Ruschmann

The Accuracy of Evidentiary Breath Testers at Low BACs

May 1989, DOT HS 807 415

Seven evidentiary breath testers widely used by law enforcement were subjected to laboratory testing. The study found the devices were just as accurate in the blood alcohol concentration (BAC) range from .02 g/dL to .04 as they were when tested at .05, .10 and .15.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: James F. Frank, Arthur L. Flores

Combining Enforcement and Public Information to Deter DWI: The Experience of Three Communities

April 1990, DOT HS 807 601

The objective of this project was to determine whether deterrence of driving while intoxicated (DWI) can be achieved through combining DWI enforcement techniques with public information and education (PI&E). The project tested this approach in three sites. The overall conclusion gathered from the studies was that general deterrence of DWI as measured by crash involvement can be achieved through combining innovative DWI enforcement techniques with PI&E activities specifically designed to support those efforts.

NHTSA PROJECT MANAGER: Ted Anderson

AUTHOR: John H. Lacey, Lauren. M. Marchetti, J. R. Stewart, Peter V. Murphy, Ralph K. Jones

Assessment of Changes in DWI Enforcement Level

January 1991, DOT HS 807 690

This report summarized the long-term experience of six law enforcement agencies with enforcement programs coupled with public information and education designed to deter driving while intoxicated (DWI). In each community, DWI enforcement activity increased greatly with the advent of specially funded programs. In three sites, arrests went down after funding ceased but remained well above pre-program levels; in one site, arrest volume regressed to below pre-program levels. The other two sites sought and received additional enforcement funding and were able to maintain a high arrest rate.

AUTHOR: John H. Lacey, Ralph K. Jones

The Deterrent Capability of Sobriety Checkpoints: Summary of American Literature

March 1992, DOT HS 807 862

This report evaluated the scientific evidence of the deterrent effectiveness of sobriety checkpoints in the United States as of 1992. Concerns about the constitutionality of checkpoint procedures initially limited the number of checkpoint programs. Although due to methodological problems no single study was convincing, collectively there was strong support that sobriety checkpoints can deter impaired driving. A review of foreign experience also supported this experience.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: H. Laurence Ross

Laboratory Testing of a Saliva-Alcohol Test Device by Enzymatics, Inc.

December 1992, DOT HS 807 893

This study examined the accuracy of a new saliva-alcohol test device (Enzymatic, Inc. "Q.E.D.-A150") at nine different blood alcohol concentration (BAC) levels under three temperature conditions. The findings indicated that this device appears to provide a useful means for estimating BACs from saliva samples for screening purposes. The report did not address issues related to collection of saliva samples or police field use of the devices, such as how much saliva is sufficient for a test, possible health and safety concerns for a suspect or an officer, or liability concerns for an agency using the device and police training requirements. Such issues must be considered prior to reaching a conclusion regarding the practical utility and application of the device. [Subsequent to publication of this report, the device was retested by NHTSA and was listed on the Conforming Products List of devices meeting NHTSA's 1993 model specifications for alcohol screening devices.]

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Arthur L. Flores, Arnold Spicer, James F. Frank

Reasons for Non-Use of Sobriety Checkpoints

January 1993, DOT HS 807 918

This article was an examination of existing attitudes towards the use and non-use of sobriety checkpoints. It discussed topics such as measures of success, resources, public relations, judicial norms and their relation to the implementation of sobriety checkpoints.

AUTHOR: H. Laurence Ross

Obstacles to Enforcement of Youthful (Under21) Impaired Driving

February 1992, DOT HS 808 878

Young drivers have long been recognized as being overrepresented in alcohol-related motor vehicle crashes. However, analyses of DWI arrest data have indicated that young people are arrested less frequently than would be expected from the rate of their involvement in alcohol-related crashes. This study examined: 1) national, State and selected local arrest rates to determine if disparities exist between adult and youth rates; 2) if disparities were found, to identify the reasons for low rates and the obstacles to enforcement that may exist; and 3) to identify model programs and strategies to overcome enforcement obstacles. It was found that young drivers are being arrested for DWI at rates below their incidence in alcohol-related driver fatal crashes, roadside survey data and non-fatal alcohol-related crashes. Among the obstacles to youth DWI enforcement were: differences between the places where young people tend to drink and drive and where DWI enforcement resources tend to be deployed; the overwhelming effect on enforcement of concentrations of youthful drinking driving in terms of time of occurrence and large numbers at parties and youth-oriented events; impaired driving cues exhibited by youth which may differ from those of older drivers; and the problematic nature of the prosecution of low BAC cases.. Several programs to overcome enforcement obstacles arc documented. A method for assessing youthful DWI enforcement is described.

AUTHOR: David F. Preusser, Robert G. Ulmer, C. W. Preusser

Detection of DWI Motorcyclists

March 1993, DOT HS 807 839

This project identified and validated fourteen good (probability 30%-49%) and excellent (50% or more) visual cues of driving while intoxicated (DWI) motorcyclists. Among the best cues are drifting during a curve or turn, having trouble with dismount, and having trouble with balance at a stop.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Jack W. Stuster

The BAC Estimator

1994, NTIS PB95-501938

"The BAC Estimator" is a computer program developed by NHTSA. The program estimates blood alcohol concentration (BAC) based on a person's weight, gender, number of drinks consumed, and time over which drinking occurred. The program can be used by anyone with access to an IBM-compatible personal computer. The program is available on disk from the [National Technical Information Service](#).

Field Test of Combined Speed, Alcohol, and Safety Belt Enforcement Programs

March 1995, [DOT HS 808 242](#); [DOT HS 808 243](#); [DOT HS 808 244](#); [DOT HS 909 245](#)

The purpose of this project was to determine the effectiveness of a combined enforcement program that focused on speed, alcohol, and safety belts. Well-publicized campaigns were implemented in three test communities. The results indicated that combined enforcement programs need to maintain high levels of enforcement and publicity to be successful. DOT HS 808 242 is a summary report, DOT HS 808 243 is a site report for Knoxville, Tennessee; DOT HS 808 244 is a site report for Wichita, Kansas; and DOT HS 909 245 is a site report for Lexington, Kentucky.

NHTSA PROJECT MANAGER: Ted Anderson

AUTHOR: Ralph Jones, Hans Joksch, John H. Lacey, Connie H. Wiliszowski, Lauren Marchetti

Experimental Evaluation of Sobriety Checkpoint Programs

June 1995, DOT HS 808 287

This project studied the comparative effectiveness of well-publicized sobriety checkpoint programs differing in assigned staffing levels, and deployment strategies, and compared these checkpoint programs with a program of publicized roving patrols and with a control site. The checkpoint programs as a whole reduced alcohol-involved crashes, compared to the roving patrol program and compared to the control site. Checkpoint program effectiveness did not appear to vary with staff size or deployment strategy (mobility) within the ranges tested in the study.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: Jack W. Stuster, Paul A. Blowers

Effectiveness of Passive Alcohol Sensors

March 1996, DOT HS 808 381

A field study was conducted to evaluate three Passive Alcohol Sensor (PAS) models in both routine police and special driving while intoxicated (DWI) patrols to detect youthful drinking drivers. The study documented operational strengths and weaknesses of each model, law enforcement officer attitudes toward their use, and differences in DWI adjudication rates that result from their use. Sites were selected in three states (Arizona, New Jersey, and Tennessee) that have low or zero blood alcohol concentration (BAC) laws for drivers ages 21 and under. Each law enforcement agency used each passive sensor for 2 months, for a total of 6 months of field data collection.

NHTSA PROJECT MANAGER: Linda A. Cosgrove

AUTHOR: William A. Leaf, David F. Preusser

In-Vehicle Videotaping of DWI Suspects (Driving While Intoxicated)

July 1996, DOT HS 808 427

This booklet summarized information collected from 68 police departments in 13 states that used in-vehicle videotaping in their impaired driving enforcement efforts. It described the different types of equipment used in police vehicles and the most frequent equipment problems. From a law enforcement officer's point of view, it ranked the advantages and disadvantages of videotaping and tied these into advice offered by prosecutors.

NHTSA PROJECT MANAGER: Linda Cosgrove

The Detection of DWIs at BACs Below 0.10

September 1997, DOT HS 808 654

The objective of this research was to develop training materials to assist law enforcement officers in the accurate detection of motorists who are driving while impaired (DWI) at the .08 g/dL blood alcohol concentration (BAC) level. The analysis of archival, interview, arrest, and field data led to the identification of 34 driving cues and 10 post-stop cues for further evaluation. The results of the preliminary field study largely supported the 20 cues on the original NHTSA driving while intoxicated (DWI) detection guide (at .10 BAC) at the .08 BAC level, but found no cues that reliably predicted BACs below .08.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Jack W. Stuster

Problems and Solutions in DWI Enforcement Systems

January 1998; DOT HS 808 666

This study examined the driving while intoxicated (DWI) enforcement process from on-road detection, through the arrest process, to court proceedings, and sanctioning. The study included interviews with law enforcement officers, prosecutors, and judges across the country, and in-depth site visits to document various enforcement strategies. The purpose of the study was to identify loopholes in the enforcement system where offenders escape detection, arrest, conviction, or punishment, and to identify possible solutions.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, John H. Lacey, Connie H. Wiliszowski

Validation of the Standardized Field Sobriety Test Battery at BACs Below .10 Percent

August 1998, DOT HS 808 839

This study evaluated the accuracy of the Standardized Field Sobriety Test (SFST) battery to assist officers in making arrest decisions for DWI at blood alcohol concentrations (BACs) below .10 g/dL. NHTSA's SFST battery was validated at .10 BAC in 1981. The results of the study provided clear evidence of the validity of the SFST battery to discriminate at .08 percent BAC, using a slightly modified scoring procedure. Further, study results strongly suggest that the SFST also accurately discriminated at .04 percent BAC.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Jack W. Stuster, Marcelline Burns

An Evaluation of Checkpoint Tennessee: Tennessee's Statewide Sobriety Checkpoint Program

January 1999, DOT HS 808 841

This report documents the *Checkpoint Tennessee* program -- a statewide sobriety checkpoint program. In one year, Tennessee conducted almost 900 highly publicized driving while intoxicated (DWI) checkpoints, compared to the typical 10 to 15 that had been conducted in previous years. The study indicated a 20% reduction over the projected number of impaired driving fatal crashes what would have occurred with no intervention. This effect was still present 21 months after the initial year.

NHTSA PROJECT MANAGER: James C. Fell

AUTHOR: John H. Lacey, Ralph K. Jones, Randall G. Smith

Law Enforcement Use of Sobriety Checkpoints and Saturation Patrols

October 2001, DOT HS EPX 045

The purpose of this study was to collect information from law enforcement agencies across the United States on sobriety checkpoints and DUI saturation patrol activity. Eighty-four law enforcement agencies were contacted and participated in this assessment. This report presents the results with regard to law enforcement agencies' use of sobriety checkpoints and saturation patrols, community involvement, judicial involvement, media coverage, resources, data collection, and training.

NHTSA Project Manager: Amy Berning

Author: Randy Arthur

Evaluation of the Austin Police Department DWI Enforcement Unit

August 2003, DOT HS 809 641

This report presented the results of a study of the Austin, Texas Police Department driving while intoxicated (DWI) enforcement program. The program was designed to solve problems encountered in performing enforcement and adjudication functions of the DWI enforcement system. The results showed increases in the number of DWI arrests and in the DWI conviction rate. These improvements in system performance were likely responsible for a 25% reduction in drivers in alcohol-related fatal crashes. However, some of the attempted improvements were not realized. Overall, DWI processing times did not decrease and DWI arrests for general patrol units did not increase.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Connie W. Wiliszowski, Ralph K. Jones

Breath Test Refusal in DWI Enforcement: An Interim Report

August 2005, DOT HS 809 876

The objective of this study was to document the extent of the breath test refusal problem and to investigate the reasons for breath test refusals. Five case-study sites were selected to learn more about the causes for refusal. In all 5 case-study States, consequences of refusals were less for repeat offenders than the consequences of taking and failing the test. In an effort to reduce the refusal rates, State officials are encouraged to review their process for notifying suspects of both the administrative and criminal consequences of refusing to provide a breath sample.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Tom J. Zwicker, James Hedlund, V. S. Northrup

The Robustness of the Horizontal Gaze Nystagmus Test

September 2007, DOT HS 810 831

This report described three studies conducted to examine the effect of procedural variations in administration of the Horizontal Gaze Nystagmus (HGN) test on the test's validity. HGN was administered as part of the Standardized Field Sobriety Tests (SFSTs) to suspected alcohol-impaired drivers. Studies examined variations in stimulus speed and elevation, variations in the participants' positions (standing, sitting, lying down) and HGN administration to participants with vision limitations. The data demonstrated the validity of the HGN test with both standard and varied testing procedures.

NHTSA Project Manager: James F. Frank

AUTHOR: Marcelline Burns

Use of Warrants for Breath Test Refusal: Case Studies

October 2007, DOT HS 810 852

This report presented a series of case studies that investigated the use of warrants to obtain blood samples from drivers arrested for alcohol-impaired driving and who refuse to provide breath samples. Case studies, conducted in Arizona, Michigan, Oregon, and Utah, included interviews with state's law enforcement officers, prosecutors, defense attorneys, judges, and other public safety officials. The report also summarized and synthesized the information and conclusions from all case study States.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: James H. Hedlund, Douglas J. Beirness

Breath Test Refusals

November 2007, DOT HS 810 871

This Research Note provided an overview of the driving while impaired (DWI) arrest process including blood alcohol concentration (BAC) testing and presented data on breath test refusal rates, and discussed the use of warrants and blood draws as an effort to reduce their refusal rates.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Amy Berning, Douglas J. Beirness, James H. Hedlund, Ralph K. Jones

Evaluating Transdermal Alcohol Measuring Devices

November 2007, DOT HS 810 875

This report presented results of a study of two types of transdermal devices that detect alcohol at the skin surface, representing two types of electrochemical sensing technology. The AMS SCRAM™ ankle device and the Giner WrisTAS™ wrist device were worn concurrently for the evaluation by 22 paid research subjects for a combined total of 96 weeks. Both devices detected alcohol at the skin surface. Overall, the true-positive hit rate detected by WrisTAS™ was 24% whereas SCRAM™ correctly detected 57% across all blood alcohol concentration (BAC) events. The report further summarized comments from research subjects, offenders, and those managing transdermal detection programs.

NHTSA Project Manager: James Frank

AUTHOR: Paul R. Marques, A. Scott McKnight

Reducing Impaired-Driving Recidivism Using Advanced Vehicle-Based Alcohol Detection Systems: A Report to Congress

December 2007, DOT HS 810 876

This report to Congress reviewed vehicle-based alcohol detection systems, including in-vehicle breath sample analysis, tissue spectroscopy, transdermal perspiration measurement, eye movements, and alcohol vapor in the vehicle, driver and driving performance measurement. The report offered suggestions for potential next steps including increasing the use of breath alcohol ignition interlocks among driving while impaired (DWI) offenders, and continuing research and development on tissue spectroscopy and other transparent and non-invasive methods of measuring alcohol in drivers.

AUTHOR: Richard P. Compton, James H. Hedlund

The 2006 National Labor Day Impaired Driving Enforcement Crackdown: Drunk Driving. Over the Limit. Under Arrest

September 2008, DOT HS 811 039

This report summarized NHTSA's 2006 *Drunk Driving, Over the Limit, Under Arrest* Labor Day holiday campaign. This campaign was based on well-publicized and high-visibility enforcement. National telephone survey results indicated that the media effort reached the general public and the 18- to 34-year-old age group in particular. The 2006 Labor Day holiday campaign heightened awareness of law enforcement efforts to arrest intoxicated drivers. The total number of alcohol-related fatalities nationwide remained essentially unchanged in 2006 compared to 2005.

NHTSA PROJECT MANAGER: Linda A. Cosgrove

AUTHOR: Mark G. Solomon, James H. Hedlund, Robert H. B. Chaffe, Linda A. Cosgrove

Refusal of Intoxication Testing: A Report to Congress

September 2008, DOT HS 811 098

This report discussed the important issue of breath test refusals. It begins with a short background on the impaired driving problem. Next, laws governing impaired driving and the role of BAC test information under those laws are reviewed. That is followed by a brief overview of the driving while intoxicated (DWI) arrest process to provide a foundation for the discussion of refusals. The results of recent studies examining breath test refusal issues, including refusal rates in 2005, and a comparison to rates in 1987 and 2001 are presented; followed by the effect of refusals on prosecution and adjudication of DWI cases; next is a description of a promising strategy to decrease refusals – the use of search warrants for bloods draws. The report concludes with recommendations to decrease the incidence of missing BAC data.

AUTHOR: Amy Berning, Richard Compton, Maria Vegega, Doug Beirness, James HEDLUND, Ralph K. Jones, James Nichols

Evaluation of the Effects of SFST Training on Impaired Driving Enforcement

May 2011, DOT HS 811 455 Research Note

This study examined the effects of the Standardized Field Sobriety Test (SFST) training on impaired driving enforcement conducted at the New York City Police Department's (NYCPD) Highway District. In order to evaluate the impact of SFST training on officers' driving while intoxicated (DWI)-related activities, data on patrol hours, number of DWI arrests, and self-reported data on DWI arrest skills was gathered. For comparison purposes, such data were also gathered from a comparison group of officers with no SFST training. Results showed that SFST trained officers reported increased confidence in performing DWI-related activities following training.

NHTSA Project Manager: Amy Berning

AUTHOR: Jack Stuster, Eunyoung Lim, Amy Berning, Yll Agimi

Use of Warrants to Reduce Breath Test Refusals: Experiences from North Carolina

April 2011, DOT HS 811 461

The objective of this study was to examine the use of search warrants to obtain blood samples from breath test refusing drivers as a strategy to decrease breath test refusals among Driving While Impaired (DWI) suspects. Three counties in North Carolina established the use of warrants in cases of breath test refusals and were research sites. This report presented case study information on their experiences with the implementation and use of warrants and includes data from the evaluation effort. Given the various methodological issues that occurred during this study, it was not possible to determine whether observed decreases in refusal rates were a result of the warrants program.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Emily R. Haire, William A. Leaf, David F. Preusser, Mark G. Solomon

Model Impaired Driving Records Information Systems Typing Together Data Systems to Manage Impaired Drivers

July 2011, DOT HS 811 489

Four States, Alabama, Iowa, Nebraska, and Wisconsin, were selected for the Model Impaired Driving Records Information System (MIDRIS) demonstration to improve and expand existing data systems. The purpose of MIDRIS was to effectively manage driving while intoxicated (DWI) information from arrest through sanction. This report documented the experience of four States and highlighted best practices achieved through NHTSA's support. The report also provided examples of how these States made system-wide improvements in areas that originally were too costly or difficult to implement. This project demonstrated that States can use existing systems to improve the collection, management, and analysis of impaired driving data.

NHTSA Project Manager: J. DeCarlo Ciccel

AUTHOR: Pamela Greer

Breath Test Refusals and Their Effect on DWI Prosecution

July 2012 DOT HS 811 551

Although it is widely assumed that a BAC is needed for a strong DWI court case, and will greatly enhance the chances for conviction, the relationship is not clear. This study examined the effect that BAC refusals have on the prosecution and adjudication of impaired driving cases. The report includes data on States refusal rates.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, James L. Nichols

Model Specifications for Alcohol Test Devices and Product Testing

Continuing program

NHTSA has developed model specifications for evidential breath testers, as well as alcohol screening devices and calibrating units. At its laboratory at the Transportation Systems Center (TSC) in Cambridge, Massachusetts, new equipment is tested against our model specifications. Conforming Products Lists (CPLs) are maintained for each class of device, so that users can be assured that the equipment they buy and use meets the NHTSA model specifications. For a copy of the current CPL or other related information, see the Federal Register at www.federalregister.gov, and search for NHTSA Conforming Products list for: Evidential Breath Testers; Calibrating Units for Evidential Breath Testers; Alcohol Screening Devices.

E) DWI PROSECUTION AND ADJUDICATION

Evaluation Support for Innovative Alcohol Projects: Evaluation Support for Assessing the Effectiveness of Videotaping Persons Arrested for DWI

September 1985, DOT HS 806 995

The use of videotaped evidence in the prosecution of DWI cases in Texas became widespread after legislative changes that became effective in 1984. An evaluation in nine counties indicated that there were no significant changes in the percentages of bench trials or guilty pleas. There was, however, an increase in time required for booking. It was recommended that steps be taken to minimize the cost of the unproductive method.

NHTSA PROJECT MANAGER: unknown

AUTHOR: R.Q. Brackett, K. C. Hogue, J. M. Orozco

Assessment of Citizen Group Court Monitoring Programs

March 1987, DOT HS 807 113 (Report);

March 1987, DOT HS 807 112 (Manual -- Planning for Court Monitoring)

This was a study of two well-organized citizen group court monitoring programs. The programs were the Oak Ridge, Tennessee RID (Remove Intoxicated Drivers) program and the Douglas County (Omaha), Nebraska MADD (Mothers Against Drunk Driving) program. The results showed that a well-organized court monitoring program implemented by an organized group can affect the handling of driving while intoxicated (DWI) offenders by both the prosecution and judges hearing these cases. In both sites the presence of a court monitor led to somewhat stricter treatment of DWI offenders.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: J. Probst, J. Lewis, K. Asunka, J. Hersey, S. Oram

An Evaluation of the Elimination of Plea Bargaining for DWI Offenders

January 1989, DOT HS 807 435

This was a study of the effects on the adjudication system of eliminating plea bargaining for driving while intoxicated (DWI) to determine if it hindered court operations (e.g., increased delays, court processing time, requests for jury trials). Two case study sites were used, Fort Smith, Arkansas and Louisville, Kentucky. The results showed that it was feasible to greatly reduce plea bargaining for DWI without causing major disruption of the courts. The reduction in plea bargaining was associated with more severe sanctions imposed on the convicted offenders.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: L. T. Surla Jr., S. M. Koons

Impact of Court Monitoring on DWI Adjudication

December 1990, DOT HS 807 678

This was a study of the impact of court monitoring on court dispositions (guilty, not guilty, and dismissed) and case outcomes (jail, fine and license suspension) between monitored cases and non-monitored cases in Maine during 1987 with 9,137 cases. The results demonstrated that court monitoring was an effective tool in affecting the adjudication process. In the presence of court monitors, the conviction rates of driving while intoxicated (DWI) offenders were higher and their case dismissal rates were lower than those of drivers not court-monitored. Furthermore, once convicted, the likelihood of a jail sentence was higher and the length of the jail sentence was longer for court-monitored DWI drivers than for non-monitored drivers.

NHTSA PROJECT MANAGER: William Tarrants

AUTHOR: David Shinar

Assessment of Impoundment and Forfeiture Laws for Drivers Convicted of DWI: Phase 1 Report

June 1992, DOT HS 807 870

Ensuring that DWI offenders who receive the license suspension penalty do not drive is a challenge for states. This report covered a study of vehicle impoundment and forfeiture laws and vehicle tag impoundment laws.

NHTSA PROGRAM MANAGER: Marvin Levy

AUTHOR: Robert Voas

Sentencing and Dispositions of Youth DUI and Other Alcohol Offenses: A Guide for Judges and Prosecutors

September 1999, DOT HS 808 891

This guide, prepared by the National Highway Traffic Safety Administration and the National Institute on Alcohol Abuse and Alcoholism, was intended to help judges and prosecutors more effectively sanction juveniles and young people for alcohol-related offenses, work more cooperatively with administrative agencies and community organizations, and define a role for themselves outside the courtroom in preventing underage drinking and other alcohol-related offenses.

AUTHOR: NHTSA, National Institute on Alcohol Abuse and Alcoholism

Evaluation of a Day Reporting Center for Repeat DWI Offenders

August 1999, DOT HS 808 989

This study evaluated the effectiveness of a Day Reporting Center (DRC) in reducing the driving while intoxicated (DWI) recidivism of repeat DWI offenders. This study also examined the effect of the DRC program in reducing the cost of post-conviction sanctioning operations, and in relieving the pressures on jail facilities in carrying out the court-imposed sanctions. Results showed that the DRC program was no more effective in reducing recidivism than was a comparison standard probation program in use by the study jurisdiction. However, the DRC program was more cost-effective.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, John H. Lacey

Examination of DWI Conviction Rate Procedures

August 1999, DOT HS 808 970

This study examined driving while intoxicated (DWI) conviction rates in ten jurisdictions across the country. It was found that DWI conviction rates are often not calculated, or at least the information was not released publicly. When rates or calculation methods were released, calculation methods differed between the sites and the type of conviction rate quoted was largely a function of the type of agency doing the quoting and the data available to that agency.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Connie H. Wiliszowski, Ralph K. Jones, John H. Lacey

A Study of Outstanding DWI Warrants

July 2001, DOT HS 809 308

This report documented a project on how outstanding warrants are handled for individuals who have been charged or convicted of offenses related to driving while impaired / intoxicated, but who have absconded or defaulted in either court appearances or in fulfilling sanctions. The study objectives were to identify the nature and extent of the driving while intoxicated (DWI) outstanding warrant problem, including the situations which lead to the issuance of such warrants, and to identify promising strategies that jurisdictions are using to eliminate or minimize this problem in their communities.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Connie H. Wiliszowski, Carlos E. Rodriguez-Iglesias, John H. Lacey, Ralph K. Jones, Elizabeth Cyr

An Evaluation of the Three Georgia DUI Courts

March 2011, DOT HS 811 450

This was an evaluation of three driving under the influence (DUI) courts in Georgia designed to reduce the number of repeat DUI offenders. Through continuous and frequent judicially supervised treatment, periodic alcohol and drug testing, the use of graduated sanctions, and other appropriate rehabilitative services, this court system aimed at reducing DUI recidivism. This report documented a process evaluation of the first few years of DUI court activities and described an impact evaluation conducted to determine the effectiveness of the three courts. Results indicated that DUI courts in Georgia were effective in reducing the recidivism of repeat DUI offenders compared to traditional DUI sanction programs in Georgia.

NHTSA PROJECT MANAGER: J. DeCarlo Ciccel

AUTHOR: James C. Fell, A. Scott Tippetts, Elizabeth A. Langston

An Evaluation of Intensive Supervision Programs for Serious DWI Offenders

March 2011, DOT HS 811 446

The objective of this project was to develop and compile case studies of intensive supervision programs (ISPs) that have unique features, or promising program strategies to reduce driving while intoxicated (DWI) recidivism; and conduct impact evaluations for the identified programs. Two state-level programs, four individual area ISPs and two rural ISPs were examined. This study showed that ISPs reduce recidivism of DWI offenders. All three ISPs evaluated indicated significant reductions in medium-term recidivism for ISP offenders up to 4 years.

NHTSA PROJECT MANAGER: J. DeCarlo Ciccel

AUTHOR: Connie Wiliszowski, James C. Fell, Scott McKnight, A. Scott Tippetts

Evaluation of the DUI Court Program in Maricopa County, Arizona

July 2011, DOT HS 811 302

This study evaluated the effectiveness of a driving under the influence (DUI) court program aimed at reducing felony DUI offenders' subsequent alcohol-related traffic violations. The evaluation involved a descriptive and quantitative analysis of the program, and an impact evaluation of the program's effect on the alcohol-related traffic law conviction recidivism of randomly assigned offenders to the DUI court program and the county's standard probation program. The evaluation found that the DUI court concept as applied in Maricopa County was effective in reducing the recidivism of felony DUI offenders as measured by the time before a subsequent alcohol-related traffic conviction. The study also found that the DUI court program was more effective in reducing recidivism than the county's standard probation program for the target group of offenders.

NHTSA PROJECT MANAGER: Dereece Smither

AUTHOR: Ralph K. Jones

F) ALCOHOL IMPAIRED DRIVING: COUNTERMEASURES AND SANCTIONS

Model Enforcement Program against Suspended and Revoked Drivers: Guidelines for Motor Vehicle Administrators Produced in Cooperation with the American Association of Motor Vehicle Administrators

January 1985, DOT HS 806 674

To develop more effective countermeasures for the detection/prosecution of suspended/revoked drivers who continue to drive, the National Highway Traffic Safety Administration (NHTSA) contracted with the American Association of Motor Vehicle Administrators (AAMVA) to examine and document procedures used by the State of Florida for the purpose of detecting and prosecuting these violations. Florida was selected because for those States reporting arrests for this offense Florida's arrest rate was the highest by far.

AUTHOR: American Association of Motor Vehicle Administrators, NHTSA

An Evaluation of Hardship Licensing for DWIs Volume 1: State Hardship Licensing Practices

July 1986, DOT HS 807 060

This study examined State practices on the issuance and administration of hardship licenses for driving while intoxicated (DWI) offenders.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Robert B. Voas, J. A. Meyer

Deterrent Effects of Mandatory License Suspension for DWI

June 1987, DOT HS 807 138

This study examined Wisconsin's 1982 law mandating 3- to 6-month license suspension for first offense driving while impaired (DWI). Results showed reductions in subsequent convictions and crashes among drivers convicted after the law went into effect (i.e., a specific deterrent effect), and also a substantial reduction in alcohol-related crashes among the total driving population (i.e., a general deterrent effect). The study concluded that mandatory license suspension was an effective legal sanction against drinking and driving.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Richard D. Blomberg, David F. Preusser, Robert G. Ulmer

An Evaluation of Community Service as a Sanction for DWI: The Baton Rouge Community Service Work Program

October 1987, DOT HS 807 200 (Volume I: Executive Summary);

October 1987, DOT HS 807 201 (Volume II: Final Report)

This study examined the general and specific deterrence effects of the use of community service as a sanction for driving while intoxicated (DWI) and its impact on the adjudication system (i.e., enforcement, prosecution and judicial) in Baton Rouge, Louisiana. There was little evidence that community service either served as an effective deterrent to drinking and driving, or reduced recidivism of convicted offenders, nor was it perceived by the driving public as a strong deterrent to drinking and driving. It was concluded that community service should not be used in lieu of more effective sanctions (e.g., license suspension).

NHTSA PROJECT MANAGER: None listed

AUTHOR: William Stenzel, James Manak, Peter V. Murphy

Field Evaluation of Jail Sanctions for DWI

April 1988, DOT HS 807 325

This study evaluated Tennessee's two-day mandatory jail sanction for first-offense driving while intoxicated (DWI) on general deterrence, specific deterrence, and the operation of the drinking-driver control system. The major finding of this study was that the jail sanction had an initial effect on drunk-driving recidivism in Tennessee, but no measurable effect on alcohol-related crashes.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Ralph K. Jones, Hans C. Joks, John H. Lacey, H. J. Schmidt

Potential for Application of Ignition Interlock Devices to Prohibit Operation of Motor Vehicles by Intoxicated Individuals: A Report to Congress

May 1988, DOT HS 807 281

This report contains a historical overview of the interest in ignition interlock devices and of the early development and research on different types of devices. It provided a description of current technology, its use, the results of laboratory testing of current devices, a description of current state legislative and judicial activity, a discussion of the problems this technology must overcome, and an assessment of the effectiveness and potential for application in preventing alcohol-impaired driving.

NHTSA Project Manager: Richard Compton

AUTHOR: Richard P. Compton

Follow-Up Evaluation of Wisconsin's 1982 Drinking and Driving Law

September 1988, DOT HS 807 377

A prior study showed that Wisconsin's 1982 law mandating short-term license suspensions for first offense driving while intoxicated (DWI) resulted in a substantial reduction in alcohol-related crashes and a reduction in repeat DWI offenses by convicted offenders. This study was designed to extend the data collection beyond the time frame of the earlier study and found that the previously reported effects had not diminished over the longer time period.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: David F. Preusser, Richard D. Blomberg, R. Ulmer

An Evaluation of Hardship Licensing for DWIs: Volume 2, Effect on General and Specific Deterrents

August 1989, DOT HS EXP 037

This study assessed the effects of offering hardship licenses to drivers under suspension for drinking/driving offenses. Changes in the law that increased the use of suspensions did not affect arrest or conviction rate. Concern that the inability to offer hardship licenses would have an adverse effect upon enforcement or adjudication of drinking driving offenses appeared unwarranted.

NHTSA PROJECT MANAGER: Richard P. Compton

Author: Robert B. Voas, A. James McKnight

Evaluation of the New York State 21 Enforcement Program

November 1989, DOT HS 807 719

The 21 Enforcement Program was initiated by the New York State Liquor Authority (SLA) to encourage enforcement of the 21-year-old alcohol purchase age law. Under this law, a person providing an alcoholic beverage to an underage person was subject to criminal charges; if the crime took place in an establishment licensed to sell alcoholic beverages, the establishment was subject to sanctions by the SLA. The level of 21 enforcement conducted by police agencies in three program counties increased substantially during the program period in 1987, when compared to a pre-program period; dramatic increases occurred in the number of servers and sellers arrested for 21 violations and the number of establishments referred to the SLA. Similar increases did not occur in two comparison counties. The positive changes during the program were not sustained by any of the police agencies during a post-program period. Generally, the 21 enforcement conducted by agencies that regularly used underage persons as undercover agents was more productive and cost-effective than the enforcement conducted by other agencies. The program produced positive enforcement results, but the program's impact on drinking and driving by underage persons produced mixed results.

AUTHOR: Anne Taylor McCartt, Mark C. Hammer, Anne M. Dowling

Assessment of Multiple DWI Offender Restrictions

December 1989, DOT HS 807 615

This study examined innovative approaches for reducing recidivism among repeat offenders, including special detention centers, diversion programs, electronic monitoring, ignition interlock systems, intensive supervised probation, publishing offenders' names, special license tags, victim restitution and weekend intervention. The study found that these approaches had many appealing features from a procedural or administrative perspective. However, adequate information on program effectiveness in reducing recidivism was not available.

AUTHOR: Wayne M. Harding, Robert Apsler, Wendi A. Walsh

Users' Guide to New Approaches and Sanctions for Multiple DWI Offenders

December 1989, DOT HS 807 571

This guide describes nine non-traditional approaches for reducing recidivism among multiple driving while intoxicated (DWI) offenders: dedicated detention facilities, diversion programs, electronic monitoring, ignition interlock systems, intensive probation supervision, publishing offenders' names, special license tags, victim restitution, and weekend intervention programs. Information was presented on 33 programs that use these approaches including the number and types of offenders served, staffing requirements, costs, funding sources, program requirements, and effectiveness. Findings indicated that many of these programs have appealing features, for example, many cost less than jail, and can relieve jail overcrowding, but reliable data on post-program recidivism was rarely available.

AUTHOR: Wayne M. Harding, Robert Apsler, Wendi A. Walsh

An Assessment of the Effects of Implementing and Publicizing Administrative License Revocation for DWI in Nevada

April 1990, DOT HS 807 600

Nevada law called for confiscating the driver's licenses of driving while intoxicated (DWI) arrestees who either refuse the chemical test or have blood alcohol concentrations (BACs) of .10 g/dL or more. In this study, a public information campaign was designed and implemented to emphasize the law and its strict enforcement. A subsequent survey revealed increased awareness of the sanction and reduced (self-reported) drinking-driving behavior. Alcohol-related crashes were also found to have dropped by 12% during the study period.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: John H. Lacey, J. Richard Stewart, Lauren M. Marchetti, Ralph K. Jones

Cost-Benefit Analysis of Administrative License Suspensions

January 1991, DOT HS 807 689

Cost outlays and economic benefits associated with Administrative License Suspension laws were studied in Nevada, Mississippi, and Illinois. In all three states, increased revenues from license reinstatement fees more than offset costs associated with implementing the law. Moreover, reductions in crash-related costs were well over 100 times the cost of implementation.

AUTHOR: John H. Lacey, Ralph K. Jones, J. Richard Stewart

Review of the Literature Evaluating the Effect of Countermeasures to Reduce Alcohol Impaired Driving

October 1991, DOT HS 808 023 (Volume I - Synthesis)

October 1991, DOT HS 808 024 (Volume II - Individual Analyses and Assessments)

This two-volume report documents the results of an extensive review and analysis of impact evaluations of alcohol-traffic crash countermeasures. Evaluations published since 1980 are covered by the review. Volume I presented a synthesis of the findings on the impact of three major classes of countermeasures: 1) restricting alcohol availability, 2) deterring and incapacitating drunk drivers, and 3) treating and rehabilitating impaired. Volume II contains summaries of the assessments of individual evaluations.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: Ralph K. Jones, John H. Lacey

Alcohol Ignition Interlock Service Support

December 1992, DOT HS 807 923

This brief technical report was produced as a companion to “Model Specifications for Breath Alcohol Ignition Interlock Devices’ (BAIDs) separately published in the Federal Register on April 7, 1992 (57 FR 11772-11787). The report provides the authors' recommendations for establishment of a comprehensive State BAID program, including suggested procedures for ensuring the quality control of BAID instruments in the field. It concluded that once a program has been implemented, detailed management procedures and careful record keeping are required to ensure that BAID devices accomplish their objective of preventing impaired driving by drivers required to install BAIDs on their vehicle.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Robert B. Voas, Paul R. Marques

Assessment of Publicized Insurance Sanctions as a DWI Countermeasure

May 1994, DOT HS 808 119

The objective of this project was to determine the effectiveness of a well-publicized insurance sanctions program focusing on heavy insurance penalties for driving while intoxicated (DWI) convictions. Findings indicated the test program, conducted in New Hanover County, North Carolina, did not make a significant number of drivers aware of the insurance penalties. Many of those who were aware of the insurance sanctions program reported they drove less after implementation of the program, but the sample size was too small to draw definitive conclusions. If more effective ways could be implemented for publicizing information about this sanction, the results from this study indicated that it might prove to be an effective deterrent.

AUTHOR: Peter V. Murphy, John H. Lacey, Lauren Marchetti

**Assessment of Impoundment and Forfeiture Laws for Drivers Convicted of DUI,
Phase II Report: Evaluation of Oregon and Washington Vehicle Plate Zebra Sticker Laws**
April 1994, DOT HS 808 136

This study assessed the impact of vehicle plate sticker laws on drivers convicted of driving under the influence (DUI) in Oregon and Washington. In these states, upon arresting a motorist for driving on a suspended license (DWS), officers could, on the spot, place a zebra sticker over the annual portion of the license plate of the offender's vehicle. Subsequently, any officer could stop these stickered vehicles and request that the driver produce a valid license. The results indicated that in Oregon, where the law was more widely applied, the number of convictions for driving while suspended (DWS) increased principally by instances in which the officer tagged the offender's vehicle. Offenders with tagged vehicles had significantly fewer moving violations, DUIs and DWS convictions, and somewhat fewer crashes than did DWS offenders whose vehicles were not tagged. There was some evidence that in Oregon, suspended DUI offenders who were eligible but did not receive DWS citations reduced the amount of their illegal driving.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Robert B. Voas, A. Scott Tippetts

Victim Impact Panel: Their Impact on DWI Recidivism
1995; DOT HS EPX 042

This was a study examining the impact of Victim Impact Panels (VIP) on driving while impaired (DWI) recidivism. The Victim Impact Panel consists of speakers who were seriously injured or lost a loved one in a DWI crash. They present their personal stories to DWI offenders to reduce recidivism. Comparing DWI recidivism rates of more than two thousand DWI offenders who attend the VIP sessions results to controls; a lower rate for VIP attendees was observed at one site, and no differences at the second site.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: David Shinar, Richard P. Compton

Effects of Administrative License Revocation on Employment
May 1996, DOT HS 808 462

This project addressed the impact of administrative license revocation (ALR) on the employment of first and multiple DUI offenders, and the impact of alcohol-related crashes on the employment of crash-involved persons (i.e., innocent drivers, passengers, and pedestrians). The data indicated that ALR does not have a pronounced impact on the DUI offender's job and income. Alcohol-involved crashes had a great impact on seriously injured victims, but the proportion of DUI crashes producing serious injury was low.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: K. Y. Knoebel, H. L. Ross

Determine Reasons for Repeat Drinking and Driving

May 1996, DOT HS 808 401

Repeat driving while intoxicated (DWI) offenders are a continuing traffic safety problem. This study involved in-depth interviews with repeat offenders in Arizona, Pittsburgh, and Colorado to determine why they continue to drink and drive, even after being convicted one or more times. The interviews were taped and later analyzed to identify reasons for repeat drinking and driving, situations under which the drinking and driving occurred, situations where drinking but not driving occurred, and to learn which countermeasures or sanctions affected the repeat offenders.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Connie Wiliszowski, Peter Murphy, Ralph K. Jones, John H. Lacey

Evaluation of Alternative Programs for Repeat DWI Offenders

October 1996, DOT HS 808 493

Jail overcrowding is a serious concern in many jurisdictions. This study examined the effectiveness of two alternative sanctions for repeat offenders -- an intensive supervision probation (ISP) program in Milwaukee, Wisconsin, and an electronic monitoring program (home detention) in Los Angeles County, California. The recidivism rates of offenders in each program were compared with other groups of repeat offenders who did not participate in the programs. One year after entering the ISP program, the re-arrest recidivism of participants was only about half that of the comparison group, and the reconviction rate of electronic participants was about a third less than that of the comparison group.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, Connie H. Wiliszowski, John H. Lacey

An Evaluation of the Specific Deterrent Effect of Vehicle Impoundment on Suspended, Revoked and Unlicensed Drivers in California

November 1997, DOT HS 808 727

This report presented the results of an evaluation of the specific deterrent effect of vehicle impoundment on suspended and revoked drives in California. The records of offenders whose vehicles were impounded were compared to a similar group of offenders whose vehicles were not impounded. Over a 1-year period, first offenders whose vehicles were impounded had 23.8% fewer (DWS) and (DWU) convictions, 18.1% fewer traffic convictions, and 24.7% fewer crashes than first offenders whose vehicles were not impounded. The findings provide strong support for impounding vehicles of these types of offenders.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: David J. DeYoung

Evaluation of an Individualized Sanctioning Program for DWI Offenders

December 1998, DOT HS 808 842

This study examined an individually-tailored sanctioning approach for driving while intoxicated (DWI) offenders in Rockdale County, Georgia. The study found that this individualized program was more effective in reducing recidivism than was the standard program that imposed the minimum sentences.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, John H. Lacey

An Evaluation of the General Deterrent Effect of Vehicle Impoundment on Suspended and Revoked Drivers in California

April 2000, DOT HS 809 036

This report presented the results of an evaluation of the general deterrent effect of vehicle impoundment on suspended and revoked drives in California. Crash rates for drivers with suspensions or revocation, as well as a control group, were examined over a 5-year period consisting of 3 years prior to the implementation of vehicle impoundment and 2 years following vehicle impoundment. Results showed no compelling evidence of a general deterrent impact of vehicle impoundment and forfeiture on crashes.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: David J. DeYoung

Albuquerque Police Department's Safe Streets Program

June 2001, DOT HS 809 278

This report discussed the Albuquerque Police Department's *Safe Streets* program, its enforcement approach and results. After identifying high crime and high crash areas, police saturation was applied, stopping and issuing tickets to motorists for all traffic violations. These intense patrols were repeated for short times periods at frequent intervals. The program was further strengthened by speeding enforcement, an anti-driving while intoxicated (DWI) campaign and establishment of a citizens' complaint line. The results of the *Safe Streets* program showed that a special traffic enforcement program can deter criminal activity, improve traffic safety, and contribute substantial economic savings to society.

