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DEPARTMENT OF MOTOR VEHICLES

PILOT EDUCATIONAL OUTREACH TO HIGH-RISK ELDERLY DRIVERS

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Over 40,000 Class 3 drivers aged 70 or more who had some traffic incidents on their driving records, but not so many as to make them "negligent operators" under California law, were randomly divided into four groups. One group received educational material (pamphlets, brochures) relating to older driver traffic safety, a resource list of Internet addresses and phone numbers for driving- or elder-oriented organizations, a questionnaire, and a cover letter. A second received only the resource list, questionnaire, and cover letter, while a third received the questionnaire and cover letter, and the fourth was not contacted in any way. There was no significant effect on either subsequent crashes or traffic convictions as a function of the amount of material sent. For the questionnaire, group return rates ranged from 43% to 62%, and several differences were found among the respondents consistent with greater knowledge among those who were sent the educational material. The report ends with a discussion of lessons learned with respect to surveying people—and elderly people specifically—and includes voluminous appendices containing, in part, much of the educational material, the resource list, a presentation of respondent group attitudes toward DMV, and illustrative pages from DMV's new Senior Web Site.

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PREFACE

This project is a part of the California Traffic Safety Program, and was made possible through the support of the California Office of Traffic Safety, State of California, and the National Highway Traffic Safety Administration. The report was prepared by the Research and Development Branch, Licensing Operations Division, of the Department of Motor Vehicles (DMV) under the administrative direction of Cliff Helander, Chief. The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of California or the National Highway Traffic Safety Administration.

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Outside of Research and Development, we are grateful to the Key Entry/Controls Unit within the Abstract Processing Unit, Licensing Operations Division (LOD), and to the Issuance Unit of LOD. Both of these units contributed staff for data entry.

In addition to DMV participation, this project could not have been done without the cooperation of a number of other organizations. The National Highway Safety Traffic Administration, the American Automobile Association (AAA) Foundation for Traffic Safety, the Traffic Safety Department of the California State Automobile Association, and the Automobile Club of Southern California generously donated quantities of safety brochures to send to study drivers. Particular thanks in this regard go to Merry Banks of the California State Automobile Association and Arline Dillman of the Automobile Club of Southern California.

And in conclusion, we have tremendous appreciation for the thousands of elder drivers who took the time to complete the quiz/questionnaire. This is their report.

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INTRODUCTION

The "graying of America" will advance perceptibly when the first cohort of California's baby boomers turn 60 in 2006, contributing to the already rapid growth in the state's population of older adults. In the period from 1990 to 2020, California's elderly population is expected to increase 112%, with persons 85 years and older representing its fastest growing segment. In fact, by 2020 more than half of California counties are expected to experience over a 100% increase in their populations of elders, people of 65 or more, as compared to 1990. This means that elders will number more than twice as many as they did before. Figures 1a and 1b, below, show projected changes in the mix of ages in California. The baby boomers, by far the largest bulge in the population pyramid in 1990, will become a relatively inconspicuous part of the pyramid by 2030. Only the younger boomers will stand out as being overrepresented, and the pyramid as a whole (far from showing a domination of society by older people) will show an age mix that is much more homogeneous than it is presently. Youth will still prevail on the roads, but the elderly will be a much greater part of the mix than they are now.

The aging of the baby boomers will create a cohort of older adults that is expected to be quite distinct from today's population of elders. If present trends continue, future generations not only will live longer than their parents, but also they will continue to drive, and drive longer distances, later in life.

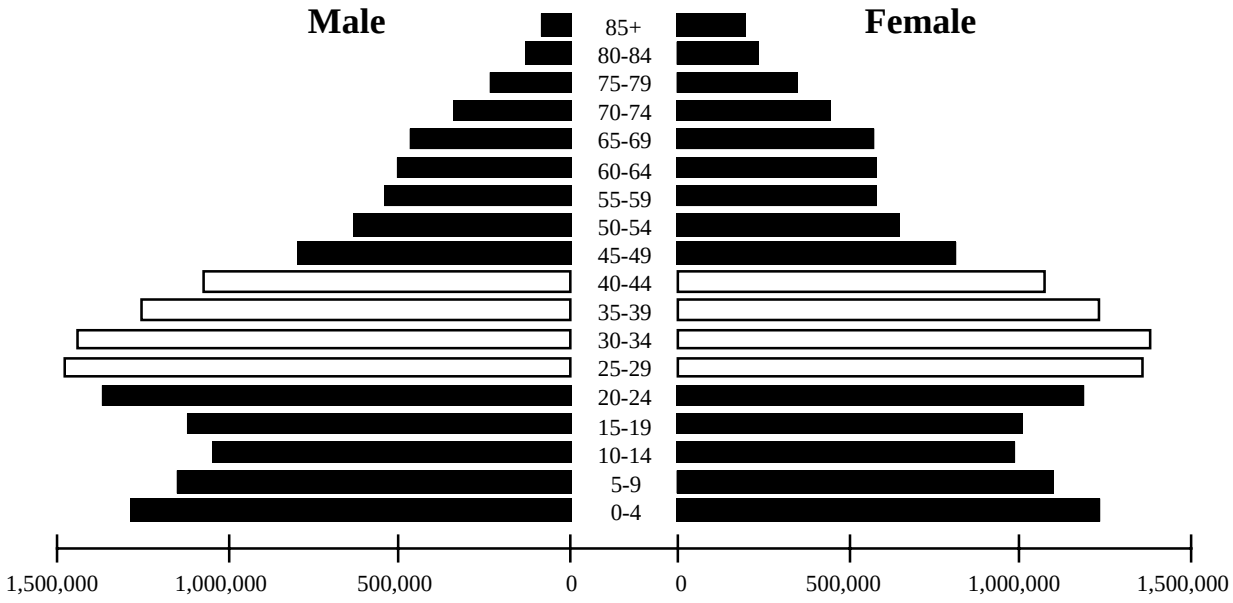


Figure 1a. 1990 California population by age and sex. (Baby boomers are striped.)

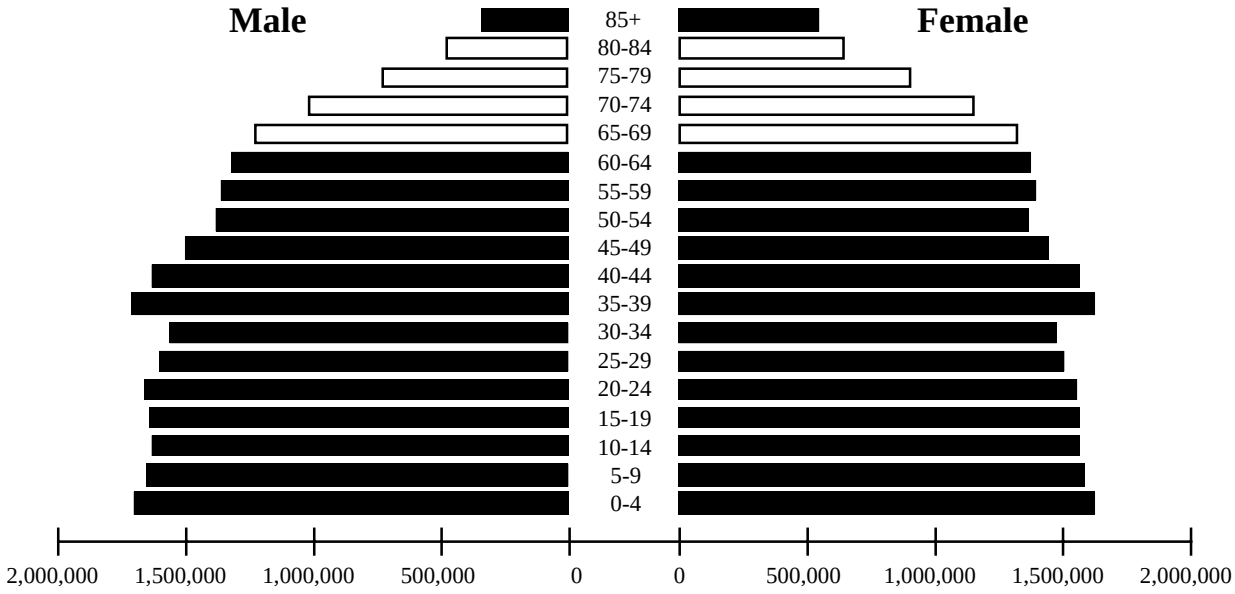


Figure 1b. Projected 2030 California population by age and sex. (Baby boomers are striped.)

Safe mobility is essential to a high quality of life for people of all ages. The private automobile remains the dominant mode of transportation for older adults, much more so than walking, bicycling, or using public transportation. Present older drivers, having grown up driving and with greater access to automobiles than their parents, are reluctant to give up their cars for what they perceive (often rightly) to be less convenient and less desirable forms of transportation. They tend to resist any change in their preferred mode of travel, continuing to drive as long as possible (Ball, Owsley et al., 1998).

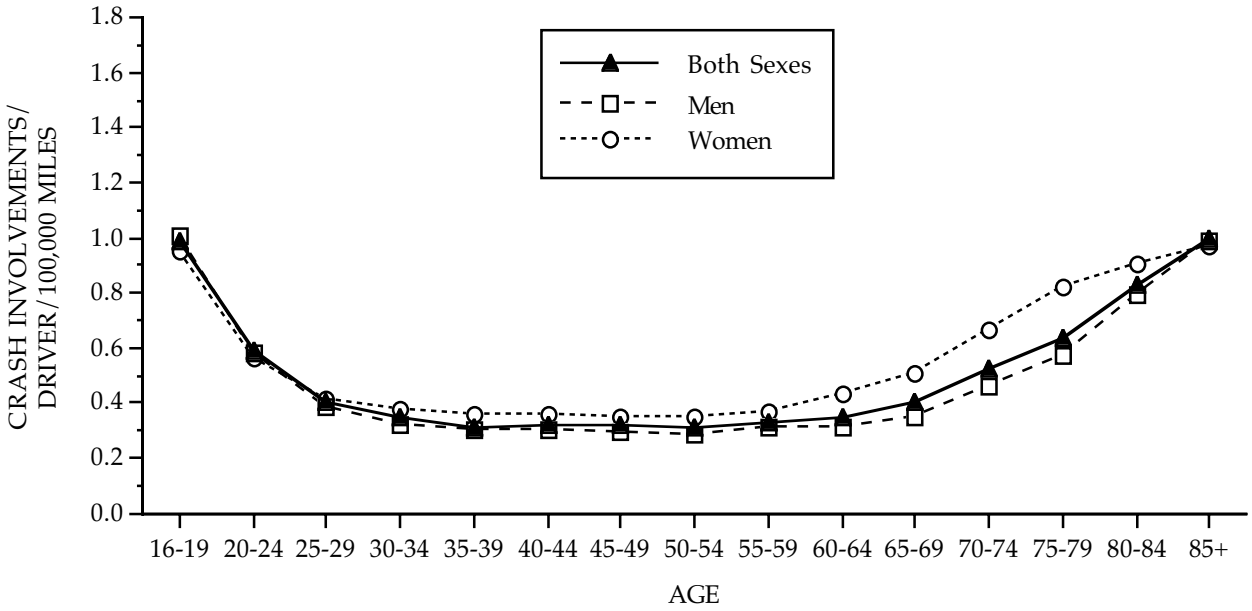
The physical consequences of crash involvement skyrocket with age. Older adults are not only more likely to be injured, but less likely than younger persons to survive the injuries they suffer in motor vehicle crashes. Crashes are more lethal to elders than to younger persons, whether restrained or unrestrained. In fact, death rates per mile for persons aged 75-79 are more than four times higher than for 30- to 59-year-olds. Persons aged 65 or more also have the highest pedestrian death rates of any age group—2.5 times the rate for younger adults and 13 times the rate for children (California Highway Patrol, 2000). In 2002, motor vehicle crashes accounted for 42% of all unintentional injury deaths, with 15% of those being people aged 65 and older. In that year, motor vehicle crash involvement was the third leading cause of death and the second leading cause of non-fatal injuries to Californians aged 65 and older (California Department of Health Services, EPIC Branch, 2002).

The increase in older adults using California's roadways creates a critical need to reduce serious injuries by preventing traffic crashes among seniors, as recommended by the California Task Force on Older Adults and Traffic Safety (Yanochko, 2002; see details below). From 1997 through 2000, according to California Highway Patrol (CHP) figures, drivers, passengers, pedestrians, and cyclists aged 60 or more experienced an average of almost 28,000 injuries and more than 750 deaths per year while using California roadways. In this state, as perhaps in all, traffic-related injuries and deaths to elders carry significant monetary costs in addition to costs of human suffering—more than $226 million dollars per year (1996 dollars) in California (Pacific Institute for Research and Evaluation, 2001).

Both state and federal authorities have experienced a growing recognition of the safety issues they believe will be posed by the anticipated ballooning proportion of elderly drivers. (The number and proportion of elderly drivers is still relatively small, since Depression babies were a small cohort and the youngest of them are not yet 65, though the oldest are well into their 70s. There was a marked jump in the birth rate attributable to World War II, but the oldest of the war babies will not be 65 for at least another year. The anticipated deluge, of course, will be caused by the baby boomers [born 1946 through 1964], the oldest of whom will turn 65 in 2011.) The recognition of elder safety issues was triggered to a large extent by a 1988 special report of the Transportation Research Board (TRB Report 218, 1988), which observed that the proportion of crashes involving elderly drivers nationally would increase dramatically over the next 30 years because of the pronounced demographic trend toward an older population (the so-called "graying of America" alluded to above).

This projected increase in elders' crashes might have nothing to do with aging-related impairment, but simply reflect the growing proportion of elderly drivers. The driving population aged 65 or older in California has increased more than 20% since 1981, so that 8% of licensed drivers in 2001 were 70 or older. There has been a corresponding increase in the percentage of crashes involving drivers aged 65+ or 70+ (Aizenberg & McKenzie, 1997), and these rates are projected to grow until the year 2025, at which point 22% of the driving age population will be over 65. (These drivers will probably not, however, be responsible for 22% of the serious crashes—senior drivers are consistently underrepresented in fatal and injury crashes per year.)

But besides this growth factor, driving ability—like athletic ability—is known to decline, as a rule, with advancing age and its associated functional impairments (see Janke [1994] for descriptions of aging-related impairments that may affect driving). Drivers aged 70 or more, as a group, have markedly elevated mileage-adjusted rates of traffic incidents. Crash rates per mile are especially high for drivers aged 80 or more, as shown in the following graph, taken from Janke, Masten, McKenzie, Gebers, and Kelsey (2003).



Note. Based on 1% random sample of California licensed drivers. Annual averages are based on crashes occurring during the years 1996 through 1998. Annual mileage estimates are based on data from Federal Highway Administration, 1999, *Summary of Travel Trends: 1995 Nationwide Personal Transportation Survey*, Washington, D.C.: U.S. Department of Transportation.

Figure 2. Average crash involvements per driver per 100,000 miles by age and sex.

This graph indicates that the oldest drivers pose enhanced risk to themselves when they drive. The Janke et al. report also showed that, partly because this group has a much lower average annual mileage, it has a lower crash rate per year, compared to other age groups of California drivers. Thus, it can be inferred that if the group drove as many miles, under the same circumstances, as younger drivers, they would pose a considerable danger to society as a whole, as well as to themselves. However, their societal "threat" has remained relatively small (e.g., Evans, 2000). This is probably because, in addition to low mileage, most elders, deliberately or without deliberation, place constraints on their driving. These constraints commonly include avoiding night and freeway driving. These and others are listed by Langford, Fitzharris, Newstead, and Koppel (2004); they help to keep the rate of crashes per year (or any time period), as opposed to crashes per mile (or any distance), acceptably low for this age group of drivers.

It may be that the baby boomers, as they become elderly, will drive more and be less likely to constrain their driving than present generations of older people. They will constitute a very large group, and the emerging safety and mobility issues posed by these anticipated elders have been recognized in a variety of National Highway Traffic Safety Administration (NHTSA) initiatives. The American Association of State

Highway and Transportation Officials (AASHTO) also has recognized that its traditional focus on highway infrastructure cannot alone achieve desired fatality reductions. Therefore, their latest strategic highway safety plan requires, among other things, an increased focus on the special needs of older drivers and pedestrians.

California has made efforts in this direction as well. In one of these, a group highly qualified to study issues of elder mobility was brought together by the Center for Injury Prevention Policy and Practice, located at San Diego State University. The California Task Force on Older Adults and Traffic Safety (OATS) contained representatives of government, academia, private enterprise, and major interest organizations. With the aid of a grant from the California Office of Traffic Safety, this group met over the course of two years, exploring countermeasures to reduce the occurrence of traffic crashes involving elderly drivers, passengers, or pedestrians. They emerged with recommendations for education and action that covered everything from improved Department of Motor Vehicles (DMV) driver assessment, through improved health care, through improved motor vehicle design. The report (Yanochko, 2002) of the task force's recommendations, as well as factual material relating to elder transportation, is available from the Center for Injury Prevention, Policy, and Practice at San Diego State University (www.eldersafety.org).

Within California DMV, an educational effort closely related to the present outreach study was previously completed by this study's principal investigator, who developed an on-line Senior Driver Information web site that branches from DMV's home page (www.dmv.ca.gov) on the Internet. (A pilot version of the questionnaire used in this project was sent to 200 elder drivers; responses indicated that roughly 40% of them had access to the Internet, a percentage which will only increase in the future.) The Senior Driver Information web pages, in both English and Spanish, have been available since February 2004 to seniors and any others wanting to learn more about senior transportation-related topics. The site collects information on such topics in one place for ease of access; included are web pages on driver licensing, alternative transportation choices, health, and safety, as well as a how-to section giving computer tips that teach users how to navigate the web, use searches, and enlarge the type font. Appendix A contains illustrative pages from the senior web site.

The main purpose of the present study was to determine whether an educational intervention, when applied to older drivers with “moderately unclean” (defined in the Methods section) crash or conviction records, could reduce subsequent crashes in this group. Gebers and Peck (1992) had studied the 6-year records of a large random sample of drivers of varying ages; study drivers had traffic incidents on record, and so were at above-average risk of future vehicle crashes. Subjects were divided into five

age groups, and it was found that older drivers showed a steeper increase in future crash risk than younger ones as the number of their prior traffic incidents (crashes and/or convictions) increased. The occurrence of a few incidents marring their records could be an early warning sign of aging-related impairment for these drivers, and the authors speculated that it might be beneficial as an early treatment step to send them "an educational brochure or self-assessment guide designed to encourage the driver to reflect on his or her driving performance and to assess risk factors and potential areas of self-restriction" (p. 92).

The present study was motivated to a great extent by the consideration that, if the recent traffic incidents of some elders do indeed reflect declines in their health, early intervention could have particular value, both personal and social. It investigated the effect of a treatment like that suggested by Gebers and Peck on drivers aged 70 or more who had a moderate number of incidents on their driving records. Study subjects were divided randomly into four groups. One group, which got all materials, was sent a contact letter, a quiz/questionnaire, and a great deal of safety-related educational material (some of which appears in Appendix C), including a list of resources for seniors. Another group was sent a letter, a quiz/questionnaire, and a list of resources for seniors (but no other material); a third was sent a letter and quiz/questionnaire, but no educational material or resource list; and a fourth was sent nothing. (The contact letters sent to the first three groups appear in Appendix B.)

A second purpose of the study, in addition to discovering any safety-related effect, was to tabulate subjects' answers to the quiz/questionnaire (Appendix D), determining whether between-group differences existed that might be attributed either to information contained in the educational material that was sent, or (if attitudinal) simply to the fact that information *was* sent (by a large bureaucracy perhaps believed to be indifferent).

The quiz/questionnaire was primarily designed to determine two things: knowledge of traffic safety principles, and attitudes toward DMV, measured by five survey questions. (The attitude responses were on a Likert scale of 1-5, representing "totally disagree" to "totally agree." The value 3 represented "neither disagree nor agree.") The quiz/questionnaire also contained an introductory portion, which asked for personal information about the respondent. Most of it, however, was a "quiz" which asked for the answers to questions relating to aging and traffic safety. Some quiz questions of the multiple-choice variety had more than one correct answer, and subjects were asked to "mark all that apply." A few quiz questions were included purely to test if the material had been read, under the assumption that it was neither widely known already nor readily deducible. For example, one of the brochures in the package sent only to Group

A (which received all materials) was entitled *The Driving Triad and the Older Driver.* It began, "There are three things that are involved in driving: the driver, the vehicle, and the environment." No one in either of the groups that did not receive the brochure was considered likely to mark this alternative as a correct answer to the question of what three elements are involved in driving. Hitting on the answer would either involve chance or the application of (perhaps uncommonly used) deductive logic, since vehicle, driver, and environment would seem to subsume all the other alternatives given.

METHODS

Subjects

Over 2 million records of people aged 65 or more were drawn in October of 2002 from the automated DMV Master File, which contains the driving records of licensed drivers in California, as well as identifying information and data describing contacts between the driver and the department's Driver Safety Branch. (In a group of elders, the latter type of contact is commonly due either to a reported medical condition or to a referral by law enforcement for reexamination on account of a traffic incident showing, in the officer's judgment, a possible chronic inability to drive safely.) The driving records drawn from the file covered a period from selection date backwards to 30 months earlier.

It has been mentioned that there were four treatment groups, receiving different materials. All groups received a contact letter from the Director of DMV and a quiz/questionnaire on traffic safety knowledge and attitude toward DMV. Drivers were assigned to a group on the basis of the final (otherwise known as terminal) digit of their driver license number (an essentially random method), and thus randomly assigned to treatments. Driver license terminal digits of 0 or 6 were assigned to Group A (**A**ll materials); those with terminal digits 1 or 8 to Group B (**B**oth the letter and a resources list); those with terminal digits 3 or 4 to Group C (**C**ontact letter only); and the remainder (four possible terminal digits, therefore about twice as large as the other groups) to Group D (**D**o nothing), a no-contact control. (Normally all of these drivers would be in a "DMV no-official-contact condition," in the sense that none had crash or conviction records severe enough to warrant negligent-operator intervention.)

First, it was necessary to eliminate some records from the sample. Drivers under the age of 70 were dropped (ages 65-69 had been selected for other purposes). Three drivers did not have the appropriate class of license, which indicates what types of vehicle (e.g., automobiles, heavy trucks) can lawfully be driven. Subjects had to have

Class 3 licenses, allowing the holder to drive automobiles and pickup trucks, but not buses or heavy trucks. Additionally, as Table 1 shows, many drivers had invalid (suspended, revoked, lapsed) licenses or were out of California; a few were deceased.

