Lake County, Illinois
Defensive Driving Course

Executive Summary
Of Lake County's 1999 Driver Safety Training Program Evaluation

Nineteenth Judicial Circuit
Lake County, Illinois

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M. Edwin Kennedy, Ph.D.

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Acknowledgments

College of Lake County's President, ***Dr. Gretchen Naff***, ***Mary Charuhas,*** Dean of Adult and Community Education, and ***Robert "Pete" Marthouse***, Director of Community Development, initiated this 1999 evaluation of the College's Driver Safety Program. Director Marthouse, in particular, has been a vigorous proponent of this and two previous evaluations. In each instance, Mr. Marthouse has set the tone by insisting on thorough and objective evaluations. He is genuinely interested in knowing what impact, if any, his program is having, and has used evaluation outcome data to shape, improve, and direct his program toward those who are most in need of driver safety training.

The Nineteenth Judicial Circuit had the vision to implement driver safety training in the first place. The judges, court administrator, and many others have been supportive of the program since its inception; and, as each successive evaluation has shown, driver safety training has been a sound investment for the entire Lake County community. Chief Judge ***Henry C. Tonigan III*** and Court Administrator ***Robert Zastany***, in particular, have worked hard to create an environment within which driver safety training has had an opportunity to be effective.

The National Safety Council developed the curriculum used by College of Lake County, and has been a tremendous resource for ten years. The Council's ***Paulette Moulos*** made many contributions to CLC's efforts over the years and, more recently, ***Lynda Lipske*** has continued to well represent the Council and its objectives.

Finally, none of these evaluations would have been possible without the active cooperation and assistance of the Illinois Secretary of State. In a year when Y2K preparation preoccupied everyone in the data processing environment, Illinois Secretary of State staff found time to provide crucial data and their efforts are greatly appreciated.

Evaluation Overview

This is the third evaluation of College of Lake County's *Driver Safety Program* since it began ten years ago. This evaluation, like the two that preceded it, had two simple objectives. The first was to determine if the program is measurably effecting the incidence of moving violations among those who participate in the Driver Safety Program (DSP), and the second was to determine if the program is measurably effecting the incidence of accidents.

To help meet those objectives, 3,000 drivers were randomly selected for study in 1991. Half of the drivers (1,500) did not immediately participate in College of Lake County's (CLC) program and most of them have never participated in the program, partly because they were arrested for a moving violation before the program began in July 1991. The remaining 1,500 drivers were among the first to be referred to the CLC program.

The license numbers and other identifying information for all 3,000 drivers were submitted to the Illinois Secretary of State, who maintains moving violation and accident data. The Secretary of State typically has about four years of moving violation data on-line at all times, and keeps most accident data indefinitely. The decision to space each of these evaluations about three years apart was unrelated to the Secretary of State's four-year moving violation data retention policy, but it was a fortunate coincidence in that it helped ensure that there were no gaps in the research database that now goes back, in various forms, to about 1989.

The 3,000 randomly selected drivers provided the foundation for measuring changes in moving violation and accident rates throughout the nine-year study period. Initial analyses included group comparisons by age, gender, and driving histories. No significant differences were found in any of those areas. With updated diving history information, the final step in each evaluation was to determine if statistically significant post-program implementation violation and accident rate differences existed between the two groups.

The first evaluation, which was conducted and published in 1993-4, found that the CLC program significantly reduced moving violations for program participants, but did not have a statistically significant effect on accident reduction.

The second evaluation, which was conducted and published in 1996, benefited from three additional years of moving violation and accident data, and found statistically significant reductions in the incidence of moving violations and accidents for program participants.

This third evaluation, while continuing to rely on the original 3,000 core drivers, was expanded and refined. An additional 1,500 1999 DSP graduates were added to the driver pool for future evaluation purposes. In addition, all drivers from the original groups who were no longer registered to drive in Illinois were removed because it was no longer possible to monitor their accidents and moving violations; and Illinois drivers who were no longer Lake County residents were removed as well because there is no central registry of driver safety program participation, and that introduces the possibility of other types of bias.

Finally, of the remaining original drivers, 400 were randomly selected from the 1990 cohort and another 400 were randomly selected from the 1991 cohort for detailed evaluation. Pre-analysis significance tests confirmed that there was no statistical difference between the sub-samples on the basis of age or gender. Pre-analysis significance tests were not performed on driving history differences because the 1996 evaluation confirmed that differences existed between the two groups on that dimension as a result of driver safety training.

This third evaluation also shifted the emphasis from a simple comparison of 1990 - 1991 driving histories to one in which the emphasis was squarely back on whether or not the driver had ever participated in driver safety training. The original evaluation was designed precisely that way, but all drivers arrested for program violations are entitled to participate in DSP, so a growing segment of the 1990 group had been through the program, and that was suspected of masking or significantly reducing program effects. It was therefore necessary to continue to focus on participation alone.

Once sub-sample moving violation and accident histories were updated with assistance from the Secretary of State, they were combined with existing data and analyzed by: 1) cohort, 2) gender, and 3) DSP participation. Summary data are included in the appendix. Significance tests were run only on DSP participation, although they were not necessary. One has only to look at the outcome distributions to realize they are not only statistically significant, they make a strong argument for mandatory "continuing education" training for adult drivers. In terms of the odds of being involved in an accident or moving violation, drivers who did not participate in driver safety training were, over a ten year period of time:

- **eight times more likely** to be involved in an accident than drivers who participated in driver safety training; and,

- **ten times more likely** to be arrested for a moving violation than drivers who participated in driver safety training.

