



Compendium of  
Traffic Safety  
Research Projects  
1987 - 1997

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16. Abstract  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). Our focus is on drivers, passengers, pedestrians, bicyclists, and motorcyclists and their role in traffic safety.  This Compendium updates the original Compendium that was published in April 1996. It an annotated bibliography listing NHTSA's recent (the last ten years) and on-going behavioral research and evaluation projects.					
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# Compendium of Traffic Safety Research Projects 1987 - 1997

## Updated Annotated Bibliography of Traffic Safety Research Projects

Our office has changed names, but our focus has remained the same. The “new” *Research and Evaluation Division* in NHTSA’s Office of Research and Traffic Records continues to conduct research and evaluation projects dealing with human attitudes, behaviors and failures (motor vehicle crashes). Our focus is on drivers, passengers, pedestrians, bicyclists, and motorcyclists and their role in traffic safety. We conduct basic problem identification research to identify and measure the importance of behaviors that cause crashes or increase the severity of injuries. We conduct laboratory and field studies to develop and refine countermeasures that can deter unsafe behaviors and promote safe alternatives. We design and implement evaluation projects to test countermeasure effectiveness in the real world. We also conduct scientific evaluations of large scale, on-going projects to measure the impact of public information and education, legislation, and enforcement, and their long-term effects.

This 1997 Compendium updates the original Compendium that we published in April 1996. It lists our most recent (the previous ten years) and on-going research activities. Look for the  next to project listings. This indicates either a newly published report, or a new research project.

Many of our completed projects resulted in products that have significantly enhanced the effectiveness of police traffic services, community traffic safety programs, driver licensing agencies, and public interest groups concerned with traffic safety. We hope that current and future projects will prove equally useful.

Copies of most of the reports included in this Compendium are available from NHTSA in limited quantities. A few of the reports are out of print, but it may be possible to obtain a copy from the National Technical Information Service at 703-487-4650.

To request a report from NHTSA, please write to:  
Research and Evaluation Division  
NTS-31  
400 7th Street, S.W.  
Washington, D.C. 20590

Or send a fax to:  
Research and Evaluation Division  
202-366-7096

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# 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 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 that no "safe" limit of BAC, other than zero, can be placed on alcohol impairment of driving-related skills.

### **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.

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

March 1990, DOT HS 807 557

This report is 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 is 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.

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

February 1991, DOT HS 807 692

### **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 is 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. The reports conclude that all states should consider adopting illegal per se laws at the .08 level for drivers aged 21 and older.

### **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 at 703-487-4650.

### **National Roadside Breath Test Survey-1996**



March 1997 Traffic Tech, Report in press

This was a jointly sponsored study with the Insurance Institute for Highway Safety (IIHS) to determine the proportion of drivers on the roads on Friday and Saturday nights who are impaired by alcohol. Previous national surveys were conducted in 1973 and 1986. In 1973, a full 13.7% of the drivers on roads on Friday and Saturday nights had blood alcohol concentrations (BACs) exceeding .05, 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+). 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. The proportion of women with high BACs increased between 1986 and 1996, as did the proportion of Hispanic drivers. There was a marked decrease in the percent of young (under age 21) drivers with high BACs, but no change among the 21 to 34 year old group. More published reports on this survey are expected in Fall 1997.

### **Alcohol Highway Safety Update**

In press

This study is critically examining recent highway safety literature in the U.S. and abroad to determine whether information is available that can be used to better identify target groups or problems. Topical areas include the effects of different 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 suggest that the current literature does not provide sufficient information to assist in specific target group or problem identification and that more research is needed to accomplish target group identification.

### **Crash Risk of Alcohol-Involved Driving**

In progress

This project will obtain blood alcohol concentration (BAC) measurements and other information from nearly 3,000 drivers involved in motor vehicle crashes, and from twice as many non-crash involved drivers. A case-control approach will be used: the non-crash drivers will be sampled at the scenes of crashes, typically one week after the crash occurred. Data will be analyzed to determine how crash risk increases with BAC, and also to determine how the BAC-risk relationship varies as a function of driver's age, gender, drinking experience, etc.

### **Driver Characteristics and Impairment at Various BACs**

In progress

This project is using 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 will also be determined. Countermeasure approaches based on these findings will be identified.

## **B) DRINKING-DRIVING LEGISLATION**

### **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 legal BAC limit from .10 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.

### **Implied Consent Refusal Impact**

September 1991, DOT HS 807 765

The study examined the rates at which 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 is a potential test refusal problem in much of the nation. On average, about one arrestee in five (19%) refuses the test. But refusal rate varies widely among states, from a low of 2% (in Hawaii) to a high of 71% (Rhode Island). The study recommends strong traffic law system action against refusers to include criminal sanctions for some "hard core" refusers.

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

March 1992, DOT HS 807 860

The project studied the impact of new low-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.

**Setting Limits, Saving Lives. The Case for .08 BAC Laws**

January 1997, DOT HS 808 524,

NHTSA, in conjunction with the National Safety Council, developed an informative, easy-to-understand handbook on .08 blood alcohol concentration (BAC). This handbook, entitled "Setting Limits, Saving Lives. The Case for .08 Laws" presents information that safety advocates at the local level can use to encourage passage of .08 laws in their legislatures. It includes in concise, easy-to-read language with graphics, an overview of the impaired driving problem, a description of the .08 law, the rationale behind .08, the effect of various BACs on crash risk, myths about .08, consumer education and public support, law enforcement aspects, and a summary of the effects of the law in terms of crash reductions. It can be used by state legislative aides to educate state legislators, by citizen activist groups and national organizations, and by the general public interested in doing something about impaired driving.

**Evaluation of New Mexico's DWI Laws**

In progress

New Mexico recently passed a package of new DWI laws which included: 1) 0.08 blood alcohol concentration (BAC); 2) 0.02 BAC for minors; 3) expedited license suspension; 4) mandatory sentencing for multiple offenders; 5) programs to prevent alcohol sales to minors; 6) mandatory training for alcohol retailers and servers; 7) mandatory alcohol abuse screening; and 8) alcohol treatment programs for problem drinkers. The project will determine the impact of New Mexico's new DWI legislation on alcohol-related crashes, recidivism rates for multiple offenders, and the availability of alcohol to minors and other intoxicated persons. In addition, the project will determine whether there are changes in alcohol-related crashes (fatal, injury, and property damage), attitudes, knowledge, and awareness of DWI.