After making these preliminary cuts, selection was made on the basis of drivers' prior records. It will be recalled that a study objective was to determine the effect of educational material on older drivers with moderately unclean crash or conviction records. Grounded in part on the findings of Gebers and Peck (1992), "moderately unclean" was defined very specifically for study purposes. Some drivers' records were too clean for the study. These included drivers showing no traffic convictions or crashes on their 30-month prior records (covering all of 2000 and 2001, plus the first 6 months of 2002), and drivers who had minor incidents in 2000 and/or 2001 but showed no convictions or crashes within the first 6 months of 2002, the immediately preceding 6 months. For clarity it should be noted that traffic convictions, as used here, included not only convictions but also (1) failures to appear (FTAs), where a cited driver neither forfeits bail (pays for the ticket—this is considered a conviction) nor appears in court to contest it, and (2) traffic violator school (TVS) dismissals, where a cited driver avoids a conviction by being allowed to attend a safety class in lieu of forfeiting bail.

The driver records of some people were not clean enough. These included drivers who had a major conviction or a California Vehicle Code (CVC) Section 14601 conviction in any of the three time periods (2000, 2001, first 6 months of 2002). Major convictions, or convictions of major violations, go beyond run-of-the-mill moving violations and include such things as driving under the influence of alcohol or drugs, reckless driving, and hit-and-run. The offense defined by a conviction of CVC Section 14601 is driving when one's driving privilege has been suspended or revoked. The not-clean-enough group also included those who had a fatal crash in any of the three time periods, those who had more than two nonfatal crashes in either of the first two time periods or more than one in the third, and those who had more than three negligent operator points in either of the first two time periods, or more than two in the third. (Negligent-operator or "Neg-Op" points are assigned to a driver's traffic record for convictions and at-fault crashes; one is assigned to each non-major moving violation, two to majors, and one to each crash judged at-fault.) When these points have accumulated to four or more in one year, six or more in two years, or eight or more in three, the driver is defined as a negligent operator by California law, and DMV sanctions are invoked. Drivers who might already be under some kind of mandated DMV sanction (e.g., license revocation) would have contaminated the sample, and were eliminated as previously described.

The above has described the criteria under which drivers were initially eliminated from the potential study sample. After necessary cuts had been made, records of 57, 776

moderately unclean, validly licensed, drivers aged 70 or more were available. Of those available, more than 11,000 drivers were assigned to each of the contacted treatment groups, with about 23,000 drivers in the no-contact control. The numbers in the contacted groups were then systematically reduced further because of limitations in project resources (i.e., donated materials available and grant allowances for postage expenditure). This left about 5,750 drivers in each contacted treatment group. Together with the approximately 23,000 in the no-contact control group, there was a total initial sample of 40,291 drivers.

Table 1 shows the exact number in the groups, their mean age, and other information showing how they were constituted originally and at later stages (that is, as originally constituted, as eliminations were made, at mailout, and after data collection, when post-treatment driving records were collected in October of 2004).

Table 1

Elder Project Volumes by Group

	All materials	Resources & letter	Letter only	No contact	Total	TD* 0 & 6	TD 1 & 8	TD 3 & 4	TD 2, 5, 7, & 9
	Group A	Group B	Group C	Group D		% A	% B	% C	% D
Original *N*, 70+	445,259	446,320	444,891	890,147	2,226,617	20.00	20.04	19.98	39.98
Not class 3	1	1	1	0	3				
Deceased	7	4	10	11	32				
Invalid license	108,188	108,508	108,065	216,008	540,769	24.30	24.31	24.29	24.27
Out of state	1,567	1,573	1,573	3,166	7,879	0.35	0.35	0.35	0.36
Clean prior record	389,576	390,427	389,186	778,932	1,948,121	87.49	87.49	87.48	87.51
Nearly clean prior record	43,407	43,747	43,716	87,083	217,953	9.75	9.80	9.83	9.78
Major conv./fatal crash	2,647	2,675	2,657	5,354	13,333	0.59	0.60	0.60	0.60
Too many neg-op points	354	340	321	684	1,699	0.08	0.08	0.07	0.08
OK for study	11,695	11,576	11,454	23,051	57,776	2.63	2.59	2.57	2.59
Final treatment sample	5,751	5,747	5,742	23,051	40,291				
At End of Data Collection**									
N	5,749	5,749	5,741	23,047	40,283				
Mean age	79.6	79.5	79.6	79.6	79.6				
% male	59.7%	60.4%	59.8%	60.8%	60.4%				
Remained alive	96.3%	96.0%	96.0%	96.0%	96.0%				
Retained valid license	90.1%	89.7%	89.8%	89.5%	89.7%				
Clean 12 months post	87.2%	86.7%	87.0%	87.3%	87.2%				
Drivers with Valid CA Driver Licenses at End of Data Collection	88.0%	87.5%	87.5%	87.4%	87.5%				
N	5,061	5,026	5,022	20,143	35,252				
Incident(s) 12 mos. post	13.2%	13.7%	13.4%	13.1%	13.3%				
Clean 12 months post	86.8%	86.3%	86.6%	86.9%	86.7%				
Mean age	79.2	79.1	79.3	79.2	79.2				
Minimum age	72.5	72.8	72.8	72.2	72.2				
Maximum age	101.7	98.8	105.0	98.6	105.0				
% male	59.3%	59.8%	59.6%	60.5%	60.1%				

* TD = terminal (final) digit of driver license number
** Checked October 2004

Treatments

As stated previously, all treatment groups (except for Group D—mnemonic "**D**o nothing," which was not contacted in any way) were sent a contact letter from the DMV Director at the time (see Appendix B for letters to Groups A, B, and C), a color-coded quiz/questionnaire, and a color-coded, postage-paid return envelope. (Color-coding identified the treatment group.) That is all that Group C (mnemonic "**C**ontact letter only") received. Group B (mnemonic "**B**oth") was also sent a four-page informational brochure titled *Resources*, listing selected sources of knowledge and assistance for older persons and discussing the advantages of using a computer and connecting with the Internet. Group A (mnemonic "**A**ll Materials") was sent a variety of educational items, described below, in addition to the letter and *Resources* brochure. Mailout of materials to the three contacted groups was accomplished in January of 2003.

Materials

After careful consideration of the knowledge, skills, and abilities needed to safely drive a vehicle, as well as factors that might influence these, a search for educational materials was undertaken. Two pamphlets produced by the American Automobile Association (AAA) Foundation for Traffic Safety *(The Older and Wiser Driver* and *A Flexibility Fitness Training Package for Improving Older Driver Performance),* two from the Traffic Safety Department of the California State Automobile Association *(Am I Too Old to Drive?* and *Safety Tips for Older Drivers),* and three from the AAA Straight Talk for Mature Drivers series *(Meeting the Challenge, Rx for Safe Driving,* and *Good Vision...Vital to Good Driving)* were selected; the Automobile Club of Southern California and the California State Automobile Association generously agreed to donate enough of them to be sent to Group A (**A**ll materials). An additional booklet, *Driving Safely while Aging Gracefully* [DOT HS 809 079], was obtained from NHTSA. The United Services Automobile Association (USAA) Educational Foundation had produced this latter publication.

Two publications written or substantially revised by the Research and Development Branch *(DMV: Serving our Senior Drivers* and *But it Wasn't Really My Fault!)* were added to the materials. The latter publication profiled a series of 10 accidents that were not the fault of, but could have been avoided by, the reader as driver. Defensive driving techniques to steer clear of involvement in these situations were explained. Further, three new four-page pamphlets were written specifically for the project: *The Driving Triad and the Older Driver; Drugs;* and *Resources.* The first addressed ways to maximize control of the environment and the vehicle (two of the triad of elements involved in driving), but emphasized that the most control can be exerted over the driver by him- or herself. The second addressed not only prescription medications, but over-the-counter

drugs and supplements as well—stressing drug interactions and calling attention to the fact that medications work differently in older bodies than in younger ones, particularly in an older person being treated, perhaps, for a systemic condition like diabetes or high blood pressure. The third of these publications, *Resources*, was sent to Group B (**B**oth letter and resources) as well as to Group A. It listed information and assistance sources for elders regarding training, referrals for rehabilitation practitioners and adaptive equipment, and available educational handouts. (The educational handouts, in fact, could be useful to people regardless of age.) Web sites were listed as well as addresses and phone numbers, and a discussion of how useful and easy it is to use the Internet was included. Appendices C-1 through C-5 contain copies of the five DMV-produced pamphlets—all of these, again, having been sent to Group A, with C-5 going to Group B as well.

For those who wish to explore relevant material on the Internet or request it on the phone, Appendix C-5 may be the most immediately useful. It is the *Resources* brochure mentioned above, and contains phone numbers and/or Internet addresses for many driving- or elder-oriented organizations, including AARP, AAA, CIPPP (Center for Injury Prevention, Policy, and Practice), and IIHS (Insurance Institute for Highway Safety), among numerous others. Perhaps it is important to say that inclusion of any of these organizations in *Resources* or in this report does not imply their endorsement or sponsorship by the California Department of Motor Vehicles.

A quiz/questionnaire was developed by the Research and Development Branch to assess traffic safety knowledge and attitudes towards DMV. Questions were drawn from the materials sent to Group A that would allow assessment of how much was already common knowledge (through correct answers from Groups B and C), as well as how effective the materials were in educating Group A. The form was piloted on 200 drivers, with revisions made for clarity before the mailout version was finalized. Appendix D shows the quiz/questionnaire with the percentage of each group choosing each alternative answer, plus chi-square and p values. Appendix E shows expressed attitudes toward DMV by group, also part of the quiz/questionnaire; finally, Appendix F shows some of the actual responses.

Analytic Methods

The driving record assessment was done by means of an analysis of covariance (ANCOVA). This ANCOVA was designed to assess whether the 6- and 12-month crash or conviction rates (subsequent to mailout in January 2003) varied significantly according to what kind and amount of informative material (including none) was mailed. Thus, all four treatment groups, all-materials through no-contact, were

assessed in the analysis. Age at selection, sex, total crashes 18 months prior to selection, and total convictions 18 months prior to selection were used as covariates, in order to adjust statistically for known influences on driving records (Gebers, 1999).

The quiz/questionnaire data were examined by means of chi-square analyses. The results of these analyses appear in Appendix D.

Data Limitations

DMV data are unfortunately limited. For example, DMV driving records include no measure of driving activity (mileage for our purposes), and therefore post-treatment records cannot speak to the reasonable risk of accident involvement for any particular individual. This becomes important because, at advanced ages, many people curtail or abandon driving altogether, even though they still hold a license; in fact, many if not most people cling to possession of their driver licenses for as long as possible. One's license is a symbol of independence that is extremely potent, and its loss may be viewed as a lessening of personal worth and identity. Thus, there is no way to know which "drivers" in this sample even drove during the post-mailout period, although the incidents on their records indicate that they drove, at least to some extent, within the 30 months prior to selection for the study. However, because study subjects were randomly assigned to treatment conditions, it can be assumed that the random assignment of such "non-driving drivers" among treatment conditions does not represent a bias in the analysis. (Incidentally, it is reasonable to hypothesize that jurisdictions with mandatory licensing tests, as opposed to those lacking such tests, would have fewer non-driving "drivers,"––though safety benefits from such competency assessment, at least when it targets older drivers, have not been shown [e.g., Langford, Fitzharris, Koppel, & Newstead, 2004]).

Furthermore, there is a lag time in updating the Master File, which is why records are usually pulled (retrieved) for analysis at least six months after the period of interest. However, records are also purged of minor violations every 36 months; therefore, drivers who had moderately unclean records at the time of selection (based on a time period from 2000-2002) could appear to have absolutely clean records for that period when reexamined in 2004. Also, major convictions are often contested in court, and are not recorded until a conviction has been handed down. Therefore, some major violations (and possible ensuing revocations of licenses) may not have shown up at the time of subject selection.

We know from the returned questionnaires that many more people had moved out of state than showed up on the Master File at the time of the post-treatment extraction.

Persons who sent with their questionnaire a request to change their address on DMV records were sent a form and instructions only during the first part of data collection, when staff were available to deal with them. These address changes, as well as any notifications of death sent in with the questionnaires, were forwarded to the records integrity group in DMV; however, update of the Master File may not have been timely. Drivers known to have moved out of state, as well as those deceased prior to mailout, were eliminated from the sample pool.

RESULTS AND DISCUSSION

Post-Treatment Driving Record

ANCOVA models were developed to examine the effects of the different treatments (i.e., subject groups) on subsequent crashes and traffic convictions, after adjusting for four covariates: prior 18-month crashes, prior 18-month traffic convictions/FTAs/TVS dismissals, age, and sex. Table 2 shows the ANCOVA summary table for subsequent 6-month crashes.

Table 2. Dependent Variable: Total Crashes Within 6 Months Post-Mailout

Source	Type III sum of squares	*df*	Mean square	F	Sig.
Corrected model	3.424	7	.489	12.812	.000
Intercept	.056	1	.056	1.454	.228
Prior 18-mo. total crash	2.411	1	2.411	63.143	.000
Prior 18-mo. conv./FTA	2.476	1	2.476	64.837	.000
Age	.201	1	.201	5.273	.022
Sex	.062	1	.062	1.618	.203
Treatment group	.040	3	.013	.352	.788
Error	1537.823	40275	.038		
Total	1598.000	40283			
Corrected total	1541.248	40282			

Only prior-record variables and age were statistically significant (the prior-record variables being highly so). Treatment group was far from significant. The means (per driver over the time period) for crashes within the 6 months following mailout, adjusted for covariates, were .037, .039, .039, and .037 for Groups A, B, C, and D, respectively.

Table 3 shows the ANCOVA summary table for 12-month subsequent crashes, using the same covariates.

Table 3. Dependent Variable: Total Crashes Within 12 Months Post-Mailout

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.
Corrected model	12.740	7	1.820	24.109	.000
Intercept	.004	1	.004	.047	.829
Prior total crash	9.245	1	9.245	122.468	.000
Prior conviction/FTA	9.359	1	9.359	123.973	.000
Age	.201	1	.201	2.657	.103
Sex	.395	1	.395	5.227	.022
Treatment group	.141	3	.047	.621	.602
Error	3040.466	40275	.075		
Total	3264.000	40283			
Corrected total	3053.206	40282			

The covariate-adjusted means for crashes within the 12 months following mailout were .073, .074, .076, and .071 for Groups A, B, C, and D, respectively. Unsurprisingly, the basic results were the same as for the 6-month subsequent crash record, with the exceptions that age was not significant, while sex achieved significance at $p < .05$.

The ANCOVA summary table for 6-month subsequent traffic convictions, using the same covariates that had been used for crashes, appears in Table 4.

Table 4. Dependent Variable: Convictions/FTAs/TVS Dismissals 6 Months Post-Mailout

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.
Corrected model	26.690	7	3.813	87.885	.000
Intercept	2.337	1	2.337	53.857	.000
Prior total crash	2.505	1	2.505	57.747	.000
Prior conviction/FTA	16.554	1	16.554	381.568	.000
Age	2.542	1	2.542	58.597	.000
Sex	2.349	1	2.349	54.145	.000
Treatment group	.069	3	.023	.530	.662
Error	1747.314	40275	.043		
Total	1837.000	40283			
Corrected total	1774.004	40282			

Conviction variables included FTAs and TVS dismissals, as noted above. Every covariate used in this analysis, including age and sex, was highly significant. To a great extent this difference reflects the rarity of crashes, as opposed to traffic convictions. Treatment group was far from significant, as before. The 6-month covariate-adjusted

means for 6-month subsequent convictions were .042, .038, .040, and .039 for Groups A, B, C, and D, respectively.

The ANCOVA summary table for 12-month traffic convictions, using the same covariates, appears in Table 5.

Table 5. Dependent Variable: Convictions/FTAs/TVS Dismissals 12 Months Post-Mailout

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.
Corrected model	109.111	7	15.587	175.590	.000
Intercept	7.728	1	7.728	87.052	.000
Prior total crash	9.902	1	9.902	111.548	.000
Prior conviction/FTA	68.335	1	68.335	769.794	.000
Age	8.693	1	8.693	97.922	.000
Sex	10.410	1	10.410	117.267	.000
Treatment group	.088	3	.029	.331	.803
Error	3575.239	40275	.089		
Total	3926.000	40283			
Corrected total	3684.350	40282			

Every covariate was again highly significant. Treatment group, however, was even farther from significance than it had been in the 6-month conviction analysis. The 12-month covariate-adjusted group means were .080, .080, .077, and .076, for Groups A, B, C, and D, respectively.

If the null hypothesis indeed happened to be true, and there actually were no differences between these groups in the population with respect to subsequent driving record, one would, more than likely and strictly by chance, find sample differences of the magnitudes that were found here. It can be concluded that there was no significant traffic-safety effect of DMV's informational mailings to study subjects. Neither subjects' subsequent crashes nor their subsequent traffic convictions were affected as a function of the type or amount of informational material sent.

It is interesting to note that the non-adjusted 12-month crash rates, about .07 for all groups, were approximately 55% higher than would be expected for the elder population in California as a whole (Janke et al., 2003). The unadjusted 12-month conviction rate, for all groups, of .08 was more than twice as high as the California population conviction rate for older drivers, as shown in the same report. To some extent, this probably reflects the greater risk of drivers with "moderately unclean" records, and it may also reflect more driving by the subjects studied here. The

California population of licensed drivers, as mentioned above, undoubtedly includes individuals who either do not drive or drive very seldom. Those who drive actively, of course, are more likely than inactive drivers to have record entries.

These negative results are not particularly surprising. It has long been known that vehicle crashes, and to a lesser extent traffic convictions, are uncommon events that depend largely on chance (Gebers & Peck, 2003). A second factor is that this analysis, of course, used all subjects in the groups, not just the respondents who returned their questionnaires. Any method other than that would not have represented the effect of this program, or indeed any program in which DMV mails instructional material to people, hoping to have some beneficial safety effect. If only those who gave some indication that they had read the material by filling out and returning their questionnaires had been included in the analysis, the study conclusions would apply only to this restricted sample, severely limited by self-selection bias.

Quiz/Questionnaire

The return rates for responding groups (i.e., percentage of group members who returned the questionnaire) were substantially and significantly ($p < .01$) different: 43%, 53%, and 62% for Groups A, B, and C, respectively (see Table 6). Although this is speculative, it may be that the groups with less material to read both had to do less work prior to answering the questionnaire and also had it "fresh in their minds" that the questionnaire was to be sent back. In the case of Group A, who had to take considerably longer to read their material, other things in life may have intervened, or they gave up on the task. Indeed, several late responders from Group A added a note to the effect that they had laid the questionnaire aside and forgotten it until "just now." This is consistent with the fact that although there were fewer respondents in Group A, those who did respond had clearly read (at least some of) the materials.

Table 6

Elder Project Group Return Rates

Group	Number sent	Undeliverable	Completed	Percent returned
A	5,751	254	2,375	43.21%
B	5,746	130	2,986	53.17%
C	5,742	253	3,423	62.36%

Appendix D contains the quiz/questionnaire with the correct answers marked and responses by group, with associated chi-square and 2-tailed *p* values. There are also graphs, in Appendix E, of responses by group to questions 36-40, which measured attitudes towards DMV. It should be kept in mind that, unlike the case with the driving records analysis, where all subjects were included, only the subjects who returned their completed questionnaires are represented in Appendices D and E. The groups should be thought of as respondent groups, as distinct from treatment groups.

There were highly statistically significant (usually at the $p = 0.000$ level, two-tailed) differences in knowledge between respondent groups. For example, though almost all respondents, regardless of group, knew that alcohol acts differently in older and younger bodies, fewer respondents in Groups B and C than in Group A knew that prescription drugs do so also; even fewer knew that over-the-counter (OTC) drugs can do so as well (83.0% of Group A, 72.9% of Group B, and 69.8% of Group C answered correctly). Similarly, while nearly everyone knew that alertness affects the ability to drive safely, flexibility and strength were marked as factors considerably more often by Group A than by members of other groups not receiving that information. Even then, flexibility was correctly identified (by 82.4% of Group A, 67.5% of Group B, and 66.3% of Group C) much more often than strength (63.1% A, 40.8% B, and 39.5% C). Thus, it seems that some of this information was not widely known to begin with, and the materials sent to Group A apparently made them more aware.

An important question from a traffic safety standpoint is which maneuver is likely to be (relatively) most dangerous for older drivers. Over three-quarters of Groups B and C incorrectly answered that *sudden stops* were the most dangerous (the figure for Group A being 45.4%, still sizeable); less than 30% of Groups B and C gave the correct answer, *left turns* (the figure for Group A being 60.8%). Answers totaled to more than 100%, as multiple choices were common for a small segment of respondents. More importantly, the responses to this question point out what may be a critical lack of understanding of relative dangers in traffic situations.

The amount of knowledge gain associated with DMV's mailing out this information to even receptive members of the public was not as great as might be desired. It seems that even if a respondent read the material, (s)he did not necessarily read it carefully, much less study it. For example, only 52.3% of Group A (the All-materials group) correctly answered that the "smartest time to use headlights" is "always." Nevertheless, there were still substantial learning effects attributable to the information sent. The 52.3% correct response rate for Group A suggests an apparent knowledge gain relative to other groups, since Group B (Both letter and resources brochure) and Group C

(Contact letter only) chose the right answer statistically significantly less frequently—only 39.4% and 38.5% of these groups, respectively, answered correctly.

One question on the questionnaire asked if there was a single 800 number to connect with a live person in the dialer's own county (as noted in *Resources*, there is: 1-800-510-2020). All of us are frustrated with the endless telephone recordings *(…if you know your party's extension, enter it now; otherwise, please choose from the following menu: if you wish to…)*, but older people may be especially anxious to reach a real person when they are unsure of exactly what they want to ask, making menu choices pointless and wearisome. The *Resources* sheet was sent to Group B as well as to Group A. Group C, which did not get this information, only answered "yes" 20.1% of the time, while Groups A and B answered in the affirmative 48.3% and 41.3% of the time, respectively.

The question as to why "older eyes are not as keen as they used to be" showed similar results: 50.8% of Group A answered "because the pupil grows smaller" (Groups B and C chose this answer only 19.6% and 18.8% of the time, respectively). But "because the lens is more opaque" was answered by 64.6%, 48.8%, and 47.6% of Groups A, B, and C, respectively. Thus, the existence of cataracts appears to be fairly widely known, but pupillary miosis is not.

As for the "attitudes-toward-DMV" questions, favorable response was associated with the level of treatment such that the more material sent to a group, the more highly that group thought of DMV. The actual respondents from Group A may have been a more select group than those from Groups B and C simply because DMV sent them such quantities of material to read, very likely deterring those who were not already interested in the topics covered. Consistent with this notion is the finding that, although there were fewer respondents in Group A than in other groups, those who did respond had clearly read enough to learn material which they would not otherwise have been expected to know. It seems probable that such people were especially interested in safety and, because a huge bureaucracy appeared concerned about the effects of aging on driving and had apparently gone to considerable trouble in putting the material together, they were perhaps predisposed to believe that DMV cared about older individuals' driving and looked out for those individuals' best interests.

CONCLUSIONS AND RECOMMENDATIONS

It is clear from these results that educational materials tailored to a particular driving population can produce a knowledge gain in the recipients. While this knowledge gain

may affect long-term driving habits and traffic safety, it shows no such effect within 12 months after presentation.

