

# Auto Insurance Costs & Risks



## *Course Manual*

# Important Information

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We have attempted to provide the most accurate information available. As rules, regulations, and industry practices change, some aspects of this course may become outdated. This course will be updated on a periodic basis as deemed necessary.

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## **Acknowledgement**

Many of the statistics and concepts presented in this course were obtained from the U.S. Department of Transportation National Highway Traffic Safety Administration [www.nhtsa.gov](http://www.nhtsa.gov). Another significant source of information was the Insurance Information Institute [www.iii.org](http://www.iii.org).

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# 1—Auto Insurance Costs

## Basic Insurance Concepts

A **loss** occurs when an event happens resulting in someone losing something. If lightning strikes a house and destroys it, that is a loss. If someone is involved in an auto accident, but no damage is done to anyone or anything, there is no loss.

An **exposure** is a condition in which a loss may occur. Owning a home is an exposure, because it could burn down, or a guest might slip, fall, and get hurt. Owning a car is another example of an exposure, since the owner could be involved in an accident where someone could be injured or something could be damaged. Everyday activities such as participating in recreational events are also considered exposures, because someone could get injured.

**Risk** is the chance that a loss will occur. As exposure increases, risk also increases. A risk must have the element of **uncertainty**. The chance of a driver having a loss due to an auto accident is a risk. If something is certain to happen, it is not a risk. For instance, an event such as tires wearing out on a car after 50,000 miles of use is not a risk, because it is certain to happen.

A **peril** is the **reason** a loss occurred. It is also known as the **cause of loss**. Risk and peril are not the same. For example, **risk** is the **chance** a driver will have a crash. If a driver crashes into another vehicle, then collision is the **peril** that caused the loss.

## Hazards

A **hazard** is something that increases the likelihood a loss will occur. The terms **hazard** and **exposure** are similar—but different. An **exposure** is a condition in which a loss could occur, while a **hazard** increases the chance a loss could occur. For instance, owning and driving a car is an exposure. However, driving a car while intoxicated is a hazard, because it greatly increases the chance the driver will be involved in an accident. In other words, a hazard is something that causes an exposure to be much **greater** than it should be. As hazards increase, so does risk.

Hazards can be broken into two types—**moral** and **morale**. The difference between the two lies with the **intent** of the person(s) who created the hazard. A **moral hazard** is an increase in exposure resulting from

intentional and corrupt action. If someone intentionally sets their car on fire so they can collect the insurance money, the loss is a result of a moral hazard. On the other hand, a **morale hazard** is the result of a careless action. For instance, reckless driving and speeding are examples of morale hazards. The distinction is important, because auto insurance policies usually cover losses that result from morale hazards—but not for moral hazard losses.