NHTSA PROJECT MANAGER: Richard P. Compton

Author: Jack Stuster

Observational Study of the Extent of Driving While Suspended for Alcohol-Impaired Driving

September 2002, DOT HS 809 491

This observational study examined the proportion of first-time alcohol-impaired driving offenders who drive while suspended and the circumstances and motivations for driving. Systematic, unobtrusive observations were conducted during suspension and following license reinstatement. Observational data was gathered for 93 subjects at two sites with subsequent focus group meetings.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Anne T. McCartt, W. J. Nissen

Examining the Effectiveness of Utah's Law Allowing for Telephonic Testimony at ALR Hearings

July 2003, DOT HS 809 602

This study examined the effectiveness of Utah's law allowing telephone-based participation at administrative license revocation (ALR) hearings. Interviews, focus groups, a survey of law enforcement officers, and data analyses of State-level driver license record databases were conducted. Findings showed that following the initiation of telephonic hearings in Utah, there was a 20% reduction of ALR hearings that resulted in the return of driver licenses due to the absence of the arresting law enforcement officers from administrative license hearings.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Connie H. Wiliszowski, Ralph K. Jones, John H. Lacey

Connecticut's 2003 Impaired-Driving High-Visibility Enforcement Campaign

February 2007, DOT HS 810 689

This report describes Connecticut's publicity and enforcement campaign to reduce impaired driving and alcohol-related fatalities and its impact. Based on statewide telephone surveys, following the campaign, drivers showed higher awareness for impaired driving enforcement, presence of sobriety checkpoint, and believed drinking drivers were very likely to be stopped by police. Roadside surveys of driver blood alcohol concentrations (BAC) indicated a significant decrease in the proportion of drivers with a positive BAC at the end of the campaign. In addition, analyses of the alcohol-related fatality trend indicated a significant decrease.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Thomas J. Zwicker, Neil K. Chaudhary, S. Maloney, R. Squeglia

Programs across the United States that Aid Motorists in the Reporting of Impaired Drivers to Law Enforcement

March 2007, DOT HS 810 750

The objective of this project was to identify States that use a statewide cellular impaired driving reporting program that allows motorists to report suspected impaired drivers. The report showed that that 6 States have dedicated programs to report driving while intoxicated (DWI) drivers, and 45 states indicated that "911" or general emergency programs can be used to report DWI drivers. Both dedicated DWI and 911-type programs may serve equally well in reporting DWI drivers.

NHTSA PROJECT MANAGER: Amy Berning, Christine Sicinski

Author: Dary Fiorentino, Magda Cure, Joshua Kipper

Evaluation of the National Impaired Driving High-Visibility Enforcement Campaign: 2003-2005

July 2007, DOT HS 810 789

This evaluation study examined the impact of the Strategic Evaluation States (SES) campaign that focused on reducing impaired driving through the use of highly visible well publicized impaired driving enforcement in selected states with particularly high rates of alcohol-related driving fatalities. The evaluation of SES campaign, supported by NHTSA with Congressional funding, showed significant increases in exposure to impaired driving law enforcement following the campaign, increases in the number of motorists who were aware of police efforts to reduce impaired driving and declines in alcohol-related fatalities over the three-year campaign period.

AUTHOR: NHTSA

West Virginia's Impaired Driving High Visibility Enforcement Campaign, 2003-2005

August 2007, DOT HS 810 792

This report describes the performance of the West Virginia Impaired Driving High-Visibility Enforcement campaign, a campaign sponsored by NHTSA. The State's implementation of the publicity and enforcement program aimed at reducing impaired driving and alcohol-related fatalities. This 27-month campaign resulted in increased awareness for impaired driving enforcement and the presence of sobriety checkpoints. Roadside surveys of driver blood alcohol concentrations (BAC) indicated a significant decrease in the proportion of drivers with a positive BAC at the end of the campaign.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Thomas J. Zwicker, Neil K. Chaudhary, Mark G. Solomon, John Siegler,
J. D. Meadows

Evaluation of Seven Publicized Enforcement Demonstration Programs to Reduce Impaired Driving: Georgia, Louisiana, Pennsylvania, Tennessee, Texas, Indiana, and Michigan

February 2008, DOT HS 810 941

This report describes evaluation projects conducted in seven states as part of NHTSA-funded programs to reduce impaired driving through well-publicized and highly visible enforcement. Results showed that media and enforcement procedures that supplement ongoing statewide efforts yield meaningful crash reductions among alcohol impaired drivers. States employing sobriety checkpoints, using paid advertising and programs implemented statewide, showed an association with crash reductions.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: James C. Fell, Elizabeth A. Langston, John H. Lacey, A. Scott Tippetts, Ray Cotton

A Summary Report of Six Demonstration Projects to Reduce Alcohol-Impaired Driving among 21 - to 34-year-old Drivers

April 2008, DOT HS 810 912

This report summarized six projects designed to address impaired driving among 21-to 34-year-olds.

AUTHOR: NHTSA

Update of Vehicle Sanction Laws and Their Application Volume I — Summary

September 2008, DOT HS 811 028A

This study updated a 1992 National Highway Traffic Safety Administration study of vehicle sanctions. This study updated that effort with vehicle sanction laws and their application as of December 2004. It also reported on information from other countries, incorporating a review of ignition interlock devices and provided a more recent list of vehicle sanctions on a State-by-State basis. Volume I synthesized and summarized study findings.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Robert B. Voas, A. Scott McKnight, Tim Falb, James C. Fell

Update of Vehicle Sanction Laws and Their Application:

Volume II — Vehicle Sanctions Status by State

September 2008, DOT HS 811 028B

This study updated a 1992 National Highway Traffic Safety Administration study of vehicle sanctions. This study updated that effort with vehicle sanction laws and their application as of December 2004. It also reported on information from other countries, incorporating a review of ignition interlock devices and provided a more recent list of vehicle sanctions on a State-by-State basis. This volume described vehicle sanctions status for each State as of the end of 2004, which included alcohol ignition interlock laws, and vehicle forfeiture laws.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: A. Scott McKnight, Derrik E. Watson, Robert B. Voas, James C. Fell

Evaluation of Minnesota's Vehicle Plate Impoundment Law for Impaired Drivers

January 2011, DOT HS 811 351

This study examined the effectiveness of Minnesota's vehicle plate impoundment law for impaired drivers in reducing recidivism among drivers arrested for driving while intoxicated (DWI). Beginning in 1998, Minnesota implemented license plate impoundment for first-offense drivers whose blood alcohol concentration (BAC) was .20 g/dL or higher. DWI recidivism and driving while suspended violations were compared for first offenders with BACs of .17-.19 (no plate impoundment) and first offenders with BACs of .20-.22 (with plate impoundment). Results indicated substantial reductions in DWI recidivism and Driving While Suspended violations for those drivers whose vehicle license plates were impounded.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: William A. Leaf, David F. Preusser

Evaluation of the New Mexico Ignition Interlock Program

November 2010, DOT HS 811 410

This report summarizes the development of alcohol ignition interlock devices, laws, and programs during the past 22 years. It includes eight studies on aspects of New Mexico's laws: 1) an evaluation of recidivism of court-mandated offenders required to install interlocks but were not allowed to drive those cars; 2) a comparison of recidivism of first-time offenders who installed interlocks relative to matched offenders who did not; 3) an evaluation of the effect of an interlock licensing law that allows revoked DWI offenders to install an interlock on an insured vehicle and drive that way during the remainder of their revocation period; 4) an evaluation of a Santa Fe County mandate where electronically monitored house arrest was required for offenders who did not want to have an interlock or claimed no plan to drive; 5) an evaluation of the patterns of elevated blood alcohol concentration (BAC) tests by hour of the day and day of the week from among the more than 10 million New Mexico breath tests collected by interlock devices; 6) a comparative evaluation of predictors of recidivism including prior DWI, measures of drinking from the interlock event record, age, and other predictors; 7) a report on an interview process that included key informants, such as judges, prosecutors, defense attorneys, and probation officers; and 8) a report on focus groups with interlock-using DWI offenders.

NHTSA PROJECT MANAGER: James Frank, Geoffrey Collier, Amy Berning, Randolph Atkins

AUTHOR: Paul R. Marques, Robert B. Voas, Richard Roth, A. Scott Tippetts

G) DRINKING-DRIVING ATTITUDES AND BEHAVIOR

Survey Forms for Conducting Alcohol Highway Safety Surveys

May 1985, DOT HS 806 754

Five alcohol Highway Safety Survey Questionnaires are provided in this report. The questionnaires were available for use by State and local jurisdictions interested in assessing and/or evaluating anti-drinking-driving activities through surveys addressing relevant attitudes, knowledge and behavior. Form A emphasizes the risk of being apprehended and punished for driving while intoxicated (DWI). Both versions of Form B emphasize attitudes about drinking and driving and actions for avoiding driving after drinking too much. Practitioners interested in assessing both general deterrence and public information activities could use either Form C or Form D. The report includes information on the purpose, description and use of the various survey instruments.

AUTHOR: Maria E. Vegega

Feasibility Planning Study for a Behavior Database Volume II: Appendix A, Summary Information on the Drinking and Driving and Occupant Restraint Surveys

April 1987, DOT HS 807 122

The objective of this project was to determine the feasibility of, and the general requirements for, a centralized database on driver behavior and attitudes related to drunk driving and occupant restraints. This volume contains descriptive information about each of the surveys collected in the project.

AUTHOR: A.C. Wolfe, Ralph, K. Jones, H. J. Schmidt

Feasibility Planning Study for a Behavior Database, Volume III, Appendix B, Compendium of Survey Questions on Drinking and Driving and Occupant Restraints

April 1987, DOT HS 807 213

The objective of this project was to determine the feasibility of a centralized database on driver behavior and attitudes related to drunk driving and occupant restraints. Volume III is a compendium of question wordings from the surveys. The study concluded that it is feasible to establish a national computerized information system containing survey data on drunk driving and occupant restraints.

AUTHOR: Arthur C. Wolfe, Ralph K. Jones, H. J. Schmidt

National Survey of Drinking and Driving Decision Making

1992 (see below)

A national telephone survey was conducted to determine the basis upon which persons make drinking and driving decisions, and assess how the blood alcohol concentration (BAC) limit fits into this framework. Core sections of the survey collected information on specific instances where subjects drank away from home; drove impaired, and avoided driving impaired. Key findings included the central role of pre-planning in avoiding impaired driving, and the disproportionately high involvement of problem drinkers in impaired driving. Data from the survey provided key input to "Driving Under the Influence: A Report to Congress on Alcohol Limits" (October 1992, DOT HS 807 879).

AUTHOR: NHTSA

National Survey of Drinking and Driving Attitudes and Behavior: 1993

1995, DOT HS 808 202

This report covers the first two national surveys (1991 and 1993) conducted by NHTSA to track changes in drinking and driving attitudes and behaviors. The surveys showed small changes from 1991 to 1993. The proportions of the public that drive after drinking (28%) and that place themselves at risk by riding with an impaired driver (15%) remained constant in the two surveys. The large majority of the public remained concerned about drinking and driving, although there was a slight decline in the perception of the need to do something about the problem. The majority of the public continues to support more severe penalties and strongly favors the use of sobriety checkpoints.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: John M. Boyle

Why People Drink and Drive: The Bases of Drinking and Driving Decisions

March 1995, DOT HS 808 251

This project examined the decision-making process that individuals go through when deciding whether to drive after drinking. Six hundred individuals who admitted to driving while impaired were interviewed about their most recent drinking-driving experience. The study revealed that heavy drinking often arises in response to subtle encouragement from friends. For example, hosts may give the impression that they expect consumption and do not appreciate moderation. Or friends may promote heavy drinking to feel more comfortable in their own over-consumption. In addition, the study found that a willingness to allow impaired friends to drive often arises from the need for a ride in the absence of an available designated driver.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: A. James McKnight, E. A. Langston, A. S. McKnight, I. A. Resnick, J. E. Lange

Lessons Learned from Public Health Campaigns and Applied to Anti-DWI

Norms Development

May 1995, DOT HS 808 273

The objective of this study was to learn how social norms can be established for anti-driving while intoxicated (DWI) behavior. Experts from several health fields (such as anti-smoking and anti-substance abuse) were interviewed to learn about the norms-change process in their areas. The discussions focused on how and why health behaviors change, and which approaches are applicable for deterring drinking and driving behavior. For example, the experts noted that health campaigns were effective when their messages were publicized in a varied and sustained manner. Legislation and enforcement activities also emphasize the seriousness of specific issues.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Judy Barokas

Motivating Anti-DWI Behavior Using Existing Values

October 1995, DOT HS 808 321

This project examined individuals' existing values and how they can be used to deter drinking and driving behavior. Data was collected through interviews and focus groups with 18-29 year-old drivers. The objective was to learn what was important to individuals in this age group, and use that information when developing anti-driving while intoxicated (DWI) countermeasures. Family and friends topped the list of things most valued in life. The study also showed that participants had well developed attitudes towards impaired driving -- they said that drinking and driving was dangerous and wrong. However, most admitted to driving while impaired on occasion, and appeared to feel that this was morally different than driving drunk habitually.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Kathryn Stewart, Elizabeth Taylor, A. Scott Tippetts, C. Sole, A. Cohen

National Survey of Drinking and Driving Attitudes and Behavior: 1995

July 1996, DOT HS 808 438

This was the third biennial survey conducted by NHTSA since the series begun in 1991. These surveys enable NHTSA to track trends in the nature and extent of drinking and driving by providing data on topics relevant to the problem including: frequency of drinking and driving, frequency of riding with an impaired driver, support for taking action to reduce the problem, opinions about current enforcement and penalties, expectations of consequences, intervention behavior, and efforts by hosts to prevent guests from drinking and driving. The 1995 survey findings showed a decline in the proportion of the population (16-64 years) who report driving after drinking in the past year from 28% in 1991 to 24% in 1995. Those reporting having ridden with an impaired driver declined from 15% to 11%.

Over two-thirds of respondents thought sobriety checkpoints should be used more frequently (up slightly from 1993) and the percentage of the public who thought penalties for drinking for drinking and driving violations should be much more severe was up substantially, from 37% in 1993 to 46% in 1995.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Timothy L. Jones, John M. Boyle

Develop and Test Messages to Deter Drinking and Driving

April 1998, DOT HS 808 726

This study pilot tested media messages to support and/or encourage anti-DWI norms. The target audience for these messages was individuals 18-25 years. The developed messages, in storyboard format, are included in the report.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Connie H. Wiliszowski, John H. Lacey, Ralph K. Jones, Lauren M. Marchetti, E. J. Smith

National Survey of Drinking and Driving: Attitudes and Behavior 1997

November 1998, DOT HS 808 844

This report presented the results of the 1997 national survey on drinking and driving. The objective of this survey was to measure self-reported attitudes, knowledge and behavior of the general driving age public related to drinking and driving. The data are used to identify areas of improvement for reduction in drinking and driving.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Dawn Balmfort

Racial and Ethnic Group Comparisons National Surveys of Drinking and Driving Attitudes and Behavior: 1993, 1995 and 1997, Volume 1: Findings

August 2000, DOT HS 809 071

This two-volume report combined the data from three separate surveys undertaken by NHTSA, conducted in 1993, 1995 and 1997, to measure the driving age public's attitudes and behavior regarding drinking and driving. The objective of the study was to identify differences among those of Non-Hispanic White, Non-Hispanic Black, Asian, American Indian/Eskimos and Hispanic descent. A total of 10,453 respondents aged 16 to 64 years old were interviewed in these three administrations. Volume I: Findings reported respondent behaviors and attitudes on the frequency of drinking and driving, general attitudes regarding the problem, enforcement, legal limits, prevention, and crash and injury experience.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Dawn Royal

Racial and Ethnic Group Comparisons National Surveys of Drinking and Driving Attitudes and Behavior: 1993, 1995 and 1997, Volume II: Methods Report

August 2000, DOT HS 809 072

This two-volume report combined the data from three separate surveys undertaken by NHTSA, conducted in 1993, 1995 and 1997, to measure the driving age public's attitudes and behavior regarding drinking and driving. The objective of the report was to identify differences among those of Non-Hispanic White, Non-Hispanic-Black, Asian, American Indian/Eskimos and Hispanic descent. Volume II: Methods Report described the methods used to conduct the interviews and analyze the data. It also contained a copy of the most recent questionnaire.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Dawn Royal

National Survey of Drinking and Driving Attitudes and Behaviors: Volume 1: Findings

December 2000, DOT HS 809 190

This report represents the fifth in a series of biennial national NHTSA surveys measuring the status of self-reported attitudes, knowledge and behavior of the general driving age public related to drinking and driving and to track trends in certain measures. This report, Volume 1: Findings included respondents' behaviors and attitudes on various topics related to drinking and driving including reported frequency of drinking and driving, prevention and intervention, riding with impaired drivers, designated drivers, perceptions of penalties, and knowledge of and acceptance of blood alcohol concentration (BAC) levels.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Dawn Royal

**National Survey of Drinking and Driving Attitudes and Behavior: 1999;
Volume 2: Methods Report**

December 2000, DOT HS 809 191

This two-volume report represented the results of the 1999 national survey of drinking and driving attitudes and behavior. It described the methods used to conduct the interviews and analyze the data and contains questionnaires used.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Dawn Royal

**National Survey of Drinking and Driving Attitudes and Behavior:
2001. Volume 1, Summary Report**

March 2003, DOT HS 809 549

This report presented results of the 2001 national survey of drinking and driving attitudes and behaviors, the sixth in a series of national surveys measuring trends regarding the public's attitudes, knowledge, and self-reported behavior related to drinking and driving. Phone interviews with 6,602 individuals from a national sample indicated that progress in number of key areas has slowed. Declines in the number of respondents identifying drinking and driving as a major threat to their personal safety and a stagnation in the number of drivers who reported driving within two hours of drinking compared to previous levels were noted.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Dawn Royal

**National Survey of Drinking and Driving Attitudes and Behavior:
2001. Volume 2, Methods Report**

March 2003, DOT HS 809 550

This report presented results of the 2001 national survey of drinking and driving attitudes and behaviors highlighting the methods used to conduct the interviews and analyze the data. It also contained a copy of the most recent questionnaire. This report was based on the 2001 national survey of drinking and driving attitudes and behaviors, the sixth in a series of national surveys. The objective of these recurrent studies was to measure both current status and trends regarding the public's attitudes, knowledge, and self-reported behavior related to drinking and driving.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Dawn Royal

**National Survey of Drinking and Driving Attitudes and Behavior:
2001, Volume 3: Findings Report**

March 2003, DOT HS 809 551

This report presented results of the 2001 national survey of drinking and driving attitudes and behaviors highlighting detailed findings on respondent's behaviors and attitudes on various topics related to drinking and driving. It includes reported frequency of drinking and driving, prevention and intervention, riding with impaired drivers, designated drivers, perceptions of penalties, and knowledge of and acceptance of blood alcohol concentration (BAC) levels.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Dawn Royal

**National Survey of Drinking and Driving Attitudes and Behaviors:
2008, Volume 1, Summary Report**

August 2010, DOT HS 811 342

This report summarized results from NHTSA's eighth national surveys on drinking and driving attitudes and behaviors. The survey showed that every fifth respondent had driven within 2 hours of consuming alcohol, a trend unchanged from previous surveys and some 40% of respondents considered penalties for violating drinking and driving laws should be much more severe. The majority of respondents considered drinking and driving as a major public safety threat, and ranked alcohol interlocks as the most effective approach to reduce drunk driving, followed by providing alternate transportation.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Lisa Drew, Dawn Royal, Benjamin Moulton, Anne Peterson, Dar Haddix

**National Survey of Drinking and Driving Attitudes and Behaviors:
2008, Volume 2, Findings Report.**

August 2010, DOT HS 811 343

This report presented results from NHTSA's eighth national survey on drinking and driving attitudes and behavior, emphasizing characteristics of respondents' behaviors and attitudes. The survey showed that respondents reporting drinking and driving also reported being heavy drinkers, consuming an average of 5.7 drinks per normal sitting. Younger male respondents (ages 21-to-24) were more likely to engage in binge drinking and more than half of those identified as problem drinkers, reported driving at least once within the past year, while considering themselves intoxicated. One-third of respondents believed intoxicated drivers were likely to get stopped by the police, and a similar number of reported having seen a sobriety checkpoint in the past year.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Benjamin E. Moulton, Anne Peterson, Dar Haddix, Lisa Drew

**National Survey of Drinking and Driving Attitudes and Behaviors:
2008, Volume 3, Methodology Report**

August 2010; DOT HS 811 344

This report presented the methodology details for conducting NHTSA's eighth national surveys on drinking and driving attitudes and behaviors. The Methodology Report describes the methods used for respondent sampling, data collection, data weighting, data analysis, and presented survey questionnaires used. Land-line telephone was the main mode of data collection, with an additional cell-phone only sample. This report also showed that among cell-phone only respondents, receiving a \$10 cash incentive did not increase the likelihood of completing survey compared to respondents not receiving incentives.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Lisa Drew, Dawn Royal, Benjamin Moulton, Anne Peterson, Dar Haddix

H) ALCOHOL IMPAIRED DRIVING: PREVENTION

Determinants of Youth Attitudes and Skills towards Which Drinking/Driving Prevention Programs Should be Directed: Volume 1: The State of the Art in Youth DWI Prevention Programs

November 1985, DOT HS 806 903

In 1984, NHTSA sponsored a multi-component research project to develop recommendations for improving youth drinking/driving prevention programs. Major goals of this research included exploring the underlying assumptions, premises, objectives, activities and outcomes of existing programs nationwide that encourage youth to take responsible action to avoid drinking and driving. Project activities included a review of programmatic, conceptual, and empirical literature; conducting a review of programs nationwide to provide an overview of existing youth driving while intoxicated (DWI) programs; and on-site visits to youth DWI programs. Volume 1 contains a matrix of the DWI prevention program characteristics for programs included in the data analysis, as well as a description of the methodology, analyses, and results of the program examination and site visits.

AUTHOR: Klitzer, M., Blasisnky, M., Marshall, K., Paquet, U.

Determinants of Youth Attitudes and Skills towards Which Drinking/Driving Prevention Programs Should Be Directed, Volume II: An In-depth Review of Twelve Youth DWI Prevention Programs

November 1985, DOT HS 806 904

This report summarizes the results of the first task of a multi-component project to analyze existing programs nationwide aimed at encouraging youth to avoid drinking and driving. The purpose was to explore the underlying assumptions, premises, objectives, activities, and outcomes of these groups. The procedures included: conducting a review of programmatic, conceptual, and empirical literature; conducting a review of programs nationwide to provide an overview of existing youth DWI programs; and conducting on-site visits to twelve youth DWI programs to provide an in-depth analysis of a limited sample of programs. Volume II presents descriptive information gathered from visits to twelve youth DWI prevention programs across the nation, and it highlights the successes and difficulties encountered by prevention programs.

AUTHOR: K. Marshall, L. Smith-Donals, P. Cooke, P. DeLucas, M. Blasinsky, M. Klitzner

Impact of a Driver Intervention Program on DWI Recidivism and Problem Drinking

December 1985, DOT HS 807 023

This study compared the effects of a brief jail sentence, suspended sentence/fine, or a therapeutic intervention known as The Weekend Intervention Program (WIP) on drunk driving recidivism and alcohol-related crashes. Offenders assigned to each sentencing alternative were followed through drivers' records for a two-year period. The findings suggested that repeat offenders receiving the therapeutic intervention had lower recidivism rates than those not receiving it. For the WIP group, results showed that the more severe the participants' alcohol problem, the greater their chances of recidivating. The findings supported the continued confidence in the WIP by those courts already using it and encouraging those judges who use it to mandate the post-WIP treatment recommendation.

AUTHOR: Harvey A. Siegal

The Review and Assessment of Designated Driver Programs as an Alcohol Countermeasure Approach

February 1987, DOT HS 807 108

This study surveyed more than forty public drinking establishments and private membership organizations known to have designated driver programs. Results indicated that relatively few patrons participated in the programs in most of the establishments. However, the study also found that there are some simple and inexpensive actions that establishments can take to increase participation.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Robert Apsler, Wayne Harding, Jamie Goldfein

Development and Field Test of a Responsible Alcohol Service Program

March 1987, [DOT HS 807 221 \(Volume I: Research Findings\)](#)

May 1987, [DOT HS 807 222 \(Volume II: Server Education Program Materials\)](#)

January 1989, [DOT HS 807 449 \(Volume III: Final Report\)](#)

A Program of Responsible Alcohol Service was developed to enable servers and managers in establishments selling alcohol to exercise responsibility in order to prevent injury to, and by, intoxicated patrons. The program deals with the need for responsible alcohol service, preventing intoxication, identifying signs of intoxication, and preventing driving by intoxicated patrons (Volume I). The program materials include training modules for servers (3 hours) and managers (6 hours). A training session was provided for those who wish to administer the program to other groups. Four video presentations, totaling 62 minutes, were part of the program (Volume II). The program was field tested with 1,079 servers and managers from 100 different establishments in eight different sites across the U.S. The program yielded improvement in knowledge and attitudes as well as self-reported serving practices and policies at all sites. However, increases in observed intervention with patrons feigning intoxications (skills) were confined to 5 out of 8 sites (Volume III).

NHTSA PROJECT MANAGER: Maria Vegega, Alfred Farina

AUTHOR: A. James McKnight

Field Assessment of Social Learning Approach to Teaching Adolescents about Alcohol and Driving

April 1987, DOT HS 807 119

This project examined influences on adolescent drinking including parents and peers, environmental factors, psychological variables, and adolescents' attitudes toward drinking, and elaborates on the consequences of adolescent problem drinking. The effectiveness of alcohol educational programs is discussed and rationales presented for the use of a proven educational technique entitled "Teams-Games-Tournaments" (TGT). The technique is based on the use of peers as teachers and reinforcers of appropriate behavior. The components of an alcohol educational program utilizing this technique are discussed. Data suggest that the intervention was successful in teaching adolescents about alcohol. The self-reports of TGT groups showed a lowered consumption of alcohol and a positive change in attitudes and behavior toward drinking. One- and two-year follow-up data indicated that the TGT students maintained previous positive changes while the traditional and no instruction groups showed little or no change.

AUTHOR: John S. Wodarski

Determinants of Youth Attitudes and Skills towards Which Drinking/Driving Prevention Programs Should Be Directed: Final Report

April 1987, DOT HS 807 130

This project developed recommendations to improve strategies to prevent youth drinking and driving and riding with impaired drivers. Phase 1 of the study explored existing prevention programs nationwide. Phase 2 identified additional attitudes and skills necessary for the development of DWI avoidance behaviors in youth. The methods and results of Phase 1 are discussed in two DOT Publications ([DOT HS 806 903](#) and [DOT HS 806 904](#)). The final report focuses on the methods and results of Phase 2. Three research studies are described: 1) A survey of youth drawn from junior high schools, high schools, and junior colleges in five diverse geographic locations, 2) interviews with youth in the same five locations who reported engaging in drinking/driving or riding with an impaired driver, and 3) focus groups with youth that explored the acceptability of current popular drinking/driving prevention strategies. The results of this study are discussed as they relate to the refinement and/or reconceptualization of youth drinking/driving prevention efforts.

AUTHOR: M. Klitzner, C. Rossiter, P. Gruenewald, M. Balinsky

A Directory of Ride Service Programs

July 1987, DOT HS 807 146

January 1988, DOT HS 807 291 (Users' Guide)

This directory lists 325 Ride Service Programs (RSPs) from 44 States and the District of Columbia that provide intoxicated drivers with a safe alternative ride home. Many of the entries summarize key program features such as who sponsors the program, whether the program operates on holidays versus year-round, whether the rider's car is transported, and the type of transport used (cab, bus, tow truck, etc.) A companion document called "A User's Guide to Ride Service Programs" describes 52 ride service programs in detail, including information regarding their staffing and operation, procedures for delivering rides, funding, and the kinds of problems that may be encountered along with possible solutions for them.

AUTHOR: Wayne M. Harding, Robert Apsler, Jamie Goldfein

The Assessment of Ride Service Programs as an Alcohol Countermeasure

January 1988, DOT HS 807 290

From the 325 Ride Service Programs (RSPs) identified in the 1987 NHTSA study, fifty-two programs were selected for in-depth examination. The study concluded that such programs are widely available, relatively easy to operate and frequently used. However, the study was not able to reach conclusions regarding program effectiveness in reducing Driving While Intoxicated (DWI).

AUTHOR: Wayne M. Harding, Robert Apsler, Jamie Goldfein

Evaluation of the Host Responsibility Program

September 1987, DOT HS 807 380

A brief (less than two hours) instructional program was developed to encourage and assist hosts to provide responsible service of alcohol. The program was evaluated through pre- and post-program administrations of knowledge, attitude and self-reported behavior questionnaires. With regard to improvements in reported behaviors, most involved better alcohol service and party-giving practices, rather than improved actions in dealing with intoxicated guests.

NHTSA Project Manager: Maria Vegega, Alfred Farina

AUTHOR: A. James McKnight

Identification of Parental Program Structures for Deterring Adolescent Drinking and Driving

November 1989, DOT HS 807 555 (Volume 1: Report of Focus Groups with Parents);
DOT HS 807 556 (Volume II: Identification of Parental Program Structures for Deterring Adolescent Drinking and Driving -- Literature Review)

The objective of this study was to determine the feasibility of developing programs to assist parents in preventing driving after drinking among their children. To determine the extent to which information was already available on developing prevention programs for parents, a literature review was conducted. This activity was followed by a series of focus groups with parents of adolescents to fill in information gaps. The results from these activities were used to generate a list of possible topics and delivery systems for parent prevention programs, and opinions about these options were obtained from parents in an additional focus group. Focus group findings were not encouraging. Although parents indicated youth drinking-driving was a very serious problem, they did not appear willing to spend much time participating in prevention efforts for their children. Details about the literature review appeared in the companion Volume II report.

AUTHOR: Wayne M. Harding, Robert Apsler, Wendi A. Walsh

Identification of Parental Program Structures for Deterring Adolescent Drinking and Driving: Literature Review, Volume 2

November 1989, DOT HS 807 556

The objective of this study was to determine the feasibility of developing programs for assisting parents in preventing driving after drinking among their children. This report contains results from a literature review. Findings from focus groups conducted with parents of adolescents appear in a companion report: "Identification of Parental Program Structures for Deterring Adolescent Drinking and Driving. Volume I: Report on Focus Groups with Parents." The literature provided little guidance in developing prevention programs to aid parents. Findings included the following: few studies address how parents can prevent adolescent drinking or drinking-driving; parents feel youth drinking-driving is a major problem, but appear to underestimate drinking and drinking-driving among their own children; and adolescents indicate that parents do influence their drinking, but parents tend to feel they have little impact and therefore, many take few actions to try and control teen drinking.

AUTHOR: Wayne M. Harding, Robert Apsler, W. A. Walsh

Impact of Treatment and Monitoring on Prince George's County DWI's

December 1989, DOT HS 807 649

Maryland maintains an intensive monitoring system for convicted drinking drivers. Each offender in the program is required to attend a face-to-face interview once a week. In addition to the Monitor Program, judges in Prince George's County had the option of sentencing impaired drivers from 1 to 4 weeks to a specially built county DWI Facility. Offenders were divided into four groups 1) those placed on the Drinking Driver Monitor Program (DDMP) only, 2) those who were sentenced to the DWI Facility only, 3) those who were placed in both programs, and 4) those who received neither. The study examined recidivism with each of these options. Despite difference in prior offenses, recidivism rates for offenders not assigned to either of these treatments were considerably higher (35%) than for those offenders assigned to either the DWI and DDMP, or both programs (15% or less).

NHTSA PROJECT MANAGER: William Tarrants

AUTHOR: Robert B. Voas, A. Scott Tippetts

Host and Server Determination of Alcohol Intoxication Level

June 1990, DOT HS 807 639

The goal of this project was to identify a set of visible impairment cues that could be used to generate accurate estimates of blood alcohol level. An Impairment Estimation Procedure (IEP) was developed from a set of alcohol impairment cues found to be associated with measured blood alcohol concentrations (BACs). Twenty-four cues, representing social behavior, physical appearance, and motor coordination, obtained by observing 149 drinkers in social situations, were divided into two categories: those corresponding to moderate impairment (BACs .04 to .08 g/dL) and those corresponding to severe impairment (BAC > .08). Observers using the IEP estimated impairment more accurately than those who did not use the IEP when drinker impairment manifested in breath tests and field sobriety measures. The improved accuracy lay mainly in identifying moderately-impaired drinkers.

NHTSA Project Manager: Alfred Farina

AUTHOR: A. James McKnight, Paul R. Marques

Alcohol Beverage Server Liability and the Reduction of Alcohol-Related Problems: Evaluation of Dram Shop Laws

June 1990, DOT HS 807 628 (Summary Report)

June 1990, DOT HS 807 629 (Final Report)

This project was an evaluation of the potential for legal liability of alcoholic beverage servers to stimulate preventative serving practices and thus reduce alcohol-related traffic crashes. The study found that in states with higher liability exposure for servers, there was more publicity about such liability, greater awareness and concern among licensed establishment owner/managers, and differential serving practices in comparison to states with low liability. A time series analysis in one state, Texas, which had experienced a dramatic change in server liability (from relatively little to very high) and significant accompanying publicity, had a significant drop in alcohol-related crashes.

NHTSA Project Manager: Richard P. Compton

AUTHOR: H. Holder, A. Wagenaar, H. Saltz, J. Mosher, R. Janes

Determine Feasible and Acceptable Age 21 Support Programs

September 1990, DOT HS 807 667

This project identified programs which are feasible, acceptable, and effective in deterring adolescent drinking. Information was collected on 22 prevention programs. The data was then examined by a panel of experts, and by focus groups consisting of 11- through 20-year olds. The panel and youth agreed that the following programs would be most effective: 1) programs that punish youth who drink by suspending their driver's license or postponing the age at which they become eligible to receive a license, and 2) improvements in the design and distribution of driver licenses in order to reduce the use of fraudulent identification to obtain alcohol.

AUTHOR: Wayne M. Harding, Robert Apsler, Wendi. A. Walsh

Responsible Alcohol Service Programs Evaluation Summary Report

June 1991, DOT HS 807 778

TEAM is a responsible alcohol service program developed for public assembly facilities. Its objectives are to promote responsible alcohol service, enhance safety and enjoyment of fans, reduce potential liability, and reduce alcohol-impaired driving. Case studies were conducted of TEAM programs in seven Major League Baseball facilities. The study collected: 1) data on food and alcohol sales and on alcohol-related incidents; 2) written TEAM assessments and alcohol policies; 3) anecdotal information dealing with the history, implementation, and impact of TEAM; and 4) survey data from employees and fans. Results of the study showed that TEAM had been adopted in spirit and actively implemented in each of the seven facilities. The program was relatively easy to implement and appeared to have contributed to a decline in alcohol consumption and alcohol-related problem behavior. TEAM also produced general improvements in the facilities, including positive changes in the environment that are likely to attract more families, and better relations among staff.

AUTHOR: Robert Apsler, Wayne M. Harding

Responsible Alcohol Service Programs Evaluation

June 1991, DOT HS 807 779

TEAM (Techniques for Effective Alcohol Management) was a responsible alcohol service program developed for public assembly facilities. Case studies were conducted of TEAM programs in seven Major League Baseball facilities. Results of the study showed that the program was relatively easy to implement and appeared to have contributed to a decline in alcohol consumption and alcohol-related problem behavior. TEAM also produced improvements in the general climate within the facilities.

AUTHOR: Robert Apsler, Wayne M. Harding

Evaluation of the TEAM Train-the-Trainer Program

May 1992, DOT HS 808 057

This study evaluated the effectiveness of Techniques for Effective Alcohol Management (TEAM) Train-the-Trainer workshops. The major findings were that 79% of the workshop participants were able to establish various components of the TEAM program at their facility; 75% reported that important alcohol service policies and procedures had been identified and changed; 58% said that some level of TEAM training for facility employees had been implemented; and 45% said the public information and education (PI&E) efforts regarding drinking and driving behavior had been expanded.

AUTHOR: L. F. Cicchinelli, R. A. Keller

[A Guide to Developing a Community-Based Designated Driver Program](#)

July 1994, DOT HS 808 137

This guide was intended to help State traffic safety organizations; associations of bars, restaurants, and clubs; local and State government agencies; and others to develop or refine Designated Driver Programs for adults. The guide focused on how to develop and operate both drinker-based and server-based programs in an entire community.

Assessment of Year-Round and Holiday Ride Service Programs

January 1995, DOT HS 808 203

Ride Service Programs (RSPs) are used across the country to provide rides home to impaired drivers. These programs typically operate on holidays and transport drivers from bars back to their homes. This project examined the effectiveness of two RSPs, one year-round program and one holiday (Christmas-New Year's program). Large proportions of the general public recognized each of the RSPs. Although data indicated that individuals tend to rely on means other than RSPs (such as using designated drivers or asking others for a ride), RSPs do appear to prevent some individuals from driving after drinking.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: M. J. Molof, J. Dresser, S. Ungerleider, C. Kimball, J. Schaefer

Evaluation of Youth Peer-to-Peer Impaired Driving Programs

August 1995, DOT HS 808 309

This study evaluated youth peer-to-peer programs (Students Against Driving Drunk -SADD) to assess the programs' impact on reducing youthful impaired driving and underage drinking behaviors. Twelve high schools in Arizona, Ohio, and Wisconsin participated. Results indicated that students attending schools with active programs were exposed to substantially more activities against drinking and driving and were more likely to hold attitudes reflecting positive reasons not to use alcohol.

AUTHOR: William A. Leaf, David F. Preusser

The Relationship of Alcohol Safety Laws to Drinking Drivers in Fatal Crashes

August 1999, DOT HS 808 980

This report presented an analysis of the relationship between the passage of key safety laws and the number of drinking drivers involved in fatal crashes. The study evaluated the effect of three major alcohol safety laws, Administrative license revocation laws, .10 g/dL blood alcohol concentration (BAC) illegal per se, and .08 g/dL illegal per se laws, on the proportion of drinking drivers involved in fatal crashes. Relying on Fatality Analysis Reporting System (FARS) data, the results found that each of these three laws had a significant impact in reducing alcohol related fatal crashes in the United States.

AUTHOR: Robert B. Voas, A. Scott Tippetts

Addressing Alcohol-Impaired Driving: Training Physicians to Detect and Counsel Their Patients Who Drink Heavily

July 2000, DOT HS 809 076

The objective of this project was to decrease the risk of alcohol-related crashes by increasing awareness among health care providers about addressing alcohol abuse at the individual patient level and at the community level. The study found that 25-40% of patients treated at trauma centers are affected by alcohol. The results of brief interventions indicated that such interventions are effective in decreasing problem drinking. At the individual level, the project encouraged physicians to perform a protocol for brief alcohol interventions to address alcohol abuse.

