FINAL REPORT

AN IMPACT EVALUATION OF UNDERAGE DRINKING PREVENTION PROJECTS

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16. Abstract

This report presents the results of an impact evaluation of four community-based underage drinking prevention projects stimulated by technical assistance coordinated by the National Association of Governor's Highway Safety Representatives (now called the Governors Highway Safety Association) with funding provided by the National Highway Traffic Safety Administration. The four programs which were studied were located in: Chesterfield County, Virginia; Omaha, Nebraska; Salt Lake County, Utah; and Travis County, Texas. The impact evaluation focused on the effect of the programs on proxy measures of alcohol-related crashes among youth.

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EXECUTIVE SUMMARY

This report summarizes the results of a highway safety impact evaluation of four underage drinking prevention programs in the United States. The National Highway Traffic Safety Administration (NHTSA), through the National Association of Governor's Highway Safety Representatives (now called the Governors Highway Safety Association [GHSA]) and with the cooperation of several Governor's Highway Safety Programs (GHSPs), funded five underage drinking prevention programs around the country[1] with the ultimate objective of reducing youth alcohol-related crashes. This effort was implemented as a pilot test of whether the perceived success of the Washington Regional Alcohol Program (WRAP) youth activities could be replicated in other jurisdictions and to provide objective evidence of their effectiveness.

The four programs that are evaluated here began in the mid-1990s. This report briefly describes them and estimates their impact on surrogates of alcohol-related crashes. The programs and their locations were:

- Safe and Sober Youth (SASY) - Chesterfield County, Virginia
- Project Extra Mile (PEM) - Omaha, Nebraska
- Salt Lake City Underage Drinking Prevention Project (SLCUDPP) - Salt Lake County, Utah
- Travis County Underage Drinking Prevention Program (TCUDPP) - Travis County, Texas

Three of the programs (SASY, PEM, and TCUDPP) emphasized public information and education (PI&E) strategies, with the PEM program also including an active legislative component. Areas of major emphasis for these three programs were:

SASY - Chesterfield County, Virginia

- Raising public awareness of the dangers of underage drinking through prevention and education efforts;
- Providing an opportunity for increased communication and collaboration on underage drinking initiatives;
- Reducing underage youth access to alcohol; and
- Developing and enhancing judicial alternative sentencing.

[1] The fifth program was no longer in existence at the time of the evaluation.

PEM - Omaha, Nebraska

- Increasing awareness of youth drinking and driving issues and youth alcohol laws by the general public;
- Increasing enforcement of youth alcohol laws;
- Educating the medical community treating the under 21 group on the issue of underage drinking and drinking-driving.
- Providing school staff, students, and school-related groups with current information on youth alcohol issues, including drinking and driving and youth alcohol laws; and
- Maintaining an established, informed community coalition and providing information to the community regarding the coalition's mission and activities.

TCUDPP - Travis County, Texas

- Identifying the link between underage drinking with more highly visible social issues such as truancy, binge drinking, teen pregnancy, HIV exposure, and gangs/juvenile crime;
- Developing education programs for high risk youth groups as well as in all Travis County high schools and middle schools; and
- Increasing community prevention and education efforts through media resources.

None of these three programs was found to have an impact on surrogates of alcohol-related crashes involving underage drivers. However, it is possible that the available data were not sufficient for detecting such an impact in some of the jurisdictions studied, especially in light of the small number of youth-involved traffic crashes that occurred in some jurisdictions. Also, it is possible that other positive effects not reflected in alcohol-related crashes may have occurred (for example, better coordination between community partners, increased awareness of the youth drinking problem, or reductions in youth drinking). The measurement of such effects goes beyond analyses of archival crash data, for example, relying on surveys of self-reported drinking practices and, sometimes, involving the analyses of other data such as that contained in special studies of crash victims admitted to hospital trauma centers.

The fourth program (SLCUDPP - Salt Lake County, Utah) emphasized enforcement of laws prohibiting sales of alcoholic beverages to underage youth, supported by youth peer programs. Other areas addressed by this program were:

- Developing better data collection systems;
- Increasing public awareness of the issue of underage drinking; and
- Encouraging public policy changes.

This program had a possible impact that increased with time starting about a year after program initiation. The number of nighttime crashes involving an underage driver gradually decreased in the program's jurisdiction (Salt Lake County, Utah), with the decrease amounting to about 20 crashes per month (about 14%) at three years after program initiation ($p=0.10$).

These findings suggest that, to have an alcohol-crash impact on the target group in the short-range future, PI&E alone is insufficient and that initiatives aimed at reducing the availability of alcoholic beverages, and/or at deterring driving after drinking, may be necessary. Similar findings with respect to drinking-drivers in general have been reported elsewhere (Jones and Lacey, 2001; Wagenaar, Murray, and Toomey, 2000).

1 - INTRODUCTION

This report is a highway safety impact evaluation of four underage drinking prevention programs. The National Highway Traffic Safety Administration (NHTSA), through the National Association of Governor's Highway Safety Representatives (now called the Governors Highway Safety Association [GHSA]), and with the cooperation of several Governor's Highway Safety Programs (GHSPs), funded five underage drinking prevention programs around the country[2] with the ultimate objective of reducing youth alcohol-related crashes. This effort was implemented as a pilot test of whether the perceived success of the Washington Regional Alcohol Program (WRAP) youth activities could be replicated in other jurisdictions and to provide objective evidence of their effectiveness. WRAP was initiated in 1982 and involved a partnership of public-sector and private-sector organizations. This study also aimed to describe the implementation process and to note any problems or issues that arose during that process.

An important aspect of the project was for GHSA to provide technical assistance to each of the sites, particularly in their needs assessment and strategic planning process prior to implementation of actual programs. This technical assistance was provided by persons who were involved in that process for WRAP. Each of the pilot programs was initially funded by grants from its state Governor's Highway Safety Programs. The five programs were located in Chesterfield County, Virginia; Detroit, Michigan; Omaha, Nebraska; Travis County, Texas; and Salt Lake County, Utah.

BACKGROUND

Persons of ages 16-20 years have the highest risk of being killed in a traffic crash of any age group (U.S. Department of Transportation, NHTSA, 2002). In fact, in 1998, motor vehicle crashes were the leading cause of death for this age group (U.S. Department of Transportation, NHTSA, 1999). Additionally, 19-year-olds constituted the single year age group with the highest number of traffic fatalities (U.S. Department of Transportation, NHTSA, 2002). More 21-year-olds died in alcohol-related crashes than any other age group. This applies both to drivers and passengers. In addition, some 22% of the drivers of ages 16-20 years in fatal crashes had a BAC (Blood Alcohol Concentration) of .01 or higher. More 19-year-olds died in lower BAC (between .01 and .09) alcohol-related crashes than any other age. In fact, 17-, 18-, 19-, 20-, 21- and 22-year-olds were the top six ages of people that die in lower-BAC crashes. Two legal approaches have been widely used in the United States to address this problem. One has focused on

[2] The fifth program was no longer in existence at the time of the evaluation.

regulating alcohol availability (raising the legal minimum drinking age), and the other on deterrence (zero tolerance laws for youth drinking and driving).