Lessons Learned: General

Any educational intervention DMV attempts in the hope of improving safety, at least with an older population, should be more intensive and perhaps more focused than what was done here. For greater intensiveness, it might be helpful to hold small discussion groups of older drivers with moderately unclean records. (Depending on stringency criteria, of course, there may be few of these. Gebers and Peck (1992) found that only about 1% of drivers aged 70 and above had three or more Neg-Op points within the prior 3 years.) For improved specificity of focus, a good discussion item might be the booklet sent to Group A, *But It Wasn't Really My Fault!* (Appendix C2), which explores crash causation and how to avoid collisions. For additional focus, it might be helpful to highlight information on admitted impairments of group participants (unclear vision, for example) and explore how drivers might compensate for impairment to avoid crashes. (A specific example of this is the inclusion in Group A's informational packet of a suggested compensatory strategy of making multiple right turns to avoid an unprotected left turn.) A further benefit from discussion groups of peers rather than getting information from impersonal organizations is that the messengers may help to legitimize the message, and thus boost the impact on the target population.

As mentioned above, something we noticed (undoubtedly not specific to the population studied) is the numerous respondents who chose multiple answers to questions worded, e.g., "Which [is] most dangerous..." (as opposed to "Which [are]...? Mark all that apply"). In retrospect it might have been better to ask, where one answer was desired, "Which *single* thing (e.g., maneuver) is *the* most dangerous?" This way of phrasing the question involves some redundancy, and redundancy can be useful in calling a bored or distracted person's attention to the number of answers expected.

Lessons Learned: Population-Specific

Older drivers are fearful of DMV and have strong perceptions of a general negative attitude toward them, against which some try to defend themselves. There were many pleas to not consider all elders as incompetent, as well as indignant remarks that not all older people needed glasses and some of them, even, still piloted private planes. One 74-year-old woman wrote, *"Received your questionnaire and... my eye site* [sic] *is still good. I am wondering why you sent this to me and am wondering if you have any question* [as] *to my ability to drive."* At the same time there was evidence for a pervasive belief that advanced chronological age in itself is a sign of reduced driving ability. "Being over the age of 65," which was intended as a throw-away distractor in answering which

characteristics are signs of diminished capacity for driving safely, was marked as correct by nearly 90% of the respondents! This occurred despite the fact that this answer was certainly not supported by the educational materials.

This population also tends to read survey questions as if they were being personally grilled on their own condition and behavior. They tend to be defensive (partly, no doubt, because of perceived attack through disparaging generalities about older people), and we forget at our peril that humans become, in addition to the daily variability everyone shows, less and less alike in terms of visual, mental, and physical abilities as they age, due in part to the appearance at widely different chronological ages of different aging-related impairing conditions. The young—at least the great majority of young people who are not critically disabled and are realistically able to pass licensing tests and enter the driving population—have visual, physical, and mental abilities that vary much less, being generally good.

Of course, there are other dimensions of variability as well. One can generalize about youthful groups on the basis of their hormonal imperatives and cultural norms, for example, and conclude that teenaged boys tend to be risk-takers (hazardous for driving) and have rapid reflexes (useful for driving) but no concept of their own mortality (dangerous in many ways, including driving). The same logic cannot be applied as well to older "boys," whose very diverse group, in addition to including high-functioning members who have attained mature judgment, contains lower-functioning members who need to compensate for a wide variety of impairments.

In future surveys or focus groups, designers should be careful to adopt a neutral point of view; i.e., use phrases like *"In general,"* or "Most *older drivers*..." instead of an overly-inclusive "*Older drivers, relative to teenagers*...." One should also avoid use of the word "you," substituting a generic "driver" or other term. Often, questions were not answered in the present study because the respondent took a personal point of view and wrote next to the question that he or she did not wear glasses, take medications, drink alcohol, etc.

There are certain critical areas in which elders are in woeful need of education. These most notably include safe practices such as using low-beam headlights at all times (for conspicuity) and making use of three right turns to avoid an unprotected left turn—*which is the single most dangerous maneuver for older drivers.* Living in our own bodies every day, we may fail to notice gradual changes of aging, such as shrinking height and lengthening reaction times. While one can compensate by adjusting the car seat height and allowing larger traffic gaps, one must perceive the problem before it can be addressed.

One of the greatest threats to elder health is mismanagement of medication. Not only is driving affected but also daily functioning, and consequences can be dire. Older bodies do not utilize or react to medications, or clear them from the blood, in the same way that younger ones do, and therefore dosage rates may be inappropriate. Further, prescriptions may be obtained or filled from several sources, so that staff of each may be unaware of the other sources and thus unable to assess the dangers of interactions. The influence of OTC medications, certain foods, and herbal supplements on prescription medications may include rendering them ineffective or causing them to build up toxic levels in bodies of any age.

Future Goals

Since we now know that this population is open to receiving new information relevant to safe driving, it behooves us to address the critical areas where elder drivers show the least knowledge. Failure to understand can, and often does, prove fatal. Indeed, one of seven major recommendation areas of the California Task Force on Older Adults and Traffic Safety was to "Facilitate Older Adult Risk Identification and Risk Reduction Practices." It would probably be constructive to address older adults at an age earlier than 70, perhaps 60 or even 55 years of age. Information should be presented succinctly and strongly. Presentations of essential knowledge might be prepared as posters to be mounted on DMV field office walls and even as highway billboards, as well as included in pamphlets to be shared with drivers, those who provide assistance to elders, and senior centers. As indicated, much relevant information is already available in the materials prepared by the Research and Development Branch for this project.

REFERENCES

Aizenberg, R., & McKenzie, D. M. (1997). *Teen and senior drivers.* Pasadena, CA: Beverly Foundation and Sacramento, CA: Department of Motor Vehicles.

Ball, K., Owsley C., Stalvey B., Roenker D. L., Sloane M. E., & Graves, M. (1998). Driving avoidance and functional impairment in older drivers. *Accident Analysis & Prevention, 30*(3), 313-322.

California Department of Aging. The Aging Baby Boomers: Growth of the Oldest Old. (http://www.aging.state.ca.us/html/stats/oldest_old_population.html).

California Department of Aging. California Statistics and Demographics. (http://www.aging.state.ca.us/html/stats/demographics.html).

California Department of Health Services. (May, 2002). *Top five causes of injury among California adults, ages 65 years and older, 2000*. Paper presented at the 2002 Office of Traffic Safety Summit, Anaheim, CA.

California Highway Patrol (2000). *Annual report of fatal and injury motor vehicle traffic collisions*. Sacramento, CA: Author.

Evans, L. (2000). Risks older drivers face themselves and threats they pose to other road users. *International Journal of Epidemiology,* 29, 315-322.

Federal Highway Administration (1999). *Summary of Travel Trends: 1995 Nationwide Personal Transportation Survey*. Washington, D.C.: U.S. Department of Transportation.

Gebers, M. A. (1999). *Strategies for estimating driver accident risk in relation to California's negligent-operator point system* (Technical Monograph 183). Sacramento, CA: Department of Motor Vehicles.

Gebers, M. A., & Peck R. C. (1992). The identification of high-risk elderly drivers through age-mediated point systems. *Journal of Safety Research,* 23, 81-93.

Gebers, M. A., & Peck, R. C. (2003). *Development and evaluation of* a *risk management strategy for reducing crash risk* (Report No. 202). Sacramento, CA: Department of Motor Vehicles.

Janke, M. K. (1994). *Age-related disabilities that may impair driving and their assessment* (Report No. 156). Sacramento, CA: Department of Motor Vehicles.

Janke, M. K., Masten, S. V., McKenzie, D. M. , Gebers, M. A. , & Kelsey, S. L. (2003). *Teen and senior drivers* (Report No. 194). Sacramento, CA: Department of Motor Vehicles.

Langford, J., Fitzharris, M., Newstead, S., & Koppel, S. (2004). Some consequences of different older driver licensing procedures in Australia. *Accident Analysis & Prevention,* 36, 993-1001.

Langford, J., Fitzharris, M., Koppel, S., & Newstead, S. (2004). Effectiveness of mandatory license testing for older drivers in reducing crash risk among urban older Australian drivers. *Traffic Injury Prevention*, 5, 326-335.

Pacific Institute for Research and Evaluation. (2001). *Medical cost of fatal and nonfatal injuries in California.* (http://www.csneirc.org/pubs/ca/mc-1/mc-1-ca.html).

Transportation Research Board (1988). *Transportation in an aging society: improving mobility and safety for older persons, vols. 1 and 2* (Special Report 218). Washington, DC: Author.

U.S. Census Bureau. (2001). Census 2000 Summary File 1: 1990 Census of Population, General Population Characteristics, United States (1990 CP-1-1). (http://www.census.gov/population/cen2000/phc-t13/tab01.pdf).

Yanochko, P. (2002). *Traffic safety among older adults: Recommendations for California.* San Diego State University, CA: Center for Injury Prevention, Policy, and Practice.

APPENDIX A

Pages From DMV's Senior Website

(links to additional information underlined)

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DMV Español

Department of Motor Vehicles

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Senior Driver Information

DMV information geared for today's active senior drivers

Senior Driver Information

Did you know that there are over 5-1/2 million licensed drivers aged 55 and older in California? Over 2-1/2 million of them are 70 and older. DMV is proud to license the largest population of older drivers in the United States, and we want to keep them driving for as long as they choose to and safely can. We have created this site to provide easy access to information of interest to senior drivers and those who care about them.

When you move your cursor to an underlined word or phase, the cursor will change into a hand. Clicking on it will "link" you, or take you to, a separate page dealing with that topic. To get back to where you were, click on the "Back" icon at the top left of your toolbar, or move to the end of the page where there are "Back to ..." shortcuts.

You might enjoy surfing the DMV website, also, which is where you were able to link to this site. It has information of interest to all drivers, regardless of age.

Having trouble reading this type? You can enlarge the text to make it more readable. Otherwise, choose a category, click on it, and enjoy exploring!

- Your Driver License
  Renewing Your Driver License, Preparing for Exams, driving test, Supplemental driving test, Area driving test, Conditional Driver Licenses, Priority Reexaminations, Hearings, Senior Identification Cards, Mature Driver Improvement Course.
- Your Health
  Vision, Drugs, Exercise and Flexibility, Fatigue
- Your Safety
  Driving Safely, Maintaining your Vehicle, Thinking Outside the Box
- Getting Around
  Disabled Plates and Placards, Public Transportation and Paratransit Services, Around the Neighborhood
- Other Information
  FAQs, Off-Line Resources, California Highway Patrol, Additional Links
- Computer Tips

Welcome to California

DMV Department of Motor Vehicles

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Senior Driver Information

DMV information geared for today's active senior drivers

Your Driver License

Holding a driver's license is a valuable privilege, and a serious responsibility. Aging is inevitable-no one is exempt; however, growing older doesn't mean you have to give up an active lifestyle.

Many people think that when DMV discovers drivers with physical or mental limitations or conditions that affect their ability to drive safely, DMV just takes their license away. Not true!

The goal of the Department of Motor Vehicles (DMV) is to keep all drivers licensed for as long as it is safe to do so. This web site offers suggestions to help you become (or remain) one of California's older and wiser drivers, and gives you tips for passing DMV's exams.

Traffic safety is vital for drivers of all ages, but older drivers experience physical changes such as declining vision, hearing, reaction time, and flexibility that can affect safe driving ability.

As a group, older people are relatively safe drivers; but after the age of 64, their per-mile crash risk increases steadily with age. The potential for serious consequences from accidents also increases steadily with age, as the body becomes more frail and less able to bounce back from trauma of any sort. But there are steps that can be taken to reduce these risks. Taking a Mature Driver Improvement course will not only refresh your skills, but may get you a reduction in insurance premiums. Call 888-227-7669 or 800-825-7252 x240, or check your phone book under Driving Instruction; be sure the Mature Driver course is licensed by DMV.

- Renewing Your Driver License
- Preparing for Exams
  - Vision Test
  - Written Test
  - Behind-the-Wheel Test
  - Practice Driving Exercises
- Driving Test
- Supplemental Driving Test
- Area Driving Test
- Conditional Driver Licenses
- Priority Reexaminations
- Hearings
- Senior Citizen Identification Cards

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Senior Driver Information

DMV information geared for today's active senior drivers

Your Health

Your health is intimately connected to your driving. To be "at the top of your game" as a driver you must be able to see well enough to detect hazards in many kinds of lighting, to judge distances and speeds of other traffic, and to read road signs. Your brain must be alert enough to promptly decide the best course of action in traffic situations, including sudden and unexpected ones, and your body must be responsive enough to react accordingly - quickly enough to avoid serious consequences. The National Highway Transportation Safety Administration has a series of brochures for seniors on physical conditions and driving.

Fatigue, unexpected side effects of medications (even herbal supplements and over-the-counter remedies), and a sedentary life style are ruinous to your health. As we age, little medical insults and setbacks hit us harder, and it takes longer to recover from them. But *you* have control over myriad lifestyle factors that affect your health, e.g., what and when you eat, how much and what kind of exercise in which you consistently engage, how you handle stress, how much social interaction you seek, and on and on. A healthy responsive body coupled to an alert mind requires good nutrition over the long term, adequate high-quality rest, and exercise to maintain or increase strength, flexibility, and sharp reflexes.

- Vision
- Drugs
- Exercise and Flexibility
- Fatigue

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Senior Driver Information

DMV information geared for today's active senior drivers

Your Safety

Wherever you go, whatever you do, your personal safety should be paramount. As we age, the risks of serious and even lethal consequences from accidents of all kinds - falls, fire, vehicular - increase almost exponentially. A simple stumble at a curb, a not-very-serious fender-bender because we ran out of gas or failed to fix a broken turn signal - these can lead to lengthy hospital stays and a permanent loss of function for the older person.

You will find good information on all kinds of personal transportation modes in the California Driver Handbook. Even if you choose alternate forms of getting around, you should read the handbook to see what rules apply to the vehicles and drivers that you might encounter. Additional Links under Other Information will take you to safety-related information of all kinds, most of it particularly relevant to older people.

Did you know that you can access 911 from any activated cell phone, whether you have subscribed to a wireless service or not? The Federal Communications Commision (FCC) has adopted rules aimed at improving the reliability of services and identifying the location of wireless 911 callers to enable emergency response personnel to provide assistance to them much more quickly.

The rules apply to all cellular licensees, broadband Personal Communications Service (PCS) licensees, and certain Specialized Mobile Radio (SMR) licensees. The FCC's basic 911 rules require wireless carriers to transmit all 911 calls to a Public Safety Answering Point (PSAP), regardless of whether the caller subscribes to the carrier's service or not. You can learn more at FCC Wireless 911 Services.

However you travel, having the ability to connect quickly to emergency services of all kinds may make it worthwhile to carry a cell phone when you are away from home.

- Driving Safely
- Maintaining Your Vehicle
- Thinking Outside the Box

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Getting Around

There are more ways than one to get from here to there (although sometimes you can't get there from here at all!). It is prudent to be aware of all the options open to you in your locality. For example, if you happen to be a driver in the Bay Area, for a mere $6 day pass you can travel by any or all of bus, trolley, BART (subway), and ferry (to say nothing of by foot or taxi). On the other hand, of course, you can drive - with the obvious cost of $gas and $$parking plus the not-so-obvious costs of insurance and upkeep.

Here are a range of alternatives for occasional or regular use, as well as information on disabled plates or placards and how they affect parking. But remember - you don't have to park at all if you use another form of transportation!

- Disabled Plates and Placards
- Public Transportation and Paratransit Services
- Around the Neighborhood
  - Bicycles
  - Golf Carts
  - Shank's Mare (*Hoofing it*)

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Other Information

Frequently Asked Questions

- How long should I keep driving?
- How can I help someone else stop driving?
- What will I do now that I no longer drive?

Off-Line Resources

California Highway Patrol

Additional Links: Health Information

- ClinicalTrials.gov to see who is recruiting volunteers for health or treatment programs research
- www.health.gov is a portal to web sites of a number of Federal multi-agency health initiatives and activities
- Healthfinder has customized health information (U.S. Health & Human Services)
- National Institute on Aging
- National Institutes of Health
- National Library of Medicine

Additional Links: Services

- California Department of Aging has links to Area Agencies on Aging
- California Care Network has links to various state-licensed health, social services, mental health, alcohol and other drug, disability, and elder care services and facilities.
- FirstGov for Seniors is an internet website geared specifically toward seniors seeking information from Federal agencies.
- California Board of Occupational Therapists is developing a list of OT's qualified to assess and rehabilitate drivers.

Additional Links: Car and Driver

- National Highway Traffic Safety Administration (U.S. Dept. of Transportation)

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Computer Tips

Don't feel quite ready to race down the information highway? Don't worry, none of us started out ready for the Indy 500. Navigating the World Wide Web is really quite easy, once you learn a few basics. It can, however, be extremely frustrating if you don't relax and learn at your own pace. The University of California at Berkeley has put together an extensive on-line tutorial which should help immensely. It begins with an excellent introduction to the Web, followed by Web Browsers Guides. You might want to look at their Glossary of Internet & Web Jargon in order to understand the terms used; there is also a link by each term so that you need not go through the whole Glossary unless you choose to do so.

You can increase the type size on your screen for easier reading. If you then want to print something out, you may have to change your margins or print in landscape mode to get everything on one page.

Don't forget that downloading material can be time consuming, especially if pictures are involved. *Patience is a virtue.*

Take your time, enjoy the ride, and you'll soon be sailing along with the rest of the world on the Internet!

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APPENDIX B
CONTACT LETTERS

STATE OF CALIFORNIA— BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, *Governor*
OFFICE OF THE DIRECTOR
DEPARTMENT OF MOTOR VEHICLES
P.O. BOX 932328
SACRAMENTO, CA 94232-3280

GROUP A – ALL MATERIALS

January 7, 2003

Greetings, California Driver!

Did you know that there are almost 1.7 million licensed drivers in California who are aged 70 and older? Americans as a whole are healthier now and living longer, more active lives. The California Department of Motor Vehicles (DMV) is proud to license one of the largest populations of older drivers in the United States, and we want to keep them driving for as long as they safely can.

Most older people are very capable drivers and have a lifetime of valuable driving experience. In fact, older drivers have fewer accidents per driver than any other group of drivers. Generally, older drivers are more emotionally mature, speed less, drink less alcohol, and have the experience to better judge traffic situations and plan routes for safety. For these reasons, decisions about a person's ability to drive should never be based on age alone. However, age-related changes in vision, physical fitness, and reflexes can adversely affect driving ability. People who accurately assess these changes can adjust their driving habits so that they stay safe on the road. For example, older drivers often curtail night driving and freeway driving as they recognize these changes.

The Internet is an excellent source for information about the maintenance of driving skills, vehicle modifications, and healthy living. Using a computer to access the worldwide web is easy and fun. Many local libraries have computers available to the public and often provide assistance in their use. It is commonplace to meet older students learning to use computers in adult education classes at local school districts. Give it a try !

Information is also available by phone or written request, if you know where to look. DMV has also compiled a list of resources and contacts for assistance in any number of areas. We want to help you find the help you need! Also enclosed is wealth of safe driving information written especially for older drivers. Some items were developed specifically for you by your DMV; others were donated for this outreach effort.

We value the views of older drivers and would like your assistance in understanding some of the issues facing them. Enclosed is a brief questionnaire with a postage-paid return envelope. Please ***attempt to answer every question*** and reply by January 24th. Be assured that your anonymous answers will *not* affect your license or driver record -- we are only interested in your experiences and opinions.

DMV wishes you the best in your continued travels. Most importantly, we hope that however you travel in your daily life, it will always be with your safety and the safety of others in mind.

Most cordially,

STEVEN GOURLEY
Director

Enclosures

STATE OF CALIFORNIA— BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, *Governor*
OFFICE OF THE DIRECTOR
DEPARTMENT OF MOTOR VEHICLES
P.O. BOX 932328
SACRAMENTO, CA 94232-3280

GROUP B - BOTH LETTER & RESOURCES

January 17, 2003

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DMV wishes you the best in your continued travels. Most importantly, we hope that however you travel in your daily life, it will always be with your safety and the safety of others in mind.

Most cordially,

STEVEN GOURLEY
Director

Enclosures

STATE OF CALIFORNIA— BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, *Governor*
OFFICE OF THE DIRECTOR
DEPARTMENT OF MOTOR VEHICLES
P.O. BOX 932328
SACRAMENTO, CA 94232-3280

GROUP C – CONTACT LETTER ONLY

January 17, 2003

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We value the views of older drivers and would like your assistance in understanding some of the issues facing them. Enclosed is a brief questionnaire with a postage-paid return envelope. Please ***attempt to answer every question*** and reply by January 31st. Be assured that your anonymous answers will *not* affect your license or driver record -- we are only interested in your experiences and opinions.

DMV wishes you the best in your continued travels. Most importantly, we hope that however you travel in your daily life, it will always be with your safety and the safety of others in mind.

Most cordially,

STEVEN GOURLEY
Director

Enclosures

APPENDIX C

Appendix C-1

DMV: Serving Our Senior Drivers

The California DMV licenses over 1.7 million drivers aged 70 and older. Many more will be licensed in the coming years. As the number of older drivers increases with the aging of the "Baby Boomers," interest in "Senior Driver" issues is growing. While there are normal declines in physical and mental abilities as one grows older, DMV does not base licensing decisions on age alone. ***Our goal is to keep drivers on the road as long as they can drive safely, without undue risk to themselves or others.***

➡ **Are older drivers an excessive risk?**

No. Their driving records show that they are involved in fewer fatal and injury accidents than other drivers. However, when accidents are divided by miles driven, the rates for older drivers start to approach those of the worst age group of all, teenagers.

Because older drivers tend to self-restrict, driving less often and compensating for age-related declines in skill, their per-driver accident rate is lower than average.

➡ **Are older drivers more likely to die in an accident?**

Yes. Especially at advanced ages, older bodies are far more fragile than those of younger people. When they are in an accident, the physical damage is not only greater but also three times more likely to be fatal.

Frail elderly passengers and pedestrians are also at higher risk of death in accidents. In many if not most fatal accidents involving seniors, the death is their own.

➡ **Does the DMV single out older drivers for special licensing controls?**

No. In fact, §12814(a) of the California Vehicle Code specifies that the age of a licensee, by itself, shall not constitute evidence of a condition requiring an examination of the driving ability. The only difference in licensing processes is that drivers are not eligible for license renewal by mail after the age of 70.

➡ **Is the DMV trying to improve its driver licensing tests?**

Yes. We are constantly looking for better and more meaningful tests. One new model is being piloted in several field offices right now.

➡ **What can the DMV do to help drivers with physical or mental problems maintain their mobility as long as they safely can?**

Tailored licenses with specific restrictions allow aging drivers to keep their independence and get where they need to go without having to deal with the congestion, complicated road designs, multiple traffic signs/signals, and often-hostile traffic in unknown environs. For instance, a person with night vision or glare-recovery problems might be restricted to driving during daylight hours. Many elderly drivers voluntarily choose not to drive on California's congested freeways; if so, the DMV will omit the freeway portion of any necessary road test and restrict the driver automatically to no freeway driving. In special circumstances, the DMV will even go to the driver's home to give a special driving test, which if passed lets the person drive within a limited, familiar area -- *e.g.,* from home to the store, the doctor's office, and other family members' homes. Routes that have been learned early and traveled over and over do not present problems that driving in unfamiliar areas do.