NHTSA PROJECT MANAGER: Jon Walker, Amy Berning

AUTHOR: Frederick P. Rivara, Chris Dunn, Evan Simpson

Evaluation of a Full-Time Ride Service Program

October 2000, DOT HS 809 155

This report describes the results of a project that examined the operation and effects of an alternative ride program called "Tipsy Taxi" in Aspen, Colorado, operating since 1983. Objectives of this project were to describe the operation of this service for impaired drivers, and to evaluate its effectiveness in terms of reducing alcohol-related crashes. An examination of injury crashes as a proxy of alcohol-related crashes revealed a significant reduction associated with implementation of this program. The report concluded that a comprehensive anti-driving while intoxicated (DWI) countermeasure program should also include other deterrence components such as public information and enforcement.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Ralph K. Jones, E. W. Anderson

Evaluation of Female Driver Responses to Impaired Driving Message

December 2000, DOT HS 809 193

This study explored young women's perceptions of public service announcements (PSAs) against impaired driving. Twelve focus groups were conducted during the fall of 1994, with the 94 participants averaging 26 years of age, drove regularly and had consumed alcohol in the past month. Women saw or heard thirteen existing PSAs from three mediums; video, radio and television. The results indicated that women were most affected by emotional appeals and graphic images. Younger women were less likely to respond positively to PSAs if they perceived them as too authoritative.

AUTHOR: Douglas Piper, Valerie Nelkin

Age of Drinking Onset, Driving After Drinking, and Involvement in Alcohol-Related Motor Vehicle Crashes

January 2001, DOT HS 809 188

Based on a 1992 National Institute on Alcohol Abuse and Alcoholism survey, this study assessed whether persons who begin drinking at younger ages are more likely to report drunk driving and alcohol-related crash involvement over the life course. From 42,862 respondents, this study found that, the earlier the age of drinking onset, the more likely were respondents to report driving after drinking too much and being in a motor vehicle crash because of their drinking. Even among persons who were never alcohol dependent, those who began drinking prior to 21 were more likely to report "ever" and "in the past year" being in a crash after drinking too much, compared to those starting at age 21 or older.

NHTSA PROJECT MANAGER: Amy Berning

Author: Ralph Hingson, T. Heeren, S. Levenson, A. Jamanka, Robert B. Voas

Age of Drinking Onset and Unintentional Injury Involvement after Drinking

January 2001, DOT HS 809 189

This study assessed whether persons who begin drinking at younger ages are more likely to report unintentional injuries under the influence of alcohol. Based on a National Institute on Alcohol Abuse and Alcoholism national survey, this study found that, respondents who started drinking before age 14, compared to those who started at age 21 or older, were 5 times more likely to have been ever injured under the influence of alcohol, and 3.2 times more likely during the past year. Detailed study methodology, results and discussions are also presented.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph Hingson, T. Heeren, A. Jamanka, J. Howland

Development and Evaluation of a Comprehensive Program to Reduce Drinking and Impaired Driving Among College Students

January 2001, DOT HS 809 396

This report describes the development of a program to reduce drinking on a college campus with the goal of reducing motor vehicle crashes resulting from driving after drinking. A random nighttime survey, obtained blood alcohol concentration (BAC) levels from 1,786 students. A comprehensive program was developed to deliver an educational message to the student community. After two years, results indicated that the proportion of students with a BAC above .08 g/dL declined from 10.7% to 8.3%, a statistically significant decline of 22%. However, self-reported drinking did not change from the earlier survey.

AUTHOR: Robert D. Foss, Lauren J. Marchetti, Kathleen A. Holladay

Exploring Alternative Transportation Program to Reduce Impaired Driving

November 2001, DOT HS 809 364

This project examined the impact of an alternative ride home program for persons in circumstances when they may be too impaired to drive. The population age group (24-49) was the intended target group. Following a series of focus groups conducted to examine their beliefs, perceptions and attitudes about drinking, a workplace program was developed for evaluation purposes. The employees were given taxi-coupons at a discount price for use in case of being too impaired to drive. Surveys conducted after the program found very little awareness of the program among employees of the participating companies.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: Kathryn Stewart, Douglas Piper, Monica King

Identification and Referral of Impaired Drivers Through Emergency Department Protocols

February 2002, DOT HS 809 412

This report presented the results of a study examining the use of an Emergency Department (ED) intervention protocol to identify and refer patients with alcohol abuse or alcohol dependency. This prospective, randomized, controlled study, performed at two EDs, suggests that an ED protocol for screening and brief intervention for patients at high risk of alcohol abuse or alcohol dependency increases the likelihood of receiving definitive treatment for alcohol abuse or alcohol dependency.

NHTSA PROJECT MANAGER: Jon Walker, Amy Berning

AUTHOR: Jeff W. Runge, H. Garrison, W. Hall, A. Waller, G. Shen

An Impact Evaluation of Underage Drinking Prevention Projects

March 2004, DOT HS 809 670

This report presented the results of an impact evaluation of four NHTSA and Governors Highway Safety Administration (GHSA) supported community-based underage drinking prevention projects. The four programs emphasized public information and education, and one program included an active legislative component. The impact evaluation focused on the effect of the programs on measures of alcohol-related crashes among youth. Findings suggest that, to have an alcohol-crash impact, public information and education was insufficient and that initiatives aimed at reducing the availability of alcoholic beverages, and at deterring driving after drinking, may be necessary.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Connie H. Wiliszowski, Ralph K. Jones

I) ALCOHOL IMPAIRED DRIVING: MISCELLANEOUS RESEARCH

Message From the Media: Drinking and Driving in Newspapers

July 1985, DOT HS 806 990

A content analysis was conducted on the characteristics of newspaper, as well as a detailed analysis of the content of the article's headline and the article itself. The analysis revealed that the most frequently occurring story focused on legislation to reduce drunk driving by increasing the legal drinking age and the sanctions applied to those convicted of driving under the influence. Also, it was found that while metropolitan dailies often emphasized legislative matters or the courts' handling of drinking drivers, rural and weekly papers more often featured stories on education and prevention efforts to reduce driving under the influence. News reports most often attempted to be objective in their approach to the issue in contrast to editorials, which were most likely to contain an impassioned plea for the passage of legislation to reduce the problems associated with drunk driving.

AUTHOR: Rhoda Estep, Lawrence M. Wallack

A Typological Analysis of California DUI Offenders and DUI Recidivism Correlates

January 1986, DOT HS 806 994

This study examined 7,316 driving under the influence (DUI) offenders in California. The purposes of the study were to develop DUI offender typologies and to determine the extent to which recidivism and treatment compliance can be predicted from the driver record, the criminal record, demographic, and psychometric variables. The resulting low level of recidivism prediction was not adequate to tailor treatment of sanctions to individuals. Also, it appeared that most convicted DUI offenders were problem drinkers, including a substantial proportion of first-time DUI offenders. Therefore, first offenders could be considered a high safety risk deserving of more severe sanctions.

AUTHOR: G. W. Arstein-Kerslake, R. C. Peck

Assessment of Classification Instruments Designed to Detect Alcohol Abuse

December 1988, DOT HS 807 475

This report identified and evaluated instruments which assessed substance abuse problems in driving while intoxicated (DWI) offenders. The study indicated that of the reviewed available instruments, few were developed in a methodologically sound way, and some of these were older instruments which had not been modified to accommodate changes in the population served. Other, newer, instruments were not adequately validated.

AUTHOR: C. L. Popkin, C. H. Kannenberg, John. H. Lacey, P. F. Waller

Anti-Drunk Driving Program Initiatives: A Prospective Assessment of Future Program Needs

March 1990, DOT HS 807 643

This study sought to determine whether the various recommendations of a 1983 Presidential Commission on Drunk Driving had been implemented. The results indicated that substantial progress had been made in implementing many of the legislative changes (raising the minimum drinking age, victim compensation legislation, administrative license revocation, mandatory safety belt laws, increasing public awareness of the problem, etc.) The study cautions that while considerable progress has been made, much remains to be done.

AUTHOR: David Bragdon, John Grant

Driving While Intoxicated Tracking Systems

[Volume I: Design and Operation](#): January 1997; DOT HS 808 520

[Volume II: Design and Operation](#): January 1997; DOT HS 808 521

[Volume III: DWI Estimates for the U.S.](#): January 1997; DOT HS 808 522

This project was a quantitative presentation of driving while intoxicated (DWI) estimates based upon state-level data provided by eight states with DWI tracking systems.

Identification of Alcohol-Pedestrian Crash Problems among Selected Racial/Ethnic Groups

September 1997, DOT HS 808 641

This study examined racial/ethnic patterns of involvement in fatal crashes. The study included focus group testing with members of at-risk minority populations to examine cultural factors which might affect the alcohol pedestrian problem, and potential countermeasures. Racial data were obtained from Fatality Analysis Reporting System (FARS) data for seven states or state subsets. Analyses showed three specific groups with pedestrian-alcohol fatality risks as high as or higher than the population as a whole: Black adults ages 25 and older, Hispanic adult males ages 15 and older, and Native American adults ages 15 and older.

NHTSA PROJECT MANAGER: Alfred J. Farina, Marvin M. Levy

AUTHOR: William A. Leaf, David F. Preusser

Alcohol Highway Safety: Problem Update

April 1998; DOT HS 808 743

This study critically examined highway safety literature in the U.S. and abroad to determine whether information was available that could be used to better identify target groups or problems. Topical areas included the effects of different blood alcohol concentration (BAC) levels on driver behavior, driver and vehicle characteristics associated with or leading to driving after drinking, alcohol-related crashes and violations, and environmental situations associated with or leading to drinking and driving behavior. The findings suggested that the current literature does not provide sufficient information to assist in specific target group or problem identification and that more research was needed to accomplish target group identification.

AUTHOR: Ralph K. Jones, John H. Lacey

Validation of Problem Drinking Screening Instruments for DWI Offenders

May 1999, DOT HS 808 881

This document summarized the results of a validation study for five adult screening instruments in use for preliminary screening of driving while intoxicated (DWI) offenders for problem drinking. The instruments were the Driver Risk Inventory (DRI), the Michigan Alcohol Screening Test (MAST), Mortimer-Filkins Questionnaire, and the Substance Abuse/Life Circumstance Evaluation (SALCE). Screening instruments were administered to 609 consenting adult DWI program participants. The assessment instruments correctly identified problem drinkers, as classified by the criterion instrument, across a range of 72% to 92% of the time. Detailed results are presented.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: John H. Lacey, Ralph K. Jones, Connie H. Wiliszowski

State of Knowledge of Alcohol-Impaired Driving: Research on Repeat DWI Offenders

March 2000, DOT HS 809 027

This literature review covers the scientific literature on repeat driving while intoxicated (DWI) offenders since 1990. The report examines the literature on the incidence of repeat offenders in crashes and fatalities, their characteristics, and the nature and effectiveness of countermeasures designed to reduce their alcohol-crash involvement.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, John H. Lacey

Experimental Testing of Designated Driver Cues

July 2000, DOT HS 809 178

This pilot study attempted to address the factors that may impede proper implementation of the designated driver concept. The experiment was conducted at the San Ysidro border crossing where young San Diegans from California cross into Tijuana, Mexico to patronize bars. Groups of crossers were sampled as they arrived in Mexico and upon their return to San Diego. Groups were randomly assigned to either a cue or neutral condition, where cued participants were asked to identify their designated driver. Among a total of 404 participants, results showed that merely cueing subjects about the use of a designated driver were insufficient to change drinking behavior.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: James E. Lange, Tara Kelley Baker, Mark Johnson

On Alcohol Involvement in Fatal Crashes: Comparisons Among Countries

June 2001, DOT HS 809 355

This study examined the percentage of alcohol-related fatalities to non-alcohol related fatalities in many countries including Australia, Canada, France, Sweden, the United Kingdom, and the United States. The report also includes information on each country's alcohol testing rate.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: Kathryn Stewart

Determine Why There Are Fewer Young Alcohol-impaired Drivers

September 2001, DOT HS 809 348

This report investigated the decline of alcohol-related fatal crashes from 1982 to 1998. The report documents the changes in youth drinking and driving behaviors and compares changes across states and regions. Evidence suggests that four factors contributed to the decline: a shift in the age distribution of the U.S. population, laws that increased the minimum drinking age to 21, laws that established .02 g/dL blood alcohol concentration (BAC) or less alcohol concentration for drivers under the age of 21, and general anti-drinking and driving efforts that affected drivers of all ages. The many education and information programs implemented during this period also appear to have contributed to this decline.

AUTHOR: James H. Hedlund, Robert G. Ulmer, David F. Preusser

Alcohol and Highway Safety 2001: Review of the State of Knowledge

November 2001; DOT HS 809 383

Starting in 1968, the Department of Transportation has periodically conducted comprehensive reviews of the state of knowledge on alcohol and traffic safety. This review covers the scientific literature published since 1990. Over 700 documents were reviewed. The report covers the spectrum of research on drinking and driving. The following topics are included: the alcohol crash problem, alcohol's effects on the body and resulting driving impairment, drinking and driving patterns, and the effectiveness of countermeasures for impaired driving.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: Ralph K. Jones, John H. Lacey

Special Testing for Possible Carry Over Effects Using the Intoximeters, Inc Alco-Sensor IV at 10 Degrees Celsius

March 2002, DOT HS 809 424

This was a report on the validity of roadside breath testing instrumentation used by law enforcement. The Alco-Sensor IV, a widely used hand-held breath tester that is unheated and has no flushing pump was used to investigate the possibility of carry over. A series of tests performed on two versions of the Alco-Sensor IV showed the possibility for the occurrence of carry over in breath testing exists and must be addressed when operating at low ambient temperatures, particularly when using unheated breath testers. The results also showed that the potential for carry over can be eliminated easily by using procedural controls.

NHTSA PROJECT MANAGER: James F. Frank

Author: Edward Conde

Alcohol and Highway Safety 2006: A Review of the State of Knowledge

March 2011, DOT HS 811 374

This publication presented the sixth volume of the National Highway Traffic Safety Administration's series of reviews on the state of knowledge in alcohol and highway safety. This review covered research published between 2000 and 2006, as well as additional reports published in early 2007. As was the practice in previous issues of state of knowledge reports, articles from earlier periods were included to provide sufficient background for more recent findings.

NHTSA PROJECT MANAGER: Dereece Smither

AUTHOR: Robert B. Voas, John H. Lacey

II. Drug-Impaired Driving

A) DRUG USE AND DRUG IMPAIRMENT

The Incidence of Driving Under the Influence of Drugs 1985:

An Update of the State of Knowledge

December 1985, DOT HS 806 900

This project reviewed literature published from 1980 through 1985 to update a previous "state of knowledge" report produced in 1980. The project found that drugs other than alcohol are detected in 10% to 22% of crash-involved drivers, and that drugs alone (i.e., without alcohol) are found in 3% to 15% of crash-involved drivers. It was also found that the majority of drug-using drivers have high levels of alcohol in combination with the drugs. The reviewers cautioned that most of the available studies did not provide unbiased representative samples of crash-involved drivers, and tested for only a limited sample of drugs.

AUTHOR: Richard P. Compton, Theodore E. Anderson

Feasibility Assessment of Chemical Testing for Drug Impairment

September 1985, DOT HS 806 920

The study examined existing data on the concentrations of a variety of drugs in drivers to assess the feasibility of establishing chemical tests to detect drug-impaired driving. It was concluded that urine testing would be suitable for establishing the need to obtain and analyze blood specimens for THC (the active ingredient in marijuana), while saliva offered more promise for presumptive screening for other drugs. The study also found that, at the present state of knowledge, blood was the only body fluid that may serve in a limited manner to relate drug levels to impaired driving.

AUTHOR: R. E. Willette

Feasibility Assessment of Chemical Testing for Drug Impairment: Final Summary Report

September 1985, DOT HS 806 888

This project examined existing data on concentrations of marijuana, secobarbital, diazepam, diphenhydramine, and methaqualone in blood, saliva and urine to assess the feasibility of establishing chemical tests for police use in detecting drug-impaired drivers. The study employed pharmacokinetic methods to relate urine and saliva concentrations to blood levels, which were related to measures of behavioral impairment in laboratory tasks.

AUTHOR: Robert E. Willette

Use of Controlled Substances and Highway Safety: A Report to Congress

March 1988, DOT HS 807 261

The report reviewed the literature on the relationship of drug use to highway safety. It was found that substantial numbers of people sometimes drive after using drugs other than alcohol and between 10 and 22% of crash-involved drivers may have used drugs, often in combination with alcohol. Drugs appearing to have the greatest potential to be serious highway safety hazards were tranquilizers, sedative hypnotics, and marijuana.

AUTHOR: Richard P. Compton

Test Drives in the Daimler-Benz Driving Simulator with Drivers Under Diazepam

May 1990, DOT HS 807 569

The research investigated the influence of diazepam on the driving performance measured in the Daimler-Benz Driving Simulator. Test subjects were male students; 20 received a medium, and 20 received a high dosage of diazepam. A third group of 20 students served as a control group without diazepam. The test drive involved ten standardized driving tasks (scenarios) which either required a normal everyday response or represented an “emergency situation” with greater demands on the driver. No significant differences were found between the three groups. In all scenarios the individual differences within groups were higher than differences between the groups.

AUTHOR: B. Friedel, S. Joo, K. Reker, W. Kading, P. Klostermann, K. S. Saturnus, V. Schneider

Test Drivers in the Daimler-Benz Driving Simulator with Drivers under Diphenhydramine

January 1991, DOT HS 807 668

This study investigated the influence of diphenhydramine on driving performance as measured in the Daimler-Benz Driving Simulator. Subjects received either a placebo, medium, or high dosage of diphenhydramine. The test drive involved standardized driving tasks which either required a normal response or represented an emergency situation. No significant differences were found between the three groups. For all tasks, the individual differences within groups were higher than differences between the groups. Based on the results, the hypothesis was derived that compensatory mechanisms may take effect in particular dosage ranges.

AUTHOR: B. Friedel, S. Joo, K. Reker, W. Kaeding, P. Klosterman

The Incidence and Role of Drugs in Fatally Injured Drivers

October 1992, DOT HS 808 065

This study examined drug presence in blood specimens from nearly 2,000 drivers killed in motor vehicle crashes. Alcohol was found in slightly more than half of the specimens, other drugs in about 18% of the specimens. In about two-thirds of the drug cases, alcohol (usually at high levels), was also present. Analysis of crash responsibility suggested that drugs other than alcohol are most likely to present a hazard when combined with alcohol or other drugs.

AUTHOR: K. W. Terhune, C. A. Ippolito, D. L. Hendricks, J. G. Michalovic, S. C. Bogema, P. Santinga, R. Blomberg, D. F. Preusser

Marijuana and Actual Driving Performance

November 1993, DOT HS 808 078

Volunteer subjects participated in several sessions in which they were dosed on alcohol, marijuana, or a placebo, then drove motor vehicles in various controlled on-road traffic situations (e.g., closed interstate highway). Dual-controlled vehicles were used, and a researcher was always along to take control if warranted. Marijuana was found to have a performance impairment effect equivalent to an alcohol blood alcohol concentration (BAC) level between .04 g/dL and .08 in lane maintenance performance measures.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Hindrik Robbe, James O'Hanlon

Driving after Drug or Alcohol Use: Findings from the 1996 National Household Survey on Drug Abuse

December 1998, DOT HS 808 838

This report contains findings from questions included in the 1996 National Household Survey on Drug Abuse (NHSDA). The data presented describe the prevalence and patterns of driving following drug use and/or alcohol use respondents representing over 166 million drivers age 16 and older in the United States. Results showed that 5% of drivers, representing approximately 8.9 million people, reported driving within two hours of drug use, with or without alcohol, in the past year. An additional 23% of drivers, representing approximately 39 million people, reported driving after alcohol use only. Results are presented in detail.

NHTSA PROJECT MANAGER: Paul Tremont, Richard Compton

AUTHOR: Tara N. Townsend, Julie Lane, Carolyn S. Dewa, Angela M. Brittingham

Marijuana, Alcohol and Actual Driving Performance

July 1999, DOT HS 808 939

The purpose of this study was to determine separate and combined effects of low doses of marijuana and alcohol on visual search while driving. Sixteen volunteer subjects were given weight-calibrated doses of marijuana (THC) and alcohol, or placebos for one of both substances. It was concluded that THC alone in 100 to 200 micrograms per kilogram (ug/kg) doses impairs fundamental road tracking ability with the degree of impairment increasing as a function of the dose. The impairment from THC alone does not diminish and may even increase for up to 21 hours after marijuana smoking, regardless of the THC dose. Furthermore, THC in 100 to 200 ug/kg doses, in combination with alcohol sufficient for producing blood alcohol content (BAC) at 0.04 grams per deciliter (g/dl), severely impairs road tracking ability with the degree of impairment again increasing with the THC dose. THC and alcohol effects on road tracking ability appear to be additive in a pharmacological sense, but the risk of driving off the road increases exponentially with the combined drug effect.

AUTHOR: Hindrik Robbe, James O'Hanlon

Visual Search and Urban City Driving Under the Influence of Marijuana and Alcohol

March 2000, DOT HS 809 020

The purpose of this study was to empirically determine the separate and combined effects of delta-9-tetrahydrocannabinol (THC) and alcohol on visual search and actual city driving performance. On separate evenings, 16 subjects were given weight-calibrated doses of THC and alcohol, or placebos for one or both substances. The test was conducted over a fixed route within the city limits of Maastricht, The Netherlands. An eye movement recording system was mounted on the subjects' head. Visual search frequency of these subjects did not change when treated with alcohol or marijuana alone. However, when treated with the combination of alcohol and marijuana, the frequency of visual search dropped by 3%.

Author: C. Lamers, J. G. Ramaekers

Field Test of On-Site Drug Detection Devices

October 2000; DOT HS 809 192

This study reports the findings of a field evaluation of five-on-site drug screening devices used by law enforcement to screen for illicit drugs among drivers suspected of driving under the influence (DUI) of alcohol or other drugs. Detailed drug screening device performance is presented and implications for the uses of on-site devices by law enforcement for assessing illicit drug use by drivers are discussed.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Rebekah K. Hersch, Dennis J. Crouch, Royer F. Cook

State of Knowledge of Drug-Impaired Driving

August 2003, DOT HS 809 642

This report presented an examination of the current state of knowledge of drug-impaired driving. The review covers a broad range of related research, including the detection and measurement of drugs in drivers, experimental research on the effect of drugs on the performance driving-related tasks, drug prevalence in various populations of drivers, drug-crash risk, and countermeasures for drug-impaired driving. The review covers scientific literature published since 1980.

NHTSA PROJECT MANAGER: Amy Berning, Richard P. Compton

AUTHOR: Ralph K. Jones, David Shinar, J. M. Walsh

Antihistamines and Driving-Related Behavior: A Review of the Evidence for Impairment

May 2004, DOT HS 809 714

This was a review of the literature on antihistamines and driving-related skills. For each H1-antagonist generation, five drugs were evaluated: chlorpheniramine, clemastine, diphenhydramine, hydroxyzine and triprolidine for the 1st-generation, and astemizole, cetirizine, fexofenadine, loratadine and terfenadine for the 2nd-generation. Findings included: 1) There is some evidence of a connection between antihistamine use and traffic collision rates. However, studies were done primarily when only 1st-generation (but not 2nd-generation) antihistamines were prevalent. 2) There was overwhelming evidence from the experimental literature that the 1st-generation antihistamines produce objective signs of skills performance impairment as well as subjective symptoms of sedation. 3) While 2nd-generation antihistamines represent a triumph in reducing potential side effects, there still remains some evidence that all antihistamines, even the 2nd-generation drugs, may cause sedation and objective skills impairment at least in some cases and for some individuals. 4) Within both the 1st- and 2nd-generation antihistamine groupings, there is variation in objective evidence of impairment and in subjective effects such as sedation. Thus, there clearly are drugs that are to be preferred for use to avoid side effects such as sedation and driving-related performance impairment. 5) Methodologically, it is apparent that among the many diverse techniques for investigating driving-related impairment, some methods and behavioral domains are more sensitive to the effects of antihistamines. Future studies of antihistamines, therefore, must utilize the most methodologically-sound techniques so as to permit a better comparison between different drugs.

NHTSA PROJECT MANAGER: Richard Compton

AUTHOR: Herbert Moskowitz, Candace Jeavons Wilkinson

Drugs and Human Performance Fact Sheets

June 2004, DOT HS 809 725

This report presented fact sheets on the impact of drugs on human performance. Based on a panel of international experts, the impact of 16 drugs on human performance was examined. The selected drugs included over-the-counter medications such as dextromethorphan and diphenhydramine; prescription medications such as carisoprodol, diazepam and zolpidem; and abused and/or illegal drugs such as cocaine, GHB, ketamine, LSD, marijuana, methadone, methamphetamine, MDMA, morphine, PCP and toluene.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Fiona J. Couper, Barry K. Logan

Pilot Test of New Roadside Survey Methodology for Impaired Driving

January 2007, DOT HS 810 704

This study developed and tested procedures to enhance roadside survey procedures to include collecting and analyzing oral fluid and blood samples from the nighttime weekend driving population. Roadside surveys involve collecting information from a random sample of drivers. The findings indicated that this form of expanded roadside survey was practicable in the United States. The intent of this Pilot Test was to develop and test procedures that would be used in the next full-scale national roadside survey.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Tara Kelley-Baker, Debra Furr-Holden, Katharine Brainard, and Christine Moore

Priorities and Strategies for Improving the Investigation, Use of Toxicology Results, and Prosecution of Drug-impaired Driving Cases: Findings and Recommendations

January 2007, DOT HS 810 708

This publication presented the findings and recommendations of expert panel meetings on drug-impaired driving. This group convened by the National Safety Council's Committee on Alcohol and Other Drugs (CAOD) included toxicologists, drug recognition experts and prosecutors. The panel was charged with identifying problems with the current system of prosecuting drug-impaired driving cases, from detection through adjudication. This report focused on the recurrent themes and major issues identified. The panel was also encouraged to identify solutions to the problems, and to assign responsibility for follow-up.

AUTHOR: Barry K. Logan

**Drugged Driving Expert Panel Report:
A Consensus Protocol for Assessing the Potential of Drugs to Impair Driving**

March 2011, DOT HS 811 438

This report presented the discussions and conclusions of expert panel meetings on the impact of drugs on driving. Convened in 2008 and 2009, the panel was composed of an international group of behavioral scientists, epidemiologists, pharmacologists, toxicologists, and traffic safety professionals to examine the impact of drugs on driving. Discussions included prescription medications, as well as over-the-counter medications and illicit drugs. Panel conclusions included agreement that the lack of a common, standardized protocol for assessing the impairing potential of drugs is a major barrier. The panel recognized the need for a structured, standardized protocol for assessing the driving impairment risk. This would lead to better classification of drugs in terms of driving impairment risk. The report also provided a description of the proposed protocol, and examples of its use.

NHTSA PROJECT MANAGER: Dereece D. Smither

AUTHOR: Gary G. Kay, Barry K. Logan

A State-by-State Analysis of Laws Dealing With Driving Under the Influence of Drugs

December 2009; DOT HS 811 236

This study reviewed each State statute regarding drug-impaired driving as of December 2008. There is a high degree of variability across the States in the ways they approach drug-impaired driving. Current laws in many States contain provisions making it difficult to identify, prosecute, or convict drug-impaired drivers.

NHTSA PROJECT MANAGER: Maria Vegega and Dereece D. Smither

AUTHOR: J. Michael Walsh

Drug-Impaired Driving: Understanding the Problem and Ways to Reduce It:

A Report to Congress

December, 2009 DOT HS 811 268

This report summarizes a series of studies by the National Highway Traffic Safety Administration to address the general problem of drug-impaired driving. The report describes the research conducted on prevention, detection, and prosecution of driving under the influence of drugs; issues associated with determining what drugs impair driving; difficulties in relating blood levels of drugs and impairment; lack of information about what drugs are frequently used by drivers and what drugs elevate crash risk; problems in obtaining representative data about current enforcement, prosecution, and adjudication of drug-impaired driving; training for law enforcement officers in recognizing drug-impaired drivers; review of drug-impaired driving laws; and what is known about the role of drugs as causal factors in traffic crashes. It highlights the need for further research and concludes with recommendations to better address the problem of drug-impaired driving.

AUTHOR: Richard P. Compton, Maria Vegega, and Dereece Smither

Drug Per Se Laws: A Review of Their Use in States

July 2010, DOT HS 811 317

This report summarizes a study of the implementation of drug per se laws in 15 States. These laws generally make it an impaired-driving offense to drive with a measurable amount of certain drugs in one's system. The specific prohibited drugs vary by State. The laws are generally integrated into the States' overall impaired-driving statute. Though all 15 States were studied to some degree, deeper study of the process was conducted in 6 States. This involved discussions with government officials and law enforcement officers, and a series of structured discussions with prosecutors. This study was not an impact evaluation of drug per se laws on crashes, but rather an attempt to gain an understanding of how the drug per se laws are implemented and perceptions about the law of those charged with implementing the law. It was initially intended that the study would also assess the effect of passing driving under the influence of drugs (DUID) per se laws on the volume of DUID arrests and on conviction patterns, but data to directly address those issues were not available. A general consensus among law enforcement officers we held discussions with was the adoption of drug per se laws did not necessarily make enforcement easier, but did have a positive effect on prosecution. This general perception was shared by prosecutors we interviewed. Because the drug per se laws have typically been adopted as a component of States' impaired-driving statutes, one difficulty of this study was obtaining accurate data on volume of arrests and conviction rates for the DUID component of the impaired-driving law was problematic. Recommendations include developing a procedure where impaired-driving citations indicate drugs, alcohol, or both, but also adopting procedures ensure information is integrated into computerized data systems of both law enforcement agencies and courts.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John Lacey, Katharine Brainard, and Samantha Snitow

[2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Methodology](#)

December 2009, DOT HS 811 237

[see also, Alcohol-Impaired Driving: [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results](#) December 2009, DOT HS 811 248; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Drug Results](#), December 2009, DOT HS 811 249; Results of the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers, Research Note, July 2009, DOT HS 811 175]

This report presented the methodology from the 2007 National Roadside Survey of Alcohol and Drug Use. Over 9,000 randomly-selected on-road drivers participated. Data was collected across 60 sites representative of the U.S. Drivers were requested to provide breath, oral fluid, and blood samples. Lab analyses were then conducted to determine the prevalence of alcohol- and drug-positive drivers in the U.S.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Tara Kelley-Baker, Debra Furr-Holden, Robert Voas, Christine Moore, Katharine Brainard, A. Scott Tippetts, Eduardo Ramirez, Pedro Torres, and Amy Berning

2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Drug Results

December 2009, DOT HS 811 249

[see also [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Methodology](#), December 2009, DOT HS 811 237; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results](#), December 2009, DOT HS 811 248; [Results of the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers, Research Note](#), July 2009, DOT HS 811 175]

This report presented results from the 2007 National Roadside Survey of Alcohol and Drug Use. Over 9,000 randomly-selected on-road drivers participated. Data was collected across 60 sites representative of the U.S. Based on the oral fluid results, more nighttime drivers (14.4%) were drug-positive than were daytime drivers (11%). Based on the blood test results which were administered only at nighttime, 13.8% of the drivers were drug-positive. Using the combined results of either or both oral fluid and blood tests, 16.3% of the nighttime drivers were drug-positive.

NHTSA PROJECT MANAGER: Amy Berning

AUTHOR: John H. Lacey, Tara Kelley-Baker, Debra Furr-Holden, Robert B. Voas, Eduardo Romano, Anthony Ramirez, Katharine Brainard, Christine Moore, Pedro Torres, Amy Berning

Results of the 2007 National Roadside Survey of Alcohol and Drug use by Drivers: Research Note

July 2009, DOT HS 811 175

[see also [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Methodology](#), December 2009, DOT H 811 237; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results](#), December 2009, DOT HS 811 248; [2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Drug Results](#), December 2009, DOT HS 811 249]

National Roadside Surveys have been conducted approximately every 10 years since 1973 to estimate the prevalence of alcohol-positive driving on US roads. The methodology of the 2007 survey was enhanced to also, for the first time, estimate the prevalence of drug-positive drivers. This Research Note summarizes the results from survey. Over 9,000 randomly-selected on-road drivers participated, and data was collected across 60 sites representative of the US. There was a downward trend in alcohol-positive drivers from past decades. Using the combined results of either or both oral fluid and blood tests, 16.3% of the nighttime drivers were drug-positive.

AUTHOR: Richard Compton, Amy Berning

B) THE DRUG EVALUATION AND CLASSIFICATION (DEC) PROGRAM

Identifying Types of Drug Intoxication: Laboratory Evaluation of a Subject Examination Procedure

May 1985, DOT HS 806 753

The project studied the ability of drug recognition experts (DREs) to determine if volunteer subjects were impaired, and if so, to identify the type of drug the subject had ingested. Results indicated that the DRE examination procedure was basically valid. Subjects assessed to be impaired had almost always ingested some drug, and DREs usually correctly identified the type of drug taken.

AUTHOR: G. E. Bigelow, W. E. Bickel, I. A. Liebson, P. Nowowieski

Field Evaluation of the Los Angeles Police Department Drug Detection Procedure

February 1986, DOT HS 807 012

This project compared Drug Recognition Expert's (DREs) assessments of actual arrested suspects with independent analyses of blood samples drawn from the suspects. Findings showed that DREs correctly identified at least one drug type in 87% of suspects assessed as drug impaired. A standardized curriculum was developed to train other officers to employ the Los Angeles Police Department procedure in a national program called "drug evaluation and classification" (DEC).

AUTHOR: Richard P. Compton

Evaluation of the Impact of the Drug Evaluation and Classification Program on Enforcement and Adjudication

December 1992, DOT HS 808 058

This study examined the effect of the drug evaluation and classification (DEC) program on impaired driving enforcement and adjudication. Eleven police agencies in five states with DEC programs were compared with similar police agencies without DEC. Prior to DEC implementation, arrests for drugged driving were very rare. After initiating the program, DEC sites showed increased drugged driving arrests and convictions while there were no similar increases in the comparison communities. In the DEC sites, drugged driving arrests were 1-2% of all impaired driving arrests. Overall, 1,842 suspects were evaluated in the DEC sites; drug presence was confirmed by chemical tests for most of the suspects accused of drug use; and most of the confirmed suspects were convicted.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: David F. Preusser, Robert G. Ulmer, Carol W. Preusser

III. Occupant Protection

A) OCCUPANT PROTECTION: CRASH INJURY RESEARCH

Effectiveness of Safety Belt Use Laws: A Multinational Examination

October 1986, DOT HS 807 018

This report summarized a workshop on the effectiveness of safety belt use laws. More than 80 experts from 14 nations convened to review and discuss papers on safety belt use laws, safety belt use rates, casualty reductions resulting from use laws, and rear seat belt use and child restraints. Data from 20 nations were used for the workshop.

AUTHOR: Michael M. Finkelstein, M. Dejeammes, J. Hedlund, B. Jonah, J. Lawson, E. A. Marburger, A. Nygren, B. Sabey, W. Scott, C. Tingvall, T. Vaaje

Evaluation of the Effectiveness of Child Safety Restraints

March 1987, DOT HS 807 141

The results of this study showed that half of crashes happened within 5 miles of home and 70 percent occurred within 10 miles. Severe crashes were just as likely to occur close to home as they were farther from home. Child safety seats with easy-to-use designs were more frequently used correctly. Serious injuries that were received by children who were properly restrained were most often caused by intrusion or flying objects. Lap-held children were very vulnerable to serious and fatal injuries. Lap-belted children had fewer injuries than did unrestrained children.

AUTHOR: W. L. Hall

Over-Representation of Seat Belt Non-Users in Traffic Crashes

April 1988, DOT HS 807 326

Observations of driver belt use were linked with driver history records. During a 4-year period, unbelted drivers had 35% more crashes and 69% more violations than did belted drivers. Belt non-users had significantly more single vehicle crashes, rollover crashes, and crashes in which the driver was charged with a violation. Crash severity, vehicle deformation, and crash speed did not vary by belt use group. No significant relationships were found by belt use for reckless driving, alcohol violations and reckless and alcohol combined. A telephone survey examined reasons for using and not using belts and reviewed ideas to increase use.

AUTHOR: W. W. Hunter, J. C. Stutts, J. R. Stewart, E. A. Rodgman

Epidemiology of Motor Vehicle Injuries in Suffolk County, New York: Before and After Enactment of a Seat Belt Use Law

June 1989, DOT HS 807 638

This population-based study of hospital-and medical examiner-reported vehicular trauma was conducted in Suffolk County, New York. During the first year following enactment of the law, an 18% reduction in head and brain injury, 17% decrease in facial injuries, and a 20% decrease in forehead injuries were seen. However, a 35% increase in cervical strain was found. The findings showed a clear shift in the pattern of injuries resulting from vehicle crashes, and a significant reduction in the more serious injuries after the safety belt use law was enacted.

NHTSA PROJECT MANAGER: Robert Schweitz

AUTHOR: J. I. Barancik, C. F. Kramer, H. C. Thode Jr.

Exploration of Impact Measures of Safety Belt Use Laws

1990, DOT HS 807 588 (Final Report)

1990, DOT HS 807 589 (Literature Review, Expert Team Comments, Indicator Catalog)

The National Safety Council recommended three indicators of safety belt use law (SBUL) impact and institutional data sources based on a literature review, experts' input, and a survey of data sources. The three are: 1) the "KABC" injury scale used on police crash reports, 2) the Abbreviated Injury Scale (AIS) used on Medical records, and 3) head and face injuries. Two sources satisfied most of the project's 13 evaluation criteria: A) the multi-state, before-and-after Major Trauma Outcome Study and B) the National Electronic Injury Surveillance System. The most promising approach would link police crash data with injury data in hospital medical records and trauma registries.

AUTHOR: T. W. Planek, A. F. Hoskin, K. T. Fearn, T. A. Miller, K. Race

Determination of Characteristics of Fatally Injured Drivers

December 2001; DOT HS 809 380

This study used data from the 1993 National Mortality Followback Survey, linked with Fatality Analysis Reporting System data, the 1996 National Roadside Survey and the 1993 National Survey of Drinking and Driving Attitudes and Behavior to estimate driver risk of fatal crashes based on driver characteristics. Results showed that the risk of being killed in a single-vehicle crash was about 3 times as great for drivers who drink and drive at least weekly. Drivers with Blood Alcohol Concentrations (BAC) of 0.10% or higher are 64 times as likely as those with BACs under 0.05% to be in a crash in which they are killed; drivers who do not use lap or shoulder belts are about 13 times as likely to be in a fatal crash as drivers who wear both lap and shoulder belts. The study concluded that alcohol and seat belt use are the strongest predictors of drivers' risk of involvement in crashes in which they are killed.

AUTHOR: Susan P. Baker, Li-Hui Chen

Summary of Nighttime Belt Use Studies

May 2007, DOT HS 810 774

This Research Note summarized nighttime seat belt use studies. Recent research showed a significant gap between observed day and night belt use. While more people are buckling up today than in the past, belt use rates are much lower at nighttime and crash rates are much higher at night than during the day. Night belt use programs, which can be effective as was shown in Pennsylvania, offer an opportunity to substantially reduce fatal and serious crash injury.

AUTHOR: NHTSA

B) OCCUPANT PROTECTION: SURVEY FINDINGS

Restraint System Usage in the Traffic Population, 1984 Annual Report

March 1985, DOT HS 806 714

This report presents findings from four studies on occupant restraint use in 1984. 1) Driver Safety Belt Use: 130,207 drivers stopped for traffic signals were observed during a 12 month period. Of these drivers, 15.3% were observed to wear safety belts during the last data collection period (July to December); 2) Passenger Safety Belt and Child Safety Seat Use: 108,076 passengers were observed at shopping mall entrances and exits. Child safety seat usage (for infants and toddlers) increased throughout 1984, reaching a high in the third quarter (July to December) of 49.3%. The percent of toddlers, subteens, teens, and adults observed to be wearing safety belts during the third quarter was to be 8.1%, 15.2%, 7.2%, and 13.4%, respectively; 3) Safety Seat Installation Characteristics: 3,476 vehicles with child safety seats parked at shopping malls were observed, and 88.1% were observed in the toddler mode. For toddler seats that require securing by only the vehicle safety belt, 56.4% were used correctly, and 8.7% of toddler seats that require the safety belt and tether were used correctly; and, 4) Helmet Use by Operators and Passengers of Motorcycles and Mopeds: Observed driver and passenger helmet use was 66.6% and 54.0% respectively, for 14,898 motorcycle observations, and Moped observations totaled 1,085, and helmet use among drivers and passengers was observed to be 42.1% and 35.0%, respectively.