In July 1984, Congress enacted P. L. 98-363, Section 6 of which set a national minimum drinking age (MLDA) of 21. States that failed to adopt 21 as the minimum drinking age as provided by law were subject to having a certain portion of their federal highway construction funds withheld from apportionment. By 1988, all of the states had adopted a minimum drinking age of 21. In 1987, the United States General Accounting Office (GAO) reviewed and synthesized some 50 pertinent studies (U.S. General Accounting Office, 1987). It found that raising the MLDA generally reduces alcohol-related crashes for the affected age groups. The amount of reduction attributed to the MLDA legislation varied. For example, in four "sound" studies using data from several states, the reduction ranged from 5% to 28%. The GAO study also found that the available evidence supported the claim that the higher MLDA also reduces alcohol consumption and driving after drinking. NHTSA estimates that, cumulatively through 2000, over 20,000 lives have been saved by minimum drinking age laws (U.S. Department of Transportation, NHTSA, 2001).

The concept of zero tolerance laws for youth is based on the following proposition: since it is illegal for persons under 21 to drink (or depending on the state, purchase or possess) beverage alcohol, it should also be illegal for them to drive with any alcohol in their system. Unfortunately, until fairly recently, many states' drinking driving laws failed to acknowledge this, and the "legal limit" remained at .08 or .10 for drivers of all ages. Now, chiefly due to Section 320 of P. L. 104-59 (signed November 28, 1995), federal legislation establishing a national zero tolerance standard of a blood alcohol concentration of .02 or greater for an individual under the age of 21 and withholding penalties similar to the 1984 law encouraging MLDA laws, all states and the District of Columbia have zero tolerance laws.

At least four prior studies examined the highway safety impact of zero tolerance laws, and one of these also considered issues related to publicizing the law. Blomberg (1992) evaluated a Maryland law that prohibited driving by persons under age 21 with a BAC of .02 or more. The evaluation employed an interrupted time series analysis of had been drinking (HBD) crashes as judged by the investigating officers. It also developed a public information and education (PI&E) campaign and implemented the campaign in six Maryland counties about a year after the law went into effect. The evaluation considered the impact of two interventions, the law itself and the PI&E program publicizing the law and its sanctions. The study found a statewide reduction in HBD crashes involving drivers under age 21 of about 11% associated with the adoption of the law, but found no statewide effect associated with the PI&E campaign. However, a separate analysis of the interventions in just the six counties conducting the PI&E campaign found positive effects for both interventions, 21% for the introduction of

the law and a further 30% for the PI&E. These findings were strengthened by survey results regarding the awareness of the law by the target group of drivers.

Hingson, Heeren, and Winter (1994) performed a before-and-after study of 12 states in which such laws became effective during the 1983-1991 period. In their study, the percentage change in nighttime single-vehicle fatal crashes involving the target group in each state was compared with that in another nearby state.[3] The effects of enforcement level and PI&E were not considered in the evaluation. The authors found that eight of the twelve law states experienced a positive effect and concluded that "if all states adopted .00 or .02 percent limits for drivers ages 15-20, at least 375 fatal single vehicle crashes at night would be prevented each year."

A third evaluation was a multi-state impact analysis of zero tolerance laws (Voas, Tippetts, and Fell, 1999). The study involved a regression analysis of data from NHTSA's Fatality Analysis Reporting System (FARS) for the years 1982 - 1997. The measure of effectiveness used in the analysis was the ratio of alcohol-involved target-age drivers in fatal crashes to non-alcohol involved target-age drivers in fatal crashes. Again, the effects of enforcement level and PI&E were not considered in the evaluation. The study found that such laws were associated with a 24% reduction in the proportion of underage drinking drivers in fatal crashes.

Most recently, Lacey, Jones, and Wiliszowski (2000) examined the effect of zero tolerance laws in four states and found reductions ranging from none to 40% attributable to the adoption or major changes in zero tolerance laws.

Thus, even though MLDA and zero tolerance laws have been shown to be effective in reducing alcohol-related crashes among youth, such crashes remain a significant problem for those under 21. It has been hypothesized that the broad ranges of effectiveness observed for both MLDA and zero tolerance laws have been partly attributable to lack of comprehensive community-based activities to effectively address underage drinking and limited enforcement of these laws[4].

The perceived success of the Washington, DC area program in mobilizing community activity to address this problem led NHTSA and GHSA to initiate this pilot program to test the transferability of its approach to other communities. The basic approach involves developing broad-based community coalitions to address the problem, having the coalitions focus their efforts on specific areas of need by

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[3] One study state was California which had no plausible nearby state for comparison. Texas was used as a comparison state for California.

[4] A community-based program conducted by Wagenaar and associates (1999) in the mid-1990s, is a notable exception. The program, called Communities Mobilizing for Change on Alcohol (CMCA), was a randomized 15-community trial of a community-organizing intervention designed to reduce the accessibility of alcoholic beverages to youths under the legal drinking age. The communities were located in Minnesota and Wisconsin. An evaluation by of the effect of the CMAC program on alcohol-related crashes is described by Wagenaar, Murray, and Toomey (2000). The authors observed net declines in the intervention communities for all traffic crash indicators, but the decline in alcohol-related crash surrogates was not significant, possibly because (as the authors noted) of the small numbers of such crashes involving the target group.

conducting a comprehensive needs assessment, developing a strategic plan based on addressing identified needs, and implementing that plan. The model calls for a project coordinator in the community to staff coalition activities and coordinate implementation.

The pilot sites were provided technical assistance and training by GHSA, particularly in the needs assessment and strategic planning phases. This technical assistance was provided by professionals who had been involved in underage drinking prevention coalition activities in the Washington, DC area. As an outgrowth of that activity, they developed ten volumes of "How To" Guides on Underage Drinking Prevention (Beer and Leonard, 2001) which provide a detailed description of the process to be undertaken in implementing an underage drinking prevention program in a community.

SCOPE AND APPROACH

The focus of this project was to determine the effects on youth alcohol-related crashes of implementing a community-based underage drinking prevention program based on the model above.