**Evaluation of Zero Tolerance Laws**

In progress

Zero tolerance laws prohibit any level of alcohol in a driver under the age of 21. Thirty-six states plus the District of Columbia currently have zero tolerance laws (i.e., .00 BAC or .02 BAC). This project will examine the effect of zero tolerance laws on alcohol-related crashes and fatalities. The project will also examine obstacles in implementing and enforcing the laws and identify possible solutions and strategies for improvement.

## C) DWI DETECTION, INVESTIGATION, AND ENFORCEMENT

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

1988, DOT HS 807 282

In response to Congress, NHTSA undertook a test of a new alcohol and drug testing technology - one which measures and interprets the "corneal retinal potential," an electrical field created by the body's visual system. These electrical signals had been suggested as a tool for identifying persons who are under the influence of alcohol and drugs -- the rationale being that these substances affect the balance system and this upset might be reflected in corneal retinal potentials which have been used for decades to diagnose balance disorder by the medical profession. 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 suggests that the device can be developed to perform as an indicator of drug use, although many hurdles exist before it could be a useful tool for traffic law enforcement.

**Second Workshop on In-Vehicle Alcohol Test Devices**

April 1988, DOT HS 807 299

This brief technical report describes 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**

1988, DOT HS 807 394

"Passive" alcohol sensing 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 such devices (Lion Alcolmeter PAS, and a modified version of the Alcolmeter, the P.A.S.) in two 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.

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

July 1988, DOT HS 807 434

This report summarizes a field test in Indianapolis, Indiana to achieve DWI general deterrence by combining enforcement efforts with PI&E. 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.

**The Accuracy of Evidentiary Breath Testers at Low BACs**

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 to .04 as they were when tested at .05, .10 and .15.

**Assessment of Changes in DWI Enforcement Level**

January 1991, DOT HS 807 690

This report summarizes the long-term experience of six law enforcement agencies with enforcement programs coupled with public information and education (PI&E) designed to deter 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.

**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 (Enzymatics, 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.]

### **Detection of DWI Motorcyclists**

March 1993, DOT HS 807 839

The project identified and validated fourteen good (probability 30-49%) and excellent (50% or more) visual cues of 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.”

### **Experimental Evaluation of Sobriety Checkpoint Programs**

August 1995, DOT HS 808 287

The 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. However, checkpoint program effectiveness did not appear to vary with staff size or deployment strategy (mobility) within the ranges tested in the study.

### **Effectiveness of Passive Alcohol Sensors**



March 1996, DOT HS 808 381

A field study was conducted to evaluate three Passive Alcohol Sensor models in both routine police and special 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, Tennessee) that have low or zero blood alcohol concentration (BAC) laws for under 21 age drivers. Each law enforcement agency used each passive sensor for 2 months, for a total of 6 months of field data collection.

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



July 1996, DOT HS 808 427

This 13-page booklet summarizes information collected from 68 police departments in 13 states that have used in-vehicle videotaping in their impaired driving enforcement efforts. It describes the different types of equipment used in police vehicles and documents the most frequently encountered equipment problems. From a law enforcement officer's point of view, it ranks the advantages and disadvantages of videotaping and ties these into advice offered by prosecutors.

### **Assessment of DWI Enforcement “Loopholes”**

In press

This study is examining the DWI enforcement process from on-road detection, through the arrest process, to court proceedings, and sanctioning. The study includes 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 is to identify loopholes in the enforcement system where offenders escape detection, arrest, conviction, or punishment, and to identify possible solutions. A follow-on project will implement suggested improvements and determine their effectiveness.

## **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, contact Jim Frank in NHTSA's Impaired Driving Division at (202) 366-9581.

## **Laser Alcohol Detection**

In progress

This project developed and tested (under laboratory conditions) a prototype instrument that uses an infrared laser beam that can be used to screen vehicles at checkpoints, stop signs and other traffic environments. The instrument detects alcohol vapor within the passenger compartment of the vehicle. To date, the findings indicate that the device can be operated only when both driver and passenger side windows are rolled down.

## **DWI Detection at BACs Below .10**

In progress

This project is identifying and validating visual cues that police can use to detect drivers at blood alcohol concentrations (BACs) below .10 (i.e., .08, and if possible, .04), both on-the-road and after traffic stops. The project includes a large field validation in which drivers are being asked to submit to voluntary breath tests to determine their BACs. This validation provides data on how well particular driving cues predict DWI at lower BACs, thereby providing police with a basis for making alcohol-related traffic stops at the lower level of .08.

## **SFST Validation at Lower BAC Limits**

In progress

Current Standardized Field Sobriety Tests (SFST) used by law enforcement at roadside were validated at .10 BAC (blood alcohol concentration). As many states have reduced their legal limit to .08, this project is validating the same SFST at this lower BAC level.

## **Automated Procedures for Identifying Alcohol-Impaired Drivers at Checkpoints**

In progress

This project is developing high-technology sensors capable of measuring driving approach behaviors as vehicles enter checkpoints. Sensors that appear potentially effective will be tested under closed-course controlled conditions. If those test results are positive, a system that includes those sensors will be developed and field tested (in a subsequent study) to assess whether it improves police detection of drinking drivers at actual checkpoints.

## **Improved Checkpoint Screening Protocol**

In progress

This project is developing and field testing improved means of rapidly screening drivers stopped at checkpoints to identify those drivers who may be impaired. The improved protocol may include visual cues, effective interview procedures, and tests that can be administered while the driver is seated in the vehicle.

## **Development and Field Test of a "Problem Driver Detection System"**



In progress

This study will determine the feasibility of using high technology sensors as part of a system that can permit police to identify and apprehend passing motorists who are driving on a suspended license. If feasible, a field test will be conducted to determine the system's effects on reducing violations and crashes for driving while suspended offenders.

## **D) DWI PROSECUTION AND ADJUDICATION**

### **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 two programs were the Oak Ridge, Tennessee RID program and the Douglas County (Omaha), Nebraska MADD program. The results showed that a well-organized court monitoring program implemented by an organized group can affect the handling of 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.

### **An Evaluation of the Elimination of Plea Bargaining for DWI Offenders**

November 1989, DOT HS 807 435

This was a study of the effects of eliminating plea bargaining for DWI on the adjudication system 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.

### **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 (9,137 cases). The results demonstrated that court monitoring is an effective tool in affecting the adjudication process. In the presence of court monitors the conviction rates of DWI offenders are higher and their case dismissal rates are lower than those of drivers not court-monitored. Furthermore, once convicted, the likelihood of

a jail sentence is higher and the length of the jail sentence is longer for court-monitored DWI drivers than for non-monitored drivers.

