Evaluation of Seven Publicized Enforcement Demonstration Programs to Reduce Impaired Driving:

Georgia, Louisiana, Pennsylvania, Tennessee, Texas, Indiana, and Michigan

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16. Abstract

Between 2000 and 2003, the National Highway Traffic Safety Administration funded seven alcohol demonstration projects designed to reduce impaired driving through well-publicized and highly visible enforcement. The projects were conducted in seven States: Georgia, Louisiana, Pennsylvania, Tennessee, Texas, Indiana, and Michigan. This report describes the program evaluations conducted in all seven States. In each of the seven States, funding supported increased enforcement and publicity. In Georgia, Indiana, and Michigan funding was provided for paid advertising. Each State acted as a case study because the type and amount of publicity and enforcement differed substantially.

Significant reductions in crashes in the intervention States relative to surrounding States were obtained in Georgia and Tennessee, when an interrupted time-series analysis of FARS data comparing the ratio of drinking to non-drinking drivers in fatal crashes was used; however, a corresponding statistically significant reduction in alcohol-related fatalities per 100 million vehicle miles traveled was not obtained. Compared to neighboring States, Indiana and Michigan experienced significant decreases in both the ratio of drinking to non-drinking driver fatal crashes and alcohol-related fatalities per 100 million vehicle miles traveled. As compared to surrounding States, fatal crash reductions in Georgia, Tennessee, Indiana, and Michigan ranged from 11 to 20 percent. In these four States, the programs were estimated to have saved lives ranging from 25 in Indiana to 43 in Tennessee to 57 in Michigan to 60 in Georgia. The other three States showed only marginal, non-significant changes relative to their comparison jurisdictions or States.

In summary, it appears that a variety of media and enforcement procedures that supplement ongoing statewide efforts can yield meaningful crash reduction effects among alcohol impaired drivers. In general, States employing sobriety checkpoints, using paid advertising and programs implemented statewide were associated with crash reductions relative to surrounding States. However, the use of saturation patrols alone did not preclude crash reduction. As each of these demonstration programs was unique and superimposed on existing State program activities targeting drinking drivers, simple relationships were not obtained between crash reductions and (a) amount, type, and target of publicity campaigns; (b) amount and type of enforcement activities; and (c) driver awareness, perceptions and self-reported behavior. Based upon previous research and some of the implications from this study, a State impaired driving enforcement program is more likely to be successful if it incorporates (a) numerous checkpoints or highly visible saturation patrols conducted routinely throughout the year along with mobilized crackdowns (at least three per year) and; (b) intensive publicity coverage of the enforcement activities, including paid advertising.

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Background

Evidence for the effectiveness of sobriety checkpoints has encouraged the National Highway Traffic Safety Administration to promote their use by police departments throughout the country. Although checkpoints increase the deterrence to impaired driving because they are more likely to attract public and media attention than traditional patrol enforcement activities, their effectiveness is still limited if they are not well publicized. Consequently, many communities using checkpoints in response to NHTSA's campaign to increase driving while intoxicated (DWI) enforcement may not be experiencing the expected reductions in alcohol-related crashes because of inadequate publicity.

Saturation and roving patrols are other strategies used by law enforcement to curb impaired driving. These strategies essentially involve sending more officers than normal to patrol areas where alcohol-related crashes frequently occur or where the number of arrests for driving under the influence (DUI) or DWI offenses is high.

NHTSA's *Click It or Ticket* mobilizations to increase seat belt usage have proven to be successful. A typical mobilization model includes two to three intensive enforcement blitzes over three to six weeks, during which paid ads are coupled with increased seat belt enforcement. Most States that use this model have experienced a significant increase in observed belt usage. It thereby seems logical that a similar strategy would reduce impaired driving.

Between 2000 and 2003, with this evidence as background, NHTSA sponsored seven State-level demonstration projects that emphasized highly visible enforcement coupled with intensive publicity to reduce impaired driving. This report summarizes the evaluations of impaired driving demonstration projects conducted in Georgia, Louisiana, Pennsylvania, Tennessee, Texas, Indiana, and Michigan. The variety of approaches used by the seven States in these demonstration projects offered a unique opportunity to explore the effects of different enforcement and publicity designs.

The major goal of these alcohol program demonstration projects was to reduce alcohol-related traffic fatalities using a comprehensive and sustained enforcement effort combined with publicity about the consequences of getting caught for DWI. The States were funded under Section 403 of the Transportation Equity Act for the 21st Century (TEA-21) that provided funding for research and demonstration projects. Georgia, Louisiana, Pennsylvania, Tennessee, and Texas received $1 million in Federal grant funding. The Indiana and Michigan projects were funded at $500,000 each. The grant awards were supplemented with State funds (mainly Section 402 and Section 410 funds also received from the Federal Government under TEA-21).

The enforcement techniques differed in each State: in Georgia, weekly sobriety checkpoints around the State were used; Louisiana initially used saturation patrols and then began to conduct sobriety checkpoints about halfway through the program; Pennsylvania used a variety of strategies including saturation or roving patrols, sobriety checkpoints and mobile awareness checkpoints; Tennessee used a combination of sobriety checkpoints, roving patrols and enforcement roadblocks; in Indiana, both sobriety checkpoints and saturation patrols were used; Michigan used saturation patrols and selective patrols only (because sobriety checkpoints are prohibited by State law); and in Texas, enforcement by smaller agencies was increased, and impaired-driving enforcement

equipment (in-vehicle video cameras, mobile breath testing machines, etc.) was distributed as an incentive. Texas was also restricted by law on the use of sobriety checkpoints.

Publicity played an important role in these projects. Although the research evidence is limited, publicity that leads to increased public awareness is clearly essential to effective enforcement. Unfortunately, the most effective methods for attracting media coverage are not well documented, and the resources available to most police departments for publicizing their enforcement programs are limited. A partial solution to this problem is to use enforcement methods that attract public attention and that are easily publicized. Sobriety checkpoints are an example of such a method. Fear of being stopped and checked for alcohol use attracts attention to that enforcement method. Further, checkpoint operations are highly visible, so they provide a direct indication to the public that an intensive enforcement effort is underway.

Substantial grant funding (supplemented with other funds) supported the earned and paid media efforts. In each of the projects, professional media consultants or advertising firms were hired. Georgia used both earned media and paid media that was statewide. The Louisiana campaign used earned media with some public service announcements (PSAs) in only 16 of the 64 parishes (counties) in the State. The Pennsylvania publicity effort affected 14 of Pennsylvania's 67 counties and had the potential of reaching half of the 12 million population. Tennessee used earned media and PSAs on a statewide basis. In Indiana, media coverage of enforcement efforts reached 80 percent of the State, and enforcement activities were conducted in 29 of the 93 counties in the State. In Michigan, both the media and the enforcement activities covered 80 to 85 percent of the State. In Texas, the increased enforcement covered small police agencies in the 14 most populous counties. In each State, a variety of data was collected about the publicity campaigns and enforcement-related activities.

Programs

Georgia

Georgia conducted a statewide enforcement campaign with a statewide public information campaign, numerous sobriety checkpoints, and a community partnership. The public information and education (PI&E) campaign was conducted by a private contractor under the supervision of the Georgia Office of Highway Safety. The campaign initially emphasized earned media but shifted to paid media halfway through the implementation phase at 12 months. United Parcel Service contributed resources for the media efforts. During the implementation phase, 2,837 sobriety checkpoints were conducted, with at least one in each of Georgia's 159 counties during the year and weekly in some counties. This required extensive cooperation among law enforcement agencies and resulted in 2,322 DWI arrests at these checkpoints. Three "BATmobiles" (Blood Alcohol Testing vehicles) were purchased under the grant to aid police in checkpoint operations.

Louisiana

The Louisiana campaign was conducted in 16 parishes (counties) out of 64 parishes, using saturation patrols and then checkpoints later in the program period when they became legal. Training was provided for many law enforcement officers such as sobriety checkpoint training, Standardized Field Sobriety Testing (SFST) training, and Drug Recognition and Evaluation (DRE) training. The Louisiana campaign was coordinated through the Louisiana State Police and the Louisiana Highway Safety Commission. An advertising firm (Cranch-Hardy & Associates) and a

public relations firm (Rafael Bermudez & Associates) implemented the public awareness portion of the program.

Pennsylvania

Pennsylvania participated in the Demonstration Project using smaller, more frequent sobriety checkpoints and other higher visibility DUI enforcement measures, specialized equipment, and a sustained community-based public education program. Prior to this effort, 56 law enforcement jurisdictions received funding through Pennsylvania Department of Transportation's (PENNDOT's) Highway Safety Office. Of these, 29 participated in this demonstration project. This effort affected 14 of Pennsylvania's 67 counties and had the potential of reaching 6.2 million of Pennsylvania's 12 million citizens. The counties were spread throughout the State, although 10 were clustered around the Philadelphia area. Two-thirds of the Pennsylvania funding was used to increase law enforcement efforts; and one-third was used for public relations, program support, research and evaluation, and project coordination. Additional funding of $275,000 was provided for the project from various sources including Federal Section 410 funding. The project used an innovative "media tour" to stimulate earned media. PENNDOT developed three levels of coordination to oversee the project. A Project Steering Committee was the decision-making body and included representatives from PENNDOT, NHTSA, law enforcement agencies, Pennsylvania DUI Association, a public relations firm (Kelly Michener, Inc., a firm since bought out by Cimbrian), Penn State University, Transportation Engineering Institute, and Delta Development Group. A statewide task force included the members of the Steering Committee and representatives from each of the 29 participating jurisdictions in the 14 selected counties. Five regional task forces worked together to formulate their approach for the 15-month operational phase of the project.

Tennessee

This was the second major DUI-reduction program conducted in Tennessee in the last decade. In early 1994, an extensive series of sobriety checkpoints was conducted throughout the State. This earlier *Checkpoint Tennessee* program was quite effective, resulting in a 20-percent reduction in fatal crashes involving drivers with blood alcohol concentrations (BACs) greater than or equal to .10 grams per deciliter over the projected number that would have occurred without the intervention. The first Tennessee program was widely publicized by NHTSA and served as a model for the demonstration programs described in this report. The more recent Tennessee demonstration project began in late 2000, using a series of sobriety checkpoints and saturation patrols. A PI&E campaign using hard news coverage, public service advertising, and other activities supported the enforcement-based deterrence message of the program. The Tennessee Highway Patrol was the lead agency in the program. The Tennessee Governors' Highway Safety program conducted the public service advertising materials development and dissemination.

Texas

Texas conducted a public information campaign, DWI enforcement training, and increased enforcement. Because Texas is such a large State, the media campaign was limited to 14 of the 254 Texas counties, using the most populous counties, to ensure adequate coverage within the given budget. About 60 percent of the population is concentrated in these 14 counties. The program, which began in July 2000, targeted police agencies that were not already receiving Federal funding for impaired driving enforcement. These tended to be the smaller police agencies in the 14 counties.

Indiana

Indiana's Section 403 demonstration project used sobriety checkpoints and saturation patrols, combined with a paid and earned media campaign. The paid media advertising was concentrated in 25 counties and reached an estimated 80 percent of the State. Paid media included television and radio and was purchased for two enforcement blitzes (December 2002 and July 2003) during the project period, with a total budget of $375,000. The paid media was supplemented mainly through public service announcements (PSAs) on television and radio. Some earned media was gained through newspaper, radio, and television news stories. The enforcement activities consisted of sobriety checkpoints and saturation patrols with checkpoints conducted in 29 of the 92 counties in the State, again covering about 80 percent of the population.

Michigan

Michigan conducted what was considered a statewide campaign that included a public information campaign, numerous saturation patrols, and a community partnership. A private contractor conducted the PI&E campaign designed to increase the use of earned media. The paid media was used during three mobilization periods in July 2002, December 2002, and July 2003. Additional media throughout the project remained somewhat constant and consistent. Male drivers 18 to 34 were the target audience for the network television, cable television, and radio ads. The ads focused on the increased threat of arrest and the possibility of impaired drivers forfeiting their vehicles, losing their driver's licenses, and paying stiff fines, which research has shown effects behavior change among this group. Michigan's enforcement strategies did not include sobriety checkpoints because DUI checkpoints are prohibited by statute. Instead, they concentrated on weekly saturation patrols and selective enforcement procedures. Both the paid media and the enforcement activities covered approximately 80 to 85 percent of the State.

Telephone Survey Results

If the demonstration programs had their intended effects it would be expected that (a) awareness of the enforcement demonstration program would increase, (b) self-reported behavior regarding driving after drinking would decrease, and (c) the driving public's perception of being stopped by police for DWI, arrested, and convicted of a DWI offense would increase. In five of the seven States (Georgia, Louisiana, Pennsylvania, Tennessee and Texas) one telephone survey wave of 1,000 drivers was conducted before the implementation of the program, one wave was conducted midway through the program, and the final wave was conducted at the completion of the program.

It was thought that a campaign targeting alcohol impairment among drivers might be especially beneficial for particular subgroups. In addition to examining the data for all drivers, special attention was paid to the following subgroups: males, drivers 16 to 34 years old, drivers who reported drinking and drivers who reported driving after drinking. The programs yielded inconsistent findings based upon the results of these surveys. In all States there was a positive shift in aided awareness of the program, but with the exception of Georgia, there was no statistically significant shift in self-reported behavior and only one State (Tennessee) showed a significant positive shift in perception of arrest if stopped for driving while intoxicated. More specific data follows for each of the States.

Georgia

For Georgia, in general, the findings were positive regarding aided awareness of the program and in self-reported behavior change; however, there was no positive shift in driver perception of arrest for driving after having too much to drink. The following highlights some of the major findings of the surveys conducted in Georgia.

- The results from the telephone surveys showed that by the end of the program, aided recall of the *You Drink and Drive. You Lose* message was about 40 percent. Also, the surveys indicated that by the end of the program, approximately 70 percent of all drivers, 16- to 34-year-old drivers, and motorists who drove after drinking had heard about a DUI enforcement program called *Operation Zero Tolerance.* In addition, the percentage increase from the second to third wave was statistically significant.
- There was a 7-percentage-point decrease in the proportion of people who reported driving after drinking (from 26% to 19%), sustained through the two final waves. This drop was significant for males when comparing the baseline to the final wave. Also, for those age 16 to 34, the drop went from 31 percent to 18 percent, which was statistically significant. Older drivers on the other hand, showed a much less substantial drop.
- At the midpoint, there was an increase of 19 percentage points in the proportion of people who reported deliberately avoiding driving after having too much to drink (from 38% to 57%). However, this increase returned to the original level at the final wave.
- Less than 100 people reported driving within two hours after drinking. Although not statistically significant, the trend was in the right direction: from the baseline to the final wave, there was a drop from 18 to 9 percent for those who drove when they thought they had too much to drink in the past 30 days. The drop went from 32 percent to 13 percent for those age 16 to 34, but actually increased from 4 to 6 percent for drivers 35 and older.

Louisiana

Louisiana experienced some positive shifts in program awareness but there was no positive shift in self-reported behavior change nor in perception of being stopped by the police if they had too much to drink.

- Regarding aided awareness, data was available only for the second and third waves. For all drivers, awareness of the *You Drink & Drive. You Lose* program went from 36 to 55 percent. Increases in awareness were also significant for males (37 to 57%), females (34 to 53%), for all drivers, for those who drank (37 to 54%) and was in the right direction for those who drank and drove (43 to 52%).
- Drivers reported seeing more police on the roads they normally drove than they saw 6 months earlier. For all drivers, from baseline to the final wave it went from 37 percent to 43 percent, which was significant, and was significant for females (38 to 44%) and most pronounced for those age 16 to 34 (43% to 52%).
- There were no differences found for seeing a sobriety checkpoint overall or for any specific groups of drivers. Interestingly, although about half of all drivers thought

checkpoints should be used more frequently by the end of the program (54%), this number dropped by half for those who drank and drove.

- For those who heard of the new enforcement program, there was no impact on their behavior. In fact, from the second to the third wave, there was a decline in impact for all drivers, males and females, those 35 and older, those who drank, and those who drank and drove.
- There was a significant increase for those who reported drinking an alcoholic beverage in the past six months from 41 percent to 52 percent by end of the program. This increase occurred for males, females, those 16 to 34, and for those 35 and older.
- Also, there was a significant increase overall for those driving within two hours after drinking in the past 30 days from baseline to the second wave which declined to about baseline by the third wave. There was an increase for males, females, those 16 to 34 and those 35 and older.

Pennsylvania

Program awareness did not increase significantly in Pennsylvania; however, for all drivers, a small but statistically significant increase occurred (from 10 to 13%) in seeing sobriety checkpoints in the past 30 days. On the other hand, there were no positive impacts of the program on self-reported behavior nor on the perception of being stopped by police when they had too much to drink.

Tennessee

Program awareness increased significantly from the second to third waves of the program; however, drivers did not report a change in seeing more police on the roads they typically drive nor seeing a sobriety checkpoint. There was no change in reported behavior (e.g., driving within two hours of drinking in past 30 days, nor in deliberately avoiding driving after having too much to drink). Drivers' perception of the likelihood of arrest after having too much to drink did not increase. The above findings held for all drivers as well as for the different subgroups of drivers (e.g., males, 16 to 34 year olds, those who drank alcohol, and those who drank and drove).

Texas

Overall, awareness of a new enforcement program increased significantly from the beginning to the third wave of the program (from 10% to 26%). This increase from the first to the third wave was significant for males (11 to 28%), those 16-34 (10 to 24%) and for those who drank and drove (10 to 34%). Of those who heard of the new enforcement program, there was a significant shift from midpoint to the final survey for all drivers (38 to 59%) for males (41% to 61%), and females, those 16 to 34 (37% to 66%), those who drank (34% to 60%), and those who drank and drove.

On the other hand, drivers did not see more police on the roads they typically drove. In fact, there was a decline over the program period in seeing police.

There was no evidence that the new enforcement program had any impact on self-reported behavior. The lack of change occurred for all drivers and for all subgroups with the exception of those who drank and drove which showed an increase from 27 to 38 percent. The frequency of reported drinking and driving among people who drove within two hours of drinking in the last 30 days remained the same at 25 percent from the baseline to the end of the program. As in other States,

drinking frequency increased significantly for all drivers from the first to the second wave, but then ended at near the start point (54% to 57%).

The proportion of drivers who felt Texas should allow sobriety checkpoints increased from 69 to 72 percent for all drivers and from 66 percent to 73 percent from baseline to the final wave.

Indiana

No telephone surveys were reported in Indiana.

Michigan

Michigan conducted its own survey of 300 drivers. Although the proportion of people in the general population who reported driving after drinking remained relatively constant (19 to 18%), the proportion of young men who reported driving after drinking fell from 34 to 25 percent. The percent of young males who reported drinking four or more drinks within two hours of driving was substantially lower than the base population (19% in January 2002 compared to 3% in January 2004).

The surveys found that the percentage who said getting caught by the police after drinking and driving was "certain" or "likely" remained constant at 59 percent. There was a slight increase in the general population's belief that police are arresting more people for drunk driving over the last few months, from 27 to 35 percent. The rate among young men remained steady (30 to 29%). In December 2002, 75 percent of the general population had heard of a special effort by the police to arrest drivers for drunk driving. This fell to 60 percent in January 2004 (62% for young males). Most people surveyed reported hearing anti-drunk-driving messages: 87 percent in December 2002 and increasing to 93 percent in January 2004.

Impact Analysis Methods

Program administrators and other officials at each site were contacted and data were collected to document the program elements. To compare outcomes across States, an analysis of the Fatality Analysis Reporting System (FARS) dataset was conducted using an interrupted time-series analysis (ARIMA) for each program and the rest of the Nation as a regressor series to factor out time trends. States adjacent to the intervention States were used in aggregate as comparisons in the FARS analyses to control for any regional changes. This technique allowed comparisons across sites, holding constant variables such as vehicle miles traveled (VMT) and accounting for national, State, and regional trends in alcohol-related fatalities.

The FARS is a national dataset, administered by the National Center for Statistics and Analysis (NCSA) in NHTSA, of fatal traffic crashes. The FARS contains more than 100 data elements that characterize the crash, the vehicle, and the people involved. FARS data from 1987 to 2001 were aggregated into 90 bimonthly totals for four States (Georgia, Louisiana, Pennsylvania, Tennessee). FARS data from 1987-2003 were aggregated into 102 bimonthly totals for the remaining three States (Texas, Indiana, Michigan). This was done separately for each of three measures:

- Involved drivers measured or imputed to be alcohol-positive (BAC>=.01);
- Involved drivers measured or imputed to be alcohol-negative (BAC= .00); and
- Alcohol-related fatalities (crashes where either a driver or a pedestrian or a bicyclist was alcohol-positive [BAC>=.01]).

The first two measures were combined into a ratio series comparing the number of drinking drivers in fatal crashes to the number of non-drinking drivers in fatal crashes. This provides a basis to examine how the number of drinking drivers in fatal crashes changed in relation to those drivers in fatal crashes who were not drinking. Non-drinking drivers in fatal crashes are an indicator for the underlying general crash risk and changing driving exposure that fluctuates independent of alcohol involvement. The ratio provides a basis to normalize for exposure, that is, the potential for a fatal crash, which may fluctuate due to a host of non-alcohol-related factors such as miles driven, weather, road conditions, changing population demographics (such as age), and safety devices in vehicles.

The third measure (alcohol-related fatalities) was expressed in a ratio relative to annual VMT, to use a different control for exposure. This is the ratio NHTSA uses to track progress in fatal crash rates in the States and the Nation. It is a more general indicator of alcohol involvement in fatal crashes and may not be as sensitive as the drinking to non-drinking driver ratio described above.

Comparisons using these two ratios were made between the intervention jurisdictions and other jurisdictions in the State (where appropriate) as well as with neighboring States.

Impact Evaluation Results

Georgia

It appears from the FARS analyses that, as compared to adjacent States, Georgia showed a statistically significant bottom-line decrease (14% in the ratio of drinking drivers to non-drinking drivers) accompanied by a non-significant 5-percent decrease in alcohol-related fatalities per 100 million VMT. Using the ratio series of drinking to non-drinking drivers, it was estimated that 60 fewer persons died in the first year of the Georgia program.

Louisiana

Louisiana experienced actual raw decreases in its intervention counties, but compared to the non-intervention counties and neighboring States, the decrease was washed out. Compared to its neighboring States, Louisiana experienced a relative increase of 14.9% ($p<.05$).

Pennsylvania

Although Pennsylvania showed decreases in all four ratios when compared to neighboring States—driver ratio: -8.6 percent (intervention counties); -7.8 percent (control counties); VMT ratio: -1.6 percent (intervention); -8.6 percent (control)—none were statistically significant.

Tennessee

Tennessee experienced a relative significant decrease in the driver ratio (-10.6 percent ; $p<.035$) and virtually no change in the VMT ratio (+0.62 percent in alcohol-related fatalities per 100 million VMT).

Texas

In Texas, the 14 intervention counties showed no significant change in the ratio of drinking drivers to non-drinking drivers involved in fatal crashes nor in the alcohol-related fatality per VMT ratio, whereas the other 240 within-State comparison (nonintervention) counties experienced a significant reduction of 11 percent ($p=.04$) in the driver ratio measure associated with the enforcement program. It is not clear why this occurred.

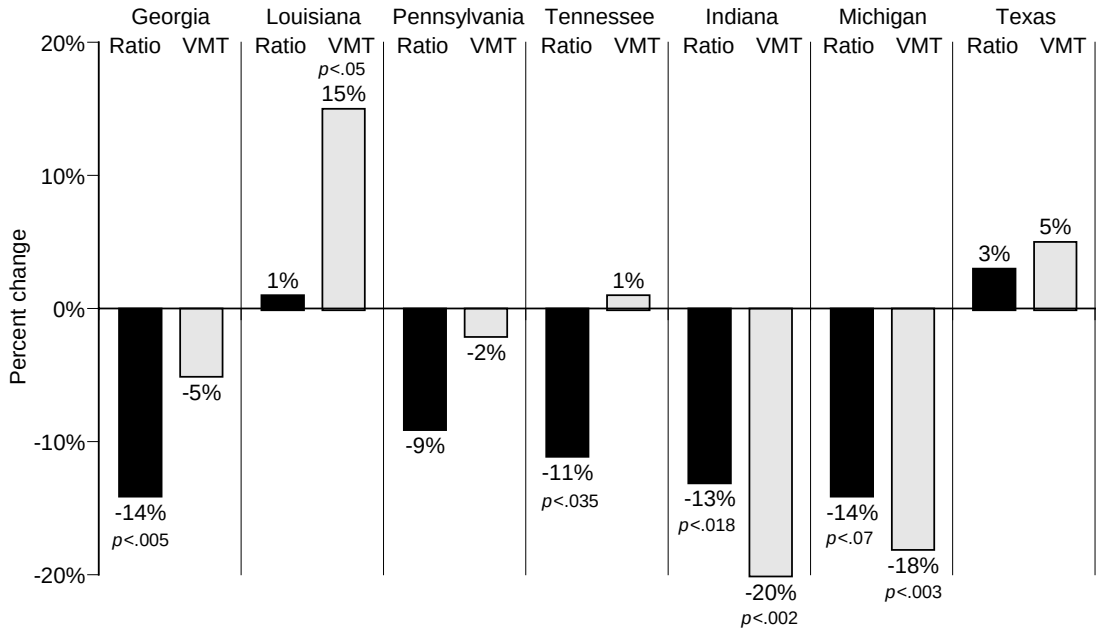
Indiana

In the 29 intervention counties (covering 80% of the State), Indiana experienced a statistically significant decrease of 13 percent ($p<.02$) in the ratio of drinking drivers to non-drinking drivers involved in fatal crashes and a 20-percent decrease ($p<.002$) in alcohol-related fatalities per 100 million VMT compared to its neighboring States associated with their publicized enforcement programs. Indiana also experienced almost identical decreases in the rest of the State (nonintervention counties) compared to neighboring States associated with the program: 12 percent in the drinking-driver ratio ($p<.04$) and 20 percent in the VMT ratio ($p<.002$). An estimated 25 lives were saved in the intervention counties and 17 in the rest of the State due to the Indiana enforcement program.

Michigan

The FARS analyses showed that Michigan experienced a 14-percent decrease ($p<.07$) in the ratio of drinking drivers to non-drinking drivers involved in fatal crashes in the intervention counties (85 percent of the State) compared to the neighboring States associated with the enforcement program. This finding was considered statistically significant even though the p value did not reach $<.05$ because of the large standard error in the comparison neighboring States. The neighboring States actually experienced a slight increase (+.78) in the ratio measure with a standard error of .0917 compared to other lower standard errors (.03 to .07). Michigan also experienced a significant decrease of 18 percent ($p<.003$) in the number of alcohol-related fatalities per 100 million VMTs associated with the program. This resulted in an estimated 57 lives saved during one year of the program.

Figure 1 presents the results of the impact evaluation for all seven States where publicized enforcement programs were implemented. As can be seen, drinking-driver-related fatalities were lower in five of the seven States. The decreases with p values ($p<$) shown were considered statistically significant (four States). The only increase that was significant was the VMT ratio in Louisiana.



KEY: Ratio = Ratio of drinking drivers (BAC ≥ .01) to nondrinking drivers (BAC = .00) in fatal crashes
VMT = Alcohol-related fatalities (driver or pedestrian total BAC > .01) per 100 million VMT

Figure 1. Results of the Impact of Seven State Publicized Enforcement Programs on Drinking Drivers in Fatal Crashes Relative to Surrounding States

Summary

In four of the seven demonstration States, significant reductions in fatal drinking-driver-related crashes were obtained during implementation of the high-visibility enforcement campaign. As compared to surrounding States, fatal crash reductions in Georgia, Tennessee, Indiana, and Michigan were on the order of 11 to 20 percent. In these four States, the programs were estimated to have saved lives ranging from 25 in Indiana to 43 in Tennessee to 57 in Michigan to 60 in Georgia. Two States (Pennsylvania, Texas) showed only marginal, nonsignificant changes relative to their comparison jurisdictions and / or States. One State (Louisiana) experienced a significant increase in alcohol-related fatalities per 100 million VMT relative to their neighboring States.

As each of these demonstration programs was unique and superimposed on existing State program activities targeting drinking drivers, simple relationships were not obtained between crash reduction and amount, type, and target of the publicity campaigns or the amount and type of enforcement activities. The relationship of the enforcement campaign to driver awareness, perceptions and self-reported behavior was mixed.

Publicity: The amount, type and target of the publicity campaigns varied widely among the State programs. Some used a single message –*You Drink and Drive, You Lose*; others used multiple messages in addition to the *You Drink and Drive, You Lose* slogan. *Operation Zero Tolerance* was used in Georgia and *Step Away from Your Car* was used in Pennsylvania. Tennessee used a health directed message followed by an enforcement message. In addition, a variety of mechanisms were used to disseminate program messages. These varied from PSAs, to radio and TV, to print to billboards. Also, earned media occurred in various degrees.

A major finding concerned the use of paid advertising. Three (Georgia, Indiana, Michigan) of the four States demonstrating a decrease in drinking driver fatal crashes used paid advertising. There was a positive change in awareness of the *Operation Zero Tolerance* program and a positive change in self-reported behavior according to the telephone surveys. None of the other four States employing essentially the same survey showed positive changes in self-reported behavior. Due to logistical reasons, similar telephone surveys in Indiana and Michigan were not conducted so the impact of their paid advertising is less well understood.

In general, the findings from the driver surveys in five of the States were disappointing. It was thought the media campaigns would raise awareness of the enforcement program, reduce driving after drinking behavior as well as increase the perception of being stopped by the police for an alcohol offense and arrested if over the limit. Such changes tended not to occur, at least according to these self-report surveys.

Amount and Type of Enforcement: It may be anticipated that substantially increasing the number of sobriety checkpoints conducted should have a large and positive effect on crash reduction. This does not appear to be the case. Georgia had approximately 2,800 checkpoints (1 checkpoint for every 3,000 residents) compared to Tennessee's approximately 800 (1 checkpoint for every 7,000 residents), but the driver ratio decreases were on the order of 14 percent (Georgia) versus 11 percent (Tennessee). The earlier *Checkpoint Tennessee* demonstration, which conducted less than 1,000 sobriety checkpoints, resulted in a 20-percent decrease in projected crashes for drivers with BACs =>0.10. To put Georgia's significant 14-percent reduction in the driver ratio series in proper perspective, when using the evaluation criteria for the 1994–1995 *Checkpoint Tennessee* program (fatal crashes involving drivers with BACs >=.10 relative to all fatal crashes), there was a 10-percent reduction in that measure in Georgia.

Another key finding was that the Michigan results provide some evidence that visible and highly publicized enforcement strategies other than sobriety checkpoints—in this case, saturation patrols-- can be effective in reducing drinking driver fatal crashes statewide. Michigan is prohibited by State law from conducting sobriety checkpoints.

Indiana and Michigan used two to three mobilization blitzes with intensified media and enforcement and consistent weekly enforcement with some publicity. This may have contributed to the significant reduction in impaired-driving fatal crashes in both States.

The Texas strategy of funding smaller police agencies for increased enforcement coupled with publicity did not show an effect in the intervention counties. There was, however, a significant reduction in the rate of drinking-driver fatal crashes in the rest of Texas. One explanation is that the publicity, which was concentrated in the most populous counties, and the Selective Traffic Enforcement Programs (STEPs), which were used in numerous other counties in Texas, were combined to produce the 11-percent effect in the rest of the State.

One vexing problem is in estimating the extent to which the demonstration programs contributed to the overall State decline in fatal drinking driver-related crashes. Collection of roadside driver BAC information was not conducted in these studies, and the findings from the telephone surveys were equivocal. Thus, we are left with State crash reductions but not a good linkage to the public awareness of the demonstration programs as implemented. Additional research will be required to address this issue.

In summary, it appears that a variety of media and enforcement procedures that supplement ongoing statewide efforts can yield meaningful crash reduction effects among alcohol impaired drivers. In general, States employing sobriety checkpoints, using paid advertising and programs implemented statewide were associated with crash reductions relative to surrounding States (see chart on next page - Summary of Results). However, the use of saturation patrols alone did not preclude crash reduction. As each of these demonstration programs was unique and superimposed on existing State program activities targeting drinking drivers, simple relationships were not obtained between crash reductions and (a) amount, type, and target of publicity campaigns; (b) amount and type of enforcement activities; and (c) driver awareness, perceptions, and self-reported behavior. Based upon previous research and some of the implications from this study, a State impaired driving enforcement program is more likely to be successful if it incorporates (a) numerous checkpoints or highly visible saturation patrols conducted routinely throughout the year along with mobilized crackdowns (at least three per year) and; (b) intensive publicity coverage of the enforcement activities, including paid advertising.

Summary of Results

	2000-2001					2002-2003	
	Georgia	**Louisiana**	**Pennsylvania**	**Tennessee**	**Texas**	**Indiana**	**Michigan**
Implementation period Start: Duration:	6/28/00 12 months	7/6/00 12 months	7/1/00 12 months	11/11/00 12 months	7/1/00 12 months	12/1/02 12 months	7/1/02 18 months
Portion of State covered by intervention	Statewide	16 of 64 parishes	14 of 67 counties	Statewide	14 of 254 counties	80% of the population	Statewide
Population	8,186,453	4,468,976	12,281,054	5,689,283	20,851,820	6,159,068	10,050,446
Licensed drivers	5,550,176	2,759,120	8,229,490	4,251,228	13,462,023	4,221,123	7,025,357
DWI enforcement activities	2,837 checkpoints	217 saturation patrols	300 checkpoints, 360 mobile awareness, 480 roving patrols	535 checkpoints, 529 patrols	Increased DWI arrests	3,805 patrol hours on DWI	1,122 saturation patrols
Est. No. of vehicles witnessing enforcement	355,480	80,000	850,000	Not reported	Not reported	70,624	60,000
Publicity activities	Paid and earned media	PSAs and newspaper	700 media “hits”	PSAs and earned media	$250,000 paid media	$375,000 paid media	$225,000 paid media
Targeted drivers	Not reported	Ages 18-24	Not reported	Not reported	Males, aged 18-34	Males, aged 21-34	Males, aged 18-34
Public survey results	Reported driving after drinking decreased from 26% to 19%	Small decrease in reported driving after drinking	Small decrease in reported driving after drinking too much	Increase in reported avoiding driving after drinking	Reported driving after drinking too much decreased from 19% to 16%	No data	Reported driving after drinking decreased from 34% to 25%
DWI arrests (FBI)	21,708	13,592	36,752	23,668	90,617	28,501	48,382
Intoxicated drivers in fatal crashes (BAC $\geq$.08) (FARS)	371	314	495	404	1,357	187	317
DWI arrests per intoxicated driver in fatal crashes (FBI, FARS)	59	43	74	59	67	152	153
Change in ratio of drinking drivers to nondrinking drivers in fatal crashes compared to adjacent States	–14% (*p*<.005)	+1% (ns)	–9% (ns)	–11% (*p*<.035)	+3% (ns)	–13% (*p*<.018)	–14% (*p*<.07)
Change in alcohol-related fatalities per 100M VMT compared to adjacent States	–5% (ns)	+15% (p<.05)	–2% (ns)	+1% (ns)	+5% (ns)	–20% (*p*<.002)	–18% (*p*<.003)
Lives saved per year due to intervention	60	ns	Ns	43	ns	25 – intervention 17 – rest of State	57

Background

Driving after drinking continues to be a significant highway safety problem. In 2005, more than 17,000 persons died in alcohol-related crashes. Over the years, a variety of strategies have been used to counter this problem with varying success. Among the most successful strategies is the coupling of intense and highly visible enforcement with publicity about the enforcement campaign. The focus of this enforcement strategy is to deter driving after drinking by increasing the public's perception of being caught, arrested and prosecuted for impaired driving.

A number of enforcement approaches have been used as a mechanism for detecting and apprehending motorists driving while intoxicated. These include sobriety checkpoints, saturation patrols, and roving patrols. During the past two decades, law enforcement in the United States has particularly focused on sobriety checkpoints as a strategy to enforce impaired-driving laws. At sobriety checkpoints, law enforcement officers stop all vehicles, or a systematic selection of vehicles, to evaluate drivers for signs of alcohol or other drug impairment. To minimize public concern about the activity and comply with court rulings, checkpoints typically are publicized in advance, and signs are posted at the approaches to the checkpoints warning drivers that a checkpoint is ahead. Law enforcement officers in uniform approach drivers, identify themselves, and describe the purpose of the stop. They ask the driver questions designed to elicit a response that will permit them to observe the driver's general demeanor. Drivers who do not appear impaired are immediately waved on; however, those who show signs of impairment—such as bloodshot eyes, alcohol on their breath, or difficulty in following requests --are usually detained in a safe holding area where they are investigated further and either arrested or released.

Research has indicated that sobriety checkpoints that are well publicized, conducted frequently, and have high visibility can serve as a deterrent to impaired driving. Studies in the early 1980s found significant decreases in alcohol-related crashes associated with sobriety checkpoint programs (Epperlein, 1985; Lacey et al., 1986; Voas, Rhodenizer, & Lynn, 1985). Later studies confirmed that frequent, highly publicized checkpoint programs substantially reduced alcohol-related crashes by 10 to 20 percent (Levy, Shea, & Asch, 1988; Levy, Asch, & Shea, 1990; Wells, Preusser, & Williams, 1992). In a summary of the U.S. literature, Ross (1992a) examined nine studies through the early 1990s and concluded, "the cumulation of evidence supports the hypothesis that checkpoints reduce impaired driving."