Through interaction with program participants in each of the four jurisdictions where a program was implemented, a brief description of the elements of each program was developed. Crash data were obtained from the state level custodians of those data for each of the jurisdictions, and interrupted time series were conducted to assess the effect each program may have had on proxy measures of alcohol-related crashes[5].

ORGANIZATION OF THE REPORT

A separate chapter is provided for each case study as follows:

- Chapter 2 - Chesterfield County, Virginia
- Chapter 3 - Omaha, Nebraska
- Chapter 4 - Salt Lake County, Utah
- Chapter 5 - Travis County, Texas

Each of these four case study chapters contains a description of the program implemented in each site and a crash analysis. The project's conclusions are presented in Chapter 6, and a bibliography of references is provided at the end of the report.

[5] The time series analyses used the ARIMA method developed by Box and Jenkins in the 1970s, and incorporated in the SAS® statistical package as PROC ARIMA.

2 - CHESTERFIELD COUNTY, VIRGINIA

PROGRAM DESCRIPTION

The Chesterfield County underage drinking prevention program was called Safe and Sober Youth (SASY) and was housed within a non-profit agency called Children At Risk Today (CART). CART was organized in 1990 in an effort to provide assistance to troubled youth. Its primary efforts had historically been to raise funds to provide scholarships for at-risk youth to participate in a therapeutic outdoor program. In the decade of the 1990s, over 500 such scholarships were awarded. It was felt that housing the underage drinking prevention project under the umbrella of this organization would be a natural extension of its goals. With a grant from the Governor's Highway Safety Program, staff were hired and project activities initiated. Drawing from the board of CART and other individuals in the community, a 22 member advisory board was convened and they embarked on developing a program.

Following the model provided by NAGHSR, a community assessment was conducted and a strategic plan was developed.

The assessment indicated that though existing laws were adequate, underage drinking remained a significant problem in Chesterfield County. Focus groups indicated that alcohol was readily available to youth and that peer pressure and lack of parental supervision led to underage drinking.

A strategic plan was developed and its primary goals included:

- Raise public awareness of the dangers of underage drinking through prevention and education efforts;
- Provide an opportunity for increased communication and collaboration on underage drinking initiatives;
- Reduce underage youth access to alcohol, and;
- Develop and enhance judicial alternative sentencing.

SASY initiated a number of activities in pursuit of these objectives, primarily in the area of educational efforts. An innovative and salient activity was conducted in conjunction with the granting of initial driver licenses to youth. In Virginia, initial driver licenses are issued to youth on a monthly basis by a judge in a courtroom. Parents are required to attend. This occurred on the third Monday of every month in Chesterfield County. SASY saw this as an opportunity to present information about the dangers of alcohol to youth and their parents. In cooperation with the Juvenile Justice System, Chesterfield County Police and Fire Departments, Allstate Insurance, the Alcohol Beverage Control Board and the Virginia State Police, they offered information about the dangers of underage drinking, the importance of safe

driving, and serious consequences associated with unhealthy behaviors. Their presence was adopted as a regular part of the Judicial License Presentation.

Another major SASY effort was the coordination of a county-wide prom/ graduation program. Whereas before the SASY initiative, alcohol- and drug-free proms had been the province of individual schools and were conducted on a hit-or-miss basis, all nine high schools in the county began participating annually. To promote this level of activity, SASY, with the help of the school system, mailed over 9,500 newsletters to parents of teenagers promoting the program, and SASY helped to establish a county-wide coordinating committee.

SASY also coordinated and conducted numerous high school assembly programs, including one with a member of the U.S. Congress as a presenter, and another with a brain-damaged victim of an alcohol-related crash. In addition, they developed a speakers' bureau to provide presentations to groups such as the Chamber of Commerce, Rotary Clubs, and school groups.

Program personnel also developed and produced a quarterly publication entitled *VOICE, Children At Risk Today*. Though its title was associated with the umbrella organization rather than with SASY, much of the content dealt with underage drinking prevention and highway safety. Approximately 2,500 copies of this newsletter were distributed quarterly.

In an effort to support enforcement of underage drinking laws, SASY regularly sponsored events and awards recognizing individual law enforcement officers who made this form of enforcement a priority.

One of the overall project objectives was to encourage each of the sites to identify additional funding sources. SASY applied for and received grants from the Allstate Foundation and the local Rotary Club; however, its main source of funding support remained through the Governor's Highway Safety Program.

Of course, another long-term objective was to have these programs serve as a model for other jurisdictions. In that regard, a neighboring county incorporated the SASY program into their Juvenile Justice Presentations.

EFFECTS

Crash data for the impact analysis were provided by the Virginia Department of Motor Vehicles. The data covered the years 1991 - 2000. The measure of youth-involved, alcohol-related crashes was the number of drivers under the age of 21 years in nighttime injury crashes in Chesterfield County. (There were too few *alcohol-related* fatal crashes for a time-series analysis.) The totality of all other counties in the state was used as a comparison.

Time series of monthly counts of these crashes were analyzed using the ARIMA analysis method. To make the series stationary as required by ARIMA, 12-span differencing was used. Logarithmic transformations were used to improve the fit to the data. Step function and ramp intervention functions at times near to January, 1997 (the date of the initiation of significant program activity) were

examined in the analysis. No statistically significant changes were found in this impact measure, either in Chesterfield County or the remainder of the state (Figures 2-1 and 2-2, respectively). The t-ratio was about +1.6 ($p \approx 0.1$), both for Chesterfield County and the rest of the state, indicating a slight increase in young drivers in nighttime injury crashes in both areas.

We note that positive effects not reflected in alcohol-related crashes or their surrogates may have occurred in Chesterfield County (for example, reductions in youth drinking). However, the measure of effectiveness used here does not permit an analysis of such other effects. Also, the small number of youth-related crashes in Chesterfield County made it difficult to detect significant changes in such crashes.