➡ **What are some other services that the DMV makes available to older drivers and their families?**

At some point, if we live long enough, we all have to give up driving. The DMV provides a free Senior Identification Card (ID) to drivers who must, or voluntarily choose to, surrender their licenses. It also publishes an informational pamphlet to assist families in assessing the need to get an older driver

➡ **How is the DMV addressing the problems of older drivers and how to help them maintain their mobility?**

The DMV is proactively involved in addressing senior driving issues through the following:

- As a recognized leader in traffic safety, the DMV participates in local, state, and national conferences and task forces addressing senior driver issues.
- All training materials for those who administer written or driving tests have been revised to include teen and senior sensitivity. An annual training module on the same subject is being developed for employees who interact with the public.
- Several handouts targeted at drivers of all ages are being revised and/or developed to boost confidence in passing the vision, written, and driving tests. The pamphlets, when completed, will provide encouragement and strategies for success. The main thrust will be that “DMV wants you to be successful, and here's how to make sure you are.”
- The DMV will issue special instruction permits for impaired drivers to learn to drive with adaptive equipment, or to drive only with a professional instructor.

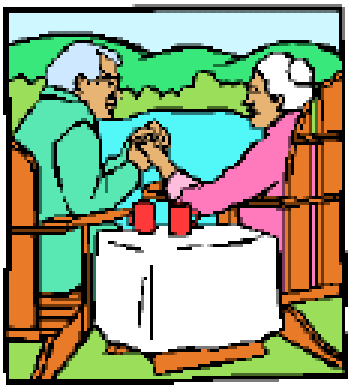
➡ What future plans has the DMV for assisting older drivers?

A pilot outreach project is underway by the Research and Development Branch to develop an educational package for senior drivers. If the project is well received and proves effective, the materials will be made accessible to all older drivers.

Issues covered will include self-assessment, ways of compensating for decreased physical and mental abilities, safe driving tips of particular relevance to older drivers, a resource guide for elder issues and problems, and an overview of drugs (prescriptions, over-the-counter remedies, dietary supplements) and alcohol as they and their interactions affect driving.

Older drivers as a group do not represent an undue traffic safety risk. Physical declines mount during the aging process, however, and individual drivers with severe impairments should have licensing decisions made. These decisions do not necessarily involve loss of license; if a driver can cope adequately with the challenges involved in driving in a limited manner, a restricted license may be the best possible solution.

The DMV's goal is to keep drivers on the road as long as they can drive safely, without undue risk to themselves or others.



Appendix C-2

BUT IT WASN'T REALLY MY FAULT

STATE OF CALIFORNIA
DEPARTMENT OF MOTOR VEHICLES
A Public Service Agency

A Message from the Director of the California Department of Motor Vehicles

The California Department of Motor Vehicles is a public service agency committed to ensuring the safety of all motorists who use California's roadways. Driving a motor vehicle is a serious responsibility, and we must work together to make our heavily traveled roads and highways as safe as possible.

Although we realize that traffic collisions happen, they represent to all of us the potential for personal injury, the loss of a friend, loved one or family member, and the loss of millions of dollars yearly as the result of property damage which might have been avoided.

The information in this pamphlet is not about 'fault'; you can be injured in an accident whether it is your fault or not. Rather, the information is intended to help you avoid collisions in the future. I urge you to take the time to review the information in this pamphlet . . . *it may help save a life, even your own.*

Steven Gourley, Director
California Department of Motor Vehicles

Know Your Responsibilities

Proof of Financial Responsibility:

California's Compulsory Financial Responsibility Law requires that if you own or drive a motor vehicle, **you must maintain in force an acceptable form of insurance.** If you are involved in a reportable collision and do not have insurance your driving privilege will be suspended. Written evidence of insurance must be carried at all times.

Reporting an Accident to DMV:

The driver or owner of a motor vehicle involved in a traffic collision must report the collision to the Department of Motor Vehicles, regardless of fault, and provide evidence of financial responsibility if:

8. there was more than $500 in damage to the property of any person.
9. anyone was injured (no matter how minor) or killed.

Off-highway accidents are also required to be reported unless damage occurs only to the property of the driver or owner of the motor vehicle and no bodily injury or death of a person occurs.

The report must be filed within ten days of the date of the accident. This report is *in addition* to any other report to the police, California Highway Patrol (CHP), or an insurance company.

Requirement to Stop at the Scene of a Traffic Collision:

You must stop if you are involved in a collision. Someone could be injured and need your help. If you don't stop, you may be charged for "hit and run". If anyone is hurt, call the police or CHP.

Show your driver license, registration card, evidence of insurance, and current address to the other driver or persons involved, or to any peace officer. You must be able to provide the name, address and policy number of your insurance company to avoid a citation and fine.

Seatbelts and Child Restraints:

The use of your seat belt is required by law and can reduce injuries and deaths. A seat belt or safety seat is required for each minor child. As a driver, parent, or legal guardian, you are responsible for all your passengers.

Driving Under the Influence:

It is illegal to drive a motor vehicle in the State of California with a blood alcohol level that is 0.08% or more. It is illegal for drivers under the age of 21 years to drive with a blood alcohol level of 0.01% or more. A blood alcohol level below legal limits does **not** mean that it is safe to drive. You must not drive after you have taken any drink or drug which changes how you drive, makes you less careful, or slows down your reaction to hazards.

School Bus Safety:

When you come upon a school bus which is stopped and flashing yellow lights you must prepare to stop because the children are preparing to leave the bus.

When you come upon a school bus with flashing ***red*** lights stopped on your side of the road, you **must stop**, whether or not the bus is also displaying a stop sign. You must also stop if the school bus is on the other side of an undivided road, unless it is a multi-lane highway (two or more lanes of travel in each direction). Schoolchildren will be crossing the road to or from the school bus. Remain stopped as long as the red lights are flashing.

ACCIDENTS HAPPEN

The word "**accident**" implies an unforeseen event that occurs without anyone's fault or negligence. Most often in traffic, that is not the case. Accidents do happen, but collisions can often be avoided. This is why we use the word "**collision**" in this pamphlet, instead of "accident." Any driver involved in a collision usually bears at least some responsibility for what takes place.

"It Wasn't My Fault"

Have you ever said this after a collision? Most drivers have, at one time or another. What they generally mean is that they are not legally at fault. It is very rare that any driver in a collision is completely without fault. In most cases there is something they could have done to prevent it.

The purpose of this pamphlet is to help you see how collisions really happen, to see how the "fault" is shared by different drivers. Ten collision reports are described in this pamphlet. Each report is based upon a real collision. The collisions were selected to illustrate the mistakes that people make most often. There is a test at the end to check how well you have understood the material.

We hope that reading this pamphlet and completing the test will help you to become a safer driver, and to avoid being in collisions—whether they are "your fault" or not.

The Most Common Causes of Collisions

- Unsafe speed.
- Driving on the wrong side of the road.
- Improper turns.
- Violation of the right-of-way.
- Violation of stop signs and signals.
- Not being alert to potential danger:

17. *Stopped bus or taxi*—could mean pedestrians running to or walking away from it.
18. *Intersections*—particularly when you are turning a corner. People crossing the street also have a green light and may not be watching out for vehicles.
19. *Mid-block crosswalks*—People feel secure when crossing the street at a marked crosswalk, even though it may be in the middle of a block where drivers do not expect a pedestrian.
20. *Residential areas, schools, and playgrounds*—Children tend to move before they think, and they tend to move fast. Look for them darting out from behind hedges or shrubs and between cars, often on bicycles or skate boards, or running after toys.
21. *Shopping centers, theaters, skating rinks,* and other places where people get together.
22. *Around ice cream wagons, delivery vans, construction areas,* and similar places where people are moving in the street.

It is always better to be ready for a problem that does not develop, than to not be ready for one that does!

Another cause of collisions is traffic congestion. Chronic traffic congestion is the California commuter's biggest headache, but even small changes in driving habits could provide fast relief, according to the California Office of Traffic Safety (OTS).

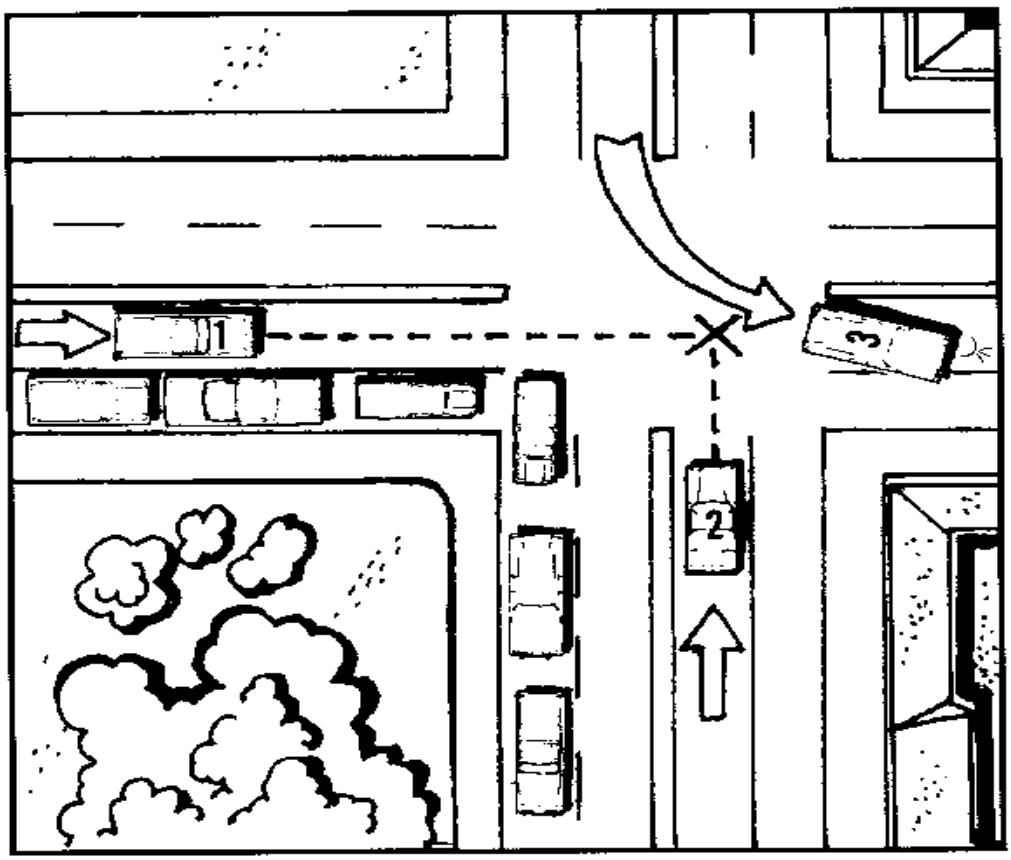
Several driving behaviors that contribute to congestion were identified by a task force of experts from OTS, CHP, Department of Transportation, and DMV, including:

- Rubbernecking—perhaps the most frustrating of behaviors, slowing down to look at collisions or practically anything else out of the ordinary is one of the worst congestion offenders.
- Tailgating—following too closely is common on California freeways, accounting for innumerable collisions which in turn clog major traffic corridors, often for hours.
- Unnecessary lane changes—although it produces virtually no improvement in arrival times, many motorists insist on weaving in and out of freeway lanes, in turn slowing down all traffic.
- Inattention—commuters can commonly be seen eating, grooming, talking on cell phones, or even reading the newspaper as they drive to work.

TEN COLLISIONS THAT NEED NOT HAVE OCCURRED

COLLISION REPORT NUMBER 1

The Case of the Driver Who Was Trapped



Car 1 was approaching an intersection at about 40 mph. The traffic light had been red for some time. While the driver of Car 1 was still about 200 feet from the intersection, he saw that the light was about to change. He figured that it would turn green by the time he reached the intersection, so he did not slow down.

Car 2 was approaching the intersection from the right at the same time. The driver slowed to let Car 3 complete a left turn in front of him. As a result, he was still in the intersection when the light changed. Car 2 was hit broadside by Car 1.

The driver and the passenger in Car 2 were both seriously injured. The driver of Car 1, who was not wearing his seat belt or shoulder harness, suffered broken ribs, internal injuries, and massive facial cuts when he hit the steering wheel and windshield.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 1 was legally at fault for this collision. He entered the intersection just as the traffic light turned green. But he was not driving carefully enough to avoid a collision. The green light allows the driver to proceed ONLY IF IT IS SAFE TO DO SO.

The driver of Car 1 should not have assumed that the intersection would be clear. He should have slowed down and checked in both directions before proceeding.

A green light does not guarantee that the intersection will be clear. Any one of the following could be there:

(1) a driver who was trapped in the intersection before the light changed;
(2) a driver who tried to "beat the light" at the last second;
(3) a driver who didn't notice the light change until he was too close to stop;
(4) a driver who was under the influence of alcohol or drugs; or
(5) a driver whose car had poor brakes or tires.

The driver of Car 1 did not have his seat belt or shoulder harness fastened before he started to drive. When the car stopped on impact, he kept moving, hitting the steering wheel and windshield. Even if a car is air-bag equipped, when there is a collision seat belts and shoulder harnesses are the best possible protection for everyone in the car. But they only protect when people wear them.

The driver of Car 2 also helped to cause the collision. Although he saw Car 3 turning left, he entered the intersection on the yellow light. He knew he was going to be "trapped" in the middle of the intersection, and it is never legal to block an intersection. But he did not want to wait for the next green light. For that, he risked his life and that of another person.

Here is another example of a "trap" at an intersection: A driver starts to make a left turn. Suddenly, he sees a pedestrian crossing the side street and is forced to stop in the path of an oncoming car. Always check your path ahead and make sure it is clear before you start to turn.

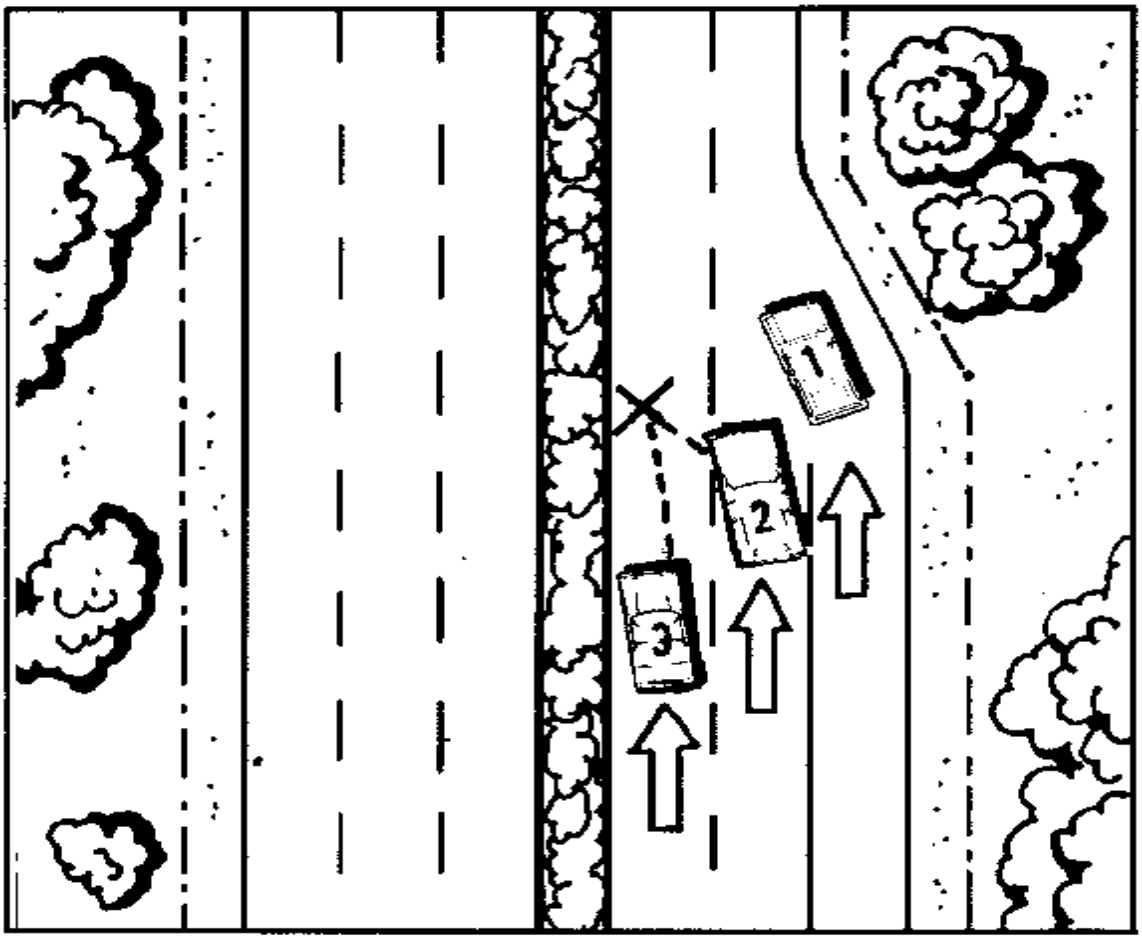
Rule Number 1. Do not enter an intersection even if you do have a green light unless you are sure it is safe and there is enough space to completely cross before the light turns red. A green traffic light does not guarantee that it is safe to enter an intersection; a red traffic light does not automatically stop all approaching vehicles. Be particularly careful just after the light has changed.

Rule Number 2. Do not enter an intersection unless you are sure you can make it all the way through at a safe rate of speed. Any time you have to stop in an intersection you run the risk of being struck.

Rule Number 3. Fasten your seat belt and shoulder harness before you start. You won't have a chance to do it before a collision.

COLLISION REPORT NUMBER 2

The Case of the Driver Who had Eyes But Didn't See



The driver of Car 1 did not notice the sign that read "Right Lane Ends 1000 Feet Ahead," so he kept on driving in the right lane. When it ran out, he forced the driver of Car 2 to swerve into the left lane and hit Car 3, which was driving in his blind spot. Cars 2 and 3 both came to rest on the median. The driver of Car 2 suffered a broken shoulder and facial cuts. The driver of Car 3 had two broken ribs.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 1 was legally at fault. A driver changing lanes must yield the right-of-way to a driver already in a lane. However, his problem began much earlier when he didn't notice the sign warning him that the right lane was coming to an end.
Good drivers make a habit of scanning the area 10 to 15 seconds ahead of their cars. This way they can spot a problem early, while they still have plenty of time to do something about it. In the city, 10 to 15 seconds is about a block ahead. At highway speeds, it's about a quarter of a mile or about as far ahead as you can see clearly.

The driver of Car 2 might have prevented the collision. He could see that the other driver wasn't paying attention. He could have dropped back to allow room for a last-minute merge.

You can't watch out for everyone else on the road. However, you can learn to spot the people who are most likely to cause you trouble. These include:

People who cannot see you—such as those whose vision is blocked by snow-covered windows, buildings close to intersections, or other vehicles.

Drivers who are distracted—such as those eating, using a cellular phone, trying to read house numbers, or having unrestrained children or animals loose in the car.

People who are confused—such as a tourist pausing at a confusing intersection, or a driver hesitating for no apparent reason.

The driver of Car 3 could also have seen that trouble was brewing, and could have dropped back to let car 2 make a quick lane change. He was also wrongly driving along the left-rear portion of Car 2, where he could not be seen from either of its mirrors. This area is known as the "blind spot." There are blind spots to the left and right rear portions of every car. The only way to be sure of seeing something in your blind spot is to turn your head and glance over your shoulder, which the driver of Car 2 did not do.

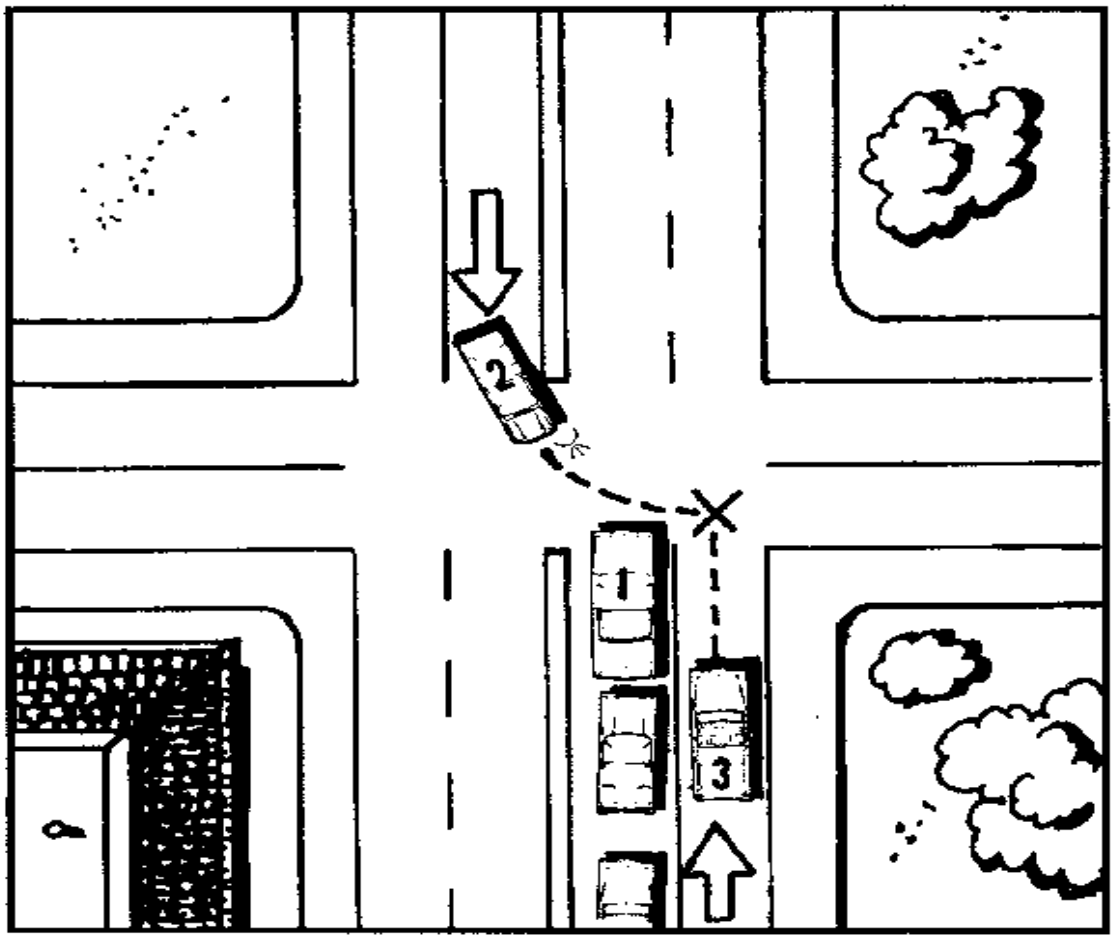
Rule Number 1. Make a habit of scanning well ahead of your car, usually 10 to 15 seconds ahead.