### **Evaluation of Two Prosecution Training Programs**

In press

Two NHTSA training courses, "Prosecution of Driving While Under the Influence (DWI)" and "Prosecuting the Drugged Driver" are intended to help inexperienced prosecutors prepare and conduct more effective trials. Six months after prosecutors attended one of these courses, they and their supervisors reported more improvement in skills than shown by comparison prosecutors (who did not attend the courses). Most improvement occurred in the trial areas covered during workshop sessions. Court record data on actual case outcomes were obtained for three states. Two states showed changes consistent with improved performance of prosecutors after they attended the course.

## **E) COUNTERMEASURES AND SANCTIONS**

### **Deterrent Effects of Mandatory License Suspension for DWI**

June 1987, DOT HS 807 138

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

### **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); 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 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 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).

### **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 DWI on general deterrence, special 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.

## **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 provides 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.

## **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 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.

## **Assessment of Multiple DWI Offender Restrictions**

December 1989, DOT HS 807 615

The 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.

## **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 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 is rarely available.

## **The Effects of Implementing and Publicizing Administrative License Revocation in Nevada**

April 1990, DOT HS 807 600

Nevada law calls for confiscating the driver's licenses of DWI arrestees who either refuse the chemical test or have blood alcohol concentrations (BACs) of .10 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.

## **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.

## **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 presents 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 drunk drivers. Volume II contains summaries of the assessments of individual evaluations.

## **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.

## **Assessment of Publicized Insurance Sanctions as a DWI Countermeasure**

1994, DOT HS 808 119

The objective of this project was to determine the effectiveness of a well-publicized insurance sanctions program focussing on heavy insurance penalties for DWI conviction. 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 indicate that it might prove to be an effective deterrent.

### **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 DUI in Oregon and Washington. In these states, upon arresting a motorist for Driving on a Suspended License (DWS), officers could place a zebra sticker over the annual portion of the license plate of the offender's vehicle on the spot. Subsequently, any officer could stop these stickered vehicles and request that the driver produce a valid license. Drivers whose licenses were suspended, and at risk of getting a zebra sticker if caught driving, showed a 33% reduction in moving violations and a 23% reduction in crashes after the zebra law implemented in Oregon. The study suggests that if publicized and enforced, the zebra sticker law can have positive traffic safety effects (in terms of reduced or more careful driving) on suspended DUIs and suspended DUI drivers convicted of DWS who receive a zebra sticker.

### **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 indicate that ALR does not have a pronounced impact on the DUI offender's job and income. Alcohol-involved crashes have a great impact on seriously injured victims, but the proportion of DUI crashes producing serious injury is low.

### **Determine Reasons for Repeat Drinking and Driving**



May 1996, DOT HS 808 401

Repeat 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.

### **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 rearrest recidivism of participants was only about half that of the comparison group, and the conviction rate of electronic participants was about a third less than that of the comparison group.

### **Develop and Test Countermeasures for Repeat DWI Offenders**

In progress

This study will evaluate one or more promising alternative sanctions for repeat DWI offenders. The project will examine recidivism rates as well as program cost effectiveness.

### **Evaluation of Community Service as a DWI Deterrent**

In progress

Community service sentencing has been and is used as an alternative to jail in the punishment of DWI. But little is known about what kinds of community sentencing programs are being used throughout the states and about the effectiveness of community service sentencing as a deterrent to DWI. A previous NHTSA study showed that community service should not be used in lieu of more effective sanctions such as license suspension. This project will determine what community service sentencing programs for DWI are being conducted in each of the states. In addition, the project will determine how effective selective community service sentencing programs are as a deterrent to DWI.

### **Field Test of Impoundment and Forfeiture Laws**

In Progress

This study will provide information on the effectiveness of impoundment, immobilization, and vehicle forfeiture for reducing recidivism rates of those convicted of Driving While Suspended or Driving While Intoxicated. The study also assesses practical issues associated with setting up and implementing these types of sanctioning programs in the field.

## **F) DRINKING DRIVER ATTITUDES AND BEHAVIOR**

### **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.

## **National Survey of Drinking and Driving Decision Making**

1992

A national telephone survey was conducted to determine the basis upon which persons make drinking and driving decisions, and assess how the 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).

## **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.

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

March 1995, DOT HS 808 251

This project examined the decision 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.

## **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-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.

### **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 is important to individuals in this age group, and use that information when developing anti-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 is dangerous and wrong. However, most admitted to driving while impaired on occasion, and appeared to feel that this is morally different than driving drunk habitually.

### **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 show 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.

### **National Survey of Drinking and Driving Attitudes and Behavior: 1997**



In progress

This is the fourth NHTSA biennial tracking survey to be conducted since 1991. Topics in the survey parallel those described in 1995 survey (see above).

### **Develop and Test Norms Programs**

In progress

Further reductions in alcohol-related crashes and fatalities require changes in those areas that are the heart of the problem -- society's values, attitudes, and behavior regarding the use, and abuse, of alcohol. Social norms are the standards of behavior that members of a group accept and follow. Changing social norms would alleviate the current reliance on enforcement approaches and the costs associated with police and court intervention. This study will use data collected in previous NHTSA norms research and will develop and field test a program designed to change people's norms regarding drinking and driving.

## Develop and Pilot Test Norms Messages



In progress

Based on previous NHTSA research, this project is developing norms-based messages to encourage sober driving. The developed messages will be tested with focus groups to determine their believability, persuasiveness, and effectiveness.

### G) PREVENTION

#### Review and Assessment of Designated Driver Programs

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.

#### Development and Field Test of a Responsible Alcohol Service Program

1987, DOT HS 807 221 (Volume I: Research Findings);

1987, DOT HS 807 222 (Volume II: Server Education Program Materials);

1989, DOT HS 807 449 (Volume III: Final Results)

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 is provided for those who wish to administer the program to other groups. Four video presentations, totaling 62 minutes, are 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).

#### 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.) All the entries provide the information needed to contact program representatives for additional information. 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.

### **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 DWI.

### **Evaluation of the Host Responsibility Program**

September 1988, 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. Small but significant improvements in all three areas were found. 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.

### **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 is 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 appear in the companion Volume II report.

### **Host and Server Determination of Alcohol Intoxication Level**

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 (BAC=.04-.08)

and those corresponding to severe impairment (BAC>.08). Observers using the IEP estimated impairment more accurately than those not using it, when impairment was manifest in both breath tests and field sobriety measures. The improved accuracy lay mainly in identifying moderately-impaired drinkers.

### **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.

### **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.

### **Responsible Alcohol Service Programs Evaluation**

June 1991, DOT HS 807 779

TEAM (Techniques for Effective Alcohol Management) is 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.