Figure 2-1: Young Drivers in Nighttime Injury Crashes in Chesterfield County, Virginia, 1991-2000

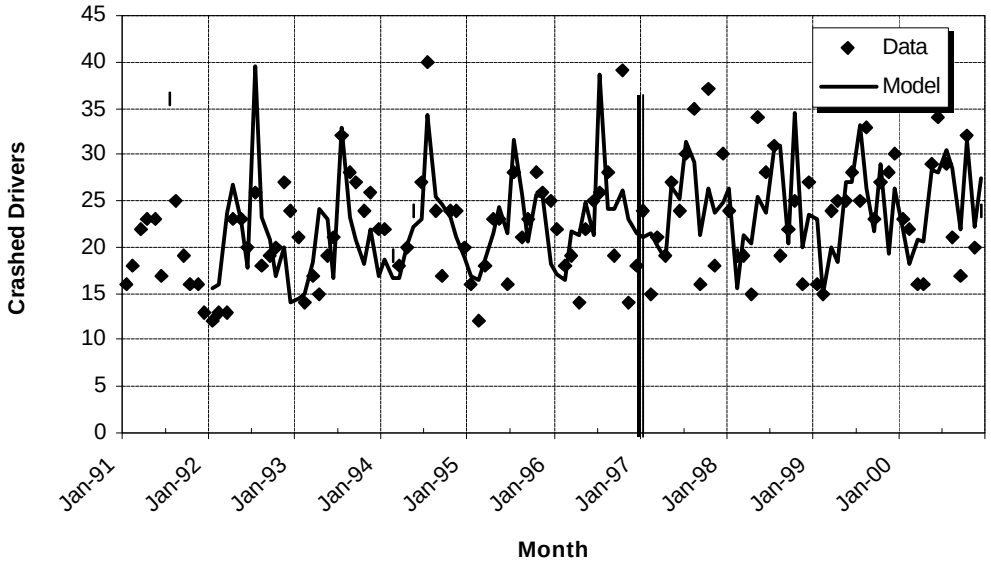
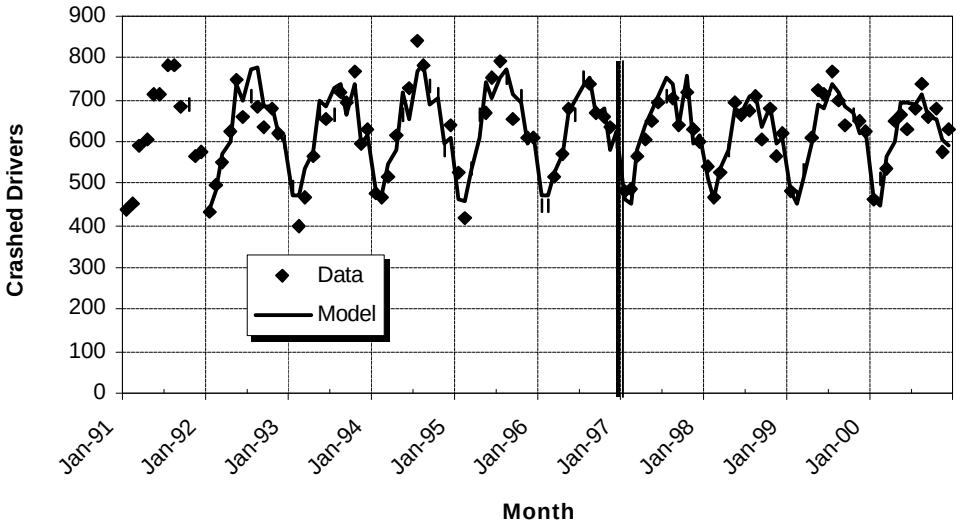


Figure 2-2: Young Drivers in Nighttime Injury Crashes in Entire State of Virginia, Excluding Chesterfield County, 1991-2000



3 - OMAHA, NEBRASKA

PROGRAM DESCRIPTION

The Omaha, Nebraska program is called Project Extra Mile (Metropolitan Omaha, Douglas and Sarpy Counties) Underage Drinking Prevention Project. Project Extra Mile was initially housed within a long standing community substance abuse awareness and prevention program called PRIDE-Omaha, Inc. It was initially funded through a grant from the Nebraska Office of Highway Safety. Then primary funding was provided through grants from the Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP).

In October 1997, Project Extra Mile was incorporated as a separate non-profit organization with a board of directors. As such it could independently solicit funds and received $25,000 from a foundation to conduct a concentrated advocacy effort during the legislative session. They also applied regularly for other funds, including from the United Way and local foundations, and received private donations from individuals and groups that constituted a small portion of their funding.

Started in November 1995, the first project year was spent conducting a comprehensive needs assessment, as well as organizing a coalition to help develop and implement the strategic plan.

A full-time project coordinator was hired and began work on accomplishing the project's objectives. The coalition was formed engaging representatives of community groups such as the Omaha Community Partnership, the Human Services Round Table, the public schools, law enforcement, clergy, alcoholic beverage retailers, the judiciary, public health, parents, youth and others.

The needs assessment included conducting intercept surveys in shopping malls and theaters which revealed that nearly 60% of youth reporting drinking alcoholic beverages. Focus groups were conducted among both youths and adults. The youths participating indicated a lack of a clear and consistent message not to drink from both parents and other authority figures. They also indicated that alcohol was readily available. There was also a sense of lack of accountability for youth and adults for not complying with the law. Examination of available data indicated that alcohol-related crashes among youth were a problem and there was diminished enforcement of underage drinking laws.

The coalition was organized into four workgroups covering specific subject areas. These are public policy, enforcement and adjudication of youth alcohol laws, public information and education, and reducing access and availability. The coalition met on a monthly basis and the four work groups met separately, as needed.

The mission statement of the program was "To create a community consensus that clearly states that underage alcohol use is illegal, unhealthy, and unacceptable."

Specific goals that were identified in the first project year were:

- To increase awareness of youth drinking and driving issues and youth alcohol laws by the general public;
- To educate the medical community treating the under 21 group on the issue of underage drinking and drinking-driving.
- To provide school staff, students, and school-related groups with current information on youth alcohol issues, including drinking and driving and youth alcohol laws; and
- To maintain an established, informed community coalition and provide information to the community regarding the coalition's mission and activities.

In the next project year, the coalition developed a strategic plan that identified specific activities for each workgroup to undertake. In subsequent years, the coalition moved forward on addressing these specific objectives. They are summarized by workgroup below.

PI&E Workgroup

The charge of the Public Information and Education (PI&E) workgroup was to provide for increased public awareness of both the tragic and harmful consequences of underage drinking, as well as of the laws that govern the use of alcohol by persons under age 21. Specific strategies implemented included:

- Development/production of a 10-minute video to communicate the work of the coalition;
- Development/production of three 30-second television PSAs for use in Omaha and Lincoln markets;
- Development/distribution of several 15-second PSAs to air on radio stations during times of high interest;
- Distribution of a monthly newsletter to 2,500 statewide (media, policy-makers, law enforcement, prosecutors, judges, school principals, community groups and others);
- Designed/mailed oversized postcards to parents of more than 23,000 high school students (three separate message postcards in a 12-month period, working with school districts to have access to their mailing labels);
- Developed a project brochure (disseminated more than 4,000 copies); and
- Designed and distributed (through coalition members) a retailer encouragement card that asked retailers to always check the ID of underage customers.

Other activities were: monthly community coalition and work group meetings, news conferences/media events, speakers bureau, letters to the editor/news releases highlighting enforcement efforts, etc.