Three recent reports on the effectiveness of sobriety checkpoints have added additional evidence that sobriety checkpoints may be even more effective than previous research has indicated. A demonstration program in Tennessee *(Checkpoint Tennessee)* was sponsored by the National Highway Traffic Safety Administration (NHTSA) to determine whether statewide crackdowns, conducted in all 95 counties, and sustained enforcement—highly publicized sobriety checkpoints conducted weekly throughout the State—would have an effect on reducing impaired driving. An evaluation of the program, using interrupted time series, showed a 20 percent reduction in alcohol-related fatal crashes when compared to projected alcohol-related fatal crashes if the program had not been implemented. It was also reported that the effects of the program extended at least 21 months after conclusion of the formal program (Lacey, Jones, & Smith, 1999).

The second report was a review of the latest literature on the effectiveness of sobriety checkpoints and random breath testing in reducing motor vehicle crash injuries (Peek-Asa, 1999). Six

studies were reviewed that met the study criteria for evaluating sobriety checkpoints with a control or baseline comparison. All six studies found that sobriety checkpoints were effective in reducing alcohol-related fatalities and injuries.

The third study was conducted by the Centers for Disease Control and Prevention (CDC) and involved a systematic review of the evidence regarding interventions to reduce alcohol-impaired driving (Shults et al., 2001). Fifteen studies on the effectiveness of sobriety checkpoints were summarized, and a meta-analysis was conducted that showed a median reduction of 20 percent in fatal and injury crashes associated with sobriety checkpoint programs. The CDC authors concluded that these studies "provide strong evidence" that sobriety checkpoints are effective in preventing alcohol-related fatalities and injuries.

The legality of sobriety checkpoints has been challenged in U.S. courts. In 1990, the U.S. Supreme Court upheld the constitutionality of sobriety checkpoints in a case that challenged them under the fourth amendment to the U. S. Constitution, which protects against unreasonable searches and seizures (*Michigan v. Sitz*, 1990). The Court held that the interest in reducing the incidence of alcohol-impaired driving was sufficient to justify the brief intrusion occasioned by a properly conducted sobriety checkpoint. However, 12 States still report that sobriety checkpoints are illegal based on State law.

NHTSA has published numerous reports on procedures that should be followed in conducting sobriety checkpoints. Research examining different alcohol-impaired driving law enforcement approaches showed that the proportion of all crashes involving alcohol declined an average of 28 percent in four communities that used publicized sobriety checkpoints compared with a 17-percent decline in communities that used only publicized roving patrols or saturation patrols. There were no differences in effectiveness for sobriety checkpoint programs with 3 to 5 officers per checkpoint compared to checkpoints conducted with 8 to 12 officers, or for checkpoints that stayed in one location versus those that moved around (Stuster & Blowers, 1995). In an effort to support the use of sobriety checkpoints in the United States, NHTSA has issued guidelines to communities on conducting sobriety checkpoints (Compton, 1983; NHTSA, 1990) and has produced a law enforcement training video on sobriety checkpoints (NHTSA, 1999) and a how-to guide for planning and publicizing them (NHTSA, 2000). Although some law enforcement officers and other officials have been skeptical of the cost benefit of sobriety checkpoints, at least one study indicates that checkpoint programs can yield considerable cost savings (Miller, Galbraith, & Lawrence, 1998).

Saturation and roving patrols are additional strategies used by law enforcement to enforce impaired-driving laws. These strategies essentially involve sending more officers than normal to patrol areas where alcohol-related crashes frequently occur and/or areas where there are a high number of arrests for DUI or DWI. Saturation patrols appear to be effective in reducing impaired driving if they are highly publicized. The research on this strategy is limited, however, and is not as extensive or convincing as that on sobriety checkpoints. Roving patrols are generally conducted in association with checkpoints to cut down on drivers circumventing checkpoint enforcement locations. Officers are usually dispatched to alternative routes to patrol for drinking drivers.

Because deterrence is based on the perceived risk of apprehension and sanctioning, traffic safety laws must be both enforced and publicized to be effective. Many communities are making special efforts to enforce impaired-driving laws but find it difficult to attract sufficient media coverage to produce strong levels of deterrence to impaired driving. Deterrence, as described by Ross (1984), is a function of the perceived probability of apprehension, the severity of the resulting sanction, and the

swiftness with which the penalty is administered. There is substantial evidence that the most important of those factors is the probability of apprehension because the public is generally unaware of the sanctions and tends to believe that they can be avoided or ameliorated (Ross & Voas 1989; Ross, 1992b). Thus, raising the perceived probability of apprehension is the most essential element of an effective DWI enforcement program. The perceived risk of apprehension is not necessarily the number of officers engaged in the enforcement activity or the number of DWI arrests, but the public's perception of that enforcement. Thus, publicizing enforcement activities, along with increased and visible enforcement, is a major component of an effective deterrence program.

Although it is generally accepted that enforcement programs must be well publicized to be effective, research on the influence of publicity on deterrence has been limited. Wilde, Hoste, Sheppard, and Wind (1971) conducted a comprehensive review of safety campaigns and concluded that public information efforts that were not part of some "action" program were unlikely to be effective in changing behavior. Conversely, Ross (1973) demonstrated in his study of the British road safety campaign that where new legislation leading to new enforcement procedures was being implemented, publicity had a major influence on crash involvement. Voas and Hause (1987) documented a 30-percent decrease in weekend nighttime crashes in Stockton, California, during the first year of an intensified enforcement program when the effort received substantial coverage by the local press and electronic media. During the following two years, however, the crash reduction benefit was halved when the program was given little attention in the news media while enforcement activities remained at about the same level.

Perhaps the clearest demonstration of the role of media in influencing DUI enforcement is provided by the results of the "Community Trials" program (Holder et al., 2000), which documented a major effort to use media advocacy to publicize DWI enforcement programs in three communities. In a study (Voas, Holder, & Gruenewald, 1997) of this program, the immediate outputs of the media and enforcement efforts were measured, such as the number of mentions of the enforcement program on the local nightly news and the number of checkpoints conducted. Telephone surveys were used to assess the combined influence of the two factors on the public's perception of risk. In addition, the number of high-BAC drivers on the road was measured through roadside surveys; and finally, crash data were used to determine the extent of reductions, if any, in alcohol-related crashes. The positive results, however, clearly represented the combined effects of enforcement and publicity rather than the publicity alone.

Although the research evidence is limited, publicizing enforcement is clearly essential to its effectiveness. Unfortunately, the most effective methods for attracting media coverage are not well understood nor documented, and the resources available to most police departments for publicizing their programs are limited. One program incorporating publicity and visible enforcement is NHTSA's *Click It or Ticket* mobilizations. This program is aimed at increasing safety belt usage and has proven to be successful (Solomon, Ulmer, & Preusser, 2002). A typical mobilization model includes two to three intensive blitzes over three to six weeks, during which paid ads are coupled with increased seat belt enforcement. States that use this model have had a significant effect on observed belt usage. It thereby seemed possible that a similar strategy might successfully reduce impaired driving.

Objectives

With the evidence from alcohol and seat belt demonstration and evaluation studies as background, NHTSA provided funding for impaired-driving enforcement demonstration projects in seven States, with an emphasis on visibility, publicity, and frequency. The major objective of this study was to assess the effects of a sustained enforcement effort, stressing highly visible law enforcement and publicity, on alcohol-related crashes. Another objective of this study was to assess the enforcement program's effect on driver attitudes, perceptions and self-reported behavior.

Organization of the Report

The first section of this report briefly describes each of the seven demonstration programs in Georgia, Louisiana, Pennsylvania, Tennessee, Indiana, Michigan, and Texas and contrasts the differences among them. The middle sections describe in more detail the enforcement strategies (including the type and amount), the media outreach (paid and earned), and the community outreach in each of the seven States. The final section provides telephone survey results and analyses of the FARS data, which used an interrupted time-series regression analysis of drinking drivers involved in fatal crashes and alcohol-related fatality rates to compare the outcomes among each of the seven States with their adjacent States.

Sources of Data

A list of documents from each State that were used in this report is shown in the following paragraphs.

Georgia

- Best Practices Manual. Targets of Opportunity: State Demonstration and Evaluation Program to Reduce Alcohol-Related Crashes. Georgia Operation Zero Tolerance. Georgia Governor's Office of Highway Safety. September 2002.
- Schulman, Ronca, & Bucuvalas, Inc., Telephone surveys of drinking-and-driving attitudes and awareness (NHTSA).

Louisiana

- Final Report. Targets of Opportunity: State Demonstration Program for Reducing Impaired Driving, Louisiana Highway Safety Commission. June 2003.
- Best Practices Manual. Targets of Opportunity: State Demonstration Program for Reducing Impaired Driving, Louisiana Highway Safety Commission. June 2003.
- Schulman, Ronca, & Bucuvalas, Inc., Telephone surveys of drinking-and-driving attitudes and awareness (NHTSA).

Pennsylvania

- Best Practices Manual. Targets of Opportunity: State Demonstration Program for Reducing Impaired Driving. Pennsylvania Department of Transportation. February 2003.

- Schulman, Ronca, & Bucuvalas, Inc., Telephone surveys of drinking-and-driving attitudes and awareness (NHTSA).

Tennessee

- Technical Report. Targets of Opportunity: Tennessee Demonstration Program for Reducing Impaired Driving. Tennessee Governor's Highway Safety Office. January 2003.
- Schulman, Ronca, & Bucuvalas, Inc., Telephone surveys of drinking-and-driving attitudes and awareness (NHTSA).

Texas

- Texas: Final Report. Texas Technical Report: State Demonstration and Evaluation for Reducing Alcohol-Related Crashes. Texas Governor's Office of Highway Safety. December 2003.
- Texas: Final Report. Texas Best Practices Report: State Demonstration and Evaluation for Reducing Alcohol-Related Crashes. Texas Governor's Office of Highway Safety. December 2003.
- Schulman, Ronca, & Bucuvalas, Inc., Telephone surveys of drinking-and-driving attitudes and awareness (NHTSA).

Indiana

- Indiana 403 Grant DUI Enforcement and Media Final Report, September 2004.
- Indiana Site Visit Report by Ray Cotton, InfoGroup, Inc., February 2004.
- Indiana Criminal Justice Institute, DUI B-5, Media Strategic Plan for June 23–July 13, 2003.

Michigan

Multiple site visits and telephone conversations were used to gather information on the Michigan project. In addition, the following reports were used:

- Michigan 403 Demonstration Program budget.
- Michigan Crash Facts Report, 2000-2002.
- Michigan 403 State Demonstration Project Grant—Activity Data Collection and Evaluation Report.
- Michigan Office of Highway Safety Strategic Plan with Michigan State Police Posts.
- Michigan Office of Highway Safety Strategic Plan—Enforcement x 2000 population.
- Michigan Office of Highway Safety, 403 Demonstration Project Timeline.
- Final Campaign Report, IDEAology Ink, October 22, 2003.
- Michigan Office of Highway Safety Planning, 2003 Media Recap.

Overview of the Georgia, Louisiana, Pennsylvania, Tennessee, Texas, Indiana, and Michigan Programs

Between 2000 and 2003, the National Highway Traffic Safety Administration funded seven alcohol demonstration projects that were designed to reduce impaired driving through well-publicized and frequent enforcement. Funding in the amount of $1 million was provided for increased publicity and enforcement in each of five States: Georgia, Louisiana, Pennsylvania, Tennessee, and Texas. For Indiana and Michigan funding in the amount of $500,000 was available for publicity only. An overview of each State's program follows, and Tables 1 and 2 (at the end of this section) provide additional information.

Georgia

Georgia conducted a statewide enforcement campaign with a statewide public information campaign, numerous sobriety checkpoints, and a community partnership (see Figure 2). The implementation phase for the Georgia program was designed to last for 18 months. The PI&E campaign, targeting young drivers, was conducted by a private contractor under the supervision of the Georgia Office of Highway Safety. The campaign initially emphasized earned media but shifted to paid media halfway through the implementation phase at 12 months. United Parcel Service contributed resources for the media efforts. During the implementation phase, 2,837 sobriety checkpoints were conducted, with at least one in each of Georgia's 159 counties during the year and weekly in some counties. This required extensive cooperation among law enforcement agencies and resulted in 2,322 DWI arrests at these checkpoints. Three "BATmobiles" (Blood Alcohol Testing vehicles) were purchased under the grant to aid police in checkpoint operations.

A project director supervised the project, and law enforcement efforts were organized though existing networks of counties called RTENs (Regional Traffic Enforcement Networks). RTEN coordinators set up the law enforcement initiatives coordinated by a law enforcement liaison from the Georgia Office of Highway Safety.

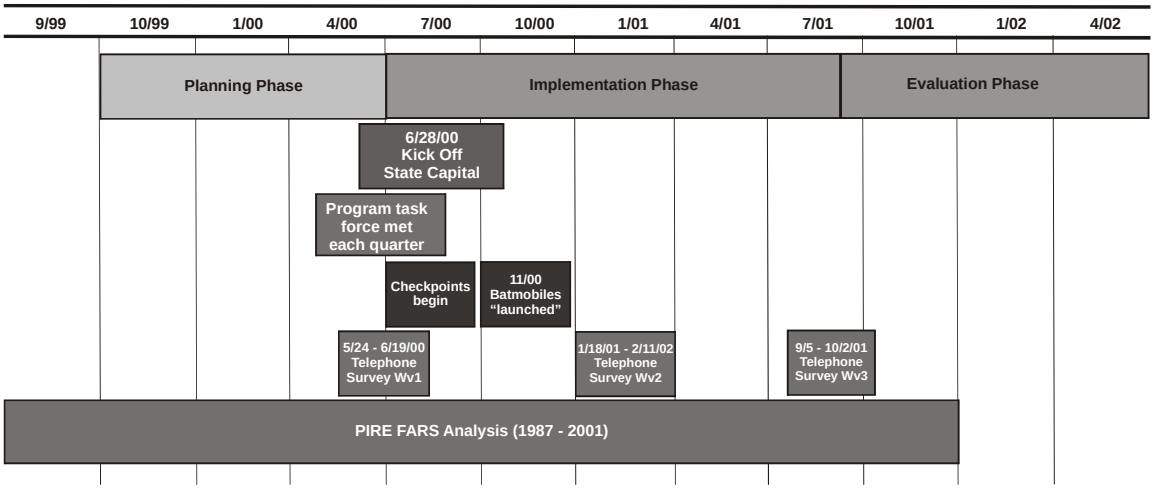


Figure 2. Georgia Project Timeline

Louisiana

The Louisiana campaign was conducted in 16 parishes (counties) out of 64 parishes, using saturation patrols and then checkpoints later in the program period when they became legal. Training was provided for many law enforcement officers such as sobriety checkpoint training, Standardized Field Sobriety Testing (SFST) training, and Drug Recognition and Evaluation (DRE) training. The implementation phase for the Louisiana program was designed to last for 15 months (see Figure 3).

The Louisiana campaign was coordinated through the Louisiana State Police and the Louisiana Highway Safety Commission. An advertising firm (Cranch-Hardy & Associates) and a public relations firm (Rafael Bermudez & Associates) implemented the public awareness portion of the program.

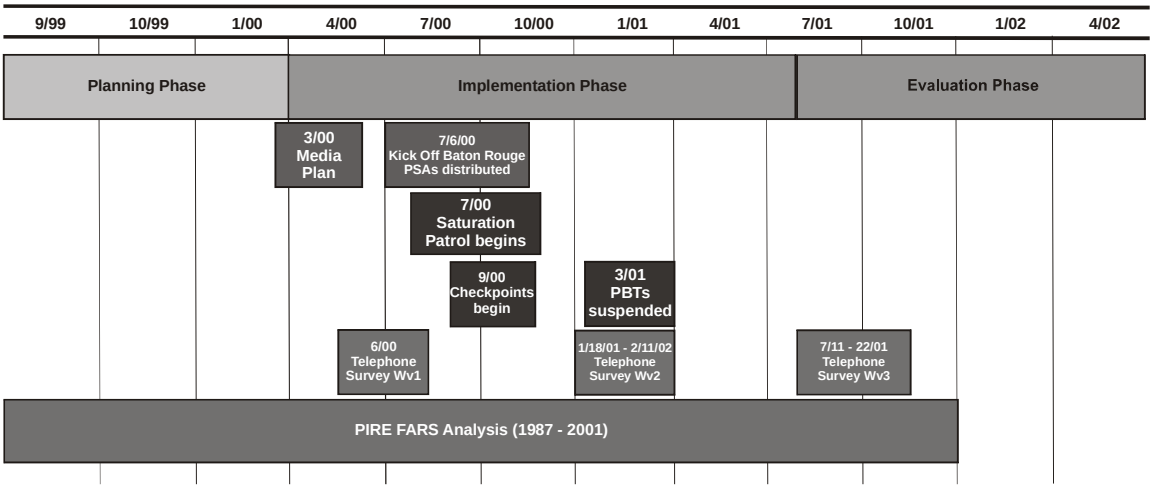


Figure 3. Louisiana Project Timeline

Pennsylvania

Pennsylvania participated in the Demonstration Project using fewer officers and more frequent sobriety checkpoints and other higher visibility DUI enforcement measures, specialized equipment, and a sustained community-based public education program. Before this effort, 56 law enforcement projects received funding through Pennsylvania Department of Transportation's (PENNDOT's) Highway Safety Office. Of these, 29 participated in this demonstration project. This effort affected 14 of Pennsylvania's 67 counties and had the potential of reaching 6.2 million of Pennsylvania's 12 million citizens. The counties were spread throughout the State, although 10 were clustered around the Philadelphia area. Two-thirds of the Pennsylvania funding was used to increase law enforcement efforts; and one-third was used for public relations, program support, research and evaluation, and project coordination. Additional funding of $275,000 was provided for the project from various sources including Federal Section 410 funding. The project used an innovative media tour to stimulate earned media.

PENNDOT developed three levels of coordination to oversee the project. A project steering committee was the decision-making body and included representatives from PENNDOT, NHTSA, law enforcement agencies, Pennsylvania DUI Association, a public relations firm (Kelly Michener, Inc.), Penn State University, Transportation Engineering Institute, and Delta Development Group. A statewide task force included the members of the steering committee and representatives from each of the 29 participating jurisdictions in the 14 selected counties. Five regional task forces worked together to formulate their approach for the 15-month operational phase of the project (see Figure 4).

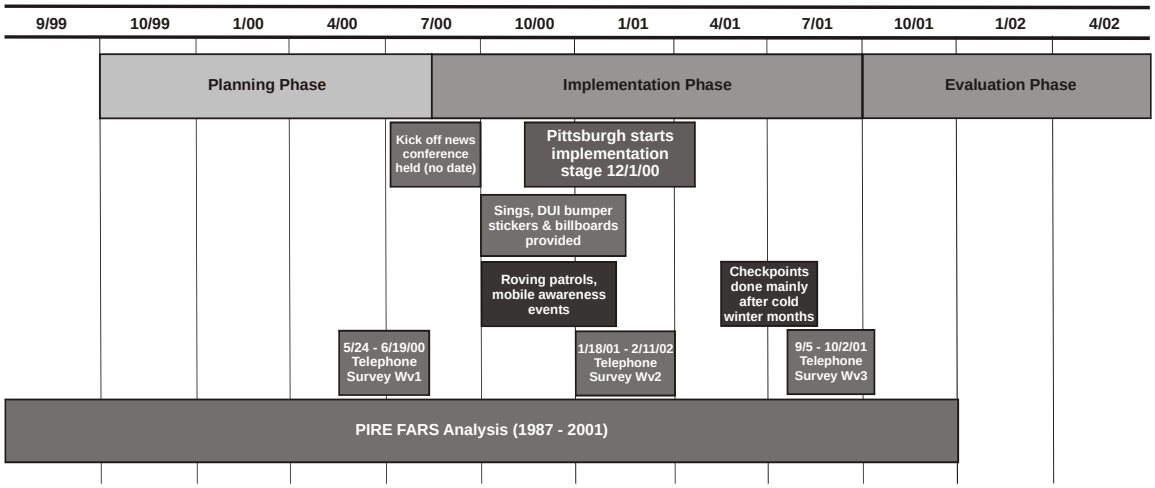


Figure 4. Pennsylvania Project Timeline

Tennessee

The year 2000 campaign was the second major DUI-reduction program conducted in Tennessee in a decade. In early 1994, an extensive series of sobriety checkpoints was conducted throughout the State. This earlier *Checkpoint Tennessee* program was quite effective, resulting in a 20 percent reduction in fatal crashes involving drivers with BACs greater than or equal to .10 grams per deciliter over the projected number that would have occurred without the intervention (Lacey et al., 1999). The first Tennessee program was widely publicized by NHTSA and served as a model for the seven demonstration programs described in this report. The current Tennessee demonstration project

began in late 2000, using a series of sobriety checkpoints and saturation patrols. A PI&E campaign using hard-news coverage, public service advertising, and other activities supported the enforcement-based deterrence message of the program. The implementation phase for the Tennessee program was designed to last for 15 months (see Figure 5).

The original plan was that the State would be divided into four regions. The first region, East Tennessee, would serve as a control group. Saturation patrols were to be used in Southern Middle Tennessee, and sobriety checkpoints would be used in West Tennessee. Both saturation patrols and sobriety checkpoints were used in Northern Middle Tennessee. In actuality, the regional approach was not closely followed, and Tennessee data was analyzed eventually as a statewide program.

The Tennessee Highway Patrol was the lead agency in the program. The Tennessee Governors' Highway Safety program conducted the public service advertising material development and dissemination.

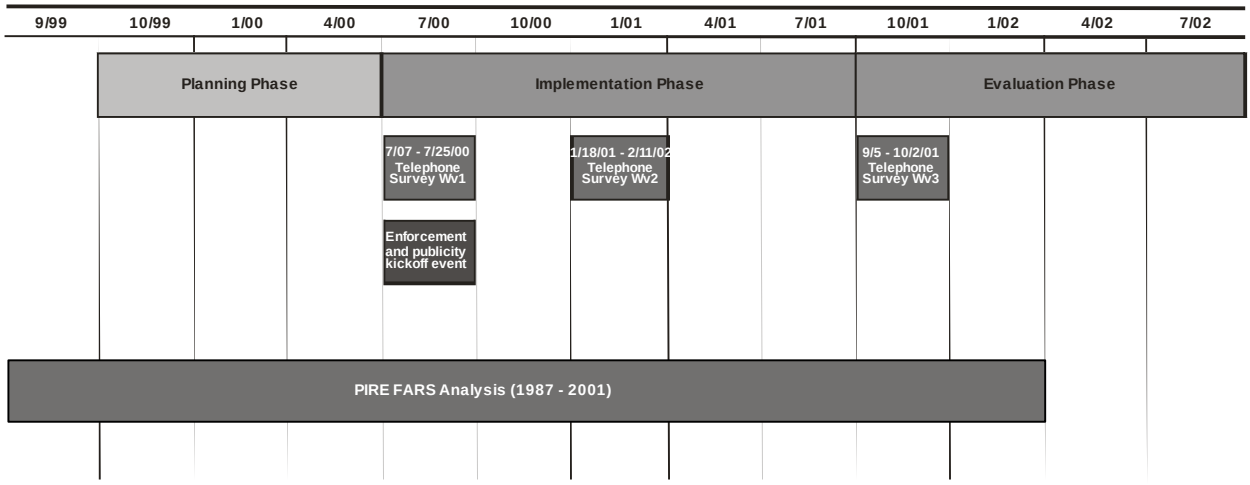


Figure 5. Tennessee Project Timeline

Texas

The Texas demonstration project consisted of a public information campaign, DWI enforcement training, increased enforcement, and an impact evaluation. Because Texas is so large, the project coordinators limited the campaign to the 14 most populous of the 254 Texas counties to ensure adequate media coverage within the given budget. These 14 counties represent almost 60 percent of the Texas population.

To stimulate additional DWI enforcement in communities that may not have previously experienced such efforts, participation in the target counties was limited to agencies not receiving Federal 402 funding for alcohol-related enforcement through traditional STEP grants from the Texas Department of Transportation (TxDOT). A letter of invitation with an explanation of the selection criteria was sent to all such agencies urging their participation. The letter also explained the program and the obligations the agency would have to meet to receive DUI enforcement equipment. Approximately 1,100 letters were distributed to agencies, after which TxDOT made follow-up calls to further explain the program. Of the 1,100 eligible agencies contacted, 78 participated and signed a letter to signify their intention to comply with the requirements of the program. Participating agencies agreed to report enforcement statistics and, in turn, received their selected equipment.

Additionally, Texas supported a special project that was funded under the grant to implement and test an innovative approach to enforcing DWI laws: the Bexar County DUI Task Force re-engineered the arrest process in the county from arrest to adjudication.

The DWI equipment was delivered to the agencies, which was covered by the local media. This delivery event provided an opportunity for the local agencies to promote their enforcement programs and highlight the problem of alcohol-related crashes in their areas.

The enforcement agencies began their individual efforts following the July 1, 2000, kickoff event in Austin, Texas. Each agency's increased enforcement activities focused on the times DWI crashes were most likely to occur in its jurisdiction. The agencies also committed to mobilizing during specific holidays, such as the Fourth of July weekend, the Christmas / New Year's period, and Memorial Day weekend (see Figure 6). In addition, the State worked with local agencies and traffic safety districts to increase the training of officers in conducting Standardized Field Sobriety Tests in the targeted counties, not only within the participating agencies, but also in the other agencies located in the area.

The program was managed by TxDOT using Texas Engineering Extension Service (TEEX) as a subgrantee to facilitate the activities associated with the demonstration. The project team consisted of TxDOT and TEEX representatives, the Sherry Matthews Advocacy Marketing (media consultant), and PIRE for the impact evaluation. Active and retired law enforcement personnel with specific traffic expertise provided technical assistance, and a program manager facilitated the operational and evaluation portions of the demonstration program.

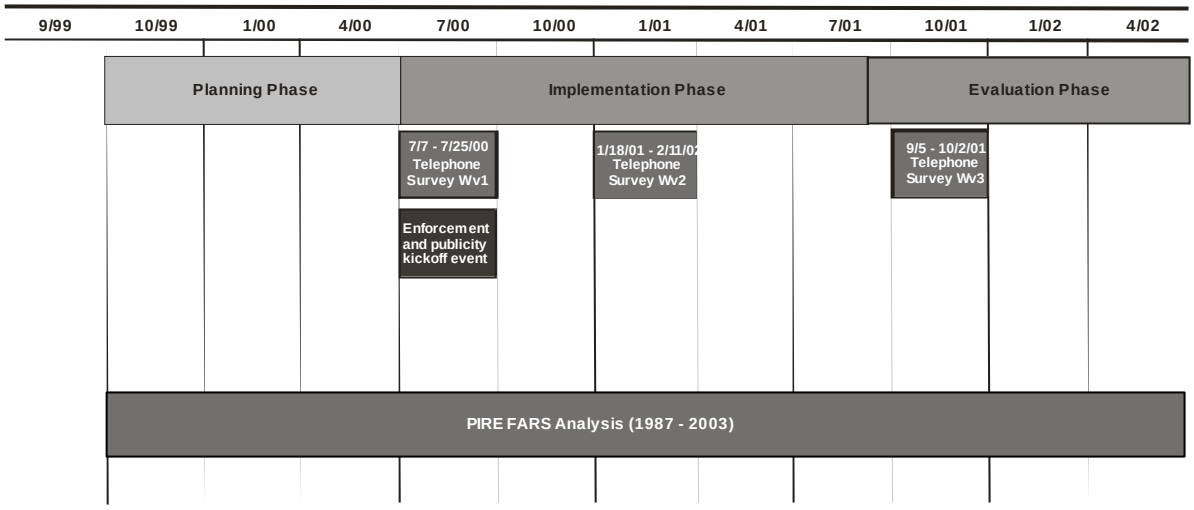


Figure 6. Texas Project Timeline

Indiana

Indiana's 403 demonstration project provided funding for paid advertisements for two major enforcement blitzes during the project period (December 2002 and July 2003). Indiana's umbrella brand for its highway safety initiatives was "Operation Pull Over." Indiana also used the NHTSA *You Drink & Drive, You Lose* theme throughout the project. The enforcement activities consisted of sobriety checkpoints supplemented by saturation patrols.

The Indiana Criminal Justice Institute was designated as the lead agency for coordinating the 403 demonstration project. The grant began at the start of Federal fiscal year 2003 on October 1, 2002. The project terminated on November 30, 2003, with the last wave of media and checkpoints completed in July 2003 (see Figure 7). Indiana lowered the per se BAC limit to .08 g / dL on July 1, 2001, a year and a half before the first blitz. Early in 2001, Indiana began planning for the adoption of a .08 BAC statute. The plan included funding nine existing multi-jurisdictional impaired-driving task forces. In October 2001, the .08 program expanded to 25 counties. Indiana Task Forces provided overtime funding to detect and arrest impaired drivers. Five law enforcement liaisons (LELs) were tasked with the responsibility for monitoring and providing technical assistance to local agencies. This provided a proving ground for the new alcohol demonstration projects that began a year later.

The Indiana Task Forces represented 25 counties out of the 93 counties in the State, the Indiana State Police, and 95 law enforcement departments: 20 sheriff's departments, 71 municipal departments, and 4 university police departments. The participating departments represented 71 percent of all crashes, 54 percent of all fatalities, 70 percent of all alcohol-related crashes, 54 percent of all alcohol-related fatalities, and 69 percent of all alcohol-related personal injury crashes. The DWI program effort provided coverage to at least 80 percent of Indiana's population. A task force commander was designated for each task force and was responsible for project coordination, data collection, and the timely reporting of project results.

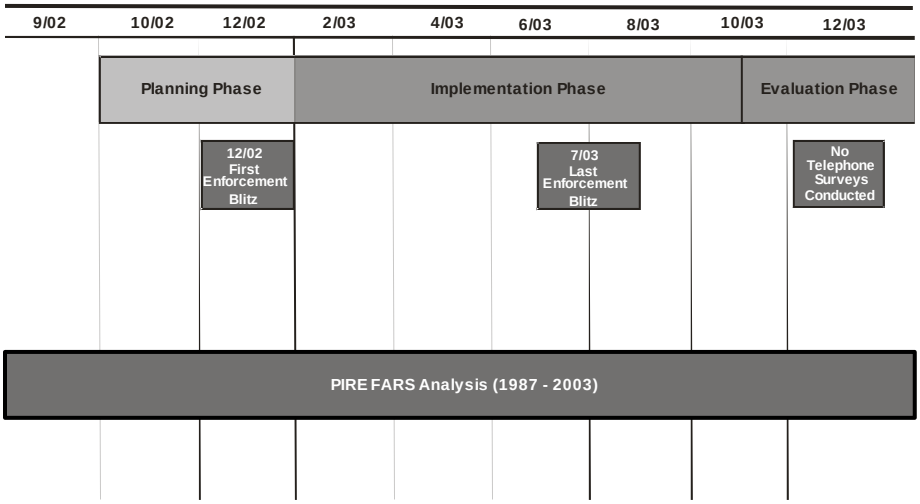


Figure 7. Indiana Project Timeline

Michigan

Michigan conducted a statewide campaign that included public information, numerous saturation patrols, and a community partnership. A private contractor conducted the PI&E campaign, which emphasized paid media, but earned media was used as well. The paid media was used during three mobilization or blitz periods in July 2002, December 2002, and July 2003 (see Figure 8). Additional paid media messages about DWI enforcement remained somewhat constant and consistent throughout the operational phase of the project. Male drivers 18 to 34 were the target audience for the television, cable, and radio ads. The paid ads focused on the increased threat of arrest and the possibility of drivers forfeiting their vehicles, losing their driver licenses, and paying fines, which research has shown affects behavior change among this group (Kennedy, Isaac, & Graham, 1993; Wiliszowski, Murphy, Jones, & Lacey, 1996; TRB, 1995). Michigan's enforcement

strategies did not include sobriety checkpoints because they are prohibited by statute. Instead, law enforcement concentrated on weekly saturation patrols and selective enforcement activities. Both paid media and enforcement covered approximately 80 to 85 percent of the State.

NHTSA funded the Michigan 403 project in the amount of $500,000. Costs were spread over a 30-month period that permitted planning, paid media, and operational overtime hours for enforcement. The Office of Highway Safety Planning (OHSP) administered the budget. Three primary staff members coordinated this project: a project coordinator, a law enforcement liaison, and a media consultant. The OHSP Alcohol Program coordinator served as the 403 project coordinator and maintained overall responsibility for the project. The project coordinator changed once during the project due to managerial and administrative changes.

A lead LEL was retained full-time (funded half-time from the 403 grant) to assist in coordinating the project activities. The lead LEL served as the contact point for the other LELs and provided technical assistance to grantees. OHSP also had four additional field (regional) liaisons. County and local liaisons played an important role in the communication process during the demonstration period.

A public relations firm was retained to assist in coordinating all the project's media activities. In October 2002, Ideaology, Inc., a media consulting business, replaced Brogan & Partners in this role. During the first quarter of the campaign, a demonstration program task force was formed. This task force became known as the "Drive Michigan Safely Task Force." This task force was comprised of enforcement officers, the 403 law enforcement coordinator, county coordinators, the 403 public relations firm, and the OHSP staff.

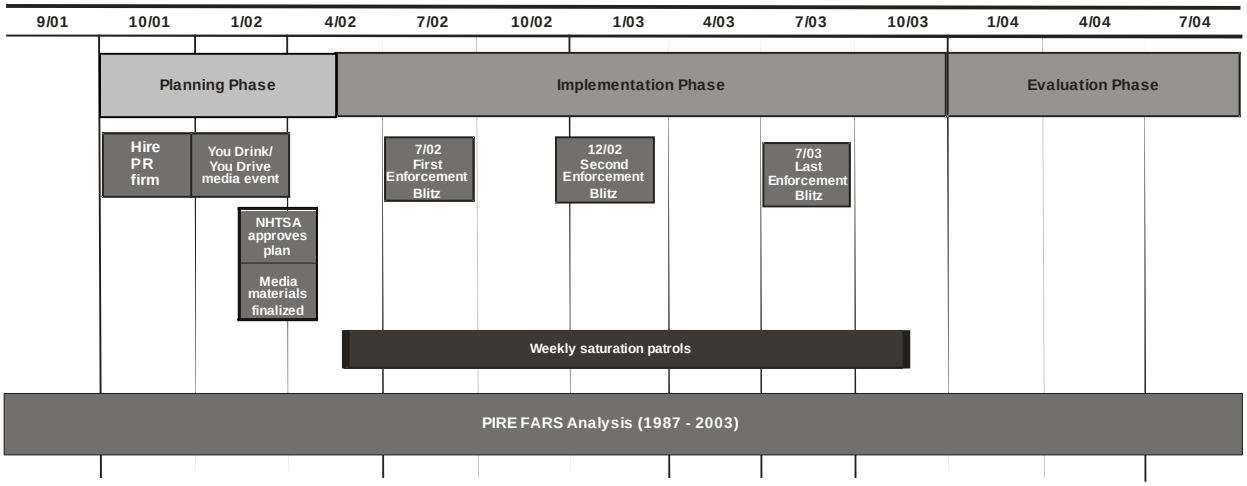


Figure 8. Michigan Project Timeline

Program Summaries

Table 1 (enforcement efforts) and Table 2 (public information and media) provide additional information on the kinds of activities in each of the seven programs.

Table 1. Summary of State Enforcement Efforts

State	Sobriety checkpoints	Saturation patrols	Other	New equipment/ procedures
Georgia	2,837 checkpoints	None reported	None reported	3 BATmobiles 50 passive alcohol sensors
Louisiana	Checkpoints done in 5 of 9 State Police Troop areas (exact number not provided) Became legal in July 2000 after start of grant	217 saturation patrols	Troopers assigned to facilitate DUI processing Increased law enforcement training in SFSTs and checkpoint administration	64 video cameras 91 preliminary breath testers (which were later suspended due to legal considerations)
Pennsylvania	Approx 300 checkpoints	Approx. 360 mobile awareness patrols (cruising the streets with the sobriety checkpoint trailer)	Roving patrols – approximately 480 Underage drinking events – approximately 220	PDAs were purchased for use by the police for data entry. The extent of their use was not reported.
Tennessee	535 checkpoints Approx. 270 enforcement roadblocks	270 saturation patrols	Roving patrols – made 259 arrests Incentives for participation awarded to participating law enforcement agencies (radar, video cameras, etc.)	4 sobriety checkpoint vans with trailers purchased under prior grant (1994) were used.
Texas	None	Number not reported.	SFST training was increased. Selected agencies showed increases in annual DWI arrests from 5 percent to 3,000 percent.	Participating agencies provided with choice of in-vehicle video camera, PBTs, passive alcohol sensors, desktop computer, or an intoxilyzer.
Indiana	Conducted in 29 counties	3,805 patrol hours worked, with a total of 5,033 hours on grant including admin.	421 total DUI arrests reported for *You Drink & Drive, You Lose*, plus 150 misdemeanors and other alcohol offenses, and 26 open container citations.	None reported.
Michigan	None	1,122 saturation patrols. Routine patrol emphasizing DUI enforcement also used. Officers patrolled for 39,474 hours and conducted 59,906 vehicle traffic stops.	3,117 drivers arrested for operating under the influence of liquor; 1,291 other alcohol arrests (open container, possession, zero tolerance, etc.).	4 BATmobiles; 235 DataMasters (evidentiary testing), and 4,500 PBTs were used during the grant (already owned).