AUTHOR: Michael E. Goryl, Michael J. Cynecki

Restraint System Usage in the Traffic Population- 1986 Annual Report

March 1987, DOT HS 807 080

This report presents findings from four studies on occupant restraint use, including safety belt use and misuse, child safety seat use, and safety seat installation. Field observations were collected in 19 U.S, with the following results: 1) Driver Safety Belt Use and Shoulder Belt Misuse: A total of 101,897 drivers stopped for traffic signals were observed during the 12 month period. 39.2% were observed to wear safety belts during the second data collection period July to December). Approximately 3% of drivers wearing shoulder belts in 1986 were incorrectly using them; 2) Passenger Safety Belt and Child Safety Seat Use: Based on 106,930 passengers observed at shopping mall entrances and exits, child safety seat usage (for infants and toddlers) increased throughout 1986, reaching a high in the second half (July to December) of 75.8%. The percent of toddlers, subteens, teens, and adults wearing safety belts during the second half were observed to be 4.7, 29.6, 21.7, and 38.4%, respectively; 3) Safety Seat Installation Characteristics: Observations of 3,746 child safety seats in vehicles parked at shopping malls revealed that 75.4% of all toddler seat types were correctly installed. Toddler seats that require securing by only the safety belt had a correct usage rate of 83.3%. Only 4.6% of toddler seats that require both the safety belt and tether were used correctly; and, 4) Helmet Use by Operators and Passengers of Motorcycles and Mopeds: Driver and passenger helmet use were observed to be 59.8 and 47.7%, respectively, for 81,604 motorcycle observations. Helmet use for both drivers and passengers in cities with mandatory helmet use laws was observed to be 99.5%, while helmet use in cities with no or limited helmet use laws was observed to be 48% for drivers and 31.2% for passengers.

NHTSA PROJECT MANAGER: Peter Ziegler

AUTHOR: Michael E. Goryl and Brian L. Bowman

Guidelines for Observing Child Safety Seat Use

June 1987, DOT HS 807 128

This manual provided guidelines for collecting observational data needed to assess the use of child safety seats (CSS). Directions included observing CSS use, determining the extent of correct and incorrect installation of CSSs, and use of data forms.

AUTHOR: Peter N. Ziegler

Factors Related to Nonuse of Seat Belts in Michigan

September 1987, DOT HS 807 217

This study combined direct observation of seat belt use with interview methods to identify factors related to seat belt use in a state with a mandatory seat belt use law. Observers recorded restraint use for a probability sample of motorists traveling on roads throughout Michigan. Roadside interviews of 1,864 drivers measured socio-demographic, situational, attitudinal, normative, and behavioral characteristics related to seat belt use.

AUTHOR: A. C. Wagenaar, F. M. Streff, L. J. Molnar, K. L. Businski, R. H. Schultz

Restraint System Usage in the Traffic Population, 1987 Annual Report

August 1988, DOT HS 807 342

This study monitored use of occupant restraint systems, including for children, and motorcycle/moped helmet usage in 19 U.S. cities during 1987. Observations of drivers indicated a safety belt usage rate of 42.3%. The driver safety belt usage rate in areas that had mandatory use laws was 49.8% compared to a 29.8% usage in areas with no use laws. Child safety seats were observed being used for 77.6% of the infants. In areas with motorcycle helmet use laws, 92.0% of the drivers and 80.5% of the passengers used helmets. Helmet use in areas with no helmet use laws was 42.2% for drivers and 29.0% for passengers.

NHTSA PROJECT MANAGER: Peter Ziegler

AUTHOR: Brian L. Bowman, Donald A. Rounds

Restraint System Use in 19 U.S. Cities

March 1992, DOT HS 808 147; 1992, DOT HS 808 148

This series of annual reports provides detailed observational data on use rates for manual and automatic safety belts, child safety seats, and motorcycle helmets. Data include belt use by make and year of automobile; belt use by city; belt use by age, seat position, and gender; safety seat use and misuse by manufacturer and model; and helmet use by law/non-law status and by driver/passenger. Driver belt use rose from 23% in 1985 to 51% in 1991; child safety seat use rose from 56% to 82%. In cities covered by state helmet use laws, driver helmet use was stable at 98 to 99%. Driver helmet use in non-law cities rose from 32% in 1985 to 40% in 1991.

AUTHOR: T. Datta, P. Guzek

Motor Vehicle Occupant Safety Survey

September 1995, DOT HS 808 334

This report presented findings from the first Motor Vehicle Occupant Safety Survey (MVOSS). This was a national telephone survey administered to 8,000 persons in Fall 1994 to collect information on the public's attitudes, knowledge, and behavior in key occupant protection areas. Among the topics covered are safety belts, child safety seats, airbags, bicycle and motorcycle helmet use, and crash and injury experience.

AUTHOR: John Boyle

1996 Motor Vehicle Occupant Safety Survey Volume 1: Methodology Report

June 1997, DOT HS 808 630

This report is the first volume in a series of reports summarizing results from the 1996 Motor Vehicle Occupant Safety Survey (MVOSS). The survey is conducted on a biennial basis (initiated in 1994) and is administered by telephone to a randomly selected national sample. Two questionnaires are used, each administered to approximately 4,000 respondents. The survey collects information concerning attitudes, knowledge, and behavior in different occupant protection and highway safety areas. These include safety belts, child safety seats, air bags, (bicyclist and motorcyclist) helmet use, Emergency Medical Services, and crash injury experiences. This volume describes the methodology used to conduct the survey. It also contains copies of the questionnaires.

AUTHOR: John Boyle, Kevin Sharp

1996 Motor Vehicle Occupant Safety Survey Volume 2: Air Bags Report

June 1997, DOT HS 808 631

This report presented the survey findings pertaining to air bags from the 1996 Motor Vehicle Occupant Safety Survey (MVOSS). The 1996 MVOSS includes a total of 8,210 telephone respondents from a National population sample. The survey was fielded from November 4, 1996 to January 5, 1997. In the 1994 survey, respondents were asked if their vehicle had an air bag, whether they knew that seat belts still needed to be worn when an air bag was present, and their knowledge of air bags deployment. The 1996 survey added new questions examining the desirability of air bags and perceptions of injury risk from air bags.

AUTHOR: John Boyle, Kevin Sharp

1996 Motor Vehicle Occupant Safety Survey, Volume 3: Seat Belt Report

August 1997, DOT HS 808 632

This report presented the results of the 1996 Motor Vehicle Occupant Safety Survey (MVOSS), a national telephone survey on occupant protection issues. A total of 8,210 telephone interviews were conducted as a follow up to the 1994 Motor Vehicle Occupant Safety Survey in order to make comparisons of the public's attitudes and behavior regarding seat belts between 1994 and 1996. The 1996 version also asked drivers and non-drivers about their use of seat belts and their knowledge and attitudes toward seat belt laws and enforcement.

AUTHOR: John Boyle, Kevin Sharp

**1996 Motor Vehicle Occupant Safety Survey,
Volume 4: Crash Injury and Emergency Medical Services Report**

November 1997, DOT HS 808 633

This report presented the results of the 1996 Motor Vehicle Occupant Safety Survey (MVOSS), a national telephone surveys on occupant protection issues, highlighting crash injuries and emergency medical services. A total of 8,210 telephone interviews were conducted as a follow-up to the 1994 Motor Vehicle Occupant Safety Survey, permitting comparisons of the public's attitudes and behavior regarding emergency medical services and related issues between 1994 and 1996.

AUTHOR: John Boyle, Stephen Dienstfrey

1996 Motor Vehicle Occupant Safety Survey: Car Seats, Volume 5

December 1997, DOT HS 808 634

The report is a follow-up to the 1994 Motor Vehicle Occupant Safety Survey (MVOSS), thereby permitting comparisons of the public's attitudes and behavior regarding car seats between 1994 and 1996. The report presents data collected between November 4, 1996 and January 5, 1997 from 8,210 telephone interviews among a national population sample. The percentages provided in the report are weighted to accurately reflect a national population sample. As in the 1994 survey, the 1996 version asked drivers about their use (or non-use) of car seats in the vehicle they usually drive; and their attitudes toward the enforcement of car seat laws. The survey gathered trend data on key items from 1994 and 1996 to explore possible changes in behavior between the two years.

AUTHOR: Mark G. Solomon, Neil K. Chaudhary, David F. Preusser

[1998 Motor Vehicle Occupant Safety Survey, Volume 1, Methodology Report](#)

March 2000, DOT HS 809 029

This was the Methodology Report for the 1998 Motor Vehicle Occupant Safety Survey (MVOSS). Initiated in 1994, the survey was conducted on a biennial basis, administered to a random national sample of respondents aged 16 and older. This document described the methodology used to conduct the survey. It also contained copies of both the English and Spanish language versions of the questionnaires.

AUTHOR: John Boyle, Kevin Sharp

1998 Motor Vehicle Occupant Safety Survey, Volume 2, Seat Belt Report

March 2000, DOT HS 809 051

This was the seat belt Report for the 1998 Motor Vehicle Occupant Safety Survey (MVOSS). Initiated in 1994, the survey was conducted on a biennial basis, administered to a random national sample of respondents aged 16 and older. This report presents the survey findings pertaining to seat belts. It also contained copies of both the English and Spanish language versions of the questionnaires.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Ronca & Bucuvalas Shulman

1998 Motor Vehicle Occupant Safety Survey, Volume 3, Child Safety Seat Report

March 2000, DOT HS 809 182

This was the seat belt report for the 1998 Motor Vehicle Occupant Safety Survey (MVOSS). Initiated in 1994, the survey was conducted on a biennial basis, administered to a random national sample of respondents aged 16 and older. This report presents the survey findings pertaining to child restraint use. It also contained copies of both the English and Spanish language versions of the questionnaires.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Ronca & Bucuvalas Shulman

2000 Motor Vehicle Occupant Safety Survey: Volume 1, Methodology Report

September 2001, DOT HS 809 388

This report presented the methodology used for the 2000 Motor Vehicle Occupant Safety Survey (MVOSS). The 2000 MVOSS was the fourth in a series of biennial national telephone surveys on occupant protection issues. The survey used two questionnaires, each administered to a randomly selected national sample of about 6,000 persons age 16 or older. This report, Volume 1, presented the detailed information on the survey methodology, and included copies of the questionnaires.

AUTHOR: John Boyle, Patricia Vanderwolf

2000 Motor Vehicle Occupant Safety Survey: Volume 2, Seat Belt Report

November 2001, DOT HS 809 389

This report presented the survey findings pertaining to seat belts from the 2000 Motor Vehicle Occupant Safety Survey (MVOSS). The 2000 MVOSS was the fourth in a series of biennial national telephone surveys on occupant protection. Results showed that the predominant type of seat belt in the front seat of vehicles is the one piece manual lap and shoulder system (76%). Drivers increasingly are reporting that they have adjustable shoulder belts (48%). Eighty-three percent of drivers said they wore their seat belt "all the time" while driving (up from 79% in 1998).

AUTHOR: Alan Block

2000 Motor Vehicle Occupant Safety Survey: Volume 3, Air bags Report

September 2001, DOT HS 809 413

This report presented the survey findings pertaining to air bags from the 2000 Motor Vehicle Occupant Safety Survey (MVOSS). The 2000 MVOSS was the fourth in a series of biennial national telephone surveys on occupant protection. The percentage of drivers with airbags in their primary vehicles has continued to increase. In 2000, 67% reported air bags in the primary vehicles, compared to 53% in late 1998. Drivers with airbags continued to be more likely to use their seatbelts than were those without airbags in their primary vehicle.

AUTHOR: John Boyle, Patricia Vanderwolf

**2000 Motor Vehicle Occupant Safety Survey:
Volume 4, Crash injury and Emergency Medical Services Report**

November 2001, DOT HS 809 459

This report presented the results of the 2000 Motor Vehicle Occupant Safety Survey (MVOSS), the fourth in a series of biennial national telephone surveys on occupant protection issues. The survey showed that nearly three in ten persons aged 16 and older have had an injury in a vehicle crash that required medical attention. Approximately 16% of the total population, aged 16 and older, have received injuries from motor vehicle crashes severe enough to prevent them from performing normal activities for at least a week.

AUTHOR: John Boyle, Patricia Vanderwolf

2000 Motor Vehicle Occupant Safety Survey Volume 5, Child Safety Seat Report

June 2002, DOT HS 809 465

This report presented survey findings pertaining to child restraint use from the 2000 Motor Vehicle Occupant Safety Survey (MVOSS). The 2000 MVOSS was the fourth in a series of biennial national telephone surveys on occupant protection. These surveys contain self-reported information on child restraint use. Most drivers who have a child younger than 12 indicated that the child always rode in the back. Booster seats are recommended for children ages 4 through 8. The survey found only 14% of children in that age range using them and another 14 percent using front facing child safety seats.

AUTHOR: Alan Block

2003 Motor Vehicle Occupant Safety Survey Volume 1, Methodology Report

September 2003, DOT HS 809 788

This report presented the methodology of the 2003 Motor Vehicle Occupant Safety Survey (MVOSS). The 2003 MVOSS was the fifth in a series of biennial national telephone surveys on occupant protection issues. The survey used two questionnaires, each administered to a randomly selected national sample of about 6,000 persons age 16 or older. This report, Volume 1, presented the detailed information on the survey methodology, and included copies of the questionnaires.

AUTHOR: John Boyle, Patricia Vanderwolf

2003 Motor Vehicle Occupant Safety Survey: Volume 2, Safety Belt Report

September 2003, DOT HS 809 789

This report presented the results of the 2003 Motor Vehicle Occupant Safety Survey (MVOSS), the sixth in a series of periodic national telephone surveys on occupant protection issues. This survey, administered to a random national sample of persons age 16 or older, showed that 84% of drivers said they wore their safety belt "all of the time" when driving. Reported safety belt use was lower among males, drivers age 16-24, drivers in rural areas, pickup truck drivers, drivers who engage in other risky driving behaviors, and drivers in secondary enforcement States.

AUTHOR: John Boyle, Patricia Vanderwolf

Safety Belt Use Estimate for Native American Tribal Reservations

January 2005, DOT HS 809 921

This study examined safety belt use among drivers in Native American tribal reservations. This project sponsored by NHTSA and the Bureau of Indian Affairs (BIA) established the first baseline tribal reservation safety belt use rate, and developed a methodology to use to track trends and program effects. Data collected from 120 sites on 16 tribal reservations showed that safety belt use was 55.4%, varying from 8.8% to 84.8%. Vehicle occupant belt use in tribal reservations with primary safety belt laws was 68.6% compared to 53.2% in tribal reservations with secondary belt laws. In tribal reservations with no belt use law, only 26.4% of the vehicle occupants were belted.

AUTHOR: William A. Leaf, Mark G. Solomon

2003 Motor Vehicle Occupant Safety Survey Volume 3: Air Bags Report

March 2005, DOT HS 809 856

This report presented the results from the 2003 Motor Vehicle Occupant Safety Survey (MVOSS), highlighting air bags results. The 2003 MVOSS was the fifth in a series of biennial national telephone surveys on occupant protection issues. This report presented the survey findings pertaining to air bags.

AUTHOR: John M. Boyle, Patricia Vanderwolf

2003 Motor Vehicle Occupant Safety Survey Volume 4: Crash Injury and Emergency Medical Services Report

March 2005; DOT HS 809 857

This report presented the results from the 2003 Motor Vehicle Occupant Safety Survey (MVOSS), highlighting crash injuries and emergency medical services. Survey findings indicated that approximately 16% of the total population, age 16 and older, has received injuries from motor vehicle crashes severe enough to prevent them from performing some of their normal activities for at least a week. Persons not wearing a safety belt at the time of the (most recent) crash were about twice as likely to be hospitalized from crash-related injuries as those wearing safety belts.

AUTHOR: John M. Boyle, Patricia Vanderwolf

A Study of Nighttime Seat Belt Use in Indiana

September 2006, DOT HS 810 734

This was a study of nighttime seat belt use in Indiana surrounding the *Click It or Ticket* (CIOT) activities. Two statewide nighttime surveys were conducted, with observations conducted at roadway intersections, freeway entrance and exit ramps, and road segments using specialized night vision equipment. Comparisons across the mobilization period revealed a statistically significant increase during the day (79.7% and 84.3%, respectively), and a statistically significant decrease at night (79.0% and 74.0%, respectively). These results suggest that the daytime mobilization activities had a positive effect on daytime belt use, but no effect on nighttime belt use.

AUTHOR: Jonathon M. Vivoda, David W. Eby, Renée M. St. Louis, Lidia P. Kostyniuk

Daytime and Nighttime Seat Belt Use at Selected Sites in New Mexico

January 2007, DOT HS 810 705

This report presented results of observational surveys of seat belt use conducted at 108 observation sites across New Mexico during both daytime and nighttime hours. Belt use at night measured 6.2 percentage points lower than daytime. Belt use was related to gender, vehicle type, and road type and population density. Increasing seat belt usage among occupants traveling at night could substantially lessen injury and fatality rates among passenger vehicle occupants.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, Neil K. Chaudhary, David F. Preusser

2007 Motor Vehicle Occupant Safety Survey: Volume 3, Air Bags Report

November 2008, DOT HS 810 976

This report presented the findings of the 2007 Motor Vehicle Occupant Safety Survey (MVOSS), highlighting survey findings pertaining to air bags. Survey responses showed that the percentage of drivers with air bags in their primary vehicles has continued to increase. In 2007, 90% reported air bags in their primary vehicles, compared to 77% in 2003. The vast majority of the public understood that seat belts still needed to be worn even when the vehicle they were riding in had an air bag. This report further discussed other occupant safety issues related to air bags, including air bag preferences, safety concerns, injury likelihood and demographic characteristics of responses.

AUTHOR: John M. Boyle, Cheryl Lampkin

Occupant Protection Issues Among Older Drivers and Passengers. Volume 1, Final Report

April 2008, DOT HS 810 938

This report presented the results of a study commissioned by NHTSA to examine seat belt use or nonuse among people 65 and older. This study included a literature review, discussions with field experts, and analyses of several national databases. Focus groups with older adults in four States were also conducted. Additionally, a human factors field study was conducted that provided detailed observation and measurement of seat belt use and acceptability among older occupants targeting comfort, convenience, and usability issues. Study results include information to support the development of strategies to increase seat belt use among older adults and ideas for future related research on this topic.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: S. Levi, D. De Leonardis

Occupant Protection Issues Among Older Drivers and Passengers. Volume 2, Appendices

April 2008, DOT HS 810 939

This report presented the materials and documents used in an examination of seat belt use or nonuse among people 65 and older. Documentation from the 3 phases of this study is included.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: S. Levi, D. De Leonardis, P. Zador

Increasing Seat Belt Use Among 8 to 15 Year-olds: Volume I, Findings

May 2008, DOT HS 810 965

This study examined the nature and causes of non-use of seat belts among 8 to 15 year-olds, and made recommendations on interventions and strategic approaches to increase usage among this age group. This report summarized findings from research phases that include a literature review, interviews, focus groups with parents and focus groups with adult/teen influencers. Findings suggested there are groups within the 8-to-15 age range with different attitudes and behaviors toward safety restraints. There also appears to be a gap in messages on seat belt safety directed to parents of 8 to 15-year-olds. Other relevant results and implications are also presented.

NHTSA PROJECT MANAGER: None Listed

AUTHOR: Michelle Kuhn, Jed Lam

Increasing Seat Belt Use Among 8- to 15-year-olds: Volume II, Appendices

May 2008, DOT HS 810 966

This study examined the nature and causes of non-use of seat belts among 8 to 15 year-olds, and made recommendations on interventions and strategic approaches to increase usage among this age group. This report presented the study's literature review, forms and documentation used as well as study's focus group discussion guides.

NHTSA PROJECT MANAGER: Not Listed

AUTHOR: Michelle Kuhn, Jed Lam

2006 Seat Belt Use Estimate for Native American Tribal Reservations

May 2008, DOT HS 810 967

This report presented results of the NHTSA and the Bureau of Indian Affairs (BIA) sponsored survey of seat belt use among drivers in Native American tribal reservations. Data collected from 120 sites on 16 tribal reservations showed overall seat belt use rate of 61.8%. When compared to previous tribal area seat-belt use surveys conducted in 2004, there was a statistically significant increase in seat belt use. There was high variation in belt use across reservations, ranging from 27.7% to 87.8%. Among nine tribal reservations with primary seat belt laws, 73.1% of vehicle occupants were belted. Among three tribal reservations with secondary belt laws; 59.3% of drivers wore seat-belts.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Robert H. Chaffe, Mark. G. Solomon, William A. Leaf

2007 Motor Vehicle Occupant Safety Survey: Volume 1, Methodology Report

July 2008; DOT HS 810 974

This report presented the findings of the 2007 Motor Vehicle Occupant Safety Survey (MVOSS), highlighting survey methodology. The 2007 MVOSS was the sixth in a series of periodic national telephone surveys on occupant protection. This report presented detailed information on the survey methodology, as well as copies of the questionnaires.

AUTHOR: John M. Boyle, Cheryl Lampkin

2007 Motor Vehicle Occupant Safety Survey: Volume 2, Seat Belt Report

July 2008, DOT HS 810 975

This report presented the results of the 2007 Motor Vehicle Occupant Safety Survey (MVOSS), the sixth in a series of periodic national telephone surveys on occupant protection issues. Results showed that 88% of drivers reported wearing their seat belts all of the time while driving. Reported seat belt use was lower among males, drivers age 16-24, drivers in rural areas, pickup truck drivers, drivers who engage in other risky driving behaviors, and drivers in secondary enforcement States. Other seat-belt use results are discussed.

AUTHOR: John M. Boyle, Cheryl Lampkin

2007 Motor Vehicle Occupant Safety Survey Volume 3, Air Bags Report

November 2008, DOT HS 810 976

The survey used two questionnaires, each administered to a randomly selected national sample of about 6,000 persons age 16 or older. Interviewing began January 9, 2007, and ended April 30, 2007. This report presents the survey findings pertaining to air bags. Detailed information on the survey methodology is contained in a separate NHTSA report (“2007 Motor Vehicle Occupant Safety Survey Volume 1. Methodology Report”). The percentage of drivers with air bags in their primary vehicles has continued to increase. In 2007, 90% reported air bags in their primary vehicles, compared to 77% in 2003. The vast majority of the public (96%) understood that seat belts still needed to be worn even when the vehicle they were riding in had an air bag. Thirty-three percent of the public had concerns about the safety of air bags. Despite the concerns, 90% of the public would prefer both driver and passenger air bags in their next vehicle.

AUTHOR: John M. Boyle and Cheryl Lampkin

2007 Motor Vehicle Occupant Safety Survey: Volume 4: Crash Injury and Emergency Medical Services Report

July 2008; DOT HS 810 977

This report presented the results from the 2007 Motor Vehicle Occupant Safety Survey (MVOSS), highlighting crash injuries and emergency medical services. This report presented the survey findings pertaining to crash injury and emergency medical services, including trend data.

AUTHOR: John M. Boyle, Cheryl Lampkin

2007 Motor Vehicle Occupant Safety Survey: Child Safety Seat Report, Volume 5

April 2009, DOT HS 811 978

The 2007 Motor Vehicle Occupant Safety Survey (MVOSS) was the sixth in a series of periodic national telephone surveys on occupant protection issues conducted for NHTSA. The survey employed two questionnaires, each administered to a randomly selected national sample of approximately 6,000 persons age 16 and older (with younger ages over-sampled). Interviewing began January 9, 2007 and ended April 30, 2007. This report presents the survey findings pertaining to child restraints and child occupant protection. A full description of the methodology, and the questionnaires, are presented in a separate report (Volume 1).

AUTHOR: John M. Boyle, Cheryl Lampkin

2007 Motor Vehicle Occupant Safety Survey: Use of and Support for Emergency Medical Services Systems

September 2009; DOT HS 811 178

This research note summarized the 2007 Motor Vehicle Occupant Safety Survey (MVOSS) highlighting the use of and support for emergency medical service systems. MVOSS is a national telephone survey administered by NHTSA on a periodic basis to obtain data on attitudes, knowledge, and self-reported behavior primarily in areas of occupant protection. This research note presented the survey findings pertaining to crash injury and emergency medical services, including trend data.

NHTSA PROJECT MANAGER: Alan Block

Author: Alan Block

Daytime and Nighttime Seat Belt Use by Fatally Injured Passenger Vehicle Occupants

July 2010, DOT HS 811 281

This report presented the results of an examination of the difference in day and night seat belt use among fatally-injured passenger vehicle occupants. Study results showed that over the 10 year-period examined, seat belt use among fatally-injured occupants was lower at night than during the day. On average, nighttime use was 18 percentage points lower than daytime belt use and characterized by younger male pickup truck occupants and residents of secondary enforcement law States. Results also showed that occupants traveling in rural areas, those killed on weekends and drivers with crashes and violations on their record were less likely to wear a seatbelt at night.

NHTSA PROJECT MANAGER: Angela Eichelberger

AUTHOR: Julie Tison, Allan F. Williams, Neil K. Chaudhary

C) IMPACT OF OCCUPANT PROTECTION LAWS

Evaluation of New York State's Mandatory Occupant Restraint Law

1985-1987

This was a comprehensive study of the first year of a belt law in the State of New York, the first state to adopt a mandatory occupant restraint law. Belt use increased from 16 to 57%, then declined somewhat. It was estimated that 220 lives were saved and 3,500 serious injuries were avoided. Child restraint increased and the majority of surveyed adults favored the law. Of 30,000 belt convictions, 80% were for unrestrained drivers, 75% were men, and 90% of the fines were \$25 or less. Two thirds of tickets for unrestrained travel were written on routine patrol and 20% during crash investigations. Results of primary versus secondary enforcement could not be differentiated. The following reports document the study's findings:

Volume I: **Observational Surveys of Safety Restraint Use in New York State**
1985, DOT HS 806 950

Volume II: **Attitudinal Surveys of Licensed Drivers In New York State**
1985, DOT HS 806 951

Volume III: **Observational Surveys of Safety Restraint Use by Children in New York State** 1986, DOT HS 806 972

Volume IV: **Enforcement and Adjudication of Violations of the Law**
1987, DOT HS 807 077

Volume V: **Fatalities and Injuries among Motor Vehicle Occupants Covered by the Law**
1987, DOT HS 807 078

Volume VI: **Final Summary Report**
1987, DOT HS 807 079

Program Activities Associated with Safety Belt Use

1987, DOT HS 807 382 **Volume I: User's Summary**

1987, DOT HS 807 383 **Volume II: Research Report**

This effort summarized the program activities of the 26 States and the District of Columbia that had active safety belt use laws by the end of 1986. Program activities were grouped into community support, employer support, public information and education (PI&E), media efforts, enforcement, and adjudication. Case studies of 8 communities (four with use above 50% and four with use below 50%) were done. Higher use communities had better media penetration, tailored messages, and higher levels of enforcement of belt violations.

NHTSA PROJECT MANAGER: Jesse Blatt

AUTHOR: Jon E. Burkhardt, Jennifer A. Shannon, Hannah Worthington, Mark C. Wozny, Alan W. Block

Report to Congress: Provisions of State Safety Belt Use Laws and Other Programmatic Factors Related to Increasing Safety Belt Use Levels

February 1988, DOT HS EPX 035

This report reviewed reports of successful belt-use promotion experiences from the U.S. and Canada and provides information on why some states have higher belt use rates than do others and what needs to be done to increase usage rates. The report recommends well-publicized law enforcement as the key to increasing belt use.

Factors Related to Increasing Safety Belt Use in States with Safety Belt Use Laws: Second Annual Report to Congress, 1988

January 1989, DOT HS 807 409

This report is the second in a series of reports to Congress on provisions of state safety belt use laws and other programmatic factors related to increasing safety belt use levels. The first Congressional Report reviewed what was known about why some states and communities have achieved higher belt use than others under their belt use laws. It concluded that effective, well-publicized belt law enforcement is the major key to achieving greater belt use. The report identified the gaps in our knowledge of how best to conduct these programs and suggested research and demonstration activities necessary to fill these gaps. This second report describes the research and demonstration activities implemented to test alternative enforcement strategies and publicity approaches.

AUTHOR: Michael Smith, James Hedlund, Jesse Blatt

Reports to Congress: Factors Related to Increasing Safety Belt Use in States with Safety Belt Use Laws: Third Annual Report to Congress, 1989 *[report not available on-line]*

1990, DOT HS 807 529

These reports describe actions NHTSA took to identify the factors related to increasing belt use. The major finding was that enforcement coupled with active public information and education (PI&E) efforts continue to see increases in belt use rates, while programs that only have one or the other alone generally do not.

Seat Belts and the Law: Mandatory Use Laws and the Legal Consequences of Non-Use

May 1990, DOT HS 807 576

This report analyzes the current legal status of the seat belt defense in civil actions. Particular emphasis is given to factors which have altered the evolution of the seat belt defense since 1982, the most significant being the passage of laws mandating belt use in a majority of the states.

AUTHOR: Barry F. Bohan, Stephen P. Teret

Safety Belt Usage Before and After Enactment of a Mandatory Usage Ordinance

October 1990, DOT HS 807 732

This study evaluated the impact of a local municipal ordinance in Lexington-Fayette, Kentucky requiring safety belt usage. The results indicated there was a substantial increase in safety belt use associated with passage and implementation of the ordinance. For example, driver belt usage increased from 36% to 76%.

AUTHOR: K. R. Agent

Safety Belt Use Laws: Evaluation of Primary Enforcement and Other Provisions

October 1995, DOT HS 808 324

As of January 1995, all states except Maine and New Hampshire had laws requiring safety belt use. These laws vary widely in their enforcement options (primary or secondary), scope of coverage (vehicles covered and seats covered), fine levels, and other provisions. In this study, Fatal Accident Reporting System (FARS) data on restraint use among fatally injured motor vehicle occupants from 1983 to 1994 were analyzed for the effects of the laws.

AUTHOR: John Wnini

Evaluation of Louisiana's Safety Belt Law Change to Primary Enforcement

September 1997, DOT HS 808 620

The primary objective of this study was to evaluate Louisiana's change from secondary to primary enforcement with respect to change in the observed seat belt use rates. On November 7, 1995, Louisiana implemented a primary enforcement law, where an officer can stop a vehicle for an observed belt law violation alone. Observed use of seat belts rose from 52% prior to the law change to 68% six months after the change. Most of 2,499 drivers surveyed indicated awareness about the new belt law violation. The results suggested that a change from secondary to primary enforcement can help achieve a significant increase in belt use.

NHTSA PROJECT MANAGER: Linda A. Cosgrove

AUTHOR: David F. Preusser, C.W. Preusser

Evaluation of Maryland, Oklahoma and the District of Columbia's Seat Belt Law Change to Primary Enforcement [report not available online]

March 2001, DOT HS 809 213

The objective of this study was to evaluate the impact on seat belt use rates and citations from the change to primary seat belt enforcement laws in Maryland, Oklahoma, and Washington, DC. Primary enforcement laws allow an officer to stop a motorist for an observed belt law violation alone. Results showed that primary enforcement was related to increased seat belt use, with increases ranging from 8 to 18 percentage points. The number of citations issued also increased following the introduction of primary seat belt enforcement.

AUTHOR: Mark G. Solomon, David F. Preusser, W. J. Nissen

Estimated Minimum Savings to the Medicaid Budget in Colorado by Implementing a Primary Seat Belt Law

March 2007, DOT HS 810 746

This study estimates Colorado's cost savings on direct medical costs through the implementation of a primary seat belt law. Results showed that following the implementation of a primary seat belt law, the first-year savings would be \$1.2 million dollars. Colorado could expect to save \$7.3 million in the first 5 years and \$18.2 million over 10 years. Other costs related to the implementation of the primary seat belt law are also presented.

AUTHOR: Neil K. Chaudhary, Julie Tison

Estimated Minimum Savings to the Medicaid Budget in Florida by Implementing a Primary Seat Belt Law

March 2007, DOT HS 810 747

This study estimates Florida's cost savings on direct medical costs through the implementation of a primary seat belt law. Results showed that following the implementation of a primary seat belt law, the first-year savings would be \$ 2.3 million dollars with continued annual increases. Florida could expect to save \$15.9 million in the first 5 years and \$43.1 million over 10 years.

AUTHOR: Julie Tison, Neil K. Chaudhary

Estimated Medical Cost Savings in New Hampshire by Implementation of a Primary Seat Belt Law

March 2008, DOT HS 810 934

This report examines 2005 motor vehicle-related hospital discharges to predict the estimated savings to the State of New Hampshire if a primary seat belt law was implemented. The savings are calculated using costs based on NHTSA's report Economic Impact of Motor Vehicle Crashes (DOT HS 809 446). In New Hampshire, there was an expectation of a primary law reducing the burden of insurance companies by about \$5.1 million from crashes occurring in a single year alone. Other costs related to the implementation of the primary seat belt law are also presented.

AUTHOR: Neil K. Chaudhary, Julie Tison

Estimated Medical Cost Savings in Rhode Island by Implementation of a Primary Seat Belt Law

September 2008, DOT HS 811 041

This report examined 2006 motor vehicle related hospital discharges to predict the estimated savings to Rhode Island if a primary seat belt law is implemented. The savings are calculated using costs based on the report Economic Impact of Motor Vehicle Crashes (DOT HS 809 446). In Rhode Island, there is an expectation of a primary law reducing the burden of insurance companies by about \$1.9 million from crashes occurring in a single year alone. Other costs related to the implementation of the primary seat belt law are also presented.

AUTHOR: Neil K. Chaudhary, Julie Tison

Estimated Medical Cost Savings in Nevada by Implementation of a Primary Seat Belt Law

September 2008, DOT HS 811 068

This report examines 2007 motor vehicle related hospital discharges to predict the estimated savings to Nevada if a primary seat belt law is implemented. The savings are calculated using costs based on NHTSA's report "Economic Impact of Motor Vehicle Crashes" (DOT HS 809 446). In Nevada, there is an expectation of a primary law reducing the burden of insurance companies by about \$4.2 million from crashes occurring in a single year alone. Other costs related to the implementation of the primary seat belt law are also presented.

AUTHOR: Neil K. Chaudhary, Julie Tison

Estimated Medical Cost Savings in Massachusetts by Implementation of a Primary Seat Belt Law

December 2008, DOT HS 811 067

This report examines 2006 motor vehicle related hospital discharges to predict the estimated savings to Massachusetts if a primary seat belt law is implemented. The savings are calculated using costs based on NHTSA's report "Economic Impact of Motor Vehicle Crashes" (DOT HS 809 446). In Massachusetts, there is an expectation of a primary law reducing the burden of insurance companies by about \$55.8 million from crashes occurring in a single year alone. Other costs related to the implementation of the primary seat belt law are also presented.

AUTHOR: Neil K. Chaudhary, Julie Tison

Estimated Medical Cost Savings in Vermont by Implementation of a Primary Seat Belt Law

September 2008, DOT HS 811 042

This report examines 2005 motor vehicle related hospital discharges to predict the estimated savings to the State of Vermont if a primary seat belt law is implemented. The savings are calculated using costs based on the report Economic Impact of Motor Vehicle Crashes (DOT HS 809 446). In Vermont, there is an expectation of a primary law reducing the burden of insurance companies by about \$1.3 million from crashes occurring in a single year alone. Other costs related to the implementation of the primary seat belt law are also presented.

AUTHOR: Neil K. Chaudhary, Julie Tison

Determining the Relationship of Primary Seat Belt Laws to Minority Ticketing

September 2011, DOT HS 811 535

Racial profiling is often raised as an issue when States change their seat belt law from secondary enforcement (i.e., an officer can only stop a driver for another violation) to primary enforcement (i.e., an officer can stop a driver for an observed belt law violation alone). Thirteen States made this change between 2000 to 2009; 7 did so early enough to allow for comparison of two years of data before the change to two years of data after the law change. Pre- and post- comparisons using fatal crash data demonstrated an overall drop in the number of front-seat occupant fatalities (8% overall; 7% Caucasian, 11% Minority) and overall increases in belt use, both among Caucasians and minorities (8 percentage points overall; 9 Caucasian, 5 Minority). Pre- and post-citation data by race were available from 4 States. Consistent with previous research, all four States showed that the percentage of tickets issued to minorities either stayed the same or decreased slightly from before to after the law change. Hospital discharge data (three States) indicated reductions in crash injury for both Caucasians and minorities. Primary laws were related to gains in seat belt use without evidence of racial profiling associated with changing the law from secondary to primary.

AUTHOR: Julie Tison, Allan F. Williams, Neil K. Chaudhary, James L. Nichols

Impact of Implementing a Primary Enforcement Seat Belt Law in Florida: A Case Study

August 2012, DOT HS 811 656

In 2009, Florida implemented a primary seat belt law. The State was already engaged in a Rural Demonstration Program to increase belt usage in rural areas in the northern part of the State and participated regularly in annual Click It or Ticket (CIOT) mobilizations. This study examined the changes in belt usage associated with the primary law change and the contribution of the rural and statewide belt programs. Awareness surveys indicated that 94% of respondents knew of the primary law and 77% supported the law immediately after the law went into effect. The 2009 CIOT May Mobilization resulted in a 3-point increase in statewide usage, from 77.9% to 80.9%. The new primary law provided an additional gain of 4.3 percentage points in statewide usage to 85.2%. Belt use increased the most among the lowest belt use groups, including males, the African-American population, pickup truck occupants, younger occupants, and motorists on local roads. Statewide belt usage increased to 87.4% after the 2010 CIOT, about one full year after the primary belt law went into effect.

AUTHOR: James L. Nichols, R. Chaffe, Mark G. Solomon

D) ENFORCEMENT OF OCCUPANT PROTECTION LAWS

Program Activities Associated with Safety Belt Use

1987, DOT HS 807 382 **Volume I: User's Summary**

1987, DOT HS 807 383 **Volume II: Research Report**

This effort summarized the program activities of the 26 States and the District of Columbia that had active safety belt use laws by the end of 1986. Program activities were grouped into community support, employer support, public information and education (PI&E), media efforts, enforcement, and adjudication. Case studies of 8 communities (four with use above 50% and four with use below 50%) were completed. Higher use communities had better media penetration, tailored messages, and higher levels of enforcement of belt violations.

NHTSA PROJECT MANAGER: Ramon C. Blatt

AUTHOR: J. E. Burkhardt, J. A. Shannon, H. Worthington, M. C. Wozny, Alan Block

Selective Traffic Enforcement Program for Occupant Restraints

[report not available online]

April 1987, DOT HS 807 120

This study evaluated two enforcement strategies. The first, based on the Canadian model, included waves of intense enforcement activities (a "blitz") that had been preceded by a public information campaign to call attention to the enforcement. The second strategy implemented public information in waves, but the enforcement was integrated into regular traffic enforcement. Blitz enforcement resulted in a substantial increase in belt usage followed by decay over time. The integrated enforcement increased belt use about the same amount but the effect was sustained over time. A third site was intended as a non-activity comparison site. Police in this site issued twice as many citations than were written in either treatment site, but did not initiate any special public information program. No increases in usage rates were observed in the comparison site.

AUTHOR: D. H. Rood, P. P. Kraichy, J. A. Carman

Use of Safety Restraints by Law Enforcement Officers Following Safety Belt Training and Passage of a State-Wide Belt Law

April 1988, DOT HS 807 260

A safety belt program designed for the Maryland State Police was evaluated. Initial evaluation of the program, prior to the mandatory use law, found a significant increase in observed belt use from 21% prior to the program to 42% following the program. Following passage of the mandatory law (from which police officers are NOT excluded), observed use by the State Police was 91%.

NHTSA PROJECT MANAGER: Michael Smith

AUTHOR: A. James McKnight, K. McPherson, B. G. Hilburn

Evaluation of Child Safety Seat Enforcement Strategies

September 1989, DOT HS 807 479

Nine community programs designed to increase child safety seat use through public information and education and enforcement were evaluated. Each community received a \$5,000 grant to assist its programs. Data were collected from over 5,700 vehicles carrying child passengers. There was no significant increase in the overall use of seats. However, there was evidence that the programs increased correct use of the seats being used.

AUTHOR: The Prism Corporation

Recommended Child Safety Seat Enforcement Guidelines

October 1989, DOT HS 807 491

The document presented suggestions and examples for planning, developing, implementing and evaluating a local enforcement and public information and education program to increase the use and correct use of child safety seats. Much of the information and data resulted from an evaluation of child safety seat programs conducted by nine local enforcement agencies nationwide.

AUTHOR: Michael F. Smith, Bernie Moran

Enforcing Child Passenger Safety Seat Laws

September 1990, DOT HS 807 631

The project studied the impact of overtime patrol and an intensified public information campaign on child safety seat usage and correct usage rates. The results indicated that both usage and correct usage increased while the overtime enforcement was in place, but rates dropped somewhat after the special enforcement activity ceased.

Evaluation of FY 1987 Safety Belt Use Law State Enforcement Grants

1991, DOT HS 807 715

Law enforcement grants to 17 states were evaluated. The States initiated enforcement programs in over 100 communities, counties, or specific areas. From the 82 sites providing observation data, 55 appeared to experience an increase in safety belt use following their programs, 22 sites experienced no change, and five suffered a decrease. At least 58 sites could be identified as implementing "Elmira-type" enforcement programs. Of these, 41 programs had an increase in belt use, 14 had no change, and three saw a decrease in usage. The general results indicated that occupant restraint enforcement coupled with public information and education (PI&E) and officer training can lead to increases in safety belt use.