Access and Availability Workgroup

The objective of this workgroup was to reduce the access and availability of alcohol by persons under age 21 through efforts to limit both retail and social availability. Specific strategies included:

- Monitoring hearings of the Liquor Control Commission;
- Surveying liquor license holders in the metro area regarding education/training issues;
- Sending merchant letters to retailers encouraging them to not advertise beer at Halloween using the holiday characters that appeal to youth (national Hands Off Halloween campaign);
- Enlisting the support of retailers by their display of signs indicating participation in the Hands Off Halloween campaign; and
- Holding a news conference to highlight the community's support of advertising restraint by retailers during Halloween and subsequent holidays.

Enforcement Workgroup

This workgroup concentrated on efforts to increase the enforcement of youth alcohol laws and the subsequent adjudication (disposition) of those cases. The strategy involved collaboration with all 11 metropolitan Omaha law enforcement agencies to conduct multi-jurisdictional compliance checks and other enforcement efforts at least three times per year. These compliance checks involved underage persons attempting to purchase beverage alcohol. If the establishment sold beverage alcohol to the underage persons, law enforcement officers served citations. The number of businesses that sold alcohol to youth dropped from 41% in February, 1997, to 18% in April, 2000. Awareness of the need for enforcement by local agencies seemingly was raised, in that minor in possession of alcohol citations in Omaha increased by 23% in 1999.

Policy Workgroup

Efforts were directed at improving existing laws and reducing the loopholes in current laws to produce a more effective, consistently applied statute. Specific strategies included:

- Coalition members advocated successfully for a law to give the Liquor Control Commission (LCC) the option to not allow liquor license holders the ability to buy-out suspensions through payment of a cash penalty for repeatedly selling alcohol to minors.
- Advocated for increased administrative penalties for retailers selling to minors; the LCC administratively doubled the length of suspension for violators in March, 1997.
- Worked with a senator to enact a Use and Lose law for youth under 21 who use or consume alcohol. This law was designed to apply driver license penalties for persons convicted of underage drinking, even if they were not driving at the time of the citation.
- Held a legislative breakfast for Omaha state senators and candidates at which issues about underage drinking were discussed.
- Met with local, state, and federal officials to increase the awareness and sensitivity to the issue of underage drinking.

Youth In Action

The objective was to provide opportunities for youth to be involved in environmental prevention and change through coalition activities as well as specifically youth-directed efforts. Specific strategies included:

- Youth participation in compliance checks/enforcement efforts as persons attempting to purchase beverage alcohol;
- Youth testifying at legislative hearings;
- Twenty-five percent of the Board of Directors were youth (4 of 16);
- Youth involvement in meetings with local, state, and federal officials;
- Youth meeting with the Governor to successfully request the establishment of a task force to look at underage drinking issues;
- Conducting multiple training sessions to teach youth about environmental issues; and
- Youth involvement in speakers bureau and media interviews.

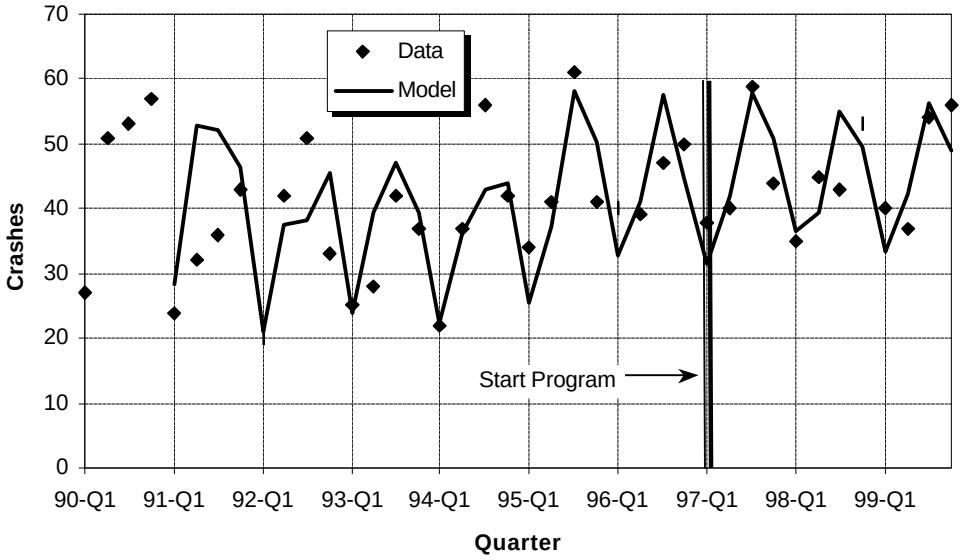
EFFECTS

Crash data from the Nebraska Department of Motor Vehicles were used in the impact analysis. The data covered the years 1990 - 1999. The measure of youth-involved, alcohol-related crashes was the number of nighttime single-vehicle injury crashes involving drivers under the age of 21 years in Douglas and Sarpy Counties. The totality of all other counties in the state was used as a comparison.

Time series of quarterly counts of these crashes were analyzed using the ARIMA analysis method. To make the series stationary as required by ARIMA, 4-span differencing was used. A logarithmic transformation was used to improve the fit to the data. Step function and ramp intervention functions at times near to January, 1997 (the date of the initiation of significant program activity) were examined in the analysis.

Figure 3-1 shows the data and the modeled series fitted to the data. None of the intervention functions produced any significant effect (t = -0.06) on nighttime single-vehicle injury crashes involving the under 21 year old drivers.

Figure 3-1: Quarterly Counts of Nighttime Single-Vehicle Injury Crashes Involving Young Drivers in Douglas and Sarpy Counties, Nebraska, 1990-1999



Several other surrogates of alcohol-related crashes involving the target group of drivers were also examined (that is, injury, nighttime injury, and police-reported alcohol-related) with essentially the same result with respect to impact. Again, we note that positive effects not reflected in alcohol-related crashes or their surrogates may have occurred (for example, reductions in youth drinking and development of

a community-based organization to address the problem). However, the measure of effectiveness used here does not permit an analysis of such other effects, for example, the increase in compliance rates.

4 - SALT LAKE COUNTY, UTAH

PROGRAM DESCRIPTION

The initial project coordinator for the Salt Lake County Underage Drinking Prevention Project (UDPP) was an employee of the Utah Department of Health. She had experience working in other areas of highway safety so the Highway Safety Office asked her to coordinate the UDPP along with her other responsibilities. Program activities began in December 1995 with the formation of a coalition and the beginning of a needs assessment. Originally the UDPP coalition was established as a subcommittee of the Alcohol Policy Coalition. The project was initially labeled the Utah Safe and Sober Youth Coalition (UT SASY Coalition) and a needs assessment was conducted, the strategic plan developed and initial program activities were organized under that arrangement.