Table 2. Summary of State Public Information, Education, and Media Efforts

	Paid Media	Earned Media			
		Overview	**TV and Radio**	**Print**	**Billboards**
Georgia *You Drink & Drive. You Lose.* *Operation Zero Tolerance*	Paid radio: 173 stations played, with estimated 34,681,737 gross impressions. Targeted at teen drivers. Paid for by UPS.	PI&E campaign coordinated by Merx Communi-cations, under supervision of GOHS PI&E Coordinator.	Reported checkpoint coverage at least 108 times on television and 95 times on radio stations.	Sent out more than 2,000 press releases. At least 308 checkpoints reported newspaper coverage.	Seven billboards, bus stop information boards and theater slides, plus promotional items.
Louisiana *You Drink & Drive. You Lose*		Master plan constructed by group of public information officers in Spring of 2000. PIOs staged press conferences. Public relations firm – Rafael Bermudez and Associates, Inc. developed media strategy.	Produced three TV PSAs that were tested. Changes were made, and three 30-second TV and two radio PSAs were produced. In Nov. 2000, a third TV PSA (baseball player) was produced.	More than 500 newspaper clippings have been archived and more than 140 mentions of the program were made on TV news programs in Baton Rouge, Lafayette and Lake Charles.	
Pennsylvania *You Drink & Drive, You Lose*, *Please Step Away From Your Vehicle,* AND *Team DUI*		PI&E campaign done by public and media relations firm, Kelly Michener, Inc. Kickoff news conference, statewide mkedia tour, Traveling DUI Pledge, Team DUI PSA.		Generated 700 media hits during 15 months of project—majority through print media. Sent 100,000 bumper stickers to the public (not part of demo project) DUI billboards also used (not paid for under demo project)	
Tennessee		PI&E campaign, including a kickoff press conference, with local press releases sent before and after enforcement.	Two sets of TV and radio PSAs were produced.	Bathroom posters were prepared and distributed.	
Texas Media budget: $250,000 for paid and management of earned media.	Paid radio and print spots.	PI&E campaign coordinated by advertising firm (Sherry Matthews Advocacy Marketing).	Kickoff event with more than 1,000 flags to represent fatalities resulted in extensive coverage. Also gained	21- to 34-year-old male drivers	College football aerial banner. Coasters & window clings distributed through convenience stores,

	Paid Media	Earned Media			
		Overview	**TV and Radio**	**Print**	**Billboards**
			coverage for special events such as Fiesta, Texas State Fair, Spring Break.		restaurants.
Indiana Media budget: $375,000 for paid media:	Sample budget for second blitz: Radio: $45,246 TV & cable: $109,916 Outdoor: $26,790 News boxes: $5,000	Media buys done by Hiron and Co. Earned media gained an estimated 40 percent increase in free media coverage.	Used paid television and radio ads. Gained earned media coverage via PSAs on radio and TV.	21- to 34-year-old male drivers	Outdoor advertising and news boxes.
Michigan Media budget: $225,000	TV and Radio ads used for total market values exceeding $500,000	PI&E campaign coordinated by two media consultants: $75,000 budgeted from 403 funds mixed with 402 and 410 dollars. Advertising campaign coordinated by Ideology, Inc.	A minimum of 1,110 earned media spots combined with news conferences. Press releases with follow-up each time a saturation patrol was scheduled; at least 240 or more print stories.	18- to 34-year-old male drivers	None reported.

Summaries of Enforcement Efforts

Georgia

Sobriety checkpoints. The Georgia project implemented the most sobriety checkpoints of the five demonstration States permitting checkpoints. The procedures used in setting up and conducting checkpoints were reported to be consistent with NHTSA-recommended guidance and many of the checkpoints used passive alcohol sensors (PAS) when they were available. (As indicated in Table 1, 50 PAS instruments were purchased for this program). A large number of checkpoint reporting forms were completed by officers resulting in the following statistics:

- 2,837 sobriety checkpoints were conducted;
- More than 350,000 vehicles passed through these checkpoints with 280,082 of these vehicles stopped for driver evaluation;
- 2,322 arrests for DUI were made during checkpoint operations and of these
- 332 DUI arrests were made for motorists younger than age 21
- 89 habitual violators were arrested;
- 5,348 seatbelt violations were issued;
- 1,951 child restraint citations were issued;
- 7,239 uninsured motorists were cited;
- 412 fugitives were arrested; and
- 57 stolen vehicles were recovered.

Collecting Data on Enforcement Efforts

At all the sites, collecting data on enforcement efforts was a major undertaking. Because law enforcement agencies across Georgia participated in the program, standardizing the enforcement reporting requirements was critical. A one-page form was developed, distributed via e-mail to the RTENs, and then distributed to individual agencies. The officer in charge of each checkpoint completed the forms and faxed them back to the RTEN, which sent them to the Georgia Office of Highway Safety central office where they were compiled and forwarded to the evaluation team. The compiled report indicates that the numbers provided above were conservative, as many checkpoints may not have been reported and a few forms were improperly filled out or unreadable.

Table 3 provides additional information about checkpoint operations. A total of 2,837 checkpoints were conducted. The project was multi-jurisdictional, broken down into 16 RTENs. Three of the RTENS conducted 40 percent (1,129) of the checkpoints. The total hours of checkpoint enforcement were 5,002, with an average of 1.76 hours per checkpoint. The average number of vehicles passing through each checkpoint was 71, and an average of 56 vehicles were stopped per hour. Officers stopped 79 percent of the vehicles going through the checkpoints for a brief check. Of the 280,082 vehicles stopped at the checkpoint, 2,322 drivers (<1%), were arrested for DUI. Fourteen percent (332) of those arrested were younger than 21, and were arrested under the zero tolerance

law. (Georgia's zero tolerance law prohibits those younger than 21 from driving with BACs of .02 or higher.)

Table 3. Summary of Georgia Checkpoint Activity Data

Sobriety checkpoint information	Total
Total checkpoints	2,837
Total hours of operation	5,002.5
Avg. hours per checkpoint	1.76
Total vehicles through checkpoint	355,480
Avg. vehicles through per hour	71
Total vehicles stopped	280,082
Avg. vehicles stopped per hour	56
Ratio of vehicles stopped/through	.79
Total DUI arrests	2,322
Avg. DUI arrests per checkpoint	0.82
Avg. DUI arrests per vehicle stopped	0.01
Number of DUI arrests per 100,000 population	28.36
Total zero tolerance arrests	332
Proportion of DUI arrests that were zero tolerance arrests	0.14
Approximate average BAC of DUI arrestees	.08

(Source of Data: Georgia Final Report (Appendix G) to NHTSA, Targets of Opportunity: State Demonstration Program to Reduce Alcohol-Related Crashes, Sept. 2002)

Drivers were given citations for offenses other than DUI related. Table 4 illustrates the number of citations for traffic violations such as seatbelt, child restraint, uninsured motorist, and driving with a suspended license, as well as criminal arrests for illegal drugs, fugitive warrants, and stolen vehicles. The second column presents the citation / arrest rate per vehicles stopped. The third column in Table 6 provides the average number of the citation / violations for each category per checkpoint. A total of 12.66 violations per checkpoint was reported. This data indicates that a typical sobriety checkpoint can expect to yield five other-than-alcohol traffic arrests or citations, almost two safety belt citations, and two to three uninsured motorist citations.

Table 4. Georgia Checkpoint Arrests and Citations: Rates per Vehicle And Average per Sobriety Checkpoint

		Total Number of Vehicles Passing Through Checkpoints	Total Number of Checkpoints
Number		355,480	2,837
Checkpoint arrests and citations	**Total**	**Citation/arrest rate per 10,000 vehicles passing though checkpoint**	**Average violations per checkpoint**
DUI arrests	2,322	65	0.82
Seatbelt violations	5,348	150	1.89
Child restraint citations	1,951	55	0.69
Suspended/revoked licenses	2,481	70	0.87
Uninsured motorists	7,239	204	2.55
Drug arrests	1,001	28	0.35
Habitual violators	89	3	0.03
Fugitives arrested	412	12	0.15
Other felony arrests	236	7	0.08
Other traffic arrests/citations	14,776	416	5.21
Stolen vehicles recovered	57	2	0.02
Average number of violations per checkpoint			12.66

Louisiana

Sobriety checkpoints. State police conducted checkpoints in five of the nine State police troop areas throughout the State. The data are from just the parishes where the program was implemented. The New Orleans Police Department and several other sheriff and local enforcement agencies also conducted checkpoints. More than 80,000 vehicles passed through those checkpoints, and more than 20,000 drivers were evaluated. It was reported that 120 DUI arrests resulted from the checkpoints (see Table 5).

Saturation patrols. During the 15-month period, 217 saturation patrols were performed in the 16 project parishes. Patrols were planned to take place from 10 p.m. to 4 a.m. on Thursdays, Fridays, Saturdays, and Sundays but were adjusted as need arose. Along with the Louisiana State Police(LSP), sheriffs and municipal enforcement agencies were involved in a coordinated effort to conduct patrols during the 60 weekends. Dates and times of saturation patrols were reported through the local media. Information on the number of arrests including alcohol-related arrests is unknown.

Table 5. Enforcement in Louisiana

Effort	Number*
Saturation patrols	217
Checkpoints	Total unknown
Vehicles through Checkpoints	80,000
Drivers Evaluated at Checkpoints	20,000
Checkpoint DUI Arrests	120

*Numbers are approximate.

Police training. Grant funds allowed increases in DWI training at the LSP Training Academy, including two DRE training classes (25 graduates), NHTSA training of SFST instructors (36 attendees), DWI investigator training courses (299 officers and 9 prosecutors), and a 1-day training on how to conduct sobriety checkpoints. In addition, 1,000 SFST training manuals were purchased, with 620 being distributed, and 6,000 DWI Investigator Pocket Manuals were also distributed.

Legislative changes. In Louisiana, sobriety checkpoints became legal halfway through the project, and 91 PBT devices were purchased. However, in March 2002, PBT use was suspended by the Department of Public Safety Office of Legal Affairs, due to concerns that the courts would require (a) documentation that the devices were calibrated before use, (b) properly trained troopers had used them, and (c) proof that the required monthly maintenance of the devices was being followed.

Pennsylvania

Enforcement efforts. According to the Pennsylvania final report, this demonstration project generated a total of 1,380 events beyond what the 29 law enforcement agencies would typically perform (Table 6).

Table 6. Enforcement in Pennsylvania

Effort	Number*
Checkpoints (half full-sized, half small-scale)	300
Mobile awareness patrols	360
Roving patrols	480
Underage drinking events (e.g., *Cops in Shops*)	220
Total	1,380

*Numbers are approximate.

Mobile patrols were saturation patrols. In mobile awareness patrols, agencies parked clearly marked DUI patrol vehicles (i.e., police cars with DUI patrol painted on the vehicle) and BATmobiles in high traffic areas to increase public awareness—something like a moving billboard. Underage drinking events included *Cops in Shops* events where undercover police served as clerks in alcohol outlets to detect attempts to purchase alcohol by underage patrons. Special patrols to strategically break up and arrest violators at underage drinking parties also were frequently used.

It was estimated that approximately 850,000 vehicles were affected as part of the increased enforcement campaign. The majority of these vehicles (82%) passed within easy viewing distance of the 360 mobile awareness events held during the campaign. The remaining vehicles were exposed to DUI checkpoints (17%) and the roving patrols (1%).

These enforcement efforts yielded 4,240 arrests of which 2,086 (49%) were for DUI. The Federal funding leveraged an average of 1.4 DUI arrests per event. Of the 814 DUI arrests made at checkpoints, 56 percent were made at full-sized checkpoints. Of the 487 underage drinking arrests, 57 percent were made by roving patrols with the remainder occurring at checkpoints. In addition to arrests, approximately 7,500 warnings and more than 5,000 citations were issued.

To facilitate field report writing, PENNDOT funded the development of handheld electronic devices so that arrest reports could be completed in the field on a Palm III and then uploaded to a personal computer back in the office. This data could then be e-mailed to PENNDOT for statistical analysis. The Palm III reports provided data such as numbers of enforcement activities and the number and types of arrests generated by project activities.

In Pennsylvania, checkpoints identified impaired drivers with average BACs 11 percent lower than the roving patrols. This is as expected because checkpoints systematically allow officers to detect all drinking drivers, including lower BAC drivers, whereas roving patrols only stop vehicles when a driver is suspected of being under the influence of alcohol due to obvious high-BAC behavior such as weaving, going too slow, and running off the road.

Tennessee

Enforcement efforts. The program conducted 535 sobriety checkpoints, 270 enforcement roadblocks (where police check driver licenses, vehicle registrations, and vehicle safety equipment in addition to the sobriety of the driver), and approximately 270 saturation and roving patrols. In the *Checkpoint Tennessee* program, administrators found that in some cases bartenders suggested to bar patrons that they use alternative routes to avoid the checkpoints. Because of this, saturation patrols were added in which law enforcement officers were dispatched to these alternative routes to patrol for drinking drivers. An additional 34,927 hours of traditional roving patrols were performed. DUI arrests are shown in Table 7. Initially, it was intended that the State would be divided into four regions. One region was to conduct only checkpoints, one was to conduct checkpoints supplemented by roving patrols, a third was to conduct only saturation patrols, and the fourth was intended to continue normal operations and serve as a control. However, this plan was not strictly adhered to and the data were analyzed on a statewide basis.

Table 7. DUI Arrests in Tennessee

Effort	Number
DUI arrests – checkpoints	142
DUI arrests – roving patrols	295
DUI arrests – saturation patrols	33*

*Only operating during first 8 months.

Texas

TxDOT used the 403 demonstration funding to stimulate DWI enforcement activity in smaller agencies that were not receiving Federal 402 funding for alcohol-related enforcement through the STEP from TxDOT. The strategy was to build interest and capacity in DWI enforcement in these smaller law enforcement organizations. Because checkpoints are illegal in Texas, a significant part of the demonstration project activities involved the use of saturation patrols.

In the 14 target counties, larger police agencies were funded and participated in the 402 STEP programs. DWI activities for the larger agencies (under the 402 STEP program) and the smaller agencies (under the NHTSA demonstration) were conducted during the same period in 2001. Enforcement activities in the larger police agencies yielded 38,645 arrests for DWI and other crimes and, in the smaller agencies, 5,218 arrests for DWI and other crimes. So the STEP enforcement activities clearly outweighed the demonstration funded enforcement efforts with the smaller

agencies. However, the grant's capacity building was expected to have long-term effects in DWI enforcement, and the data indicate an increase in DWI enforcement activities and arrests in those communities.

Specific enforcement data was collected from the agencies participating in the program. This data was also collected for each agency for the four years preceding the demonstration project, which began in July 2000. Based on the information received, the project facilitated a significant increase in average monthly rates for the requested measurements of enforcement activity. Table 8 summarizes this data.

Table 8. Texas Average Monthly Rates of Fatalities and DUI Arrests By Year in the 14 Intervention Counties

		Drivers killed	Nondrivers killed	DWI arrests (21 and older)	DWI arrests (20 and younger)	DWI arrests (age not known)	Total arrests (DWI and other alcohol-related)	Total citations
Average monthly rates	1996	1.3	1.1	322	20	1	2,046	16,784
	1997	1.4	0.3	303	23	3	2,175	19,843
	1998	1.3	0.4	345	28	14	2,545	22,676
	1999	2.2	1.4	370	41	34	2,976	26,213
	2000*	0.8	1.2	450	37	46	4,646	29,235
	2001	1.4	0.8	504	44	65	5,218	38,465

*Note: The 2000 data was only collected from July through December. To provide a more accurate comparison, the monthly average of drivers killed was 0.6, and the rate for nondrivers was 0.4 for the same period in 2001. Other alcohol-related arrests included zero tolerance and other underage drinking violations.

It is apparent that the participating agencies, on average, increased their attention to DWI and demonstrated their dedication through a substantial increase in citations and arrests during the project period. This targeted deployment of enforcement, combined with the media and equipment support provided by the demonstration project, allowed the selected local agencies to apply more emphasis to the DWI problem.

Table 9 highlights selected communities from the 14 counties that were included in the demonstration project. Each of these agencies received equipment and committed to use saturation patrols as part of their DWI enforcement strategy. These communities also benefited from the media campaign, which covered all 14 counties through major media markets such as Dallas-Fort Worth, Houston, Austin, and San Antonio. These cities represent a cross-section of communities that participated in the project and illustrate the results from this approach to the DWI problem.

Table 9. Annual DWI Arrests for Selected Communities Participating in The Project in Texas

			DWI Arrests		
Community	County	Population	1999	2001	% Change
Angleton	Brazoria	18,130	123	129	+5%
Argyle	Denton	2,365	16	31	+94%
Conroe	Montgomery	36,811	28	154	+450%
Lancaster	Dallas	25,894	8	13	+63%
Mustang Ridge	Travis	785	23	10	-57%
Palmview	Hildalgo	4,107	99	173	+75%
Panorama	Montgomery	1,965	9	25	+178%
Parker	Collin	1,379	4	38	+850%
Rancho Viejo	Cameron	1,754	5	34	+580%
Ransom Canyon	Lubbock	1,011	1	11	+1000%
Selma	Bexar	788	45	76	+69%
Tomball	Harris	9,089	178	237	+33%
West	McLennan	2,692	12	123	+925%
Westworth Village	Tarrant	2,124	1	31	+3000%
Wylie	Collin	15,132	44	76	+73%
Totals			596	1161	

Equipment as Incentives

Equipment specifically dedicated to DWI enforcement was provided to agencies requesting it. This equipment benefited those agencies in two ways: (1) it helped to document the evidence during all three phases of DWI enforcement, and (2) it improved the officers' morale and motivation related to DWI enforcement by adequately equipping them to enforce the State's DWI laws. After committing to enhance enforcement and specific data collection requests, participating agencies selected items from a list of approved equipment. Table 10 summarizes the equipment purchased under this program for participating agencies.

Table 10. Summary of the Equipment Purchases in the Texas Project

Item description	Qty	Unit price	Total cost
PBTs	10	$620	$6,200
In-car video cameras	39	$1,850	$72,150
VCRs	6	$200	$1,200
Desktop computers	9	$1,050	$9,450
Printers	8	$300	$2,400
Mobile (in-vehicle) laptops	10	$3,860	$38,600
Intoxilyzer units	2	$6,445	$12,890
Total equipment expenditure			$142,890

It was reported that most agencies viewed participation in the demonstration project as a way to enhance and focus their current enforcement efforts and to improve the efficiency of the DWI enforcement processes.

Indiana

To qualify for any type of demonstration program funding, law enforcement agencies in Indiana were required to participate in the "Operation Pull Over" (OPO) program. Funding for the enforcement program paid for overtime to conduct traffic patrols, saturation patrols, and sobriety checkpoints, and for traffic enforcement equipment. Each participating agency was required to be certified in SFST. Twenty-nine counties conducted sobriety checkpoint operations during the project.

Quarterly meetings were held with task force commanders to inform participants about their enforcement results, problems, program highlights, public information efforts, and emerging or potential problems. LELs were in continuous contact with their law enforcement network. Monthly meetings were held with LELs to discuss strategies, problems, and solutions, and to generally report on activities of each law enforcement department.

The Indiana DUI Task Force's (OPO's) reported enforcement data is shown in Table 11. The companion data is listed in the column labeled YD&DYL.

Table 11. Indiana DUI Task Force Program Statistics

	FY2001	ISP	FY2002	ISP	FY2003	ISP	YD&DYL	FY2004	ISP	TOTALS
Misdemeanor and/or DUI adult	1,183	214	3,453	768	2,560	715	356	905	142	10,296
Felony DUI adult			548		411		65	151		1,175
Misdemeanor DUI minor			138		99					237
Felony DUI minor			1		2					3
Total DUI arrests	1,183	214	4,132	768	3,072	715	421	1,056	142	11,703
Misdemeanor other alcohol	299		2,606		2,171	368	160	437	76	6,117
Felony other alcohol			3		4					7
Open container arrest			243		230	52	26	67	8	618
Criminal felony/arrests	1,482		3,028	1,163	1,891	1,310			259	9,133
Seat belt/child restraint citations			2,220	2,327	1,031	1,747	292	285	185	8,087
All warnings			17,780	7,446	14,407	7,489		5,349	1,695	54,166
All citations			14,787		7,745		5,765	4,557		32,854
Hours worked		2,198	2,955	6,404	21,723	6,914	5,033	5,719	1,431	48,748
Admin hours			1,150		1,275		207	280		2,912
Physical arrest hours			8,399		7,515		1,021	2,170		19,106
Patrol hours	5,018		20,000		12,943		3,805	3,805		45,054
1 DUI arrest every _ hours	4.24		4.84		4.21		9.29	3.42		5.20
Vehicle stops			36,278		26,816			7,530		70,624
Contacts per hour			1.81		2.07		1.50	2.47		1.96
PI & E			2,273		960			618		3,851
SFST done			5,421		4,606			1,487		11,514
PBT done			5,481		2,884	3,634		1,832	744	13,831
<.10 arrests	79		518		290					887
Breath tests refused			607		495	177		360	18	1,639
DRE done			86		12			33		131
DUI crashes			278		181					459

*Source: Indiana 2003 Highway Safety Annual Report. **Fractions rounded to whole numbers. ISP: Indiana State Police. YD&DYL: You Drink and Drive, You Lose.

Michigan

Geographically, enforcement agencies participating in the project covered approximately 80 to 85 percent of the State, so for evaluation purposes the entire State of Michigan was used. Nineteen of Michigan's 83 counties, the city of Detroit, and nearly 90 other enforcement agencies participated in the campaign. All enforcement efforts were conducted as saturation patrols as Michigan is precluded

from conducting sobriety checkpoints by statute. Enforcement efforts were conducted throughout the operational phase of this demonstration but the intensity was increased during the three mobilization (blitz) periods. Continuous enforcement was championed, with at least one agency conducting DUI enforcement for every weekend of the implementation period.

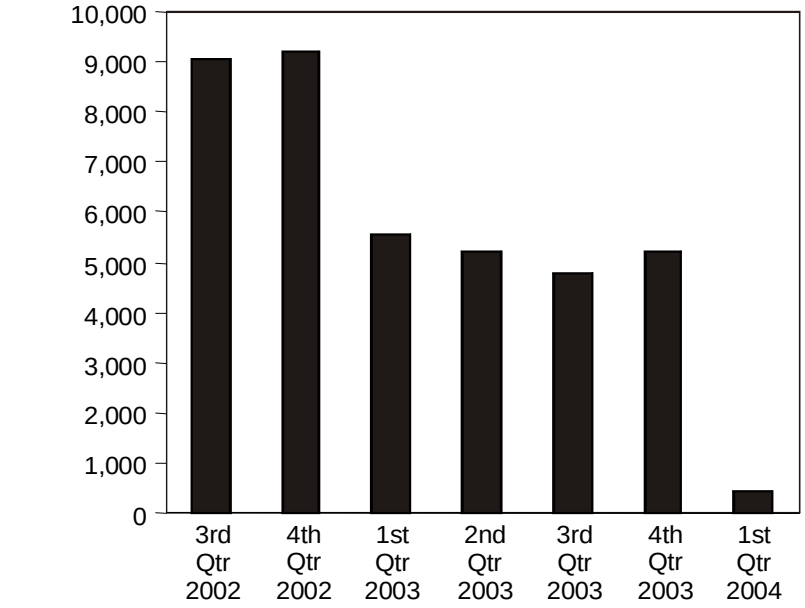
Saturation patrols were the cornerstone of this project. Often multiple agencies cooperated in the saturation enforcement effort. Saturation patrols were deployed in areas where DWI drivers were most likely to be detected (i.e., close proximity to popular bars, sporting events, and other locations where alcohol was likely to be over-consumed). These patrols were documented and reported to the LEL after each deployment. Table 12 presents a summary of Michigan's saturation patrol enforcement efforts**.**

Table 12. Michigan 403 Alcohol Demonstration Project Enforcement Data

	FY 2002			FY 2003					FY 2004	
Enforcement data	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	Total
Patrol hours	9,072	9,199	18,271	5,524	5,229	4,781	5,236	20,770	433	39,474
Traffic stops	11,684	15,894	27,578	9,004	7,715	7,336	7,682	31,737	591	59,906
Saturation patrols	256	450	706	88	59	102	145	394	22	1,122
Number of agencies	144	159	159	94	81	83	97	97	41	N/A
403 OUIL (DUI) arrests	694	830	1,524	432	330	395	401	1,558	35	3,117
OUIL (DUI) arrests entire State	10,288	14,072	24,360	12,904	14,481	14,216	9,460	51,061	N/A	75,421
Average BAC of arrestees statewide	0.15	0.15	0.15	0.16	0.16	0.15	0.15	0.155	0.15	
Seat belt citations	957	1,477	2,434	1,066	1,012	810	532	3,422	50	5,904
Other citations	5,683	7,301	12,984	5,449	3,996	3,380	3,409	16,234	338	29,556
Contacts per patrol hour	1.79	1.87	1.83	1.89	1.87	1.92	1.75	1.85	1.005	
Other alcohol-related arrests	219	533	752	22	178	142	185	527	12	1,291

Source: Michigan 403 Alcohol Demonstration Project Activity and Data Collection Evaluation Sheet.

Selected elements of the enforcement program are presented in Figures 9, 10, and 11. Figure 9 presents the number of patrol hours by quarter; Figure 10, the number of saturation patrols by quarter; and Figure 11, the number of DUI (OUIL) arrests attributable to demonstration funding by quarter. It can be seen that the total number of patrol hours declined over time.



	3rd Qtr 2002	4th Qtr 2002	1st Qtr 2003	2nd Qtr 2003	3rd Qtr 2003	4th Qtr 2003	1st Qtr 2004
Patrol Hours	9,072	9,199	5,524	5,229	4,781	5,236	433

Figure 9. Michigan Project Patrol Hours by Quarter

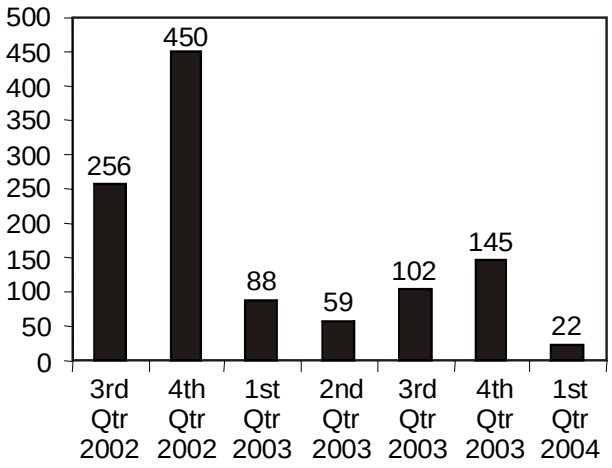


Figure 10. Michigan Project Saturation Patrols by Quarter

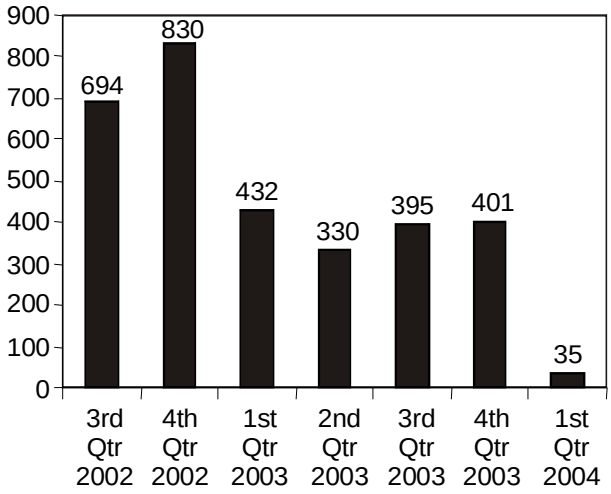


Figure 11. Michigan Project Number of DUI Arrests by Quarter

The total number of DUI arrests attributed to the demonstration and evaluation program was 3,117.

Equipment

Michigan used its existing DUI equipment in the performance of this demonstration and evaluation program. Statewide agencies operate approximately 235 Datamaster evidentiary breath-testing devices and 4,500 PBTs. Four BATmobiles were also used during the project and reportedly garnered as much, if not more, media and public awareness than the enforcement efforts. The vans are housed at the Holland, Marquette, and Lansing police departments and the Monroe County Sheriff's Department. Even though sobriety checkpoints were not permitted in Michigan, the BATmobiles facilitated BAC processing in high-BAC arrest areas and on high-arrest evenings. These customized vans allowed centralized, onsite processing of drunk drivers when multiple law enforcement agencies were conducting alcohol enforcement saturation patrols. The use of these BATmobiles reduced transport time and permitted officers to return to the road more quickly.

Media Campaigns

Georgia

- *Radio PSAs.* Mid-program **radio spots** were targeted at the teen driving population with the timeframe coinciding with prom and graduation seasons. Radio time was purchased on contemporary and urban stations, based on audience size and reach. These were paid for by UPS.
- *Billboards* were sponsored by Liberty Mutual Insurance and UPS. Of the seven billboards, the five in Atlanta were seen by an estimated 615,600 people, and the two in Savannah were seen by an estimated 46,500.
- *Bus shelter posters.* 20 displayed in the metro Atlanta area for 2 months were seen by an estimated 423,200.
- *Theater slides.* 237 theater slides displayed in fall 2000 in Atlanta, Augusta, and Macon were viewed by 3,480,000 moviegoers (sponsored by UPS; 8 to 10 seconds long).
- *Brochures.* 500,000 bilingual brochures were distributed compliments of Coca-Cola.
- *Television PSAs were NOT used, either as paid or earned media.*

Louisiana

- *Earned media.* Rafael Bermudez and Associates, Inc., developed a news media strategy in which it targeted Louisiana's seven major media markets (entire State). PIOs from the participating law enforcement agencies staged press conferences. The State police provided for 61 ride-along opportunities, inviting the news media, judges, district attorneys, and legislators. PSAs were delivered in person by respective State police PIOs. There was no record of how successful this effort was because it is very difficult to track PSA placement. However, it is known that more than 500 newspaper clippings were archived, and more than 140 mentions of the program were made on TV news programs in Baton Rouge, Lafayette, and Lake Charles.
- *PSAs target 18- to 24-year-old drivers.* Focus groups were conducted to design ads to appeal to 18- to 24-year-old drivers. The consensus was that drivers 18 to 24 would more likely listen to someone their own age who had caused an alcohol-related fatality. They found two people willing to be interviewed on camera. They also produced three PSAs, which were tested. Changes were made, and three 30-second TV and two radio PSAs were produced.
- *PSAs target baseball career ended.* In November 2000, a TV PSA was produced featuring a young Baton Rouge resident who was the victim of an alcohol-related crash. He was offered a baseball scholarship to University of Southwest Louisiana, but he became a quadriplegic after being broadsided by a drunk driver.
- *Billboards* were developed to inform drivers about the in-car video cameras.
- *Brochures* explained the consequences of each DWI conviction and DWI fatality.

Pennsylvania

Media kit. Pennsylvania developed a "Team DUI" media kit that was distributed to each of the projects for use during the program's 15-month operational phase. The media kit included fill in-the-blank press releases and media alerts, promotional how-to kits, and suggested activities. Each geographic project was encouraged to use the kits as they saw fit. The DUI project coordinators attended a media training session to prepare for interviews and other interactions with the media.

- *Logo.* The logo *Please Step Away From Your Vehicle* was used to emphasize the consequences of a DUI charge.
- *Statewide media events* were conducted during the project including a kickoff news conference, statewide media tour for Alcohol Awareness Month, one-year anniversary news conference, Traveling DUI Pledge, and TEAM DUI television PSA.
- *Halloween campaign.* Based on statistics showing that Halloween has higher vehicle fatalities than New Year's Eve, Kelly Michener, Inc., developed a campaign with the slogan, *Halloween Just Got Scarier*, urging people not to drink and drive. This campaign was the largest media blitz of the project, with press releases and PSAs sent to newspapers, radio stations, and TV stations across the State, including Philadelphia, Pittsburgh, Reading, State College, Altoona, Erie, and Lansdale.
- *Media tour.* A media tour was conducted in which the local press, interviewed representatives from PENNDOT, local law enforcement officers, and NHTSA.
- *Legal issues and checkpoint promotion.* During the project, a lawsuit challenged the constitutionality of checkpoints in Pennsylvania. Because of this, an "issues management plan" was developed to redirect attention to the key DUI messages. A decision, favorable to checkpoints, was handed down by the court on March 26, 2001. The public was quickly informed via press releases, which were developed before the ruling.
- *Media hits* were not fully counted due to the cost of obtaining those data. Therefore, the media outcome is thought to be undercounted, especially in radio and television.

Tennessee

- *Press conference.* A kickoff press conference was held to announce and explain the program. The initial set of TV and radio PSAs were shown. Numerous high-level officials and stakeholders (e.g., MADD) were present at the kickoff conference. The theme of the initial PSAs was the consequences of DUI such as injury and jail. Midway through the project, a second set of PSAs was developed that focused more directly on enforcement. Posters reflecting those themes were prepared and displayed in bathrooms at sports venues, bars, and restaurants.
- *News media notifications.* The news media were notified of the date and time of each enforcement event but not the exact location. After each event, press releases were sent out describing the resulting arrests.
- *Use of Celebrities.* Celebrities were used as spokespeople whenever possible. Corporate sponsors were used for outdoor advertising and print ads.

Texas

One of the greatest challenges of the targeted media campaign for the demonstration project in Texas was its more than 20 media markets. Five of those markets are considered major (Houston, Dallas-Fort Worth, Austin, San Antonio, and El Paso), and two (Houston and Dallas-Fort Worth) are among the top 10 major media markets in the United States. The size of these markets required a significant expenditure to saturate the target audience—males 18 to 34—with a specific message. Although the project's focus was narrowed to 14 counties, four of the major media markets are located in those counties (Houston, Dallas-Fort Worth, Austin, and San Antonio). This number of media markets diluted the media impact and the project's ability to inundate the public's awareness.

The Texas PI&E program used several techniques to publicize the demonstration project effort. To use the funding earmarked for public education and administration, the media contractor (Sherry Matthews Advocacy Marketing) designated a portion of the funding to supplement the existing *You Drink & Drive, You Lose* media campaign in the 14 targeted counties.

The major media event that set the project in motion was held in a park adjacent to the Texas State Capitol in Austin. More than a thousand flags, representing citizens killed in alcohol-related crashes during the previous year, filled the hillside as a solemn reminder of the DWI toll on the community. This kickoff event illustrated the fatality statistic, which is usually discussed as a total number of fatalities, in terms of individuals lost in alcohol-related crashes (similar to putting faces on the numbers).

In addition to supplementing the existing media campaign, the PI&E had the following objectives:

- Educate the public about the concept of impairment through two unique radio spots.
- Communicate in Spanish (in radio and print) and use unique outreach methods to specifically target Hispanic communities.
- Use promotional events in conjunction with holiday periods to highlight the impaired-driving issue.
- Use large venues, such as college football games, to communicate the impaired-driving message to the target group of males aged 18 to 34.
- Join with restaurant and convenience store associations to promote the *You Drink & Drive, You Lose* message to their market sectors.
- Collaborate with the Texas Alcoholic Beverage Commission.
- In addition to the kickoff event, use media outreach to spotlight Fiesta in San Antonio, Spring Break in South Padre Island, and other designated holidays throughout the project.

To effectively use funds designated for the media portion of this project, Texas built upon existing, successful campaigns and developed project-specific themes and delivery methods to enhance the primary national message, *You Drink & Drive, You Lose*, and the Texas-specific campaign, "Drink, Drive, Go to Jail." To help deliver the demonstration project's message to the

target audience (males 18 to 34 in the designated counties), TxDOT formed partnerships with several statewide organizations. The organizations providing the most significant support follow:

- Texas Department of Transportation;
- Texas Engineering Extension Service;
- Sherry Matthews Advocacy Marketing;
- Texas Petroleum Marketers and Convenience Store Association;
- Texas Alcoholic Beverage Commission;
- Texas Restaurant Association;
- Texas Police Chiefs Association;
- Mothers Against Drunk Driving; and
- Public Strategies, Inc.

The overall media effort for this project cost $250,000. Most of the media effort was used to intensify the PI&E coverage in the 14 target counties. Sherry Matthews Advocacy Marketing, the media contractor, worked with local television, radio, and print media to introduce earned media to enhance the paid marketing campaign. Paid radio and print media were the primary sources of delivery for the demonstration project. The media contractor also worked to provide earned media opportunities related to the statewide kickoff event in Austin before the Fourth of July holiday period in 2000. Many interviews, as well as television, radio, and print coverage, resulted from that single event. Afterwards, the media consultants worked with local media representatives to cover equipment deliveries and special enforcement initiatives such as holiday saturation patrols and special events specific to the local communities (e.g., Fiesta in San Antonio, Texas State Fair in Dallas, Spring Break in South Texas).