### **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 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.

### **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. And although the data indicated that individuals tend to use other alternatives more often (such as designated drivers and asking others for a ride), RSPs do appear to prevent some individuals from driving after drinking.

### **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.

### **Designated Driver Program Field Test**

In progress

A field test of a community-based designated driver program (DDP) in Haverhill, Massachusetts was conducted. In addition to developing a Users' Guide for how to set up a community-based program, a full-scale evaluation was completed, including a before and after questionnaire administered in both the test community and a control community. Preliminary findings indicate that more than half of the test community was aware of the program; self-reported usage rates among service establishment patrons was 54%, and the community's citizens reported using designated drivers about 50% of the time in the past year.

### **Evaluation of a Safe Ride Program**



In progress

Safe Ride Programs (also called Ride Service Programs) offer free or reduced cab rides home for impaired drivers. This project will examine the "Tipsy Taxi" program in Aspen, Colorado. The study will examine how often the program is used, and how many impaired driving trips are saved each year.

### **Evaluation of Youth Alcohol Programs**



In progress

The "Washington Regional Alcohol Program" (WRAP) in Washington, D.C. has received many accolades for its innovative and comprehensive approach towards deterring youth impaired driving. This project is assessing the effectiveness of several programs across the country

modeled after WRAP. The study examines program implementation issues, program awareness, and DWI behavior change.

## H) MISCELLANEOUS ALCOHOL RESEARCH

### **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 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.

### **Anti-Drunk Driving Program Initiatives: A Perspective 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.

### **Evaluation of the 410 Alcohol Countermeasure Grant Program**

In progress

The goal of this project is to determine how the 410 qualifying process is accomplished, and which governmental and private organizations that participate and are essential to this process. In addition, the project will determine the impact of the 410 qualifying process on the incidence of impaired driving. The study will involve an administrative evaluation of the qualifying process and will determine the impact of the program on alcohol-related crashes.

### **Problem Drinker Assessment Instrument Validation**

In progress

This study is validating five commercially available problem-drinker assessment instruments widely used by the courts for DUI offenders. The validation criteria used were a set of characteristics of people that an expert panel agreed identified problem drinkers who should be referred for treatment. Data from 609 subjects were collected in Boston and Pittsburgh. The instruments include the Michigan Alcohol Screening Test (MAST); the Driver Risk Inventory (DRI); the Mortimer-Filkens (MF); and Cut Down, Annoyed, Guilty, Eye Opener (CAGE), and the Substance Abuse Life Circumstances Evaluation (SALCE).

## II. Drug-Impaired Driving

### A) DRUG USE AND IMPAIRMENT

#### **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.

#### **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.

#### **The Incidence and Role of Drugs in Fatally Injured Drivers**

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.

#### **Marijuana and Actual Driving Performance**

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 and .08 only in lane maintenance performance measures.

## **Update of the Literature on Drugs and Highway Safety**

In press

This study focuses on recently published and ongoing work related to drug involvement in motor vehicle crashes and impaired driving arrests. A considerable body of such work has been initiated since the publication of the NHTSA Report to Congress in 1988.

## **Drug Involvement in Non-fatal Injury Crashes**

In progress

This study is analyzing blood specimens from approximately 1,000 drivers injured in crashes in and near Rochester, New York. Responsibility analysis will be employed to assess the causal role of drugs in those crashes. The results will be compared to a similar study conducted in 1982 at a Rochester hospital.

## **Laboratory Testing of Drug Screening Devices**

In progress

This study is assessing the accuracy of three disposable "on-site" urine drug screening devices. The drug categories these devices test for include marijuana, cocaine, amphetamines, benzodiazepines, and opiates.

## **National Survey of Drug Use and Driving: 1996**

In progress

This project will determine the reported incidence of drug taking followed by driving and will obtain data on the specific characteristics of people and situations associated with episodes of drugged driving. A survey module of 56 questions was attached to the 1996 National Household Survey on Drug Abuse under an interagency agreement with the Substance Abuse and Mental Health Services Administration. The survey was administered in-person to a national probability sample of approximately 14,000 drivers. Data will be used to establish the extent of the drugged driving problem and to provide information that can be used to guide development of countermeasures appropriately targeted toward drugged driving.

## **Pre-Licensure Drug Testing Demonstration**



In progress

A two- to four-state demonstration and evaluation of pre-licensure drug testing will be conducted.

The demonstration program will allow various approaches to be evaluated for their efficiency and effectiveness. The participating states will become laboratories for experimentation and innovation. At a minimum, all first-time driver's license applicants under 18 will be tested for evidence of marijuana use (and possibly other drugs). Each state demonstration will be evaluated and reported on its operations and results. In addition, the Department of Transportation will conduct a single independent evaluation which will compare and report on all the demonstrations.

## B) THE DRUG EVALUATION AND CLASSIFICATION (DEC) PROGRAM

### **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.

### **Drug Evaluation and Classification (DEC) Site Experience**

In progress

This project will involve an in-depth examination of representative drug evaluation and classification (DEC) sites to identify characteristics that distinguish successful active programs from those that are less successful. Key characteristics will be incorporated into a program model that can be emulated in other communities.

### **Development of Improved Drug Evaluation and Classification (DEC)**

#### **Interview Procedures**

In progress

This project will assess protocols used by drug recognition experts (DREs) to interview arresting officers, suspects and other witnesses to identify those most effective in eliciting useful evidence and other information. A field test of the more promising protocols will be conducted to demonstrate their effectiveness.

### **Identifying Types of Drug Intoxication: Laboratory Evaluation of Components of the Drug Evaluation and Classification Procedure**

In progress

This is a joint effort of NHTSA and the National Institute on Drug Abuse to assess the reliability and relative importance of each cue employed by drug recognition experts (DREs) to diagnose suspects' drug impairment. Dosed subjects are examined by representative DREs under controlled laboratory conditions. Measurements and observations of clinical and psychophysical cues are recorded and compared with the drugs administered.

### III. Occupant Protection

#### A) CRASH INJURY

##### **Evaluation of The Effectiveness of Child Safety Restraints**

1987, DOT HS 807 141

The results of this study showed that half of crashes happened within 5 miles of home and 70% 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.

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

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.

##### **Epidemiology of Motor Vehicle Injuries in Suffolk County, New York Before And After Enactment of a Seat Belt Use Law**

1990, DOT HS 807 638

This population-based study of hospital and medical examiner reported vehicular trauma was conducted in Suffolk County. 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 show 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.

##### **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 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.

## B) SURVEYS

### **Guidelines for Observing Child Safety Seat Use**

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.

### **Restraint System Use in 19 U.S. Cities**

1991, 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.