Rule Number 2. Watch out for drivers who are not paying attention, who may not see well, or who seem distracted or confused. Also watch for sudden changes in speed or direction by other drivers. Give them plenty of room.

Rule Number 3. Be aware of blind spots – check yours by looking over your shoulder before changing lanes, and don't drive in the blind spots of other drivers.

COLLISION REPORT NUMBER 3

The Case of the Volunteer Traffic Officer



Cars 1 and 2 were both stopped at the intersection waiting to make left turns. The driver of Car 1 motioned to the driver of Car 2 to start his turn. When the driver of Car 2 started to turn, he was struck broadside by Car 3, which was passing Car 1 in the right lane.

The driver of Car 2 suffered several fractures and a strained back. The passenger in the right front seat of Car 2 was badly hurt. The driver of Car 3 was wearing a seat belt and shoulder harness and escaped with a few bruises.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 2 was legally at fault because he turned in front of a car going straight through the intersection. Car 1 was blocking his view of oncoming cars, yet he tried to make a left turn simply because the driver of Car 1 waved him on.

Any time a driver cannot see a clear path ahead, he must assume it is not safe to proceed. In this case, the driver of Car 2 should have edged forward as far as he could without putting the nose of his car in the way of oncoming traffic. He could have looked through the windows of Car 1 to check for possible traffic coming in the outside lane. Above all, he should not have put his faith in another driver's signal for him to start his turn. The driver of Car 1 may have meant well, or he may have just wanted Car 2 out of his way so that he could get a better view of oncoming traffic.

The driver of Car 1 helped to cause the collision by signaling the driver of Car 2 to start his turn. He may have thought the way was clear, but he should not have attempted to direct traffic.

This kind of thing can also happen when one driver wants to pass another on a two-lane road. The driver in front sometimes signals the second driver when to pass, which is also unsafe. If the driver behind you wants to pass, you might move a little to the right to give him a better view of the road ahead. But don't wave him on. Let him decide for himself when it is safe to pass.

The driver of Car 3 could have prevented the collision by being more cautious as he approached the intersection. It was legal to pass on the right since the car ahead in the left lane was signaling a left turn. However, without a clear view to the left, he should have approached the intersection more carefully.

This situation often occurs when your view is blocked by a large truck, a bus, or a car parked close to the corner. Any time you do not have a clear view of an intersection, assume there may be another driver there who can't see you.

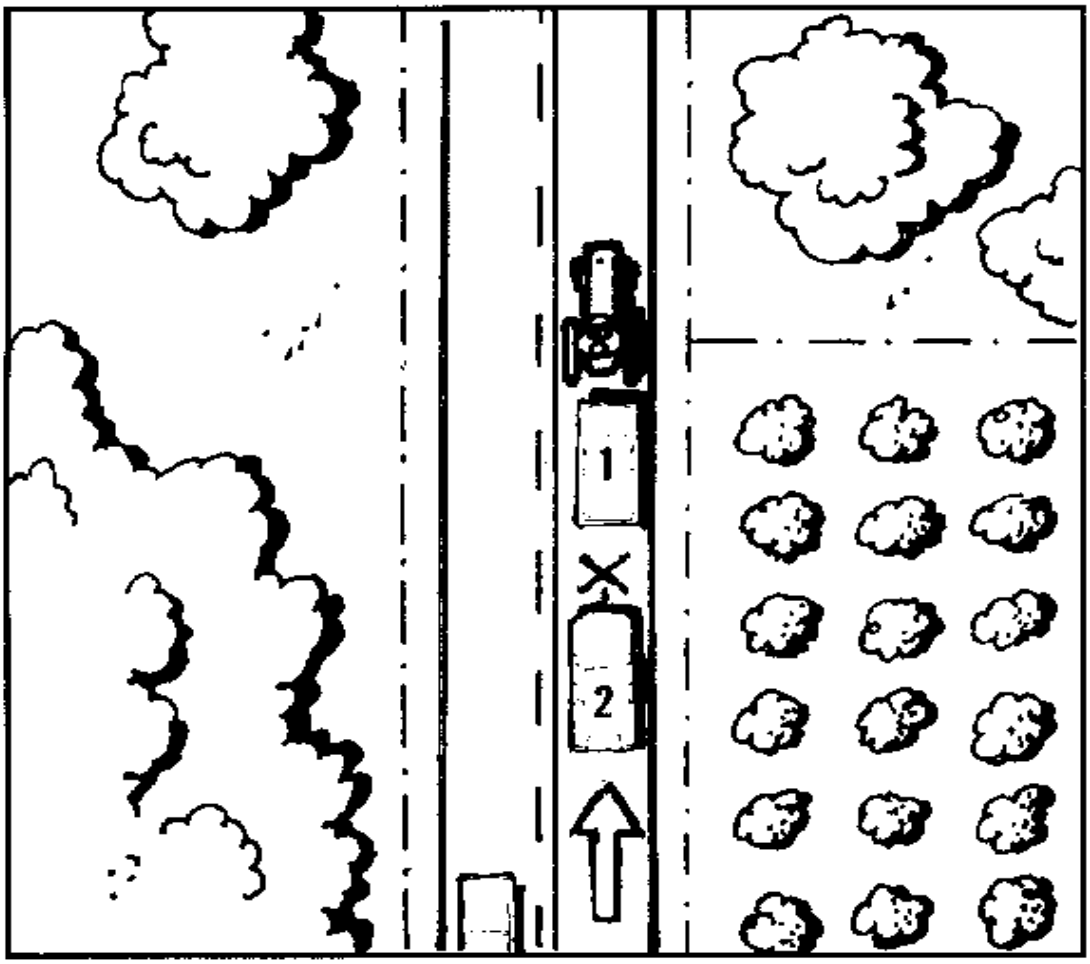
Rule Number 1. Make sure there is no oncoming traffic before you start a left turn. If your view is blocked by other vehicles, try to look through their windows. Edge forward slowly until you have a good view of the outside lane.

Rule Number 2. Approach an intersection especially cautiously whenever you do not have a clear view. Another driver can't yield the right-of-way to you if he doesn't see you.

Rule Number 3. Don't make decisions for other drivers and don't trust your life to another driver's decision.

COLLISION REPORT NUMBER 4

A Case of Too Slow and Too Fast



Cars 1 and 2 were proceeding along a two-lane country road at approximately 50 mph. The driver of Car 1 suddenly realized he was coming up behind a slow-moving tractor. He started to pass but discovered he was in a “no passing” zone. When he applied his brakes to slow down, he was hit from behind by Car 2.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of the tractor?

The driver of Car 2 was legally at fault for following Car 1 too closely and not paying full attention. Whenever one car is following another, the second driver is responsible for avoiding the collision. He is the only one who can control the space between the two cars.

The driver of Car 2 should have used the “three-second” rule. Here is how it works:

(1) Pick a shadow or mark on the pavement in the road ahead.

(2) When the rear bumper of the car ahead of you passes the mark, start counting the seconds it takes you to reach the same spot. Count “one-thousand-one, one-thousand-two, one thousand-three.”

(3) If you reach the spot before you count to “one-thousand-three,” you are following too closely.

In some situations, you need even more following distance. Stay four or five seconds behind the vehicle ahead:

On slippery roads—If the car ahead of you should slow down or stop, you will need more distance to stop your car.

When following a motorcycle—If the motorcycle should fall, you will need the extra distance to avoid hitting the rider.

When following a driver whose view to the rear is blocked—Drivers of trucks, buses, vans, or cars pulling campers or trailers can’t see you very well. They might slow down suddenly without knowing you are behind them.

When you have a heavy load or are pulling a trailer—The extra weight adds to your stopping distance, so you need more distance between you and the vehicle ahead in case it stops suddenly.

The driver of Car 1 also helped cause the collision. He should have realized that the tractor would be moving very slowly. He should have started to slow down gradually as soon as he saw it. But even when he realized he was going to have to slow down quickly, he could have prevented the collision by warning the driver behind him. He could have done this by tapping his brake pedal quickly to flash his brake lights or by giving the standard hand signal to stop or slow down. It is a good idea to signal any time you slow down unexpectedly.

The driver of the tractor should have had a slow-moving vehicle sign (an orange triangle with a red border) on the rear of his tractor. Most states, including California, require that it be put on the back of vehicles that travel under 25 mph.

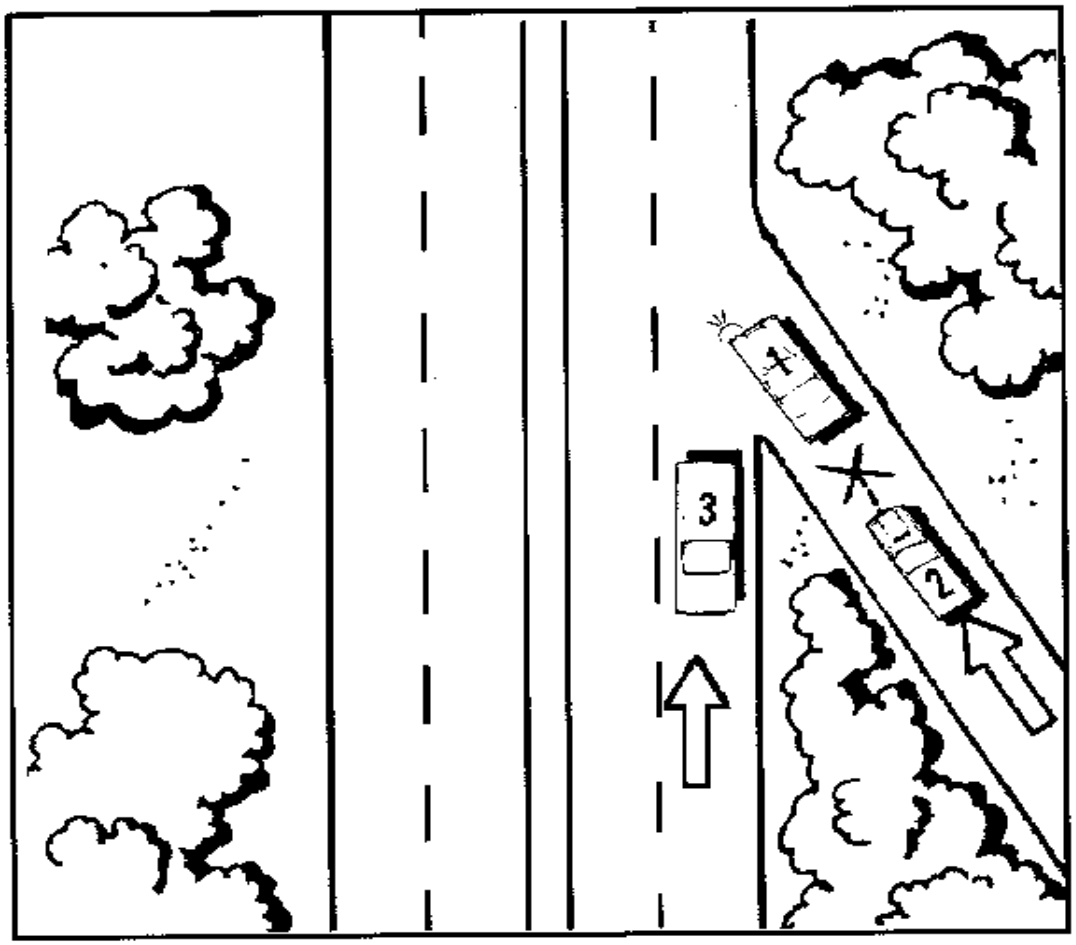
Rule Number 1. Learn to recognize slow moving vehicles such as tractors and road maintenance equipment. Big trucks and small cars often move slowly up long grades or immediately after turning onto a highway.

Rule Number 2. Allow enough following distance to avoid hitting a car ahead no matter how suddenly the driver may stop.

Rule Number 3. Check frequently in your rear-view mirror to stay aware of vehicles that may be tailgating you. If you need to slow down suddenly, and there is someone behind you, try to warn him that you are slowing down by flashing your brake lights or giving a hand signal. Look for an escape route.

COLLISION REPORT NUMBER 5

The Driver Who Wasn't Supposed to be There



Car 1 was approaching the end of an entrance ramp to a freeway. Car 2 was coming down the ramp directly behind him. Car 3 was approaching in the right lane of the freeway. Just as Car 1 was about to merge with freeway traffic, the driver noticed that Car 3 was too close, so he stopped to let Car 3 pass. The driver of Car 2 thought that Car 1 was going to enter the freeway without stopping. He turned his head to check traffic on the freeway, as he should have, but did not return his attention quickly enough to the car in front of him. When he turned back and saw Car 1 had stopped he slammed on his brakes, but could not stop in time and rear-ended Car 1. The driver of Car 1 received a whiplash injury to his neck.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 2 was legally at fault. The law requires that you watch out for the car in front of you no matter what the circumstances are. Shift your attention back and forth between traffic behind and traffic ahead; use the outside rear-view mirror to help you check traffic on the freeway. Be sure, however, to turn your head briefly to check over your shoulder before you actually pull out onto the freeway.

The driver of Car 1 was partly at fault for the collision. He should have used the entrance ramp and/or the acceleration lane to adjust his speed so that he could merge onto the freeway just ahead of Car 3, or just behind it. By coming to a stop, he exposed himself to the danger of being hit from behind. Stopping at the end of the ramp also would have forced him to pull onto the freeway at a very slow speed. Another car may have been bearing down on him before he could build up speed.

The driver of Car 3 also helped cause the collision by staying in the right lane. Although freeway traffic has the right-of-way, he could have moved to the left lane. Car 1 would never have had to stop. He could also have slowed down for Car 1. However, because the left lane was clear, a lane change would have been better. Drivers on an entrance ramp can see you changing lanes more easily than they can see you slow down. A lane change also allows more than one car to enter.

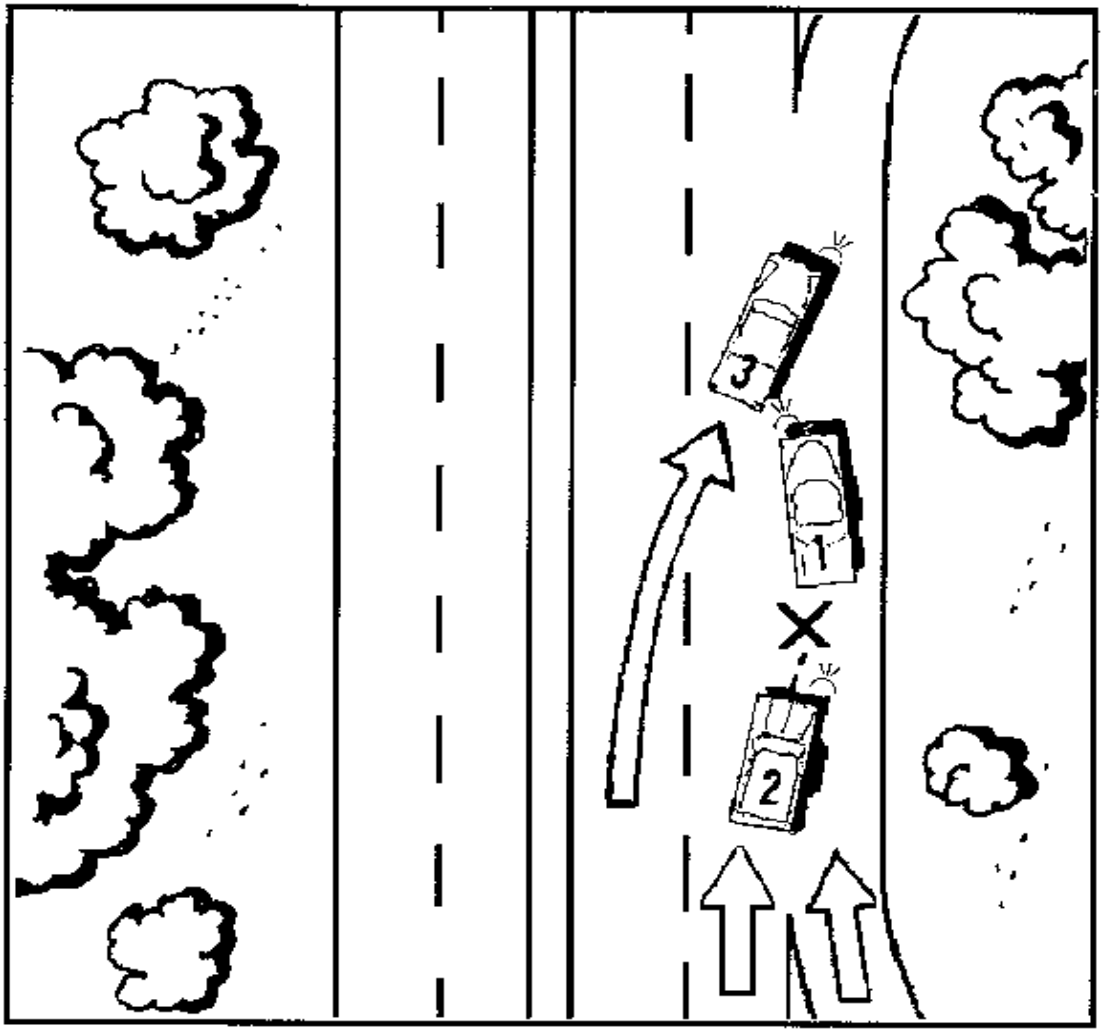
Rule Number 1. When you are moving in traffic, never take your eyes off the road ahead for more than an instant. When you are entering a freeway, use the outside mirror to watch traffic on the main roadway, then turn your head and check for traffic before you pull out onto the freeway.

Rule Number 2. When entering an unmetered freeway, use the entrance ramp and/or acceleration lane to build up to the speed of traffic on the roadway. Do not come to a stop at the end of the entrance ramp unless absolutely necessary.

Rule Number 3. Although freeway traffic has the right-of-way, it is a good idea to give way to other vehicles entering a freeway whenever you can safely do so. In addition to doing the other driver a favor, it could protect you from a possible collision.

COLLISION REPORT NUMBER 6

The Case of the Driver Who Changed His Mind



Car 1 was about to enter the freeway. The driver noticed that Car 2 was slowing to leave the freeway. He increased his speed to pull onto the freeway ahead of Car 2. Meanwhile, the driver of Car 3, traveling in the left lane, realized he was about to miss his exit. He swerved to the right at the last moment and cut off Car 1. The driver of Car 1 slammed on his brakes and was rear-ended by Car 2.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 3 was legally at fault for attempting to exit from the left lane. It is important to watch signs carefully so that you can see an exit coming up well in advance. That way you will have plenty of time to get in the correct lane.

If you see that you are about to pass your exit, go on to the next one. Last-minute lane changes at freeway speeds are always dangerous. And never back up on a freeway. Cars approaching from behind won't be able to see that you are backing up until they are on top of you.

The driver of Car 1 also helped to cause the collision. His first mistake was in trying to enter ahead of Car 2. The way the freeway was designed, cars entering and leaving the freeway have to share the same ramp. In this situation, cars leaving the freeway should be given the right-of-way. The driver of Car 1 should have slowed down to let Car 2 move onto the on/off ramp ahead of him.

The second mistake that the driver of Car 1 made was to move onto the freeway without checking the far lane. If he had looked, he might have seen Car 3 starting to move to the right. This same kind of collision often happens in ordinary lane changes when the driver in the left lane and the driver in the right lane both move to the center lane at the same time.

The driver of Car 2 may also have helped to cause the collision by slowing down. This may have encouraged Car 1 to squeeze in ahead of him. A driver who slows down on a freeway also risks being hit from behind. It is important to keep up speed while you are on the freeway. Don't slow down until after you have pulled onto the off-ramp.

Rule Number 1. Plan your trip before you get on the freeway Then watch signs carefully. Make sure you approach an interchange in the correct lane.

Rule Number 2. Avoid sudden changes in speed or direction. If you are not sure what to do, keep going. Work your way gradually to the side of the road and stop where it is safe.

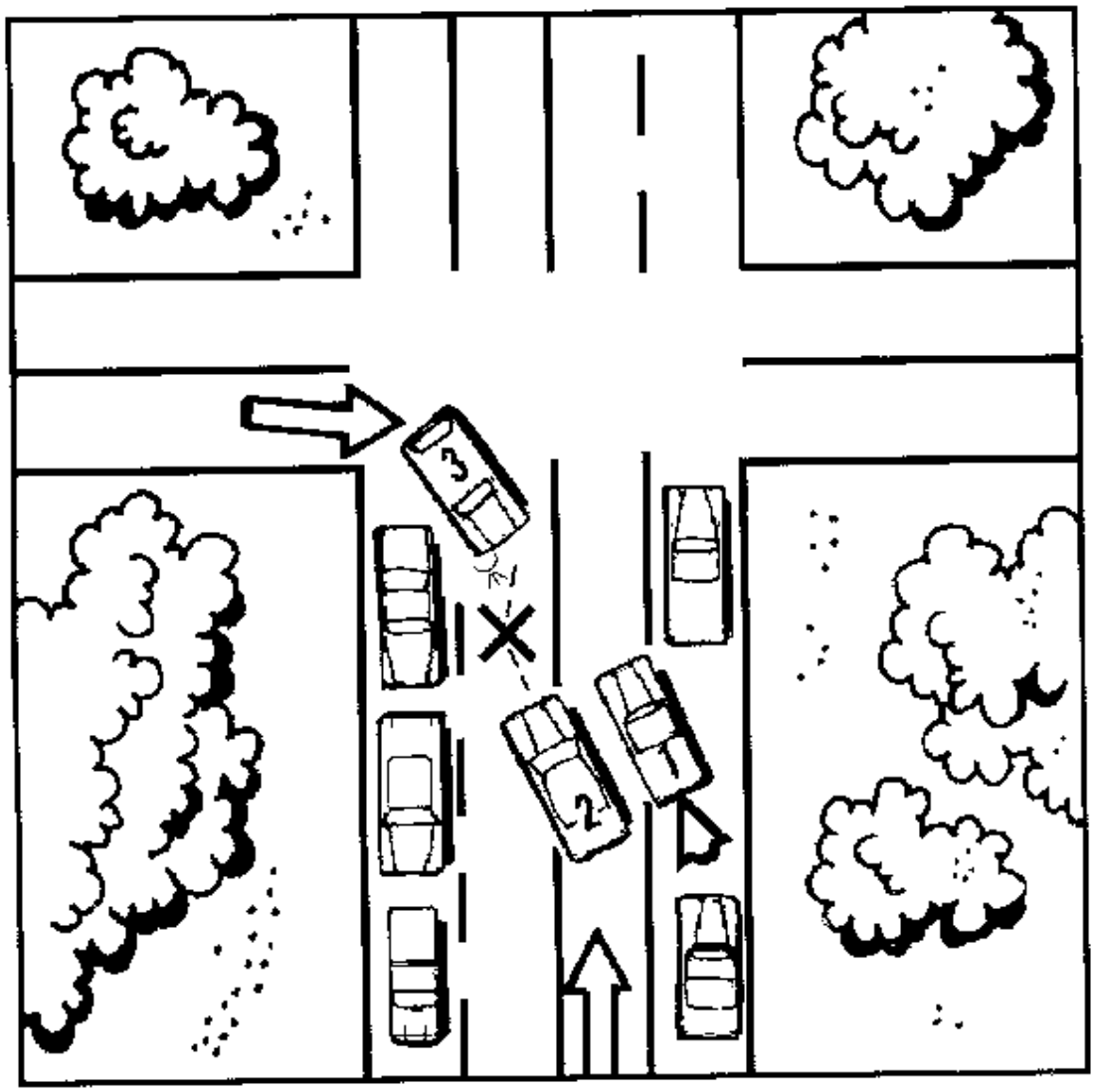
Rule Number 3. When entering a freeway, yield the right-of-way to vehicles that are exiting.