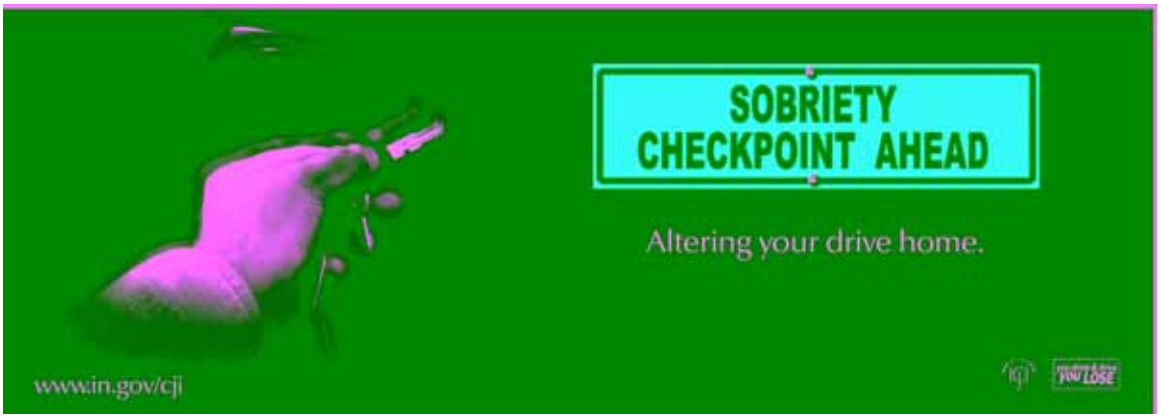
The media contractor also used an aerial banner for outdoor advertising at the annual Thanksgiving weekend University of Texas / Texas A&M University football game. Estimated attendance at the game exceeded 80,000 people; game coverage combined with the exposure in surrounding communities allowed an extended maximum reach beyond the stadium for less than $500.

During the Christmas holiday period, the media group used coasters and window clings to supplement other media efforts in the 14 counties. The coasters and clings were distributed through the Texas Petroleum Marketers and Convenience Store Association, Texas Alcoholic Beverage Commission, and the Texas Restaurant Association to their member organizations. The slogan on these items was “Santa Claus is Coming to Town—Please Don’t Hit Him” with subscript messages of “Drink, Drive, Go to Jail” and “Save a Life.” This campaign was distributed in both Spanish and English. The campaign was well supported across the State by the general public, advocacy groups, establishments, law enforcement, and traffic safety personnel.

During the other enforcement periods, the primary media message was supplemented with a new, innovative impairment message. To communicate the impairing effect alcohol can have on drivers, the media contractor created two new radio spots and combined humor with critical impairment information. One of the spots was translated into Spanish and was broadcast in counties

with large Hispanic populations. Based on the feedback from the media company's focus group review, the other radio spot was not converted into Spanish because the message did not communicate as effectively. According to the reach and frequency reports, both radio spots received positive feedback from focus group testing and also received significant airplay.

Indiana



Indiana's media outreach program targeted the 21 to 34 age group, with an emphasis on reaching males. Indiana's project budget for paid media was $375,000, which was approximately 11 percent of the State's total communications budget. A media coordinator was hired to handle media purchases.

Two major media and enforcement blitzes were held. One was completed during the holiday season: December 19, 2002, through January 1, 2003. The second blitz was held around the Fourth of July: June 23 – July 13, 2003. Media was purchased for 2-week runs.

Enforcement with media coverage occurred in 29 of the 92 counties. For the first media blitz, the following locations were specifically targeted: Indianapolis, Terre Haute, Fort Wayne, South Bend, northwest Indiana (Valparaiso, La Porte, Michigan City), Lafayette, and Columbus / Southeast Indiana

Hirons & Company (media consultant) conducted a post-analysis of the first blitz between December 19, 2002, and January 1, 2003, and a second blitz from June 23, 2003 through July 13, 2003. The results of their post-analyses for these two periods are shown in Tables 13 and 14.

Table 13. Indiana Paid and Earned Media Actual Costs: DUI Blitz
December 19, 2002 – January 1, 2003

Media	Actual placement costs	Total spots	GRP total	Reach	Frequency	Impressions	Earned value	Total market value
TV/cable	$44,643.44	1,770	2404.40	40.7%	6.9	2,042,300	$11,647.49	$56,290.93
Radio	$108,676.95	3,204	1,626.9	73.95%	22	1,162,725	$34,081.23	$142,758.18
Out-of-home	$32,332.90	77	5,323.12	88.9%	25	9,971,705	$29,092.90	$61,425.80
Total	$185,653.29						$74,821.62	$260,474.91

Source: Postanalysis "DUI Blitz 3"summary prepared by Hirons & Company, May 26, 2003.

**Table 14. Indiana Paid and Earned Media Actual Costs: DUI Blitz
June 23, 2003 – July 13, 2003**

Media	Actual placement costs	Total spots	GRP total	Reach	Frequency	Impressions	Earned value	Total market value
TV/cable	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Radio	$130,264.00	5,107	7,058.3	18.6%	8.2	7,136,100	$23,397.68	$153,661.68
Out-of-home	$80,806.00	390		88.5%	26.4	32,975,430	$34,257.00	$115,063.00
Total	$211,070.00						$57,654.68	$268,724.68

Source: Postanalysis "DUI Blitz 3" summary prepared by Hirons & Company, May 26, 2003.

The media blitz strategy covered the entire State of Indiana with special regional focus on Indianapolis, Evansville, Terre Haute, Fort Wayne, Lake County, South Bend, and Jeffersonville. This media strategy did not include TV/cable placement costs. During the second blitz, a mix of radio, outdoor, and news boxes were used to target the chosen population of young adults 21 to 34, while targeting males. Outdoor boards were placed on secondary roads where sobriety checkpoints could potentially operate. Posters were concentrated in the counties identified as participants in the "sobriety checkpoint ahead" effort. Earned media was approximately 27 percent of the total market value-- $268,724.68.

The project also included numerous pamphlets and brochures for distribution during workshops, public events, and social gatherings. These print media items provided a balance with the electronic media efforts. Billboards, posters, and other PI&E paraphernalia were available to advocacy groups and the general public.

Paid media for the two blitzes amounted to $396,723, slightly exceeding the budgetary appropriation of $375,000.

Michigan

The OHSP used two public relations firms during the project. First, the firm of Brogan & Partners, Convergence Marketing, of Detroit, Michigan, was retained from October 2001 through September 2002 and IDEAology Ink from October 2002 to September 2003.

The Michigan OHSP combined paid media with an intense focus on gaining earned media in this project. In October 2002, IDEAology Ink created a process for media flow. This process permitted coordination of the operating under the influence of liquor (OUIL) enforcement dates with media at local levels. Local enforcement usually coincided with local events to keep the media interest high.

The turnaround time for press releases was 24 hours. Any problems regarding the media were identified and corrected quickly, as the coordinator would call the local enforcement agencies and/or media directly.

Michigan adopted the NHTSA theme and logo *You Drink & Drive, You Lose* for their project campaign. Michigan targeted its radio and television spots to their audience as follows:

- *Radio spots.* Radio spots targeted male drivers aged 18 to 34. These were aired over major and minor media markets throughout the project but were more commonly aired during the three mobilization periods. Radio time was purchased on contemporary and urban stations based on audience size and reach.
- *Television spots (including cable).* Television spots also targeted male drivers 18 to 34.

Tables 15 and 16 provided by the Michigan OHSP summarize the media efforts and costs during the 403 demonstration project.

Table 15. Michigan Paid and Earned Media Costs, GRP, Reach Frequency: December 2002

Media	Actual placement costs	Total spots	GRP total for 8 markets	Reach	Frequency	Earned value	Total market value
TV*	$133,216	474	N/A	N/A	N/A	$17,200	$150,416
Cable	$48,355	829	N/A	N/A	N/A	$12,700	$61,055
Radio	$42,843	1,498	197 thru 372	43% - 62%	4.1 – 7.2	$17,859	$60,702
Totals	$224,414	2,801				$47,759	$272,173

Source: Michigan 403 Grant DUI Enforcement and Media: Final Report, and Michigan Office of Highway Safety Planning (media consultants).

*Funding for TV ($133,216) provided from other sources such as 410 grants

Table 16. Michigan Paid and Earned Media Costs, GRP, Reach Frequency: July 2003

Media	Actual placement costs	Total spots	GRP total for 6-8 markets	Reach	Frequency	Earned value	Total market value
TV	$147,338	642	250 thru 286 [6 mkts]	77% - 87%	3 - 3.5	$10,550	$157,888
Radio	$68,167	2,124	153 thru 415 (most between 308 and 385)[8 mkts]	26% - 57%	5.6 – 9.1	$40,500	$108,667
Totals	$215,505	$2,766				$51,050	$266,555

Source: Michigan 403 Grant DUI Enforcement and Media: Final Report, and Michigan Office of Highway Safety Planning (media consultants).

Community Involvement

The demonstration project had substantial community involvement. This included the assistance of 20 county coordinators and local LELs to communicate with community stakeholders. Some partnering organizations—MADD, SADD, Safe Communities, local businesses, the judiciary, and large and small media outlets—assisted the OHSP in delivering the OUIL message to drivers.

Methods

Telephone Surveys

Telephone surveys of a random sample of the driving population were conducted in five (Georgia, Louisiana, Pennsylvania, Tennessee and Texas) of the seven States by Shulman, Ronca & Bucuvalas under a separate contract to NHTSA. The objective of each survey effort was to determine the extent to which the alcohol enforcement programs affect the awareness, attitudes, and self-reported drinking-and-driving behavior of motorists. Each survey was conducted among a random sample of 1,000 drivers. The same methodology was used in each State and in each wave of the survey. The surveys were conducted in the jurisdictions within each State where the demonstration programs were implemented. For example, in Georgia the surveys were conducted statewide, whereas in Pennsylvania, surveys were conducted in the 14 counties participating in the demonstration program. Surveys were conducted in three waves. A baseline survey of drivers was conducted prior to the implementation of the programs. Midway through the program effort, a second survey was conducted between January 18 and February 11, 2001. The Tennessee program actually started later in 2000, so the midpoint survey was not quite midpoint. Approximately one year after the initial interviewing, a final wave of interviewing took place. Texas survey respondents were drawn from the 14 targeted counties. See Appendix A for the survey instrument.

No telephone surveys of awareness or drinking-and-driving behavior were conducted in Indiana. Two telephone surveys were conducted in Michigan by Epic-MRA of 300 respondents from the general population during the project period (December 2002 and January 2004). The survey oversampled the target population, which was young men 21 to 34.

Fatal Crashes

An analysis of each of the seven State programs was conducted using the same basic technique (an interrupted time-series analysis of drinking-driver and non-drinking-driver fatal crashes) so that test results would be comparable between evaluations (Box & Jenkins, 1976). This methodology has been used in other published evaluations of alcohol safety programs (Voas, Tippetts, & Fell, 2000, 2003). For States implementing statewide programs, statewide data from the Fatality Analysis Reporting System (FARS) were analyzed. For States implementing programs in selected areas of the State, the targeted jurisdictions were analyzed. This interrupted time-series analysis provided a more valid basis to compare results among programs and obviated some of the methodological issues, such as regression to the mean, which simple before-and-after designs do not address as well.

The FARS is a national dataset, administered by NHTSA's National Center for Statistics and Analysis (NCSA, 2003), of fatal traffic crashes. The FARS contains more than 100 data elements that characterize the crash, the vehicle, and the people involved.

FARS data from 1987 to 2003 was aggregated into 102 bimonthly totals for each State (FARS data for 2004 was added for Indiana and Michigan). This was done separately for three measures:

- Involved drivers measured or imputed to be alcohol-positive (BAC>=.01);
- Involved drivers measured or imputed to be alcohol-negative (BAC= .00); and

- Alcohol-related fatalities (crashes where either a driver, pedestrian or a bicyclist was alcohol-positive [BAC>=.01]).

The first two measures were combined into a ratio series comparing the number of drinking drivers (BACs>.01) in fatal crashes to the number of non-drinking drivers (BACs=0.0) in fatal crashes. This provided a basis to examine how the number of alcohol-related drivers in fatal crashes changed in relation to those drivers in fatal crashes who were not drinking. Non-drinking drivers in fatal crashes are an indicator for the underlying general crash risk and changing driving exposure that fluctuates independent of alcohol involvement. The ratio also provided a basis to normalize for exposure, that is, the potential for a fatal crash, which may fluctuate due to a host of non-alcohol-related factors such as miles driven, weather, road conditions, changing population demographics (such as age), and safety devices in vehicles.

The third measure (alcohol-related fatalities) was expressed in a ratio relative to annual vehicle miles traveled (VMT), to use a different control for exposure. This is the ratio NHTSA uses to track progress in fatal crash rates in the States and the Nation. It is a more general indicator of alcohol involvement in fatal crashes and may not be as sensitive as the driver ratio described above (Voas, Tippetts, Romano, Fisher, & Kelley-Baker, 2007).

This methodology is similar to that of the 1994–1995 *Checkpoint Tennessee* study that used an ARIMA model to estimate the expected number of drunk-driving fatal crashes (driver BAC>=.10). The authors believe, however, that the two measures used here—expressed in ratios (drinking drivers to non-drinking drivers in fatal crashes and alcohol fatalities per VMT)—are better measures. Although it is theoretically possible to try to account / adjust for the effects of all such factors on alcohol crashes via covariate techniques, realistically it is impossible to obtain an operational measure of these known extraneous influences (as well as other general influences in need of control of which the researchers are unaware). Because these general risk factors should similarly affect the risk of non-alcohol crashes or fatalities, using non-alcohol crashes or fatalities directly as a control (or more precisely, comparison) group, should eliminate or adjust for most extraneous factors that cause deterministic variance within both groups of drivers.

One way to account for these extraneous factors is to use the non-alcohol crashes or fatalities as a covariate or regressor within the model. Although this is a suitable and defensible methodology, explaining results to the media or to public officials can be problematic. The explanation would have to include both that the numbers reported are not "real" and that the numbers reported are "statistically adjusted" for some mysterious covariate. There also is the possibility that public access to the "real" numbers will show that alcohol-related crashes are going up when the adjusted results show a relative decrease (i.e., when the comparison or control group experienced a much larger increase than the intervention group). A way to avoid this reporting dilemma is to account for the control group explicitly as part of the dependent measure by combining the two figures into a single measure or rate, such as percentage of crashes that are alcohol-involved, or the odds-ratio of alcohol-to-sober fatalities. These are the two most commonly used arithmetic methods of control for extraneous general factors.

Arithmetically, both the proportion and the odds-ratio are closely related. Both use the alcohol counts (or treatment group) for the numerator, and both contain the sober counts (or comparison group) in the denominator, but the proportion also adds the numerator into the denominator. Because the odds-ratio does not contain counts from both groups, this means that there are scenarios under which the odds-ratio can be undefined (denominator=0), but these instances will be very rare.

These rare instances likewise render the proportion an unreliable measure, though defined. When the number of individual cases within an aggregation window is small enough to approach the proportional floors and ceilings, both measures will be statistically unreliable and unstable for replication, and a broader window of aggregation would be advisable regardless of measure.

For statistical analysis, the odds-ratio (usually log-transformed into a log-odds) has several advantages over the proportion. First, in terms of assumptions necessary for parametric inference, the proportion has a markedly non-normal distribution (i.e., once aggregated into a group rate, we are no longer analyzing a binary outcome for individual cases, such as would be done with logistic regression). Conversely, the log-odds-ratio has a normal Gaussian distribution. Second, the proportion (or percentage) produces effect size estimates that tend to be biased on the conservative side—they are too insensitive. Because the sober counts are your control group, ideally you want to express changes in your treatment group as relative to no-change in your control group. An odds-ratio does this explicitly. The proportion (or percentage) measure actually dampens the real effect of any change in the treatment group by inflating your control group when both figures are in the denominator. Any change in the counts of the treatment group counts is captured, both on the top side and the bottom side of the equation, washing out a portion of the change as per relative to a null or contrast condition (the sober counts).

Third, it is not efficient to compare the treatment group with a control group that has been altered by adding the treatment group, too. At the individual case level, it is not done with other parametric analyses (except under very rare circumstances where such a non-orthogonal contrast is specified); in a simple independent sample t-test for two groups, it was not appropriate to compare the treatment group to both groups combined.

Finally, in terms of consumption, the size of increases or decreases of an odds-ratio are simpler to interpret (e.g., 1.4 times as likely) than the relative percentage of a proportion that can be confusing to the non-research public.

For example, as part of a validation, the ratio of drinking drivers to non-drinking drivers in fatal crashes was analyzed for the 1994–1995 *Checkpoint Tennessee* intervention. It was found that a 16-percent reduction in that ratio series occurred due to that program, compared to the 20 percent reduction found by the evaluator of that project using the number of fatal crashes involving drivers with BACs>.10, compared with total fatal crashes (involving drivers with BACs=.00 and those with BACs>=.01).

For each of the seven States, these two bimonthly ratios—drinking to non-drinking drivers and alcohol fatalities per VMT—were aggregated separately for three or four groups:

- Treatment (TR)—those counties within the State that participated in the intervention (in Louisiana, Pennsylvania, Indiana, and Texas, a certain number of selected counties within the State; in Georgia, Tennessee, and Michigan, the entire State).
- Within-State comparisons (C1)—those other counties not participating (not applicable in Georgia, Tennessee, or Michigan).
- Neighboring States (C2)—selected nearby comparison States, pooled.
- The rest of the Nation (RoN), pooled.

Neighboring State comparisons were selected as follows:

- Georgia: Mississippi, Alabama, South Carolina, and Florida (all States that surround Georgia, except Tennessee, which was also one of the intervention States).
- Louisiana: Mississippi, Alabama, and Arkansas (all States that surround Louisiana, except Texas, which was one of the other intervention States funded by NHTSA at a later date).
- Pennsylvania: Ohio, West Virginia, Maryland, and New Jersey (all States that surround Pennsylvania, except New York, which has a unique self-sufficient, highly visible STOP DWI enforcement program equivalent to the intervention States).
- Tennessee: Missouri, Arkansas, South Carolina, North Carolina, Virginia, Alabama, Kentucky, and Mississippi (all States that surround Tennessee, except Georgia, which was also one of the intervention States).
- Indiana: Illinois, Kentucky, and Ohio (all States that surround Indiana, except Michigan, which was also one of the intervention States).
- Michigan: Wisconsin and Ohio (all States that surround Michigan, except Indiana, which was also one of the intervention States).
- Texas: New Mexico, Oklahoma, and Arkansas (all States that surround Texas, except Louisiana, which was also one of the intervention States).

Note that by coincidence of geography, Mississippi and Alabama comprised a substantial portion of the comparison pool for three of the seven States. Some of these comparison States experienced a change in alcohol-legislation status near the time of the intervention period (but generally, for lowering the illegal limit to .08; most had already passed administrative license revocation). The only significant alcohol law changes in those comparison States occurred at the end of the time series in the last few months of 2001. Because the .08 BAC changes in comparison States were only in place for two to three time points, they were far enough removed from the intervention points so as not to affect the comparison States' series and were unlikely to have had much potential for statistically corrupting the comparison series. The same holds true for the .08 law change in Georgia, one of the treatment States. Although the .08 BAC per se law was adopted in Indiana one and a half years before the demonstration project was initiated, any effect of that law was taken into account through the time-series analysis.

Interrupted time-series analyses were performed using ARIMA intervention models for both dependent ratios (drinking drivers to non-drinking-drivers' ratio and alcohol-involved fatalities per VMT) for each treatment State. Additional time-series using the same intervention dates were performed for the one or two comparison series available, as applicable (C1, C2). The time-series representing the RoN were included as a regressor series in each analysis, to factor out fluctuations or trends over time that would affect the Nation generally. The series were all analyzed using a natural log-transform to normalize the series variances (also rendering the variance independent of the level); this transformation also permits straightforward interpretation of the binary intervention dummy variable as a percentage change (after detransforming).

Results

Results of Telephone Surveys

If the demonstration programs had their intended effects it would be expected that awareness of the enforcement demonstration program would increase, self-reported behavior regarding driving after drinking would decrease and a driver's perception of being stopped by police for DWI, arrested, and convicted of a DWI offense would increase. In five of the seven States (Georgia, Louisiana, Pennsylvania, Tennessee and Texas) one wave was conducted before the implementation of the program, one wave midway through the program, and the final wave at the completion of the program. Table 17 provides comparisons among waves for each of five States on nine items relating to program awareness, self-reported behavior and perception of being stopped by police when impaired by alcohol, arrested, and convicted if arrested.

Table 18 provides information on the number of comparisons that were (a) statistically significant in the expected direction, (b) in the correct direction, but not statistically significant, (c) in the opposite direction, but not statistically significant, and (d) significant in the opposite direction.

A total of 28 comparisons were made in each State. As can be seen from Tables 17 and 18, the programs yielded inconsistent findings. In all States there was a positive shift in aided awareness, but with the exception of Georgia, there was no statistically significant shift in self-reported behavior and only one State (Tennessee) showed a significant positive shift in perception of arrest if stopped for driving while intoxicated. More specific data follows for each of the five States.

Table 17. Comparison of Major Findings of the Results of the Telephone Surveys Between Waves

Expected Results	Waves	GA	LA	PA	TN	TX
Increase in unaided awareness of new enforcement program	1 vs. 2	o	+	+	↘	↗
	1 vs. 3	o	↗	o	↘	+
	2 vs. 3	o	--	--	o	+
Increase in aided awareness of new enforcement program	1 vs. 2	NA1	--	NA1	NA1	NA1
	1 vs. 3	NA1	+	NA1	NA1	NA1
	2 vs. 3	↗	+	↗	+	+
Decrease in drinking during the previous six months	1 vs. 2	--	--	o	o	--
	1 vs. 3	--	--	o	o	o
	2 vs. 3	o	o	o	o	↗
Decrease in driving within two hours of drinking in the last 30 days	1 vs. 2	+	--	↘	o	o
	1 vs. 3	+	↘	o	o	o
	2 vs. 3	o	o	↗	o	o
Decrease in driving when thought had too much to drink in the past 30 days	1 vs. 2	o	--	↗	o	↗
	1 vs. 3	↗	o	↗	o	o
	2 vs. 3	o	↘	o	o	↘
Increase in deliberately avoided driving in the previous 30 days because of too much to drink	1 vs. 2	+	o	o	o	o
	1 vs. 3	o	o	o	o	o
	2 vs. 3	--	o	o	↘	o
Increase in the seeing more police on the road than saw 6 months ago	1 vs. 2	o	o	--	--	--
	1 vs. 3	o	+	o	--	--
	2 vs. 3	o	o	+	o	↘
Increase in the perception that someone would be stopped if they were driving while intoxicated	1 vs. 2	↘	o	o	--	↘
	1 vs. 3	o	o	↗	o	--
	2 vs. 3	o	↘	↗	o	o
Increase in the perception that someone would be arrested if stopped for driving while intoxicated	1 vs. 2	↘	NA2	o	o	o
	1 vs. 3	o	NA2	o	+	o
	2 vs. 3	o	o	o	+	o
Increase in the perception that someone would be convicted if stopped for driving while intoxicated	1 vs. 2	o	↗	↗	o	o
	1 vs. 3	o	↗	o	↗	o
	2 vs. 3	o	o	o	o	o

+ Statistically significant (p=.05) in the expected direction.

-- Statistically significant (p=.05) in the opposite direction.

↗Change in the expected direction, but not statistically significant (p>.05 to p=.20).

↘Change in the opposite direction, but not statistically significant (p>.05 to p=.20).

o No change.

NA1 The aided recall question not asked in Wave 1

NA2 The arrested if stopped question not asked in Wave 1.

Table 18. Summary of Significant Findings from Telephone Surveys

	GA	LA	PA	TN	TX
Number of comparisons	28	28	28	28	28
+ Statistically significant (p=.05) in the expected direction	3	4	2	3	3
-- Statistically significant (p=.05) in the opposite direction	3	6	2	3	4
↗ Change in the expected direction, but not statistically significant (p>.05 to p=.20)	2	3	7	1	3
↘ Change in the opposite direction, but not statistically significant (p>.05 to p=.20)	2	3	1	3	3
o No change	18	12	16	18	15

Georgia

It was thought that a campaign targeting alcohol impairment among drivers might be especially beneficial for particular subgroups. In addition to examining the data for all drivers, special attention was paid to the following subgroups: males, drivers 16 to 34 years old, drivers who reported drinking and drivers who reported driving after drinking. For Georgia, in general, the findings were positive regarding aided awareness of the program and in self-reported behavior change; however, there was no positive shift in driver perception of arrest for driving after having too much to drink. The following highlights some of the major findings of the surveys conducted in Georgia. For more information about survey results, see Appendix B.

- The results from the telephone surveys showed that by the end of the program, aided recall of the *You Drink and Drive. You Lose* message was about 40 percent. Also, the surveys indicated that by the end of the program, approximately 70 percent of all drivers, 16-34 year old drivers, and motorists who drove after drinking had heard about a DUI enforcement program called *Operation Zero Tolerance.* In addition, the percentage increase from the second to third wave was statistically significant.
- A 7-percentage-point decrease in the proportion of people who reported driving after drinking (from 26 to 19%), sustained through the two final waves. This drop was significant for males when comparing the baseline to the final wave. Also, for those 16 to 34, the drop went from 31 percent to 18 percent, which was statistically significant. Older drivers on the other hand, showed a much less substantial drop, which was not maintained.
- At the midpoint, an increase of 19 percentage points in the proportion of people who reported deliberately avoiding driving after having too much to drink (from 38 to 57%). However, this increase returned to close to the original level at the final wave.
- Less than 100 people reported driving within two hours after drinking. Although not statistically significant, the trend was in the right direction: from the baseline to the final wave, there was a drop from 18 to 9 percent for those who drove when they thought they had too much to drink in the past 30 days. The drop went from 32 percent to 13 percent for those 16 to 34, but actually increased from 4 to 6 percent for drivers 35 and older.

Louisiana

Louisiana experienced some positive shifts in program awareness but there was no positive shift in self-reported behavior change nor in perception of being stopped by the police if they had too much to drink. For additional information on survey results, see Appendix C.

- Unaided awareness was low, but increased from the first wave to the second wave and then returned to baseline in the last wave.
- Regarding aided awareness, data were available only for the second and third waves. For all drivers, awareness of the *You Drink. You Drive. You Lose* program went from 36 to 55 percent. Increases in awareness were also significant for males (37 to 57%), females (34 to 53%), for all drivers, for those who drank (37 to 54%) and was in the right direction for those who drank and drove (43-52%).

- Drivers reported seeing more police on the roads they normally drove than they saw 6 months ago. For all drivers, from baseline to the final wave it went from 37 percent to 43 percent which was significant, and was significant for females (38 to 44%) and most pronounced for those ages 16-34 (43% to 52%).
- There were no differences found for seeing a sobriety checkpoint overall or for any specific group. Interestingly, although about half of all drivers thought checkpoints should be used more frequently by the end of the program (54%), this number dropped by half for those who drank and drove.
- For those who heard of the new enforcement program, there was no impact on their behavior. In fact, from the second to the third wave, there was a decline in impact for all drivers, males and females, those 35 and older, those who drank and those who drank and drove.
- There was a significant increase for those who reported drinking an alcoholic beverage in the past 6 months from 41 percent to 52 percent by end of the program. This increase occurred for males, females, those 16-34, and for those 35 and older.
- Also, there was a significant increase overall for those driving withintwo hours after drinking in the past 30 days from baseline to the second wave which declined to about baseline by the third wave. There was an increase for males, females, those 16 to 34 and those 35 and older.

Pennsylvania

- Program awareness did not increase significantly in Pennsylvania; however, for all drivers, a small but statistically significant increase occurred (from 10 to 13%) in seeing sobriety checkpoints in the past 30 days. On the other hand, there were no positive impacts of the program on self-reported behavior nor on the perception of being stopped by police when they had too much to drink. For more information on the survey results, see Appendix D.

Tennessee

- Program awareness increased significantly from the second to third waves of the program; however, drivers did not report a change in seeing more police on the roads they typically drive nor seeing a sobriety checkpoint. There was no change in reported behavior, e.g., driving within two hours of drinking in past 30 days, nor in deliberately avoiding driving after having too much to drink. Perception of the likelihood of arrest after having too much to drink did not change. The above findings held for all drivers as well as for the different subgroups of drivers (e.g., males, 16-34 year olds, those who drank alcohol and those who drank and drove). More information on survey findings can be found in Appendix E.

Texas

- Overall, awareness of a new enforcement program increased significantly from the beginning to the third wave of the program (from 10% to 26%). This increase from the first to the third wave was significant for males (11 to 28%), those 16-34 (10 to 24%) and for those who drank and drove (10 to 34%). Of those who heard of the new

enforcement program, there was a significant shift from midpoint to the final survey for all drivers (38 to 59%) for males (41% to 61%), and females, those 16 to 34 (37% to 66%), those who drank (34% to 60%) and those who drank and drove.

- On the other hand, drivers did not see more police on the roads they typically drove. In fact, there was a decline over the program period in seeing police.
- There was no evidence that the new enforcement program had any impact on self-reported behavior. The lack of change occurred for all drivers and for all subgroups with the exception of those who drank and drove which showed an increase from 27 to 38 percent. The frequency of reported drinking and driving among people who drove within 2 hours of drinking in the last 30 days remained the same at 25 percent from the baseline to the end of the program. As in other States drinking frequency increased significantly for all drivers from the first to the second wave but then ended at near the start point (54% to 57%).
- The proportion of drivers who felt Texas should allow sobriety checkpoints increased from 69 to 72 percent for all drivers and from 66 percent to 73 percent from baseline to the final wave for drivers aged 16-34. See Appendix F for more survey findings.

Indiana

No telephone surveys were reported in Indiana.

Michigan

- Although the proportion of people in the general population who reported driving after drinking remained relatively constant (19 to 18%), the proportion of young men who reported driving after drinking fell from 34 to 25 percent. The percentage of young males who reported drinking four or more drinks within two hours of driving was substantially lower than the base population (19% in January 2002 compared to 3% in January 2004; see Figure 12).

Figure 12. Changes in Reported Drinking or Driving Behavior in Michigan (Jan 2002 – Jan 2004)

- The surveys found that the percentage who said getting caught by the police after drinking and driving was "certain" or "likely" remained constant at 59 percent. There was a slight increase, from 27 to 35 percent, in the general population's belief that police are arresting more people for drunk driving over the last few months. The rate among young men remained steady (30 to 29%). In the baseline survey, 75 percent of the general population had heard of a special effort by the police to arrest drivers for drunk driving. This fell to 60 percent in January 2004 (62% for young males). Most people surveyed reported hearing anti-drunk-driving messages: 87 percent in the baseline survey and increasing to 93 percent in January 2004.

Impact Evaluation Using FARS

An analysis of each of the seven State programs was conducted using the same basic technique (an interrupted time-series analysis of drinking-driver and non-drinking driver fatal crashes) so that test results would be comparable between evaluations (Box & Jenkins, 1976). This methodology has been used in other published evaluations of alcohol safety programs (Voas, Tippetts, & Fell, 2000, 2003). For States implementing statewide programs, statewide data from the Fatality Analysis Reporting System (FARS) were analyzed. For States implementing programs in selected areas of the State, the targeted jurisdictions were analyzed. This interrupted time-series analysis implemented provides a useful approach for comparing results among programs and obviated some of the methodological issues, such as regression to the mean, which simple before-and-after designs do not address as well.

The FARS is a national dataset, administered by the National Center for Statistics and Analysis (NCSA, 2003) in NHTSA, of fatal traffic crashes. The FARS contains more than 100 data elements that characterize the crash, the vehicle, and the people involved.

FARS data from 1987 to 2001 were aggregated into 90 bimonthly totals for Georgia, Louisiana, Pennsylvania, and Tennessee. FARS data from 1987 to 2003 were aggregated into 102 bimonthly totals for Texas, Indiana and Michigan because their programs started later. This was done separately for three measures:

- Involved drivers measured or imputed to be alcohol-positive (BAC>=.01);
- Involved drivers measured or imputed to be alcohol-negative (BAC=.00); and
- Alcohol-related fatalities (crashes where either a driver or a pedestrian or a bicyclist was alcohol-positive [BAC>=.01]).

The first two measures were combined into a ratio series comparing the number of drinking drivers (BACs>.01) in fatal crashes to the number of non-drinking drivers (BACs=.00) in fatal crashes. This provided a basis to examine how the number of alcohol-related drivers in fatal crashes changed in relation to those drivers in fatal crashes who were not drinking. Non-drinking drivers in fatal crashes are an indicator for the underlying general crash risk and changing driving exposure that fluctuates independent of alcohol involvement. The ratio also provided a basis to normalize for exposure, that is, the potential for a fatal crash, which may fluctuate due to a host of non-alcohol-related factors such as miles driven, weather, road conditions, changing population demographics (such as age), and safety devices in vehicles (Voas et al., 2007).

The third measure (alcohol-related fatalities) was expressed in a ratio relative to annual vehicle miles traveled (VMT), to use a different control for exposure. This is the measure NHTSA uses to track progress in fatal crash rates in the States and the Nation. This is a more general measure of alcohol in fatal crashes and probably is not as sensitive as the driver ratio described above.

Georgia

Georgia's raw 6.6 percent decrease in the ratio of drinking drivers (BACs>.01 to the number of non-drinking drivers (BACs=.00) was not statistically significant by itself, but because the comparison States actually increased (8.6%), Georgia's net decrease of 13.97 percent becomes

significant when expressed relative to the comparison States. Figure 13 shows the time series observed and fitted driver ratios (drinking drivers over non-drinking drivers) for Georgia with the vertical line indicating the intervention. Again, this decrease was found for the ratio series of drinking to non-drinking drivers and not for the ratio of alcohol-involved fatalities relative to annual vehicle miles traveled. There was still a relative 4.6 percent decrease in that series but it was not statistically significant (p=.177). Using the ratio series of drinking to non-drinking drivers, the Georgia intervention was estimated to save 60 lives per year in reductions in drinking-driver fatal crashes.[1]

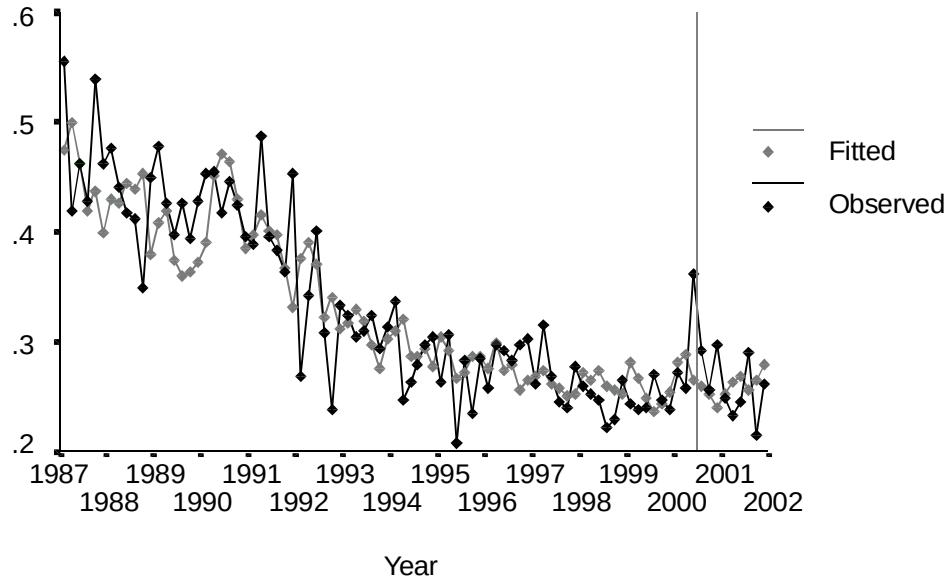


Figure 13. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes for Georgia

Louisiana

Within the intervention counties, Louisiana showed a significant raw decrease in the ratio of drinking to non-drinking drivers in fatal crashes (-11.27 percent; *p=.048*) (Figure 14), which was coupled with an even larger decrease in the within-State control counties (-18.49%). This raw decrease in Louisiana was seen only for the driver ratio series; the raw alcohol-involved fatalities per VMT ratio decrease was marginal but not significant. Looking at raw decreases does not tell the whole story, however. One must look at each State relative to other counties and neighboring States in its region because other factors such as gradual shifts in public drinking-and-driving acceptance could influence driving behavior.

[1] This estimate assumes (a) an attribution rate of 0.877 fatalities per each alcohol-positive driver in a fatal crash (average in FARS), (b) that 75 percent of all alcohol-positive drivers are at BACs of .10+ (average in FARS), and (c) that the decrease is relative to the changes occurring in Georgia's comparison States (AL, FL, MS, SC).