It seems probable that the length of time these drivers have been monitored has had a great deal to do with the magnitude of the findings. As previously noted, the first evaluation found no significant relationship between driver safety training and accident reduction. But with an additional three years of data in 1996, a relationship between accident and moving violation reduction emerged. And now with an additional six years of data, the differences are extraordinary.

A limited amount of additional analysis was conducted on the sub-sample by age, particularly for drivers under 21 at the time of selection. No statistically significant difference was found in terms of subsequent involvement in accidents alone -- *i.e.*, accidents but no moving violations, but the numbers were too small to be measurable in any event. However, moving violations were different. Drivers under 21 with no DSP training were twice as likely to be cited for a moving violation, and almost six times as likely to be involved in one or more accidents and one or more moving violations.

Program and Evaluation Authority

Initiated on July 1, 1991, the Lake County program was the third Illinois program implemented under Illinois Supreme Court Rule 529(c), and one of the first Illinois programs to be formally evaluated. The initial evaluation covered a 15-month period, and helped establish a baseline for future evaluations.

The Illinois Supreme Court vested program oversight responsibility for driver safety programs in the Conference of Chief Circuit Judges, requiring that:

> the accused, upon payment of the fines, penalties and costs provided by law, agrees to attend and successfully complete a traffic safety program approved by the court under standards set by the Conference. The accused shall be responsible for payment of any traffic safety program fees. If the accused fails to file a certificate of successful completion on or before the termination date of the supervision order, the supervision shall be summarily revoked and conviction entered.

In response to Rule 529(c), the Conference of Chief Circuit Judges developed criteria for counties interested in implementing driver safety programs. The Conference's *Traffic Safety Program Standards* identified organizations eligible to operate driver safety programs, set minimum facility, curricula and staff requirements, determined who could participate in the program, and required program administrators to "provide the court with quarterly written reports as to the effect of the program, if any, in reducing citation and accident recidivism".

In 1991, the Chief Judge of the Nineteenth Judicial Circuit, limited driver safety program participation to drivers arrested for "a singular traffic offense" who have not been under court "supervision for any traffic violation committed within twelve months preceding the issuance date of the current citation". Participants are required to complete a four-hour instructional program for a $20 program cost fee. Instruction is multilingual

Principal Findings

⇨ Illinois and Lake County Growth

Illinois is the nation's sixth most populous state with a resident population of 12.1 million. It is also a growth state, up .5 percent in the past year, and projected by the US Census Bureau to be a growth state at least through 2025.

Lake County, the State's third most populous county, is also growing, but about three times faster than Illinois as a whole. With a population of 618,000, Lake County has grown 1.6 percent in the past year. In terms of the number of residents moving into the county, Lake County was the fourth fastest growth county in Illinois between 1998 and 1999, and the 51st fastest growth county in the nation. On a percentage basis, Lake County is the eighth fastest growing county in the state, and the 557th in the nation.

It is reasonable to assume that rapid population growth will have a tendency to increase traffic congestion by putting more cars in close proximity, and that in turn will increase the likelihood of vehicular accidents. But that is not what is happening to the 570,000 registered drivers in Lake County.

⇨ Sub-Sample Gender Composition

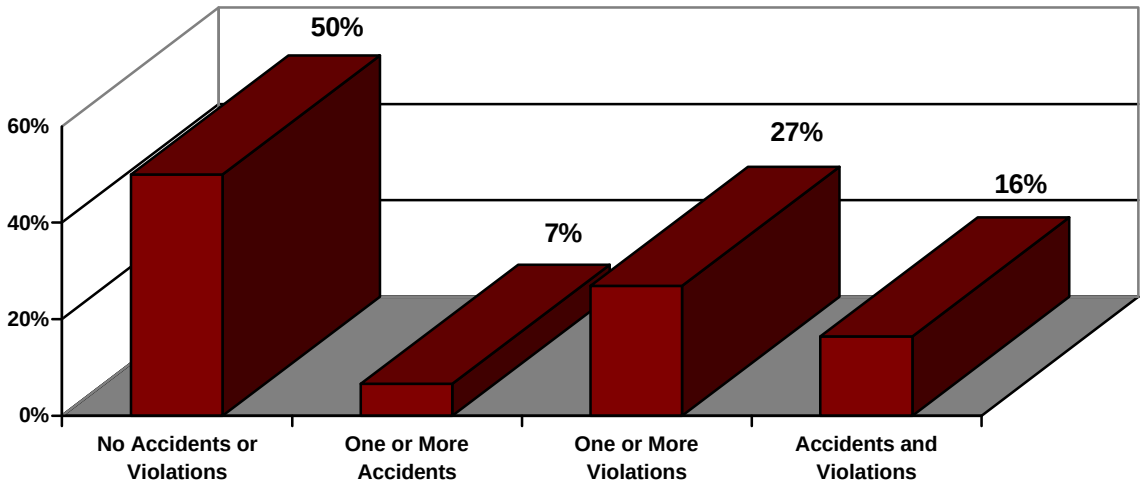
The ratio of males to females in Lake County is roughly 1:1, but the ratio in the samples drawn for study was about 3:1, or three males (77%) for every female (23%). While the 3:1 ratio does not reflect the ratio of males to females in the driving population today, it does reflect the ratio of male to female drivers who were referred to and completed the Lake County driver safety training program when the original samples were drawn in 1991.