Rule Number 4. Always check three areas before making a lane change: #1, the lane you are in, to be sure no one is attempting to merge into it; #2, the lane where you are going, to be sure you can safely merge there; and #3, the lane(s) ***beyond*** where you are going, to be sure drivers there are not also headed for your intended lane.

Rule Number 5. When leaving a freeway, keep up your speed until after you pull onto the off-ramp.

COLLISION REPORT NUMBER 7

The Case of the Quick Get-Away



The driver of Car 1 pulled away from the curb just as Car 2 approached at a legal speed of 45 mph. To avoid hitting Car 1, the driver of Car 2 swerved across the center line and hit Car 3 head-on. Car 3 had just turned right at the intersection. The driver of Car 3 was killed instantly. The driver of Car 2 lost his left leg.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 1 was legally at fault for pulling out right into the path of Car 2. He was in a hurry and started to pull out before looking behind him. By the time he saw Car 2, he was already part of the way into the driving lane. You should look behind you any time you change your lane position. This includes turning a corner, changing lanes, entering or leaving a freeway, or pulling away from a curb.

The second mistake the driver of Car 1 made was in not giving a turn signal. A signal would at least have warned the driver of Car 2 that something was happening. It is important to give a signal whether or not you see another vehicle.

The driver of Car 2 might have prevented the collision by scanning the side of the road as well as watching the path ahead. There were several clues indicating Car 1 might pull out: someone sitting in the driver's seat, brake lights going on, exhaust. If he had seen any of these clues, he could have slowed down and tapped his horn as a warning.

The driver of Car 3 might also have prevented this collision if he had looked to the right before starting his turn. He could have seen Car 1 pulling out and realized that Car 2 might swerve onto the wrong side of the road. It is important to look both ways whenever you enter an intersection.

Rule Number 1. Look before you leap! Always look over your shoulder to make sure the way is clear any time you are going to change your position on the road.

Rule Number 2. Always signal any change of position. Signal whether or not you see another vehicle. Remember, it is what you don't see that can be the most dangerous.

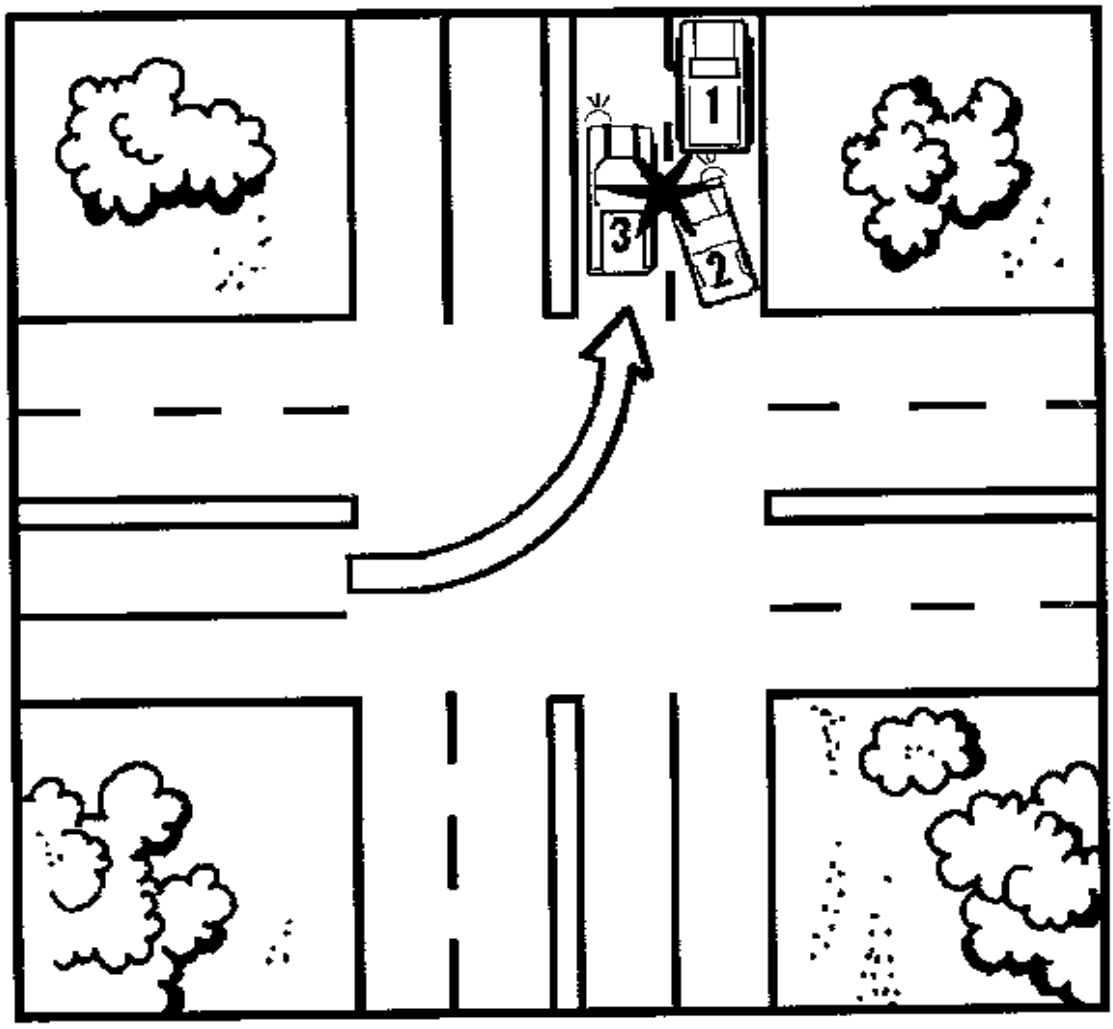
Rule Number 3. Scan both sides of the road ahead. The farther away you spot a problem, the more time you will have to deal with it.

Rule Number 4. **Never assume the other driver can see you,** especially if he is not facing you. Use your horn or lights to warn him you are coming.

Rule Number 5. Always check the path ahead of your vehicle before you turn a corner. Make sure the way is clear before you start your turn.

COLLISION REPORT NUMBER 8

When One Good Turn Didn't Deserve Another



Cars 1 and 2 turned right at an intersection. Just after completing the turn, Car 1 stopped to let out a passenger. Car 2 swerved into the left lane to avoid hitting Car 1. There it collided with Car 3, which was making a left turn at the same time.

The driver of Car 3 escaped with minor injuries. However, the driver of Car 2 lost the sight of his left eye when his face struck the windshield.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?
The driver of Car 3?

The driver of Car 2 was legally at fault for swinging into the left lane when making a right turn. A right turn onto a two-way street must be completed in the lane closest to the curb. His real mistake was in following Car 1 too closely. It is just as important to leave a safe following distance when you are turning a corner as it is when you are going straight ahead.

Even though he was following too closely, the driver of Car 2 might have avoided the collision if he had looked to the right before starting his turn. Always check the way ahead when turning a corner. This is particularly important at busy intersections where you are likely to find pedestrians crossing with the light.

The driver of Car 1 started the whole thing by stopping unexpectedly to let out a passenger. He was also at fault for coming to a complete stop upon the highway. He was lucky that he was not struck from behind.

Stopping without warning is one of the most common causes of collisions. You are more likely to get hit from behind if you:

(1) Stop in the middle of an intersection because you don't know which way to turn.

(2) Stop immediately after entering a parking lot to decide where you want to go.

(3) Stop because you spot someone or someplace you have been looking for.

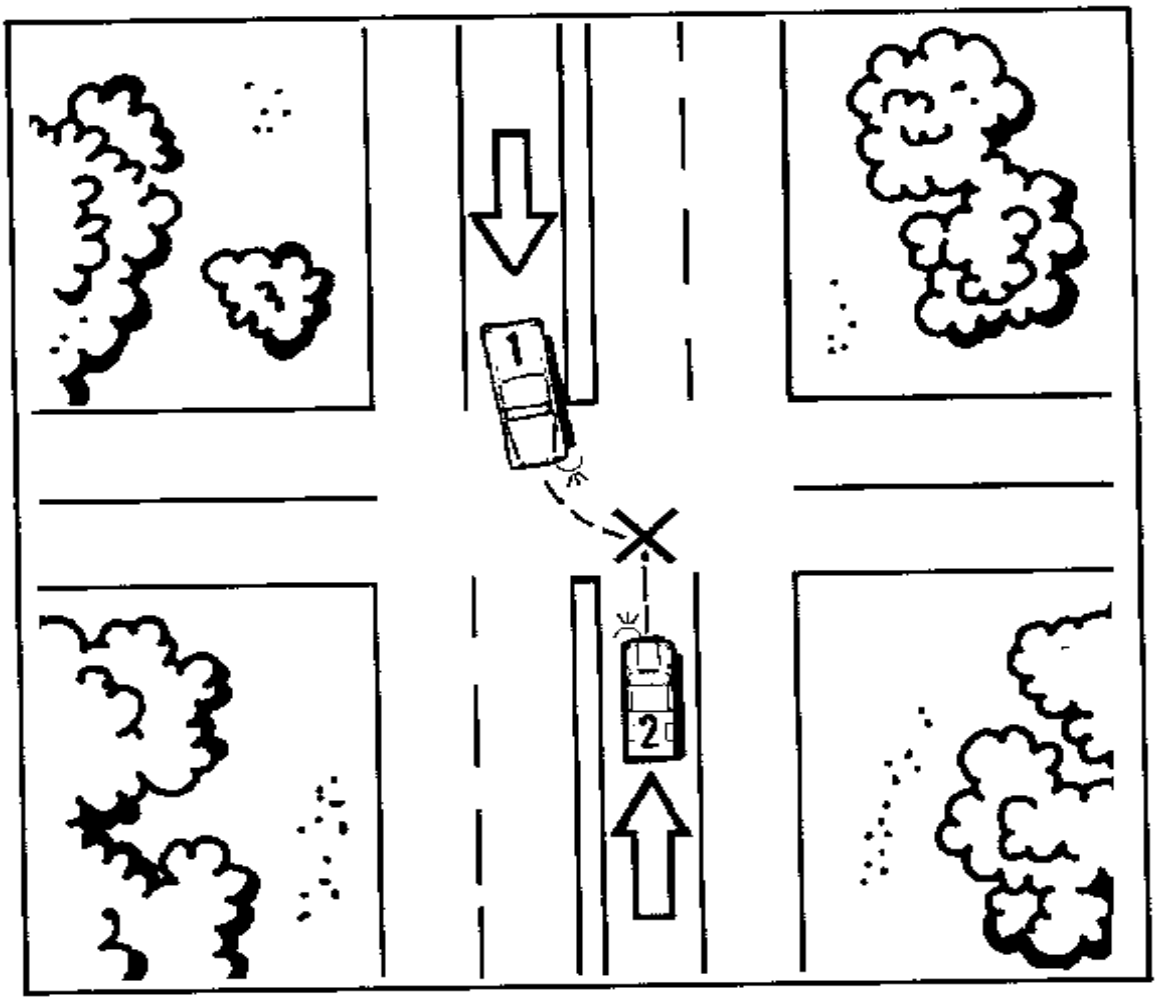
The driver of Car 3 helped to cause the collision by turning at the same time as Car 2. It is true that he had a legal right to the left lane. However, it is dangerous to make a turn at the same time as another car. It is not unusual for a driver to swing wide when turning at an intersection. If the other driver is only looking in the direction he is going, he may not even see you.

Rule Number 1. Keep a safe following distance behind the driver ahead as soon as he begins to move. Don’t assume he will keep moving just because you can’t see any reason for him to stop.

Rule Number 2. Always check the path ahead when you turn a corner. Watch for pedestrians about to enter the street.

COLLISION REPORT NUMBER 9

The Drivers Who Got Their Signals Crossed



The driver of Car 1 was waiting to make a left turn at an intersection. He saw Car 2 coming with its left turn signal on, so he started his own turn. But Car 2 went straight ahead and hit Car 1 on the right-front door. The passenger in the front seat of Car 1 spent six months in the hospital. Even after many operations, he lost the use of both legs. Both cars were damaged beyond repair.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?

The driver of Car 1 was legally at fault for making a left turn across the path of Car 2. The driver of a car turning left must always yield the right-of-way to traffic going straight ahead.

The mistake the Driver of Car 1 made was in trusting the turn signal of Car 2. It might have been left on from an earlier lane change, or the driver may have planned to turn left just beyond the intersection.

Don't enter the path of another driver just because he is signaling a turn. Wait until his turn actually begins. This is the only way you can be sure that (a) he really plans to turn, and (b) his plans haven't changed.

The driver of Car 2 made two mistakes. The first mistake was in leaving his turn signal on, or perhaps signaling too soon. Don't signal your intention to turn before a driveway or intersection that you intend to drive past. And any time you make a lane change or a very gradual turn, you should check to make sure your turn indicator has canceled itself.

The second mistake that the driver of Car 2 made was to assume that Car 1 would wait for him. The fact that the driver of Car 1 was signaling a left turn meant possible danger. Drivers making left turns are often intent on looking where they are going. Sometimes they do not notice oncoming traffic.

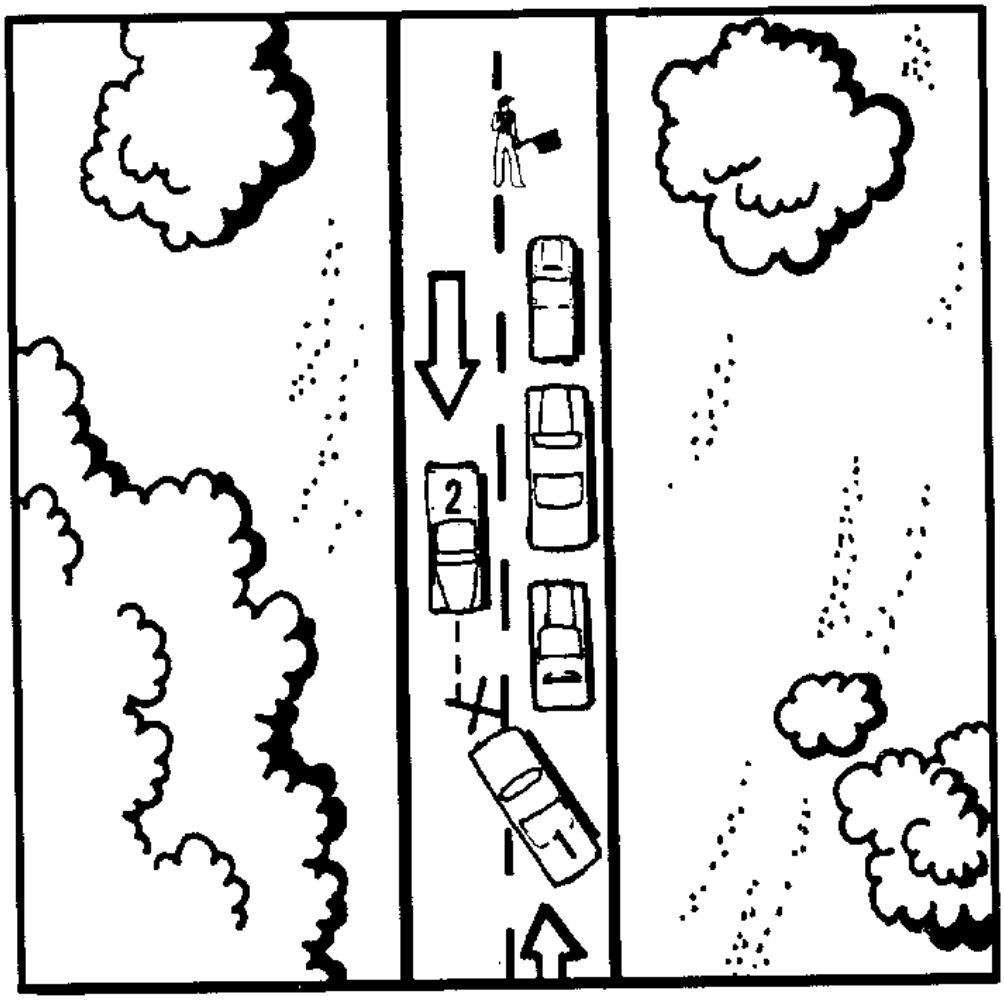
Just to be on the safe side, the driver of Car 2 should have slowed down, watched Car 1 carefully, and been prepared to stop suddenly.

Rule Number 1. Don't trust your life to another driver's signal. Wait until the car actually begins to turn before assuming it will.

Rule Number 2. Don't assume that a driver who is waiting to turn left will continue to wait. He may misjudge your speed or distance, or he may not even notice you.

COLLISION REPORT NUMBER 10

The Case of the Inattentive Driver



Car 1, traveling at 55 mph, came upon a line of cars stopped by a flagman near a construction area. The driver did not realize that the cars ahead were stopped until he had almost reached them. He slammed on his brakes and skidded into the left lane, where he collided with Car 2 which was coming in the opposite direction. Both cars were totaled. The driver of Car 1 sustained several severe bruises, and the driver of Car 2 suffered facial cuts from shattered glass.

Who was at fault in this collision?
The driver of Car 1?
The driver of Car 2?

The driver of Car 1 was at fault. He simply wasn't paying attention. By the time he noticed the cars ahead had stopped, it was too late to avoid them. Or was It?
By measuring the skid marks, the police were able to tell that car 1 was at least 150 feet from the nearest car when the driver realized what was happening. The police report also shows that there was a good clear shoulder along the right side of the road. The driver could have used the shoulder to steer around the stopped cars. So even after his first mistake, he had a chance to avoid a collision.

This is not unusual. A study has shown that as many as half the people who are in automobile collisions could have avoided them at the last minute by handling the vehicle properly.

What should the driver of Car 1 have done?

> ***Brake properly***. Had Car 1 been equipped with an antilock braking system (ABS), the driver might have stopped safely. However, without ABS, slamming on the brakes can lock all four wheels, putting the car into a skid. After that, there is no way to steer the car.

If you have ABS, apply the brake pedal hard and hold it down. If not, pump the brakes – tap and release the brake pedal rapidly and with increasing pressure. This will slow the car without letting it go out of control.

> ***Steer out of trouble***. The driver of Car 1 should have immediately checked the shoulder to the right to see if it was clear. Once he saw the shoulder was clear, he should have steered quickly onto it and then started to brake. This would have greatly reduced the chance of a collision.

Rule Number 1. When steering control is important, don't slam on your brakes; this locks your wheels (unless you have antilock brakes). Pump the brakes to keep control of the car.

Rule Number 2. Don't hesitate to leave the road if it will help you to avoid a collision. At speeds over 30 mph, you can steer to one side in less distance than it would take you to stop. Pull onto the shoulder, if there is one. Almost anything is better than running into another car.

Home Study Kit Self-Test

The test questions below are based on principles of safe driving which are discussed in the pamphlet. After you have read the pamphlet, please complete this test. Indicate your answer by circling the corresponding letter. An answer guide is provided at the end of the test—the correct answers, and numbers identifying the collision report from which each question was taken, are listed. After you have completed the test, please check your answers and review the situations in the pamphlet that correspond to any questions you missed. Finally, think about how the safe driving tips given in the pamphlet might apply to your own driving behavior.

1. Traffic collisions:

   A. happen to almost every driver, and are almost always due to bad luck.
   B. usually can't be avoided, because they are beyond the control of the driver.
   C. can be anticipated; reacting quickly to changing situations may avoid crashes.

2. Good drivers make a habit of scanning well down the road. The usual distance to scan ahead should be at a point the car will reach in about:

   A. 5 to 10 seconds.
   B. 10 to 15 seconds.
   C. 15 to 20 seconds.

3. You are waiting at an intersection to turn left. A car is coming toward you with its turn signal on. You should:

   A. start your turn since the other driver is also turning.
   B. start your turn only if the other driver is signaling a left turn.
   C. wait until the other car begins its turn before starting your turn.

4. You are driving on the freeway and traffic is merging into your lane. You should:

   A. make room for the merging traffic.
   B. decrease your following distance.
   C. maintain your speed and position.

5. Cars entering and leaving the freeway sometimes have to share the same lane. In this situation, which car has the right-of-way?

   A. the car entering the freeway
   B. the car leaving the freeway
   C. it depends on which "gives way" first

6. When pulling away from a curb you:

   A. are not in a moving line of traffic, so you don't need to signal.
   B. should signal and look over your shoulder before pulling out.
   C. should honk your horn to alert other drivers that you are pulling out.

7. There are "blind" spots to the left and right rear portions of every vehicle. These are the areas behind you that are not visible through either your rear-view or outside mirror. Which statement below is most correct?

   A. It is up to you to check your blind spots by glancing over your shoulder before making any lane change.
   B. Drivers should attempt to stay out of the blind spots of other vehicles by pulling ahead or dropping back.
   C. The above statements are equally correct.

8. When turning left at an intersection, you should:

   A. check cross-traffic from both directions before turning.
   B. usually come to a complete stop before starting your turn.
   C. wait for an oncoming driver to signal it's OK for you to turn.

9. To make a legal right-hand turn from a two-way street into another two-way street you:

   A. must start from the right-most lane but may end in any lane that is clear.
   B. must start from the right-most lane and end in the lane closest to the curb.
   C. may both start your turn from, and end your turn in, any lane that is clear.

10. The "three-second" rule refers to:

   A. how long to leave your blinker on when making a lane change.
   B. the maximum time you should look into your rear-view mirror.
   C. how to determine a safe following distance under most conditions.

11. Blocking an intersection is:

   A. never permitted under any circumstances.
   B. permitted if the lane next to you is blocked.
   C. permitted if some cross traffic can get around you.

12. The car in front of you has stopped suddenly, and you will hit it if you don't take action. Which of the following is a good rule to remember in such a situation?

   A. Leaving the road is more risky than possibly hitting another vehicle.
   B. Braking to a quick stop is always the safest action in a traffic emergency.
   C. You can usually steer to miss an obstacle more quickly than you can stop.

13. You should flash your brake lights when:

   A. you have to slow down suddenly.
   B. a police car is coming toward you.
   C. you are backing out of a parking space.

14. The single most important thing to do to avoid collisions is to drive defensively. This means:

   A. usually yielding your right-of-way at intersections.
   B. leaving room to adjust for unexpected conditions or events.
   C. driving slower than other vehicles traveling in your direction.