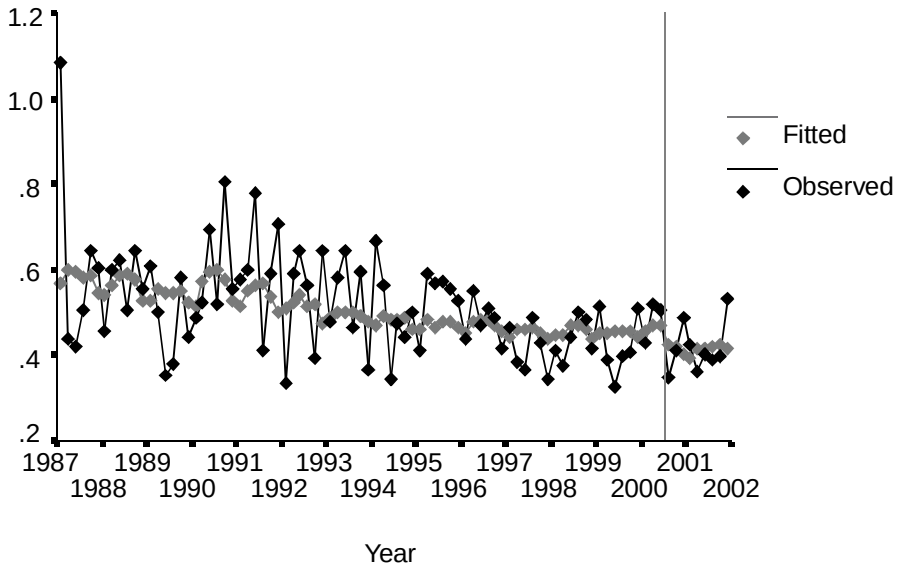


Figure 14. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes for the Louisiana Intervention Counties

In Louisiana, the comparison series for the neighboring States showed an equally large decrease, so that when the Louisiana parishes' decrease is expressed as a net change relative to the neighboring States ' comparison group, the decrease was not significant. In fact, for the alcohol-involved fatalities and VMT series, the intervention counties ended up showing a significant increase relative to the comparison States (+14.8 percent; p=.052).

Pennsylvania

Although there were decreases in each of the four cumulative measures in Pennsylvania (see Table 19), none was statistically significant (Figure 15). The raw changes found were not in the expected direction. For the intervention counties and the State controls and neighboring States, the driver ratio series and alcohol-related fatalities actually increased.

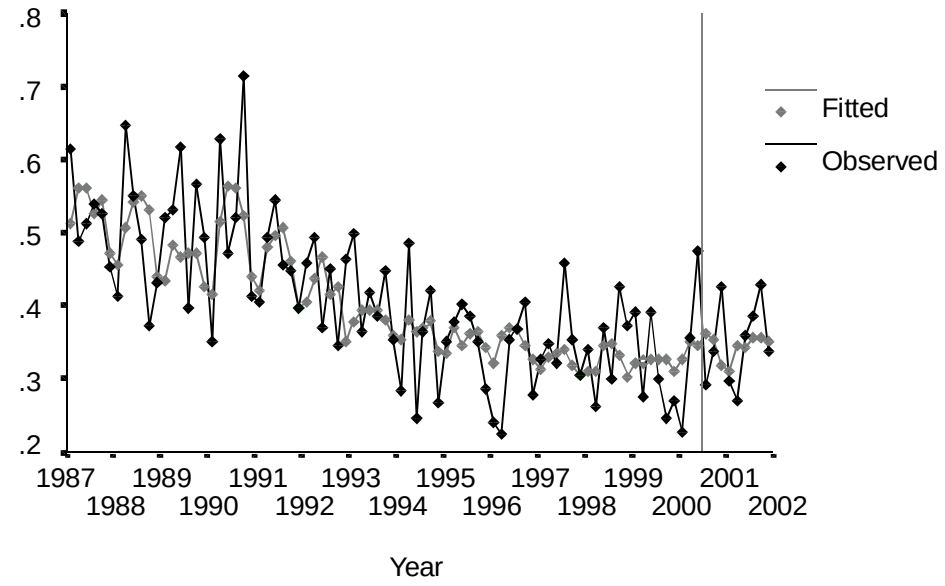


Figure 15. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes for the Pennsylvania Intervention Counties

Tennessee

Tennessee's raw decrease of 18.3 percent in the driver ratio series (Figure 16) was reduced to –10.6 percent when the neighboring States were taken into account and was significant ($p<.035$). Conversely, Tennessee's change of –2.95 percent was less than the -3.55 percent change in the comparison States in the alcohol-involved fatalities per VMT ratio. Using the same assumptions that were used for Georgia, but applied to the 10.6-percent decrease in Tennessee, the intervention saved an estimated 43 lives per year in Tennessee.

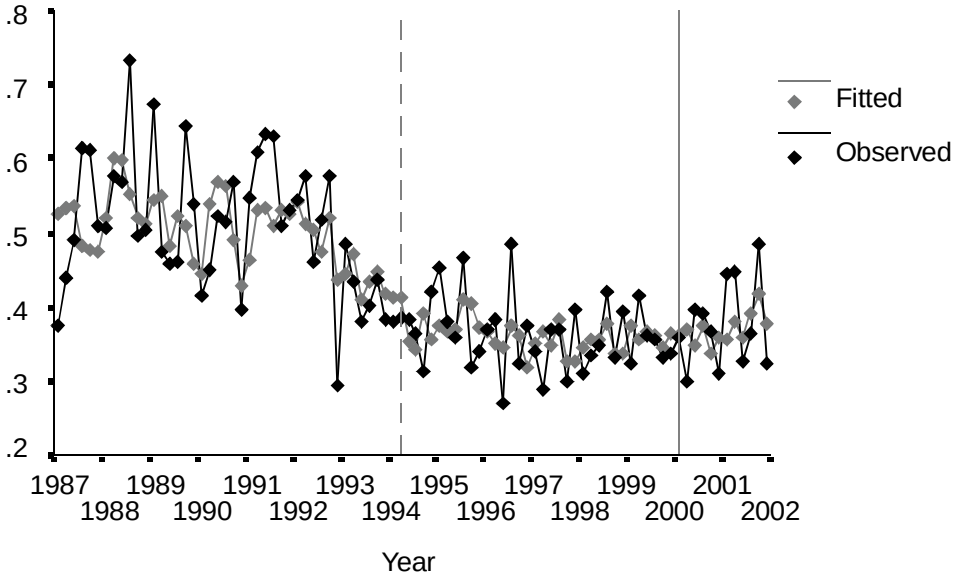


Figure 16. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes in Tennessee

Texas

In Texas, the 14 intervention counties showed no significant change in the ratio of drinking drivers to non-drinking drivers involved in fatal crashes (Figure 17) nor in the alcohol-related fatalities per VMT ratio, whereas the 240 within-State comparison (nonintervention) counties experienced a significant reduction of 11 percent (p=.04) in the driver ratio measure associated with the enforcement program.

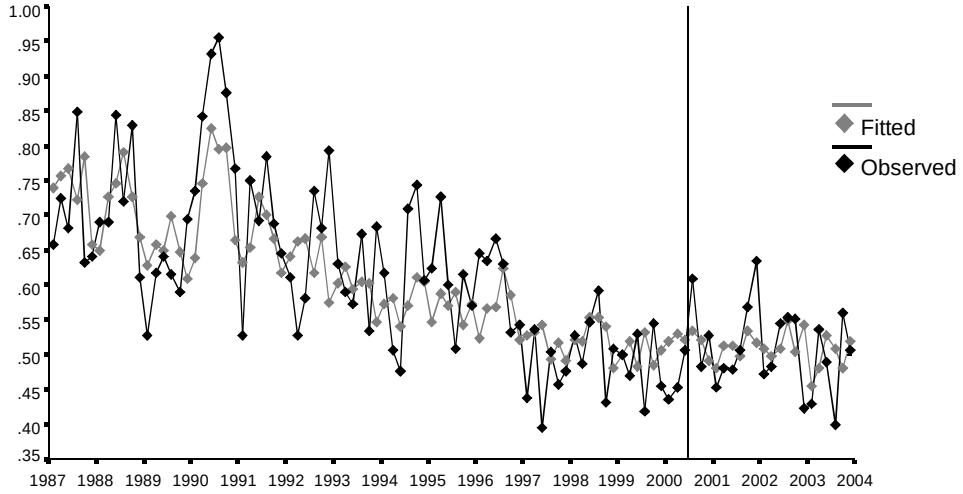


Figure 17. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes in Texas Intervention Counties

Indiana

In the 29 intervention counties (covering 80% of the State's population), Indiana experienced a statistically significant decrease of 13 percent (p<.02) in the ratio of drinking drivers to non-drinking drivers involved in fatal crashes (Figure 18) and a 20 percent decrease (p<.002) in alcohol-related fatalities per 100 million VMT compared to its neighboring States. These declines were associated with Indiana's publicized enforcement program. Indiana also experienced almost identical decreases in the rest of the State (nonintervention counties) compared to neighboring States associated with the program: 12 percent in the drinking-driver ratio (p<.04) and 20 percent in the VMT ratio (p<.002). An estimated 25 lives were saved in the intervention counties and 17 in the rest of the State due to the Indiana enforcement program.

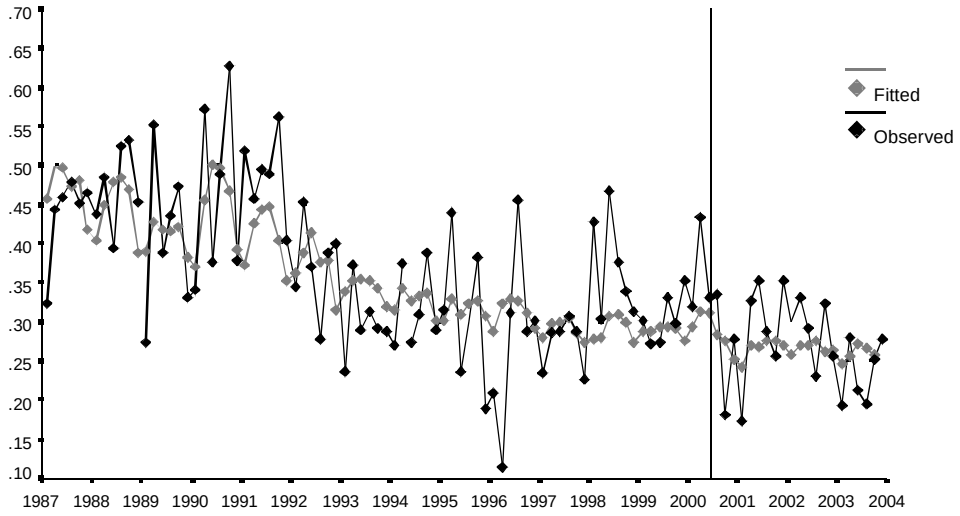


Figure 18. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes in Indiana Intervention Counties

Michigan

The FARS analyses showed that compared to neighboring States Michigan experienced a 14-percent decrease ($p<.07$) in the ratio of drinking drivers to non-drinking drivers involved in fatal crashes in the intervention counties (85 percent of the State) (Figure 19). This finding was considered statistically significant even though the *p* value did not reach <.05 because of the large standard error in the comparison neighboring States. The neighboring States actually experienced a slight increase (+.78) in the driver ratio measure with a standard error of .0917 compared to other lower standard errors (.03 to .07). Also associated with the program was Michigan's significant decrease of 18 percent ($p<.003$) in the number of alcohol-related fatalities per 100 million VMT. This resulted in an estimated 57 lives saved during one year of the program.

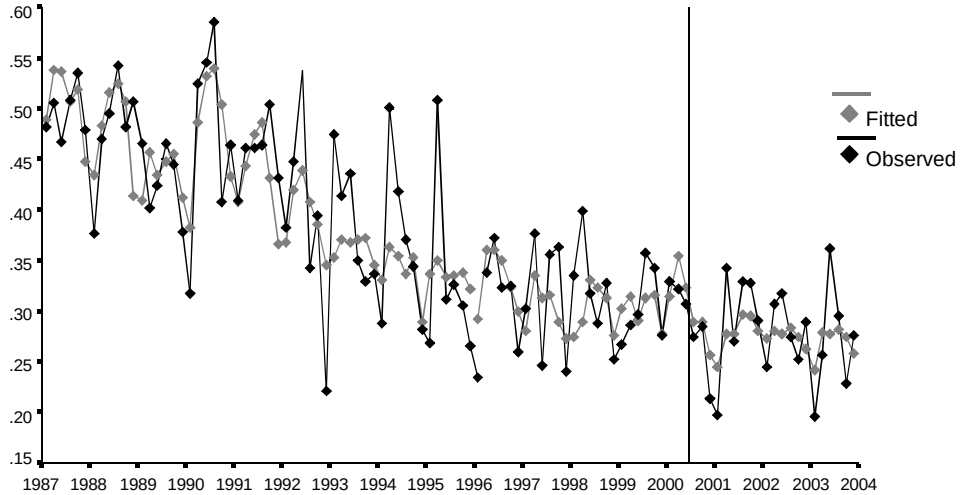


Figure 19. Observed and Fitted Bimonthly Ratios of Drinking Drivers to Non-drinking Drivers in Fatal Crashes in Michigan Intervention Counties

Table 19 and Figure 20 summarize the statistical analyses for all seven States. The legend in Table 19 explains what the statistics are in each column.

Table 19. FARS Analysis of Seven States' Alcohol Demonstration Program Results

		Georgia	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**se(diff)**	**1-tail prob**	**Df**
Drivers	Ratio	intervention counties	-6.57%	.092	-.0679	.0507	85	-.1505	**-13.97%**	.0576	**.005**	80 -5
		neighboring States	8.61%	.003	.0826	.0274	85					
Fatals	VMT	intervention counties	-4.88%	.131	-.0500	.0443	80	-.0475	-4.64%	.0508	.177	70 -10
		neighboring States	-0.25%	.920	-.0025	.0249	80					
		Louisiana	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**Se(diff)**	**prob**	**Df**
Drivers	Ratio	intervention counties	-11.27%	.048	-.1196	.0710	87	.0085	0.855%	.0860	.461	82
		within-State controls	-18.49%	.009	-.2044	.0847	86	-.0763	-7.349%	.0976	.218	81
		neighboring States	-12.02%	.010	-.1281	.0486	85					
Fatals	VMT	intervention counties	-8.40%	.084	-.0877	.0631	86	.1387	**14.88%**	.0844	**.052**	81
		neighboring States	-20.27%	.000	-.2265	.0560	85					
		Pennsylvania	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**Se(diff)**	**1-tail prob**	**Df**
Drivers	Ratio	intervention counties	0.47%	.529	.0047	.0644	87	-.0899	-8.595%	.0905	.162	83
		within-State controls	1.37%	.410	.0136	.0597	85	-.0809	-7.773%	.0872	.178	81
		neighboring States	9.92%	.140	.0946	.0635	86					
Fatals	VMT	intervention counties	9.39%	.125	.0898	.0774	87	-.0158	-1.57%	.0841	.426	82
		within-State controls	1.54%	.404	.0153	.0627	86	-.0903	-8.64%	.0708	.103	81
		neighboring States	11.14%	.002	.1056	.0329	85					
		Tennessee	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**Se(diff)**	**1-tail prob**	**Df**
Drivers	Ratio	intervention counties	-18.31%	.001	-.2022	.0575	83	-.1117	**-10.569%**	.0607	**.035**	76
		neighboring States	-8.65%	.000	-.0905	.0196	83					
Fatals	VMT	intervention counties	-2.95%	.268	-.0299	.0483	84	.0062	0.62%	.0534	.454	80
		neighboring States	-3.55%	.116	-.0362	.0228	86					

		Texas	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**se(diff)**	**1-tail prob**	**Df**
Drivers	Ratio	intervention counties	-4.58%	.159	-.0468	.0466	97	.0252	2.55%	.0644	.348	93
		within-State controls	-17.11%	.000	-.1877	.0464	98	-.1157	**-10.92%**	.0642	**.037**	94
		neighboring States	-6.95%	.108	-.0720	.0444	98					
Fatals	VMT	intervention counties	2.95%	.338	.0290	.0691	98	.0494	5.06%	.0956	.303	93
		within-State controls	-7.03%	.110	-.0729	.0591	98	-.0525	-5.12%	.0886	.277	93
		neighboring States	-2.01%	.759	-.0203	.0661	97					
		Indiana	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**se(diff)**	**1-tail prob**	**Df**
Drivers	Ratio	intervention counties	-12.36%	.013	-.1319	.0583	99	-.1419	**-13.23%**	.0670	**.018**	95
		within-State controls	-11.19%	.035	-.1186	.0649	99	-.1286	**-12.07%**	.0728	**.040**	95
		neighboring States	1.00%	.764	.0100	.0331	98					
Fatals	VMT	intervention counties	-18.67%	.002	-.2067	.0680	97	-.2281	**-20.40%**	.0754	**.002**	92
		within-State controls	-18.34%	.002	-.2027	.0674	99	-.2241	**-20.08%**	.0749	**.002**	94
		neighboring States	2.17%	.514	.0214	.0327	97					
		Michigan	**change**	**prob.**	**Coeff**	**se(b)**	**df**	**diff(b)**	**Cuml effect**	**se(diff)**	**1-tail prob**	**Df**
Drivers	Ratio	intervention counties	-13.12%	.000	-.1406	.0395	98	-.1484	**-13.79%**	.0999	**.070**	94
		neighboring States	0.78%	.933	.0078	.0917	98					
Fatals	VMT	intervention counties	-14.90%	.000	-.1613	.0352	97	-.1971	**-17.89%**	.0690	**.003**	86 -11
		neighboring States	3.65%	.547	.0358	.0593	91					

Numbers in **bold** indicate significant changes

LEGEND:

change: relative change in percent; derived from the coefficient estimate (**b**) for the intervention parameter that was modeled in the log'd time-series, by exponentiation of **b** (i.e., the inverse of a logarithmic transformation).

prob.: probability of alpha error (i.e., "statistical significance" using the ***t*** distribution for **b** / **se(b)**).

Coeff: estimate of the coefficient (**b**), for the intervention parameter.

se(b): the standard error of the estimate of **b**; **b** divided by its standard error produces the **t**-statistic used to test the significance of **b**.

df: degrees of freedom of the time-series model

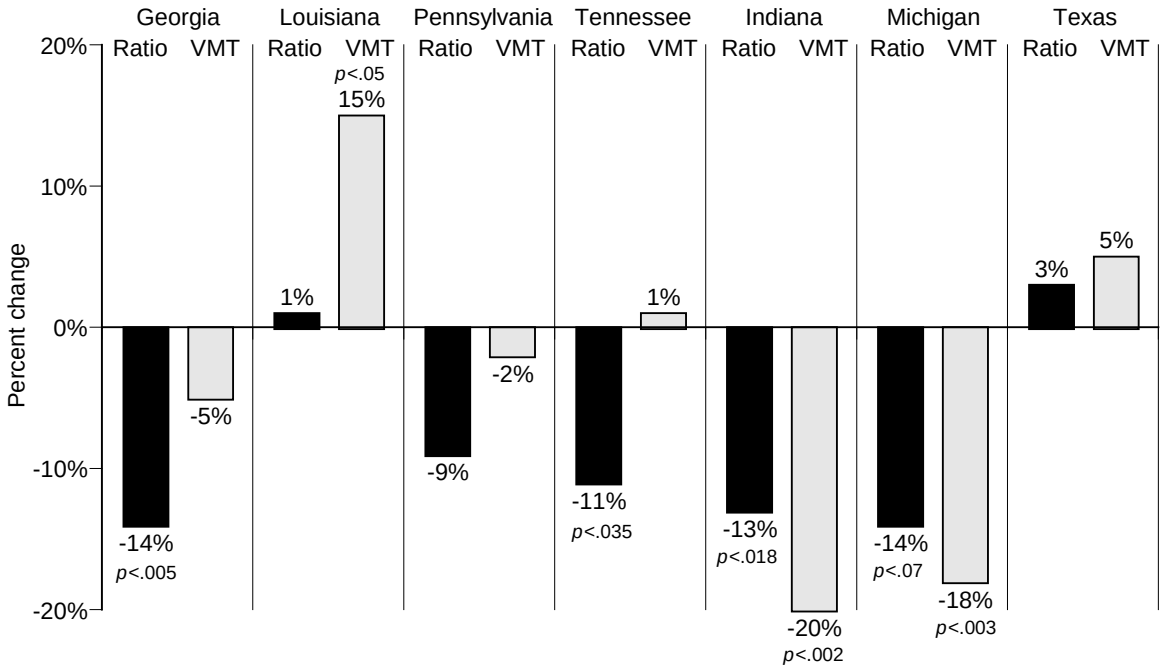
diff(b): difference of intervention parameters; result of subtracting the coefficient (b) for the comparison series from the coefficient (b) for the intervention series.

Cuml effect: the cumulative effect of the intervention after subtracting out the change in the control or comparison neighboring States; similar to "change" (above), derived from the difference in coefficient estimates by exponentiating diff(b).

se(diff): the combined standard error for the diff(b); analogous to se(b) but applies to the difference between the two bs; derived from a formula that combines the 2 standard errors, namely the se(b) from the intervention series and the se(b) for the comparison series.

1-tail prob.: same as above definition, but this time from the t-statistic derived from diff(b) divided by se(diff).

Df: net degrees of freedom for testing diff(b), derived from the Df of both separate models involved (i.e., intervention series and comparison series).



KEY: Ratio = Ratio of drinking drivers (BAC $\geq$ .01) to nondrinking drivers (BAC = .00) in fatal crashes
VMT = Alcohol-related fatalities (driver or pedestrian total BAC > .01) per 100 million VMT

Figure 20. Results of the Impact of Seven-State Publicized Enforcement Programs on Drinking Drivers in Fatal Crashes in Relation to Comparison States

Limitations

The seven demonstration programs evaluated were not statistically designed experiments, but analytical studies undertaken to understand the correlation between the employed countermeasures and the ratio of drinking to non-drinking status in fatal crashes. Therefore, we cannot assume a causal relationship between the employed countermeasures and any change in drinking status.

The States varied widely in their enforcement methods, media methods, and the paid and earned media budgets and messages. This study relied on secondary data from demonstration project officials for information on program inputs, such as level of enforcement and public relations efforts. Consequently, different methods were used to collect the data and different measures were used to quantify the data.

For some of the States, despite attempts to collect data on enforcement activities in a timely and thorough fashion, it was not always possible to collect usable data. Many geographically diverse law enforcement agencies were involved, and it appears that underreporting of the data occurred in some instances. In addition, some measures of enforcement activities were not available.

Many variables that are unrelated or only tangentially related to the demonstration programs could affect changes in the number of alcohol-related crashes in a State. The FARS analyses controlled for many of these variables, but other factors may exert some influence on the number of drinking drivers involved in crashes.

Using the *ratio* of drinking drivers to non-drinking drivers in fatal crashes also may mask reductions in the *numbers* of both measures. These reductions could occur if high-visibility impaired-

driving enforcement also reduces speeding and other aggressive behaviors by drivers and increases safety belt usage, for example, in addition to reducing drinking and driving. Future analyses of these types of enforcement programs should consider this potential.

Using the "rest of the Nation" as a regressor series to factor out any time trends eliminates it as an alternative for comparison. This evaluation used "neighboring States" as the comparison. Using the rest of the Nation as a comparison to the intervention sites could be considered as an alternative in future analyses of this kind.

The findings were affected by the extent of crash reductions (or increases) in neighboring States and within State controls. Of the comparison States, the driver ratio series for four States increased and for three States decreased. Only Tennessee's decline was significantly greater than the comparison States decline. In Georgia, the raw findings were enhanced since the neighboring States showed a net increase in the driver ratio series.

Conclusions

In four of the seven demonstration States significant reductions in fatal drinking-driver-related crashes were obtained during implementation of the high-visibility enforcement campaign. As compared to surrounding States, fatal crash reductions in Georgia, Tennessee, Indiana, and Michigan were on the order of 11 to 20 percent. In these four States, the programs were estimated to have saved lives ranging from 25 in Indiana to 43 in Tennessee to 57 in Michigan to 60 in Georgia. Two States (Pennsylvania and Texas) showed only marginal, nonsignificant changes relative to their comparison jurisdictions and / or States. One State, Louisiana, experienced a significant relative increase in alcohol-related fatalities per 100 million VMT.

As each of these demonstration programs was unique and superimposed on existing State program activities targeting drinking drivers, simple relationships were not obtained between crash reduction and amount, type, and target of the publicity campaigns or the amount and type of enforcement activities. The relationship of the enforcement campaign to driver awareness, perceptions and self-reported behavior was mixed.

Publicity: The amount, type and target of the publicity campaigns varied widely among the State programs. Some used a single message –*You Drink and Drive. You Lose*; others used multiple messages *Operation Zero Tolerance* (Georgia); *Step Away from Your Car* (Pennsylvania). Tennessee used a health-directed message followed by an enforcement message. In addition, a wide variety of mechanisms were used to disseminate program messages. These varied from PSAs, to radio and TV, to print to billboards. Also, earned media occurred to various degrees.

A major finding concerned the use of paid advertising. Three of the four States demonstrating a decrease in drinking-driver fatal crashes used paid advertising. For one of these States—Georgia—random telephone surveys were conducted. There was a positive change in awareness of the Operation Zero Tolerance program and a positive change is self-reported behavior. None of the other four States employing essentially the same survey showed positive changes in self-reported behavior. Due to logistical reasons, similar surveys in Indiana and Michigan were not conducted so the impact of their paid advertising is less well understood.

In general, the findings from the driver surveys in five of the States are disappointing. It was thought the media campaigns would raise awareness of the enforcement program, and reduce driving after drinking behavior as well as increase the perception of being stopped by the police for an alcohol offense and arrested if over the limit. Such changes did not occur to a significant extent.

One possible reason for the lack of change is that drivers did not report having seen more police on the roads they typically drive. This finding might be expected since many drivers are not on the roads when and where alcohol enforcement activities are being conducted. Also, other than at checkpoints, it is rare when the type of enforcement activity is identified. It should be mentioned that these RDD telephone surveys parallel the findings obtained in *Checkpoint Tennessee*. That is, there was only limited awareness of the program and no change in self-reported behavior.

Amount and Type of Enforcement: It may be anticipated that significantly increasing the number of sobriety checkpoints conducted should have a large and positive effect on crash reduction. This does not appear to be the case. Georgia had approximately 2,800 checkpoints compared to Tennessee's approximately 800, but the driver ratio findings were on the order of 14 percent versus

11 percent. And the earlier *Checkpoint Tennessee* study which conducted sobriety checkpoints resulted in a 20-percent decrease in projected crashes for drivers with BACs =>.10. To put Georgia's significant 14-percent reduction in the driver ratio series in proper perspective, when using the evaluation criteria for the 1994–1995 *Checkpoint Tennessee* program (fatal crashes involving drivers with BACs >=.10 relative to all fatal crashes), there was a 10-percent reduction in that measure in Georgia.

Another key finding was that the Michigan results provide some evidence that visible and highly publicized enforcement strategies other than sobriety checkpoints—in this case, saturation patrols—can be effective in reducing drinking-driver fatal crashes statewide. Michigan is prohibited by State law from conducting sobriety checkpoints.

Indiana and Michigan used two to three mobilization blitzes with intensified media and enforcement and consistent weekly enforcement with some publicity. This may have contributed to the significant reduction in impaired-driving fatal crashes in both States.

One vexing problem is in estimating the extent to which the demonstration programs contributed to the overall State decline in fatal drinking-driverrelated crashes. Collection of roadside driver BAC information was not conducted in these demonstration studies, and the findings from the telephone surveys were equivocal. Thus, we are left with State crash reductions but not a good linkage to the contributions of the demonstration programs as implemented. Additional research will be required to address this issue.

In summary, it appears that a variety of media and enforcement procedures that supplement ongoing statewide efforts can yield meaningful crash reduction effects among alcohol-impaired drivers. In general, States employing sobriety checkpoints, using paid advertising and programs implemented statewide were associated with crash reductions relative to surrounding States. However, the use of saturation patrols alone did not preclude crash reduction. As each of these demonstration programs was unique and superimposed on existing State program activities targeting drinking drivers, simple relationships were not obtained between crash reductions and (a) amount, type, and target of publicity campaigns; (b) amount and type of enforcement activities; and (c) driver awareness, perceptions, and self-reported behavior. Based upon previous research and some of the implications from this study, a State impaired-driving enforcement program is more likely to be successful if it incorporates (a) numerous checkpoints or highly visible saturation patrols conducted routinely throughout the year along with mobilized crackdowns (at least three per year) and; (b) intensive publicity coverage of the enforcement activities, including paid advertising.

Lessons Learned

Before undertaking another evaluation of this magnitude, the following information might be useful as lessons learned.

- *Publicity*: The Georgia, Indiana, and Michigan publicity efforts used a combination of earned and paid media. Paid advertising may have more of an impact than earned media, as it appears to have in seat belt enforcement campaigns. As in these demonstration efforts, the media should be targeted to high-risk driver groups (e.g., males, drivers 21 to 34 years old, drivers who report they drink and drive). On the other hand, messages targeted to drinking drivers in general may be helpful also as there was some evidence that awareness decreases for drivers in other categories. Competing messages may have weakened the media messages in several of the States examined.
- *Measures*: Guidelines for future data collection and analysis in States awarded demonstration projects of this kind should be developed by NHTSA based upon data and information available in the State and past NHTSA-sponsored research. States need to be aware, up front, of the kinds of data that need to be collected so that a proper evaluation can be conducted.
- *Thresholds*: More research is needed in determining whether it is possible to identify thresholds of enforcement activities and publicity that have a significant effect on drivers' drinking and driving behavior.
- *Consistency*: There needs to be consistency in how sobriety checkpoints are counted and how other enforcement activities and strategies are defined and measured (e.g., saturation patrols, roving patrols, selective enforcement). Future efforts of this kind should ensure that consistent and valid measures of these activities are collected and used.

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Appendices

Appendix A.
Random Digit Dialing Telephone Survey Instrument of Driver Attitudes, Awareness and Reported Behaviors

SCHULMAN, RONCA AND BUCUVALouisianaS, INC. STUDY NUMBER 8213
145 EAST 32ND STREET August 25, 2001
NEW YORK, NEW YORK 10016 OMB No. 2127-0605
Expiration Date:

FIVE STATE NHTSA SURVEY

State:
Georgia.....1
Louisiana.....2
Pennsylvania.....3
Texas.....4
Tennessee.....5

Sample type: Randomize 1 or 2

County: _____ Zip: _____ Metro Status: _____

Date: _____ CATI ID: _____

Interviewer:_____

Telephone Number: _____

Time Start: _____ Time End: _____ TOTAL TIME: _____

_____

INTRODUCTION

Hello, I'm _____ calling for the U.S. Department of Transportation. We are conducting a study of Americans' driving habits and their attitudes about current driving laws. The interview is completely confidential. (It only takes ten minutes.) (Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for this collection is 2127-0605.)

IF STATE=PENNSYLVANIA ASK QA. ELSE SKIP TO C.

A. Do you live in the City of Philadelphia, the City of Pittsburgh, or some place else?

Philadelphia.....1 **SKIP TO Q1**
Pittsburgh.....2 **SKIP TO Q1**
Some place else.....3

IF OVER QUOTA IN CITY SCREEN OUT "OVER QUOTA A"

B. What county do you live in?

Erie.....1
Indiana.....2
Lehigh.....3
Luzerne.....4
Mifflin.....5
Northumberland.....6
Westmoreland.....7
York.....8
Other.....9 **SCREEN OUT "B"**

IF OVER QUOTA IN COUNTY SCREEN OUT "OVER QUOTA B"

IF STATE=TEXAS ASK QC. ELSE SKIP TO D.

C. What county do you live in?

Baxter.....1
Brazoria.....2
Cameron.....3
Collin.....4
Dallas.....5
Denton.....6
Harris.....7
Hidalgo.....8
Lubbock.....9
McLennan.....10
Montgomery.....11
Nueces.....12
Tarrant.....13
Travis.....14
Other.....15 **SCREEN OUT "C"**

IF STATE=LOUISIANA ASK QD. ELSE SKIP TO Q1.

D. What parish do you live in?

Ascension.....1
Bossier.....2
Caddo.....3
Calcasieu.....4
East Baton Rouge.....5
Jefferson.....6
Lafayette.....7
Lafourche.....8
Livingston.....9
Orleans.....10
Ouachita.....11
Rapides.....12
St. Landry.....13
St. Tammany.....14
Tangipahoa.....15
Terrebonne.....16
Other.....17 **SCREEN OUT "D"**

Q1. How many persons, age 15 or older, live in this household?

_____ NUMBER OF PERSONS
None.....00 **CONFIRM, THEN SCREEN OUT Q1**
Refused.....99

Q2. How many of these persons drive a car, truck, motorcycle or other motor vehicle, at least occasionally?

_____ NUMBER OF DRIVERS
None.....00 **CONFIRM, THEN SCREEN OUT Q2**
Refused.....99

DUMMY QUESTION FOR BIRTHDAY QUESTIONS

Has had the most recent.....1
Will have the next.....2

IF STATE=PENNSYLVANIA SKIP TO Q3a1. ELSE ASK TO Q3a.
IF Q2=1 USE ALTERNATIVE WORDING IN Q3a

Q3a. In order to select just one person to interview, could I speak to the DRIVER in your household, who (has had the most recent/will have the next) birthday?
ALTERNATE WORDING: Could I speak to that person?

Respondent is the person.....1 **SKIP TO Q7a**
Other respondent comes to phone.....2 **SKIP TO Q4**
Respondent is not available.....3 **ARRANGE CALLBACK**
Refused.....4 **SKIP TO Q3b**

ASK IF STATE=PENNSYLVANIA ONLY.
IF Q2=1 SKIP TO Q3a3. ELSE CONTINUE WITH Q3a1 or Q3a2 AS APPROPRIATE.

Q3a1. In order to select just one person to interview, could I speak to the DRIVER in your household, who is between the ages of 21 and 34 and who (has had the most recent/will have the next) birthday?

No driver in that age group.....1
Respondent is the person.....2 **SKIP TO Q7a**
Other respondent comes to phone.....3 **SKIP TO Q4**
Respondent is not available.....4 **ARRANGE CALLBACK**
Refused.....5 **SKIP TO Q3b**

ASK IF STATE=PENNSYLVANIA ONLY.

Q3a2. In that case, could I speak to the DRIVER in your household, who (has had the most recent/will have the next) birthday regardless of their age?

Respondent is the person.....1 **SKIP TO Q7a**
Other respondent comes to phone.....2 **SKIP TO Q4**
Respondent is not available.....3 **ARRANGE CALLBACK**
Refused.....4 **SKIP TO Q3b**

IF Q2=1 and STATE=PENNSYLVANIA ASK Q3a3.

Q3a3. Are you between the ages of 21 and 34?

Yes.....1
No.....2
Don't know...3
Refuse.....4

Q3b. Would you please tell me why you do not want to do the interview?

_____**TERMINATE**

Q4. Hello, I'm _____ calling for the U.S. Department of Transportation. We are conducting a study of Americans' driving habits and their attitudes about current driving laws. The interview is completely confidential. It only takes ten minutes. Could we begin now?

CONTINUE INTERVIEW.....1
Arrange Callback.....2 **CALLBACK**
Refused.....3 **SKIP TO Q3b**

Q7a. Do you see police on the roads you normally drive... [**READ**]?

More now than 6 months ago.....1
About the same.....2
Less now than 6 months ago.....3
(VOL) Don't know.....4

DELETE Q7b

Q9. During the last six months, how often did you usually drink any alcoholic beverages, including beer, light beer, wine, wine coolers, or liquor? Would you say that you usually drink alcoholic beverages ...[**READ LIST**]

Every day.....1
Several days a week.....2
Once a week or less.....3
Weekends only.....4
Celebrations/special occasions.....5
Never.....6 **SKIP TO Q22**
(vol)Don't know.....7
(vol)Refuse.....8

Q13. In your opinion, how many drinks could YOU drink in two hours before you should NOT DRIVE?

ENTER NUMBER: _____ (01 - 95)
Less than one.....00
96 or no limit.....96
Don't know.....98
Refuse.....99

Q14. Now, I would like to ask a few questions about your own experience. In the past 30 days, have you ever driven a motor vehicle WITHIN TWO HOURS AFTER drinking alcoholic beverages?

Yes.....1
No.....2 **SKIP TO Q22**
Don't know...3 **SKIP TO Q22**
Refuse.....4 **SKIP TO Q22**

Q15. About how many times in the past 30 days would you say that you have driven WITHIN TWO HOURS AFTER drinking any alcohol?

ENTER NUMBER: _____ (01 - 30)
Never.....00 **SKIP TO Q22**
Don't know.....98
Refuse.....99 **SKIP TO Q22**

Q17. About how many times in the PAST 30 DAYS did you drive when you thought you had too much to drink?

ENTER NUMBER: _____ (01 - 30)
Never.....00
Don't know.....98
Refused.....99

Q19. In the past 30 days, have you ever deliberately avoided driving a motor vehicle because you felt you probably had too much to drink to drive safely?

Yes.....1
No.....2 **SKIP TO Q21**
Don't know...3 **SKIP TO Q21**
Refuse.....4 **SKIP TO Q21**

Q20. On the most recent time that you deliberately avoided driving after drinking, how did you do it; that is, what did you do instead? [**DO NOT READ LIST. SINGLE RECORD**].