### **Motor Vehicle Occupant Safety Survey**



DOT HS 808 334, September 1995

This report presents findings from the first Motor Vehicle Occupant Safety Survey. 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.

### **1996 Motor Vehicle Occupant Safety Survey**



In progress

This is the second administration of the Motor Vehicle Occupant Safety Survey, which is being conducted on a biennial basis. The survey consists of two questionnaires, each administered by telephone to a randomly selected national sample of approximately 4,000 persons. Content areas covered by the survey include safety belts, child safety seats, air bags, bicycle and motorcycle helmet use, emergency medical services, and crash injury experience.

**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 such a 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 summarizes 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.

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

1988

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.

### **Reports to Congress: Factors Related to Increasing Safety Belt Use in States With Safety Belt Use Laws**

1989, DOT HS 807 409; 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.

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

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%.

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

In press

On November 1, 1995, Louisiana became the second state to implement an uninterrupted change from secondary to primary enforcement. In the five study communities, belt use rose from 52% to 68% in the spring of 1996. Statewide belt use observations also showed a 68% use rate.

Louisiana motorists received the new law favorably, and police officers felt the law communicated the importance of buckling up and reported no negative public reactions.

Citations remained about the same for different racial and ethnic groups. These findings mirror the impressive belt use gained in California when it changed its law to primary enforcement.

### **Evaluation of Georgia's Safety Belt Law Change to Primary Enforcement**

In progress

This evaluation is assessing the impact of passing a new law on safety belt use, perception of risk of getting a citation from the police, and police enforcement strategies. Georgia was the third state to upgrade their safety belt law and achieved impressive gains in safety belt usage rates across the state.

## **D) ENFORCEMENT OF OCCUPANT PROTECTION LAWS**

### **Selective Traffic Enforcement Program For Occupant Restraints**

1987, DOT HS 807 120

This study evaluated two enforcement strategies. The first, based on the Canadian model, had waves of intense enforcement activities (blitz) 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 a 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. However, 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.

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

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%.

### **Evaluation of Child Safety Seat Enforcement Strategies**

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.

### **Enforcing Child Passenger Safety Seat Laws**

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 project 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 indicate that occupant restraint enforcement coupled with public information and education (PI&E) and officer training can lead to increases in safety belt use.

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

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.

### **Evaluation of California's Safety Belt Law Change to Primary Enforcement**

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.

### **Strategies for Addressing Barriers to Police Enforcement of Safety Belt Use Laws**

In progress

This project uses a literature review, expert input, and focus groups to identify strategies that will prompt police to enforce safety belt use laws more actively. The project involves people familiar with "Operation Buckle-Down Programs" and representatives of police departments that have successfully overcome enforcement barriers. It also involves people familiar with departments that have had only partial success and police in departments that have not yet adopted enforcement programs.

### **Strategies to Secure Political Influence for Safety Belt Law Enforcement**

In progress

The project will use a literature review, expert input, and group discussions to identify strategies that will motivate politicians to support police enforcement of safety belt use laws. The project will involve people familiar with NHTSA's "Operation Buckle-Down Program" and other people familiar with the politics of police innovation and enforcement activities.

### **Evaluation of Occupant Protection (sTEP) Demonstration Grants**

In progress

This national evaluation tracks the progress of 20 states as they implement selective traffic enforcement programs (sTEPs) to support Campaign SAFE & SOBER. Detailed case studies of 3 states will evaluate certain aspects of occupant protection and impaired driving enforcement coupled with public information and education campaigns.

## E) BARRIERS TO SAFETY BELT AND CHILD SAFETY SEAT USE

### **Strategies to Increase the Use of Child Safety Seats Among Toddlers (Volume I)**

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.

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

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.

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

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.

### **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%.

### **Identify Conditions of Safety Belt Use For Youth**

In progress

This project will determine why teenagers do not use their safety belts more often. Observations and focus groups will be conducted in Texas, Idaho, Virginia, and Mississippi. Procedures will be developed to determine whether there are specific subgroups of teens who use belts less than do other teens, and whether there are specific conditions where teens tend to not use belts. Potential approaches to increasing belt use will be reviewed with teens.

## F) INCENTIVES FOR SAFETY BELT AND CHILD SAFETY SEAT USE

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

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.

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

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.

### **Safety Belt Use And Automobile Insurance: Report to Congress**

1988

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**

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.

### **Program Strategies For Increasing Car Seat Usage In Rural Areas**

1995, DOT HS 808 274

Data indicate 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.

### **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 presents the results of focus groups conducted with young males ages 16 to 26 years in rural areas of Texas and Kentucky.

### **Increasing Belt Use Among Part Time Users**

In progress

Data suggest that increasing the frequency of safety belt use among part time users may have a greater positive impact on safety than attempting to transform nonusers into users. This project will identify strategies for increasing belt usage among this segment of the population. Two waves of focus groups will be conducted in each of three states: Ohio, Kansas, and South Dakota.

### **Child Safety Seat Distribution Program Evaluation**

In progress

About \$8 million of child safety seats are being distributed across the country by non-profit organizations. This evaluation examines the effectiveness of this program in delivering child safety seats, toddler seats, and booster seats to low income and special needs children. A case study will be conducted with at least 20 selected sites to look at recipient demographics and the training that occurs to ensure correct seat installation and use.

## **G) EDUCATION**

### **Health Risk Appraisal and Safety Belt Use**

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.

### **Junior High School Occupant Protection Materials**

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.

### **Strategies to Increase the Use of Safety Belts by Youngsters**

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).

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

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.

## IV. Speed and Other Unsafe Driving Actions

### A) PROBLEM IDENTIFICATION

#### **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 presents 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 presents 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.

#### **Evaluation of the Chattanooga Tennessee Speed Enforcement Project**



In press

The objective of this project was to evaluate a speed enforcement campaign in Chattanooga, Tennessee. The speed enforcement campaign, which included a Public Information and Education (PI&E) component, was conducted in Chattanooga with three waves of enforcement (from March to September, 1991; May to September, 1992; and October 1992 to September 1993). There was a 13% reduction in vehicles traveling in excess of 10 miles per hour over the speed limit after the enforcement program was initiated. Moreover, the drop in speeds still persisted six months after the enforcement effort was completed. The speed reduction occurred on an area-wide basis rather than just in those areas where speed enforcement was implemented. There are few, if any, other documented instances where speed reductions have been shown to occur outside actual enforcement zones. In addition, injury crashes declined 18% and policed reported speed-related traffic crashes declined 15% by the end of the study period.