⇨ Moving Violations and Accidents, Female Drivers

Of the 182 females drawn for follow-up evaluation, exactly half (91), were never again involved in an accident or moving violation. All 91 of those females were 1991 DSP enrollees and / or graduates. The average age of all 182 females selected for the study, whether they participated in DSP or not was 31.

Of the 91 remaining females who were involved in subsequent accidents or moving violations, 12 were cited for one or more accidents but no moving violations; 49 were arrested for one or more moving violations, but cited for no accidents; and 30 were cited for one or more accidents and arrested for one or more moving violations.

Figure 1: Female Driving Histories, 1991 - 1999
With and Without Driver Safety Training

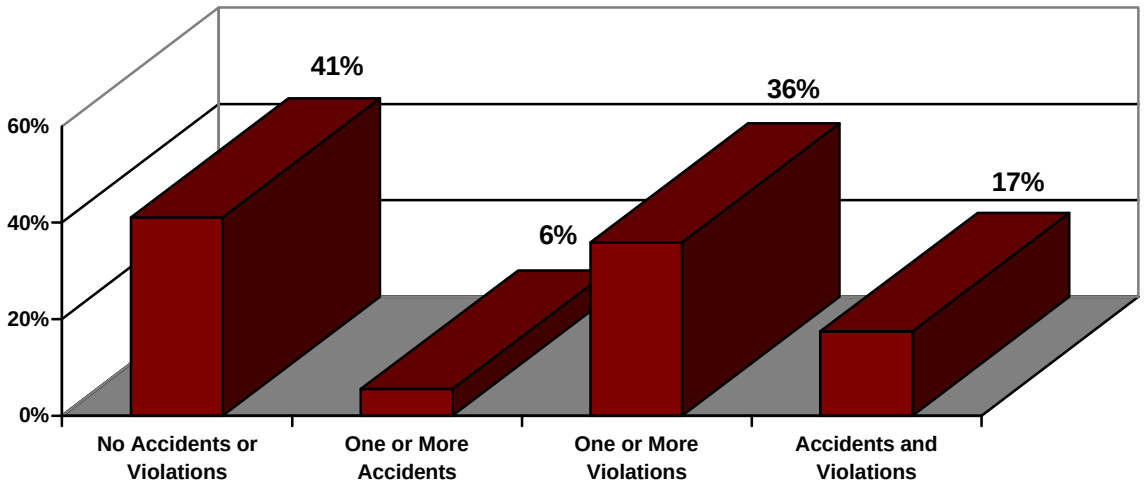


⇨ Moving Violations and Accidents, Male Drivers

Of the 618 male drivers selected for study in 1991, 254 (41 percent) were never again cited for an accident or arrested for a moving violation. All of these males were 1991 DSP enrollees and / or graduates. The average age of all 618 males was 29, two years younger than the average age of the females.

Of the 364 males who were subsequently involved in one or more accidents and / or cited for one or more moving violations, 34 were charged with one or more accidents but no moving violations, 222 were arrested for one or more moving violations but cited for no accidents, and the remaining 108 were cited for one or more accidents and one or more moving violations.

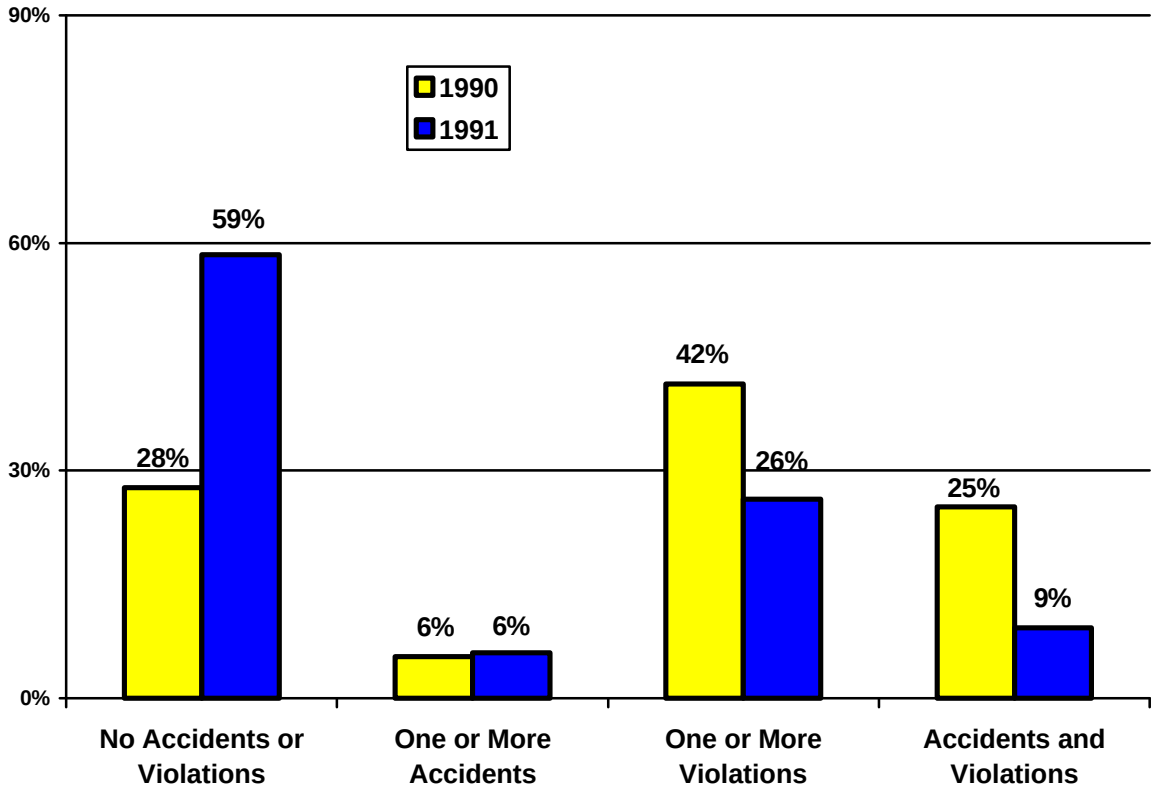
Figure 2: Male Driving Histories, 1991 - 1999
With and Without Driver Safety Training