Called a cab or a ride.....1
Rode the bus or subway.....2
Rode with some other driver.....3
Stayed overnight as a guest.....4
Waited until after the effects
of the alcohol wore off.....5
Walked to your destination.....6
Other, specify, _____ 17
Don’t know/refused.....18

Q21. Thinking of any occasions in the past 30 days when you knew alcohol would be available at some event, HOW OFTEN, if ever, did you plan ahead BEFORE going to an event to avoid drinking and driving afterward? [**READ LIST**]

Never had occasion where knew
alcohol would be available.....1
Never planned ahead before event.....2
Rarely/a few times.....3
Frequently/almost every time.....4
Don’t know/refused.....5

IF STATE = PENNSYLVANIA ASK Q21X. ELSE SKIP TO Q22

Q21X. In general, do you deliberately avoid driving during times when you know there is an increased enforcement of drinking and driving laws?

Yes.....1
No.....2
Don't know...3
Refuse.....4

IF Q9=NEVER, USE ALTERNATIVE WORDING IN Q22 THRU Q24.

Q22. Please tell me how likely each of the following events are to happen (IF A PERSON SUCH AS YOURSELF/A PERSON) DROVE AFTER HAVING TOO MUCH TO DRINK. How likely are (you/they) to be stopped by a police officer for driving after (you/they) have had too much to drink? Is it ...[**READ LIST**]

Almost certain.....1
Very likely.....2
Somewhat likely.....3
Somewhat unlikely.....4
Very unlikely.....5
Don't know.....6
Refuse.....7

Q23. If a police officer stops (you/someone) for driving while intoxicated (drunk driving), how likely would it be that (you/they) would be arrested? Would it be ...[**READ LIST**]

Almost certain.....1
Very likely.....2
Somewhat likely.....3
Somewhat unlikely.....4
Very unlikely.....5
Don't know.....6
Refuse.....7

Q24. If (you/someone) were ARRESTED for driving while intoxicated (drunk driving), what is the likelihood that (you/they) would be convicted of that offense? Would it be ...[**READ LIST**]

Almost certain.....1
Very likely.....2
Somewhat likely.....3
Somewhat unlikely.....4
Very unlikely.....5
Don't know.....6
Refuse.....7

Q25. If someone was convicted of driving while intoxicated in your community, what would you expect to happen to them? Anything else? [**MULTIPLE RECORD**]

Probation.....1
Lose drivers license.....2
Fine.....3
Go to jail.....4
Higher insurance rates.....5
Having car impounded.....6
Nothing will happen.....7
Other, specify _____ 27
Don’t know.....28
Refuse.....29

Q27. In your opinion, do you think enforcement of drinking and driving laws in your community is too strong, too weak, or about right?

Too strong.....1
Too weak.....2
About right.....3
Don't know.....4
Refuse.....5

Q28. In your opinion, do you think the penalties for breaking drinking and driving laws in your community are too strong, too weak, or about right?

Too strong.....1
Too weak.....2
About right.....3
Don't know.....4
Refuse.....5

IF STATE=LOUISIANA ASK Q29a, b, c, & d. IF STATE=TENNESSEE ASK Q29 a, b, e, f, & g. ELSE SKIP TO Q30a.

Q29. The State of Louisiana/Tennessee is considering several new laws aimed at people who drink and drive. For each, please tell me whether you strongly support, somewhat support, somewhat oppose, or strongly oppose the proposed law.

STRONGLY SUPPORT	SOMEWHAT SUPPORT	SOMEWHAT OPPOSE	STRONGLY OPPOSE	DON'T KNOW	REFUSE
1	2	3	4	5	6

a. A new law that would lower the current .10 BAC (Blood Alcohol Content) limit for drivers aged 21 and above to a .08 BAC limit.

b. A new law that would make it illegal for a passenger in any motor vehicle to have an open alcoholic beverage container or to be drinking any alcoholic beverage.

c. A new Repeat Offender law that would require a minimum one-year license suspension together and impound, remove the license plate, or place an ignition interlock system on the car they were driving.

d. A new law that would require the BAC testing of all drivers involved in fatal crashes.

e. A new Repeat Offender law that would impose increased penalties for those who are convicted of drunk driving more than once.

f. A law that would automatically suspend the driver's license of anyone arrested for drunk driving if they registered above the BAC level or if they refused to take a BAC test.

g. And in a different area, allowing the police to stop anyone who was not wearing a seatbelt even if that is the only violation of the law.

IF TEXAS ASK Q30a, ELSE SKIP TO Q31

Q30a. The amount of alcohol in a person's body can be measured in terms of the "Blood Alcohol Concentration", which is often called the BAC level. Have you ever heard of blood alcohol concentration or BAC levels?

Yes.....1
No.....2 **SKIP TO Q31**
Not sure (VOL).....3 **SKIP TO Q31**
Refused (VOL).....4 **SKIP TO Q31**

Q30b. Has your State set a specific BAC level at which it becomes illegal for anyone to drive a motor vehicle?

There is a specific level.....1
No specific level set.....2
Not sure (VOL).....3
Refused (VOL).....4

Q31. Is the legal Blood Alcohol Concentration limit for drivers under 21 higher, lower or about the same as it is for those 21 or over?

Higher.....1
Lower.....2
About the same.....3
Not sure (vol).....4
Refuse.....5

IF STATE=GEORGIA ASK Q31X. ELSE SKIP TO CONDITIONAL BEFORE Q32a.

Q31X. The State of Georgia is considering changing the current DUI law to increase the restrictions on the driving privileges of teen drivers. For each, please tell me whether you strongly support, somewhat support, somewhat oppose, or strongly oppose the proposed law.

STRONGLY SUPPORT	SOMEWHAT SUPPORT	SOMEWHAT OPPOSE	STRONGLY OPPOSE	DON'T KNOW	REFUSE
1	2	3	4	5	6

a. A new law that would increase the restrictions of the driving time for teens that includes a curfew from 10 PM to 6 AM.

b. A new law that would restrict the number of passengers a teen driver can have to 1 person who is not a family member.

c. A new law that would increase the age at when a teen can get a driver's license to 17 years old.

d. A new law that would restrict the driving privileges of new teen drivers while driving in the metropolitan Atlanta area but not while driving in rural areas.

IF TEXAS SKIP TO Q34.

Q32a. In the past 30 days, have you actually seen a sobriety checkpoint, where drivers are stopped briefly by police to check for alcohol-impaired driving?

Yes.....1
No.....2 **SKIP TO Q33**
Don't know...3 **SKIP TO Q33**
Refuse.....4 **SKIP TO Q33**

Q32b. How often have you seen these kinds of checkpoints in the past 6 months?

ENTER NUMBER: _____ (001 - 180)
Never.....000
Don't know.....198
Refuse.....199

Q32c. How many times have you been through a checkpoint in the last 6 months?

ENTER NUMBER: _____ (001 - 180)
Never.....000
Don't know.....198
Refuse.....199

IF PENNSYLVANIA ASK Q32d, ELSE SKIP TO Q33.

Q32d. When did you see these checkpoints...

Weekend day time.....1
Weekend night time.....2
Weekday day time.....3
Weekday night time.....4
Don’t know.....5

Q33. Do you think sobriety checkpoints should be used more frequently, about the same as they are now, or less frequently?

More frequently.....1
About the same.....2
Less frequently.....3
Not used at all.....4
Don’t know.....5

ASK IF TEXAS, ELSE SKIP TO Q38a

Q34. Do you feel Texas should allow sobriety checkpoints to be conducted to aid
in removing illegal drivers from the roadway?

Yes.....1
No.....2
Don't know...3
Refuse.....4

Q35. In the past twelve months, have you been involved in a motor vehicle crash
where alcohol was a factor in the crash?

Yes.....1
No.....2
Don't know...3
Refuse.....4

ASK EVERYONE

Q38a. Have you heard of any new enforcement programs on drinking and driving in your community?

Yes.....1
No.....2 **SKIP TO CONDITIONAL BEFORE Q39**
Don't know...3 **SKIP TO CONDITIONAL BEFORE Q39**
Refuse.....4 **SKIP TO CONDITIONAL BEFORE Q39**

Q38b. What was it called

You drink, you drive, you lose.....1
Please step away from your vehicle.....2
Team DUI.....3
Please step away from your vehicle –
You drink, you drive, you lose.....4
You drink, you drive, you lose – Team DUI.....5
Please step away from your vehicle Team DUI.....6
Please step away from your vehicle - You drink,
you drive, you lose - Team DUI..... 7
You drink, you drive, you lose – Save a life... 8
You drink, you drive, you go to jail – Save a life..9
Other, specify _____
Don’t remember.....18
Refuse.....19

Q38c moved to after Q40.

IF STATE=TENNESSEE ASK Q39. ELSE SKIP TO CONDITIONAL BEFORE Q40.

Q39. Have you heard the details of what they are doing here in Tennessee?

Yes.....1
No.....2 **SKIP TO CONDITIONAL BEFORE Q40**
Don't know...3 **SKIP TO CONDITIONAL BEFORE Q40**
Refuse.....4 **SKIP TO CONDITIONAL BEFORE Q40**

Q39b. What are they doing specifically? [**DO NOT READ. MULTIPLE RECORD**] Anything else?

Increased checkpoints.....1
Roving patrols.....2
Saturation patrols.....3
Other, specify _____
Don’t remember.....18
Refuse.....19

CONDITIONAL BEFORE Q40

IF PENNSYVANIA AND

** **Q38a NOT EQUAL 1 INSERT "PLEASE STEP AWAY FROM YOUR VEHICLE – YOU DRINK, YOU DRIVE, YOU LOSE or TEAM DUI" FOR PROGRAM NAME IN Q40.**

** **MENTIONED "PLEASE STEP AWAY FROM YOUR VEHICLE - YOU DRINK, YOU DRIVE, YOU LOSE and TEAM DUI", that is MENTIONED ALL THREE IN Q38b SKIP TO Q38c**

** **MENTIONED "PLEASE STEP AWAY FROM YOUR VEHICLE" IN Q38b INSERT "YOU DRINK, YOU DRIVE, YOU LOSE or TEAM DUI" FOR PROGRAM NAME IN Q40.**

** **MENTIONED "TEAM DUI" IN Q38b INSERT "PLEASE STEP AWAY FROM YOUR VEHICLE - YOU DRINK, YOU DRIVE, YOU LOSE" FOR PROGRAM NAME IN Q40**

** **MENTIONED "YOU DRINK, YOU DRIVE, YOU LOSE" IN Q38b INSERT "PLEASE STEP AWAY FROM YOUR VEHICLE OR TEAM DUI" FOR PROGRAM NAME IN Q40.**

** **MENTIONED "PLEASE STEP AWAY FROM YOUR VEHICLE and TEAM DUI" IN Q38b INSERT "YOU DRINK, YOU DRIVE, YOU LOSE" FOR PROGRAM NAME IN Q40.**

** **MENTIONED "YOU DRINK, YOU DRIVE, YOU LOSE and TEAM DUI" IN Q38b INSERT "PLEASE STEP AWAY FROM YOUR VEHICLE" FOR PROGRAM NAME IN Q40.**

** **SAID ANYTHING ELSE, "OTHER" "DON'T REMEMBER" OR "REFUSE" IN Q38b INSERT "PLEASE STEP AWAY FROM YOUR VEHICLE - YOU DRINK, YOU DRIVE, YOU LOSE OR TEAM DUI" FOR PROGRAM NAME IN Q40.**

IF TEXAS AND

** **Q38a NOT EQUAL 1 INSERT "YOU DRINK, YOU DRIVE, YOU LOSE – SAVE A LIFE" FOR PROGRAM NAME IN Q40.**

** **IF SAID "YOU DRINK, YOU DRIVE, YOU LOSE – SAVE A LIFE" or "YOU DRINK, YOU DRIVE, YOU GO TO JAIL" IN Q38b SKIP TO Q38c.**

** **IF SAID ANYTHING ELSE, "OTHER" "DON'T REMEMBER", OR "REFUSE" IN Q38b INSERT "YOU DRINK, YOU DRIVE, YOU LOSE – SAVE A LIFE" FOR PROGRAM NAME IN Q40.**

ALL OTHER STATES AND

** **Q38a NOT EQUAL 1 INSERT "YOU DRINK, YOU DRIVE, YOU LOSE" FOR PROGRAM NAME IN Q40.**

** **IF SAID "YOU DRINK, YOU DRIVE, YOU LOSE" IN Q38b SKIP TO Q38c.**

** **IF SAID ANYTHING ELSE, "OTHER" "DON'T REMEMBER", OR "REFUSE" IN Q38b INSERT "YOU DRINK, YOU DRIVE, YOU LOSE" FOR PROGRAM NAME IN Q40.**

Q40. Have you heard of (**PROGRAM NAME**)?

Yes.....1	
No.....2	**SKIP TO CONDITIONAL BEFORE Q44**
Don't know...3	**SKIP TO CONDITIONAL BEFORE Q44**
Refuse.....4	**SKIP TO CONDITIONAL BEFORE Q44**

Q38c. Where did you see or hear that message(s)? [SINGLE PUNCH]

Radio.....1
Television.....2
Billboards.....3
Newspapers.....4
Other (specify).10 _____

Q42. Has this program/these programs had any impact on you or your behavior?

Yes.....1
No.....2 **SKIP TO CONDITIONAL BEFORE Q44**
Don't know...3 **SKIP TO CONDITIONAL BEFORE Q44**
Refuse.....4 **SKIP TO CONDITIONAL BEFORE Q44**

Q43. How has the program(s) affected you or your behavior? [**DO NOT READ LIST. MULTIPLE RECORD**]

More aware of problem.....1
More likely to report drinking drivers.....2
Drink less (driving not specified).....3
Careful where I drink.....4
Drink less when I have to drive.....5
Drive less after drinking.....6
Avoid drinking and driving situations....7
Plan ahead for drinking and driving.....8
Avoid driving in certain areas.....9
Other (SPECIFY).._____.....16
Don't know.....17
Refuse.....18

IF STATE=GEORGIA ASK Q44. ELSE SKIP TO D1.
Q44. Have you heard of a DUI enforcement program called OPERATION ZERO TOLERANCE?

Yes.....1
No.....2 **SKIP TO D1**
Don't know...3 **SKIP TO D1**
Refuse.....4 **SKIP TO D1**

Q44a. Where did you hear about this program? [**DO NOT READ. MULTIPLE RECORD**] Anything else?

Radio.....1
Television.....2
Billboards.....3
Newspapers.....4
Leaflet.....5
School.....6
Friends.....7
Family.....8
Other (specify).10 _____

Q45. Has this program had any impact on you or your behavior?

Yes.....1
No.....2 **SKIP TO CONDITIONAL BEFORE QD1**
Don't know...3 **SKIP TO CONDITIONAL BEFORE QD1**
Refuse.....4 **SKIP TO CONDITIONAL BEFORE QD1**

Q46. How has the program affected you or your behavior? [**DO NOT READ LIST. MULTIPLE RECORD**]

More aware of problem.....1
More likely to report drinking drivers.....2
Drink less (driving not specified).....3
Careful where I drink.....4
Drink less when I have to drive.....5
Drive less after drinking.....6
Avoid drinking and driving situations....7
Plan ahead for drinking and driving.....8
Avoid driving in certain areas.....9
Other (SPECIFY).....16 _____
Don't know.....17
Refuse.....18

DEMOGRAPHICS

D1 Finally, I need some information about you for classification purposes.
What is your age?

_____ AGE REFUSED=99

D2a. Do you consider yourself to be Hispanic or Latino?

Yes.....1
No.....2
(VOL) Not sure.....3
(VOL) Refused.....4

D2b. Is your ethnic background..... **READ LIST**

Cuban.....1
Mexican.....2
Spanish.....3
South American.....4
Central American.....5
Puerto Rican.....6
Other, specify.....7

D3. Which of the following racial categories describes you? You may select more than one. [READ LIST--MULTIPLE RECORD]

American Indian or Alaska Native.....1
Asian.....2
Black or African American.....3
Native Hawaiian or other Pacific Islander.....4
White.....5
Other(SPECIFY)._____...6
(VOL) Refused.....9

D4. Which of the following categories best describes your total household income before taxes in 1999? (Includes the income of all persons in the household.) Was your total household income [**READ LIST**]

Less than $5,000.....1
$5,000 to $14,999.....2
$15,000 to $29,999.....3
$30,000 to $49,999.....4
$50,000 to $74,999.....5
$75,000 to $99,999.....6
$100,000 or more.....7
Not sure (VOL).....8
Refused (VOL).....9

D5. Do you have more than one telephone number in your household?

Yes.....1
No.....2
Don’t know.....3
(VOL) Refused.....4

D6. What is the five digit zip code where you live?

_____ _____ _____ _____ _____

D8. FROM OBSERVATION, ENTER GENDER OF RESPONDENT

Male.....1
Female.....2

That completes the survey.
Thank you very much for your time and cooperation.

Appendix B. Georgia Survey Findings

Methodology

- Random telephone numbers called in the areas of the study
- Questionnaire programmed on computer assisted telephone interviewing (CATI) system
- Up to five call-backs to determine if it is a household
- Up to eight call-backs to find a respondent in a household
- Spanish Language version of the questionnaire
- Attempt to convert initial refusals by more experienced interviewers

Field Periods

- Wave 1, Baseline — May 23 to June 19, 2000
- Wave 2, Midpoint — Jan 18 to Feb 11, 2001
- Wave 3, Final — Sept 5 to Oct 12, 2001

Process Measures: Goals

- *AWARENESS:* Increase in general and specific awareness of new enforcement programs.
- *PERCEPTIONS:* Increase in perception of being stopped if driving while intoxicated, being arrested if stopped, and being convicted if arrested.
- *BEHAVIOR:* Decrease in reported drinking, driving after drinking, and driving when felt had too much to drink; increase in deliberately avoided driving because had too much to drink.

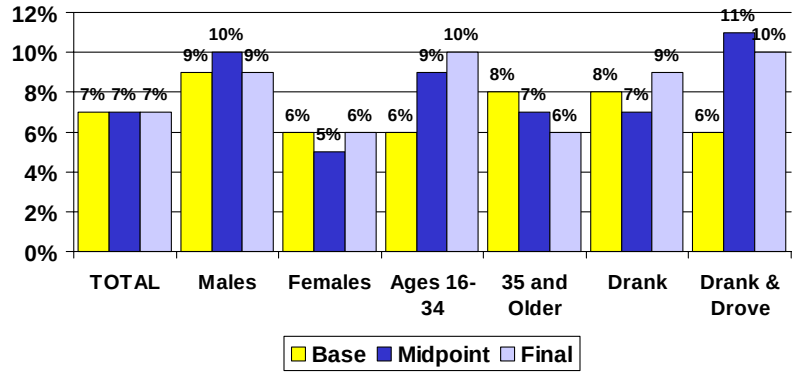
Demographic Comparison

	Wave 1	Wave 2	Wave 3
Mean Age *	**42.8**	**41.6**	**43.5**
Percent White #	**68**	**72**	**72**
Percent Male	**42**	**44**	**43**

* Significant difference between the mean ages for Waves 2 and 3, p<.05

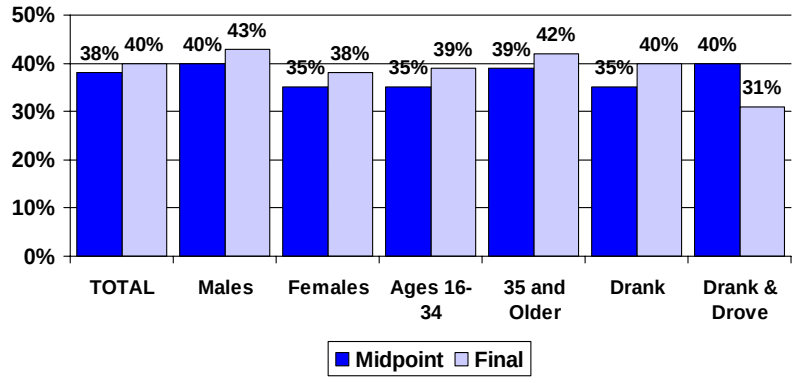
Significant difference between the percent White between Waves 1 & 2 and Waves 2 & 3, p<.05

Awareness: General Awareness of New Enforcement Program



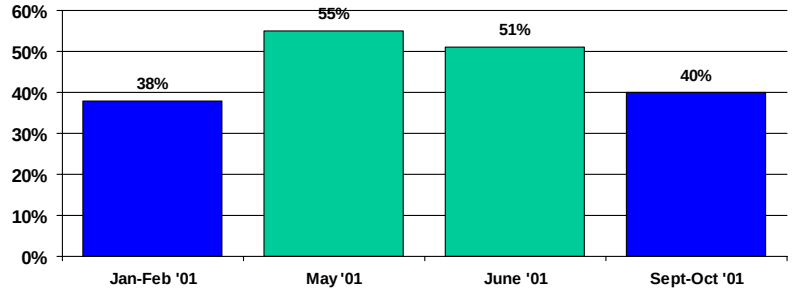
Q38a: Have you heard of any new enforcement programs on drinking and driving?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000

Awareness: Specific Awareness of New Enforcement Program



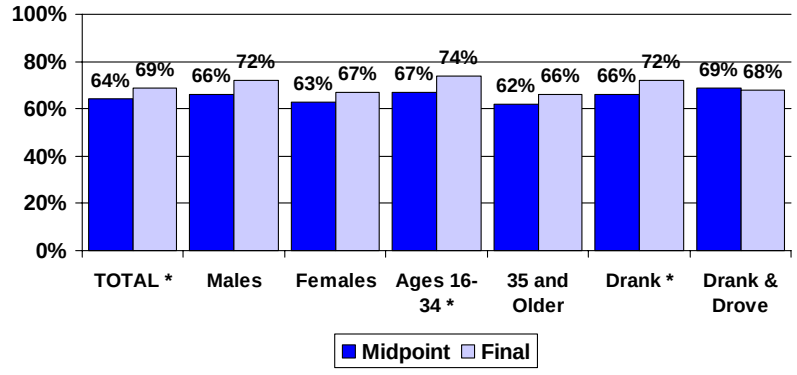
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,000; Wave 3 = 1,000

Awareness: Awareness of New Enforcement Program – Two Studies



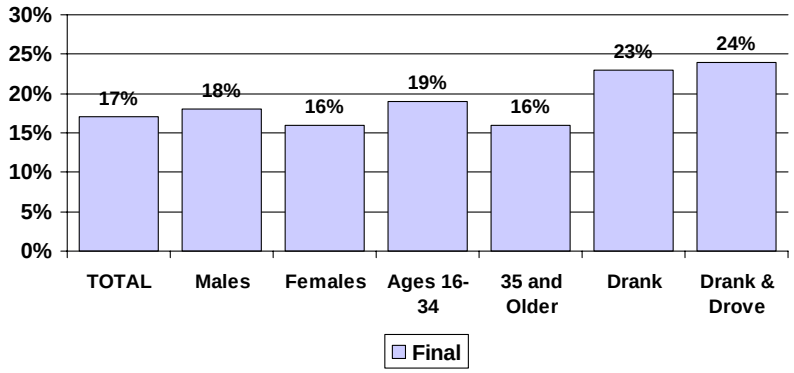
TARGETS OF OPPORTUNITY (blue):
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,000; Wave 3 = 1,000
CLICK-IT OR TICKET (green):
Q22a: Do you recall hearing the following slogans in the past 30 days?
Base: Total Adults
N May=500; June= 500

Awareness: Heard of Operation Zero Tolerance



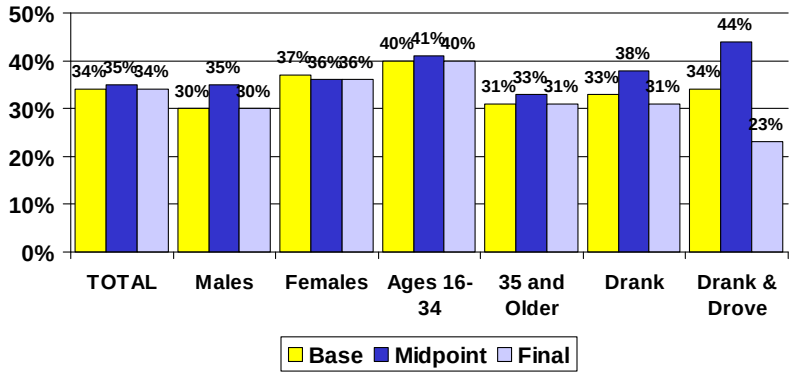
Q44: Have you heard of a DUI enforcement program called Operation Zero Tolerance?
Base: All drivers
N Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference, p<.05

Awareness: Operation Zero Tolerance Effected Behavior



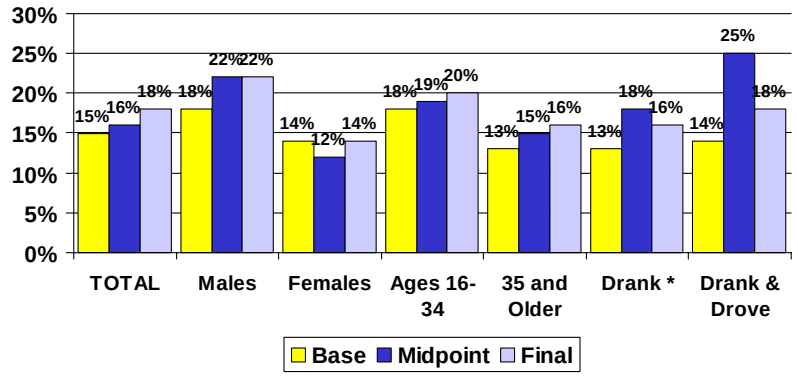
Q45GA: Has this program had any impact on your behavior?
Base: Heard of Operation Zero Tolerance
N Wave 3 = 299

Awareness: See More Police on The Road Than Saw 6 Months Ago



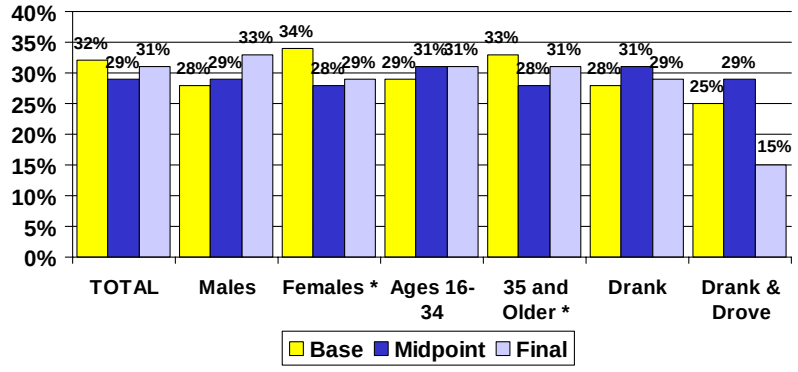
Q7a: Do you see police on the roads you normally drive more now than 6 months ago, less now than 6 months ago, or about the same?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000

Awareness: Saw a Sobriety Checkpoint in the Last 30 Days



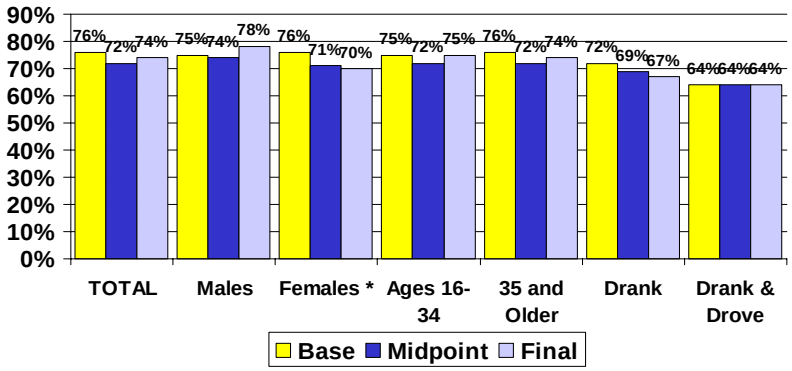
Q32a: In the past 30 days, have you actually seen a sobriety checkpoint, where drivers are stopped briefly by police to check for alcohol-impaired driving?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Perceptions: Almost Certain or Very Likely to Be Stopped If Driving When You Had Too Much to Drink



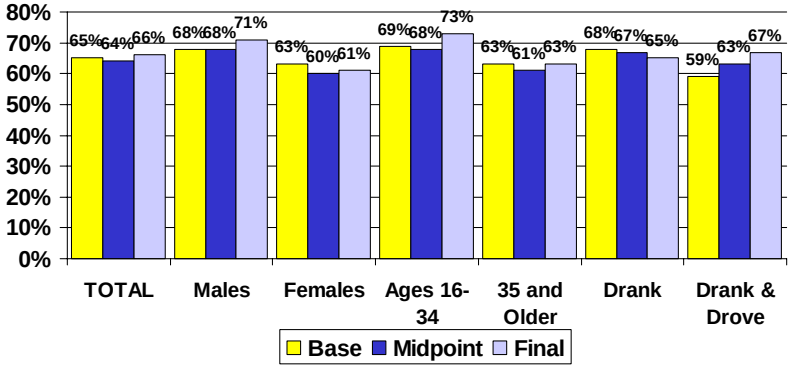
Q22: How likely [is a person] to be stopped by a police officer for driving after they had too much to drink? Is it almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Perceptions: Almost Certain or Very Likely to Be Arrested If Stopped



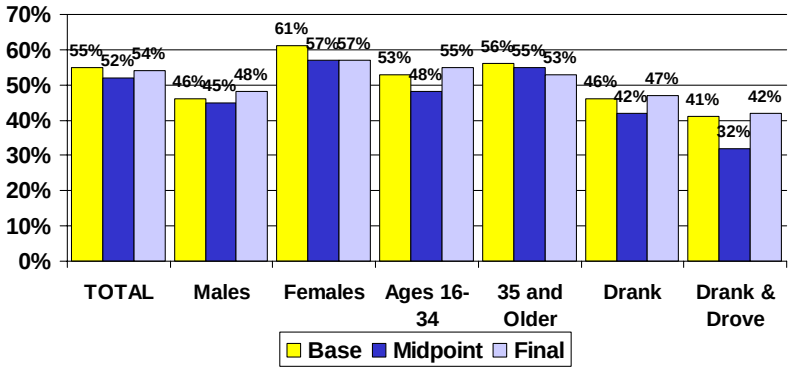
Q23: If a police officer stopped someone for driving while intoxicated, how likely would it be that they would be arrested? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 & 2 and Waves 1 & 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Convicted If Arrested



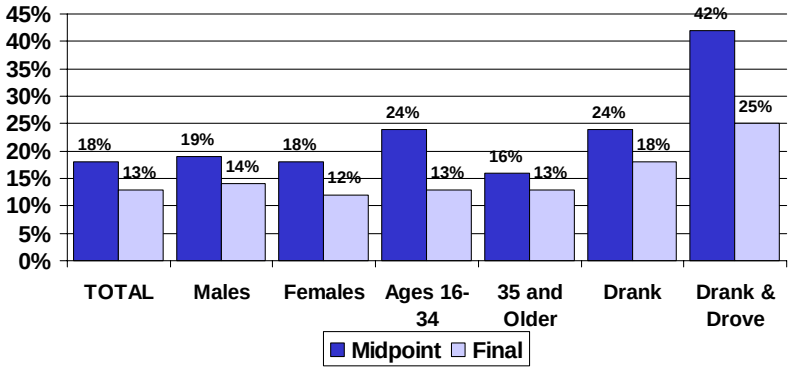
Q24: If someone were arrested for driving while intoxicated, how likely would it be that they would be convicted? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000

Perceptions: Checkpoints Should Be Used More Frequently



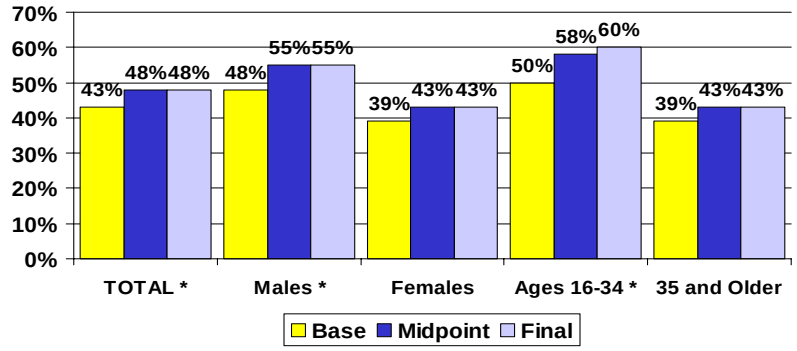
Q33: Do you think sobriety checkpoints should be used more frequently, about the same as they are now, or less frequently?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000

Behavior: New Enforcement Program Had an Impact on Behavior



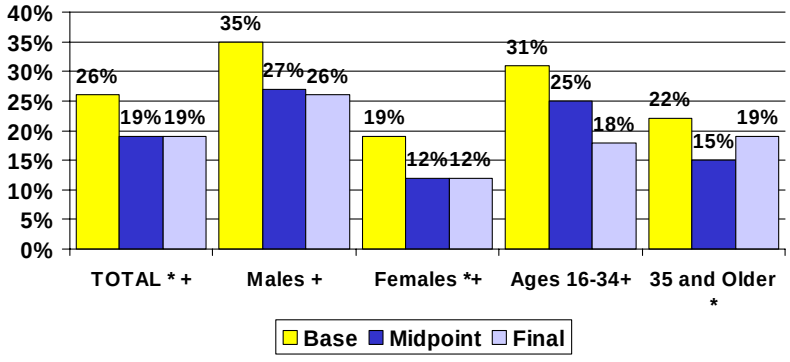
Q42: Has this program had any impact on you or your behavior?
Base: Heard of a new enforcement program
N Wave 2 = 368; Wave 3 = 402

Behavior: Had an Alcoholic Beverage in the Last 6 Months



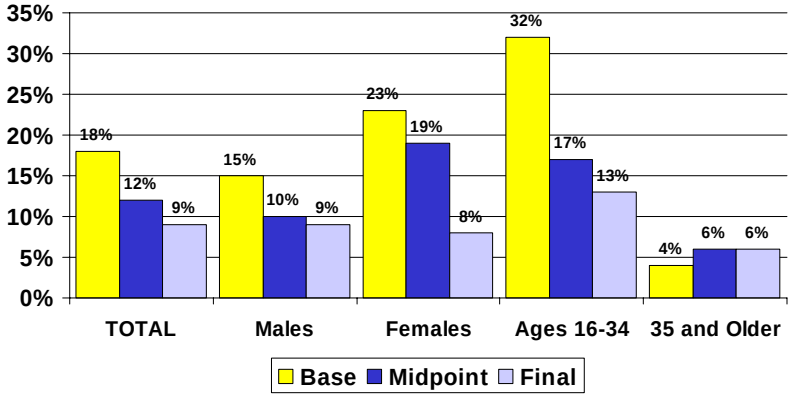
Q9: During the last six months, how often did you usually drink any alcoholic beverages, including beer, light beer, wine, wine coolers or liquors? Would you say every day, several days a week, once a week or less, weekends only, only on celebrations or special occasions, or never?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 & 2 and Waves 1 & 3, p<.05

Behavior: Driven Within 2 Hours of Drinking in the Last 30 Days



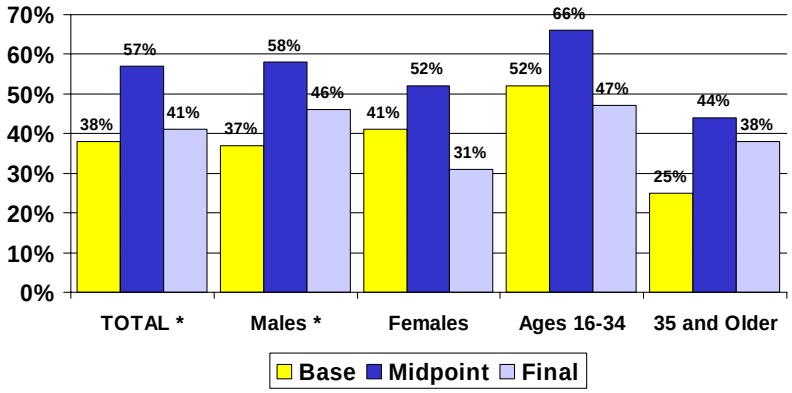
Q14: In the past 30 days, have you ever driven a motor vehicle within two hours after drinking alcoholic beverages?
Base: Had a drink in the last six months
N Wave 1 = 427; Wave 2 = 481; Wave 3 = 487
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Behavior: Drove When Thought You Had Too Much to Drink in Last 30 Days



Q17: About how many times in the past 30 days did you drive when you thought you had too much to drink?
Base: Gave the number of times drove within two hours of drinking
N Wave 1 = 99; Wave 2 = 81; Wave 3 = 80

Behavior: Deliberately Avoided Driving Due to Too Much to Drink



Q19: In the past 30 days, have you deliberately avoided driving a motor vehicle because you felt you probably had too much to drink?
Base: Gave the number of times drove within two hours of drinking
Unweighted N Wave 1 = 99; Wave 2 = 81; Wave 3 = 80
* Statistically significant difference between Waves 1 and 2, p<.05

Appendix C. Louisiana Survey Findings

Methodology

- Random telephone numbers called in the areas of the study
- Questionnaire programmed on computer assisted telephone interviewing (CATI) system
- Up to five call-backs to determine if it is a household
- Up to eight call-backs to find a respondent in a household
- Spanish Language version of the questionnaire
- Attempt to convert initial refusals by more experienced interviewers

Field Periods

Interviewing took place in the following 16 parishes:

Ascension, Bossier, Caddo, Calcasieu, East Baton Rouge, Jefferson, Lafayette, Lafourche, Livingston, Orleans, Ouachita, Rapides, St. Landry, St. Tammany, Tangipahoa, and Terrebonne.