#### **Determine the Conditions Under Which Speeding and Other Problematic Driving Actions are Hazardous**

In progress

This is a nation-wide crash investigation study that will identify the specific conditions under which speeding and other problem behaviors (e.g. running traffic signals) are hazardous. The objective is to identify "problem types" for future countermeasure development. These "problem types" will be defined in terms of specific behaviors, specific types of drivers and vehicles, and specific traffic and environmental conditions. Data necessary to perform the study will be specified, and then collected by National Accident Sampling System (NASS) investigators trained for this purpose. A sample of 1,000 or more crash investigations is expected. Speed will also be monitored in the general traffic at crash sites to serve as a control.

## **Nationwide Survey of the General Driving Public Regarding Speeding and Other Unsafe Driving Behaviors**

In progress

The objective of this study is to develop and implement a nationwide phone survey of the driving public to determine the reasons why, and situations in which, the public speeds or commits other unsafe driving infractions; the types of drivers involved; the kinds of countermeasures the public would support in these areas, etc. Phase I will include the development and pretest of the nationwide phone survey. In Phase II the driver survey will be administered to 6,000 respondents and data will be collected, analyzed, and interpreted.

## **Guidance on Setting and Enforcing Speed Limits**



In progress

This study is being conducted by the Transportation Research Board (of the National Academy of Science). It will consider the appropriateness of existing procedures for setting speed limits in light of research findings on the role of speed in traffic safety, road design and operation, enforcement and compliance, driver characteristics and behavior, vehicle safety features, mix of vehicles, and social benefits and costs. In order to better capture important changes and trends, emphasis will be placed on research conducted over the last 20 years. The study will also consider the speed limit policy implications of new and emerging techniques for traffic enforcement.

## **B) ENFORCEMENT**

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

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.

### **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.

### **Electronic Vehicle Identification for Automated Traffic Law Enforcement: Strategies to Address Privacy and Other Concerns of Motorists and Police**

*In progress*

This project uses a literature review, expert input, and focus groups to assess motorist and police concerns about using electronic vehicle identification to aid traffic law enforcement, for example, for speeding in pedestrian zones and red-light running. Groups and experts conditionally favored automated enforcement -- only at dangerous spots -- for laws they respected, flagrant violators, and identified drivers, and if automation could get the highest-risk drivers off the roads. Their support also depended on whether privacy worries were sufficiently addressed, and if they perceived social benefits of stricter enforcement outweighed possible privacy losses. They favored electronics to prevent dangerous violations rather than to ticket violators, and suggested other steps to address their general concerns about privacy, equipment reliability and other matters.

## V. Pedestrian and Bicyclist Safety

### A) PROBLEM IDENTIFICATION

#### **Identification of Alcohol-Pedestrian Crash Problems Among Culturally-Diverse Groups**

In progress

A study is being conducted to develop an accurate picture of the involvement of various cultural populations in alcohol-related pedestrian crashes; to identify each group's cultural barriers and facilitators to reducing this crash problem; and to provide recommendations and strategies to reduce pedestrian/alcohol crashes.

#### **Pedestrian and Bicyclist Safety Survey**

In progress

NHTSA is conducting a national survey to assess public attitudes, knowledge, and behaviors regarding pedestrian and bicyclist safety. The survey is designed to assess the public's awareness of pedestrian and bicycling risks, its knowledge of safe walking and riding behaviors, its use of education and training programs, and to explore interactions among drivers, pedestrians, and bicyclists. The purpose of the study is to provide a background of information for agency guidance in developing and implementing programs to address these traffic problems.

#### **Problem Identification Program for Pedestrians and Bicyclists**

In progress

The goal of this project is to produce a software program that trains people in classifying police crash reports into the NHTSA/FHWA (Federal Highway Administration) pedestrian and bike crash types. The same program then will serve to create an operational data base that identifies pedestrian and bicyclist safety problems at the local level.

#### **Development of Crash Typing Software for Pedestrians and Bicyclists**

In progress

The Federal Highway Administration is developing a prototype software package that can be used by communities to identify their most common crashes and potential solutions. In addition to automatically typing crashes, communities will be able to determine those target groups that are most likely to get into crashes. NHTSA's effort will determine whether the software is user friendly and how accurate coders in the field are as compared to a group of experts. Based on the study's findings, the software will be refined as necessary.

#### **Literature Review: Vehicle Travel Speed and Pedestrian Injury**



In Progress

This project will review and summarize the state of knowledge concerning vehicle speed, resulting pedestrian injury, and ways in which speed may be controlled. This will be accomplished through a literature review, analyses of crash data bases, and direct contact with experts in the field. This work will serve as the foundation for any future speed reduction programs designed to reduce pedestrian injuries.

**B) PUBLIC INFORMATION AND EDUCATION (PI&E) PROGRAMS****Development of Safety Information Materials and Media Plans for Elderly Pedestrians**

1991

NHTSA, in conjunction with FHWA, 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, National Safety Council) for dissemination to their large older audiences. The publication recommended, for example, that older pedestrians can improve 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.

**Development and Evaluation of a Pedestrian Safety Program for Elementary School Bus Riders**

1995

The 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. The complete package is available from the National Safety Council (call 708-775-2307) as the "Walk-Ride-Walk: Getting to School Safely" program.

**Pedestrian and Bicyclist Safety Information for Driver Education and Licensing**

In progress

This project will identify and package safety information from the pedestrian and bicyclist crash areas that will be useful for driver education and driver licensing activities.

**Pedestrian Safety Awareness Program**

In progress

A project is underway to develop and implement a national program to make pedestrians, motorists and relevant professions more aware of the pedestrian crash problem. Heightened awareness will increase the demand for, and acceptance of, pedestrian safety initiatives and countermeasures.

## C) COUNTERMEASURES

**Pedestrian and Bicyclist Safety: A Review of Key Program and Countermeasure Developments During the 1980's**

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 to set the stage for the review.

**Training Course: Bicyclist and Pedestrian Safety and Accommodations**

Completed

The Federal Highway Administration and NHTSA jointly developed a 3-day training program for government representatives and public interest groups in the latest findings and foundations of the pedestrian and bicyclist areas relative to safety and accommodations. The course is designed to increase awareness of these safety problems and provide countermeasure and design information. (The course, number 38061, can be scheduled through the National Highway Institute. Contact Lynn Cadaar at 703-235-0528 for information.)