Please check each of your answers against the key given below, and go over mistakes to be sure you understand the safe driving principles discussed in the pamphlet. Think about which of the safe driving tips given in the pamphlet might apply to your own driving experiences and behavior.

Thank you for taking the time to review your driving knowledge and skills. We hope it will help make you a safer and better driver.

1) C, basic principle for safe driving **2)** B, collision report #2 **3)** C, collision report #9 **4)** A, collision report #5 **5)** B, collision report #6 6) B, collision report #7 7) C, collision report #2 8) A, collision report #3 9) B, collision report #8 **10)** C, collision report #4 **11)** A, collision report #1 **12)** C, collision report #10 **13)** A, collision report #4 **14)** B, basic principle for safe driving

California Department of Motor Vehicles

The Driving Triad

There are three things that are involved in driving: the driver, the vehicle, and the environment. You can't do much to change the latter -- *e.g.*, rainy weather, traffic congestion, or poor lighting. The best you can do is to avoid the situations: don't drive at night, during rush hour or bad weather. Plan your routes to stay away from especially busy surface streets and times, and from freeways, if they bother you. (If driving on freeways *doesn't* bother you, it is good to use them, because they have the lowest crash rate per mile of any type of road. Part of this is because there is no cross-traffic to watch out for.) Speaking of cross-traffic problems, unprotected left turns are often a problem for older people; don't make them if you don't have to! Go past your turn-off, turn right at the next corner, then right again, and then right onto where you were going in the first place. Two wrongs may not make a right, but three rights can make a left!

As for the vehicle, several organizations have information on how to look for a safe car. Even if you aren't changing vehicles, be sure that the one you are driving fits *you*. You'd be surprised at how much we shrink as we grow older – you need to adjust the seats or add cushions to be able to sit with your shoulders level with the top of the steering wheel in order to see over it without tilting your head back, reach it without locking your elbows, and leave 10 inches between your breastbone and the airbag to avoid injury in case it deploys.

The National Mobility Equipment Dealer's Association can put you in touch with local specialists in vehicle conversion, should you need pedal extensions, hand controls, or special cushions etc. (Phone 1-800-833-0427; web site http://www.nmeda.org/; e-mail nmeda@aol.com). Most of us were taught to keep our hands on the wheel at 10 and 2 o'clock; now, because of injuries that could be caused by an air bag throwing the hands violently back into the face, newer instructions say to keep the hands at 9 and 3 o'clock, or even lower.

You have the most control over the third element of the driving triad: the driver. The Association for Driver Rehabilitation (phone

800-290-2344; web site http://www.driver-ed.org/) can put you in touch with professionals who assess and retrain driving skills. The California DMV (P.O. Box 932342, Mail Station N-224, Sacramento 94232-3420) has a list of approved Mature Driver courses, and there are a variety of refresher and defensive driving courses available. The National Safety Council (http://www.nsc.org/) offers an on-line defensive driving course, and AARP (1-888-227-7669) has *55 Alive!* classes in hundreds of locations. These inexpensive lessons will not only brush up your driving skills, but also get you a reduction in your automobile insurance rates.

What attributes affect your ability to drive safely? Physically -- vision, hearing, strength, and flexibility; mentally – perception, cognition, and reaction speed. You must be able to perceive a situation (such as a child running out in front of you or an ambulance screaming up behind you), recognize the danger, and react appropriately. (The first requirement for being able to see small people or animals in front of you is being able to see over the hood of your car. For the rear, make frequent rear-view mirror checks as you drive.) You need the strength to handle the wheel and brake rapidly and effectively, and you need flexibility to turn to look over your shoulders when necessary, as in changing lanes or backing.

You need to be alert to do all these things, which means being aware of the effects of any drugs you are taking and avoiding driving when they have made you "woozy" or impaired in other ways. Always ask your doctor about how a new prescription will affect your driving, and see if you can take your doses when driving is not likely to occur (bedtime, for instance). Don't forget that many Over-The-Counter (OTC) drugs [such as antacids] and also some herbal supplements [such as St. John's Wort] can affect your prescriptions – how they work in your body, and how fast they are eliminated. This can lead to over- or under-dosing. Your driving may be affected as well.

Take care of yourself by having your vision regularly checked. Never drive faster than you can see! Make sure your windshields, headlamps, eyeglasses, etc. are clean before you get in the car. Check your lights, including turn signals, at least once a week. Keep up your strength and flexibility with exercise. Walking is an excellent exercise, and many shopping malls have programs where groups can

walk before and after normal business hours. You can exercise in the comfort of your own chair, if you choose, by lifting light weights (such as soup cans). You can rhythmically squeeze a little ball or even a stuffed toy while you are watching TV; if you don't think this is exercise, try squeezing hard 20 or 30 times in a row and see if you don't feel it!

Most YMCAs and many colleges have special water exercise programs for seniors; some even have programs to teach you better balance. Ask your doctor if these would be especially useful for you. Simple stretching is beneficial before driving or any other physical activity. There are many exercise videos that are made especially for older or sedentary people. If you belong to an HMO, see if you can locate one called Chair Dancing -- it is especially good, and enjoyable as well. Exercise not only makes driving easier and safer, but also helps deal with depression, high blood pressure, diabetes, and many other conditions. There is even emerging evidence that exercise prevents or at least slows cognitive decline, due to more oxygen circulating to the brain.

Mental exercise is also beneficial – read, do crossword puzzles, and play games that use words or numbers, even if only in keeping score. Jigsaw puzzles sharpen visual search skills. Charades, even Solitaire, are pastimes that involve your thinking skills and will keep them current. Children build muscle and learn skills while playing and having fun, why shouldn't we? Exercise as much as you can – make a game of finding ways to build in a little more into your normal routines. Get regular vision and physical checkups, including a review of medications. You wouldn't (we hope) drive a car that wasn't kept tuned up; give yourself regular tune-ups too!

Mastery of the driving triad will help keep you safe on the road for as long as you choose to drive.

Appendix C-4

DRUGS

What does that word mean to you?

Prescriptions, such as for arthritis or a bacterial infection?

Illegal streetsubstances, such asheroin or cocaine?

Truth is,

A drug is <u>any</u> substance which when ingested, injected, inhaled, or absorbed through the skin or mucous membranes alters the functioning of the body. One ingests caffeine and aspirin, injects vaccinations and insulin, inhales and absorbs nicotine— powerful drugs, all.

As the body ages, it starts to metabolize drugs differently. Standard prescription doses may not be the best doses for older persons, and over-the-counter (OTC) medications may act differently than expected. In addition, many drugs can interact with each other and with the environment in unpleasant and sometimes deadly ways. Most of these interactions have an even more powerful effect on older persons. Alcohol, one of the strongest and most interactive drugs, is processed differently in the older body.

 +  = **NO!**

Mixing aspirin and alcohol can cause internal bleeding.

 +  = **NO!**

Mixing acetaminophen [Tylenol] and alcohol can cause irreversible liver damage.

 +  = **NO!**

Mixing pain medication and alcohol can cause coma and death.

Drug interactions are particularly troublesome for the older person, because their bodies no longer clear toxins as efficiently.

Some of the most dangerous interactions involve aspirin or antacids, things we may take without considering the consequences.

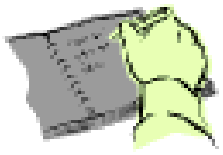
Even herbal supplements can backfire if you are also taking prescription drugs, and vitamins can affect and be affected by other drugs as well.

Sound overwhelming?

No wonder – not only is there information overload, but it is also constantly changing. Your doctor may not even be able to keep up with everything.

Your pharmacist is actually your best friend and safety buffer.

he or she should have computer software that will sound the alarm at potential interactions. Even if you have multiple doctors, you should try to **use the same pharmacy to fill all your prescriptions**, and be sure that the pharmacist knows what else you take, even on an occasional basis. Take the time to talk and listen to him or her.



always carry with you a list of your current prescriptions (including dosages),

vitamins, OTC preparations, and drug allergies. If you are in an accident and taken to an emergency room, the list will help you get safe treatment quickly. Consider joining MedicAlert (1-800-432-5378); their services include a 24-hour registry of members' medications.

If you are being treated for diabetes or high blood pressure, you are at particular risk.

Persons taking warfarin (Coumadin) or statin drugs (e.g., Mevacor, Zocor) especially need to be aware of dangerous and potentially fatal interactions.

Diabetic treatment and control have changed so rapidly that if you have not had a class in the **past two years**, some of what you think you know is most likely incorrect and is certainly incomplete.

To get up-to-date, you should look for low-cost classes from your health provider or local hospitals, along with support groups, and read magazines like Diabetes Self-Management and Diabetes Forecast.

A free sample copy of the former is available through the web site [www.diabetes-self-mgmt.com] or by calling toll-free 1-800-234-0923; they have had several articles on herbal supplements and OTC drugs in relation to diabetics. The latter magazine is published by the American Diabetes Association, which can be reached at 1-800-342-2383.

What does all this have to do with driving?

Well, consider:

Physicians must report insulin-dependent diabetics (or others) **who experience lapses of consciousness** to DMV; the future status of the patient's license will be determined on an individual basis.

Persons with well-controlled conditions will probably only require periodic health checkups to continue driving.

Hypoglycemia (low blood sugar) makes driving unsafe; it can come on suddenly and be exacerbated by fatigue or stress (or drug interaction!).

- Always have hard candy or glucose preparations close to hand when you drive.
- It is also important to check your sugar levels before starting, and every couple of hours during, a long trip. Plan leisurely journeys, with stops for food and rest.
- Antibiotics (*e.g.*, tetracycline, erythromycin) can cause light sensitivity, making night driving more hazardous.
- Antihistamines and some cold medications (*e.g.*, Benadryl, Chlor-Trimeton) cause drowsiness and also affect your eyesight.
- Drugs used to treat high blood pressure (*e.g.*, clonidine [Catapres], doxazosin [Cardura]) may cause sedation; herbs such as goldenseal, Siberian ginseng, St. John's Wort, valerian, etc. can produce add-on depressant interactions.

There are many internet web sites that provide interesting and understandable information on health and drugs, *e.g.*, [www.medlineplus.gov] and [www.healthatoz.com]. If you do not have a computer of your own, a local library or college can often let you use theirs and help you through the process.

You need to know about drugs to live well and drive safely

Appendix C-5

RESOURCES

This listing of information and assistance sources for older persons is not, nor is it intended to be, a comprehensive inventory. Inclusion in this document in no way implies endorsement or sponsorship by the Department of Motor Vehicles.

Close-to-Home Information:

- Your doctor and your pharmacist should have handouts on conditions, exercises, and drugs.
- Dialing InfoLine at **1-800-510-2020** will connect you to a live person at your own county information and referral service; there is likely to be a special senior services section.
- Look in the government section of your phone book for likely agencies (Transportation, Health, etc.). For example, the California Department of Consumer Affairs has information on landlord/tenant disputes, fraud, verification of licenses and standing of professional people, etc. City, county, state, and federal branches all have service agencies for the elderly, often listed under 'aging'.
- Your own insurance companies may have safety information.
- Check your local library for reference material such as Consumer Reports, which includes up-to-date information on products and services, including automobiles. They may also have computers for your use, and can assist you in learning how to use them.
- Ask your local DMV for a list of approved Mature Driver classes, which may get you a discount on your insurance, and also what other publications are available and how to get them.

Why Use Computers and Connect with the Internet?

Computers aren't just for computing. You can keep in touch with family and friends by sending and receiving electronic mail, trace your family tree, search for information from libraries all over the world, view and buy all sorts of merchandise ***[SEEK ADVICE AND TAKE GREAT CARE WHEN DOING SO!]***, find "chat rooms" on nearly any subject where you can exchange your knowledge and opinions, and take on-line classes from crafts to creative writing. You can get maps and directions to any destination, and check the weather and highway congestion before you start. You can find newspapers and magazines, books, even music and film clips if your computer has what is now almost standard equipment. Home computers now cost less than a TV used to.

Links, or *Hot Links* as they are sometimes called, are sites that can be reached by simply clicking on them. If all this is new to you, and sounds too hard to manage, give it at least one chance: go to a library or computer store and have them show you how to connect to **www.seniornet.org** or **www.eldersafety.org** - from which you can skip to elder safety links and then to links by category, showing you dozens of choices that can be opened with a single click. Accessing the web page of the National Institute on Aging at **www.nia.nih.gov** will bring you to a Resource Directory for Older People (under Health), including links to all kinds of support groups and information centers such as Legal Services for the Elderly and the Food and Nutrition Information Center. You can find easy-to-understand information on conditions, diseases,

drugs, locations and credentials of physicians, etc. at the National Library of Medicine at **www.nlm.nih.gov/medlineplus** Sites such as **www.junkbusters.com** exist to help you get rid of unwanted junk mail and telephone calls. You will find it easier to find almost any information you need than you might have imagined.

The following organizations can be contacted for elder information and assistance.

Training

AARP 55 ALIVE! is the first and largest classroom driver improvement course specially designed for motorists age 50 and older. It is intended to help older drives improve their skills while teaching them to avoid accidents and traffic violations.

601 E Street, NW
Washington, DC 20049
Telephone: 1-888-227-7669
www.aarp.org/55alive

SeniorNet is a nonprofit organization that provides older adults education for and access to computers and the Internet. Local or regionally sponsored Learning Centers offer a friendly, inexpensive, and low-pressure environment in which members learn to use computers and the Internet.

121 Second Street, 7th Floor
San Francisco, CA 94105
Telephone: 415-495-4990
www.seniornet.org

Referrals for Practitioners or Equipment

AAA: Area Agency on Aging can connect you to services in your area, including ride programs, Meals-on-Wheels, home health services, and more.

Telephone: 1-800-677-1116
www.aoa.gov

ABLEDATA provides information on assistive technology and rehabilitation equipment available from domestic and international sources.

8630 Fenton Street, Suite 930
Silver Spring, MD 20910
Telephone: 1-800-227-0216
www.abledata.com

ADED: The Association for Driver Rehabilitation lists qualified professionals working in the field of driver education/training and transportation equipment modifications for persons with disabilities.

711 S. Vienna Street
Ruston, LA 71270
Telephone: 1-800-290-2344
www.driver-ed.org

AOTA: The American Occupational Therapy Association lists qualified professionals that help people regain, develop, and build skills that are important for independent functioning.

4720 Montgomery Lane
Bethesda, MD 20824
Telephone: 301-652-2682
www.aota.org

NASW: The National Association of Social Workers lists qualified social workers who can provide counseling, assess social and emotional needs, and assist in locating and coordinating transportation and community services.

750 First Street, NE, Suite 700
Washington, DC 2002-4241
Telephone: 202-408-8600
www.socialworkers.org/register/default.asp

NIA: The National Institute on Aging has a resource directory for older people, including links to all kinds of support groups and information centers such as the Food and Nutrition Information Center; they also have a $7.00 exercise video for seniors.

Building 31, Room 5C27
31 Center Drive, MSC 2292
Bethesda, MD 20892

Telephone: 301-496-1752
www.nia.nih.gov

NMEDA: The National Mobility Equipment Dealer's Association encourages professionalism in the industry, expands public awareness of mobility issues, and provides a directory off affiliated dealers.

11211 N. Nebraska Ave., Suite A-5
Tampa, Florida 33612

Telephone: 1-800-833-0427
www.nmeda.org

RESNA: The Rehabilitation Engineering and Assistive Technology Society of North America is an interdisciplinary association of people with a common interest in improving the potential of people with disabilities to achieve their goals through the use of technology. They provide lists of certified Assistive Technology Practitioners and Assistive Technology Suppliers.

1700 North Moore Street, Suite 1540
Arlington, VA 22209-1903

Telephone: 703-524-6686
www.resna.org

Information and Handouts

Both AAA and AARP have self-assessment booklets with remediation advice for elders.

The **AAA Foundation for Traffic Safety** has a website that presents some simple exercises to keep aging bodies both flexible and less tired, and offers a set of "refresher" tips, some of which are presented in cutting-edge video format, to help seniors overcome some of the stickier situations found in everyday driving.
Administrative Office:

1440 New York Ave, NW, Suite 201
Washington, DC 20005

Telephone: 202-638-5944
www.seniordrivers.org

ACSC (Serving Southern California): The Automobile Club of Southern California has many handouts dealing with senior driving, buying and maintaining a car, and other traffic safety issues.

3333 Fairview Road, Mail Stop A131
Costa Mesa, CA 92626

Telephone: 714-885-2305
Fax 714.885.2331

CIPPP: The Center for Injury Prevention, Policy, and Practice has a website with the Older Adults' Traffic Safety Project material, plus links to other elder safety sites.

6505 Alvarado Road, Suite 208
San Diego, CA 92120

Telephone: 619- 594-1996
www.eldersafety.org

The **Congress of California Seniors** has on-line news and commentary as well as a guide to resources by subject category.

1228 N Street, #29
Sacramento, CA 95814

Telephone: 1-800-543-3352
www.seniors.org

CPRS: The California Parks and Recreation Society's Aging Services and Activities Section is made up of a statewide association of senior services providers, mainly employees of major cities managing senior services for their region.

12340 South Street
Cerritos, CA 90703
Telephone: 562-916-8561
ww.cprs.org/aging/index.htm

CSAA (Serving Northern & Central California): The California State Automobile Association, Traffic Safety Department has many handouts dealing with senior driving, buying and maintaining a car, and other traffic safety issues.

150 Van Ness Avenue, MS-A03C
San Francisco, CA 94502
Telephone: 415-565-2305
Fax: 415-437-2938

IIHS: The Insurance Institute for Highway Safety is an independent, nonprofit, research and communications organization dedicated to reducing highway crashes, with data on vehicle crash, theft, and repair statistics. Includes state-by-state renewal procedures for older drivers.

1005 N. Glebe Road
Arlington, VA 22201
Telephone: 703-247-1500
www.highwaysafety.org

NHTSA: The National Highway Traffic Safety Administration provides access to crash statistics, driver performance, and many other general traffic safety issues.

400 Seventh Street, SW
Washington, DC 20590
Telephone: 1-888-327-4236
www.nhtsa.dot.gov

NIH: The National Institutes of Health's website featuring health information for older adults was developed by the National Institute on Aging and the National Library of Medicine, both part of the National Institutes of Health.

National Institutes of Health
Bethesda, MD 20892
Telephone: 301-496-4000
www.nihseniorhealth.gov

NRCSAI: The National Resource Center for Aging and Injury promotes safe and healthy aging. Their website has information on medicines, legislation, safety guidelines, and other topics of interest.

University Center on Aging
College of Health and Human Services
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-1872
Telephone: 619-594-0986
www.olderadultinjury.org

The **USAA Educational Foundation** has brochures on safety topics.

9800 Fredericksburg Road, D3E
San Antonio, TX 78288
Telephone: 1-800-531-8159
www.usaaedfoundation.org

The **U.S. Administration on Aging** has information (often in Spanish also) on federal policies and programs, older persons and their families, the National Family Caregiver Support Program, and other areas of interest.

330 Independence Avenue, SW
Washington, DC 20201
Telephone: 1-800-677-1116
www.aoa.dhhs.gov

APPENDIX D

Appendix D-1

DRIVER QUESTIONNAIRE / QUIZ

AGE: _____ **SEX:** ❒1 Male ❒2 Female

1. Do you still drive? ❒1 Yes ❒2 No (If 'No', indicate when (month, year) you stopped driving _____ and return the form.)

2. What kind of car do you drive? Year __ __ __ __
   Make/Model _____

3. Please roughly estimate the number of miles you drive per year: __ __ , __ __ __

4. How many days **in the past *week*** have you driven? _____

5. How many times **in the past *year*** have you driven more than 100 miles at one time? _____

6. Mark all the situations in which you **avoid driving**: ❒1 none ❒2 at night ❒3 on freeways ❒4 in bad weather ❒5 in unfamiliar areas ❒6 during rush hour

7. Do you have your own computer with access to the Internet?
   ❒1 Yes (if 'Yes', skip to Question #9) ❒2 No

8. If not, does your local library or senior citizens' center have one available for your use? ❒1 Yes ❒2 No ❒3 Don't know

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9. When does DMV require liability insurance?
   - ❒1 at all times
   - ❒2 when you reach 70
   - ❒3 if you've been in an accident

10. Which of the following are signs of diminished capacity for driving safely? Mark all that apply.
    - ❒1 being over the age of 65
    - ❒2 being unable to concentrate
    - ❒3 being unable to read ordinary road signs

11. When is the smartest time to use your headlights?
    - ❒1 always
    - ❒2 only at night
    - ❒3 at night and in bad weather

12. Is it easy to find out about the crashworthiness, cost of repairs, and fuel efficiency of various cars on the Internet? ❒1 Yes ❒2 No ❒3 Don't know

13. What percent of driving decisions are based on information acquired through the eyes?
❒1 30% ❒2 60% ❒3 90%

14. Which of the following acts differently in older and younger bodies? Mark all that apply:
❒1 alcohol ❒2 prescription drugs ❒3 over-the-counter drugs

15. You want to turn left at the next intersection. A car is coming toward you with its turn signal on. You should
❒1 start your turn, since the other driver is also turning.
❒2 start your turn only if the other driver is signaling a *LEFT* turn.
❒3 wait until the other car begins its turn before starting your own.

16. What should an effective exercise program do? Mark all that apply:
❒1 stretch and strengthen your muscles
❒2 challenge your heart and lungs aerobically
❒3 put physical strain on all your muscles and joints

17. When is a smart time to explore alternative transportation options?
❒1 after your license is revoked
❒3 now, before you need to use it
❒2 if you are temporarily unable to drive

18. Which substances can impair driving? Mark all that apply.
❒1 alcohol ❒2 illegal drugs ❒3 prescription drugs

19. Older drivers, compared to the general driving population,
❒1 are involved in more fatal and injury accidents per driver.
❒2 are involved in fewer fatal and injury accidents per driver.
❒3 are involved at the same rate in fatal and injury accidents.

20. Is it possible to get insurance discounts for taking senior driving classes?
❒1 yes ❒2 no ❒3 don't know

21. How fast does a driver aged 60 adjust to a change from light to darkness, relative to a teenager?
❒1 no difference ❒2 twice as long ❒3 more than twice as long

22. Where might you find training in how to access the Internet? Mark all that apply:
❒1 local library ❒2 SeniorNet ❒3 local college

23. A driver aged 60 needs how much more light to see than does a teenager?
❒1 twice as much ❒2 three times as much ❒3 four times as much

24. Is there a single 800 number that will connect you to a live person for your own county information and referral services?
❒1 yes ❒2 no ❒3 don't know

25. What attributes affect your ability to drive safely? Mark all that apply:
❒1 alertness ❒2 education ❒3 flexibility
❒4 perception ❒5 reaction time ❒6 strength

26. Which of the following is a safe driving practice?
❒1 plan every trip before leaving
❒2 drive at least 10 mph below the speed limit
❒3 use your turn signals only if other cars are coming

27. Why do older drivers die more often than younger ones in crashes?
❒1 They get in more accidents.
❒2 Their bodies are more fragile.
❒3 They don't wear seatbelts as often.