AUTHOR: Michael F. Smith, Sue M. Furman

Local Police Enforcement, and Public Information and Education Strategies to Foster More and Proper Use of Child Safety Seats by Toddlers

March 1994, DOT HS 808 120

This project evaluated the effects of enforcing both belt and child safety seat use laws (without additional funding) and providing public information and education to increase restraint use by children ages 1-5 and to increase proper safety seat use. Two Philadelphia suburbs showed significant increases in seat use and proper seat use compared to a control site. Belt use by drivers in the two suburbs also increased significantly.

NHTSA PROJECT MANAGER: Douglas B. Gurin

AUTHOR: Lawrence E. Decina, Michael G. Temple, Heidi S. Dorer

Evaluation of California's Safety Belt Law Change to Primary Enforcement [*Report not available online*]

November 1994, DOT HS 808 205

On January 1, 1993, California became the first state to implement an uninterrupted change from secondary to primary belt law enforcement. In the six study communities, the percentage of drivers observed wearing seat belts increased from 58% to 76%. Police officers participating in focus groups indicated that they were pleased with the change and had received no negative public reaction.

AUTHOR: Robert G. Ulmer, Carol W. Preusser, David F. Preusser, Linda A. Cosgrove

Field Test of Combined Speed, Alcohol, and Safety Belt Enforcement Programs

March 1995, [DOT HS 808 242](#); [DOT HS 808 243](#); [DOT HS 808 244](#); [DOT HS 909 245](#)

The purpose of this project was to determine the effectiveness of a combined enforcement program that focused on speed, alcohol, and safety belts. Well-publicized campaigns were implemented in three test communities. The results indicated that combined enforcement programs need to maintain high levels of enforcement and publicity to be successful. DOT HS 808 242 is a summary report, DOT HS 808 243 is a site report for Knoxville, Tennessee; DOT HS 808 244 is a site report for Wichita, Kansas; and DOT HS 909 245 is a site report for Lexington, Kentucky.

NHTSA PROJECT MANAGER: Ted Anderson

AUTHOR: Ralph Jones, Hans Joksch, John H. Lacey, Connie H. Wiliszowski, Lauren Marchetti

Occupant Protection Special Traffic Enforcement Program Evaluation

April 1999, DOT HS 808 884

NHTSA awarded Occupant Protection Special Traffic Enforcement Program (OP sTEP) demonstration grants to 20 States in late 1995. The grants were awarded to increase occupant protection and reduce impaired driving under the umbrella program, *Campaign Safe and Sober*. In exchange for these demonstration grants, states were asked to carry out periodic waves of highly visible law enforcement coupled with extensive media supports. Seat belts, child restraints, and impaired driving were emphasized. This report summarized the evaluation study of the OP sTEPs. OP sTEPs are periods of highly visible seat belt law enforcement combined with extensive media support. Results of OP sTEP implementations from 20 states were examined and case studies were conducted in three States. Results indicated that OP sTEP program grants generated incremental enforcement efforts that were well publicized. Over one-quarter of a million seat belt citations (273,437) and over 300,000 public information and education items were distributed. Seat belt use rates increased with subsequent waves.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, W. J. Nissen, David F. Preusser

Achieving a High Seat Belt Use Rate: A Guide for Selective Traffic Enforcement Programs

April 2001, DOT HS 809 244

This report summarized recent advances in achieving and publicizing high-visibility enforcement. Publicity and enforcement strategies are currently available that will enable communities to reach the 90% belt use goal. When used properly, lap/shoulder belts reduce the risk of fatal injury to front-seat passenger car occupants by 45% and the risk of moderate-to-critical injury by 50%. Even greater risk reduction results when seat belts are used properly in light trucks.

AUTHOR: NHTSA

Process and Outcome Evaluation: The Buckle up America Initiatives

July 2001, DOT HS 809 272

This report presented the evaluation of the *Buckle up America* (BUA) initiative. BUA was a national initiative to increase seat belt usage. NHTSA aimed to increase seat belt use to 85% by 2000. Based on data from seat belt use observations, Fatality Analysis Reporting System, and law enforcement citations, seat belt use rates increased after the inception of BUA. However, by 1998, only five states and the District of Columbia were at or above 80% belt use. Restraint use improved markedly for children under age five and fatalities decreased dramatically with BUA nearing its goal of reducing child fatalities by 15%.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, William A. Leaf, W. J. Nissen

NHTSA Region IV Click It or Ticket Campaign, May 2001

January 2002, DOT HS 809 404

During May 2001, all eight southeastern States in NHTSA Region IV conducted *Click It or Ticket* (CIOT), an intensive belt use enforcement program. This study evaluated the results of region-wide CIOT implementation. Results showed that that State and local police issued nearly 119,000 seat belt citations during a two-week period of enforcement. Motorist survey results indicated that 59% of motorists reported knowing *Click It or Ticket*, and 25% had gone through a checkpoint. Observational surveys indicated that belt use increased nine percentage points across the region.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon

Evaluation of Click It or Ticket Model Programs [Report not available online]

September 2002, DOT HS 809 498

This study compared different *Click It or Ticket* (CIOT) seat belt enforcement models. CIOT is an intense, short duration, seat belt enforcement program which relies heavily on paid media to reach all motorists. States that implemented CIOT were compared with States that conducted belt use enforcement with limited paid advertisement and states that conducted enforcement without paid advertisement. States having both enforcement and full paid media advertising increased belt use by 8.6 percentage points, compared to 2.7 percentage points among states with limited paid advertisement and 0.5 percentage points among states with no paid advertisement.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, Robert G. Ulmer, David F. Preusser

May 2003 Click It or Ticket Safety Belt Mobilization Evaluation

May 2003, DOT HS 809 694

This was an evaluation study of the 2003 Click It or Ticket (CIOT) mobilization. CIOT is an intense, short duration, safety belt paid advertising and high visibility enforcement program. The 2003 Mobilization involved nearly 25 million dollars of purchased media. Law enforcement agencies in 44 of 45 states reported issuing more than 500,000 belt use citations during a two-week period. Compared to previous years, observations indicated increased belt use among front seat occupants of passenger vehicles in 40 states and the District of Columbia. The National Occupant Protection Use Survey (NOPUS) recorded the national usage rate at 79%, a 4 percentage point increase over 2002.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, Neil K. Chaudhary, Linda A. Cosgrove

Effectiveness of the May 2005 Rural Demonstration Program and the Click It or Ticket Mobilization in the Great Lakes Region: First Year Results

April 2007, DOT HS 810 753

This was an examination of the impact of Rural Demonstration Programs implemented prior to the May 2005 *Click It or Ticket* (CIOT) mobilization with the goal of increasing seat belt usage in rural areas. The study conducted in NHTSA's Great Lakes Region compared Illinois, Indiana, and Ohio, where enforcement was included during the rural demonstration phase, to Minnesota, Michigan, and Wisconsin where only the paid media was implemented. States that had intensified enforcement during the rural demonstration programs had significant increases in seat-belt usage. Generally, usage did not increase unless enforcement was present.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: James L. Nichols, Katherine A. Ledingham, David F. Preusser

May 2004 Click It or Ticket Seat Belt Mobilization Evaluation: Final Report

May 2007, DOT HS 810 716

This was an evaluation study of the 2004 *Click It or Ticket* (CIOT) mobilization. CIOT is an intense, short duration, seat belt high visibility publicity and enforcement program. The May 2004 Mobilization involved approximately \$32 million dollars of purchased media. Participating law enforcement agencies reported issuing more than 650,000 belt use citations during a two-week period. Compared to previous years, observations indicated increased seat belt use among front seat occupants of passenger vehicles in 41 of 50 States and in the District of Columbia.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, Robert H. B. Chaffe, Linda A. Cosgrove

Evaluation of the May 2005 Click It or Ticket Mobilization to Increase Seat Belt Use

May 2007, DOT HS 810 778

This was an evaluation study of the 2005 *Click It or Ticket* (CIOT) mobilization. The CIOT is an intense, short-duration, seat belt publicity and enforcement program. The CIOT May 2005 Mobilization involved approximately \$33 million of purchased media. Law enforcement agencies reported issuing more than 727,000 seat belt use citations during the two-week enforcement period. Compared to previous years, observations indicated increased seat belt use among front-seat occupants of passenger vehicles in 35 of 47 States and Territories. The national seat belt use rate increased by two percentage points reaching 82% in 2005 compared to 2004.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Mark G. Solomon, Stephanie H. Gilbert, James L. Nichols, Robert H. Chaffe, Neil K. Chaudhary

May 2006 Click It or Ticket Seat Belt Mobilization Evaluation

June 2008, DOT HS 810 979

This project studied the 2006 national *Click It or Ticket* (CIOT) seat belt mobilization. CIOT mobilizations are intense, short-duration, seat belt publicity and enforcement programs. The 2006 mobilization involved media campaigns, law enforcement mobilization. Compared to previous years, results indicated increased seat belt use among front-seat occupants of passenger vehicles in 37 of 50 States and Territories where belt use was known. The number of seat belt citations issued by law enforcement agencies decreased in 2006. The National Occupant Protection Usage Survey indicated the nationwide seat belt use rate did not improve between 2005 and 2006.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Julie Tison, Mark G. Solomon, James L. Nichols, Stephanie H. Gilbert, John Siegler, Linda A. Cosgrove

Increasing Seat Belt Use in New York City: Evaluation of a Demonstration Project

November 2009, DOT HS 811 151

A high-visibility seat belt enforcement program was implemented along Northern Boulevard and surrounding neighborhoods in northern Queens, New York City. The goal was to determine if high-visibility enforcement could increase belt use in a localized diverse community within a major city. Enforcement levels were substantial. Nearly 6,000 tickets were issued across the four program waves conducted about every three months from June 2007 through April 2008. Media consisted of billboards and posters, plus substantial police presence including 160 belt use checkpoints. Residents recalled seeing the billboards, posters, and the police checkpoints. Belt use along Northern Boulevard increased significantly over the life of the program ($p < .05$) and as compared to similar measurements conducted along Grand Concourse in the Bronx, a comparison area ($p < .01$). It was concluded that an urban police agency, with strong leadership and sufficient resources, can increase belt use along a known high-risk corridor without purchasing prohibitively expensive citywide media.

NHTSA PROJECT MANAGER: Patricia Ellison-Potter

AUTHOR: Katherine Ledingham, Julie Tison, Tara Casanova, David Preusser

Evaluation of the May 2007: Click It or Ticket Mobilization

December 2009, DOT HS 811 239

Click It or Ticket (CIOT) programs are short-duration, high-visibility enforcement of seat belt laws. The first nationwide program was conducted in May 2003 followed by similar programs in the month of May of each succeeding year. Results indicate that the States bought less paid media in 2006 and 2007 (\$23 million in 2005 versus \$17 million in 2006 and 2007). The number of belt use citations issued during CIOT peaked in 2005 and then declined in 2006 and 2007. The national belt use rate as measured by the National Occupant Protection Use Survey rose from 75% to 82% from 2002 through 2005. It remained at 82% through 2007. Belt use rates increased in 40 States including the District of Columbia and Puerto Rico and decreased in 12 States. The number of States having achieved 90% or better has tripled since 2002 (from 4 to 12). This report includes State-by-State data on citation rates, ranging from a low rate of 0 per 10,000 in Wyoming to a high of 67 per 10,000 in New Jersey.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Mark G. Solomon, David F. Preusser, Julie Tison, Neil K. Chaudhary

Analyzing the First Years of the Click it or Ticket Mobilizations

January 2010, DOT HS 811 232

The Click It or Ticket (CIOT) seat belt enforcement programs conducted between 2000 and 2006 were an important factor in increasing seat belt use nationwide and in virtually all States. As enforcement programs continued across the country and belt use increased, public awareness and attitudes changed as well, with growing support for primary belt laws and belt enforcement. Support for CIOT programs remains high in most States, and it is likely that continuation of State programs with high enforcement intensity will be capable of producing further increases in belt use. The key to increasing seat belt use beyond 83% nationally are likely CIOT programs aimed at the general driving population, supplemented by special programs targeting low-use groups such as occupants of pickup trucks, residents of rural areas, and nighttime drivers.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Julie Tison, Allan F. Williams

Strategies to Increase Seat Belt Use: An Analysis of Levels of Fines and the Type of Law

November 2010, DOT HS 811 413

This study examined the relationships between seat belt use and state primary versus secondary seat belt enforcement and examined seat belt fine levels. The study examined law type and levels of fines as predictors of seat belt. Results indicated that primary law upgrades were associated with 9- to 10-percentage-point increases in seat belt use among fatal crash victims and 10 - to 12-percentage-point increases in observed seat belt use. By comparison, increasing a State's fine amount from \$25 to \$60 was associated with a nearly 4-percentage-point increase.

NHTSA PROJECT MANAGER: Angela Eichelberger

AUTHOR: James L. Nichols, A. Scott Tippetts, James C. Fell, Amy Auld-Owens, Connie H. Wiliszowski, Philip W. Haseltine, Angela Eichelberger

Evaluation of the First Year of the Washington Nighttime Seat Belt Enforcement Program

December 2010, DOT HS 811 295

The Washington Traffic Safety Commission conducted a high-visibility nighttime seat belt enforcement (NTSBE) program. The two-year program used highly visible enforcement combined with increased paid and earned media about the enforcement but during the nighttime rather than daytime. The activities of the first program year covered spring and fall campaigns in 2007 and a spring campaign in 2008. The first year evaluation reported here examined awareness of the campaign with a survey in driver license offices, observed seat belt use both day and night at 40 sites in five counties, and the statewide annual observational surveys for 2007 and 2008. The awareness surveys showed that the program was effective in delivering its message through multiple media. The observations showed a statistically significant increase in night belt use, from night belt use at 94.6% before the NTSBE, to a peaked of 96.6% in September 2007, and finishing at 95.7% in June 2008.

NHTSA PROJECT MANAGER: John N. Siegler, Jonna Van Dyk

AUTHOR: F. Dennis Thomas III, Richard D. Blomberg, Jonna Van Dyk

Seat Belt, DWI, and Other Traffic Violations Among Recent Immigrants in Florida and Tennessee

May 2013, DOT HS 811 761

Phase I of this project identified two States, Florida and Tennessee, that maintain information on drivers' traffic violations and residency status. Phase II analyzed State databases to examine seat belt nonuse, DWI, and other traffic safety violations among drivers of different immigrant status. The Florida Division of Motor Vehicles provided a stratified random sample of 286,746 drivers' records in its database, for the years 2003 to 2009. The Tennessee Department of Safety provided records for 5,680,728 people for 10 years, 2000 to 2010. The findings from this study are specific to two States and suggest that the role of residency status on traffic violations varied depending on the violation, the racial and ethnic group, and the State.

AUTHOR: Eduardo Romano, A.S. Tippetts, James C. Fell, Connie Wiliszowski, and Amy Auld-Owens

Click It or Ticket Evaluation, 2008 - 2009

June 2013, DOT HS 811 536

Click It or Ticket (CIOT) mobilizations are intense, short-duration, widely publicized enforcement efforts used to improve seat belt use. Annual national mobilizations have been conducted in May every year since 2003. National and State expenditures for publicizing the 2008 and 2009 CIOT mobilizations were at their lowest level since 2003 and the number of seat belt citations decreased each of the last three years. Telephone surveys administered before and after each CIOT campaign indicated increased awareness of police efforts to enforce the seat belt law and increased perceived risk of receiving a ticket if not wearing a seat belt, especially among males 18 to 34 years old. Statewide usage rates increased in 33 States (District of Columbia and Puerto Rico included) in 2008 and increased in 29 in 2009. The number of States increasing statewide belt use has decreased over time and the amount of annual increase was less than 1 percentage point for three of the last four years. It seems likely that more needs to be done to keep or extend gains made in seat belt awareness and belt use.

AUTHOR: Mark G. Solomon, Julie Tison, and Linda Cosgrove

E) BARRIERS TO SAFETY BELT AND CHILD SAFETY SEAT USE

National Understanding and Acceptance of Occupant Protection Systems

July 1986, DOT HS 807 025

A national telephone survey of individuals who drive or ride in cars was conducted in January and February 1986 on automatic safety belts, air bags, and mandatory use laws. The survey found that the public was generally unaware of automatic systems. Air bags were the preferred system.

AUTHOR: S. Loux, J. Hersey, L. Greenfield, E. Sundberg

Strategies to Increase the Use of Child Safety Seats: an Assessment of Current Knowledge

December 1986, DOT HS 807 116

Focus groups were used to investigate parent attitudes toward child safety seats, particularly for toddlers. Participants reacted to descriptions of program concepts intended to convert non-users into users. Recommendations included: increasing fines and driver's license points, strengthening and publicizing enforcement, improving child safety seat design, providing parents with more information on laws and seat features, and aiming communication at subgroups such as pregnant mothers of toddlers.

AUTHOR: R. Kernish, L. London

Strategies to Increase the Use of Child Safety Seats Among Toddlers Volume I [*Other volumes not available online*]

January 1987, DOT HS 807 118

In-depth interviews were conducted with parents to investigate attitudes toward use and nonuse of child safety devices for toddlers. There were differences between users and nonusers.

Participants also reacted to written descriptions of program concepts to increase child safety seat use.

AUTHOR: R. Kernish, L. London

Comparison of the Comfort and Convenience of Automatic Safety Belt Systems among Selected 1988-1989 Model Year Automobiles

June 1989, DOT HS 807 467

A non-random sample of short, tall, and overweight drivers assessed the comfort and convenience of automatic safety belt systems in 17 different model automobiles. Comparisons were made among the systems, rather than to an absolute standard. The motorized systems and the two-point non-motorized systems had the fewest or least severe problems. Some drivers had problems with all systems.

AUTHOR: P. Finn, M. Beauregard, S. Macek, A. Rodriguez

Installation of Child Safety Seats in Selected 1988-1989 Model Year Automobiles

June 1989, DOT HS 807 464

The difficulty of installing child safety seats in 1988 and 1989 model automobiles was studied. Problems with the installation and use of child safety seats (CSS) differed by test vehicle but not by child seat. Use in the front seat appeared to present many problems as compared to the rear seat. This confirmed the recommendations of some manufacturers not to install CSS devices in the front seat of automobiles with motorized safety belt systems.

AUTHOR: P. Finn, M. Beauregard, S. Macek, A. Rodriguez

Patterns of Misuse of Child Safety Seats

January 1996, DOT HS 808 440

This project addressed the patterns of child safety seat (CSS) misuse in the nation and reported on the most appropriate techniques to accurately and efficiently collect this data. CSS use and misuse observations were collected for about 5,900 target young children (under 60 pounds) in over 4,000 vehicles in the following four states: Mississippi, Missouri, Pennsylvania, and Washington. The study found overall correct CSS use was only 20.5%.

NHTSA PROJECT MANAGER: Michael F. Smith

AUTHOR: L. E. Decina, K. Y. Knoebel

Characteristics and Conditions of Teenage Safety Belt Use

July 1997, DOT HS 808 676

Safety belt use was observed for 7,384 vehicle occupants estimated as 15-19 years old in four states - Texas, Virginia, Idaho, and Mississippi. Belt use ranged from 19.5% in Yazoo City, Mississippi to 57.6% in Charlottesville, Virginia. Teens more likely to be belted were: drivers, females, occupants of passenger cars, younger, had taken driver education, and lived in larger cities. Very few teens wore safety belts in the back seat. They were more likely to buckle up on the highway, and less likely to buckle up for recreational and short, local trips. According to teens in the focus groups conducted in this study, effective approaches for improving belt use among teens should portray realistic consequences of not wearing safety belts. Habitual belt use can be promoted with parental influence at an early age, and with enforced primary use laws.

NHTSA PROJECT MANAGER: Michael F. Smith

AUTHOR: K. N. Womack, N. H. Trout, B. J. Davies

The Guide to Community Preventive Services: Reducing Injuries to Motor Vehicle Occupants: Systematic Reviews of Evidence, Recommendations from the Task Force on Community Preventive Services, and Expert Commentary

November 2001

The publication presented the findings of the Task Force on Community Preventive Services on reducing injuries to motor vehicle occupants, published as a supplement to the American Journal of Preventive Medicine. This supplement addresses interventions to increase child safety seat use, increase safety belt use, and reduce alcohol-impaired driving. The recommendations from the Task Force on Community Preventive Services emphasize that no one strategy will address all the underlying causes of motor vehicle crashes and the resulting death and disability.

EDITORS: S. Zaza, R. S. Thompson, K. W. Harris

F) INCENTIVES FOR SAFETY BELT AND CHILD SAFETY SEAT USE

Long-Term Effects of Employer-Based Programs to Motivate Safety Belt Use

February 1987, DOT HS 807 111

This report reviews the procedures and results of 28 different programs that had increased employees' use of vehicle safety belts at ten work settings. Key findings include: 1) safety belt use can be cost-effectively improved at corporations and institutions, 2) significant residual effects of belt use promotion remain long after program termination, 3) belt use gains can be increased with intermittent programs, 4) further research needs to determine optimal program-strategy scheduling, and 5) pros and cons of extrinsic rewards versus no-rewards for belt promotion need attention.

AUTHOR: E. S. Geller, G. R. Lehman, J. R. Rudd, M. J. Kalsher, F. M. Stress

Commitment/Incentive Program to Increase Safety Belt Use on a University Campus

March 1987, DOT HS 807 110

This study was conducted before Virginia's safety belt use law was passed. Safety belt use on a university campus was increased by offering faculty/staff and students who returned signed "buckle up" pledge cards chances to win donated prizes.

AUTHOR: E. S. Geller, G. R. Lehman, M. J. Kalsher, J. R. Rudd

Safety Belt Use and Automobile Insurance: Report to Congress

1988, DOT HS EPX 036

The relationship between belt use and automobile insurance prices was estimated. It was found that where belts were used the average insurance bill dropped between 2 and 6%, \$9 to \$27 per vehicle insured. During this same period, auto claims costs, per injury, rose an average of 17.5% per year. Insurance incentives should be stated as actual savings rather than as a reduced rate of price increases.

Increasing Safety Belt Use by High Risk Drivers

April 1991, DOT HS 807 742

The study identified groups of non-belt users who were most likely to become involved in highway crashes, and developed and tested communication programs designed to increase belt use by the groups. The following groups were identified: young males (18-24), all drinkers, elderly (over 65), unemployed males, and smokers. A program was developed for the Young Males group that involved a contest run by a radio station targeted at this age group. Prizes were awarded to drivers observed using belts whose vehicle had a contest sticker on it. No increase in safety belt usage resulted from the program. Follow-up research identified that contest stickers were not popular and that the contest rules were viewed as too complicated for the prizes.

NHTSA PROJECT MANAGER: Maria Vegega, Michael F. Smith

AUTHOR: Richard D. Blomberg, E. W. Bishop, J. M. Edwards

Program Strategies for Increasing Car Seat Usage in Rural Areas

March 1995, DOT HS 808 274

Data indicated that most young children killed in crashes were not using safety restraints. The objective of this project was to identify strategies for increasing car seat use in rural areas, which tend to be over-represented in child fatalities. Focus groups were conducted with young females in rural Georgia and Tennessee. The project identified appropriate channels for program delivery, preferred message packaging, and opportunities for program activities.

AUTHOR: S. L. Bradbard, E. Lisboa-Farrow

Program Strategies for Increasing Safety Belt Usage in Rural Areas

November 1996, DOT HS 808 505

This report provides a guide to safety professionals for developing and implementing programs to increase safety belt use among young male pickup truck drivers who reside in rural areas. It presented the results of focus groups conducted with young males, ages 16 to 26 years, in rural areas of Texas and Kentucky.

AUTHOR: Steven L. Bradbard, Juanita C. Panlener, Elizabeth Lisboa-Farrow

Increasing Seat Belt Use among Part-Time Users

February 1998, DOT HS 808 708

This study aimed at identifying reasons underlying part-time seat belt usage, and delineates strategies for increasing belt use among part-time users. Primary target groups were males and females, ages 16-20 and 25-30, who acknowledged being part-time seat belt users. The study obtained results concerning mechanical, informational, and motivational influences on attitudes and behavior, and determined strategic intra-personal and community approaches for increasing seat belt use by part-time users. Main results showed that seat belt use by part-time users is related to risk perception and emotional excitement.

AUTHOR: Steven L. Bradbard, Juanita C. Panlener, Elizabeth Lisboa-Farrow

National Child Safety Seat Distribution Program Evaluation

May 1999, DOT HS 808 869

This report presented the results of the evaluation of the National Child Safety Seat Distribution Program (NCSS). The NCSS was a national multi-year program intended to distribute child safety seats to low-income and special needs children. Program evaluation data were collected through interviews with national and local coordinators and individual case studies were conducted in fourteen distribution locations. Results showed that most often, NCSS was carried out by medical related facilities. Problems included obtaining training for distribution center staff, and storing seats from the time a bulk shipment arrived to the time they could be distributed to needy families.

NHTSA PROJECT MANAGER: Linda A. Cosgrove

AUTHOR: Mark G. Solomon, H.B. Weinstein, W.J. Nissen, David F. Preusser

G) OCCUPANT PROTECTION: EDUCATION

Assessment of Elementary School Safety Restraint Programs

June 1985, DOT HS 806 887

This evaluation identified elementary (K-6) safety belt education programs, reviewed their development, and performed administrative and impact assessments of the more popular programs. Six programs were assessed using treatment and comparison groups. Pre- and post-tests were used to determine changes in knowledge, attitude, and reported behavior. Teachers and administrators were interviewed. All programs lead to knowledge gains. No program showed significant change in attitudes, and there were no significant changes in belt use by the students.

AUTHOR: W. D. Cushman, R. F. Pain, K. McPherson, A. James McKnight

A Course on Motor Vehicle Trauma: Instructor's Guide – Final/User's Manual

September 1986, DOT/OST/P-34/86-050

Health professionals are key to any progress in reducing motor vehicle-related injury and death, yet they have been slow to recognize their role in this important area. One contributing factor to this situation has been the absence from the curriculums of health professional schools of courses on motor vehicle related crashes and occupant protection. A comprehensive survey course on motor vehicle injury and death was developed, implemented and evaluated at the University of Illinois at Chicago School of Public Health. The course objectives were for students to view highway deaths and injury as a major public health problem; understand that mitigation of this problem can be accomplished by proven public health preventative techniques; understand and be able to engage in multidisciplinary solutions. It was hoped that students would thus champion the prevention of road related trauma as a high priority for public health agencies, professional health associations, and community organizations.

NHTSA PROJECT MANAGER: John Eberhard

AUTHOR: Janet A. Holden, Tom Christoffel

Health Risk Appraisal and Safety Belt Use

May 1987, DOT HS 807 139

An evaluation was performed to determine the effectiveness of health risk appraisal programs for increasing safety belt use. Programs were field tested with and without supplemental belt educational materials in work and medical settings in four states. Materials appeared to help increase belt use. The materials were considered by the programs to be very useful as a complement to their current activities.

NHTSA PROJECT MANAGER: John Eberhard

AUTHOR: D. D. Perkins, S. M. Dunton

Strategies to Increase the Use of Safety Belts by Youngsters

March 1989, DOT HS 807 521

This project used a literature review, expert input, and focus groups with children in grades 3 through 10 and parents of children in grades K-12 to investigate strategies to increase youngsters' use of safety belts. Age-sensitive combinations of several program strategies and activities would be most effective (e.g., peer testimonials, belt law enforcement, penalties for new drivers, parent education about the importance of restraint use for children).

AUTHOR: N. Klein

Junior High School Occupant Protection Materials

June 1989, DOT HS 807 485

Based on a review of existing materials, discussions with subject experts and teachers, and a series of pilot tests, a set of draft curriculum materials was developed. The materials were designed to appeal to the wide range of developmental levels in students ages 12 to 15 and to maximize ease of use of the materials by teachers. The materials were structured in modules, with activities emphasizing student participation and self-discovery.

AUTHOR: M. Edberg, R. Karimi

Encouraging Full-Time Use of Safety Belts Among Current Part-Time Users

January 1991, DOT HS 807 700

Studies have found that about a third of drivers report using their seat belts only some of the time. A study was conducted to determine whether safety belt messages highlighting the risks of not using belts all the time could induce these users to buckle up more often. A significant increase in belt use was found for individuals who received information, but the gain did not persist over time. It was felt that if this information were part of a larger belt program, the impact might continue.

NHTSA PROJECT MANAGER: Jesse Blatt

AUTHOR: P. Finn, V. Leiter

Program Strategies for Increasing Car Seat Usage in Rural Areas

March 1995, DOT HS 808 274

Data indicated that most young children killed in crashes were not using safety restraints. The objective of this project was to identify strategies for increasing car seat use in rural areas, which tend to be over-represented in child fatalities. Focus groups were conducted with young females in rural Georgia and Tennessee. The project identified appropriate channels for program delivery, preferred message packaging, and opportunities for program activities.

AUTHOR: S. L. Bradbard, E. Lisboa-Farrow

Rural Pickup Truck Drivers and Safety Belt Use: Focus Group Report

May 2004, DOT HS 809 711

This report presents background information about safety belt use among rural pickup truck drivers and presents an inventory of pickup truck safety belt and children in cargo area laws, as of November 2000. Safety belt usage rates, fatality rates, and characteristics of pickup truck drivers and passengers, as of November 2000, are summarized; and public information campaigns intended for pickup truck drivers, as of 2000, are reviewed. Also, qualitative data about pickup truck drivers' knowledge and attitudes about safety belt use and public information materials are summarized. Eight focus groups were conducted with male pickup truck drivers from rural areas in Georgia, Michigan, Montana and Texas. Among the key findings are: male pickup truck drivers reported that they are generally safety conscious about work and household issues, but not about safety belt use; most believed that safety belts are important, but found them uncomfortable, restrictive and a "hassle;" some reported wearing safety belts when traveling in passenger cars but not in their pickup trucks; and they were more likely to use safety belts when family members pressured them to wear their safety belts. Regarding communication materials (TV, radio scripts, posters, brochures), most of the men preferred communication messages that are as realistic as possible. They did not appreciate the use of humor in messages, and mistrusted celebrity spokespersons and the use of statistics in messages. Based on these results, suggestions for campaign message development, intended for the male, rural pickup driver population are presented.

AUTHOR: M. Nitzburg, R. Knoblauch

Increasing Seat Belt Use through State-level Demonstration Projects:

A Compendium of Initial Findings

August 2008, DOT HS 811 014

This report summarized the efforts and results from four of six State-level demonstration projects supported with cooperative agreements from NHTSA. These projects were intended to increase seat belt use in low-belt-use States through innovative approaches. The processes used and outcomes in each State are contained in separate case studies that are appendices to this report. These case studies describe State problem was identification, the relation between demonstration projects to the State's *Click It or Ticket* (CIOT) program, program countermeasures selected, the methods used to evaluate the program, and the evaluation results obtained.

NHTSA PROJECT MANAGER: Jennifer Warren

AUTHOR: Richard D. Blomberg, F. Dennis Thomas, Arlene M. Cleven

Evaluation of the Buckle Up in Your Truck Programs

June 2009, DOT HS 811 131

In 2006 and 2007, all four States in NHTSA's Region 7 (Iowa, Kansas, Missouri, and Nebraska) participated in a two-year *Buckle Up in Your Truck* (BUIYT) program. Each year, this program consisted of a two-week, high visibility, seat belt enforcement effort that preceded the National *Click It or Ticket* (CIOT) mobilization. The citation rate, averaged across the States, was 15 to 17 citations per 10,000 populations. Awareness of general messages to buckle up, and of ongoing enforcement, reached high levels of about 80% and 68%, respectively. Awareness of messages to buckle up in pickup trucks reached levels of just under 40%. Observed seat belt usage increased in all four States and in all vehicle types. Two-year increases in pickup trucks ranged from 3 to 14 percentage points (an average of 8 points).

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: James L. Nichols, J. Tison, M. G Solomon, Katherine A. Ledingham, David F. Preusser, John. N. Siegler

Evaluation of Teen Seat Belt Demonstration Projects in Colorado and Nevada

September 2011, DOT HS 811 518

Colorado and Nevada initiated multiwave Teen Seat Belt Demonstration Projects in October 2007. Four waves of paid media and law enforcement activity were conducted over the next year. Three waves were conducted independently of statewide Click It or Ticket (CIOT) mobilizations, and one wave was conducted immediately prior to the May 2008 CIOT effort. Program data indicate that these were strong programs, and awareness surveys indicated that media efforts and law enforcement agencies successfully impacted the target population of teens 16 to 20 years old. Baseline use rates were substantially higher in Nevada than in Colorado; and, in Nevada, baselines were higher among college students than among high school students. Teen seat belt use increased significantly in both States. Overall gains of 5 percentage points in Colorado and 8 points in Nevada were substantial, particularly given that both States have secondary enforcement laws and low fine levels (\$20 in Colorado; \$25 in Nevada). It is likely that greater gains could be made with passage of a primary law upgrade and/or an increase in fine levels in either or both of these States.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: James Nichols, Emily Haire, Mark Solomon, Patty Ellison-Potter, Linda Cosgrove

H) MISCELLANEOUS OCCUPANT PROTECTION RESEARCH

Risk Taking and Safety Restraint Usage of Young Drivers: Technical Report of Experimental Study

[report not available online]

April 1985, DOT HS 806 811

This project tested three alternative methods for increasing belt use by young drivers, conducted additional analyses of data on risk-taking by young drivers collected in a previous study, and validated the technique for assessing risk perception used in this and the previous study. A safety booklet and a simulated law both increased belt use, with females showing a greater increase than males. Belt use was not related to perceptions of riskiness of driving, however non-users of belts, especially males, tended to be greater risk takers than belt users.

AUTHOR: P. Finn, J. Hodgdon, M. Beauregard, E. Shapiro, S. Zaman, M. Stein

School Bus Safety Belts: Their Use, Carryover Effects and Administrative Issues

February 1986, DOT HS 806 965

Nine school districts operating large buses equipped with safety belts were used to explore whether the use of belts in school buses increased students' use of belts in automobiles. Reported student bus belt use varied from 80-100% for grade schools to 50% or less for high schools. No evidence was found that students who did not use seat belts began using them after riding belt equipped buses. However, on-board student behavior was reportedly improved and belts lacked serious operating, maintenance, or other problems.

AUTHOR: A. M. Gardner, W. Plitt, M. Goldhammer

Safety Belt Use and Automobile Insurance: A Report to Congress, 1988

January 1988

This report describes the relationship between rates of safety belt use and automobile insurance prices. The theory supporting a linkage of safety belt use to auto insurance prices involves a chain of causation. Belt use reduces injury incidence and severity. These reductions should decrease insurance claims payments, leading to lower prices for the injury-related portions of auto insurance. In 1987 alone, the 25 percentage point rise in national belt use over 1984 levels saved about 1300 lives and prevented about 16,000 moderate to serious injuries. The resultant reduction in automobile insurance claims was roughly \$1 to \$2.5 billion dollars. Other public and private insurers probably saved another \$0.5 to \$1.25 billion.

AUTHOR: NHTSA

Pilot Tests of a Seat Belt Gearshift Delay on the Belt Use of Commercial Fleet Drivers

December 2009, DOT HS 811 230

This study evaluated a device that prevented drivers from shifting vehicles into gear for up to 8 seconds unless the seat belt was buckled. Participants, commercial drivers from the United States and Canada who did not consistently wear their seat belts, could avoid the delay by fastening their seat belts. Unbelted participants experienced a delay of either a consistent 8 seconds, or a variable delay that lasted on average of 8 seconds. United States drivers' belt use increased from 47% to 68% (a 45% increase), and Canadian drivers' use rose from 54% to 75% (a 39% increase). There was no significant difference between fixed and variable delay schedules.

Author: Ron Van Houten, J. E. Louis Malenfant, Ian Reagan, Kathy Sifrit, and Richard P. Compton

Legislative History of Recent Primary Safety Belt Laws

January 1999, DOT HS 808 833

This report summarized the strategies that supported or opposed new legislative provisions and the barriers encountered in modifying safety belt laws prior to December 1997. This study developed legislative analyses of six jurisdictions that upgraded their secondary safety belt laws to primary standard ones. In-depth interviews were conducted to examine the political process, identify the roles of key players, including insights from legislators, lobbyists, coalition leaders, law enforcement officials and media representatives. Conclusions include the importance of clear legislative objectives and identifying opportunities for organizations or individuals to play effective roles. The report also includes program and research recommendations.

NHTSA PROJECT MANAGER: Douglas Gurin

AUTHOR: N. Russell, P. Dreyfuss, M. Cosgrove

The Premature Graduation of Children from Child Restraints to Vehicle Safety Belts

June 2001, DOT HS 809 259

The objective of this project was to determine reasons for the premature graduation of children from child safety seats to vehicle seat belts and to suggest strategies for increasing booster seat use. The research found a variety of reasons as to the premature graduation of children from child safety seats to vehicle seat belts. Lower perception of risks, child discomfort, parent's lack of knowledge and cost were mentioned. This report also identified potential strategies to overcome barriers and booster seat use. Strategies included educating parents on the benefits of booster seats over seat belts and developing programs to distribute free or low cost booster seats.

AUTHOR: F. K. Winston, E. K. Moll, D. R. Durbin, N. Kassam-Adams

Operation of Inspection Stations for Child Restraint Use

January 2003, DOT HS 809 604

The objective of this project was to identify and describe the characteristics of model child safety seat inspection stations so that safety professionals can make better strategic and resource allocation decisions for implementation of inspection stations. Seven geographically diverse child passenger safety inspection station programs were selected as study sites. This report presented the site selection process, process challenges and resulting programmatic recommendations.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: J. Dewey-Kollen, J. K. Prom

Misuse of Child Restraints

March 2004, DOT HS 809 671

The purpose of this study was to obtain a measure of the current level of misuse of child restraint systems (CRSs) among the general public. Data on CRS use and misuse were collected for 5,527 children in 4,126 vehicles from 6 States. Results showed that most children were restrained in a CRS; with a quarter restrained in a safety belt and one in ten were unrestrained. Most common critical misuses were loose harness straps securing the child to the CRS and loose vehicle seat belt attachment around the CRS. Other types of CRS misuses were also observed and reported in the report. Recommendations are provided for periodic monitoring of CRS misuse, research needs, and enforcement and education.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: Larry E. Decina, Kathy Lococo

Child Restraint Use Survey: LATCH Use and Misuse

December 2006, DOT HS 810 679

This report presented the 2005 Child Restraint Use Survey, highlighting respondent use of Lower Anchors and Tethers for CHildren (LATCH) mechanisms to secure child safety seats. A key finding of the survey was that 55% of child safety seats, located in a seating position equipped with an upper anchor was attached to the vehicle using an upper tether. This report presented other study findings and discussed main reasons for misuse.

AUTHOR: Larry E. Decina, Kathy Lococo, Charlene T. Doyle

Identifying Strategies to Improve the Effectiveness of Booster Seat Laws

May 2008, DOT HS 810 969

The objective of this project was to identify strategies to improve the effectiveness of booster seat laws. The project explored factors that relate to the use and nonuse of booster seats, and examined the attitudes of law enforcement officers and parents concerning booster seat laws. Educational, enforcement, and legislative strategies were developed to improve the effectiveness of booster seat law.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Larry E. Decina, Kathy Lococo, Warren Ashburn, William B. Hall, Janelle Rose

Identifying Information that Promotes Belt-positioning Booster Use:

Volume 1, Summary and Findings

July 2008, DOT HS 811 018

This study aimed to identify interventions that promoted booster seat use among this population. Focus groups were used to elicit factors contributing to booster seat nonuse, which informed subsequent intervention development. Study results showed that effective intervention programs can be created by identifying and addressing factors that contribute to a population's intention to use belt-positioning booster seats. In addition, successful programs must use messages that motivate the target population by addressing their perceived threats to booster seat nonuse.

AUTHOR: Flaura K. Winston, Danielle C. Erkoboni

Identifying Information that Promotes Belt-positioning Booster Use:

Volume 2, Appendices

July 2008, DOT HS 811 019

This study aimed to identify interventions that promoted booster seat use among this population. Focus groups were used to elicit factors contributing to booster seat nonuse, which informed subsequent intervention development. Volume 2, Appendices, of this report presented the documents used during in the study, including flyers, focus group moderator guides, questionnaires, screening forms and other relevant materials.

AUTHOR: Flaura K. Winston, Danielle C. Erkoboni

School Bus Seat Belts and Carryover Effects in Elementary School Children

October 2009; DOT HS 811 187

The purpose of this paper is to explore the proposition that the lack of seat belts on school buses increases the likelihood that elementary school children will not use seat belts in personal vehicles. The paper reviews the limited evidence on this “carryover” effect and looks at current knowledge and understanding of human learning and cognitive development as it applies to the potential carryover effects of no seat belts on school buses to seat belt use in personal vehicles.

This paper focuses specifically on children ages 5 to 10.