**Development, Implementation, and Evaluation of a Countermeasure Program for Alcohol-Involved Pedestrian Crashes**

In progress

This large-scale research project addresses the problem of alcohol involvement in pedestrian crashes. Approximately 2,500 adult pedestrians killed in crashes each year since 1980 were intoxicated. The purpose of the ongoing research is to devise, develop, and test a set of countermeasures which a community can use to reduce alcohol-related pedestrian crashes. The researchers will work in close cooperation with a Community Traffic Safety Program (CTSP) in satisfying the goals of the project -- the production of a program manual and countermeasure materials that can serve as a guideline for other communities in designing and implementing a pedestrian alcohol countermeasure program.

**Development, Implementation and Evaluation of a Pedestrian Safety Zone for Elderly Pedestrians**

In progress

NHTSA and FHWA have undertaken a field study to safeguard older pedestrians. The project deals with the creation of pedestrian safety zones around areas of high crash frequency for older pedestrians. The zones are saturated with an appropriate mix of engineering, enforcement, and educational countermeasures. Phoenix, Arizona, and Chicago, Illinois are the two test cities for this ongoing project.

## **Development and Test of Bicyclist Countermeasures**

In progress

This joint NHTSA/FHWA project will develop and evaluate selected behavioral and engineering bicycle safety countermeasures designed to prevent specific types of crashes occurring to bicyclists or to reduce injuries.

## VI. Older Drivers

### A) PROGRAM PLANNING

#### **Traffic Safety Plan for Older Persons**

1988

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.

#### **Research and Development Needs for Maintaining the Safety and Mobility of Older Drivers**

1989, DOT HS 807 554

NHTSA co-sponsored a conference with The National Institute on Aging (NIA), the Federal Highway Administration (FHWA) and the Centers for Disease Control (CDC) to identify the research needed to minimize older drivers' risk while maximizing their mobility.

#### **Addressing the Safety Issues Related to Younger and Older Drivers**

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.

#### **Traffic Safety Plan for Older Persons**

1993, DOT HS 807 966

This project updated the traffic safety plan for older persons originally developed in 1988, in response to the Transportation Research Board's study "Transportation in an Aging Society."

#### **Improving Transportation for a Maturing Society**



1997, DOT P10 97 01

This project produced under the auspices of the Office of the Associate Secretary for Transportation Policy presents an overview of what five expert panels viewed the issues of transportation for an aging society.

### B) PROBLEM IDENTIFICATION

#### **Licensing the Older Driver: A Summary of State Practices and Procedures**

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.

### **Older Drivers: The Age Factor in Traffic Safety**

1989, DOT HS 807 402

This study analyzed crash involvement rates based upon estimates of miles driven. The study indicated that motor vehicle crashes are not a major cause of death for older persons (0.5% for those over 60). Motor vehicle crash involvement per unit population is highest for 18 year olds (5 times those over 80) and declines steadily with increasing age until 70, at which point the rate increases somewhat. The study went on to show that older drivers have more crashes in urban areas, at intersections and driveways, during the day, and with one other vehicle. Also, older drivers in crashes were more likely to be cited for right-of-way and sign violations.

### **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 a rural and urban communities have been published.

### **Decision Cues: Older Drivers Referrals for License Reexaminations**

1992

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.

### **Establish the Crash Risk for Specified Medical/Functional Conditions**

In press

Under an interagency agreement with NHTSA, Oak Ridge National Laboratories (ORNL) reviewed the literature on crash rates, driving cessation and age-related driver limitations, to identify the potential of existing data bases for establishing firmer estimates. ORNL analyzed selected data bases in establishing the some of the needed relationships.

**Document the Mobility Consequences of Relinquishing the Driver License**

In press

Work performed under an interagency agreement between the Department of Transportation and the Department of Health and Human Services Coordinating Council on Human Services Transportation documented the broad array of concerns expressed by older persons who reduce or stop driving. It also assessed some transportation remedies to address these concerns.

**Intersection Negotiation Problems of Older Drivers**

In progress

A study is underway to identify the problems older drivers experience in negotiating intersections and determine the capabilities needed for older drivers to successfully perform the tasks.

**Validate Statistical Model Relating Functional Limitations and Crashes**

In progress

A model developed by Oak Ridge National Laboratories will be use to analyze data from the Salisbury Eye study where 2,500 subjects have been measured for functional ability and stated medical conditions over a four year period. The purpose of the study is to further refine the relationships between medical conditions, functional capability and crash involvement.

**C) PROGRAM DEVELOPMENT****Document the Mobility Consequences of Relinquishing the Driver License**

In press

Work performed under an interagency agreement between the Department of Transportation and the Department of Health and Human Services Coordinating Council on Human Services Transportation documented the broad array of concerns expressed by older persons who reduce or stop driving. It also assessed some transportation remedies to address these concerns.

**Develop Performance Assessment Techniques**

In progress

The California Department of Motor Vehicles (DMV) has identified the functional limitations that need to be assessed for cognitively impaired and physically frail drivers. Under a cooperative agreement with NHTSA, the DMV is pilot testing assessment tools that can potentially detect the functional limitations that affect driving of older individuals.

**Develop Training and Information Programs**

In progress

This task order with the American Association of Motor Vehicle Administrators (AAMVA) Public Affairs and Consumer Education (PACE) Committee will identify, develop and disseminate more accurate information on older driver issues. PACE will examine how educational materials (pamphlets, speaker's bureau guide, etc.) can provide better information

about older driver issues, both for older people and the general public. Work is being done in cooperation with the Transportation Research Board's Committee on Safe Mobility of Older Persons' Subcommittee On Public Information.

### **Improving Safety and Mobility for Older People**

In progress

This project will identify and develop improved driver and transportation programs for older people in rural areas.

### **A Model System to Improve Self and Institutional Regulation of Driving by Older People**

In progress

Some older drivers are aware that their driving abilities are diminished, and in some cases, no longer adequate even under the safest road conditions and make appropriate adjustments to their driving. Other older drivers are not aware of their diminished abilities. This research will help people, especially those in social services, identify the differences. In addition, guidelines for social service providers and a self-guided pamphlet for seniors will be produced.

### **Family and Friends Reporting/Regulating Problem Older Drivers**

In progress

Some older drivers do not realize their driving skills are deteriorating. Three classes of people (friends/family, medical, and other service providers) may be able to make them aware, and help them appropriately regulate their driving patterns. This research concentrates on how the family and friends of the older driver can identify problems and tell them what steps to take. In addition to this report, guidelines for family and friends will be produced.

### **Model Driver Screening and Evaluation Program**

In progress

This project will identify or develop screening and evaluation programs that states and provinces can use to assess and license functionally-limited drivers and develop a plan to field test the program.