During this process it was recognized that because the Alcohol Policy Coalition is well known in Utah for advocating for highly controversial .04 BAC legislation, it sometimes hampered the UT SASY Coalition in gaining cooperation for some of its programs. The association also made it more difficult for the program to develop its own identity and name recognition with the public and other potential partners. Eventually, the UT SASY Coalition became a freestanding group. When the project coordinator left the Department of Health in 1999, the Utah Office of Highway Safety took over management of the activity and it was renamed the Save Our Youth Coalition.

The project initially was intended to be confined to Salt Lake County. However, with many coalition members being in state government, stimulation and coordination of activity in other parts of the state also became part of the coalition and coordinator's charge. Nonetheless, the primary focus of activities was in Salt Lake County.

Since the coalition operated out of a state agency, the program could not solicit or accept financial donations. Thus, donations to the program had to be in-kind, limiting the avenues the coalition could pursue to garner additional assistance. The Safe and Sober Youth Coalition did not receive any monetary funding other than what they received from the Highway Safety Office in Utah and from the US Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP). Those funds covered part of the coordinator's salary, as well as funded mini-grants to implement the Cops in Shops program (overtime for the police officers).

The Community Coalition generally met monthly. Initial meetings focused on discussing a needs assessment, then developing a strategic plan, implementing Cops in Shops, holding focus groups about underage drinking with underage persons, and developing a mini-grant program in the schools for Teen Court activities.

The needs assessment indicated that alcohol was the drug of choice for young Utahans, and that underage drinking was a serious problem, with nearly 40% of youth reporting that they had used alcohol. They found that this was because of general acceptance by society, the perception that it was not a serious problem, and a lack of law enforcement of underage drinking laws.

As a part of the strategic plan, the Coalition decided upon a mission statement and agreed on some general items that needed to be done in Utah.

Strategies that were identified were:

- To increase coordination and collaboration of existing youth groups;
- To develop better data collection systems;
- To increase public awareness about the issue of underage drinking;
- To increase enforcement of existing laws, and;
- To encourage public policy changes.

The two areas in which major activities were conducted were in enforcement and youth peer programs.

Enforcement

Cops in Shops was the primary program in this area. Cops in Shops was a program where officers in civilian clothes were stationed in retail outlets. If they observed underage persons attempting to purchase beverage alcohol, they issued appropriate citations. Generally, the officers worked during their normal off-duty time and were paid overtime.

Five law enforcement agencies in the Salt Lake area originally agreed to participate in the Cops in Shops program, and then 19 additional law enforcement agencies requested information on the program. The other law enforcement agencies received information from the Century Council on how to run the program and received training from officers who were running Cops in Shops operations. Each law enforcement agency operated Cops in Shops differently, according to what worked for that agency. The coalition sponsored meetings between the agencies so they could compare progress and offer helpful suggestions to each other and to programs just beginning operation.

Officers reportedly enjoyed working in this program and store managers generally were grateful to have the officers. It was reported that, previously, store managers dreaded seeing police officers arrive for sting operations, but with the Cops in Shops program, the youth were being punished instead of the store owners. The law enforcement agencies viewed Cops in Shops as a vital program that placed them in contact with the stores and youthful offenders. A law was passed before the project began that allowed officers to cite youths for attempting to purchase alcohol. (It was considered a misdemeanor punishable with a fine.)

Many officers were surprised at the numbers of youths purchasing alcohol (one officer made 27 contacts in 2 ½ hours). The program was an "eye-opening experience" for law enforcement as well as store management. They discovered many of the managers did not want their clerks selling to underage youth, but they could not or just did not keep tabs on their clerks very well; and when officers pointed out some of their problem clerks, managers were grateful and could then deal with those clerks. The Cops in Shops program originally generated a lot of media publicity, but that faded, and although positive statistics and information were been provided to the media, coverage was minimal.

Youth Peer Programs

The major youth group initiative of the project was working with Peer Leadership Teams. The advisor to those teams was able to get the Salt Lake area school districts to agree to schedule all activities and promotions jointly. For the first time, during the 1997-1998 school year, the four school districts coordinated similar activities during the same weeks.

The normal graduation, ribbon week, and December anti-drunk driving month activities were already in place. The Highway Safety Office provided mini-grant money to promote the activities and conduct projects. There were forty-four junior and senior high schools in the area, and one year, 20 schools received mini-grants. Another component of the youth involvement program was the formulation of Teen Courts in which peers meted out appropriate punishments to underage youth who were found to have been drinking alcoholic beverages.

EFFECTS

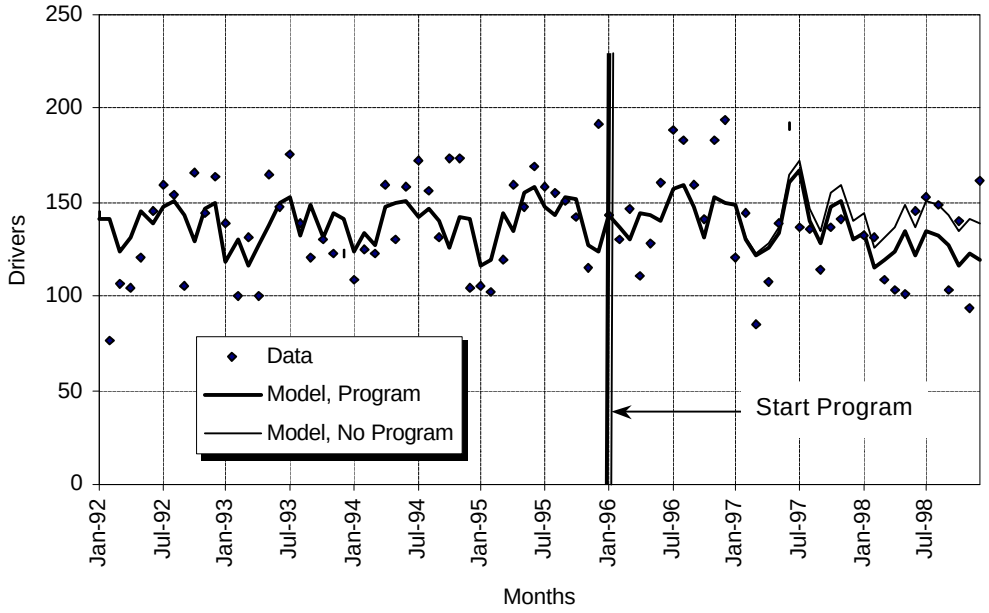
Crash data from the Utah Department of Transportation were used in the impact analysis. The data covered the years 1992 - 1998. The measure of youth-involved, alcohol-related crashes was the number of drivers under the age of 21 years involved in nighttime crashes in Salt Lake County. It was not possible to use another county as a comparison, because similar programs were implemented in other counties later in the period during which the Salt Lake County program was operating. Again, nighttime crashes were used as a surrogate for alcohol-related crashes in order to obtain a large enough number of crashes for a meaningful analysis.