- Wave 1, Baseline — Unknown
- Wave 2, Midpoint — Jan 18 to Feb 11, 2001
- Wave 3, Final — July 11 to July 22, 2001

Process Measures: Goals

- *AWARENESS:* Increase in general and specific awareness of new enforcement programs.
- *PERCEPTIONS:* Increase in perception of being stopped if driving while intoxicated, being arrested if stopped, and being convicted if arrested.
- *BEHAVIOR:* Decrease in reported drinking, driving after drinking, and driving when felt had too much to drink; increase in deliberately avoided driving because had too much to drink.

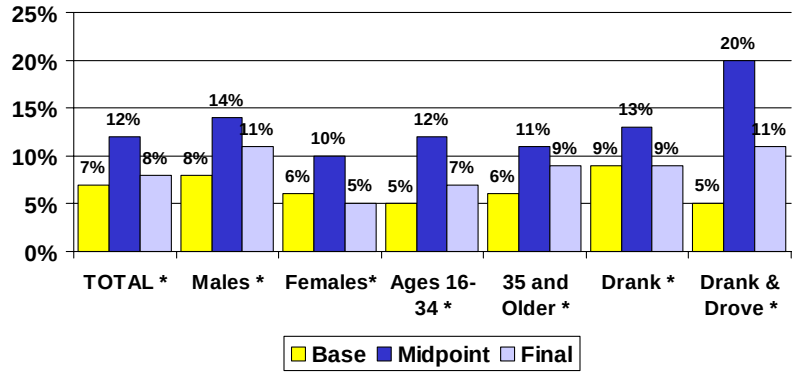
Demographic Comparison
Unweighted

	Wave 1	Wave 2	Wave 3
Mean Age *	**46.2**	**43.1**	**43.8**
Percent White *	**76**	**68**	**70**
Percent Male *	**40**	**44**	**48**

* Significant difference between the percent male between Waves 1 & 2 and Waves 1 & 3, $p<.05$

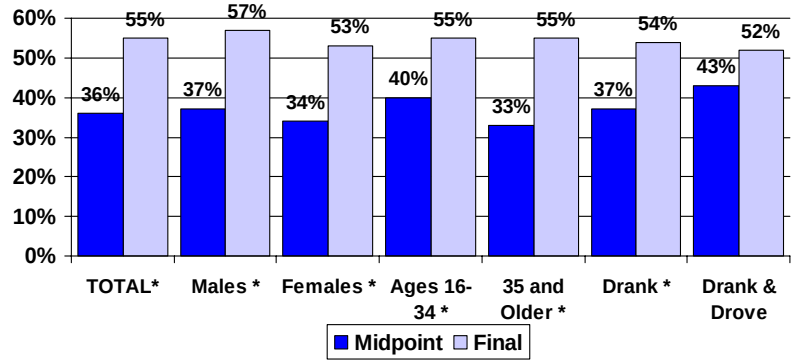
Interviewing for Wave 1 was conducted by the state of Louisiana results for Wave 1 were reweighted to meet the age and race distribution of the population of Louisiana age 15 and over.

Awareness: General Awareness of New Enforcement Program



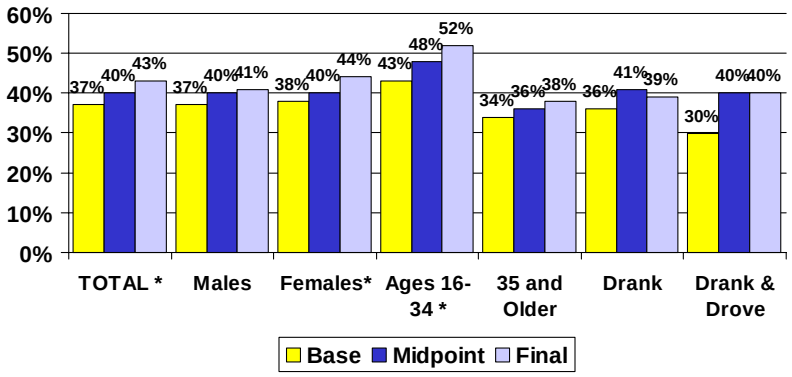
Q38a: Have you heard of any new enforcement programs on drinking and driving?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Awareness: Specific Awareness of New Enforcement Program



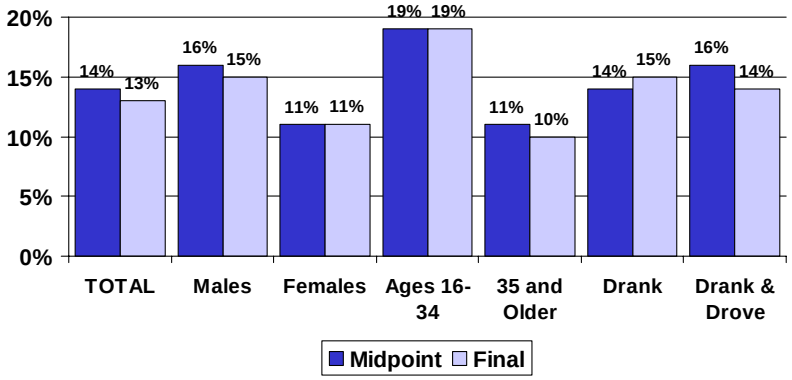
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Awareness: See More Police on The Road Than Saw 6 Months Ago



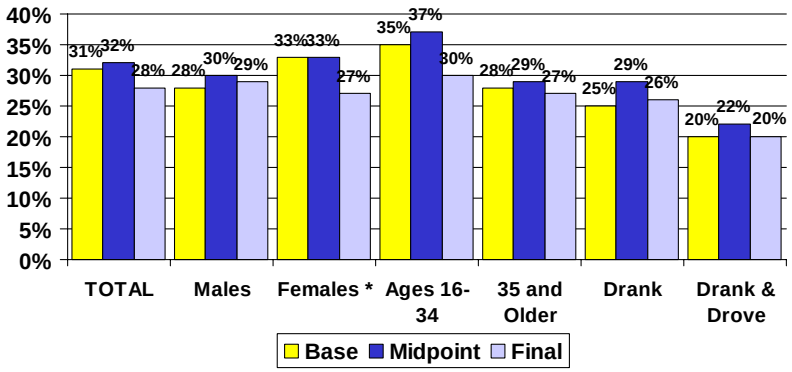
Q7a: Do you see police on the roads you normally drive more now than 6 months ago, less now than 6 months ago, or about the same?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 3, p<.05

Awareness: Saw a Sobriety Checkpoint in the Last 30 Days



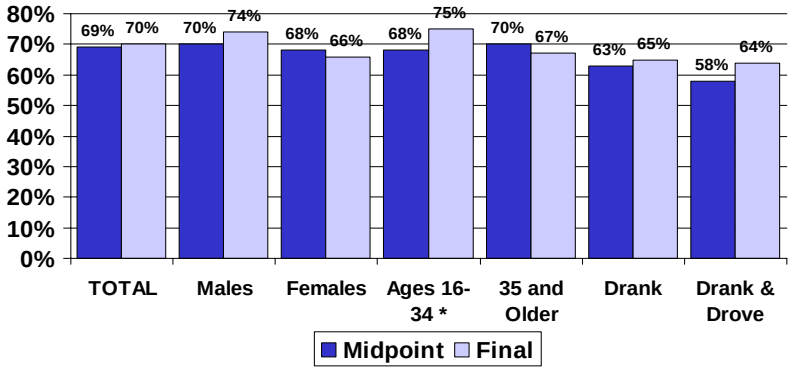
Q32a: In the past 30 days, have you actually seen a sobriety checkpoint, where drivers are stopped briefly by police to check for alcohol-impaired driving?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000

Perceptions: Almost Certain or Very Likely to Be Stopped If Driving When You Had Too Much to Drink



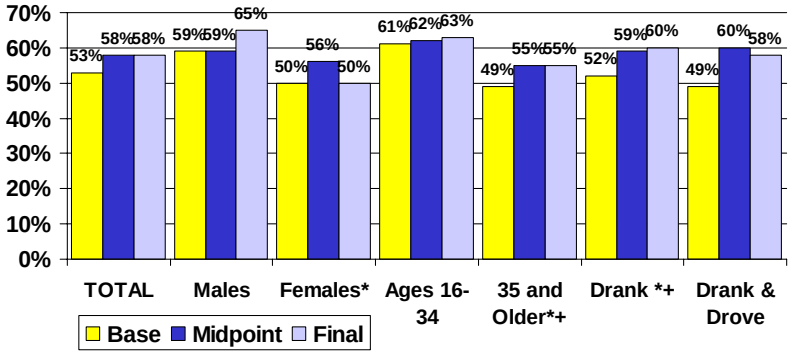
Q22: How likely [is a person] to be stopped by a police officer for driving after they had too much to drink? Is it almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Arrested If Stopped



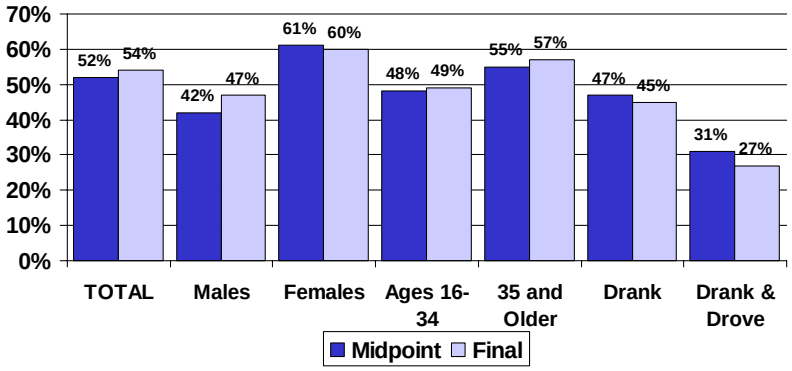
Q23: If a police officer stopped someone for driving while intoxicated, how likely would it be that they would be arrested? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 2 and 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Convicted If Arrested



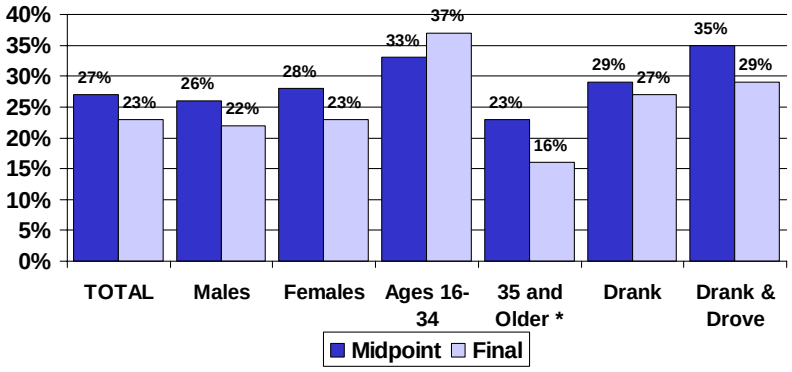
Q24: If someone were arrested for driving while intoxicated, how likely would it be that they would be convicted? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Perceptions: Checkpoints Should Be Used More Frequently



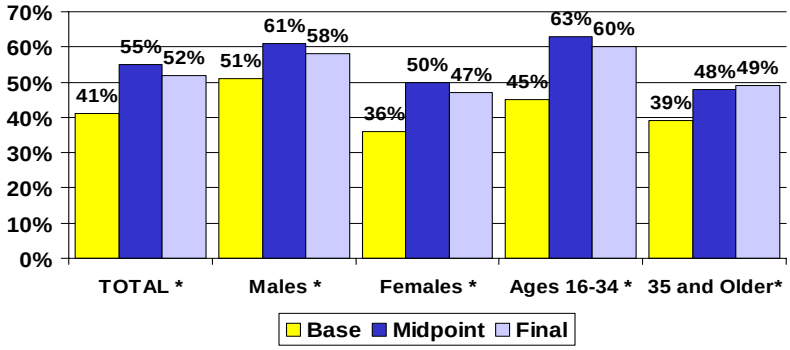
Q33: Do you think sobriety checkpoints should be used more frequently, about the same as they are now, or less frequently?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000

Behavior: New Enforcement Program Had an Impact on Behavior



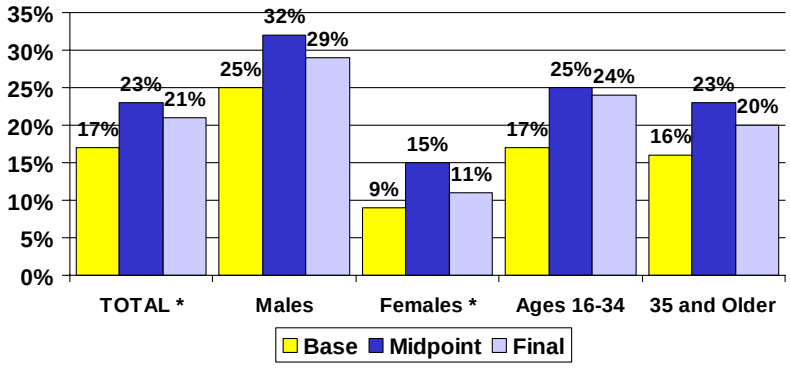
Q42: Has this program had any impact on you or your behavior?
Base: Heard of a new enforcement program
N Wave 2 = 345; Wave 3 =533
* Statistically significant difference between Waves 2 and 3, p<.05

Behavior: Had an Alcoholic Beverage in the Last 6 Months



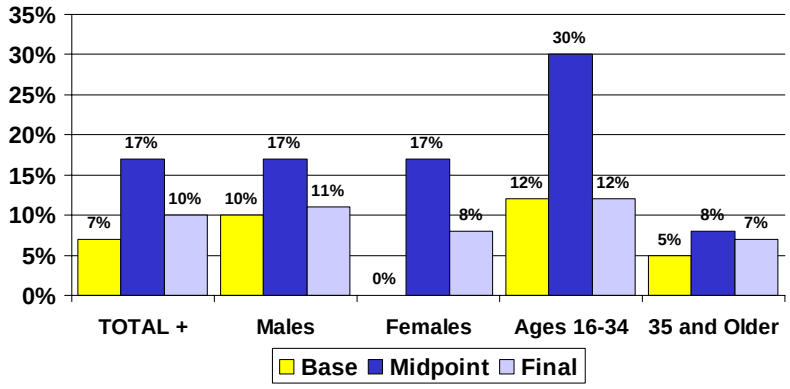
Q9: During the last six months, how often did you usually drink any alcoholic beverages, including beer, light beer, wine, wine coolers or liquors? Would you say every day, several days a week, once a week or less, weekends only, only on celebrations or special occasions, or never?
Base: Total sample
N Wave 1 = 1,000; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 & 2 and Waves 1 & 3, p<.05

Behavior: Driven Within 2 Hours of Drinking in the Last 30 Days



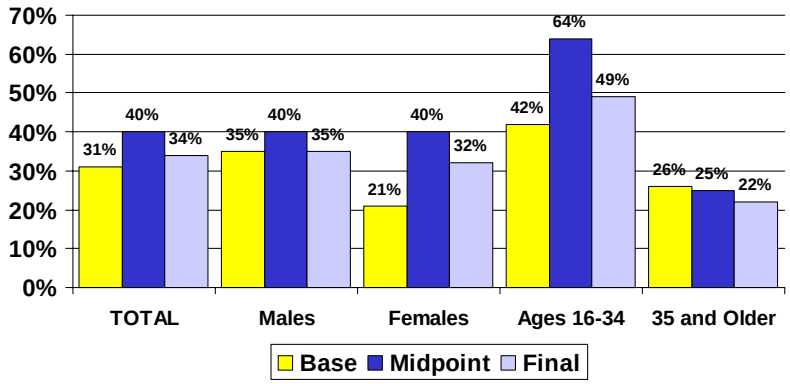
Q14: In the past 30 days, have you ever driven a motor vehicle within two hours after drinking alcoholic beverages?
Base: Had a drink in the last six months
N Wave 1 = 446; Wave 2 = 550; Wave 3 = 527
* Statistically significant difference between Waves 1 and 2, p<.05

Behavior: Drove When Thought You Had Too Much to Drink in Last 30 Days



Q17: About how many times in the past 30 days did you drive when you thought you had too much to drink?
Base: Gave the number of times drove within two hours of drinking
N Wave 1 = 71; Wave 2 =119; Wave 3 = 100
* Statistically significant difference between Waves 1 and 2, p<.05

Behavior: Deliberately Avoided Driving Due to Too Much to Drink



Q19: In the past 30 days, have you deliberately avoided driving a motor vehicle because you felt you probably had too much to drink?
Base: Gave the number of times drove within two hours of drinking
Unweighted N Wave 1 = 71; Wave 2 = 119; Wave 3 = 100

Appendix D. Pennsylvania Survey Findings

Methodology

- Random telephone numbers called in the areas of the study
- Questionnaire programmed on computer assisted telephone interviewing (CATI) system
- Up to five call-backs to determine if it is a household
- Up to eight call-backs to find a respondent in a household
- Spanish Language version of the questionnaire
- Attempt to convert initial refusals by more experienced interviewers

Field Periods

Interviewing took place in the following 10 counties: Allegheny, Erie, Indiana, Lehigh, Luzerne, Mifflin, Northumberland, Philadelphia, Westmoreland, and York.

- Wave 1, Baseline May 24 to June 4, 2000
- Wave 2, Midpoint Jan 18 to Feb 11, 2001
- Wave 3, Final Sept 5 to Oct 12, 2001

At the request of the Pennsylvania Department of Transportation, interviews with drivers in the 21 to 34 age cohort were conducted at approximately twice the proportion that they appear in the population. Completed interviews were weighted to represent the number of drivers each county in the 21 to 34 age group and all other drivers based on data supplied by Pennsylvania DOT.

Process Measures: Goals

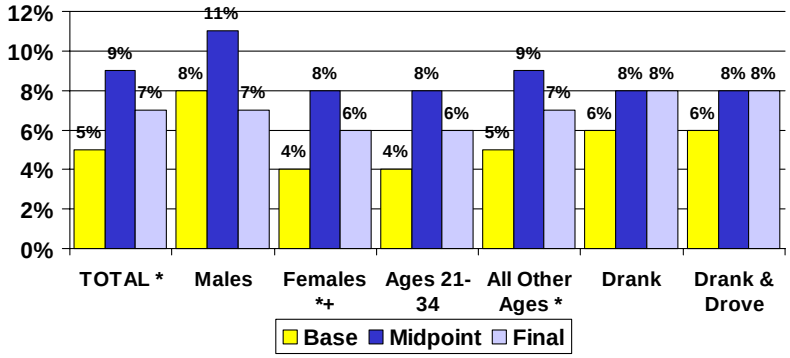
- *AWARENESS:* Increase in general and specific awareness of new enforcement programs.
- *PERCEPTIONS:* Increase in perception of being stopped if driving while intoxicated, being arrested if stopped, and being convicted if arrested.
- *BEHAVIOR:* Decrease in reported drinking, driving after drinking, and driving when felt had too much to drink; increase in deliberately avoided driving because had too much to drink.

Demographic Comparison

	Wave 1	Wave 2	Wave 3
Mean Age*	**48.2**	**46.0**	**46.7**
Percent White	**91**	**89**	**90**
Percent Male	**41**	**45**	**43**

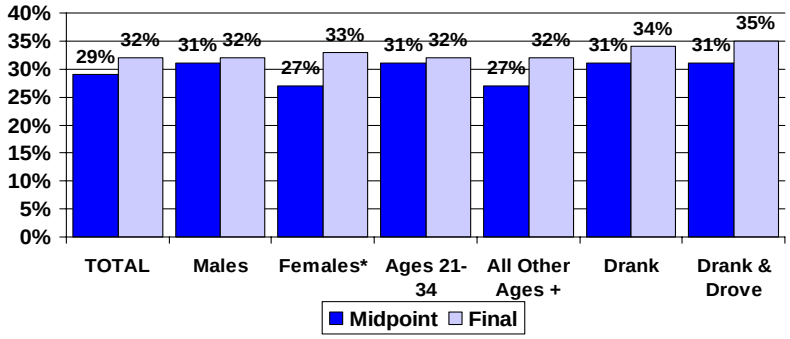
* Significant difference between the mean ages for Waves 1 and 2, $p<.05$

Awareness: General Awareness of New Enforcement Program



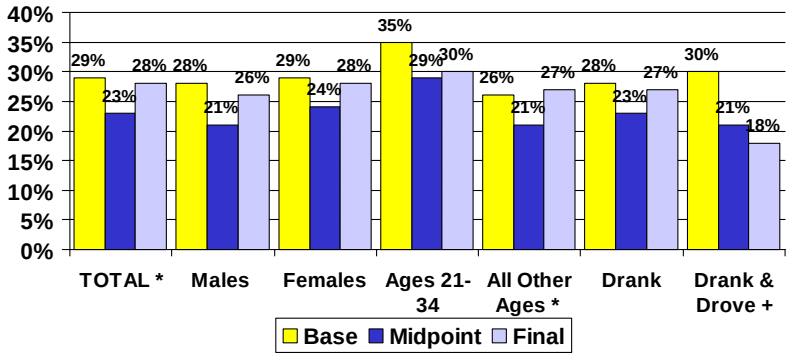
Q38a: Have you heard of any new enforcement programs on drinking and driving?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001
* Statistically significant difference between Wave 1 and Wave 2, p<.05
\+ Statistically significant difference between Wave 1 and Wave 3, p<.05

Awareness: Specific Awareness of New Enforcement Program



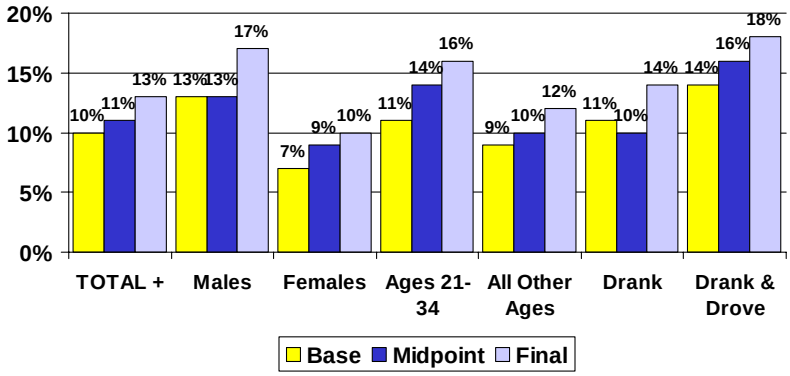
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose. - Please Step Away from Your Vehicle - Team DUI "?
Base: Total sample
N Wave 2 = 1,019; Wave 3 = 1,001
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Awareness: See More Police on the Road than Saw 6 Months Ago



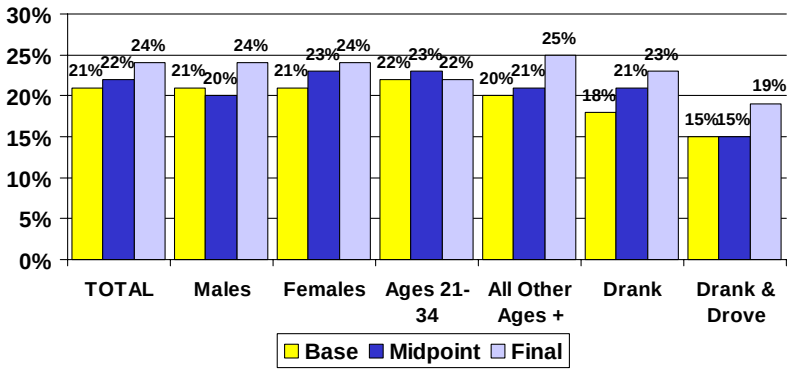
Q7a: Do you see police on the roads you normally drive more now than 6 months ago, less now than 6 months ago, or about the same?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Awareness: Saw a Sobriety Checkpoint in the Last 30 Days



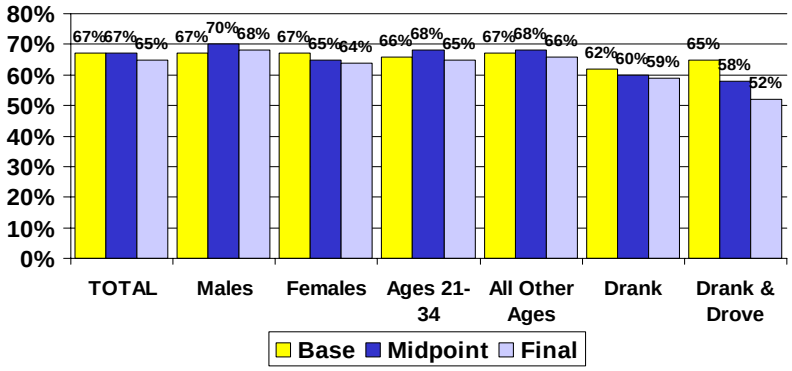
Q32a: In the past 30 days, have you actually seen a sobriety checkpoint, where drivers are stopped briefly by police to check for alcohol-impaired driving?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001
\+ Statistically significant difference between Waves 1 and 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Stopped If Driving When You Had Too Much to Drink



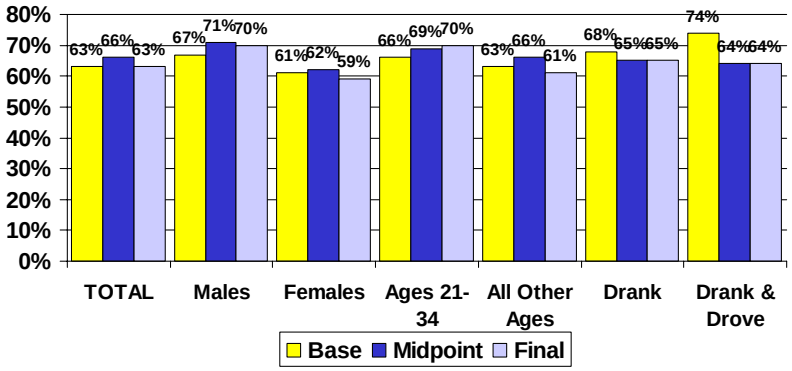
Q22: How likely [is a person] to be stopped by a police officer for driving after they had too much to drink? Is it almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001
+ Statistically significant difference between Waves 1 and 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Arrested If Stopped



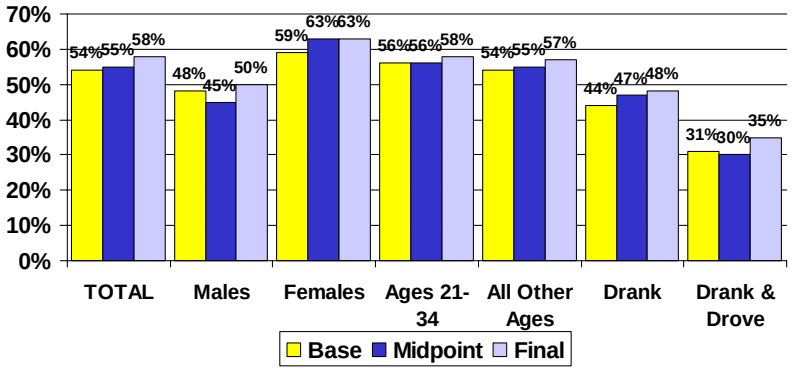
Q23: If a police officer stopped someone for driving while intoxicated, how likely would it be that they would be arrested? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001

Perceptions: Almost Certain or Very Likely to Be Convicted If Arrested



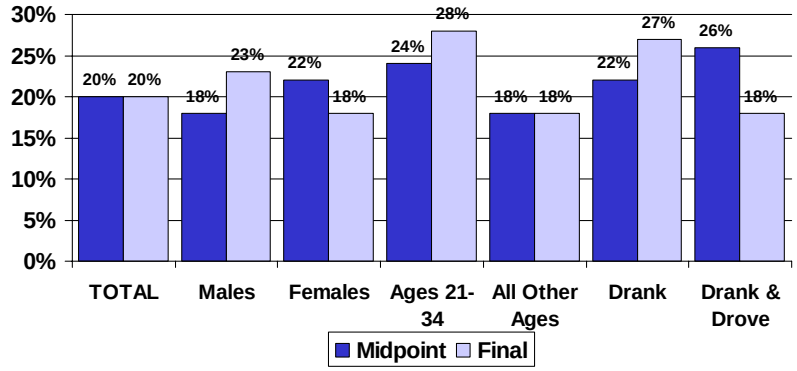
Q24: If someone were arrested for driving while intoxicated, how likely would it be that they would be convicted? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001

Perceptions: Checkpoints Should be Used More Frequently



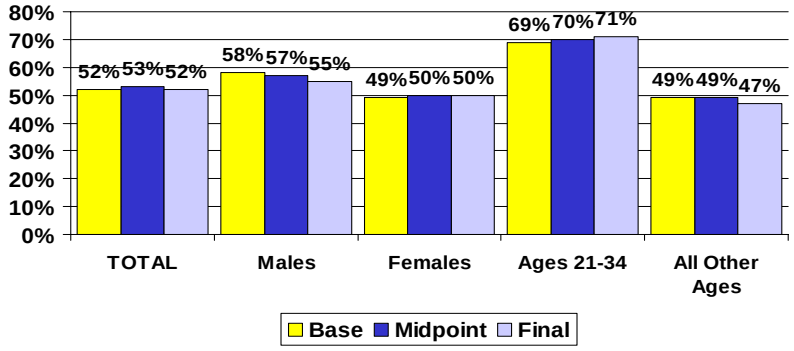
Q33: Do you think sobriety checkpoints should be used more frequently, about the same as they are now, or less frequently?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001

Behavior: New Enforcement Program Had an Impact on Behavior



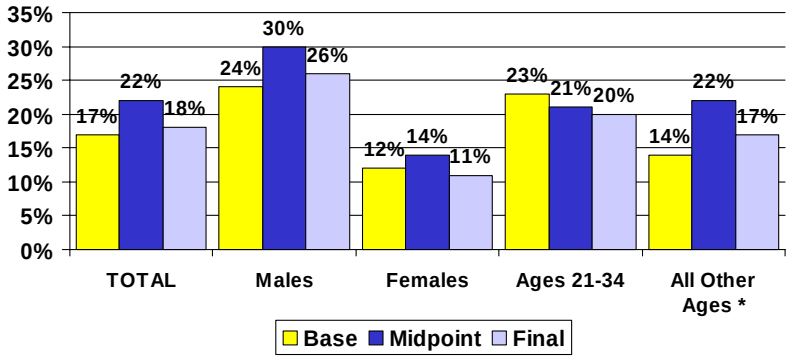
Q42: Has this program had any impact on you or your behavior?
Base: Heard of a new enforcement program
N Wave 2 = 304; Wave 3 = 321

Behavior: Had an Alcoholic Beverage in the Last 6 Months



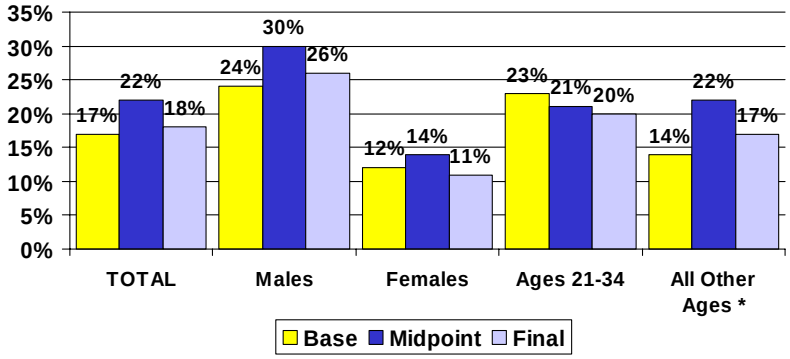
Q9: During the last six months, how often did you usually drink any alcoholic beverages, including beer, light beer, wine, wine coolers or liquors? Would you say every day, several days a week, once a week or less, weekends only, only on celebrations or special occasions, or never?
Base: Total sample
N Wave 1 = 1,004; Wave 2 = 1,019; Wave 3 = 1,001

Behavior: Driven Within 2 Hours of Drinking in the Last 30 Days



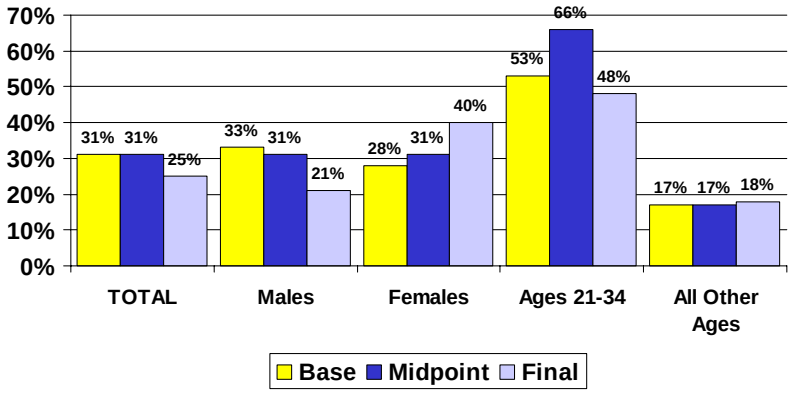
Q14: In the past 30 days, have you ever driven a motor vehicle within two hours after drinking alcoholic beverages?
Base: Had a drink in the last six months
N Wave 1 = 590; Wave 2 = 592; Wave 3 = 594
* Statistically significant difference between Waves 1 and 2, p<.05

Behavior: Driven Within 2 Hours of Drinking in the Last 30 Days



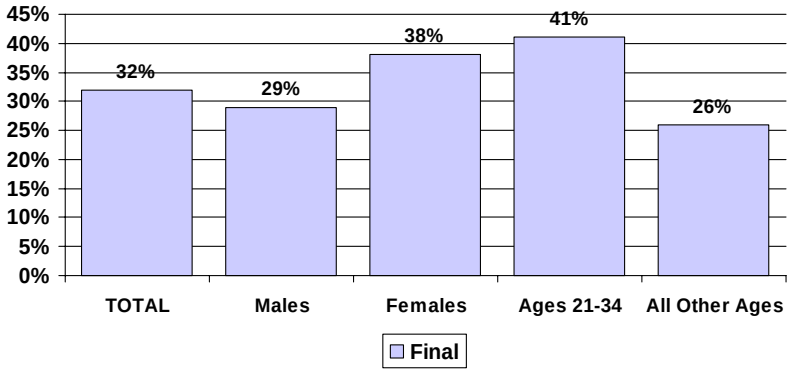
Q14: In the past 30 days, have you ever driven a motor vehicle within two hours after drinking alcoholic beverages?
Base: Had a drink in the last six months
N Wave 1 = 590; Wave 2 = 592; Wave 3 = 594
* Statistically significant difference between Waves 1 and 2, p<.05

Behavior: Deliberately Avoided Driving Due to Too Much to Drink



Q19: In the past 30 days, have you deliberately avoided driving a motor vehicle because you felt you probably had too much to drink?
Base: Gave the number of times drove within two hours of drinking
Unweighted N Wave 1 = 100; Wave 2 = 113; Wave 3 = 105

Behavior: Avoid Driving During Times of Increased Enforcement



Q21X: In general, do you deliberately avoid driving during times when you know there is an increased enforcement of drinking and driving laws?
Base: Gave the number of times drove within two hours of drinking
N Wave 3 = 107

Appendix E. Tennessee Survey Findings

Methodology

- Random telephone numbers called in the areas of the study
- Questionnaire programmed on computer assisted telephone interviewing (CATI) system
- Up to five call-backs to determine if it is a household
- Up to eight call-backs to find a respondent in a household
- Spanish Language version of the questionnaire
- Attempt to convert initial refusals by more experienced interviewers

Field Periods

- Wave 1, Baseline July 7 to July 25, 2000
- Wave 2, Midpoint Jan 18 to Feb 11, 2001
- Wave 3, Final Sept 5 to Oct 12, 2001

Process Measures: Goals

- *AWARENESS:* Increase in general and specific awareness of new enforcement programs.
- *PERCEPTIONS:* Increase in perception of being stopped if driving while intoxicated, being arrested if stopped, and being convicted if arrested.
- *BEHAVIOR:* Decrease in reported drinking, driving after drinking, and driving when felt had too much to drink; increase in deliberately avoided driving because had too much to drink.