NHTSA PROJECT MANAGER: Dereece Smither, Jenny Percer

AUTHOR: Dereece Smither, Jenny Percer

Evaluation of a County Enforcement Program with a Primary Seat Belt Ordinance:

St. Louis County, Missouri

May 2010, DOT HS 811 292

This report presented the results of the evaluation of St. Louis County’s seat belt enforcement program. To increase seat belt usage the St. Louis County Police Department conducted an intense high visibility enforcement campaign characterized by a strong enforcement effort and accompanied by publicity. Saturation patrols and enforcement zones resulted in about 1,000 citations issued over a two-week period that resulted in increases in all awareness indices and a 4.9 percentage point increase in belt use compared to a comparison site. Data suggest that enactment and enforcement of a statewide primary enforcement law would result in a significant increase in statewide seat belt usage.

AUTHOR: James L. Nichols, Mark G. Solomon, R. H. B. Chaffe, David F. Preusser

Documenting How States Recently Upgraded to Primary Seat Belt Laws

September 2011, DOT HS 811 524

States with primary seat belt laws have higher observed daytime belt use rates than secondary law States. Secondary belt law States consistently have more occupant fatalities who were not restrained than primary law States. Since 2000, 14 States upgraded their seat belt laws to primary enforcement status. This study documented the roles, strategies, resources, and arguments these States used in efforts to pass primary belt laws. Information was gathered from 10 case study States that passed their laws in 2004 to 2009 (Tennessee, South Carolina, Alaska, Mississippi, Kentucky, Maine, Minnesota, Arkansas, Florida, and Wisconsin). There were common efforts and themes including: understanding that passing a primary law is a multiyear effort involving a broad-based network of organizations and individuals; identifying and effectively responding to opposition arguments; maximizing awareness of the availability of grants; using paid lobbyists to provide information and address concerns of legislators; engaging the media to enlist and report on public support; presenting the bill in terms of a public health issue to save lives, reduce injuries, and reduce State medical expenditures; and using a variety of legislative techniques. Opposition concerns included intrusion of government on personal freedoms and racial profiling.

AUTHOR: Renee M. St. Louis, Betty J. Mercer, David W. Eby

Using Haptic Feedback to Increase Seat Belt Use of Service Vehicle Drivers

January 2011, DOT HS 811 434

This study pilot-tested a technology-based intervention aimed at increasing seat belt use among service vehicle drivers. With this technology, unbelted drivers experienced sustained haptic feedback to the gas pedal when they exceeded 25 mph, with the feedback disappearing when drivers buckled. Participants were 7 commercial drivers who operated carpet-cleaning vans. During baseline, no contingency was in place for unbuckled trips. The yieldable haptic feedback technology was introduced on a multiple baseline across drivers design. Once the first set of drivers had responded to the contingency, it was introduced for the second set of drivers. Results showed that drivers were impressed with the device and would not drive very long unbelted with the force in place. The introduction of the feedback system was associated with an immediate sustained increase in seat belt use to 100%.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: Ron Van Houten, Bryan Hilton, Richard Schulman, Ian Reagan

IV. Speeding, Aggressive Driving and Other Unsafe Driving Actions

A) SPEEDING: PROBLEM IDENTIFICATION

The Effects of the 65 MPH Speed Limit during 1987: A Report to Congress, January 1989

January 1989, DOT HS 807 369

The Surface Transportation and Uniform Relocation Assistance Act enacted by Congress in 1987 permitted states to raise the speed limit up to 65 miles per hour mph on their rural Interstate highways. Thirty-eight states opted for the higher speed limit on some or all of their eligible rural Interstates. This study assessed the impact of the increased speed limit on highway safety.

AUTHOR: NHTSA

Safety Impact of Permitting Right-Turn-On-Red: A Report to Congress

December 1994, DOT HS 808 200

The Energy Policy Act of 1992 required NHTSA to conduct a study of the safety impact of permitting right and left turns on red lights. This report presented a brief summary of the current status of State implementation of laws permitting right and left turns at red lights, a brief review of previous research, and presented the results of analyses of available data assessing the safety impact of permitting right turns on red. The study found that the number of crashes due to right-turn-on-red was small, and thus the impact on traffic safety has been small.

AUTHOR: Richard P. Compton, Edward V. Milton

National Survey of Speeding and Other Unsafe Driving Actions: Volume I: Methodology

September 1998, DOT HS 808 748

This report presented the methodology for the 1997 national survey of speeding and other unsafe driving actions.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: John Boyle, Stephen Dienstfrey, Alyson Sothoron

National Survey of Speeding and Other Unsafe Driving Actions:

Volume II: Driver Attitudes and Behavior

September 1998, DOT HS 808 749

This report presented the results of the 1997 national survey of speeding and other unsafe driving actions. This report, Volume II, reports respondents' attitudes toward speeding and speed limits; attitudes about unsafe and aggressive driving; experience riding with unsafe and aggressive drivers; frequency and patterns of specific unsafe driving actions; attitudes about and personal experience with enforcement; and crash experience.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: John Boyle, Stephen Dienstfrey, Alyson Sothoron

National Survey of Speeding and Other Unsafe Driving Actions:

Volume III: Countermeasures

September 1998, DOT HS 808 750

This report presented the results of the 1997 national survey of speeding and other unsafe driving actions. This report, Volume III: Countermeasures, reported on drivers attitudes regarding the accountability and effectiveness of certain countermeasures such as photo enforcement. More police assignments and increased fines. The countermeasure judged most effective in reducing unsafe driving was having more police assigned to traffic enforcement.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: John Boyle, Stephen Dienstfrey, Alyson Sothoron

Managing Speed: Review of Current Practice for Setting and Enforcing Speed Limits

1998, DOT HS 042 770

The primary objective of this study was to review current practice for setting and enforcing speed limits on all types of roads. The study was conducted by a Transportation Research Board committee of experts in traffic engineering, highway design, traffic operations and highway safety, vehicle design and biomechanics, human factors, public health, traffic enforcement, highway users, economics, statistics, political science, and public policy. Chapter 1 provides an introduction. In Chapter 2 the relationship between speed and safety is investigated in depth to help identify the role of speed in crash causation and injury severity. Chapter 3 is focused on speed limits--the primary method for managing speed addressed in this study.

AUTHOR: Transportation Research Board, National Safety Council

The Relative Frequency of Unsafe Driving Acts in Serious Traffic Crashes

January 2001, DOT HS 809 205

This study was conducted to determine the specific driver behaviors and unsafe driving acts (UDAS) that lead to crashes, and the situational, driver and vehicle characteristics associated with these behaviors. A sample of 723 crashes involving 1284 drivers was investigated from four different sites in the country during the period from April 1, 1996 through April 30, 1997. The crashes were selected using the National Automotive Sampling System (NASS) protocol and provide a fair sample of serious crashes involving passenger vehicles in the United States. In-depth data were collected and evaluated on the condition of the vehicles, the crash scene, roadway conditions, driver behaviors and situational factors at the time of the crash.

Investigators used an 11-step process to evaluate the crash, determine the primary cause of each crash, and uncover contributing factors. Problem types in terms of crash configuration and specific problem behavior are described.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: D. L. Hendricks, James C. Fell, Mark Freedman

The Relative Frequency of Unsafe Driving Acts in Serious Traffic Crashes

January 2001, DOT HS 809 206

This study was conducted to determine the specific driver behaviors and unsafe driving acts that lead to crashes, and the situational, driver and vehicle characteristics associated with these behaviors. A sample of 723 crashes involving 1,284 drivers was investigated. This report described the study's methodology, statistical analyses, and identified crash problem types. It also presented possible countermeasures.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: D. L. Hendricks, Mark Freedman, Paul L. Zador, James C. Fell

National Survey of Speeding and Unsafe Driving Attitudes and Behaviors: 2002 Volume 2, Findings

May 2004, DOT HS 809 730

This report represented findings from the 2002 survey on speeding and unsafe driving attitudes and behaviors. Interviews were conducted with a total of 4,010 drivers in the U.S. Survey findings showed that speeding is a pervasive behavior with most drivers reporting having driven over the posted speed within the past month. Drivers are most likely to speed on non-interstate multi-lane roads. Younger and male drivers are most likely to speed. This report provides a comprehensive characterization of speeding behaviors.

NHTSA PROJECT MANAGER: Paul Tremont

AUTHOR: Dawn Royal

National Traffic Speeds Survey II: 2009

July 2012, DOT HS 811 638

A field survey was conducted in 2009 as a longitudinal repetition to a similar effort undertaken in 2007. The goals were to measure travel speeds and prepare nationally-representative speed estimates for all types of motor vehicles on freeways, arterial highways, and collector roads. Over 10 million vehicle speeds were measured at 627 sites included in the geographic cluster sample of 20 primary sampling units (PSUs). Each PSU was a city, county, or group of two or three counties representing combinations of regions of the United States, level of urbanization, and type of topography (flat, hilly, mountainous). Overall, speeds of free-flow traffic on freeways averaged 70.5 mph and were approximately 17 mph higher than on major arterials, which at 53.3 mph were in turn about 6 mph higher than the mean speed of 47.0 mph on minor arterials and collector roads. Most traffic exceeded the speed limits. Seventy-one percent of traffic on limited access roads and about 56% of traffic on arterials and collectors exceeded the speed limit. About 16% of traffic exceeded the speed limit by 10 mph or more on freeways, arterials, and collector roads. Speeds of passenger vehicle size classes were generally higher than for medium trucks.

NHTSA PROJECT MANAGER: Randolph Atkins

AUTHOR: R. Huey, D. De Leonardis, M. Freedman

Motivations for Speeding, Volume I: Summary Report

August 2012, DOT HS 811 658

This document is Volume I of a three-volume report. It contains the results of a study that examined the speeding behavior of drivers in their own vehicles over the course of three to four weeks of naturalistic driving in urban (Seattle, Washington) and rural (College Station, Texas) settings. The purpose of this research was to 1) identify the reasons why drivers speed, 2) model the relative roles of situational, demographic, and personality factors in predicting travel speeds, 3) classify speeders, and 4) identify interventions, countermeasures, and strategies for reducing speeding behaviors. Data collected from 164 drivers included 1-Hz recordings of vehicle position and speed using a GPS receiver, responses to a battery of a personal inventory questionnaire, and daily driving logs that captured trip-specific situational factors. The descriptive analysis of speeding data provided evidence for different types of speeding behaviors among individual drivers including 1) infrequent or incidental speeding, which may be unintentional; 2) trip-specific situational speeding; 3) taking many trips with a small amount of speeding per trip (i.e., casual speeding); and 4) habitual or chronic speeding. Regression models determined that predictors of speeding included age and gender, time-of-day and day-of-week, and attitudes towards reckless driving.

NHTSA PROJECT MANAGER: Geoffrey Collier, Randolph Atkins

AUTHOR: Christian M. Richard, John L. Campbell, Monica G. Lichty, James L. Brown, Susan Chrysler, John D. Lee, Linda Boyle, George Reagle

National Traffic Speeds Survey I: 2007

August 2012, DOT HS 811 663

This project prepared nationally- representative speed estimates for all types of motor vehicles on freeways, arterial highways, and collector roads across the United States. Over 10 million vehicle speeds were measured at more than 700 sites included in the geographic cluster sample of 20 primary sampling units (PSUs). Each PSU was a city, county, or group of two or three counties representing combinations of regions of the United States, level of urbanization, and type of topography (flat, hilly, mountainous). Overall, speeds of free-flow traffic on freeways averaged 64.7 mph and were approximately 11 mph higher than on major arterials, which at 53.6 mph were in turn about 7 mph higher than the mean speed of 46.9 mph on minor arterials and collector roads. Most traffic exceeded the speed limits. Nearly half of traffic on limited access roads and about 60% of traffic on arterials and collectors exceeded the speed limit. About 15% of traffic exceeded the speed limit by 10 mph or more on freeways, arterials and collector roads. Speeds of passenger vehicle size classes were generally higher than for medium trucks. Often, speeds of large trucks were higher than medium trucks, and in some circumstances, large truck speeds were higher than passenger vehicles.

NHTSA PROJECT MANAGER: Paul J. Tremont, Geoff Collier, Randolph Atkins

AUTHOR: R. Huey, D. De Leonardis, G. Shapiro, M. Freedman

B) SPEEDING: ENFORCEMENT RESEARCH

The Impact of Radar Detectors on Highway Traffic Safety

August 1988, DOT HS 807 518

As part of a program to examine the relationship between highway traffic safety and the use of radar detectors, comparisons were made between speed distributions when a detectable radar transmission was present and when it was not. The impact of detectors on speeds varied as a function of the states sampled, highway facility type and vehicle classification. The influence of detectors was seen in reductions in the magnitude of three speed parameters when a detectable radar signal is broadcast. Reductions were observed in mean speed, variability among vehicle speeds and the proportion of vehicles exceeding the speed limit. In general, these reductions were most evident where traffic densities were lower, on higher class facilities where speed limits were higher, and among trucks. The data showed an influence of radar detectors on traffic behavior when radar is present, and this influence can have a negative impact on speed enforcement.

AUTHOR: V. J. Pezoldt, R. Q. Brackett

Examination of Media Coverage of Increasing the Speed Limit to 65 MPH

September 1988, DOT HS 807 149

Heightened newspaper and television coverage of the proposed 65 mph limit may have encouraged increased travel speeds which in turn could have produced an increase in fatalities prior to passage of the national legislation. This study examined seven states that raised their speed limit in 1987 (Texas, California, Washington, New Mexico, Michigan, Florida, Utah) and one that did not (Pennsylvania). In the eight states studied, newspaper coverage of a possible speed limit increase was minimal in January 1987 but rose dramatically during February and March, the two month period immediately prior to the passage of the national law. The issue frequently received front page attention. Opinion pieces generally favored a speed limit increase. Individual states appeared to repeat the national pattern of increased coverage in the month before their law was passed. These findings are consistent with the assumption that high media coverage of a potential speed limit increase could have contributed to higher speeds and increased fatalities prior to the actual change in the legal speed limit.

AUTHOR: C. Walcoff, M. Hallman, S. Monahan

Update of Enforcement Technology and Speed Measurement Devices

December 1989, DOT HS 807 584

Information was analyzed on advances in speed enforcement technology and enforcement strategies. Both automated and manually operated equipment was reviewed, and both radar and non-radar technologies were included. Automated enforcement of red light violations was also examined. All have the capability of automatically photographing the vehicle. Most of the systems use some sort of radar, either a narrow beam cross-the-road-technology or a short range, low power down-the-road technology. One new system incorporates digital signal processing, and can simultaneously track multiple vehicles in several lanes. All of the systems represent technical advances over the state of the art used in Europe and elsewhere 10 years ago. Recently, some of this equipment has been placed in use in a few communities in the United States. The most recent experiences have been well received by the public and the courts.

NHTSA PROJECT MANAGER: Paul Levy

AUTHOR: Robert R. Blackburn, Rosemary Moran, William D. Glauz

Field Test of Combined Speed, Alcohol, and Safety Belt Enforcement Programs

March 1995, [DOT HS 808 242](#); [DOT HS 808 243](#); [DOT HS 808 244](#); [DOT HS 909 245](#)

The purpose of this project was to determine the effectiveness of a combined enforcement program that focused on speed, alcohol, and safety belts. Well-publicized campaigns were implemented in three test communities. The results indicated that combined enforcement programs need to maintain high levels of enforcement and publicity to be successful. DOT HS 808 242 is a summary report, DOT HS 808 243 is a site report for Knoxville, Tennessee; DOT HS 808 244 is a site report for Wichita, Kansas; and DOT HS 909 245 is a site report for Lexington, Kentucky

NHTSA PROJECT MANAGER: Ted Anderson

AUTHOR: Ralph Jones, Hans Joksch, John H. Lacey, Connie H. Wiliszowski, Lauren Marchetti

The Effectiveness of Laser and Radar Based Enforcement Programs for Deterrence of Speeding

February 1997, DOT HS 808 530

Jurisdiction-wide speeding enforcement programs using exclusively either radar or laser were implemented and evaluated in two sites. Both sites increased their speed enforcement activity during the program period and both supported their enforcement efforts with a publicity program aimed at increasing the public's perception of the risk of being caught and cited for a speeding violation. Results showed that speeding was reduced in the radar-based enforcement program site, but not in the laser-based enforcement site. Possible reasons for the absence of a more pronounced effect at the laser site include its higher baseline level of speed limit enforcement, a better baseline level of speed limit compliance, and its elimination of all moving enforcement during the test. The absence of an easily detectable signal which advertises the presence of enforcement activity may also have contributed to the finding of no speed reductions in the laser site. Laser speed measuring devices worked well from an operational standpoint, providing results that could be used effectively to prosecute accused speeders, and they are especially effective in situations requiring the targeting of specific vehicles in heavy traffic. A preliminary test of laser detectors was also conducted and results showed that by the time the driver reacted to the detectors' alarms, the targeted vehicle's speed was already captured.

AUTHOR: Ralph K. Jones, John H. Lacey

A Trend Analysis of Traffic Law Enforcement in the United States: Final Report

June 2001, DOT HS 809 269

This report identified traffic law enforcement trends in eleven selected jurisdictions across the various States. The study used objective measures of enforcement activity, such as numbers of traffic citations issued for various violations in an attempt to determine trends in traffic law enforcement activity over the past decade. The findings indicated an overall declining trend in the number of citations being issued for all types of traffic violations combined.

NHTSA PROJECT MANAGER: Patricia Ellison-Potter

AUTHOR: Elizabeth Cyr, Ralph K. Jones, John H. Lacey, Connie H. Wiliszowski

Aggressive Driving Enforcement: Evaluations of Two Demonstration Programs

March 2004, DOT HS 809 707

This was an assessment report on the effects of two programs designed to reduce aggressive driving. The programs included special enforcement and public information and education (PI&E) components. Results suggested that limited resources might be better spent on officer labor than on publicity, and that focusing enforcement responsibility on a small team assigned full-time to the special enforcement patrols might be more effective than sharing the responsibility among a large number of officers as occasional overtime duty.

NHTSA PROJECT MANAGER: Patricia Ellison-Potter

AUTHOR: Jack Stuster

Demonstration of Automated Speed Enforcement in School Zones in Portland, Oregon

February 2006, DOT HS 810 764

This study demonstrated the use of Automated Speed Enforcement (ASE) to reduce traffic speeds in school zones at five neighborhood schools in Portland, Oregon. ASE was deployed at each demonstration school zone an average of two to three times per week during this period. The program was well publicized through a public information and education campaign that was conducted prior to and during the demonstration. Results showed that speeds at demonstration school zones were reduced by approximately 5 mph when ASE was present, and ASE still had a reduced effect when ASE was not present.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: M. Freedman, D. De Leonardis, G. Raisman, D. InyoSwan, A. Davis, S. Levi, I. Rogers, E. Bergeron

Ticketing Aggressive Cars and Trucks in Washington State

May 2006, DOT HS 810 603

This report presented the results of the Ticketing Aggressive Cars and Trucks (TACT) pilot project that used enforcement, education, media and evaluation to reduce fatalities and injuries resulting from cutting off, tailgating, and speeding around trucks. It applied NHTSA's High Visibility Enforcement model of *Click It or Ticket* to unsafe driving by any vehicle around large trucks. Results showed that violation rates were reduced significantly at the intervention sites, while remaining constant at the comparison sites.

NHTSA PROJECT MANAGER: Linda A. Cosgrove

AUTHOR: Penny Nerup, Philip Salzberg, Jonna VanDyk, Lowell Porter, Richard D. Blomberg, F. Dennis Thomas, Linda A. Cosgrove

Automated Enforcement: A Compendium of Worldwide Evaluations of Results

July 2007, DOT HS 810 763

This compendium details automated enforcement systems (AES) implemented around the world and characterizes the safety impacts of such deployments, based on scientific evaluations. A systematic literature search was conducted. Criteria for selecting key evaluation studies were developed and applied for two AES technologies: speed camera and red light camera (RLC) enforcement systems.

NHTSA PROJECT MANAGER: Kathy J. Sifrit

AUTHOR: Lawrence E. Decina, Libby Thomas, Raghavan Srinivasan, Loren Staplin

Field Test of the Impact of Setting and Enforcing Rational Speed Limits: Final Report for Gulfport, Mississippi Demonstration Community

October 2007, DOT HS 810 849

This study undertook tests of “rational speed limits,” established by a formal engineering review. The objective of these tests was to determine whether speed limits so set, when combined with well-publicized and targeted enforcement, result in greater compliance, more uniform speeds, and improved safety. The principal findings from the Gulfport, Mississippi, demonstration showed that after the rational limits were implemented; the number of speed violations by 10 mph or more was reduced by three quarters. Thus, rational limits resulted in better compliance with the law.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: M. Freedman, D. De Leonardis, A. Polson, S. Levi, J. Burkhardt

V. Motorcycle Safety

A) MOTORCYCLE SAFETY: ALCOHOL IMPAIRMENT

Detection of DWI Motorcyclists

March 1993, DOT HS 807 839

This project identified and validated fourteen good (probability 30%-49%) and excellent (50% or more) visual cues of driving while intoxicated (DWI) motorcyclists. Among the best cues are drifting during a curve or turn, having trouble with dismount, and having trouble with balance at a stop.

NHTSA PROJECT MANAGER: James F. Frank

AUTHOR: Jack W. Stuster

Methodology for Determining Motorcycle Operator Crash Risk and Alcohol Impairment: Vol. 1, Synthesis Report on Alternative Approaches with Priorities for Research

April 2007, DOT HS 810 761

This was a study on approaches to measure the effects of alcohol on motorcycle rider impairment and crash risk. This report described alternative approaches to the study of motorcycle rider impairment, assessed approach scientific value, and estimated cost. Methods examined include “field” studies that collect actual highway data and “closed course” studies that collect data in a controlled setting, with priorities for future research assigned to each methodology. Based on expert panel meetings, it was determined that induced exposure studies and case control studies were deemed highest priority methodologies, whereas methods using existing data would be the lowest cost, but would also have the lowest scientific value.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Robert B. Voas, A. James McKnight, David R. Thom, Terry A. Smith, Hugh H. Hurt, Patricia F. Waller, John W. Zellner

Methodology for Determining Motorcycle Operator Crash Risk and Alcohol Impairment: Vol. 2, Literature Review Report

April 2007, DOT HS 810 762

This literature review report presented research on impaired motorcycle operation, and explored research methodologies in examining alcohol effect on human performance, including laboratory simulation, closed-course operation, self-report surveys, crash investigation, and analysis of archival crash data. It also presented a synthesis of research literature on methodologies used to measure exposure in populations-at-risk, including roadside surveys. The literature review showed a lack of research on impaired motorcycle operation. It was determined that studies on alcohol levels of non-crash motorcycle riders represent a research priority.

NHTSA Project Manager: Marvin M. Levy

Author: Robert B. Voas, Terry A. Smith, David R. Thom, A. James McKnight, John W. Zellner, Hugh H. Hurt

Effects of Alcohol on Motorcycle Riding Skills

December 2007, DOT HS 810 877

This report examined the effect of alcohol on a broad set of basic riding skills. Riding skills were assessed on a test track with task scenarios based on the Motorcycle Safety Foundation's training program. Performance was characterized in terms of riding strategy. The results showed there were observable changes in motorcycle control and rider behavior in response to alcohol that are indicative of impairment. In general, intoxicated riders demonstrated longer response times and adopted larger tolerances leading to more task performance errors.

NHTSA Project Manager: Marvin M. Levy

Author: Janet I. Creaser, Nicholas J. Ward, Michael E. Rakauskas, E. Boer, Craig Shankwitz, F. Nardi

B) MOTORCYCLE SAFETY: HELMET USE

Evaluation of Motorcycle Helmet Repeal in Arkansas and Texas

September 2000, DOT HS 809 131

This study examined data from Arkansas and Texas to assess the effects of helmet law changes on helmet use, motorcyclist's injuries, fatalities and injury costs. In 1997, Arkansas and Texas modified their helmet use laws. Arkansas and Texas required helmet use for riders under 21, and Texas also required a minimum of \$10,000 medical insurance coverage for riders who choose not to wear a helmet. Helmet use was 97% in statewide surveys in both States prior to the changes in helmet law. By May of 1998, observed helmet use had fallen to 52% in Arkansas and to 68% in Texas. Motorcycle operator fatalities, head injuries and the cost per case of treating head injuries also increased in both States after the change in helmet laws.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR : D. F. Preusser, J. H. Hedlund, Robert G. Ulmer

Evaluation of the Repeal of Motorcycle Helmet Laws in Kentucky and Louisiana

October 2003, DOT HS 809 530

This report examined data from Kentucky and Louisiana to assess the effects of their helmet use law changes on motorcycle fatalities and injuries. In 1998, Kentucky repealed its universal motorcycle helmet law, and in 1991, Louisiana repealed its law. Motorcycle fatalities increased significantly in the near term by over 50% in Kentucky and 100% in Louisiana. Results showed that in Kentucky, most motorcyclist fatalities saw an increase of 37.5%. Following the repeal of law, Louisiana saw an increase of 75% in the fatality rate and a 20.6% increase in injury after the repeal of universal helmet law. Other considerations including increases in the number of registered motor vehicles and vehicle miles traveled were also discussed.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Robert G. Ulmer, David F. Preusser

Evaluation of the Repeal of the All-Rider Motorcycle Helmet Law in Florida

August 2005, DOT HS 809 849

Effective July 1, 2000, Florida eliminated the legal requirement that all motorcycle riders wear helmets. State law now requires helmet use only by riders under the age of 21, or older riders who do not carry at least \$10,000 of medical insurance. Observational surveys and crash reports indicated that helmet use dropped substantially following the law change. Motorcyclist fatalities increased by 81 percent comparing 2001-2003 to 1997-1999, compared to +48 percent nationally. Non-fatal serious injuries began increasing in the first six months of 2000, and increased by 32 percent in the first year following law repeal. There was a 40 percent increase in the number of injured motorcyclists who were admitted to hospitals, and admissions for head injuries increased by 82 percent. Time series analysis showed a statistically significant increase in fatalities while controlling for changes in motorcycle registrations. Florida crash reports indicated that helmet use declined markedly among riders under age 21, who were still covered by the law. Fatalities in this age group nearly tripled in the three years after the law change.

NHTSA PROJECT MANAGER : Patty Ellison-Potter

AUTHORS: Robert G. Ulmer, Veronika Shabanova Northrup

Evaluation of the Reinstatement of the Helmet Law in Louisiana

May 2008, DOT HS 810 956

This was a study that examined rates of motorcycle helmet usage, fatalities, and injuries before and after the re-instatement of the Louisiana motorcycle helmet law. In 1999, the State amended its law to require helmet use only by motorcyclists under 18 and riders over 18 who did not have a minimum of \$10,000 in medical insurance coverage. In 2004, Louisiana reinstated its universal helmet law that required all motorcyclists, riders and passengers, to wear helmets all the time. Results showed that observed helmet use rose to 100% after reinstatement of the universal helmet law. Fatal crashes decreased in 2004 for the first time since the 1999 repeal.

NHTSA PROJECT MANAGER: Linda A. Cosgrove

AUTHOR: Hope Gilbert, Neil K. Chaudhary, Mark G. Solomon, David F. Preusser, Linda A. Cosgrove

Youth Motorcycle-Related Traumatic Brain Injury and State Helmet Laws, 2005–2007

August 2011, DOT HS 811 509

This Research Note summarizes a study that aimed to quantify the impact of age-specific helmet laws on youth under age 20 hospitalized with traumatic brain injury (TBI). Data from the 2005 to 2007 State Inpatient Databases of the Healthcare Cost and Utilization Project was used. Results showed that in states with under 21 helmet laws, serious TBI among youth was 38% higher than in universal-law states. States with only youth-specific laws had an increased risk of TBI that required hospitalization, serious and severe TBI, TBI-related disability, and in-hospital death among the youth they are supposed to protect. The only method known to keep motorcycle-helmet use high among youth is to adopt or maintain universal helmet laws.

NHTSA PROJECT MANAGER: Maria Vegega

AUTHOR: Harold Weiss, Yll Agimi, Claudia Steiner, Maria Vegega

C) MOTORCYCLE SAFETY: TRAINING

Approaches to the Assessment of Entry-Level Motorcycle Training: An Expert Panel Discussion

March 2010, DOT HS 811 242

Motorcycle registrations have increased 84% from approximately 3.9 million in 1998 to 7.1 million in 2007. There has also been a consistent increase in motorcycle fatalities over this same period that cannot be solely explained by the increase in exposure. Motorcycle training may be one way to reduce motorcycle crashes. Entry-level motorcycle courses include both classroom instruction and hands-on practice with a motorcycle. It is still unclear as to what extent rider training reduces crash involvement. Experts convened to identify measures of training effectiveness. Strong consensus emerged from the panel that a definition of a safe rider should include a mastery of basic skills. The panel reached consensus on the following characteristics of a safe rider: Conducts an aggressive visual search that includes risk perception, hazard recognition, and hazard response; has fewer crashes and injuries; wears personal protective gear for conspicuity, comfort, and protection; manages space and time through visibility, space cushions, escape routes, and lane position; avoids impairments such as alcohol, drugs, fatigue, distraction, weather extremes (too hot, too cold); and demonstrates proficient operating skills.

NHTSA PROJECT MANAGER: Jenny Percer

AUTHORS: John Brock, Allen Robinson, Brett Robinson, Jenny Percer

The Effect of Sight Distance Training on the Visual Scanning of Motorcycle Riders: A Preliminary Look

February 2013, DOT HS 811 689

This study collected naturalistic data from a mix of novice and experienced motorcycle riders on a closed course and an open course. There were three groups of riders. One group of beginner riders had recently received their motorcycle endorsement and completed the Team Oregon Basic Rider Training course (beginner-trained). A second group of beginner riders had recently received their motorcycle endorsement but had not enrolled in any type of motorcycle rider training program (beginner-untrained). The third group consisted of experienced riders with a minimum of 5 years and 15,000 miles of riding experience (experienced). The preliminary findings suggest that there may be a relationship between training, experience, and visual behavior among motorcycle riders. Preliminary findings also demonstrate the feasibility of collecting naturalistic eye tracking data from motorcycle riders of varying experience levels using their own vehicles. Technical challenges of collecting data with this new technology are also discussed.

NHTSA PROJECT MANAGER: Jessica Cicchino

AUTHORS: Terry Smith, Steve Garets, and Jessica Cicchino

D) MOTORCYCLE SAFETY: CRASH CAUSATION

Motorcycle Crash Causes and Outcomes: Pilot Study

June 2010, DOT HS 811 280

The number of motorcyclist crash-related fatalities has more than doubled during the past 10 years. This report describes the process used to develop the data collection methods and tools, conduct data collection, and evaluate the results of a study aimed at understanding motorcycle crash causes and outcomes. In addition, it provides estimates of the average cost of completing an in-depth investigation, including the related dropped cases and control group data.

Recommendations for modifications to the data forms, coding manuals, training material, and database are included.

NHTSA PROJECT MANAGERS: Paul Tremont, Jenny Percer, Jessica Cicchino

AUTHORS: Westat and Dynamic Science, Inc.

E) MOTORCYCLE SAFETY: MISCELLANEOUS

Pilot Study of Instrumentation to Collect Behavioral Data to Identify On-Road Rider Behavior

April 2011, DOT HS 811 442

This pilot study examined instrumentation techniques and study procedures for use in collecting on-road behavior data. Three motorcyclists rode with instrumentation for a total of 3,100 miles. The final data acquisition system and instrumentation recorded acceleration in three axes, yaw, pitch, roll, geographic location, rear-wheel speed, position in lane, turn signal use, braking, range and closing speed to forward objects, and five video views. The sensor and video data were collected continuously while the motorcycle was running. Analyses were conducted to illustrate possible uses of the data and to confirm the effectiveness of the adapted instrumentation. The report highlights successes and data collection challenges.

NHTSA PROJECT MANAGER: Jenny Ellis, Jessica Cicchino

AUTHOR: Shane B. McLaughlin, Zachary R. Doerzaph, Brad R. Cannon

Youth Motorcycle-Related Hospitalizations and Traumatic Brain Injuries in the United States, 2006

August 2011, DOT HS 811 508

The objective of this study was to provide national injury and health care cost estimates for youth motorcycle injuries in traffic and non-traffic settings and to focus on the burden of serious motorcycle-related traumatic brain injuries (TBIs) in children and young adults. The 2006 Kids' Inpatient Database, a sample of inpatient discharges for U.S. patients under 21 years of age from 38 states, was used. Results showed that motorcycle injuries are a substantial cause of youth injury hospitalizations. The large proportion, costs, and morbidity of TBI diagnoses in youth motorcycle crashes emphasize the need for effective crash prevention and head protection.

NHTSA Project Manager: Maria Vegega

Author: Harold Weiss, Yll Agimi, Claudia Steiner, Maria Vegega

An Examination of Washington State's Vehicle Impoundment Law for Motorcycle Endorsements

January 2013, DOT 811 696

The objective for this study was to examine the effects of this law regarding implementation issues, rider and law enforcement awareness of the law, the degree to which the law is being enforced, whether endorsements and/or rider safety training increased, and the effect of the law on crashes. Results indicate that most law enforcement officers and many riders are aware of the law. It appears that relatively few motorcycles are being impounded, and the number of citations issued for unendorsed riding has not changed. Findings related to endorsements, training, and crashes are somewhat inconclusive. Although some results suggest the law may have had a positive effect on endorsement and training rates, other results do not. No significant influence of the law on crash rates was found. Results from time-series analyses of endorsement, training, and crashes may have been affected by economic or other confounding factors.

NHTSA PROJECT MANAGERS: Jessica Cicchino

AUTHORS: A. Scott McKnight, John W. Billheimer, and Scott Tippetts

VI. Pedestrian and Bicyclist Safety

A) PEDESTRIAN/BICYCLIST SAFETY: PROBLEM IDENTIFICATION

Pedestrian Injury Reduction Research: Report to the Congress

June 1993, DOT HS 808 026

This report highlights research on the technology and feasibility of modifying vehicle designs to better protect pedestrian impact victims; research and programs to avoid pedestrian-vehicle impacts through behavioral modification.

AUTHOR: National Highway Traffic Safety Administration

Identification of Alcohol-Pedestrian Crash Problems among Selected Racial/Ethnic Groups

September 1997, DOT HS 808 641

This study examined racial/ethnic patterns of involvement in fatal crashes. The study included focus group testing with members of at-risk minority populations to examine cultural factors which might affect the alcohol pedestrian problem, and potential countermeasures. Racial data were obtained from the Fatality Analysis Reporting System (FARS) for seven states or state subsets. Analyses showed three specific groups with pedestrian-alcohol fatality risks as high as or higher than the population as a whole: Black adults ages 25 and older, Hispanic adult males ages 15 and older, and Native American adults ages 15 and older.

NHTSA PROJECT MANAGER: Alfred J. Farina, Jr., Marvin M. Levy

AUTHOR: William A. Leaf, David F. Preusser

Literature Review: Vehicle Travel Speed and Pedestrian Injury

October 1999, DOT HS 809 021

The relationship between vehicle travel speeds and resulting pedestrian injury was reviewed in the literature and in existing datasets. Results indicated that higher vehicle speeds are strongly associated with both a greater likelihood of pedestrian crash occurrence, and more serious pedestrian injury. Reductions in vehicle travel speeds can be achieved through lowered speed limits, police enforcement of speed limits, and associated public information. More long-lasting speed reductions in neighborhoods where vehicles and pedestrians commonly share the roadway can be achieved through engineering approaches generally known as traffic calming.

Comprehensive community-based speed reduction programs, combining public information and education, enforcement, and roadway engineering, are recommended.

NHTSA PROJECT MANAGER: Marvin M. Levy, Patricia Ellison-Potter

AUTHOR: William A. Leaf, David F. Preusser

Development, Implementation and Evaluation of a Countermeasure Program for Alcohol-Involved Pedestrian Crashes

July 2000, DOT HS 809 067

The objectives of this study were to analyze the pedestrian alcohol problem in a community and to develop and apply procedures to counter the problem. Baltimore was selected as the test city. An interdepartmental task force developed and implemented a comprehensive countermeasure program. Substantial reductions in pedestrian crashes, zone crashes and crashes on roads on which special signs were erected led to the conclusion that the project made positive inroads into reducing the pedestrian alcohol problem in Baltimore.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Richard D. Blomberg, Arlene M. Cleven

Pilot Test of Heed the Speed: A Program to Reduce Speeds in Residential Neighborhoods

August 2006; DOT HS 810 648

This study examined whether enforcement and education techniques could achieve a meaningful speed reduction on untreated streets adjacent to streets that have received traffic calming treatments. Three neighborhoods in each of two cities, Phoenix and Peoria, Arizona, were selected for a *Heed the Speed* program. Yard signs, pamphlets, and other education materials were distributed to area residents. The police increased enforcement patrols and tickets for speeding violations. Speed measurements showed significant reductions in all 6 neighborhoods and on all test roads within the neighborhoods except one low volume street with pre-existing speed humps installed.

AUTHOR: Richard D. Blomberg, Arlene M. Cleven

National Survey of Bicyclist and Pedestrian Attitudes and Behavior:

Volume 1, Summary Report

August 2008, DOT HS 810 971

This report presented findings from the National Survey of Bicyclist and Pedestrian Attitudes and Behavior. This survey covered the magnitude of bicycle and pedestrian activity and the public's behavior and attitudes regarding bicycling and walking. Volume I: Summary Report provides a top line summary of key data results regarding the behaviors and attitudes on various topics related to walking and bicycling, including reported frequency of walking and bicycling during the summer months, trip purpose and characteristics, perceptions of safety, safety practices, facilities available, and community design.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Dawn Royal, Darby Miller-Steiger

**National Survey of Bicyclist and Pedestrian Attitudes and Behavior:
Volume 2, Findings Report**

August 2008, DOT HS 810 972

This report presented findings from the National Survey of Bicyclist and Pedestrian Attitudes and Behavior. This survey reports on the magnitude of bicycle and pedestrian activity and the public's behavior and attitudes regarding bicycling and walking. Volume II: Findings Report, provides a detailed analysis of behaviors and attitudes on various topics related to walking and bicycling, including frequency of walking and bicycling during the summer months, trip purpose and characteristics, perceptions of safety, safety practices, facilities available and community design.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Dawn Royal, Darby Miller-Steiger

**National Survey of Bicyclist and Pedestrian Attitudes and Behavior:
Volume 3, Methods Report**

August 2008, DOT HS 810 973

This National Survey of Bicyclist and Pedestrian Attitudes and Behavior examined the magnitude of bicycle and pedestrian activity and the public's behavior and attitudes regarding bicycling and walking. Volume III: Methods Report, described the methods used to conduct the interviews and analyze the data. It also contains a copy of the most recent questionnaire.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Dawn Royal, Darby Miller-Steiger

Review of Studies on Pedestrian and Bicyclist Safety, 1991-2007

June 2012, DOT HS 811 614

This report reviewed the pedestrian and bicyclist safety research literature in print as of 2007. It summarized and synthesized the key studies, evaluated existing knowledge, identified research gaps and provided recommendations for future direction. Studies are organized into areas highlighting studies on pedestrian safety with emphasis on demographic characteristics, high-risk environments, travel behavior, injury typing and injury profiles and others. Similar grouping is made for studies on bicyclist safety.

NHTSA PROJECT MANAGER: Marvin Levy

AUTHOR: H. M. Karsch, J. H. Hedlund, J. Tison, W. A. Leaf

2012 National Survey of Bicyclist and Pedestrian Attitudes and Behavior (Volumes 1, 2, 3)

October 2013, DOT HS 811 841

In 2012, NHTSA conducted a national telephone survey to obtain a status report on attitudes, knowledge, and behavior related to outdoor walking and bicycling. This study updates national telephone survey data collected by NHTSA in 2002. The survey addressed safety and mobility issues; obtained trip information; and explored perceptions and use of public facilities such as sidewalks, bicycle lanes, and bicycle paths. It was administered to a probability-based sample of randomly selected people 16 and older. The field interviewing began July 12, 2012, and concluded November 18, 2012. A total of 7,509 respondents completed the interview, 5,297 using a landline telephone when responding and 2,212 using a cell phone. The data were weighted to produce national estimates. This report contains 3 volumes: Summary Report (vol. 1), Findings Report (vol. 2), and Methodology Report (vol. 3).

AUTHOR: Paul Schroeder, Melanie Wilbur

Identifying Countermeasure Strategies to Increase Safety of Older Pedestrians

July 2013, DOT HS 811 798

The objective of this project was to identify appropriate countermeasures that will reduce older pedestrians' exposure to injuries and fatal crashes. This involved exploring countermeasures within the area of transportation as well as in other fields such as public health and education with the intention of identifying strategies that can be implemented to increase older pedestrian safety. Additionally, experts in the fields of aging, occupational therapy, transportation safety, traffic engineering, aging and ophthalmology, gerontology, and older pedestrian safety were contacted. These individuals provided contextual information to help explain the dynamics behind older adults' involvement in pedestrian crashes as well as insights into what strategies might be effective in communicating with older adults to effect change in their walking behavior. This report is a review of key literature from the public health, education, and transportation fields that may provide insights on how to develop future programs targeting older pedestrians.