Time series of monthly counts of these nighttime-crash involved drivers were analyzed using the ARIMA analysis method. The series was found to be stationary without any differencing or transformations. Step function and ramp intervention functions at times near to January, 1996 (the date of program initiation) were examined in the analysis.

The step function intervention produced no effect at any time near to January, 1996. However, the ramp function indicated a gradually increasing reduction of

about 0.6% per month starting at January 1997, and reaching a maximum reduction of 14% (about 20 crashes per month) at December 1998. This effect did not meet the traditional requirement for statistical significance (p=0.05), but was significant at roughly the 0.10 level (t = -1.64). The data and the model fitted to the data are shown in Figure 4-1 below.

Figure 4-1: Young Drivers in Nighttime Crashes, Salt Lake County, 1992-1998



5 - TRAVIS COUNTY, TEXAS

PROGRAM DESCRIPTION

This program was housed in the County Attorney's Office. During the initial project year of the Underage Drinking Prevention Program (UDPP), program staff conducted a community assessment and developed a strategic plan.

The Travis County Underage Drinking Prevention Program evolved out of a comprehensive community traffic safety program (CTSP), which for the period 1992-1996 had dealt with DWI, occupant protection and bicycle safety issues. The anti-DWI component of the CTSP targeted both underage and legal age drinkers. The new Travis County UDPP focused solely on underage drinking prevention. Funding for both of those programs (CTSP and UDPP) came from the Texas Governor's Highway Safety Program. In 1996, during the final year of funding for the CTSP, the new Travis County Underage Drinking Prevention Program emerged at the same time as the comprehensive community traffic safety program. The new program was housed in the Travis County Attorney's Office because the CTSP was located in that office. The CTSP had been set up there because that office handled the prosecution of DWI cases, which was the most serious CTSP concern. During 1996, both programs were operating simultaneously with staff members performing double duties. In 1997, the new Travis County UDPP became the primary focus of that office. UDPP program staff, at the time of this study, included a full-time program coordinator, one full-time assistant, one part-time community educator who handled community presentations and an information booth at community events (covered by county funds), and one part-time clerk. The program continued with funding from the Texas Governor's Highway Safety Program.

Because there was an existing program, there were some issues modifying it to fit the overall model being tested. One area which required a great deal of attention was creating the Task Force. There were many support groups in existence such as the Safe Kids Coalition dealing with community involvement, health issues and children (which helped meet the criteria of receiving funds to begin with), but not a task force specifically for underage drinking prevention. So, during the first year, a UDPP task force was created comprised of county-wide social service agencies, law enforcement and other interested agencies and individuals that included the Texas Department of Transportation, the Texas Department of Health, City of Austin Emergency Medical Services (EMS), Texas Alcoholic Beverage Commission and several school districts.

A needs assessment concluded that underage drinking was clearly a problem in the Austin area as indicated by alcohol-related traffic crashes involving youth. A Texas school survey indicated over a quarter of youth had driven a car after

drinking and nearly one fifth reported heavy drinking. Another indicator cited was that University students were promoting designated driver programs.

A task force mission statement was developed "To create a community consensus that underage drinking is illegal, unhealthy, and unacceptable." Program objectives and tasks are outlined below:

- Identify the link between underage drinking with more highly visible social issues such as truancy, binge drinking, teen pregnancy, HIV exposure, and gangs/juvenile crime.
- Develop education programs for high risk youth groups as well as in all Travis County high schools and middle schools.
- Increase community prevention and education efforts through media resources.

The program provided community education through a 45 minute video presentation entitled, "Why Risk It?" that was shown at schools, halfway houses, recreation centers, fairs, etc. This presentation was developed in 1992 under the CTSP program. Promotional items such as key chains, small notepads, and pencils were distributed. In addition, a television show entitled "Focus on Youth and Alcohol" was produced monthly and shown on the local access cable channel. The show host was the UDPP coordinator and underage drinking prevention was the primary focus of the show. New shows were produced monthly and aired several times during the month. UDPP also worked with NHTSA and the Texas Department of Transportation on their campaigns at the high risk times of the year (Christmas and New Year's, Spring Break, Project Graduation, etc.).

A major focus of the program was to make presentations in the schools about issues surrounding underage drinking. During the school year, a part-time educator gave presentations throughout the school district.

Another service the program provided was scheduling community service work for violators of the Texas underage drinking zero tolerance laws for youth and drinking driving.

Due to their location in Austin, the state capital, project staff and task force members were visible to state legislators when they were debating a youth zero tolerance law. UDPP staff also worked closely with the Texas Alcoholic and Beverage Commission.

EFFECTS

Crash data from the Texas Department of Transportation were used in the impact analysis. The data covered the years 1993 - 1998. The measure of youth-involved alcohol-related crashes was the number of drivers under the age of 21 years involved in nighttime injury crashes in Travis County. And, as a comparison, we examined the number of drivers under the age of 21 years involved in nighttime

injury crashes in the remainder of the State. All nighttime crashes could not be used as a surrogate for alcohol-related crashes because they included property-damage-only crashes which had been defined at a higher level of damage in July 1996. An intervention near that point would show a spurious decrease in night-time crashes statewide.

Time series of monthly counts of these nighttime-injury crashes involving young drivers were analyzed using the ARIMA analysis method. A step-function intervention at January, 1996 (when the project activities were begun) was used in the analysis. The model for Travis County used a logarithmic transformation of the dependent variable, while the model for the remainder of the State did not. Neither model showed any change at the intervention point (Figure 5-1 and Figure 5-2). The t-ratio for Travis County was -0.11, and the t-ratio for the remainder of the State was +0.26. (A t-ratio of about 2 is required for statistical significance at the 0.05 level.) As with the impact evaluations in the other sites, positive effects not reflected in alcohol-related crashes or their surrogates may have occurred in Travis County. However, the measure of effectiveness used here does not permit an analysis of such other effects.