⇨ Moving Violations and Accidents, by Cohort

Half of the drivers randomly selected for study were 1990 rather than 1991 violators because when DSP was offered in lieu of conviction in July 1991, it was not possible to deny DSP to drivers who met program criteria just to form a "control" group. The 1990 control group or "cohort" was statistically identical to the 1991 cohort on the basis of driving history, age, and gender at the time of selection; but by 1999, 28 percent of the 1990 cohort had not been involved in another accident or moving violation. In contrast, 59 percent of the 1991 cohort had not been involved in another accident or moving violation.

Figure 3: 1990 and 1991 Cohort Driving Histories With and Without Driver Safety Training



⇨ Moving Violations and Accidents, by Training

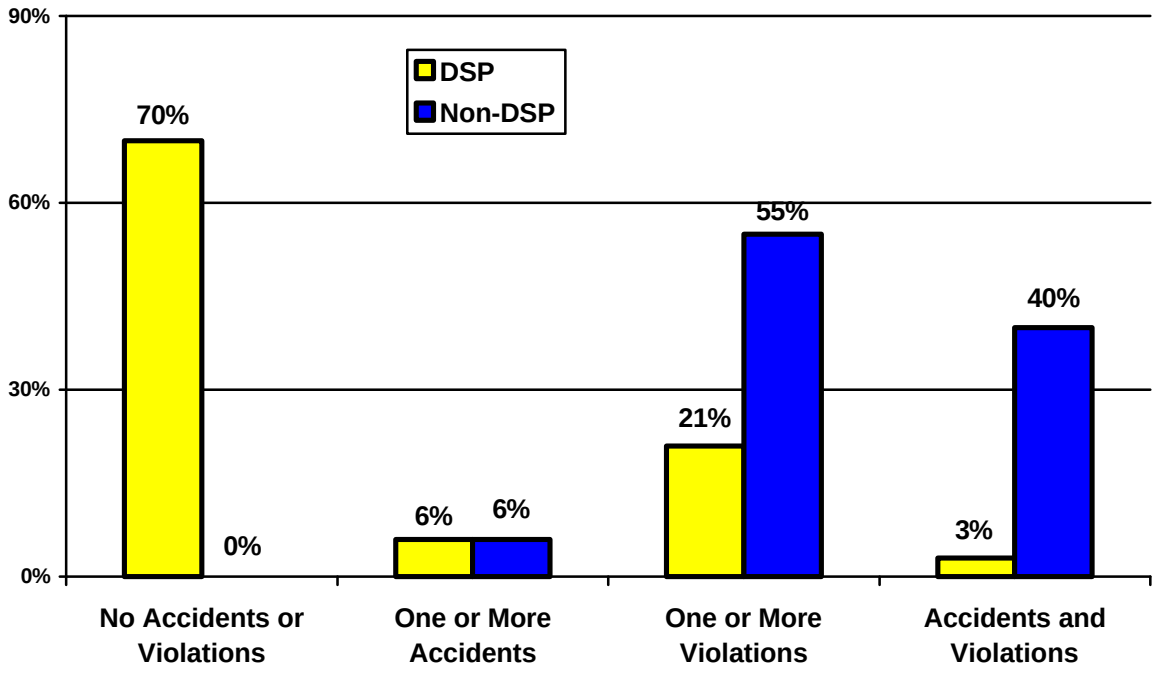
The principal interest in this evaluation is not how females did in comparison to males, or how the 1990 cohort did in comparison to the 1991 cohort; it is whether or not the intervention -- driver safety training -- reduced accidents and / or moving violations. The first two evaluations found evidence of reductions in moving violations, but only the second evaluation found evidence of accident reduction. Now ten years into the program, and nine years after the 1991 cohort participated in driver safety training, the data show that the trends observed in the first and second evaluations are not only continuing, but they appear to be increasing in magnitude with each passing year.

Of the 800 drivers in the 1990 and 1991 sub-samples who were used for this evaluation, 491 have now completed the program. Some have completed it more than once. That leaves 309 drivers who have never completed the program -- some of whom were in the original 1991 cohort. Of the 491 individuals who completed driver safety training, 345 or *70 percent, have not had another accident or moving violation*. Of the 309 who did not participate in the program, *all have had at least one subsequent accident and / or moving violation*.

On a simple per driver basis, the difference between non-DSP drivers and DSP drivers is 2:1 in terms of subsequent accidents and moving violations. Of those who completed the program, 146 drives had subsequent accidents or were arrested for a moving violation while all 309 of the drivers who did not participate in the program were subsequently charged with an accident and / or arrested for a moving violation. When combined, that means 32 percent of the 455 DSP and non-DSP drivers who had subsequent accidents and / or moving violations were DSP participants, while 68 percent were non-DSP participants.