NHTSA PROJECT MANAGER: Alan Block

AUTHOR: S. Levi, D. De Leonardis, L. Angel

B) PEDESTRIAN/BICYCLIST SAFETY: PUBLIC INFORMATION AND EDUCATION

The Development and Test of Urban and Rural Pedestrian Safety Messages

January 1985, DOT HS 806 682

The objective of this project was to identify, develop and produce public education messages for pedestrian safety. Pedestrian accident types and situations which had not been previously addressed through public education were selected. These included "riding toys," "Backing," "Ped Not in Road," "Visual Screens," "Intersection Dash," "Darts and Dashes," "School Bus," "Child Supervision," "Elderly," "Mail Box," and "Disabled Vehicle." Each type was analyzed to determine specific behavioral advice that could be adopted by pedestrians, parents or drivers and could be expected to reduce accidents. Prototype TV and radio scripts, pamphlets and posters were developed to carry this advice to identified target groups. These prototype media forms underwent focus group reaction testing. Three TV spots and a 15 minute in-class film were produced to finished form.

AUTHOR: David F. Preusser, Richard D. Blomberg, Joan M. Edwards, Mary L. Farrell, Carol W. Preusser

Development of Safety Information Materials and Media Plans for Elderly Pedestrians

June 1993, DOT 808 132

NHTSA, in conjunction with the Federal Highway Administration, examined the kinds of crash situations in which older pedestrians were involved and developed safety advice to minimize these risks. This information, contained in the publication, *Walking through the Years*, was made available to several national organizations (American Association of Retired Persons, American Automobile Association, and National Safety Council) for dissemination to their large older audiences. The publication recommended, for example, that older pedestrians can decrease their traffic risks by taking precautions in just two areas: "Seeing" -- being sure that you can see turning or approaching vehicles, especially at intersections; and "Being Seen" -- making sure that drivers can see you, whether you are in the street, a driveway, parking lot, or anywhere else vehicles travel.

AUTHOR: Richard D. Blomberg, Arlene M. Cleven, Joan M. Edwards

Development and Evaluation of a Pedestrian Safety Program for Elementary School Bus Riders

December 1994, DOT HS 808 266

This study developed and evaluated a comprehensive pedestrian safety program for elementary (K- 6) school bus riders. Based on a review of existing materials, crash data, and state laws/regulations, a list of 113 behaviors were identified for inclusion in the program. The program contains materials for teachers, parents, and bus drivers. Five videos, K-6 curricula, and information pamphlets make up the program materials. All materials were evaluated in a New York State school district using a pre-post design with a comparison site. Significant improvements were achieved in critical knowledge and skills as a result of student participation in the program.

NHTSA PROJECT MANAGER: Alfred J. Farina

AUTHOR: Arlene M. Cleven, Richard D. Blomberg

Zone Guide for Pedestrian Safety

July 1998, DOT HS 808 742

This guide describes what zoning is and explains how to design and use pedestrian safety zones to increase the efficiency and effectiveness of pedestrian safety programs. The guide also provides a brief description of a recent pedestrian safety study that made successful use of the pedestrian safety zone process.

AUTHOR: National Highway Traffic Safety Administration

Resource Guide on Laws Related to Pedestrian and Bicycle Safety

January 2002, DOT HS 809 368

NHTSA developed an annotated database of existing and model laws related to pedestrian and bicyclist safety. Previously available on CD ROM, the *Resource Guide on Laws Related to Pedestrian and Bicycle Safety* included vehicle and traffic laws for every state that may affect pedestrian and bicyclist safety. The Guide examined: 1) likely effects on the causes of bicycle or pedestrian crashes with motor vehicles, 2) the prevention or reduction of bicyclist or pedestrian injuries, and 3) possible effects on pedestrian and bicyclist injury-producing situations that do not involve motor vehicles, such as falls. The Guide included model legislation containing specific provisions to improve or increase safe cycling and walking and compares the laws of each state with the selected provisions.

NHTSA Project Manager: Marvin M. Levy

AUTHOR: Dunlap and Associates

C) PEDESTRIAN/BICYCLIST SAFETY: COUNTERMEASURES

The Walking in Traffic Safely (WITS) Program for Preschoolers

January 1985, [DOT HS 806-678 Final Report: Development of a Preschool Child Pedestrian Traffic Safety Program](#); [DOT HS 806 679 \(Literature Review on the Preschool Pedestrian\)](#)

Several hundred pedestrians under the age of six die each year and several thousand more are injured in automobile crashes. This study was undertaken to develop a traffic safety program to reduce pedestrian crashes for preschoolers. A detailed literature search and an analysis of more than 10,000 crash reports were conducted to provide information on factors leading to preschool pedestrian crashes, and the frequency of these crashes by age. A set of countermeasures was developed and incorporated in curricular materials designed for use by preschoolers, their parents, and their teachers. The final set of products consisted of children's storybooks, parent guides, and an Instructor's Guide for teachers. Subsequently, the materials were incorporated by the National Association for the Education of Young Children for use in the Headstart program. The final report describes the development of the Walking in Traffic Safely program materials. The other report summarized the results of a literature search and contains information on preschoolers' developmental capabilities, and on the nature and magnitude of preschool pedestrian crashes.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Applied Management Sciences, Inc.

Pedestrian and Bicyclist Safety: A Review of Key Program and Countermeasure Developments During the 1980s

March 1992, DOT HS 808 108

This report reviews important countermeasure developments and program activities impacting on pedestrian and bicyclist safety over the past decade. Key national level policies and trends pertaining to pedestrians and bicyclists are highlighted.

NHTSA PROJECT MANAGER: Alfred Farina

AUTHOR: Jane C. Stutts, William W. Hunter, Linda Tracy, William C. Wilkinson III

Development, Implementation and Evaluation of a Pedestrian Safety Zone For Elderly Pedestrians

February 1998, DOT HS 808 692

The objectives of this study were to develop and apply procedures for defining pedestrian safety zones for the older (age 65+) adult and to develop, implement and evaluate a countermeasure program in the defined zones. Zone definition procedures were developed and applied to two cities, Phoenix and Chicago. Countermeasure development included a comprehensive video, five public service announcements and 13 flyers. Data from Phoenix showed significant reductions in zone crashes for 65-year-old and older pedestrians over a period in which the city's population and overall pedestrian crashes increased. It was concluded that the zone process resulted in an effective and efficient means of deploying pedestrian countermeasures.

AUTHOR: Richard D. Blomberg, Arlene M. Cleven

PBCAT-Pedestrian and Bicycle Crash Analysis Tool

June 2006, FHWA-HRT-06-090

The Federal Highway Administration (FHWA) and the National Highway Traffic Safety Administration (NHTSA) developed a Pedestrian and Bicycle Crash Analysis Tool (PBCAT). PBCAT is a software product that analyzed certain details associated with crashes between motor vehicles and pedestrians or bicyclists, helps users identify problem intersections, and devises solutions.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: National Highway Traffic Safety Administration, Federal Highway Administration

NHTSA/FHWA Bicycle Safety Resource Guide

1998, Federal Highway Administration

The Bicycle Safety Resource Guide was prepared for the bicycle safety professional and others who are proactive in developing programs at the state or community level. It provided a compilation of existing and proposed countermeasures that can be used by a variety of implementers to help solve a wide range of bicycle safety problems.

AUTHORS: Dunlap and Associates, Inc., Bayview Research, Walkable Communities, Inc., Bicycle Federation of America, Washington, DC

A Compendium of NHTSA Pedestrian and Bicyclist Research Projects: 1969-2007

July 2007, DOT HS 810 793

This compendium describes the pedestrian and bicyclist safety research conducted by the Office of Behavioral Safety Research and its predecessor office during the period 1969-2007. The compendium describes the research on the development of taxonomies of crash types, since the results of that research formed the foundation for many of the subsequent NHTSA pedestrian and bicycle research studies. The final section discussed lessons learned from the pedestrian and bicycle research activities.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Arlene M. Cleven, Richard D. Blomberg

Evaluation of the Miami-Dade Pedestrian Safety Demonstration Project

June 2008, DOT HS 810 964

The purpose of this study was to identify and implement a comprehensive countermeasure program that could reduce deaths and injuries among pedestrians in a large urban environment. The study site was in Miami-Dade County, Florida. Using pedestrian crash data from 1996 to 2001, four zones were identified within the county as having abnormally high pedestrian-crash experiences. A before-after study was used with three separate control groups to evaluate the effects of the combined pedestrian safety program on pedestrian crashes. Results showed that, at the peak of the program effects in 2003 and 2004, the pedestrian safety program reduced countywide pedestrian crash rates by between 8.5% and 13.3%, depending on which control group was used. This effect translates to approximately 180 fewer crashes annually in Miami-Dade County, or 360 pedestrian crashes reduced in 2003 and 2004 combined.

NHTSA PROJECT MANAGER: Marvin M. Levy

AUTHOR: Charles Zeeger, David Henderson, Richard Blomberg, Lauren Marchetti, Scott Masten, Yingling Fan, Laura Sandt, Austin Brown, Jane Stutts, Libby Thomas

Evaluation of the Safety Benefits of Legacy Safe Routes to School Programs

August 2008, DOT HS 811 013

This report presented the results of the evaluation of the safety benefits of legacy *Safe Routes to School* (SRTS) programs. This evaluation study first examined the feasibility of conducting a crash-based assessment of the safety effects of legacy (SRTS) programs. The crash results strongly suggest that, legacy SRTS programs did not cause a pedestrian or bicycle safety problem due to increased exposure. Although this study was not capable of reaching a definitive conclusion with respect to SRTS safety effects, the findings are suggestive that legacy SRTS programs may have contributed to improved pedestrian and bicycle safety.

NHTSA PROJECT MANAGER: Marvin M. Levy, Jenny Percer

AUTHOR: Richard D. Blomberg, Arlene M. Cleven, F. Dennis Thomas, Raymond C. Peck

Zone Guide for Pedestrian Safety

December 2008, DOT HS 808 742

This guide describes zoning and explains how to design and use pedestrian safety zones to increase the efficiency and effectiveness of pedestrian safety programs. The guide also provides a brief description of a recent pedestrian safety study that made successful use of the pedestrian safety zone process.

AUTHOR: NHTSA, Federal Highway Administration

Demonstration and Evaluation of the Heed the Speed Pedestrian Safety Program

July 2012, DOT HS 811 515

This study built upon the concept of Heed the Speed, a neighborhood-based combination of enforcement, education, and modest engineering to reduce vehicle speeds to benefit pedestrian safety. The program was implemented in Philadelphia, Pennsylvania. The study attempted to increase speed enforcement in six police districts by purchasing Speed Tracker units. Since Pennsylvania law prohibits the use of radar by local police, the availability of the Speed Tracker timing devices provided the police with additional capability to document speed violations. The Philadelphia Streets Department focused its efforts on engineering countermeasures. The evaluation of the program showed speed reductions at 17 of 24 measurement locations. However, no crash reductions were observed in the six districts relative to the remainder of the city. Also, an awareness survey showed little penetration of the safety messages or awareness of increased speeding enforcement by the police.

NHTSA PROJECT MANAGER: Marvin M. Levy, Jenny Ellis, Eunyoung Lim, Jessica Cicchino

AUTHOR: Richard D. Blomberg, F. Dennis Thomas, Bruce J. Marziani

High-Visibility Enforcement on Driver Compliance with Pedestrian Right-of-Way Laws

August 2013, DOT HS 811 786

This study developed and evaluated strategies to increase driver yielding to pedestrians on a citywide basis using high-visibility pedestrian right-of-way enforcement. Gainesville, Florida participated in the project. Six pedestrian sites received enforcement and 6 more sites that did not receive enforcement were comparison sites to test for generalization effects. The program evaluation consisted of weekly measurement of driver yielding behavior at treated and comparison sites and crash analyses. There were high-visibility crosswalk operations using decoy pedestrian crossings, inexpensive engineering (advance yield markings, in-street STATE LAW YIELD TO PEDESTRIAN signs), education (earned media, outreach efforts to elements within the community), and road signs that provided feedback on the percentage of drivers yielding right-of-way to pedestrians during the preceding week. A comparison of staged and unstaged pedestrian crossing results showed that, after adjustments for the difference in baseline levels, there was no difference in drivers who responded to a staged versus unstaged procedure.

NHTSA PROJECT MANAGER: Essie Wagner

AUTHOR: Ron Van Houten, Louis Malenfant, Richard D. Blomberg, Bradley E. Huitema, and Sarah Casella

VII. Older Drivers

A) OLDER DRIVERS: PROGRAM PLANNING

Traffic Safety Plan for Older Persons

September 1988; DOT HS 807 316

NHTSA's research is based upon a plan that was first developed in 1988 in response to the Transportation Research Board publication "Transportation in an Aging Society". The plan outlines research according to three main areas: Problem Identification, Program Development, and Program Evaluation.

AUTHOR: NHTSA

Research and Development Needs for Maintaining the Safety and Mobility of Older Drivers

August 1989, DOT HS 807 554

NHTSA co-sponsored a conference entitled "Research and Development Needed to Improve Safety and Mobility of Older Drivers," held August 23 and 24, 1989. Joint sponsors of the conference were the National Institute on Aging, the Federal Highway Administration and the Centers for Disease Control. The purpose of the conference was to identify the research needed to minimize older drivers' risk while maximizing their mobility. Specifically, conference participants presented and reviewed the latest research findings in functional areas related to driving abilities. They also identified researchable issues that apply specifically to the needs of the older driver.

AUTHOR: Conference Proceedings

Addressing the Safety Issues Related to Younger and Older Drivers: A Report to Congress

January 1993, DOT HS 807 957

This was a Report to Congress summarizing what is known about the safety issues related to younger and older drivers and what needs to be done about the issues.

AUTHOR: Office of Program Development and Evaluation, Traffic Safety Programs, NHTSA

Traffic Safety Plan for Older Persons

March 1993, DOT HS 807 966

This project updated the traffic safety plan for older persons originally developed in 1988. The 1990 census data showed that the rapid growth of the older population that initially triggered the agency's efforts to focus on older person traffic safety continued and if anything accelerated. For the decade from 2010 to 2020, the overall population increase is expected to be 8.2 percent, while the over 65 year old population is expected to grow by 35.1 percent. As with earlier efforts, the projects summarized in this plan involved other Department of Transportation agencies, including the Office of the Secretary of Transportation, the Federal Highway Administration, and the Federal Transit Administration.

AUTHOR: NHTSA

Improving Transportation for a Maturing Society

January 1997, DOT P10 97 01

This project, conducted under the auspices of the Office of the Associate Secretary for Transportation Policy, presented an overview of what five expert panels viewed the issues of transportation for an aging society. In December 1995, Secretary of Transportation Federico Peña asked for a long-range overview and a preliminary, proactive Department-wide strategy to accommodate the growing cohort of older adults that will be providers and consumers of transportation in the twenty-first century. This overview was to encompass the perspective of older adults in all transportation modes, operating commercially as well as privately.

Older Road User Research Plan

August 2001, DOT HS 809 322

Based on the Transportation Research Board's older road user conference, this report contains a literature review and outcome of an expert panel to identify which conference- identified research and implementation ideas could be pursued by NHTSA, and how much each investigation would cost. Research problem statements were generated for each topic identified as a priority.

AUTHOR: P. Raymond, Richard L. Knoblauch, Marsha Nitzburg

B) OLDER DRIVERS: PROBLEM IDENTIFICATION

Licensing the Older Driver: A Summary of State Practices and Procedures

April 1989, DOT HS 807 443

This project documented state practices and procedures for licensing older drivers. Results suggest a need to evaluate existing programs and develop better methods of identifying high-risk drivers on the basis of performance capability, particularly age- related functional impairment.

AUTHOR: H. V. Hawley, W. J. Tannahill

Driving Practices of Older Drivers in Rural and Urban Areas

1989, 1992

Under interagency agreements with the National Institute on Aging, NHTSA sponsored projects by Yale University and the University of Iowa to study how functional capability influences the driving practices of older drivers. The Yale study focused on an urban driving environment, the Iowa study on a rural environment. Research indicated that older drivers tend to self-adjust their driving to accommodate any reduction in functional capacity. The results also showed that older driver safety problems are concentrated among drivers who are either unaware of their difficulties or unable to make compensating adjustments to their driving. A series of journal articles on functional impairments and driving patterns among older drivers in rural and urban communities were published on this topic.

Decision Cues: Older Drivers Referrals for License Reexaminations

1992, DOT HS EPX 039

This study in five states determined what police use as signs of driver deficiency when they report older drivers to the licensing agencies. Contrary to expectation, it was found that there was a decrease in referral for medical conditions for very old drivers and a slight increase for sensory deficiencies, notably poor hearing. The results were published in a Transportation Research Record.

AUTHOR: A. James McKnight, Julian I. Urquijo

Crash Prediction Models for Older Drivers: A Panel Data Analysis Approach

1996

This paper uses a panel data analysis approach to identify factors that place older drivers at greater crash risk. Results showed that factors that place female drivers at greater crash risk are different from those influencing male drivers. More risk factors were found to be significant in affecting older men's involvement in crashes than older women. When the analysis controlled for the amount of driving, women who live alone or who experience back pain were found to have a higher crash risk. Similarly, men who are employed, score low on word-recall tests, have a history of glaucoma, or use antidepressant drugs were found to have a higher crash risk. The most influential risk factors in men were the amount of miles driven, and use of antidepressants.

AUTHOR: Patricia S. Hu, David A. Trumble, Daniel J. Foley, John W. Eberhard, Robert B. Wallace

[Intersection Negotiation Problems of Older Drivers, Volume 1: Final Technical Report](#)

September 1998, DOT HS 808 850 002

This project included a background literature synthesis and observational field study. The research goals were to document driving problems and errors at intersections, for older drivers using their own cars to travel familiar and unfamiliar routes, and to measure how well they could be predicted by prior tests given in an office setting. Volume I presented the field study methodology and results; Volume II presented the background synthesis.

AUTHOR: Loren Staplin, Kathy H. Lococo, A. James McKnight, A. Scott McKnight, Germaine L. Odenheimer

Intersection Negotiation Problems of Older Drivers: Background Synthesis on Age and Intersection Driving Difficulties, Volume 2

September 1998, [DOT HS 808 850](#)

This project documented driving problems and errors at intersections for older drivers using their own cars to travel familiar and unfamiliar routes, and to measure how well they could be predicted by prior tests given in an office setting. Volume I presented the field study methodology and results; this volume, Volume II, presented the background synthesis. Field observations of intersection negotiation were conducted using 82 subjects, age 61 and older, who were referred to the California Department of Motor Vehicles (DMV) for special testing. The subjects first completed a functional test battery measuring vision, attention capabilities, and head/neck flexibility. They then underwent on-road testing by DMV examiners, which was videotaped. Analysis of the videotaped data revealed a high incidence of visual search errors. The highest error rate for an actual maneuver, as captured by the cameras, was making a lane change with an unsafe gap. Speed of response on visual discrimination tasks was the best predictor, but no single measure accounted for more than 18% of variance on the criterion.

AUTHOR: Loren K. Staplin, Kathy Lococo, A. James McKnight, A. Scott McKnight, Germaine L. Odenheimer

Literature Review of the States of Research on the Transportation and Mobility Needs of Older Women

April 1999, DOT HS 808 949

This report reviewed existing literature on the safe mobility of older women and made recommendations with regard to their safe mobility and transportation needs. The number of older women will increase substantially in the coming decades. The number with disabilities is also expected to increase. The report suggested a number of targeted research areas need development and enhancement, including development of surveys on mobility needs, as well as studies of economic status and access to transportation.

AUTHOR: Robert B. Wallace, Daniel Franc

The Mobility Consequences of the Reduction or Cessation of Driving by Older Women

January 2000

The research reported in this paper was performed pursuant to a cooperative agreement with the U. S. Department of Health and Human Services (USDHHS), under the auspices of the Joint USDHHS/USDOT Coordinating Council on Human Service Transportation, with additional funding provided by the National Highway Traffic Safety Administration. Through a review of the literature, examination of current research, as well as through a series of focus groups, the goals of their project are to: 1) identify factors that influence older persons to reduce or to stop driving, to determine how they make such decisions, and which types of persons are likely to stop driving and which are not; 2) document the changes in mobility and travel behavior which result when driving is reduced or ceased; 3) identify changes in the lives of older individuals and those around them resulting from reductions in or losses of personal mobility; and 4) Determine the programmatic implications of the research findings of this project.

AUTHOR: Jon Burkhardt, Arlene M. Berger, Adam T. McGavock

Further Analysis of Drivers Licensed with Medical Conditions in Utah

March 2001, DOT HS 809 211

This report presented the results of the Utah Driver License Division program that restricts drivers with medical conditions. This study compared crash characteristics of drivers with medical conditions to those of matched drivers over a five-year period and showed that drivers with medical conditions had higher crash and at-fault crash rates compared to their corresponding comparison groups. Furthermore, of the combinations of medical conditions analyzed; half had higher risk of crashes and at fault-crashes than comparison drivers.

AUTHOR: D. D. Vernon, E. Diller, L. Cook, J. Reading, J. M. Dean

Family and Friends Concerned About an Older Driver

August 2001, DOT HS 809 307

This report presented a set of guidelines and materials developed for families and providers of at-risk older drivers. These materials were developed to provide families, friends, healthcare providers, law enforcement personnel, and persons from the community and social services with information to assist older adults whose capabilities make them potentially unsafe to drive. These guidelines were developed through a series of research tasks, including a literature review, identification of current state requirements and practices regarding identification of high risk older drivers, and identification of information resource needs among professionals.

AUTHOR: Harvey Sterns, R. Sterns, R. Aizenberg, J. Anapole

Physician's Guide to Assessing and Counseling Older Drivers

September 2003, DOT HS 809 647

This guide was created by the American Medical Association with support from NHTSA to help physicians address preventable injuries, in particular those injuries incurred in motor vehicle crashes. By adopting preventive practices, including the assessment and counseling strategies outlined in this guide, physicians can better identify drivers at increased risk for crashes, help them enhance their driving safety, and ease the transition to driving retirement if and when it becomes necessary.

AUTHOR: Claire Wang, Catherine J. Kosinski, Joanne G. Schwartzberg, Anne V. Shanklin

Strategies for Medical Advisory Boards and Licensing Review

July 2005, DOT HS 809 874

The objectives of this project were to document the activities of the Medical Advisory Boards in the 50 States, and determine activities that can be recommended as future strategies. These strategies will help to identify and assess drivers with medical conditions and other functional impairments. The information on state practices was obtained through state licensing official interviews and surveys. This report provided recommendations for strategies for licensing drivers with medical conditions and functional impairments.

NHTSA PROJECT MANAGER: Jesse Blatt

AUTHOR: Kathy H. Lococo, Loren Staplin

Medical Conditions and Driving: A Review of the Literature (1960-2000)

September 2005, DOT HS 809 690

This report reviews the contribution of medical conditions and functional limitations to motor vehicle crashes. It provides a comprehensive and up-to-date review of the international research literature on the effects of medical and functional conditions on driving performance. The report is divided into 15 sections. Each section contains a brief overview of the condition; prevalence information; a review of the medical, gerontological, and epidemiological literature relevant to the condition, followed by current fitness to drive guidelines for the condition/illness from Canada and Australia. The Appendix presented preliminary guidelines for physicians to assess medical fitness-to-drive.

NHTSA PROJECT MANAGER: John Eberhard

AUTHOR: Bonnie M. Dobbs

Evaluating Drivers Licensed with Medical Conditions in Utah, 1992-1996

January 2007, DOT HS 809 023

The Utah Driver License Division implemented a program in 1979 that restricts drivers with medical conditions by functional ability category (medical condition) according to their functional ability level. This study compared citation crash and at-fault crash rates per eligible licensed days of restricted and unrestricted drivers with medical conditions by category to the rates of comparison drivers matched on age group, gender and county of residence over a five year period. Overall, for most functional ability categories, unrestricted drivers with medical conditions as identified through the existing program had higher crash and at-fault crash rates compared to their corresponding comparison groups.

AUTHOR: E. Diller, L. Cook, D. Leonard, J. Reading, J. M. Dean, D. Vernon

Multiple Medications and Vehicle Crashes: Analysis of Databases

May 2008, DOT HS 810 858

The main objectives of this study were to determine the frequency of medications used by those who have experienced a motor vehicle crash (MVC) and those who have not by analyzing proprietary and non-proprietary databases and to conduct a case-control study of possible associations between the use of medications and MVCs among older drivers. The results of the study revealed an association between the kinds and number of medications used by older adults and the risk of involvement in a MVC. The study showed that the drugs known to have an impairing effect on the driving ability of older drivers were the most commonly used by older adults involved in MVCs.

AUTHOR: Aida A. LeRoy, M. Lee Morse

A Pilot Study to Test Multiple Medication Usage and Driving Functioning

June 2008, [DOT HS 810 980](#)

This pilot study explored the relationship between polypharmacy and driving functioning through separate but related research activities. A patient-level administrative claims database containing prescription information as well as E-codes identifying the incidence of motor vehicle injuries was mined, yielding combinations of drugs that became inclusion criteria in a following field study of driver performance among 44 older adults. Driving performance evaluations by an occupational therapist, a brake response time measure, and functional screening measures were conducted for the study sample, whose drug profiles were reviewed by a licensed pharmacist. This report concludes with a discussion of project findings and recommendations for future research.

NHTSA PROJECT MANAGER: John Siegler

AUTHOR: Loren K. Staplin, Kathy Lococo, Kenneth W. Gish, Carol Martell

Identifying Behaviors and Situations Associated with Increased Crash Risk for Older Drivers

June 2009, DOT HS 811 093

This report described analyses of Fatality Analysis Reporting System (FARS) and National Automotive Sampling System (NASS) General Estimates System (GES) data to identify specific driving performance errors; and combinations of driver, vehicle, and roadway/environmental characteristics associated within increased crash involvement by older drivers. The analyses revealed over- and under-involvement of drivers 60-69, 70-79 years, and 80 and older in various crash types.

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Jane Stutts, Carol Martell, Loren Staplin

Medical Review Process and License Disposition of Drivers Referred by Law Enforcement and Other Sources in Virginia

July 2011, DOT HS 811 484

By 2030, nearly 1 in 5 drivers will be 65 or older. Along with the increase in the number of older licensed drivers will be increases in number of drivers with medical conditions and functional declines that impair safe driving. Also, although older people made up approximately 12% of the U.S. population in 2004, they accounted for 34% of all prescription medication use and 30% of all over-the-counter medication use.

AUTHOR: NHTSA

Taxonomy of Older Driver Behaviors and Crash Risk: Appendices A and B

February 2012, DOT HS 811 468A

This project's objectives were to identify risky behaviors, driving habits, and exposure patterns that have been shown to increase the likelihood of crash involvement among older drivers; and to classify these crash-contributing factors according to a set of underlying functional deficits specific to, or more prevalent among, the older driver population. Such deficits may result from normal aging, age-related medical conditions, or medication use. A further goal was to identify and critically examine behavioral countermeasures with the potential to mitigate functional loss and/or diminish the occurrence of risky behaviors and thus ameliorate crashes among older drivers. The first task was an analysis of older driver injuries and fatalities using national databases (FARS, GES), to identify driving patterns, driving tasks, and contributing factors associated with crashes by older drivers; more details are available in a separate NHTSA report, Identifying Behaviors and Situations Associated With Increased Crash Risk for Older Drivers (DOT HS 811 093).

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Loren Staplin, Kathy H. Lococo, Carol Martell, Jane Stutts

Taxonomy of Older Driver Behaviors and Crash Risk: Appendix C

February 2012, DOT HS 811 468B

This project's objectives were to identify risky behaviors, driving habits, and exposure patterns that have been shown to increase the likelihood of crash involvement among older drivers; and to classify these crash-contributing factors according to a set of underlying functional deficits specific to, or more prevalent among, the older driver population. Such deficits may result from normal aging, age-related medical conditions, or medication use. A further goal was to identify and critically examine behavioral countermeasures with the potential to mitigate functional loss and/or diminish the occurrence of risky behaviors and thus ameliorate crashes among older drivers. The first task was an analysis of older driver injuries and fatalities using national databases (FARS, GES), to identify driving patterns, driving tasks, and contributing factors associated with crashes by older drivers; more details are available in a separate NHTSA report, Identifying Behaviors and Situations Associated With Increased Crash Risk for Older Drivers (DOT HS 811 093).

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Loren Staplin, Kathy H. Lococo, Carol Martell, Jane Stutts

Taxonomy of Older Driver Behaviors and Crash Risk : Appendix D

February 2012, DOT HS 811 468C

This project's objectives were to identify risky behaviors, driving habits, and exposure patterns that have been shown to increase the likelihood of crash involvement among older drivers; and to classify these crash-contributing factors according to a set of underlying functional deficits specific to, or more prevalent among, the older driver population. Such deficits may result from normal aging, age-related medical conditions, or medication use. A further goal was to identify and critically examine behavioral countermeasures with the potential to mitigate functional loss and/or diminish the occurrence of risky behaviors and thus ameliorate crashes among older drivers. The first task was an analysis of older driver injuries and fatalities using national databases (FARS, GES), to identify driving patterns, driving tasks, and contributing factors associated with crashes by older drivers; more details are available in a separate NHTSA report, Identifying Behaviors and Situations Associated With Increased Crash Risk for Older Drivers (DOT HS 811 093).

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Loren Staplin, Kathy H. Lococo, Carol Martell, Jane Stutts

Functional Assessments, Safety Outcomes, and Driving Exposure Measures for Older Drivers

July 2012, DOT HS 811 630

This project measured the relationship between older adults' scores on driving assessment tools and their violations and crashes over 18 months following the assessments. An additional objective was to compare alternative methods of measuring driver exposure. The assessments were performed on participants age 70 and older who visited one of four Maryland Motor Vehicle Administration offices. The assessments emphasized cognitive performance domains, specifically visuospatial ability, speed of (visual information) processing, divided attention, visual search, working memory, and response planning or "executive function." Contrast sensitivity was also measured, as well as simple and choice brake reaction time. The functional assessments examined in this research were computer-based and designed to be self-administered, although the assistance of a test administrator was always available and was required for some measures. The measure of "executive function" (maze performance) was highlighted as a significant predictor of crash risk in the study results. This may be of interest to occupational therapy/driving rehabilitation providers as a potentially valuable tool to support clinical evaluations of fitness to drive; and, to developers of screening tools for early warning of driving impairments, and of products meant to educate older drivers and their families about age-related changes that impact safe driving.

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Loren Staplin, Kathy H. Lococo, Kenneth W. Gish, John Joyce

Evaluating Older Drivers' Skills

May 2013, DOT HS 811 773

The objective of this project was to review the report from the 2003 University of Florida Consensus Conference as well as other important documents on similar topics, and to interview experts to obtain information about the strengths and weaknesses of these specialist-administered screening and assessment tools, self-screening instruments and training methods. This report will help to guide future research by highlighting tools and methods commonly used by clinicians that have not yet been adequately evaluated and those which may already be recommended for use. The goal was not to reach consensus but to provide a rich background from the literature combined with expert opinions in an attempt to guide decisions and research goals related to these evaluation tools.

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Neil Chaudhary, Katherine, Ledingham, David Eby, Lisa Molnar

Licensing Procedures for Older Drivers

September 2013, DOT HS 811 833

This study examined the driver licensing procedures in all 50 States as they apply to the older (65+) driver. A literature review examined reports of possible declines in older driver capabilities and the ability of a driver licensing agency to screen for them. The review also covered studies of licensing policies and procedures that had the potential ability to reduce older driver crash rates. Overall, the data collected in this study led to the conclusion that the implementation of licensing practices in the special emphasis States followed the intent of State rules and regulations. In addition to implementing the system as intended, staff members appeared to believe that their systems were fair, reasonable, and that they improved safety.

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: F. Dennis Thomas III, Richard D. Blomberg, Michael Knodler,
Matthew R.E. Romoser

C) OLDER DRIVERS: PROGRAM DEVELOPMENT

Safe Mobility for Senior Citizens

January 1996, DOT HS EPX 040

There is a need to ensure the safety of all road users without unduly restricting the mobility of older drivers. Older drivers as a group are not a significant risk to others based upon their number of crashes per licensed driver. However, they do have a higher crash and fatality rate per mile driven than all but the youngest (16-20) driver age groups. Driving patterns and crash involvement of the elderly are reviewed, with emphasis on the role of medical conditions and functional limitations. Drivers who understand their own limitations tend to change their behavior to accommodate declining capabilities. Those unaware of limitations tend not to take corrective action, placing them at higher risk of crashes. Those who stop driving travel much less, are less satisfied in reaching their mobility needs and are more likely to be depressed.

AUTHOR: John W. Eberhard

Safe Mobility for Older People Notebook

April 1999, DOT HS 808 853

The *Safe Mobility for Older People Notebook* is a research product of the "Model Driver Screening and Evaluation Program" project sponsored by NHTSA, and is intended as a resource to support program initiatives promoting the safe mobility of older persons across all States and Provinces. This document represents a snapshot of current knowledge and practices at the State and Provincial level. Topics include the identification of high-risk older drivers; the counseling and remediation of at-risk drivers; public information and educational tools to support program implementation; and mobility options and alternatives to transportation for seniors. Coverage of these topics is provided in 70 subtopic discussions, containing three sections each: (1) a summary of outcomes in relevant research studies and implementation efforts; (2) conclusions/preliminary recommendations pertinent to the development of a national Model Program; and (3) references identifying data sources. An *Annotated Research Compendium of Driver Assessment Techniques for Age-Related Functional Impairments* is also provided as further rationale and supporting evidence for conclusions and recommendations found in this document.

NHTSA PROJECT MANAGER: John Eberhard

AUTHOR: Loren Staplin, Kathy H. Lococo, Joseph Stewart, Lawrence E. Decina

Communications Resource Guide

1998

The American Association of Motor Vehicle Administrators (AAMVA) Public Affairs and Consumer Education (PACE) Committee compiled a catalog of written and audio visual materials pertaining to older drivers, in its member jurisdictions (US States and Canadian provinces). The most widely available pamphlets are in the self-help category, directed at older drivers. AAMVA states that few pamphlets are available that provides advice to older drivers' families, friends, and caregivers. AAMVA also identified gaps in the topics of medical community responsibility, and alternative transportation.

Driving Safely While Aging Gracefully

August 2000, DOT HS 809 079

This booklet was developed by the USAA Educational Foundation, with the support of NHTSA. The booklet, aimed at older drivers, outlined the physical effects of aging, presented tips on coping with them and provides information on sources for additional information on safe driving.

AUTHOR: USAA Educational Foundation

Model Driver Screening and Evaluation Program: Volume 3, Guidelines for Motor Vehicle Administrators

May 2003, [DOT HS 809 581](#)

This report presented guidelines, which address practical, technical and administrative issues associated with development and implementation of screening programs for the detection of functionally impaired drivers. Program initiatives in this area are motivated in large part by anticipated increase in crash and fatalities due to age-related functional decline. Renewal cycles combined with flexible renewal options was found to be counterproductive to the detection of functionally impaired drivers as these allowed older drivers to avoid examination.

NHTSA PROJECT MANAGER: Esther Wagner, John Eberhard

AUTHOR: Loren. K. Staplin, Kathy Lococo

Model Driver Screening and Evaluation Program: Volume 2, Maryland Pilot Older Driver Study

May 2003, [DOT HS 809 583](#)

The Maryland Pilot Older Driver Study aimed to examine the validity of functional tests as predictors of driving impairment associated with crashes and other safety outcomes, and to examine the administrative feasibility of delivering screening and evaluation services in a driver licensing setting and in other settings in the community.

NHTSA PROJECT MANAGER: Esther Wagner, John Eberhard

AUTHOR: Loren. K. Staplin, Kathy Lococo, Kenneth W. Gish, Larry Decina

Model Driver Screening and Evaluation Program: Volume 1, Project Summary and Model Program Recommendations

May 2003, [DOT HS 809 582](#)

This report presented the results of the feasibility study and the scientific validity and utility of performing functional capacity screening with older drivers. The objective of this study was to update the guidelines published in association with the American Association for Motor Vehicle Administrators (AAMVA) for screening and evaluating medical fitness to drive. Project activities included identifying functional limitations resulting from normal aging and from diseases and pathologies that are more prevalent with advancing age, that impair safe driving and identifying currently-available test procedures that offer the highest validity to detect functional loss and that can be feasibly administered by licensing agencies.

NHTSA PROJECT MANAGER: Esther Wagner, John Eberhard

AUTHOR: Loren K. Staplin, Kathy Lococo, Kenneth W. Gish, Larry Decina

Older Driver Self-Screening Based on Health Concerns. Volume 1, Technical Report

October 2008, [DOT HS 811 046A](#)

This report presented the results of the evaluation of a web-based self-screening instrument for older-driver safety. This instrument was created to provide older drivers with individualized information for better decisions about driving. The evaluation was based on feedback from 68 older adult participants on the instruments usefulness and comparisons of their instrument performance to on-road driving assessment and clinical tests. Results showed that most of participants indicated that the instrument made them aware of how declines in driving-related abilities can affect driving. The participant's scores on the self-screening instrument were significantly correlated with the clinical evaluation scores and on-road driving performance scores indicating a useful and valid self-screening instrument for older adult drivers.

NHTSA PROJECT MANAGER: Jesse Blatt, Alan Block

AUTHOR: David W. Eby, Lisa J. Molnar, Paula Kartje, René M. St. Louis, Jonathon M. Vivoda, Amy L. Neumeyer

Older Driver Self-screening Based on Health Concerns. Volume 2, Appendices

October 2008, DOT HS 811 046B

This report presented the literature, questionnaires and forms used in the development and evaluation of a web-based self-screening instrument for older-driver safety. This instrument was created to provide older drivers with individualized information for better decisions about driving. This report presented the study's bibliography, telephone screening questionnaire, the study's clinical evaluation form and on-road driving assessment.

NHTSA PROJECT MANAGER: JESSE BLATT, Alan Block

AUTHOR: David W. Eby, Lisa J. Molnar, Paula Kartje, René M. St. Louis, Jonathon M. Vivoda, Amy L. Neumeyer

VIII. Novice and Young Drivers

Workshop to Identify Training Requirements Designed to Reduce Young Driver Risk Taking and Improve Decision Making Skills

August 1993, DOT HS 808 066

A panel of national and international experts in traffic safety was convened to identify research and development requirements for training designed to reduce driver risk taking and improve decision making skills. The report covers the discussions and recommendations. Areas covered include: issues and definitions in analyzing young driver risk taking, training as a means of reducing risk taking, ways to restructure current driver training efforts, and efforts needed to improve driver training.

AUTHOR: Katherine Young

Addressing the Safety Issues Related to Younger and Older Drivers: Report to Congress

January 1993, DOT HS 807 957

The report covered a variety of issues that affect younger and older drivers, presented a brief overview of past NHTSA efforts, and provides NHTSA's planned research agenda for younger and older drivers.

Research Agenda for an Improved Novice Driver Education Program: Report to Congress

May 1994, DOT HS 808 161

This report discussed why novice driver education may not be as effective as it could be, and explains why it is recommended that an improved program be an integral part of a graduated licensing system. The report concludes with a plan for research, development, and evaluation activities designed to restructure and improve novice driver education.

NHTSA PROJECT MANAGER: Michael F. Smith

AUTHOR: Michael F. Smith

Understanding Youthful Risk Taking and Driving

June 1995, DOT HS 808 318

To make major inroads in the youth crash problem, countermeasures are needed that can deal effectively with youthful risk taking. Developing these countermeasures requires an understanding of the mechanisms underlying risk taking. This project is part of a broader effort by NHTSA to develop that understanding, and those countermeasures. The project looks at risk taking in a broader context than highway safety, and includes extensive literature review as well as a workshop with experts.

AUTHOR: COMSIS Corporation, Johns Hopkins University

Understanding Youthful Risk Taking and Driving: Database Report

November 1995, DOT HS 808 346

This report catalogs national databases that contain information about adolescents and risk taking behaviors. It contains descriptions of the major areas, unique characteristics, and risk-related aspects of each database. The report also contains information on databases that states collected on various domains of risk taking behaviors.

AUTHOR: COMSIS Corporation, Johns Hopkins University

Feasibility of New Simulation Technology to Train Novice Drivers

December 1996, DOT HS 808 548

This effort is part of NHTSA's redevelopment of novice driver education. The project determined the feasibility of developing and using some form of electronic simulation to enhance the safety training of young novice drivers. The effort included a workshop with national experts to discuss the conceptual procedures and potential applications for using this type of technology in the training of novice drivers.

NHTSA PROJECT MANAGER: Mike Smith

AUTHOR: L. E. Decina, K. W. Gish, L. Staplin, A. H. Kirchner

Matching Traffic Safety Strategies to Youth Characteristics: A Literature Review of Cognitive Development

September 1998, DOT HS 808 927

This research assessed the factors responsible for the heightened crash risk among youth and to determine the implications for traffic safety programs. As part of this research, this review of research literature was conducted to determine what is known about cognitive development and information processing capabilities of youth. The goal of the project was to ascertain how traffic safety programs should be structured to match these cognitive characteristics.