28. Which of the following can be caused by prescription drugs, and affect your ability to drive safely? Mark all that apply:
❒1 drowsiness ❒2 sensitivity to light ❒3 slowed reaction time

29. Who is required to take a vision test in order to renew his or her driver license?
❒1 anyone who wears glasses
❒2 anyone with an accident on record
❒3 anyone who comes in to a Field Office to renew

30. Exercise can protect you from (mark all that apply):
❒1 fatigue ❒2 depression ❒3 loss of mobility

31. What three elements are involved in driving?
❒1 driver, passengers, weather
❒2 vision, speed, equipment
❒3 driver, vehicle, environment

32. Older drivers' eyes are not as keen as they used to be because (mark all that apply)
❒1 the pupils grow smaller.
❒2 it takes longer to shift focus.
❒3 the lens of the eye is more opaque.
❒4 it takes longer to recover from glare.

33. Which maneuver is likely to be most dangerous for an older driver?
❒1 a left turn ❒2 a right turn ❒3 a sudden stop

34. The Resources guide from DMV lists organizations that elders can contact for (mark all that apply)
❒1 referrals to practitioners.
❒2 information and handouts.
❒3 training on driving and computers.

Circle the number that indicates how much you agree with each statement. (1 = not at all, 5 = totally)

36. DMV cares about my driving.
Totally Disagree 1 2 3 4 5 **Totally Agree**

37. DMV has free handouts on traffic safety.
Totally Disagree 1 2 3 4 5 **Totally Agree**

38. DMV is looking out for my best interests.
Totally Disagree 1 2 3 4 5 **Totally Agree**

39. DMV personnel are helpful and courteous.
Totally Disagree 1 2 3 4 5 **Totally Agree**

40. It is easy to get needed information from DMV.
Totally Disagree 1 2 3 4 5 **Totally Agree**

Thank you for your assistance!

You may make additional comments on a separate piece of paper, if you wish. Please return in the pre-paid envelope provided.

Appendix D-2

Percent Choosing Indicated Answer Alternative by Group
(correct answers for questions 9-34 are shaded)

6. Mark all the situations in which you <u>avoid driving</u>:

Response	A	B	C	Chi-sq.	*p*, 2-tail
None	30.0%	31.1%	32.8%	5.451	0.066†
At night	40.3%	39.1%	38.3%	2.277	0.320
On freeways	15.4%	15.0%	14.5%	0.889	0.641
In bad weather	51.7%	47.5%	44.6%	28.072	0.000**
In unfamiliar areas	30.3%	27.1%	27.1%	9.148	0.010**
During rush hour	48.1%	46.2%	44.4%	7.749	0.021*

7. Do you have your own computer with access to the Internet?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Yes	38.9%	41.1%	40.2%	2.455	0.293

8. If not, does your local library or senior citizens' center have one available for your use?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Yes	47.4%	48.1%	41.9%	23.684	0.000**

9. When does DMV require liability insurance?

Response	A	B	C	Chi-sq.	*p*, 2-tail
At all times	99.7%	99.6%	99.6%	0.880	0.644
When you reach 70	0.3%	0.3%	0.2%	0.697	0.706
If you've been in an accident	0.6%	1.0%	0.6%	3.324	0.190

10. Which of the following are signs of diminished capacity for driving safely?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Being over the age of 65	90.0%	88.6%	86.9%	12.782	0.002**
Being unable to concentrate	88.3%	85.7%	85.3%	11.003	0.004**
Being unable to read ordinary road signs	24.4%	14.4%	14.0%	124.490	0.000**

11. When is the smartest time to use your headlights?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Always	52.3%	39.4%	38.5%	126.913	0.000**
Only at night	3.0%	3.6%	3.0%	2.295	0.317
At night and in bad weather	51.3%	62.3%	63.4%	96.244	0.000**

12. Is it easy to find out about the crashworthiness, cost of repairs, and fuel efficiency of various cars on the Internet?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Yes	41.7%	39.5%	29.8%	107.734	0.000**

13. What percent of driving decisions are based on information acquired through the eyes?

Response	A	B	C	Chi-sq.	*p*, 2-tail
30%	0.6%	1.2%	0.9%	4.322	0.115
60%	3.3%	5.3%	5.1%	13.512	0.001**
90%	96.4%	94.1%	94.3%	16.228	0.000**

14. Which of the following acts differently in older and younger bodies?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Alcohol	93.7%	91.9%	91.9%	8.053	0.018*
Illegal drugs	90.8%	85.3%	83.9%	56.716	0.000**
Prescription drugs	83.0%	72.9%	69.8%	127.711	0.000**

15. You want to turn left at the next intersection. A car is coming toward you with its turn signal on. You should

Response	A	B	C	Chi-sq.	*p*, 2-tail
Start your turn, since the other driver is also turning.	0.8%	1.1%	1.4%	4.461	0.107
Start your turn only if the other driver is signaling a LEFT turn.	7.4%	10.8%	11.8%	29.293	0.000**
Wait until the other car begins its turn before starting your own.	93.5%	90.2%	88.9%	34.298	0.000**

16. What should an effective exercise program do?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Stretch and strengthen your muscles	95.8%	94.3%	93.8%	10.565	0.005**
Challenge your heart and lungs aerobically	80.5%	79.4%	79.0%	2.098	0.350
Put physical strain on all your muscles and joints	31.7%	24.9%	24.5%	43.196	0.000**

17. When is a smart time to explore alternative transportation options?

Response	A	B	C	Chi-sq.	*p*, 2-tail
After your license is revoked	5.7%	7.1%	6.4%	3.914	0.141
Now, before you need to use it	82.3%	80.0%	78.7%	11.008	0.004**
If you are temporarily unable to drive	21.5%	25.7%	26.4%	19.005	0.000**

18. Which substances can impair driving?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Alcohol	99.4%	99.5%	99.4%	0.397	0.820
Illegal drugs	97.6%	97.7%	97.1%	2.834	0.242
Prescription drugs	94.5%	90.9%	89.7%	42.434	0.000**

19. Older drivers, compared to the general driving population,

Response	A	B	C	Chi-sq.	*p*, 2-tail
Are involved in more fatal and injury accidents per driver	15.7%	8.9%	9.6%	71.194	0.000**
Are involved in fewer fatal and injury accidents per driver	75.5%	81.3%	80.0%	27.368	0.000**
Are involved at the same rate in fatal and injury accidents	10.5%	11.0%	11.3%	0.953	0.621

Note: This question was to see if subjects had read the cover letter, which spoke about "fewer accidents per driver" for older people. More accurately it would have said "per driver per year" as opposed to "per driver per mile."

20. Is it possible to get insurance discounts for taking senior driving classes?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Yes	76.1%	76.2%	68.7%	63.030	0.000**

21. How fast does a driver aged 60 adjust to a change from light to darkness, relative to a teenager?

Response	A	B	C	Chi-sq.	*p*, 2-tail
No difference	19.5%	36.3%	37.9	234.427	0.000**
Twice as long	51.2%	52.5%	52.1%	0.814	0.666
More than twice as long	31.3%	13.8%	12.3%	370.630	0.000**

22. Where might you find training in how to access the internet?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Local library	88.9%	89.8%	81.2%	110.514	0.000**
SeniorNet	67.6%	67.7%	57.0%	95.091	0.000**
Local college	73.3%	73.0%	73.8%	0.487	0.784

23. A driver aged 60 needs how much more light to see than does a teenager?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Twice as much	54.1%	86.8%	87.8%	969.064	0.000**
Three times as much	44.8%	10.8%	10.2%	1100.647	0.000**
Four times as much	3.0%	3.0%	2.7%	0.567	0.753

24. Is there a single 800 number that will connect you to a live person for your own county information and referral services?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Yes	48.3%	41.3%	20.1%	549.674	0.000**

25. What attributes affect your ability to drive safely?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Alertness	96.8%	96.4%	95.9%	2.699	0.259
Education	53.9%	49.2%	46.2%	32.203	0.000**
Flexibility	82.4%	67.5%	66.3%	196.306	0.000**
Perception	87.9%	84.5%	83.9%	20.007	0.000**
Reaction time	94.7%	93.5%	92.7%	8.664	0.013*
Strength	63.1%	40.8%	39.5%	357.426	0.000**

26. Which of the following is a safe driving practice?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Plan every trip before leaving	97.2%	94.4%	94.4%	29.185	0.000**
Drive at least 10 mph below the speed limit	5.9%	9.3%	9.8%	30.236	0.000**
Use your turn signals only if other cars are coming	2.5%	3.2%	2.5%	3.527	0.171

27. Why do older drivers die more often than younger ones in crashes?

Response	A	B	C	Chi-sq.	*p*, 2-tail
They get in more accidents	3.5%	4.0%	3.7%	0.913	0.633
Their bodies are more fragile	94.8%	92.0%	91.6%	22.621	0.000**
They don't wear seatbelts as often	5.7%	9.8%	9.8%	36.496	0.000**

28. Which of the following can be caused by prescription drugs, and affect your ability to drive safely?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Drowsiness	98.0%	97.2%	97.5%	3.223	0.200
Sensitivity to light	69.8%	62.3%	59.0%	69.799	0.000**
Slowed reaction time	90.9%	90.8%	88.2%	15.563	0.000**

29. Who is required to take a vision test in order to renew his or her driver license?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Anyone who wears glasses	24.6%	27.2%	26.9%	5.116	0.077†
Anyone with an accident on record	5.4%	5.0%	4.7%	1.484	0.476
Anyone who comes in to a Field Office to renew	82.0%	81.2%	79.9%	3.899	0.142

30. Exercise can protect you from

Response	A	B	C	Chi-sq.	*p*, 2-tail
Fatigue	84.3%	79.2%	77.3%	42.949	0.000**
Depression	65.2%	61.6%	59.8%	17.003	0.000**
Loss of mobility	92.1%	91.2%	90.6%	3.525	0.172

31. What three elements are involved in driving?

Response	A	B	C	Chi-sq.	*p*, 2-tail
Driver, passengers, weather	16.7%	18.4%	20.8%	16.108	0.000**
Vision, speed, equipment	36.9%	50.7%	51.2%	133.991	0.000**
Driver, vehicle, environment	71.2%	57.1%	56.7%	143.734	0.000**

32. Older drivers' eyes are not as keen as they used to be because

Response	A	B	C	Chi-sq.	*p*, 2-tail
The pupils grow smaller	50.8%	19.6%	18.8%	796.407	0.000**
It takes longer to shift focus	77.5%	67.2	65.9%	93.808	0.000**
The lens of the eye is more opaque	64.6%	48.8%	47.6%	175.375	0.000**
It takes longer to recover from glare	81.8%	74.5%	73.6%	54.697	0.000**

33. Which maneuver is likely to be most dangerous for an older driver?

Response	A	B	C	Chi-sq.	*p*, 2-tail
A left turn	60.8%	29.4%	29.5%	704.567	0.000**
A right turn	1.6%	1.2%	1.0%	3.561	0.169
A sudden stop	45.4%	75.2%	76.2%	707.893	0.000**

34. The Resources guide from DMV lists organizations that elders can contact for

Response	A	B	C	Chi-sq.	*p*, 2-tail
Referrals to practitioners	58.5%	51.2%	23.7%	725.275	0.000**
Information and handouts	89.8%	86.4%	83.0%	48.059	0.000**
Training on driving and computers	80.3%	76.8%	58.9%	341.246	0.000**

36 - 40. The response to each statement below was a choice from 1 through 5 indicating how much in agreement one was with the statement (1 = not at all, 5 = totally).

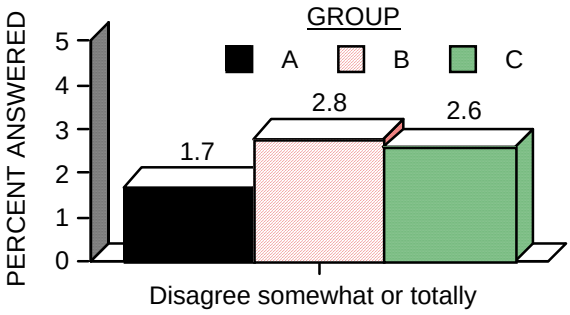
Statement	Chi-sq.	*p*, 2-tail
36. DMV cares about my driving.	48.533	0.000**
37. DMV has free handouts on traffic safety.	64.245	0.000**
38. DMV is looking out for my best interests.	47.320	0.000**
39. DMV personnel are helpful and courteous.	20.815	0.008**
40. It is easy to get needed information from DMV.	47.730	0.000**

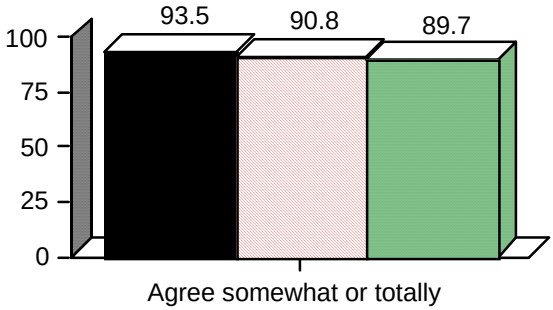
Note:
†Dagger Statistically significant at .10 level.
*Statistically significant at .05 level.
**Statistically significant at .01 level.

APPENDIX E

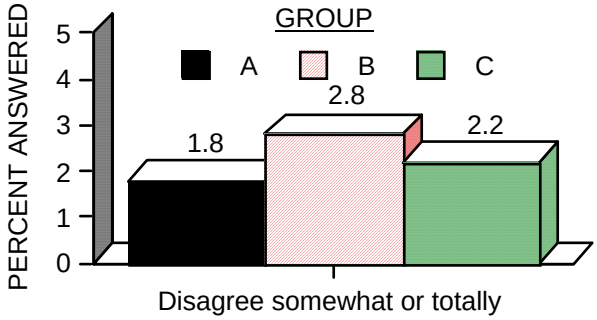
Attitudes Toward DMV

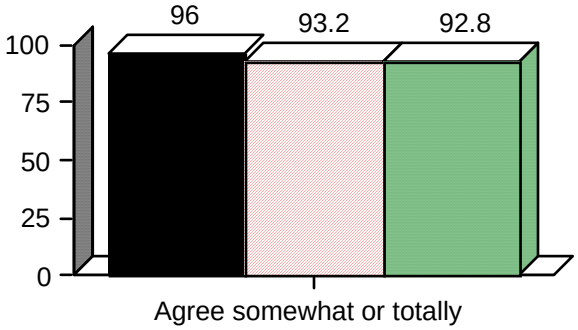
QUESTION #36 - DMV cares about my driving:



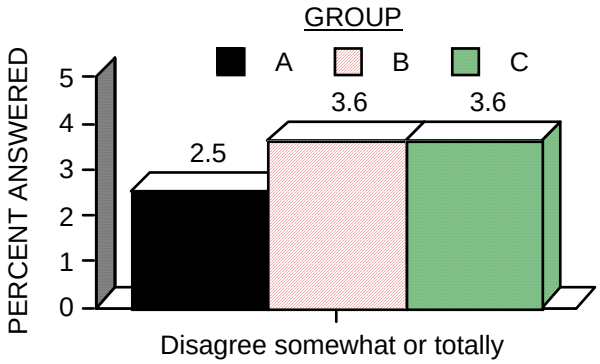


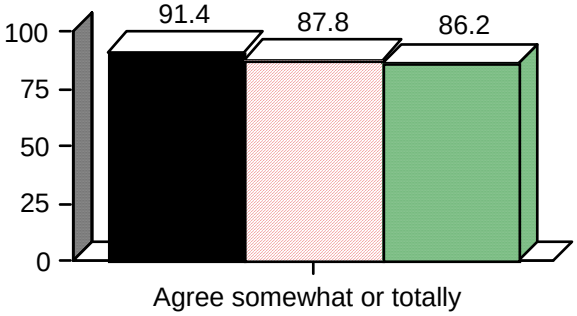
QUESTION #37 - DMV has free handouts on traffic safety:



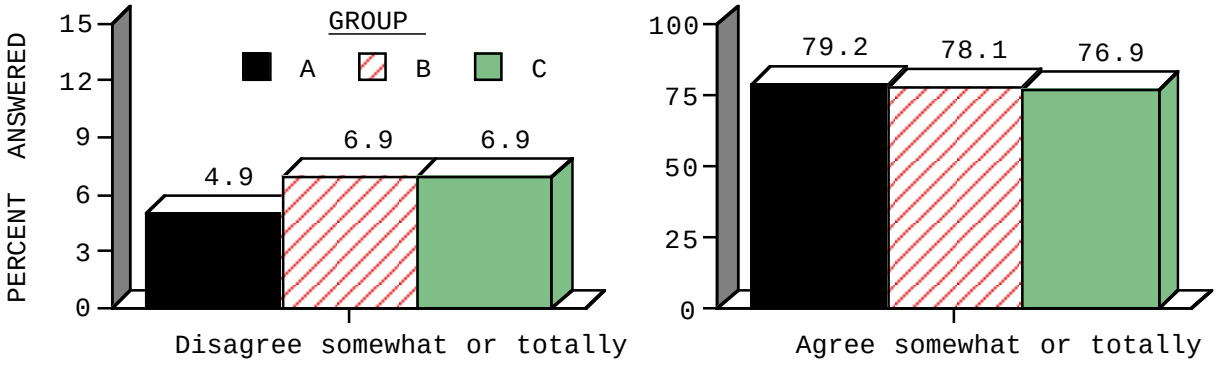


QUESTION #38 - DMV is looking out for my best interests:

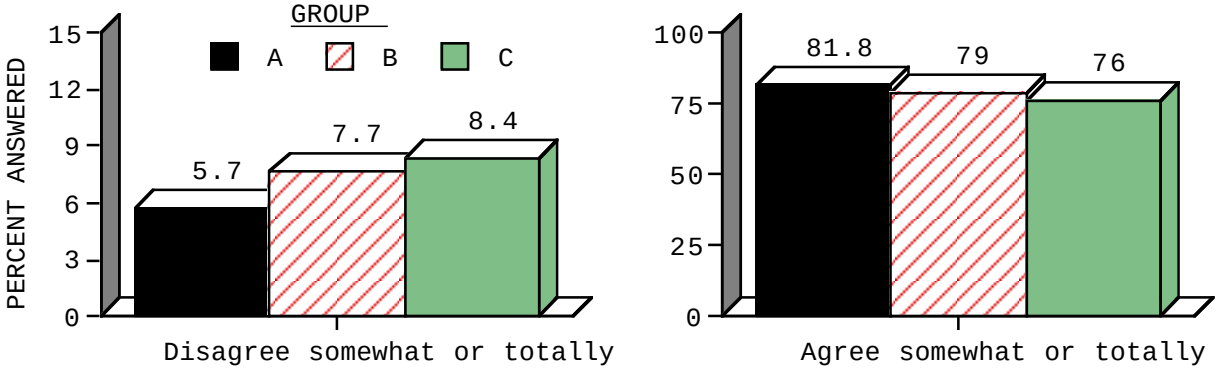




QUESTION #39 - DMV personnel are helpful and courteous:



QUESTION #40 - It is easy to get needed information from DMV:



APPENDIX F

Some Individual Survey Responses

As with all survey data, idiosyncrasies exist that call for caution in the interpretation of results. For example, a few of the Group A respondents included a note that they had "... not cheated by reading the materials before answering the quiz." (As one intent of the study was to determine whether the materials increased drivers' knowledge, it had been hoped that everyone *would* read the materials sent to them prior to answering the quiz.) Also, a couple of ambiguities were discovered in the questions; for example, “education” (at least of the formal sort) is not usually thought of as affecting the ability to drive safely, but the word standing alone can be interpreted in different ways, and roughly half of respondents answered that it does affect driving safety. Indeed, it might. The only question actually discarded from the analyses asked what percentage of hospital admissions are due to mismanagement of medications; it had been included to point up the life-threatening consequences of ignorance on the subject. Unfortunately, it was later discovered that one can find citations to back up every answer choice presented. Therefore, ignorance on the subject may be universal, even among experts.

Although the original due date for return of the questionnaires was late January of 2003, forms were still trickling in until May of 2004. In spite of every effort to make the contact letter as benign as possible, and to assure recipients that their responses would be anonymous, there may have been fears among drivers that, if they did not answer properly, DMV would withdraw their licenses. Some people were apparently panicked about missing the deadline; one even sent in ticket stubs for a cruise, extending past the due date, that he had been on at the time of mailout. Another wrote, *"I received the questionnaire you sent me but I was hospitalized for* 9 *days and it got misplaced. If it is not too late, I would like to participate if you could again send me the questionnaire."* We did send her another form, with thanks for her diligence. One questionnaire (which would have been on time in any case if just sent in the pre-paid postage return envelope) was sent with $4.42 postage for certified mail to make *sure* it arrived on time. There were a number of returned questionnaires (in one case the whole packet) requesting translations into other languages (most often Spanish).

Respondents also sent in all kinds of extraneous materials: for example, the quiz at the end of the *But It Wasn't Really My Fault!* booklet instead of the questionnaire; an Organ Donor Registration card; the alcohol information half-sheet from a renewal notice; a copy of a death

certificate; lots of change-of-address requests; a form for change of vehicle ownership (including the sender's own copy); religious tracts; an ATM receipt; checks (one being to a court); renewal forms; driver licenses; a Salvage form. All of these were forwarded to the proper recipients.

Responses to the material sent, and the request for subjects' participation, ranged from highly enthusiastic to fiercely resistant. Examples of the former:

> *I am so impressed with this program. I have learned or relearned many things that will help me to be a better driver. This is almost as good as taking a class. . . . The information you sent is invaluable. My favorite was the accident reviews and how to avoid these situations. I will review this information regularly. . . . The Director of the DMV has taken a leadership role in furnishing comprehensive information to older drivers. I read with interest the contents of each enclosure thinking "I know that," but to be reminded up front of safe driving practices is a valuable bonus.*

… and the latter:

Do not wish to participate in answering this quiz/questionnaire! Please let me know state law that requires my participation in answering this quiz/ questionnaire even without my consent to do so! … and, even more emphatic, a blank form with *"**Kiss My A _ _!**"* scrawled across it with a thick black marking pen.

A few respondents were concerned about the expenditures for postage and materials in a time of fiscal crisis. And one subject, who identified himself as a physician, not only wrote to the governor (Gray Davis at the time), but also sent copies to two legislators and DMV's director. ("*... Those who read through all these pieces of paper will find some interesting bits of information, but I can insure* [sic] *you that most senior drivers have been there. I may be an old weasel, but I know how to suck eggs.")* He also criticized DMV for spending so much postage ($2.21 each) on 1.7 million drivers. The governor did not forward his letter for reply, so we responded to the copy sent to DMV. Our reply to him stressed that the packet had not gone to 1.7 million drivers; the vast majority of older drivers have clean records, and were ineligible for the mailout. Moreover, a federal grant was paying for both the postage and the analysis of results; it is hoped and believed by the authors that results warrant the expenditure.