In terms of subsequent incidents, 345 (70 percent) of the 491 DSP graduates never had another accident or violation, 29 (6 percent) had one or more accidents, 102 (21 percent) were arrested for one or more moving violations, and 15 (3 percent) had one or more accidents and one or more moving violations. Of the 309 non-DSP drivers, all had another accident or violation, 17 (6 percent) had one or more accidents, 169 (55 percent) were arrested for one or more moving violations, and 123 (40 percent) had one or more accidents and one or more moving violations.

Figure 4: DSP and Non-DSP Driving Histories, 1991 - 1999
With and Without Driver Safety Training



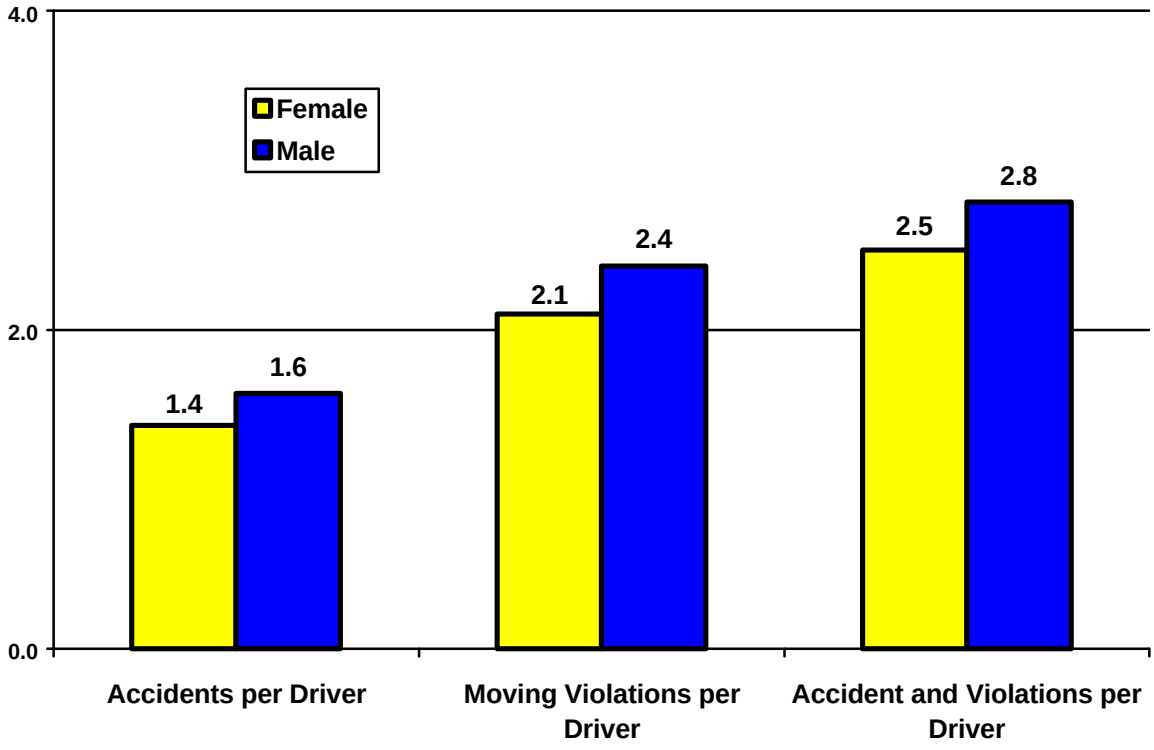
Percentages do not add to 100% due to rounding.

This illustrates the influence driver safety training has on individuals, but that alone is not evidence that the result is safer roads and highways. A few individuals can cause a great deal of damage. Accidents and moving violations can increase even as the number of individuals responsible for them declines.

⇨ Accident and Moving Violation Ratios, by Gender

Males were charged with 222 accidents during the nine-year period, and females with 59. The number of males charged was 142, while the number of females was 42. That is 1.6 accidents per male driver and 1.4 per female driver. Similarly, 330 males were arrested for 808 moving violations, and 79 females were arrested for 169 moving violations, 2.4 and 2.1 moving violations per driver, respectively. The combined gender ratios for drivers to accidents and moving violations was 2.8 for males and 2.5 for females. All of these outcomes are statistically significant.