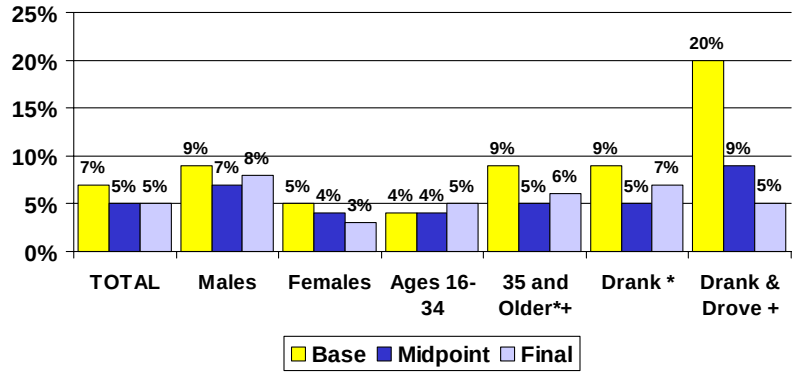
Demographic Comparison

	Wave 1	Wave 2	Wave 3
Mean Age *+	**43.7**	**45.5**	**45.7**
Percent White +	**78**	**83**	**83**
Percent Male *	**42**	**47**	**41**

* Significant difference between the mean ages for Waves 1 and 2, p<.05

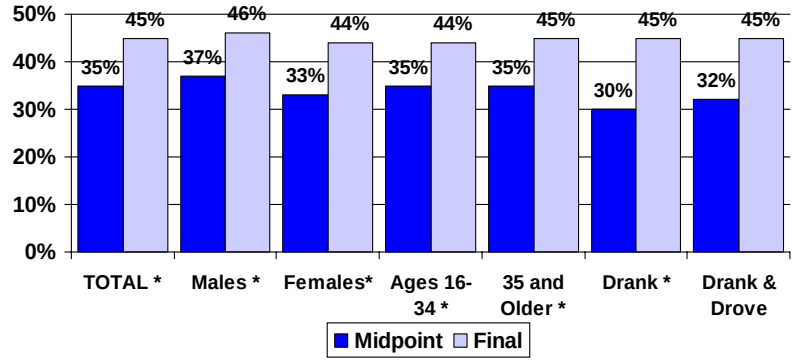
+ Significant difference between the percent White between Waves 1 & 3, p<.05

Awareness: General Awareness of New Enforcement Program



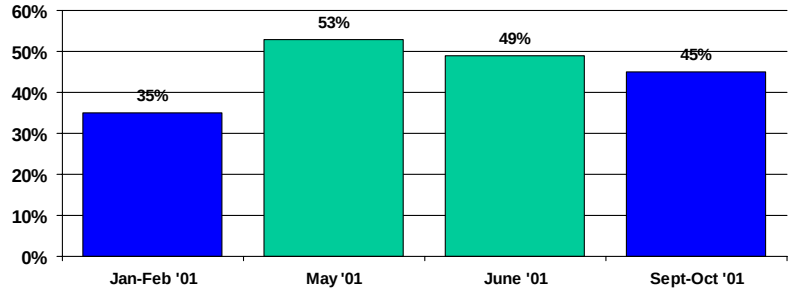
Q38a: Have you heard of any new enforcement programs on drinking and driving?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
+ Statistically significant difference between Waves 1 and 3, p<.05

Awareness: Specific Awareness of New Enforcement Program



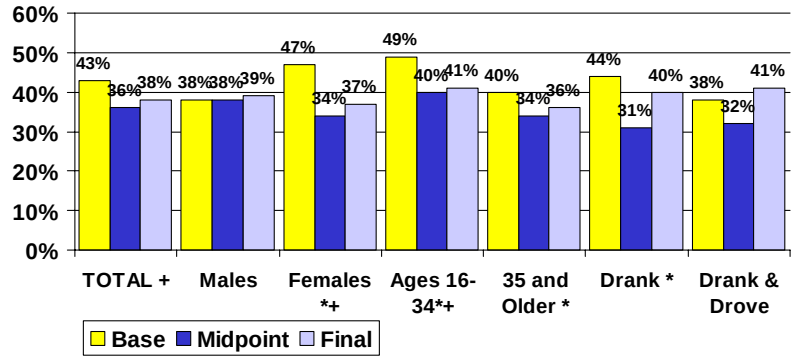
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Awareness: Awareness of New Enforcement Program – Two Studies



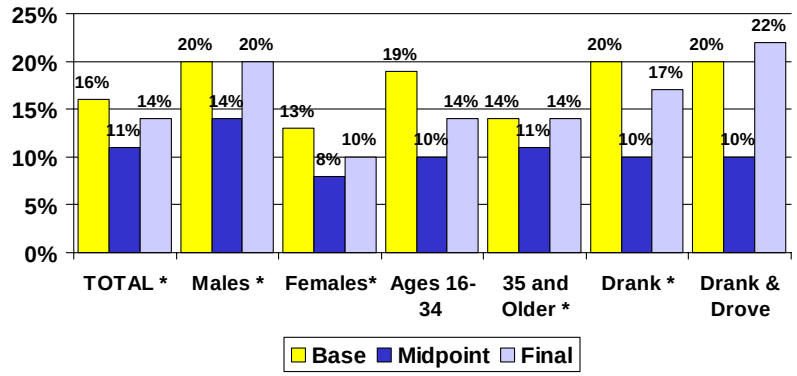
TARGETS OF OPPORTUNITY (blue):
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,000; Wave 3 = 1,000
CLICK-IT OR TICKET (green):
Q22a: Do you recall hearing the following slogans in the past 30 days?
Base: Total Adults
N May=500; June= 500

Awareness: See More Police on The Road Than Saw 6 Months Ago



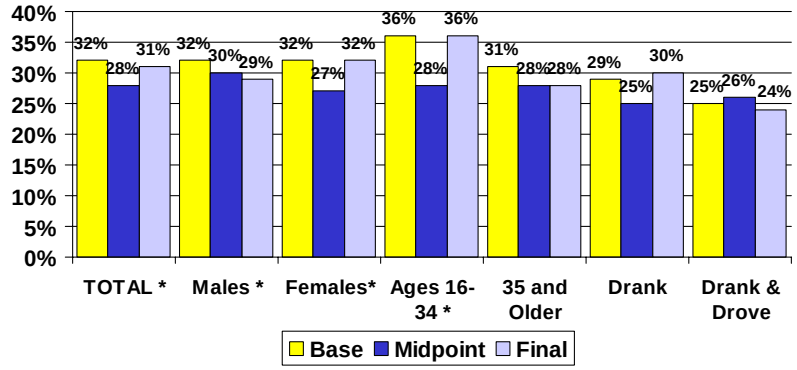
Q7a: Do you see police on the roads you normally drive more now than 6 months ago, less now than 6 months ago, or about the same?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Awareness: Saw a Sobriety Checkpoint in the Last 30 Days



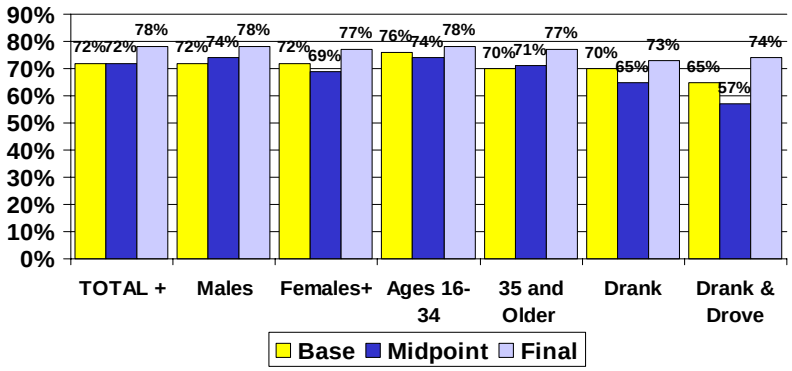
Q32a: In the past 30 days, have you actually seen a sobriety checkpoint, where drivers are stopped briefly by police to check for alcohol-impaired driving?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Perceptions: Almost Certain or Very Likely to Be Stopped If Driving When You Had Too Much to Drink



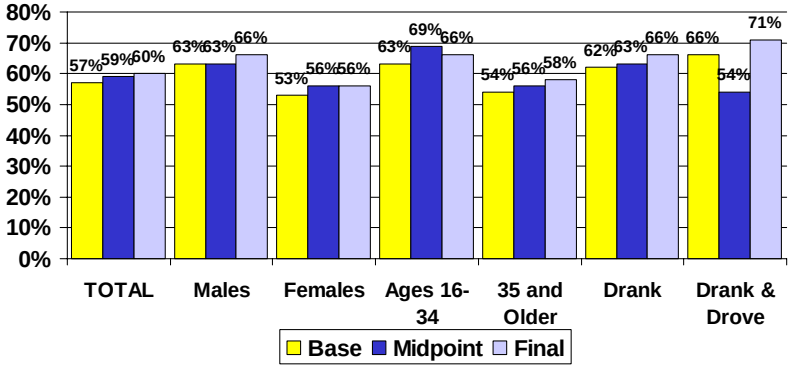
Q22: How likely [is a person] to be stopped by a police officer for driving after they had too much to drink? Is it almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Perceptions: Almost Certain or Very Likely to Be Arrested If Stopped



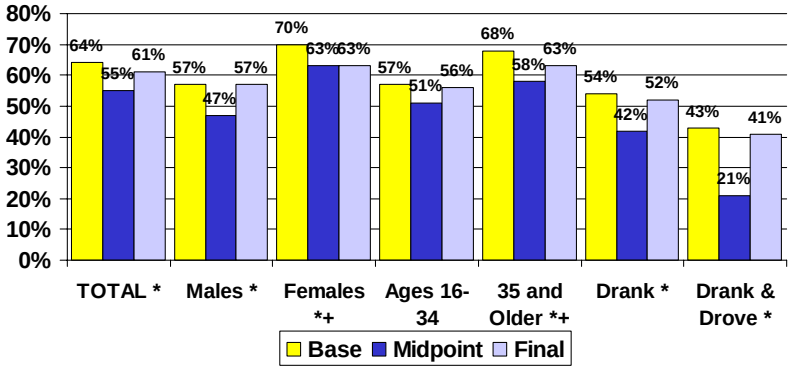
Q23: If a police officer stopped someone for driving while intoxicated, how likely would it be that they would be arrested? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000
+ Statistically significant difference between Waves 1 & 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Convicted If Arrested



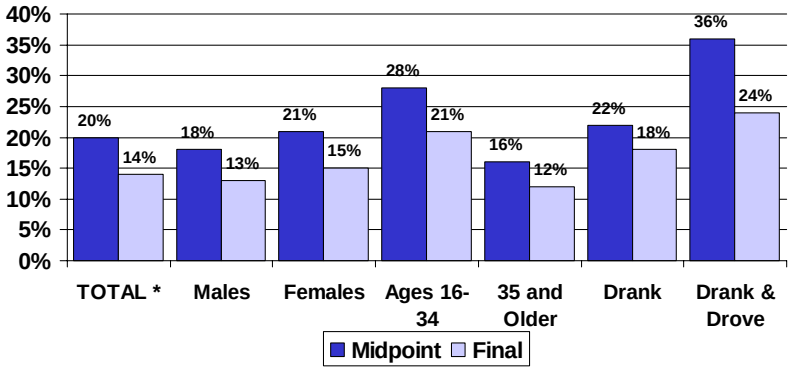
Q24: If someone were arrested for driving while intoxicated, how likely would it be that they would be convicted? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000

Perceptions: Checkpoints Should Be Used More Frequently



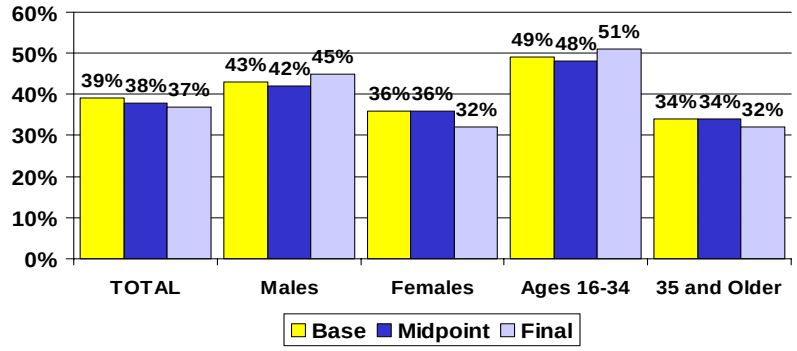
Q33: Do you think sobriety checkpoints should be used more frequently, about the same as they are now, or less frequently?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Behavior: New Enforcement Program Had an Impact on Behavior



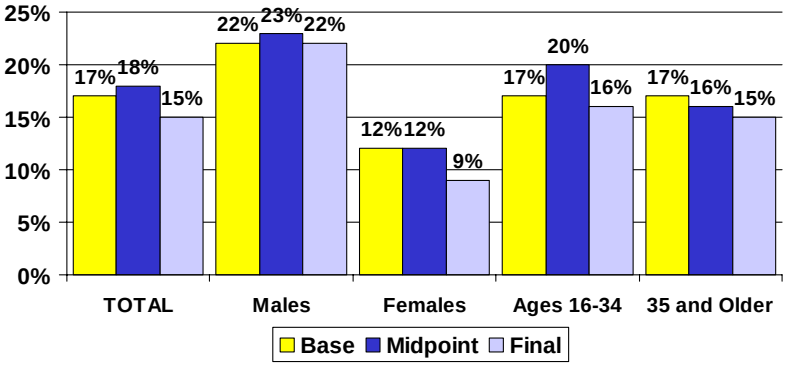
Q42: Has this program had any impact on you or your behavior?
Base: Heard of a new enforcement program
N Wave 2 = 343; Wave 3 = 443
* Statistically significant difference between Waves 2 and 3, p<.05

Behavior: Had an Alcoholic Beverage in the Last 6 Months



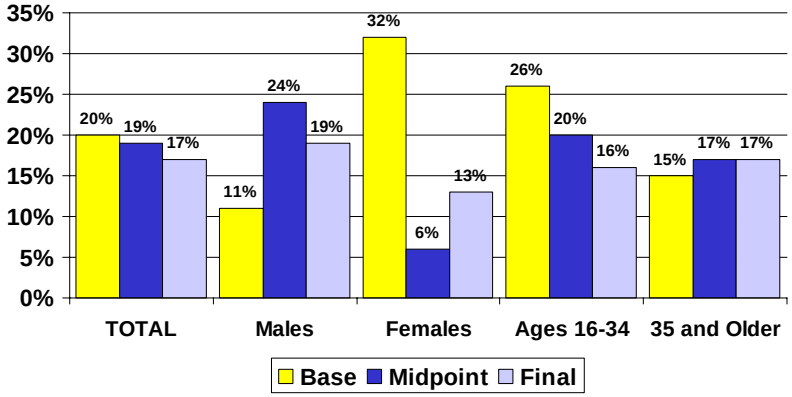
Q9: During the last six months, how often did you usually drink any alcoholic beverages, including beer, light beer, wine, wine coolers or liquors? Would you say every day, several days a week, once a week or less, weekends only, only on celebrations or special occasions, or never?
Base: Total sample
N Wave 1 = 1,002; Wave 2 = 1,000; Wave 3 = 1,000

Behavior: Driven Within 2 Hours of Drinking in the Last 30 Days



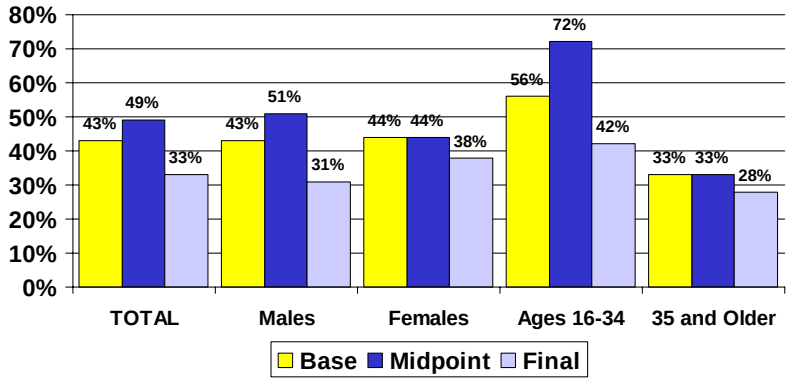
Q14: In the past 30 days, have you ever driven a motor vehicle within two hours after drinking alcoholic beverages?
Base: Had a drink in the last six months
N Wave 1 = 389; Wave 2 = 384; Wave 3 = 327

Behavior: Drove When Thought You Had Too Much to Drink in Last 30 Days



Q17: About how many times in the past 30 days did you drive when you thought you had too much to drink?
Base: Gave the number of times drove within two hours of drinking
N Wave 1 = 60; Wave 2 = 57; Wave 3 = 48

Behavior: Deliberately Avoided Driving Due to Too Much to Drink



Q19: In the past 30 days, have you deliberately avoided driving a motor vehicle because you felt you probably had too much to drink?
Base: Gave the number of times drove within two hours of drinking
Unweighted N Wave 1 = 60; Wave 2 = 57; Wave 3 = 48

Appendix F. Texas Survey Findings

Methodology

- Random telephone numbers called in the areas of the study
- Questionnaire programmed on computer assisted telephone interviewing (CATI) system
- Up to five call-backs to determine if it is a household
- Up to eight call-backs to find a respondent in a household
- Spanish Language version of the questionnaire
- Attempt to convert initial refusals by more experienced interviewers

Field Periods

Interviewing took place in the following 14 counties:

Bexar, Brazoria, Cameron, Collin, Dallas, Denton, Harris, Hidalgo, Lubbock, McLennan, Montgomery, Nueces, Tarrant, and Travis.

- Wave 1, Baseline July 7 to July 25, 2000
- Wave 2, Midpoint Jan 18 to Feb 11, 2001
- Wave 3, Final Sept 5 to Oct 12, 2001

Process Measures: Goals

- *AWARENESS:* Increase in general and specific awareness of new enforcement programs.
- *PERCEPTIONS:* Increase in perception of being stopped if driving while intoxicated, being arrested if stopped, and being convicted if arrested.
- *BEHAVIOR:* Decrease in reported drinking, driving after drinking, and driving when felt had too much to drink; increase in deliberately avoided driving because had too much to drink.

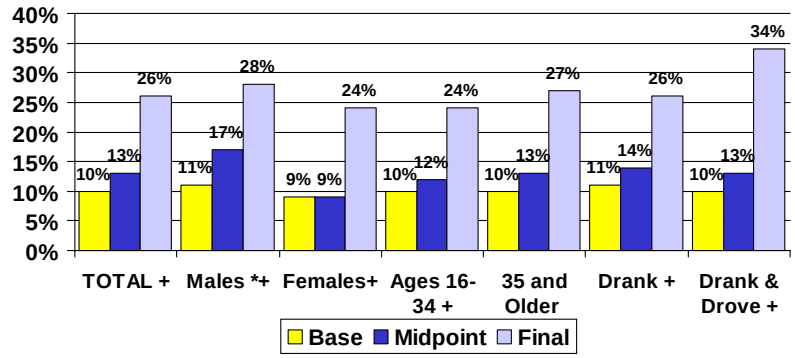
Demographic Comparison

	Wave 1	Wave 2	Wave 3
Mean Age *+	**40.1**	**42.2**	**42.3**
Percent White *+	**63**	**69**	**73**
Percent Male	**47**	**49**	**45**

* Significant difference between the mean ages for Waves 1 and 2, p<.05

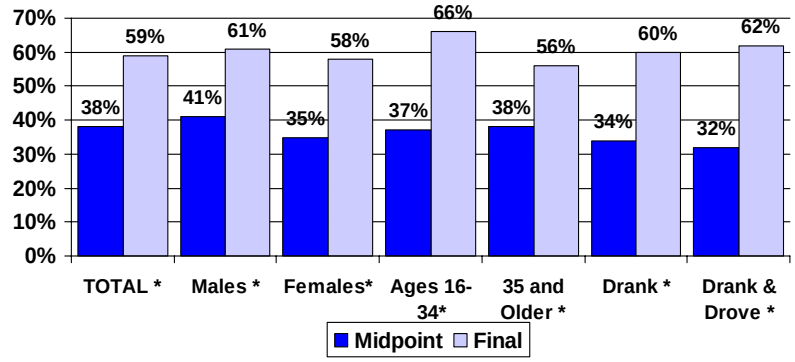
+ Significant difference between the percent White between Waves 1 & 3, p<.05

Awareness: General Awareness of New Enforcement Program



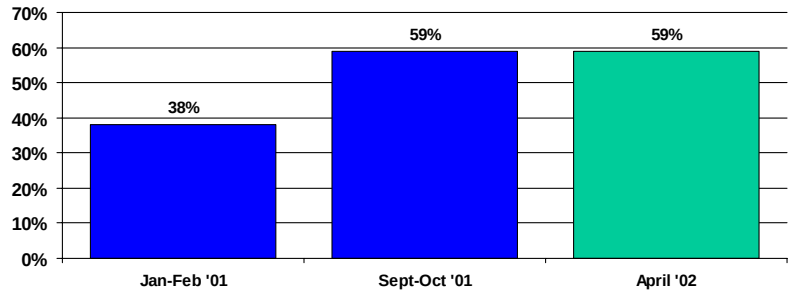
Q38a: Have you heard of any new enforcement programs on drinking and driving?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Awareness: Specific Awareness of New Enforcement Program



Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 2 and 3, p<.05

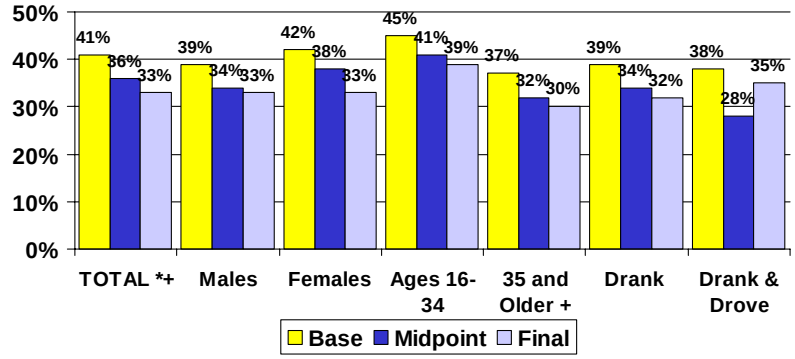
Awareness: Awareness of New Enforcement Program – Two Studies



TARGETS OF OPPORTUNITY (blue):
Q38b: What is it called [if heard of new enforcement program]?
Q40: Have you heard of "You drink. You Drive. You lose."?
Base: Total sample
N Wave 2 = 1,000; Wave 3 = 1,000

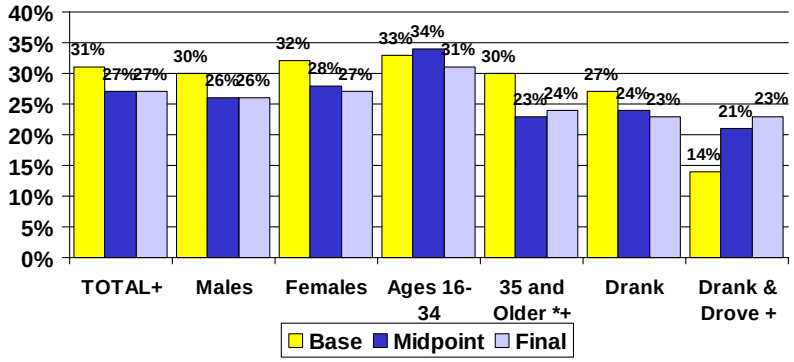
CLICK-IT OR TICKET (green):
Q22a: Do you recall hearing the following slogans in the past 30 days?
Base: Total Adults
N April= 575 (in progress)

Awareness: See More Police on The Road Than Saw 6 Months Ago



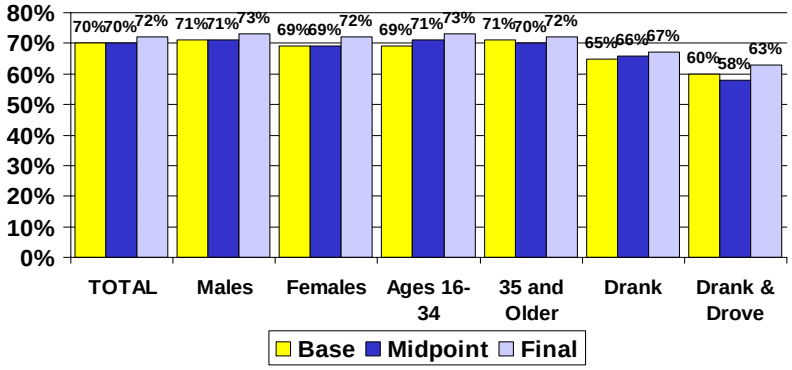
Q7a: Do you see police on the roads you normally drive more now than 6 months ago, less now than 6 months ago, or about the same?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Stopped If Driving When You Had Too Much to Drink



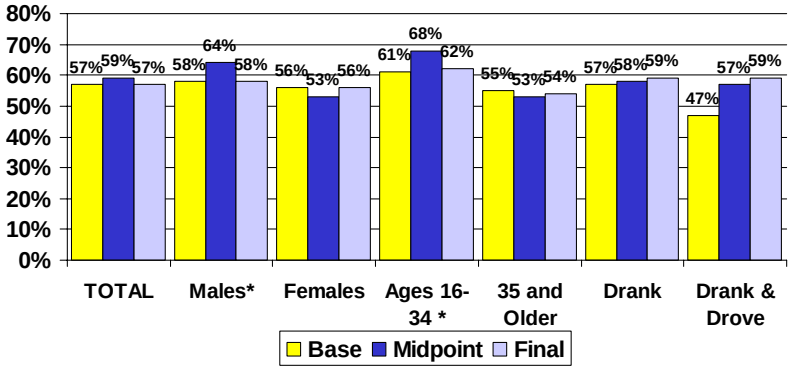
Q22: How likely [is a person] to be stopped by a police officer for driving after they had too much to drink? Is it almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
\+ Statistically significant difference between Waves 1 and 3, p<.05

Perceptions: Almost Certain or Very Likely to Be Arrested If Stopped



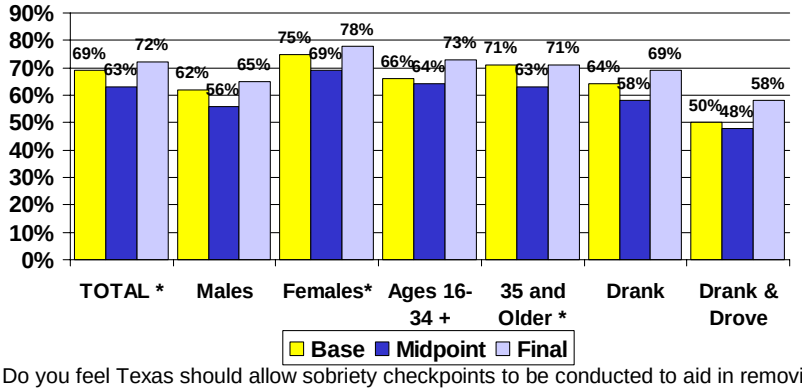
Q23: If a police officer stopped someone for driving while intoxicated, how likely would it be that they would be arrested? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000

Perceptions: Almost Certain or Very Likely to Be Convicted If Arrested



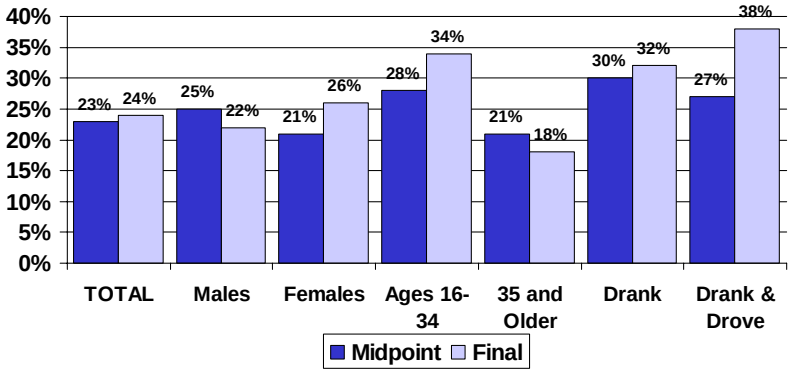
Q24: If someone were arrested for driving while intoxicated, how likely would it be that they would be convicted? Would it be almost certain, very likely, somewhat likely, somewhat unlikely, or very unlikely?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05

Perceptions: Checkpoints Should Be Allowed in Texas



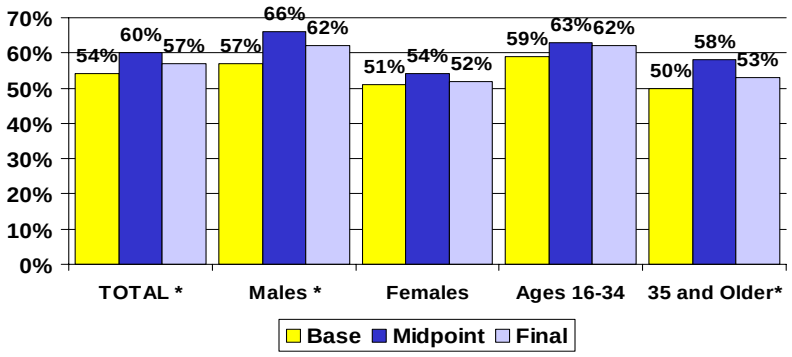
Q34: Do you feel Texas should allow sobriety checkpoints to be conducted to aid in removing illegal drivers from the roadway?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 1 and 2, p<.05
+ Statistically significant difference between Waves 1 and 3, p<.05

Behavior: New Enforcement Program Had an Impact on Behavior



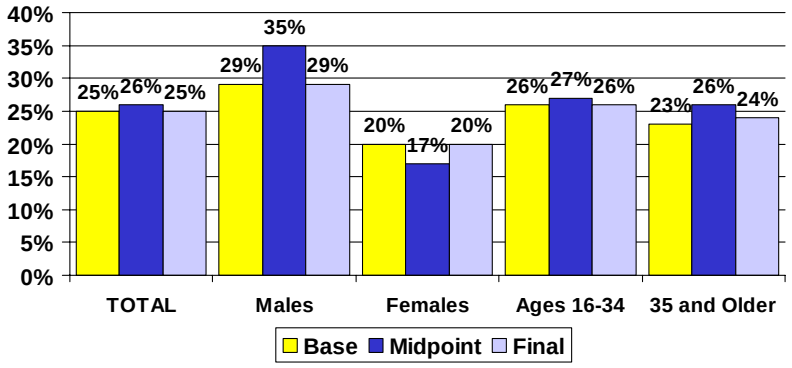
Q42: Has this program had any impact on you or your behavior?
Base: Heard of a new enforcement program
N Wave 2 = 366; Wave 3 = 586

Behavior: Had an Alcoholic Beverage in the Last 6 Months



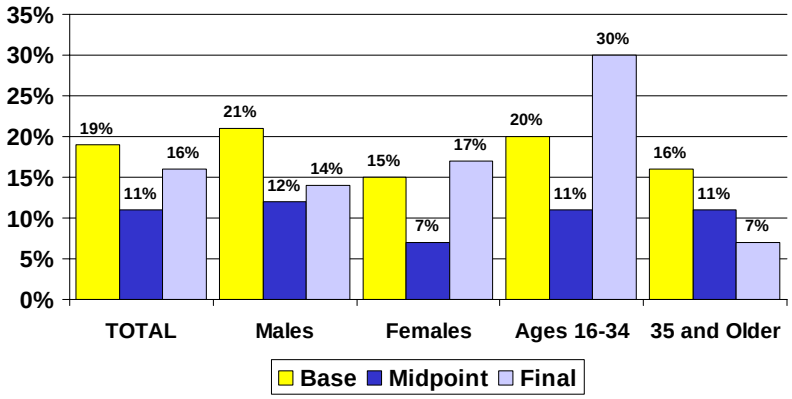
Q9: During the last six months, how often did you usually drink any alcoholic beverages, including beer, light beer, wine, wine coolers or liquors? Would you say every day, several days a week, once a week or less, weekends only, only on celebrations or special occasions, or never?
Base: Total sample
N Wave 1 = 1,027; Wave 2 = 1,001; Wave 3 = 1,000
* Statistically significant difference between Waves 1 & 2, p<.05

Behavior: Driven Within 2 Hours of Drinking in the Last 30 Days



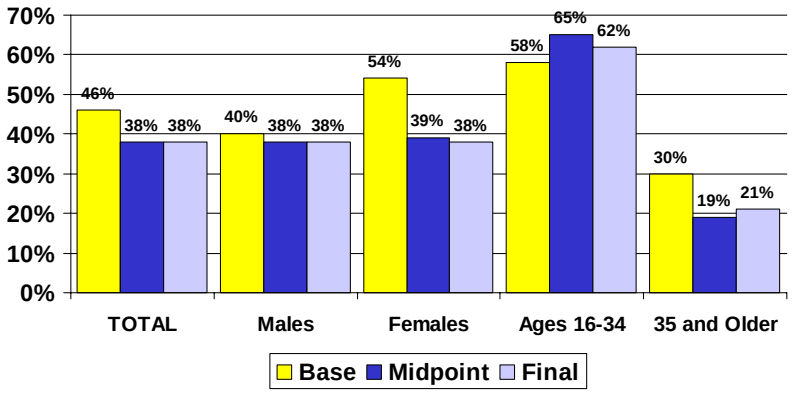
Q14: In the past 30 days, have you ever driven a motor vehicle within two hours after drinking alcoholic beverages?
Base: Had a drink in the last six months
N Wave 1 = 551; Wave 2 = 598; Wave 3 = 569

Behavior: Drove When Thought You Had Too Much to Drink in Last 30 Days



Q17: About how many times in the past 30 days did you drive when you thought you had too much to drink?
Base: Gave the number of times drove within two hours of drinking
N Wave 1 = 123; Wave 2 = 142; Wave 3 = 128

Behavior: Deliberately Avoided Driving Due to Too Much to Drink



Q19: In the past 30 days, have you deliberately avoided driving a motor vehicle because you felt you probably had too much to drink?
Base: Gave the number of times drove within two hours of drinking
Unweighted N Wave 1 = 123; Wave 2 = 142; Wave 3 = 128

Appendix G: ARIMA Analyses of FARS Data

The analysis of the seven States' crash experience before and after the interventions used time series models common to analysis of program / policy changes -- namely, ARIMA intervention models -- in which a hypothesized outcome measure is taken repeatedly, at regular (and relatively frequent) intervals over time. In this study, we used two slightly different (but interrelated) measures of monthly fatal crash involvements for each State, over several years, both before and after the interventions.

The first outcome measure (which we refer to as the driver-ratio series) is the odds that any driver in a fatal crash is alcohol involved. This ratio is functionally and arithmetically quite similar to the percentage of drivers in a crash who are alcohol involved, but an odds has a number of statistical and conceptual qualities that make it a superior measure of risk of a dichotomous condition (i.e., alcohol-involved versus not).

The second outcome measure counts the fatalities in these alcohol-related crashes -- not the drivers – and is further adjusted for the hypothesized risk exposure by dividing by the total State vehicle miles traveled, creating a rate of fatalities per mileage exposure.

While these two outcomes represent slightly different ways of conceptualizing the outcome that we wish to test, these two series within any given State are moderately correlated with each other, not surprisingly.

In an ARIMA intervention model, the time-related patterns and / or trends -- independent of any intervention -- are modeled using autoregressive parameters and moving average parameters, which significantly predict future values based on past values of a series. Additionally, long-term trend and / or short-term drift (what we refer to as a series being "integrated", from whence comes the "I" in the ARIMA acronym) are removed via within-series differencing across time lags.

The AR, MA, and I parameters can be either seasonal (generally annually, which with monthly series would represent a periodicity of 12) or can be non-seasonal. We used a bimonthly series in this study which represented a periodicity of 6 per year. Some ARIMA models contain both seasonal and non-seasonal components. Each series being analyzed can contain a different set of ARIMA patterns, depending on the internal dynamics at work.

In addition, other factors measured across time that might explain variance in a series can be incorporated as regressor (or covariate) series. In our study, the rest of the Nation (minus the intervention State) was used as a regressor series.

For each State, we analyzed the two outcome series for the portions of the State comprising the intervention counties (i.e., separate ARIMA models and parameters for each of those) and determined the amount of change in the series, *above and beyond the time- & trend- related processes already at work in the State's series before the intervention*, which is listed in Table 19 as the percentage change (**change**), relative to pre-intervention levels. Each of these change amounts have associated a t-test and probability value, indicating whether post-intervention series levels were more different from pre-levels than could be expected by chance fluctuation.

However, as with any sound research design, for every intervention being assessed it is helpful to have a control or comparison group, measured over the same pre- and post- levels but *not* being subject to the intervention, against which to contrast any measured intervention change, to (a) rule

out any spurious external "time" effect that causes all subjects to change regardless of intervention; as well as to (b) determine if there is a quantitatively significant difference in the intervention group, relative to whatever change is measured in the controls.

For all seven States we used the same two FARS outcome measures for a collection of neighboring States as control series, and tested their change coinciding with the intervention period against the intervention State paired. (Each group of control States that correspond to each of our intervention States is listed in the text on page 49.) After performing the same ARIMA intervention analysis on the control series, we then contrast the results of the two analyses by calculating the differential change (noted in the set of columns on the right side of Table 19, with difference of b parameter [**diff(b)**] and net or "cumulative effect" [**Cuml effect**)] and then calculating the overall t-score of the difference, based on the pooled standard error computed from each of the separate analyses' standard errors, and adjusting the degrees of freedom for all parameters in both analyses (intervention series and control series). Note that these tests on the net differences are computed *after* both series have been analyzed separately – i.e., the control series are not used as covariates within the analysis for the intervention series.

In some of our States, not every county was deemed to be subject to the intervention; for those States, the counties were divided into direct intervention counties, and within-State "control" counties, which hypothetically could have experienced some spillover effect from the intervention counties. For those States, we also tested their apparent change against the neighboring control States, to see if there was a net or differential change that was significant above and beyond what might have changed in the control States.

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