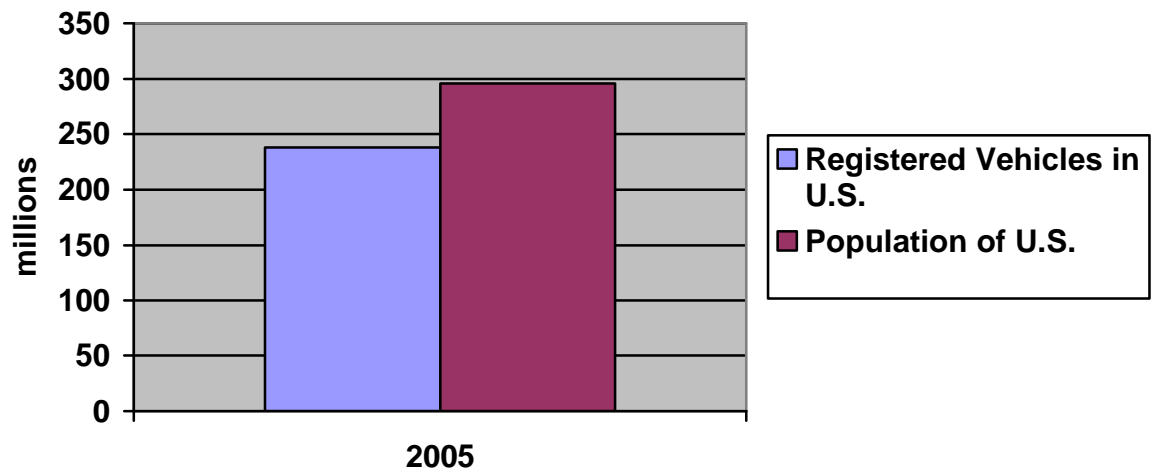
## Dependence on Automobiles

Motor vehicle travel is the primary means of transportation in the United States, providing an unprecedented degree of mobility.

We wouldn't need statistics to prove that Americans have an overwhelming dependence on automobiles: many would say they couldn't live without their "wheels." In 2005, vehicle miles driven in the United States was 2.965 trillion, a slight increase from 2004. The number of registered vehicles increased from 238 million in 2004 to 243 million in 2005—nearly one for every man, woman, and child in the United States.

The invention of the automobile has become a double-edged sword. It's been a blessing and also a curse for our society.

**FIGURE 1.1 — Number of Vehicles Compared to Number of People**



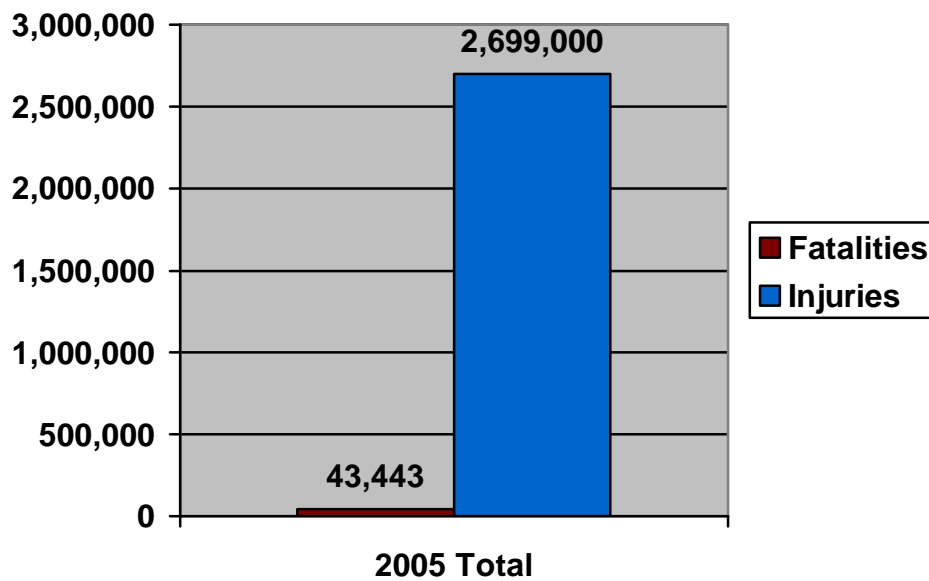
### Automobile Injuries & Deaths

Automobile crashes are the number one cause of death in the United States for every age from four through 33 (based on 2003 data). Traffic fatalities account for more than 90 percent of transportation-related fatalities. In April 2005, U.S. Transportation Secretary Norman Y. Mineta called the problem of highway traffic deaths, injuries, and costs a “national epidemic.” In April 2006, Mineta declared, “Every year this country experiences a national tragedy that is as preventable as it is devastating. We have the tools to prevent this tragedy—every car has a safety belt, every motorcycle rider should have a helmet and everyone should have enough sense to never drive while impaired.”

In 2005, 43,443 people were killed in the U.S. in the estimated 6,159,000 police reported motor vehicle traffic crashes. In 2005, the fatality rate per 100 million vehicle miles of travel was 1.47. (The 1995 rate was 1.73 per 100 million vehicle miles traveled.) The fatality rate per 100,000 population was 14.66 in 2005. An average of 119 persons died each day in motor vehicle crashes in 2005—one every 12 minutes.