Figure 5: Male and Female Driver-of-Record Ratios
1991 - 1999

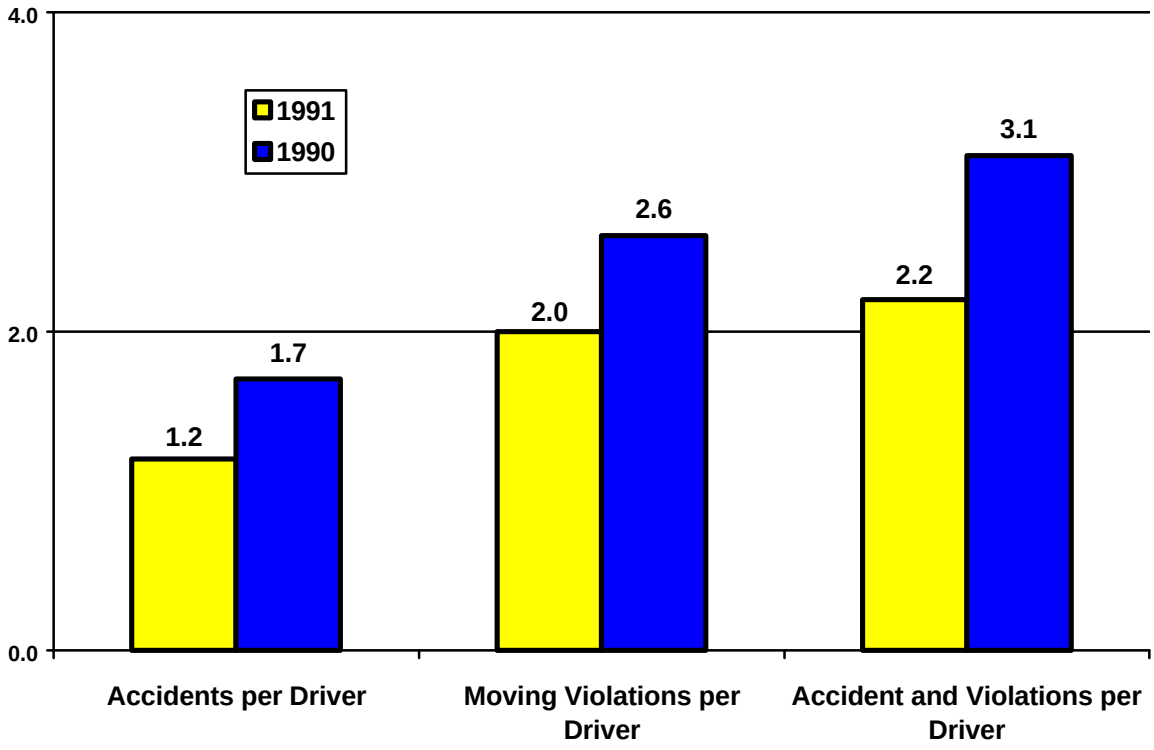


Accident and Moving Violation Ratios, by Cohort

More than 25 percent of the 1990 cohort have now had driver safety training. A total of 123 drivers in the 1990 cohort were involved in 205 accidents during the nine-year period, a ratio of 1.7 per driver. In contrast, 61 individuals in the 1991 cohort accrued 76 accidents, a ratio of 1.2 accidents per driver.

Ratios for moving violations were higher, but the difference was less pronounced. The 1990 cohort was arrested for 691 moving violations by 267 drivers, and the 1991 cohort was arrested for 286 moving violations by 142 drivers for ratios of 2.6 and 2.0, respectively. Overall ratios were 3.1 and 2.2, respectively.

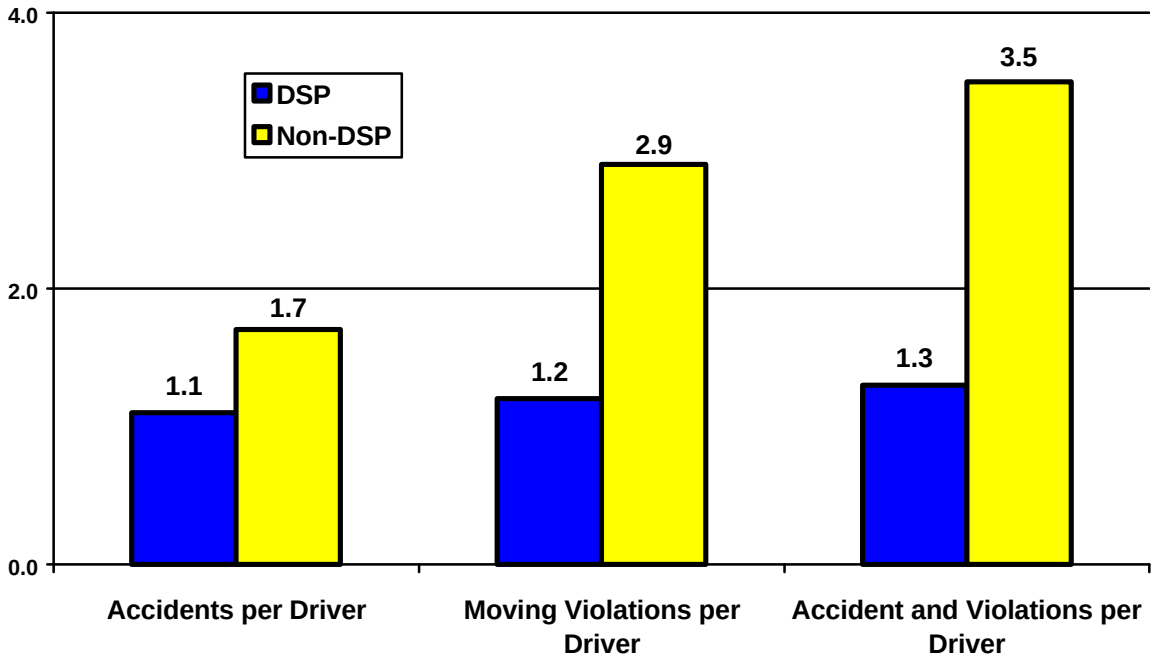
Figure 6: 1990 and 1991 Accidents and Moving Violations per Driver-of-Record, 1991 - 1999



⇨ Accident and Moving Violations, by Training

When analysis is confined to the drivers who had the accidents or were arrested for moving violations, the difference in accident and arrest ratios is significantly lower for those who participated in driver safety training than it is for those who did not. DSP drivers were charged with 47 accidents by 44 drivers between 1991 and 1999 for a ratio of 1.1 per driver. Non-DSP drivers were charged with 234 accidents by 140 drivers for a ratio of 1.7 per driver. DSP drivers were arrested for 138 moving violations by 117 drivers for a ratio of 1.2 per driver. Non-DSP drivers were arrested for 839 moving violations by 292 drivers for a ratio of 2.9 per driver.