AUTHOR: David W. Eby, Lisa J. Molnar

National Evaluation of Graduated Driver Licensing Programs

June 2006, DOT HS 810 614

Implementation of Graduated Driver Licensing (GDL) programs is associated with lower fatal crash rates of young drivers. To determine which types of GDL programs are associated with reductions in fatal crashes involving 16-year-old drivers, this retrospective study of involvement of 16-year-old drivers in fatal crashes in the United States from 1994 through 2004 used data from the Fatality Analysis Reporting System (FARS) and the US Census Bureau. The association of various GDL programs with fatal crashes involving 16-year-old drivers was examined and compared to results for 20-24 and 25-29-year-old drivers.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: Susan P. Baker, Li-Hui Chen, Guohua Li

Graduated Driver Licensing in Georgia: The Impact of the Teenage and Adult Driver Responsibility Act (TADRA)

February 2007, DOT HS 810 715

This study examined the effectiveness of Georgia's Teenage and Adult Driver Responsibility Act (TADRA). TADRA introduced graduated driver licensing (GDL) for 16-year-old drivers, and imposed additional restrictions on drivers up to age 18. This evaluation study compared fatal crash data during the five and a half years before the enactment of TADRA to fatal crash data during the five and a half years after enactment. Speed-related fatal crashes involving 16-year-old Georgia drivers were cut by 42%, and alcohol-related fatal crashes were reduced by nearly 60 percent without displacing fatal crashes to older age groups.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: A. L. Kellermann, A. Rios, M. Wald, S. R. Nelson, K. Dark, M. E. Price

Parent-Taught Driver Education in Texas: A Comparative Evaluation

April 2007, DOT HS 810 760

This report showed the results of an evaluation of the Parent-Taught Driver Education program in Texas and its comparison to the Texas graduated driver licensing (GDL) program introduced in 2002. The study was conducted using focus groups, a statewide mail survey of young drivers, and an analysis of driver records. Results showed that before and after implementation of the GDL, parent-taught novice drivers committed more traffic offenses and were in more crashes than commercial or public school-trained drivers. Additional study result details from the focus groups, surveys and driver record analyses are also presented.

NHTSA PROJECT MANAGER: Patricia Ellison-Potter

AUTHOR: V. J. Pezoldt, K. N. Womack, D. E. Morris

Evaluation of Oregon's Graduated Driver Licensing Program

September 2007, DOT HS 810 830

This evaluation study examined Oregon's graduated driver licensing program. The study compares teen driver crashes and violations before and after implementation of the GDL program, as well as comparisons to an adult comparison group (age 25-65 years). After GDL implementation, teen crash, traffic conviction and license suspension rates were lower for all age groups, even among the unrestricted 18- and 19-year-old novice drivers. The analysis of convictions, suspensions and crashes offers strong support for GDL programs.

NHTSA PROJECT MANAGER: Patty Ellison-Potter, Linda Cosgrove

AUTHOR: Paula Raymond, Michael Johns, Gary Golembiewski, Rita Furst Seifert, James L. Nichols, Richard L. Knoblauch

Evaluation and Compliance of Passenger Restrictions in a Graduated Driver Licensing Program

September 2007, DOT HS 810 781

This study compares the effect of laws that limit the number of passengers that may travel with newly licensed 16-year-old drivers, compared to states without such restrictions. The effects of these laws were evaluated in California, Massachusetts and Virginia as compared to Arizona, Connecticut, and Maryland, respectively. Results showed that 16-year-old driver crash involvements and motor vehicle-related injuries declined among 15- to 17-year-olds in all three states with restrictions. Results also showed that the restriction was often violated with police reporting that the law was difficult to enforce.

NHTSA PROJECT MANAGER: Patricia Ellison-Potter

AUTHOR: Neil K. Chaudhary, Allan Williams, W. J. Nissen

Evaluation of PC-Based Novice Driver Risk Awareness

April 2008, DOT HS 810 926

This report presented the results from a series of experiments designed to identify major differences in the hazard anticipation and attention maintenance skills of newly licensed drivers. Driving simulator results showed that newly licensed drivers were up to six times less likely to anticipate hazards than experienced drivers and three times more likely than experienced drivers to glance away from the forward roadway. A hazard anticipation training program developed and administered to novice drivers increased the likelihood that newly licensed drivers would anticipate hazards, both on the driving simulator and the open road.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: Donald L. Fisher

Teen Driver Crashes: A Report to Congress

July 2008, DOT HS 811 005

This report summarized what is known about the teen driver crash problem and reviews the research on the major contributing factors to the high teen crash rate. A brief review is included on a variety of programs designed to decrease teen driver crashes, such as educational programs, laws and sanctions, and licensing programs. Scientific evaluations of these programs are discussed in terms of reducing the teen driver crash problem, thereby making America's roads safer for our youth. The study and report conclude with recommendations based on research for developing and implementing interventions for this important traffic safety issue.

AUTHOR: Richard P. Compton, Patricia Ellison-Potter

2007 Motor Vehicle Occupant Safety Survey: Driver Education and Graduated Driver Licensing

December 2008, DOT HS 811 047

This Research Note summarized selected results from the 2007 Motor Vehicle Occupant Safety Survey (MVOSS), focusing primarily on information collected regarding driver education and GDL. This was a new module introduced in 2007. MVOSS is a national telephone survey administered by NHTSA on a periodic basis to obtain data on attitudes, knowledge, and self-reported behavior primarily in areas of occupant protection. The sample is composed of randomly selected people 16 and older residing in the 50 States and the District of Columbia. The data are weighted to yield national estimates. The MVOSS data showed strong support both for parental participation in driver training as well as for GDL systems that gradually integrate novice drivers into the traffic environment.

NHTSA PROJECT MANAGER: Alan W. Block

AUTHOR: Alan W. Block, Sharon Walker

Feasibility Study on Evaluating Driver Education Curriculum

April 2009, DOT HS 811 108

One way to attempt to reduce the problem of teen driving crashes is professional driver education. However, despite the seemingly universal appeal of driver education, scientific evaluations have indicated that such programs generally do not produce safer drivers. Perhaps most noteworthy is the DeKalb study where driving tasks were established, ranked, and used to create a state-of-the-art program, the Safe Performance Curriculum (SPC), which overall did not reduce crashes. There have been many additional studies since DeKalb, nearly all showing similar results. In evaluating the new American Driver and Traffic Safety Education Association (ADTSEA) program, there are basically two design alternatives: the random assignment study, as in DeKalb, and some variation of a quasi-experimental design. No study can be conducted presently as the program has been introduced only in limited ways. As nearly all prior driver education program evaluations have found either zero or adverse effects on crashes, in undertaking an evaluation, the possibility of similar outcomes needs to be considered.

AUTHOR: Allan F. Williams, David F. Preusser, Katherine A. Ledingham

Novice Teen Driver Education and Training Administrative Standard

October 2009

This report presented the Novice Teen Driver Education and Training Administrative Standards set forth in a recent document from NHTSA. The article includes the preamble from the Standards. The Standards serve to guide all novice teen driver education and training programs in States striving to provide quality, consistent driver education and training. The standards outline the goal of driver education and training as to transfer knowledge, develop skills, and enhance the disposition of teens, so they can perform as safe and competent drivers, thereby contributing to the reduction of crashes, fatalities, and injuries.

Author: NHTSA

The Role of Supervised Driving Requirements in Graduated Driver Licensing Programs

March 2012, DOT HS 811 550

Many States require parents to certify that their teens complete supervised driving practice, usually 40 to 50 hours, before obtaining an intermediate license. This study examined State crash data in a small number of States that had increased their required number of supervised driving hours. Analyses of the Fatality Analysis Reporting System (FARS) data showed that fatal-crash rates of 16- and 17- year-olds did not differ across States with varying supervised driving requirements. Crash analyses in Minnesota, the only State to change the number of required practice hours without changing other Graduated Driver Licensing (GDL) components, did not find any difference in 16- and 17-year-old-driver fatal or serious injury crash rates following the change in the requirement.

AUTHOR: Robert D. Foss, Scott V. Masten, Arthur H. Goodwin, Natalie P. O'Brien

The Effect of Passengers on Teen Driver Behavior

April 2012, DOT HS 811 540

A number of studies have shown that passengers substantially increase the risk of crashes for young, novice drivers. This study analyzed data collected through an earlier naturalistic driving study. The sample included 52 drivers: 38 newly licensed teens and 14 high-school-age siblings. Teenage drivers were two-and-a-half times more likely to engage in one or more potentially risky behaviors when driving with one teenage peer compared to when driving alone. When driving with multiple teenage peers the likelihood increased to 3 times. Some of the mechanisms commonly thought to explain the increased crash risk when carrying passengers were rare, such as instances of deliberate encouragement for the drivers to take risks. These findings suggest the mere presence of peers may have influenced risky driving behaviors more than deliberate encouragement.

AUTHOR: Arthur H. Goodwin, Robert D. Foss, and Natalie P. O'Brien

A Fresh Look at Driver Education in America

April 2012, DOT HS 811 543

The objectives of this study were to: review driver education and training programs; identify best teaching practices for teenagers, examine sequencing of presentation of driving skills in the classroom and behind-the-wheel training, and assess whether a new approach to driver education would be beneficial. These objectives were accomplished using a survey of the driver education rules and practices in the 50 States performed by the American Association of Motor Vehicle Administrators (AAMVA) and Driver Education and Training Administrators (DETA), literature reviews of research on teen crashes, the best teaching methodologies for teenagers, and injury prevention strategies for teens; and an expert panel analysis that compared current teaching practices with identified best practices, combining driver training with graduated driver licensing (GDL) systems. The key findings were: (1) driver education appears to do a good job in preparing students to pass State licensing examinations; (2) the expectation that driver education by itself will lead to a decreased teen crash rate is unrealistic; (3) GDL has shown evidence of a significant safety benefit and may benefit from greater parental involvement; (4) expanding driver education training beyond the current classroom and behind-the-wheel training by integrating it with graduated driver licensing may have increased traffic safety benefits for young drivers; and (5) an expanded driver education system would start preparing future drivers at an earlier age and encompass more stringent testing than is characteristic of current driver licensing practices.

AUTHOR: F. Dennis Thomas, Richard D. Blomberg, Donald L. Fisher

Examination of Supplemental Driver Training and Online Basic Driver Education

June 2012, DOT HS 811 609

This report describes supplemental driver training programs and online basic driver education. It covers supplemental driver training that focused on knowledge and skills beyond those normally found in traditional driver education delivered in the United States and in other countries. It also reviewed online basic driver education programs that were approved or accepted in at least one U.S. State to replace the standard driver education classroom requirement in the driver licensing process.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: F. Dennis Thomas, Richard D. Blomberg, Kristopher Korbela, Jane Stutts, Jean Wilkins, Larry Lonero, Kathryn Clinton, Douglas Black

IX. Fatigue and Distraction Research

Drowsy Driving and Automobile Crashes: NCSDR/NHTSA Expert Panel on Driver Fatigue and Sleepiness

April 1998, DOT HS 808 707

This report was sponsored by the National Center on Sleep Disorders Research (NCSDR) and NHTSA to provide direction to an NCSDR/NHTSA educational campaign to combat drowsy driving. The report presented the results of a literature review and opinions of the Expert Panel on Driver Fatigue and Sleepiness regarding key issues.

AUTHOR: National Highway Traffic Safety Administration (NHTSA), National Center on Sleep Disorders Research (NCSDR).

The NHTSA & NCSDR Program to Combat Drowsy Driving

March 1999, DOT HS 808 918

This was a Report to Congress on the collaboration between NHTSA and the National Center on Sleep Disorders Research (NCSDR), which established the NHTSA & NCSDR program to combat drowsy driving. This program had three main components: a workplace education program for shift workers to reduce the incidence of drowsy driving, a school-based program for high schools to increase students' awareness of the dangers of drowsy driving, and an in-vehicle data-collection effort to obtain driver and vehicle performance measures of real-life inattention events. This report provided an overview of and status report on the agencies' development, implementation, and evaluation activities.

AUTHOR: National Highway Traffic Safety Administration (NHTSA), National Center on Sleep Disorders Research (NCSDR)

[National Survey of Distracted and Drowsy Driving Attitudes and Behaviors: 2002 Volume 1, Findings](#)

April 2003, DOT HS 809 566

This report presented findings on distracted and drowsy driving. This study reported respondent's behavior and attitudes on various topics related to distracted and drowsy driving. This data is the result of two surveys, which were conducted during the spring of 2002. The results indicated that most engage in some form of behaviors that draw some of their attention away from driving. The most common of these behaviors included talking to other passengers (81%) changing radio stations or CDs (66%), and eating or drinking while driving (49%). Only one in four drivers perceived these activities as making driving dangerous. The survey also found that one in four use cell phones, while about the same proportion deals with children in the back seat.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: Dawn Royal

**National Survey of Distracted and Drowsy Driving Attitudes and Behavior:
2002 Volume 3, Methods**

March 2003, DOT HS 809 566

This report presented the findings on distracted and drowsy driving from NHTSA's national survey. This report, Volume III: Methods Report, describes the methods used to conduct the interviews and analyze the data, and also contains the questionnaires. The data come from two surveys, each conducted among nationally- representative samples of drivers during the spring of 2002.

NHTSA PROJECT MANAGER: Paul J. Tremont

AUTHOR: Dawn Royal

Effects of Practice on Interference from an Auditory Task While Driving: A Simulation Study

December 2004, DOT HS 809 826

This report describes the results of a study on the effects of cellular phone conversation on driving-related functions. This study simulated real driving conditions by providing a simulated driving task with repeated experiences of simulated driving and talking. Results showed that the interference from phone tasks on the driving diminished over time due to repeated practice and interference effects were greater when the phone task was an artificial math operation as compared to emotionally involving conversations. The study concluded that ill effects of conversing on the phone while driving are significant initially but are not as severe with continued practice at the dual tasks, especially for young and middle-age drivers.

NHTSA PROJECT MANAGER: Richard P. Compton

AUTHOR: David Shinar, Noam Tractinsky

Field and Simulator Evaluations of a PC-Based Attention Maintenance Training Program

July 2011, DOT HS 811 469

This report presented the results of three research studies regarding driver distraction from the forward roadway due to secondary in-vehicle tasks. Study 1 included the development and evaluation of a PC-based training program named FOrward Concentration and Attention Learning (FOCAL). Study 2 was a field study on active roadways that evaluated the impact of FOCAL on glance behaviors by comparing trained and untrained newly licensed young drivers. Study 3 used a high-fidelity driving simulator. Results from these three studies suggested that young drivers may benefit from training that addresses attention maintenance skills. The research also indicated that computer-based and simulator-based assessments are likely valid for testing the attention maintenance skills of drivers.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: F. Dennis Thomas, III, Sandy Pollatsek, Anuj Pradhan, Gautam Divekar, Richard D. Blomberg, Ian Reagan, Donald Fisher

Four High-Visibility Enforcement Demonstration Waves in Connecticut and New York Reduce Hand-Held Phone Use

July 2011, DOT HS 811 845

This report summarized results from four high-visibility enforcement (HVE) waves over the course of one year targeting distracted driving —talking or texting using a hand-held cell phone. The HVE model combines dedicated law enforcement during a specified period, paid and earned media that emphasizes an enforcement-based message, and evaluation before and after. Before and after each enforcement wave, NHTSA conducted observations of driver cell phone use and collected public awareness surveys at driver licensing offices in each test and comparison site. These demonstration programs documented that NHTSA's high-visibility enforcement model can be effectively applied to distracted driving enforcement and that various law enforcement strategies can be used to observe and ticket cell phone and texting violations.

NHTSA PROJECT MANAGER: Linda Cosgrove, Ian Reagan

AUTHOR: Linda Cosgrove, Neil Chaudhary, Ian Reagan

National Phone Survey on Distracted Driving Attitudes and Behaviors

December 2011, DOT HS 811 555

NHTSA conducted a nationally representative telephone survey of 6,002 drivers 18 and older from all 50 States and the District of Columbia. The goal of the survey was to assess current attitudes and self-reported behaviors about distracted driving. It also assessed perceptions of safety, cell phone use, laws, fines, and enforcement. Results indicated most drivers will answer a call while driving and most will continue to drive after answering. About 2 out of 10 drivers (18%) report that they have sent text messages or e-mails while driving; about half (49%) of those 21 to 24 years old report doing so. More than half believe that using a cell phone and or sending a text message/e-mail makes no difference on their driving performance, yet as passengers, 90% said they would feel very unsafe if their driver was talking on a handheld cell phone or texting/e-mailing while traveling with them. Overall, most drivers report that driving becomes more dangerous when they take their eyes off the road for more than 2 seconds, although about one-third of drivers 18 to 24 years old said they can take their eyes off the road for 3 to 10 seconds or more before driving becomes significantly more dangerous.

AUTHOR: Julie Tison, Neil Chaudhary, Linda Cosgrove

Young Drivers Report the Highest Level of Phone Involvement in Crash or Near-Crash Incidences

April 2012, DOT HS 811 611

In the first nationally-representative telephone survey on distracted driving, NHTSA reported attitudes and behaviors of 6,000 drivers 18 and older from all 50 States and the District of Columbia about distracted driving. This Research Note extracts information from the December 2011 survey about cell phone use and distracted driving for young drivers. A person was considered a driver if he or she had driven in the past year. The survey used a random-digit-dialing procedure to select one eligible driver within each eligible household and oversampled people 18 to 34 on both landlines and cell phones.

AUTHOR: National Highway Traffic Safety Administration

National Survey on Distracted Driving Attitudes and Behaviors – 2012

April 2013, DOT HS 811 729

The 2012 National Survey on Distracted Driving Attitudes and Behaviors (NSDDAB) is the second in a series of surveys on distracted driving that have provided data to help further the understanding of driving behavior and to contribute to the development of countermeasures and interventions to reduce distracted driving on the Nation's roadways. Cluster analysis identified two distinct groups of drivers with similar overall behavioral tendencies and, among those categorized, 33% are distraction-prone and 67% are distraction-averse. This report details the findings from the 2012 NSDDAB, examining the data using driver typology and standard demographics. In the final chapter, results from the current study are compared to those of the 2010 NSDDAB.

NHTSA PROJECT MANAGER: Kristie Johnson

AUTHOR: Paul Schroeder, Mikelyn Meyers, Lidia Kostyniuk

X. Emergency Medical Services (EMS)

Michigan Rural Preventable Mortality Study

June 1995, DOT HS 808 341

This study reviewed all trauma deaths in 24 rural counties in Michigan to identify preventable deaths that may have occurred. A total of 159 deaths were analyzed by an expert panel, and the nature and frequency of inappropriate medical care associated with those deaths was reviewed. The study classified deaths for just under 13% of patients as preventable or possibly preventable, with 31 episodes of inappropriate care occurring among these patients. The most frequent types of inappropriate care were delays in treatment, and problems in airway management and in blood replacement. Among the recommendations was the conclusion that efforts to reduce the episodes of inappropriate care should be directed primarily toward care rendered in the hospital emergency department rather than care provided during the pre-hospital phase.

AUTHOR: R. F. Maio, R. E. Burney, M. A. Gregor, M. G. Baranski, K. B. Welch, E. D. Rothman

North Carolina Rural Preventable Mortality Study

February 1996, DOT HS 808 345

This study examined trauma deaths in 29 northeastern counties in rural portions of North Carolina. This was the third study in a series designed to review deaths from motor vehicle trauma in rural areas, and was intended to replicate and validate findings from two previous evaluations. It found that up to 29% of the deaths that occurred in this area were preventable or possibly preventable, and that these preventable deaths were the result of errors or omissions in care.

1996 Motor Vehicle Occupant Safety Survey, Volume 4: Crash Injury and Emergency Medical Services Report

November 1997, DOT HS 808 633

This report presented the results of the 1996 Motor Vehicle Occupant Safety Survey, a national telephone surveys on occupant protection issues, highlighting crash injuries and emergency medical services. A total of 8,210 telephone interviews were conducted as a follow-up to the 1994 Motor Vehicle Occupant Safety Survey, permitting comparisons of the public's attitudes and behavior regarding emergency medical services and related issues between 1994 and 1996.

AUTHOR: John Boyle, Stephen Dienstfrey

Emergency Medical Services: A Summary of Findings from NHTSA Surveys

November 1996, DOT HS 808 488

This report presented information related to emergency medical services (EMS) that was obtained in two national telephone surveys of the driving age public. Data are summarized concerning such topics as the public's knowledge of the 9-1-1 emergency number, their expectations regarding ambulance response time, their confidence in emergency workers, concerns they would have about stopping to assist at a crash, and their interest in training to assist crash victims.

AUTHOR: John M. Boyle

2000 Motor Vehicle Occupant Safety Survey, Volume 4, Crash injury and Emergency Medical Services Report

November 2001, DOT HS 809 459

This report presented the results of the 2000 Motor Vehicle Occupant Safety Survey, the fourth in a series of biennial national telephone surveys on occupant protection issues. This survey showed that nearly three in ten persons aged 16 and older have been injured in a vehicle crash that required medical attention. Approximately 16% of the total population, aged 16 and older, have received injuries from motor vehicle crashes severe enough to prevent them from performing normal activities for at least a week.

AUTHOR: John Boyle, Patricia Vanderwolf

The REACT Project: Rural Enhancement on Access and Care for Trauma

October 2002, DOT HS 809 521

This study was a follow-up to the Rural Preventable Mortality Study (RPMS), which found an overall preventable mortality rate for eastern North Carolina was 20%. The objective of the REACT project was to decrease the rate of preventable deaths from injury in rural eastern North Carolina. This project evaluated the impact of a continuous quality improvement system, aimed at pre-hospital and hospital emergency providers of trauma care in rural areas, on the overall preventable mortality rate. This program significantly contributed to the decrease in preventable deaths and inappropriate care in north eastern rural North Carolina.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: Herbert G. Garrison, Sallie B. Gough, Melvin S. Swanson, Paul R.G. Cunningham

Emergency Medical Services Outcomes Evaluation

July 2003, DOT HS 809 603

This project developed a "blueprint" or "set of tools" that EMS practitioners can use to evaluate the effectiveness of EMS, or pre-hospital care. Outcomes research will allow future generations of Americans to have an EMS system that provides both quality and cost-effective EMS care. This report describes a project that has laid the foundation for these clinical effectiveness studies to take place.

NHTSA PROJECT MANAGER: Patty Ellison-Potter

AUTHOR: Ronald Maio

2003 Motor Vehicle Occupant Safety Survey Volume 4: Crash Injury and Emergency Medical Services Report

March 2005; DOT HS 809 857

This report presented the results from the 2003 Motor Vehicle Occupant Safety Survey, highlighting crash injuries and emergency medical services. Survey findings indicated that approximately 16% of the total population, age 16 and older, has received injuries from motor vehicle crashes severe enough to prevent them from performing some of their normal activities for at least a week. Persons not wearing a safety belt at the time of the (most recent) crash were about twice as likely to be hospitalized from crash-related injuries as those wearing safety belts.

AUTHOR: John M. Boyle, Patricia Vanderwolf

Configurations of EMS Systems: A Pilot Study

March 2008, DOT HS 810 911

Emergency medical services (EMS) systems are configured according to the size, demographics, geography, and politics of the local communities they serve. Although some information exists about the organization, financing, and delivery of EMS in the Nation's largest cities, there is less information available about how services are organized outside large urban areas, in which 75% of the nation's population resides. This pilot research attempted to develop a typology by characterizing local EMS systems in the Mid-Atlantic region.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: Ellen J. MacKenzie, Anthony R. Carlini

Characterizing Local EMS Systems

August 2013, DOT HS 811 824

Emergency medical services (EMS) systems are configured differently depending on several factors, including the size, demographics, geography, and politics of the local communities they serve. Although some information exists about the organization, financing, and delivery of EMS in the Nation's 200 largest cities, there is less information available about how services are organized outside large urban areas, in which 75% of the nation's population resides. There is little evidence to support alternative system designs and configurations in terms of their impact on the effectiveness and efficiency of service delivery. To this end, there is a need to document the variation in system configurations so they may be evaluated on a common basis.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: Ellen J. MacKenzie, Anthony R. Carlini

XI. Miscellaneous Studies

Community Traffic Safety Programs: A Consensus Statement

1989, DOT HS EPX 038

This document provides a generic definition of a Community Traffic Safety Program (CTSP), and identifies critical characteristics of CTSPs.

AUTHOR: National Highway Traffic Safety Administration

Public Responses to NHTSA's Auto Safety Hotline

1993

This project used focus groups of vehicle purchasers and prior users of NHTSA's Auto Safety Hotline to recommend ways to promote the Hotline to foster reports of vehicle defects.

[Focus Groups on Traffic Safety Issues: Public Responses to NHTSA's New Car Assessment Program \(NCAP\)](#)

August 1993, DOT HS 808 285

This project used focus groups to 1) assess vehicle-buyer perceptions, needs, and desires concerning the delivery and presentation of motor vehicle safety-performance data, 2) identify potential uses of the New Car Assessment Program (NCAP) information in vehicle selection, and 3) gather preliminary information needed to plan an effective promotional campaign. The project generated recommendations for the NCAP Crash Test Program, presenting crash test information, disseminating test information, and promotional ideas.

Responses of Women and Men to Traffic Safety Messages: A Qualitative Report

February 1994, DOT HS 808 091

This project explored gender differences about receptivity to traffic safety communications in order to help future development of effective media campaigns reaching women. A literature review and expert interviews revealed few data to characterize women involved in crashes or to describe their responses to advertising. Eight focus groups of men and women ages 25-59 provided responses to seven TV public service announcements. The report identifies several similarities and typical differences in male and female reactions to driving situations and safety advertising.

NHTSA PROJECT MANAGER: Douglas Gurin

AUTHOR: Susan W. Morris, Janice Lynch, James W. Swinehart, Kathleen Lanza

Community Traffic Safety Programs: Review Analysis

1994, DOT HS 808 115

This project examined Community Traffic Safety Programs.

AUTHOR: National Highway Traffic Safety Administration

Review and Analysis of Community Traffic Safety Programs, Volume I

January 1994, DOT HS 808 116

Community Traffic Safety Programs (CTSPs) emerged largely during the 1980s. Each developed differently, based on local needs and resources. The purpose of this project was to examine CTSPs as they existed throughout the country and to look at their support environment - State Highway Safety Offices (SHSOs), NHTSA Regions, and NHTSA Headquarters technical assistance areas. Specific objectives were to: examine the range of CTSPs to determine how they got started, to identify their key characteristics relative to a set of generic attributes identified by NHTSA, and recommended principles for developing new CTSPs and enhancing existing ones; identify and examine the leadership and management styles associated with CTSP organizational structures and identify optimum combinations; and compare CTSP program requirements with NHTSA's countermeasure products and develop guidelines for countermeasures designed for CTSP use.

NHTSA PROGRAM MANAGER: Alfred J. Farina

AUTHOR: W.A. Leaf, D.F. Preusser

Review and Analysis of Community Traffic Safety Programs, Volume 2 Appendices

January 1994, DOT HS 808 117

This document contains the appendices for the report, Review and Analysis of Community Traffic Safety Programs, DOT HS 808 116.

NHTSA PROGRAM MANAGER: Alfred J. Farina

AUTHOR: W.A. Leaf, D.F. Preusser

Analysis of Driving Histories of ADHD Subjects

June 1995, DOT 808 417

The goals of this research were to assess the relationship between early childhood diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) and later driving performance. Driving records were obtained for ADHD and comparison subjects who were participants in a prospective longitudinal study begun in 1974 to explore the identification, treatment, and life histories of hyperactive children. The analyses presented in this report compare subjects diagnosed as having severe ADHD to all other subjects.

AUTHOR: N. M. Lambert

Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies

September 1995, DOT HS 808 373

The Hispanic population is one of the fastest growing demographic groups in the United States. This report presented the results of a study to identify highway safety needs in Hispanic communities, and ways of promoting highway safety to those communities. Telephone discussions were held with representatives of agencies and organizations actively engaged with Hispanic communities in California, Texas, Colorado, the District of Columbia, New York City/New Jersey, and Florida. In addition, focus groups were held with adolescent males, young adult males, young adult females, and parents of young children.

AUTHOR: A. Hamilton, A. Arias, A. Acosta

Analysis of the Capital Beltway Crash Problem

March 1996, DOT HS 808 393

This was one of a series of studies supporting the Capital Beltway Safety Team documenting the crashes that occur on the Washington Capital Beltway, a 64-mile interstate facility around the nation's capital. Crash typing of 4,447 Virginia and Maryland police-reported crashes for the two years 1993 and 1994 were analyzed. Three types of crashes accounted for 78% of all Beltway crashes, many related to congestion problems during peak hours. A separate analysis of the interchanges documented the most frequently occurring crash at these high crash locations. The study looked at the incident of a crash causing subsequent crashes on the Beltway. Up to 10% of Beltway crashes are followed by subsequent crashes.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, David F. Preusser, William A. Leaf

Compendium of Traffic Safety Research Projects: 1985 – 1995 and Beyond

March 1996, DOT HS 808 379

The National Highway Traffic Safety Administration's (NHTSA's) Office of Program Development and Evaluation (OPDE) conducts research and evaluation projects dealing with human attitudes, behaviors, and failures (motor vehicle crashes). This compendium is an annotated bibliography of 10-years' worth of behavioral research sponsored by NHTSA and conducted by OPDE. It provides a brief description of nearly two hundred OPDE projects past, present, and on-going in the following areas: alcohol-impaired driving, drug-impaired driving, occupant protection, speed and other unsafe driving actions, pedestrian and bicyclist safety, older drivers, novice and young drivers, and other traffic safety research.

NHTSA PROJECT MANAGER: Amy Berning

National Highway Traffic Safety Administration 1995 Customer Satisfaction Survey

September 1996, DOT HS 808 439

NHTSA conducted a national Customer Satisfaction Survey in response to the requirements of the National Performance Review and Executive Order 12862. The survey was administered by telephone to 4,003 persons 16 and older. This report presented survey findings concerning the public's knowledge of available highway safety resources, the importance they attach to different highway safety issues, and the role they would like to see the government take in promoting highway safety.

AUTHOR: J. M. Boyle

Compendium of Traffic Safety Research Projects: A Decade and Beyond

September 1997, DOT HS 808 599

The National Highway Traffic Safety Administration's (NHTSA) Research and Evaluation Division, Office of Research and Traffic Records, conducts research and evaluation projects dealing with human attitudes, behaviors, and failures (motor vehicle crashes). The focus was on drivers, passengers, pedestrians, bicyclists, and motorcyclists and their role in traffic safety. This Compendium updated the original Compendium that was published in April 1996. It contains an annotated bibliography listing NHTSA's recent (the last ten years) and on-going behavioral research and evaluation projects.

NHTSA PROJECT MANAGER: Amy Berning

Risk-Taking Behavior and Traffic Safety Symposium Proceedings

October 1997, DOT HS 809 033

In 1996, Secretary of Transportation Federico Pena and General Motors Corporation agreed on the need to address risk-taking behavior by drivers as potentially the most cost effective way of bringing about further improvements in traffic safety. The Department of Transportation and General Motors co-sponsored a symposium on driver and pedestrian risk-taking behavior. This report contains the papers and discussion presented at the symposium.

National Highway Traffic Safety Administration: 1997 Customer Satisfaction Survey

March 1998, DOT HS 808 797

In 1995, the National Highway Traffic Safety Administration (NHTSA) conducted its first Customer Satisfaction Survey in response to the requirements of the National Performance Review and Executive Order 12862. An independent research organization, Schulman, Ronca and Bucuvalas, Inc., administered the telephone survey to persons ages 16 and older randomly selected from across the United States. This survey was used to gather information about the public's knowledge and opinion on a variety of highway safety issues, along with their attitudes toward the role that the federal government should play in promoting highway safety. The 1995 survey was also used as a baseline measure. Subsequent surveys would be used to measure NHTSA's progress in improving its service to the public. The 1997 survey represents the first of these follow-up surveys. The results give NHTSA an assessment of the public's knowledge and opinions similar to those in 1995. It also provides NHTSA with its first look at changes in these factors -- whether brought about by external influences, or by the agency's own efforts in improving its service.

AUTHOR: John M. Boyle, Kevin Sharp

Capital Beltway Update: Beltway User Focus Groups

April 1998, DOT HS 808 705

This report documents the results of focus groups run during May, 1997 on issues of safety on the Capital Beltway. Of the eight groups conducted: three were composed of representative Beltway drivers of private passenger vehicles; two were composed of specifically selected "aggressive drivers"; and three were composed of commercial truck drivers.

NHTSA Project Manager: Linda Cosgrove

Author: Preusser Research Group, Inc.

Analyzing Capital Beltway Crashes: Years 1993-1996

December 1998, DOT HS 808 852

This report describes an analysis of crash trends on the interstate system surrounding Washington, DC. Crash reports from 1993 to 1996 were analyzed and results highlighted crash types and trends on alcohol involvement are presented. Data on truck involvement in crashes is also included.

NHTSA PROJECT MANAGER: Linda Cosgrove

AUTHOR: Mark G. Solomon, David F. Preusser, William A. Leaf

The Art of Appropriate Evaluation: A Guide for Highway Safety Program Manager

May 1999, DOT HS 808 894

This guide provided an overview of steps involved in program evaluation and the benefits gained from an evaluation. The guide also provides suggestions on how these steps fit into program implementation. It also describes evaluation types and how to maximize program evaluation success.

AUTHOR: National Highway Traffic Safety Administration

Report to Congress: Safe Communities

May 2001, DOT HS 809 258

This Report to Congress presented the results of an evaluation of the Safe Communities Injury Control Initiative. This report described the activities and results of safe community programs, established in nearly 1,000 locations throughout the nation by year 2000. Data from the first two sites showed promising results. In Dallas, Texas, child safety seat use increased from 23% to 65%, and in Anchorage, Alaska, correct child safety seat usage improved 20%. The safe Communities approach enables communities to examine their data to determine their most significant issues by identifying specific causes of injuries and fatalities.

AUTHOR: National Highway Traffic Safety Administration

Highway Safety in Black/African-American Communities: Issues and Strategies

September 2002, DOT HS 809 649

This study aimed to identify the traffic safety needs of Black communities within the United States and to determine effective means of directing traffic safety messages to these populations. Following interviews with representatives from local agencies, organizations and focus groups with members of the public, a number of issues were identified. Improper or nonuse of child safety seats, drinking and driving, aggressive /reckless driving and speeding were identified as key issues.

AUTHOR: Sylvia Cordy, Kevin Raines, Judith Singletary, Rochelle Tillery-Larkin

Public Awareness Survey Recommendations of the NHTSA-GHSA Working Group

July 2007, DOT HS 811 511

The National Highway Traffic Safety Administration (NHTSA) and the Governors Highway Safety Association (GHSA) developed a set of survey questions including information on seat belt use, impaired driving, and speeding. These core questions can be used in regular telephone or similar surveys to track drivers' attitudes and awareness of enforcement and communication activities.

AUTHOR: Jim Hedlund, T. Cassanove, Neil Chaudhary

Traffic Safety Performance Measures for States and Federal Agencies

August 2008, DOT HS 811 025

The National Highway Traffic Safety Administration (NHTSA) and the Governors Highway Safety Association (GHSA) have agreed on a minimum set of performance measures to be used by States and federal agencies in the development and implementation of behavioral highway safety plans and programs. An expert panel from NHTSA, State Highway Safety Offices, academic and research organizations, and other key groups assisted in developing the measures. The initial minimum set contains 14 measures: ten core outcome measures, one core behavior measure, and three activity measures. The measures cover the major areas common to State highway safety plans and use existing data systems.

NHTSA PROJECT MANAGER: Patricia Ellison-Potter

AUTHOR: James H. Hedlund

The Art of Appropriate Evaluation: A Guide for Highway Safety Program Managers

August 2008, DOT HS 811 047

The guide, updated from its original release in 1999, is intended for project managers who will oversee the evaluation of traffic safety programs. It describes the benefits of evaluation and provides an overview of the steps involved. The guide includes case examples to illustrate the described concepts and discusses what to look for when hiring a professional evaluator for large or complex evaluations.

NHTSA PROJECT MANAGER: Ian Reagan

AUTHOR: Nancy C. Pullen-Seufert, William L. Hall

Technology Applications for Traffic Safety Programs: A Primer

September 2008, DOT HS 811 040

This document explores how emerging digital and communications technology can advance safety on the Nation's highways. The range of technology described in this report is available or will be available in the near future to improve traffic safety. As new traffic safety applications become widespread and implementation costs decrease, there could be a network of advanced systems that improve traffic safety by providing information and services to drivers, traffic operations agencies, emergency services personnel, and law enforcement professionals.

Discussions in this report include a general overview of traffic safety technology; the use of technology to reach traffic safety goals using the framework of the "Four E's" of engineering, enforcement, education, and EMS; and the technical and non-technical challenges for these technology applications.

AUTHOR: Volpe National Transportation Systems Center

Art of Appropriate Evaluation: A Guide for Traffic Safety Program Managers

December, 2008 DOT HS 811 061

The guide, updated from its original release in 1999, is intended for project managers who will oversee the evaluation of traffic safety programs. It describes the benefits of evaluation and provides an overview of the steps involved. The guide included case examples to illustrate the described concepts and discussed what to look for when hiring a professional evaluator for large or complex evaluations.

NHTSA Project Manager: Ian Reagan

Author: Nancy C. Pullen-Seufert, William L. Hall

Driving With Visual Field Loss: An Exploratory Simulation Study

January 2009, DOT HS 811 062

The goal of this study was to identify the influence of peripheral visual field loss (VFL) on driving performance in a motion-based driving simulator. Sixteen drivers (6 with VFL and 10 with normal visual fields) completed a 14 km simulated drive. The simulated scenarios included changes in road geometry, merging, lead vehicle braking and incursion events; outcome measures were head movements, lane position, accelerator release time, collisions, and subjective assessment of driving patterns. There were significant differences between groups in some driving performance measures. Those with VFL demonstrated more variability in lane maintenance on curves and when departing the freeway, as well as delayed accelerator release and reduced time to simulated collision during an unexpected hazard event. VFL participants did not exhibit expected compensatory behaviors such as greater variability in head movements. The results suggest some differences in driving performance and driving patterns between the groups.

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Julie Lockhart, Linda Ng Boyle, Mark Wilkinson

Feasibility of Collecting Traffic Safety Data from Law Enforcement Agencies

April 2011, DOT HS 811 447

The focus of this project was to learn from law enforcement representatives what information is currently collected, document the resources, strategies, frequency, and intensity of activities dedicated to traffic-safety-related enforcement as well as learn how law enforcement agencies (LEAs) use these resources. It was concluded that collecting traffic safety enforcement data from LEAs for a new data system is feasible, but initially it will be a difficult and complex task. According to LEA representatives from around the United States who participated in this project, it is feasible to collect at least minimum monthly data on traffic law enforcement activities at the police agency level (e.g., staffing, equipment, strategies employed, traffic stops/contacts with drivers, violations issued, calls for service, and crashes reported). Various methods for sampling LEAs are described.

NHTSA Project Manager: Dereece Smither

AUTHOR: Connie H. Wiliszowski, James C. Fell, Dereece Smither, Maria E. Vegega, Amy Auld-Owens, Esther Namuswe

Pedal Application Errors

March 2012, DOT HS 811 597

This project examined the prevalence of pedal application errors and the driver, vehicle, roadway and/or environmental characteristics associated with pedal misapplication crashes based on a literature review, analysis of news media reports, a panel of driver rehabilitation specialists, analysis of multiple crash databases, and case studies. Available sources provide an estimate of 15 pedal misapplication crashes per month in the United States, but there are limits to the reporting of these events that could result in underestimation. The drivers in almost two-thirds of such crashes were females, and analysis shows significant over-involvement by the youngest (age 16 to 20) and oldest (76 and older) drivers. Driver inattention and distraction were common contributing factors across age groups. Passenger cars were by far the most prevalent.

NHTSA PROJECT MANAGER: Kathy Sifrit

AUTHOR: Kathy H. Lococo, Loren Staplin, Carol A. Martell Kathy J. Sifrit

Countermeasures that Work

April, 2013, [DOT HS 811 727](#) (Seventh Edition)

February 2011; [DOT HS 811 444](#) (Sixth Edition)

January 2010; [DOT HS 811 258](#) (Fifth Edition)

January 2009; [DOT HS 811 081](#) (Fourth Edition)

January 2008; DOT HS 810 891 (Third Edition)

January 2007; DOT HS 810 710 (Second Edition)

May 2005; [DOT HS 809 980](#) (First Edition)

The Countermeasures that Work guides are a basic reference to assist State Highway Safety Offices (SHSOs) in selecting effective, science-based traffic safety countermeasures for major highway safety problem areas. The guides described major strategies and countermeasures that are relevant to SHSOs, summarized their use, effectiveness, costs, and implementation time and provides references to the most important research summaries and individual studies.

DOT HS 811 847
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