### **Medical Guidelines for Driver Impairment and Driver Examiner Training Materials**

In progress

This project will update the guidelines states use in making licensing decisions about individuals who have medical and functional limitations. It will also develop guidelines for licensing personnel to assist them in identifying drivers who present themselves with functional limitations that might limit their driving.

## VII. Novice and Young Drivers

### **Workshop to Identify Training Requirements Designed to Reduce Young Driver Risk Taking and Improve Decision Making Skills**

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.

### **Addressing the Safety Issues Related to Younger and Older Drivers: Report to Congress**

January 1993, DOT HS 807 957

The report covers a variety of issues that affect younger and older drivers, presents 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**

May 1994, DOT HS 808 161

The report discusses 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.

### **Understanding Youthful Risk Takers**

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.

### **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.

**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.

**Parent Participation in The Training of Young Novice Drivers**

In progress

This effort is part of NHTSA's redevelopment of novice driver education. The project will result in the development of materials and procedures for increasing the involvement of parents and other adults in the training and supervised driving of novice drivers.

**Training to Improve the Decision Making of Young Novice Drivers**

In progress

This effort will develop a training module that results in less risky driving related behaviors through improved perceptual skills and decision making by young novice drivers. The module will be part of the advanced skills section of the new two-staged driver education program. It will be designed to stand alone and to be easily integrated into other related driver education activities.

**Matching Safety Strategies to Youth Characteristics**

In progress

This project will describe the cognitive and perceptual functioning of youth, with particular attention to developmental factors, as they apply to traffic safety issues. The project also will determine how to match safety information (content and format) to cognitive and perceptual functioning of youth. Draft guidelines will be developed for implementing developmentally appropriate safety education and training to youth.

## VIII. Fatigue

### **Analyze the Role of Fatigue, Sleep Disorders, and Inattention in Highway Crashes**



In progress

The objectives of this study are to describe qualitative characteristics of fatigue, sleep disorders, and inattention (FSDI) crashes; identify population subgroups most at risk; and identify exacerbating situations and conditions. The study will convene a panel of experts (e.g., from the Federal Highway Administration, National Institutes of Health, National Sleep Foundation, and the American Sleep Disorders Association), hold a two- or three-day workshop, and compile a state-of-knowledge report regarding FSDI and crashes.

### **Investigate Instances of Fatigue-Related Events in Motor-Vehicle Operation**



In progress

The objectives of this study are to observe drivers during fatigue-related inattention incidents; establish distinguishing characteristics of fatigue-related, distraction-related, and other types of inattention; and relate fatigue-related inattention to vehicle maneuvers. The study will select 10-15 drivers for continuous monitoring, install vehicle and driver monitoring and recording devices, record data for all driving during a suitable interval with periodic downloading of data, and analyze data from inattention events.

### **Develop and Test Educational Countermeasures for Fatigue-Related Highway Crashes**



In progress

The objectives of this study are to specify target populations, determine alternative message themes (content), establish candidate motivational approaches (e.g., fear, anxiety, family ties), and establish candidate dissemination strategies for fatigue-related highway crashes. The study will review literature, analyze geodemographics of crash-involved persons, develop candidate approaches and sample materials, and conduct focus group discussions (and other qualitative methods).

### **Develop Strategy and Lay the Foundation for an Education and Information Campaign**



In progress

The objectives of this study are to determine campaign objectives, choose target audiences, determine appropriate information content, determine appropriate motivational strategy, establish appropriate media mix, prepare and test draft materials, and refine materials for fatigue-related highway crashes. The study will review related project results, convene panel of specialists, conduct focus group discussions (and other qualitative methods) with target-group members, and prepare "camera-ready" materials.

## IX. Emergency Medical Services

### **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.

### **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, as defined in the study, and that these preventable deaths were the result of errors or omissions in care.

### **North Carolina Rural Preventable Mortality Evaluation**



In progress

This project is a follow-on to three previously completed rural preventable mortality studies. This project is implementing remedies designed to correct the errors or omissions in care found responsible for the high trauma death rate in rural areas. After the remedies have been implemented, the death rate will be reexamined to determine if the remedies were successful in lowering the rate of preventable trauma deaths.

### **Emergency Medical Services: A Summary of Findings From NHTSA Surveys**



November 1996, DOT HS 808 488

This report presents 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.

**Emergency Medical Services (EMS) Outcomes Evaluation Project**



In progress

This cooperative agreement is to support and facilitate Emergency Medical Services (EMS) patient outcomes research and evaluation that is to be conducted by the broad EMS community. Specifically this project will identify and rank order “tracer” conditions (those patient conditions that can be followed to conclusion to evaluate patient outcome), determine measures of illness and injury severity that can be used to evaluate these conditions, identify and combine pre-existing data sets suitable for this evaluation, identify stakeholders and EMS constituents with an interest in the work of the project, identify appropriate outcomes for the tracer conditions, and develop a research dissemination plan.

## X. Miscellaneous

### **Responses of Women and Men to Traffic Safety Messages: A Qualitative Report**

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.

### **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.

### **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 presents 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.

### **Analysis of the Capital Beltway Crash Problem**



March 1996, DOT HS 808 393

This is 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. Finally, 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.

**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 ages 16 and older. This report presents 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.

**User Friendly NHTSA Listings for Telephone Directory "Blue Pages"**

In progress

This project used focus groups to identify how adults use phone books to get help with traffic safety questions and find listings for NHTSA and its Auto Safety Hotline. Participants included groups who currently use the "Blue Pages" section of the phone book to contact government offices and groups who just use the "Yellow Pages" for information contacts. Participants in Baltimore, Atlanta, St. Louis, and Los Angeles attempted several "lookup" exercises using local phone books and several proposed alternatives, then explained their search behaviors, reactions, and preferences. The report will present findings from the groups, suggest ways to present NHTSA's and the NHTSA Hotline's numbers, and discuss related matters such as 1-800 listings and operator assistance.

**Demonstration and Evaluation of Safe Communities Programs**

In progress

This project is examining two Safe Communities programs in Dallas, Texas and Pitt County, North Carolina. The programs will run from 1996 to 1999, and will enlarge NHTSA's previous community programs by adding emphasis on community ownership, the entire cycle of injury treatment (prevention, acute care, emergency rooms, and hospitals, and rehabilitation), and data linkage.

**Update of the Capital Beltway Crash Problem**

In progress

This study continues a series of studies supporting the Capital Beltway Safety Team to document the crashes that occur on the 64-mile interstate Washington Capital Beltway. Police-reported crashes for 1995 and 1996 are being added to those already analyzed for 1993 and 1994 to assess crash reductions that may be attributable to recent engineering, enforcement, and public education and information programs. A separate series of focus groups will examine aggressive driving issues.