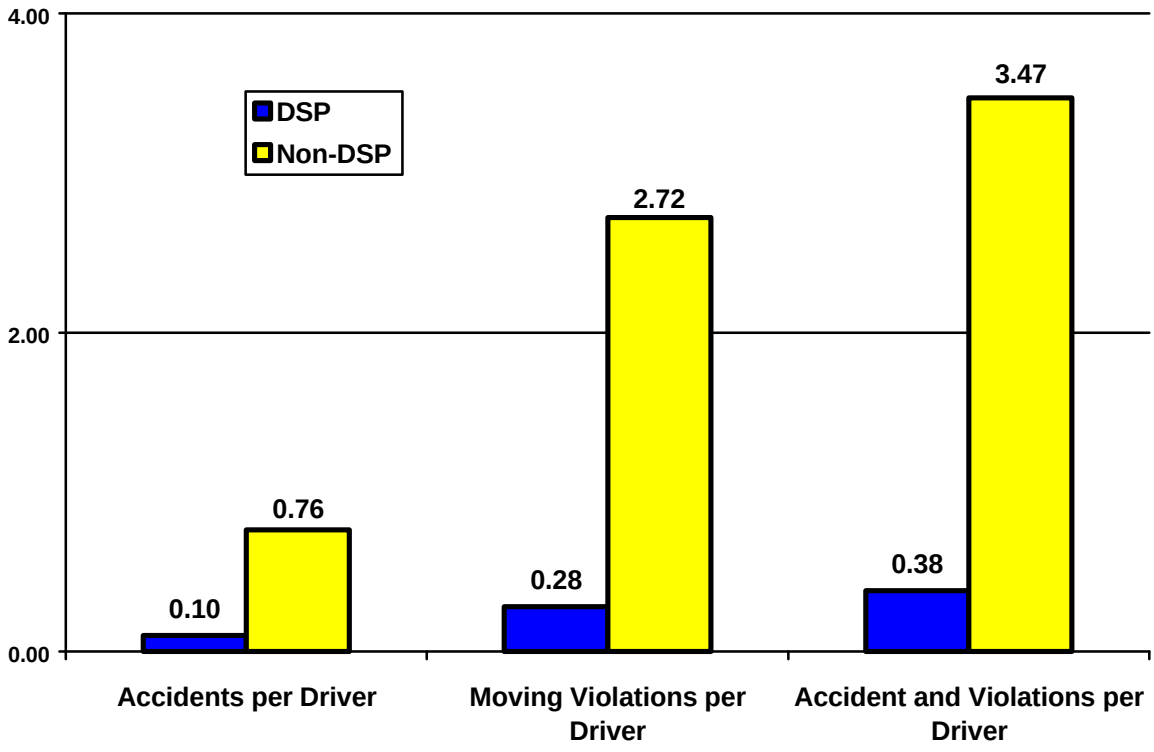
Figure 7: DSP and Non-DSP Accidents and Moving Violations per Driver-of-Record, 1991 - 1999



All Driver Ratios

Using the number of drivers actually arrested or charged in the denominator is useful because it provides a profile of the relative frequency with which problem drivers become involved in accidents and / or moving violations. But it provides only a partial picture because it excludes everyone else. The following illustration shows what happens when those who had DSP training and those who did not are compared as groups. The result is extraordinary.

Figure 8: DSP and Non-DSP Accidents and Moving Violations per Driver, All Drivers, 1991 - 1999



Over a nine-year period, drivers who did not participate in driver safety training were *8 times more likely* to be charged with an accident, and *10 times more likely* to be arrested for a moving violation than DSP graduates.

This is by far the strongest evidence to date of the effects of Lake County's driver safety program. But what is perhaps more interesting than the magnitude of the effects, is that outcome differences in each area (accidents and violations) has increased each time the program has been evaluated. That suggests that one of the reasons many evaluations have failed to find convincing evidence of program effects is that time is a crucial ingredient.

The findings in the first evaluation were marginal, and undoubtedly disappointing for those who were hoping for huge differences between program and non-program drivers. The second study found stronger, more comprehensive differences between the groups, but they were still -- after six years of monitoring -- not spectacular. But after almost ten years, some of the differences are so pronounced they speak to the need for more long-term studies on driver safety training effects.