Figure 5-1: Young Drivers in Nighttime Injury Crashes, Travis County, 1993-1998

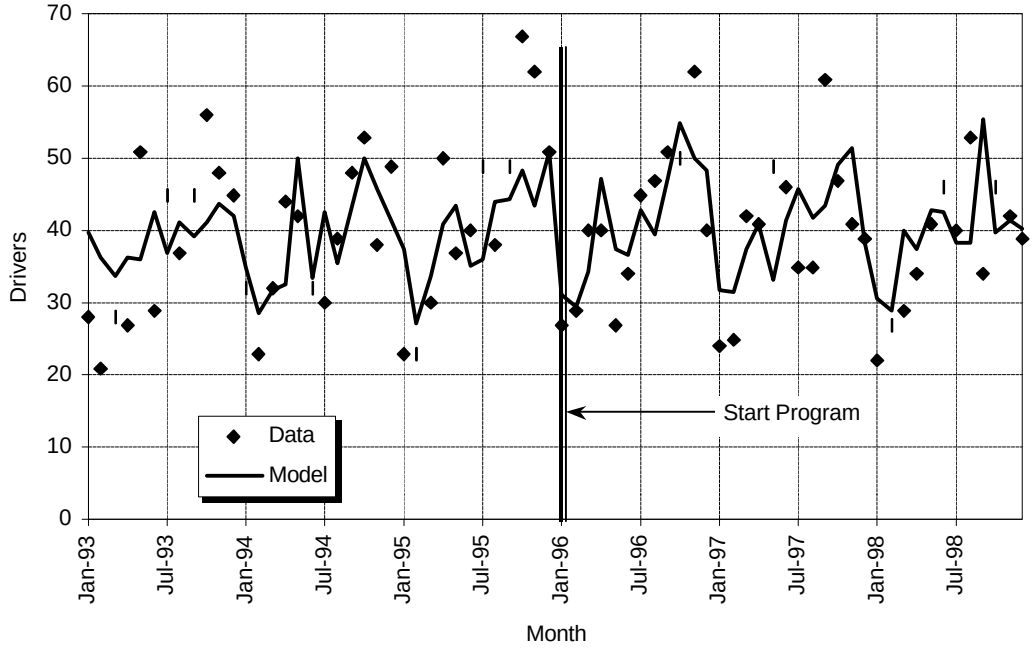
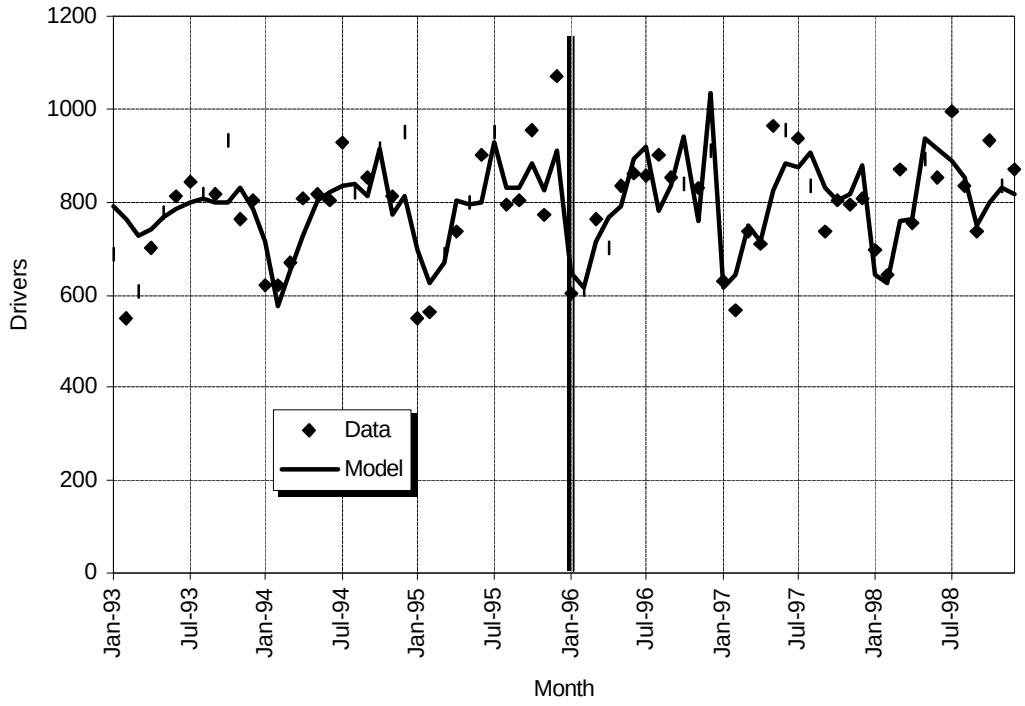


Figure 5-2: Young Drivers in Nighttime Injury Crashes, Entire State Excluding Travis County, 1993-1998



6 - SUMMARY AND CONCLUSIONS

Four underage drinking prevention programs that began in the mid-1990s were examined, and their impact on surrogates of alcohol-related crashes estimated. The programs and their locations were:

- Safe and Sober Youth (SASY) - Chesterfield County, Virginia
- Project Extra Mile (PEM) - Omaha, Nebraska
- Salt Lake City Underage Drinking Prevention Project (SLCUDPP) - Salt Lake County, Utah
- Travis County Underage Drinking Prevention Program (TCUDPP) - Travis County, Texas

Three of the programs (SASY, PEM, and TCUDPP) emphasized public information and education (PI&E) strategies, with the PEM program also including an active legislative component and an enforcement component. None of these programs was found to have any impact on surrogates of alcohol-related crashes involving underage drivers.

The fourth program (SLCUDPP) emphasized enforcement of laws prohibiting sales of alcoholic beverages to underage youth, supported by youth peer programs. A possible increasing impact, starting about a year after program initiation, was found for that program. The number of nighttime crashes involving an underage driver gradually decreased in the program's jurisdiction (Salt Lake County, Utah), with the decrease amounting to about 20 crashes per month (about 14%) at three years after program initiation ($p=0.10$).

These findings suggest that, to have a highway safety impact on the target group in the short-range future, PI&E alone is insufficient and that initiatives aimed at reducing the availability of alcoholic beverages, and/or at deterring driving after drinking, may be necessary. Similar findings with respect to drinking-drivers in general have been reported elsewhere (Jones and Lacey, 2001; Wagenaar, Murray, and Toomey, 2000).

We note that positive effects other than reduced crashes may have occurred in the three jurisdictions that had no significant effect on the crash measures examined here. Such effects include, for example, reductions in youth drinking and development of a community-based organization to address the problem. Further research will be needed to determine the extent of any such other effects. Also, it is possible that the available data were not sufficient for detecting a traffic-crash impact in some of the jurisdictions studied, especially in light of the small number of youth-involved traffic crashes that occurred in some jurisdictions.

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