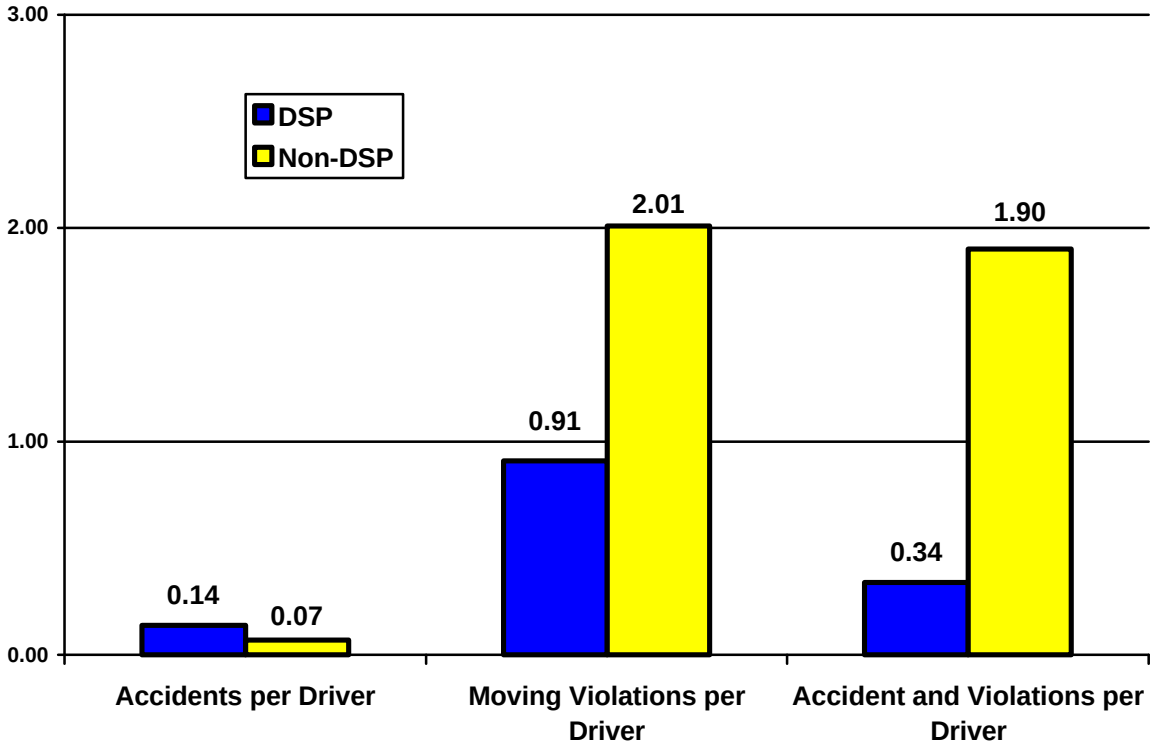
⇨ Targeting Youth With "Alive at 25"

College of Lake County has specifically targeted drivers under the age of 21 because they are a high risk group and are often not only a danger to themselves but to anyone who happens to be in their way. This study was not designed to examine the outcome of the "Alive at 25" program, which began after the study was designed. Moreover, the drivers who continue to participate in this study are now all over 21. Nevertheless, the driving histories of those who were under the age of 21 when they were selected for study were examined to see how they compared to the DSP and non-DSP groups as a whole.

Not surprisingly, those under 21 did not do as well as drivers of all ages. Non-DSP drivers actually had a lower *accident* rate than DSP drivers, but the numbers are small. It is likely that most of the under 21 group participated in mandatory high school driver education, and that probably changes some of the dynamics in ways this study was not designed to measure.

Non-DSP drivers were twice as likely to be arrested for a moving violation as DSP drivers. Overall, drivers under 21 were 5.5 times more likely to be involved in either an accident or a moving violation.

Figure 9: DSP and Non-DSP Accidents and Moving Violations per Driver, Drivers Under 21, 1991 - 1999



⇨ Fatality and Analysis Reporting System (FARS)

The National Center for Statistics and Analysis (NCSA) has gathered traffic fatality information nationwide since 1975, and data from the Center's on-line databases were compared to these findings. They are consistent with these findings.

To briefly summarize some of the National, Illinois, and Lake County data contained in FARS, "Accidents Involving DUI drivers With Prior Moving Violations" increased 3.7 percent nationally between 1994 and 1998, but they declined 8.6 percent in Illinois as a whole, and they declined 10.6 percent in Lake County.

Similarly, "Accidents Involving Speeding Drivers, by Type of Restraint Used", which includes everything from "no restraint" to "Lap and Shoulder Restraints", increased .5 percent between 1994 and 1998 nationally. In contrast, they declined 2.4 percent throughout Illinois, and 13.6 percent in Lake County. "Fatal Accidents by Posted Speed" increased 1.9 percent nationally between 1994 and 1998, but declined 10.4 percent in Illinois and 10.8 percent in Lake County. And finally, "Fatal Accidents by Roadway-Function Class" increased 2.3 percent nationally, but declined 11 percent in Illinois, and 16.7 percent in Lake County.

When examining the data above, it is important to keep in mind that Lake County's declines in each fatality area exceed declines for the State as a whole, usually by a wide margin, even though the County is growing much faster than the State as a whole.

Overall, this evaluation and the two that have preceded it leave little doubt about the effects of the CLC program. It has had a huge long-term impact on both accident and moving violation reduction; and, when the program is considered in light of that, it is reasonable to conclude that it has been a good investment for the County and it's drivers.

Conclusions and Recommendations

It is always prudent to exercise caution when considering the findings of a single study, or even a series of studies conducted in the same location. There are many things that can creep into field evaluations without notice and lead one to be more encouraged or less encouraged than is warranted.

The author has consistently tried to conduct these studies in ways that eliminate or control bias and alternative explanations. Whether he has succeeded can only be determined by other researchers. It is therefore strongly recommended that other Illinois driver safety programs begin long-term evaluations of their own, and that they conduct them with a variety of independent researchers to help ensure balanced perspectives.

Nevertheless, it is possible to be both cautious and exuberant about these findings. They suggest that the CLC program has saved many lives over the past ten years, and many times that in terms of injuries and damage. Whatever future evaluations may show, CLC and the Nineteenth Judicial Circuit can be very proud of their public safety vision that has touched many lives and families in tremendously positive ways. And the National Safety Council is to be congratulated for developing a training curriculum that appears to improve with age.