In 2005, 2,699,000 people were injured in U.S. traffic accidents. The injury rate per 100 million vehicle miles of travel in 2005 was 91 and the injury rate per 100,000 population was 911.

**FIGURE 1.2 — U.S. Automobile Fatalities and Injuries in 2005**



## Financial Costs of Automobile Crashes

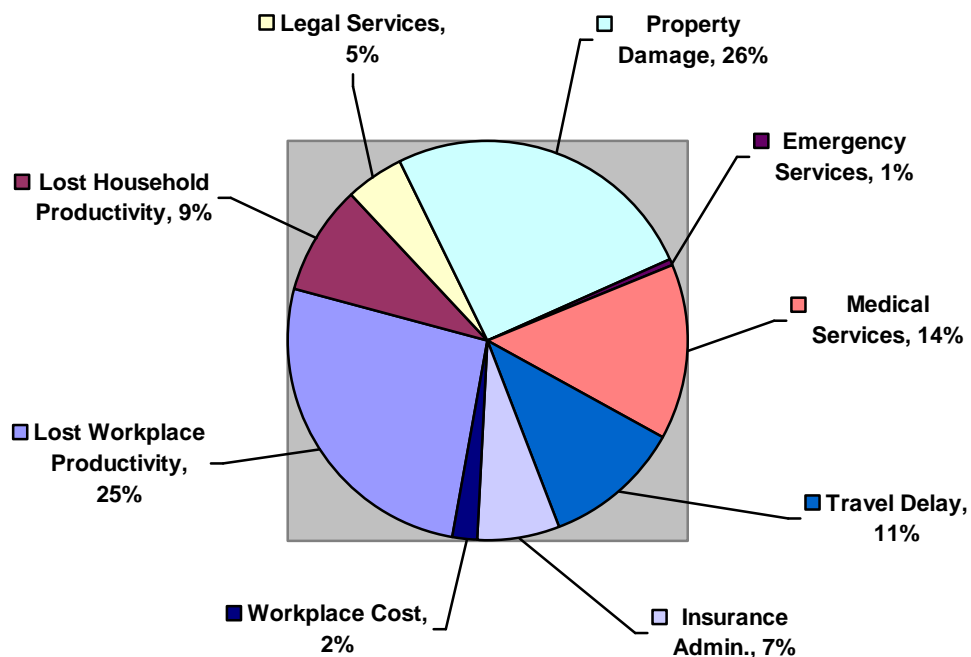
While the death and injury statistics are sobering and horrific, the financial costs of automobile accidents and the losses they cause are staggering.

In May 2002, the National Highway Traffic Safety Administration (NHTSA) released the **Economic Impact of Motor Vehicle Crashes 2000** report. It stated the total economic cost of motor vehicle crashes in the United States was \$230.6 billion. These figures include both police-reported and unreported crashes. The cost of \$230.6 billion includes productivity losses, property damage, medical costs, rehabilitation costs, travel delay, legal and court costs, emergency services (such as medical, police, and fire services), insurance administration costs, and the costs to employers. The cost of \$230.6 billion is equal to approximately \$820 for every person living in the United States and 2.3 percent of the U.S. Gross Domestic Product.

Lost workplace productivity costs totaled \$61 billion, which equaled 26 percent of the total costs. Lost household productivity totaled \$20.2 billion, representing 9 percent of the total costs.

Total property damage costs for all crash types (fatal, injury, and property damage only) totaled \$59 billion and accounted for 26 percent of all costs. Property damage only crashes (in which vehicles were damaged but nobody was injured) were the most costly type of crash, due to their very high rate of occurrence.

**FIGURE 1.3 — Costs of Automobile Crashes, Percent of Total (\$230.6 Billion)**



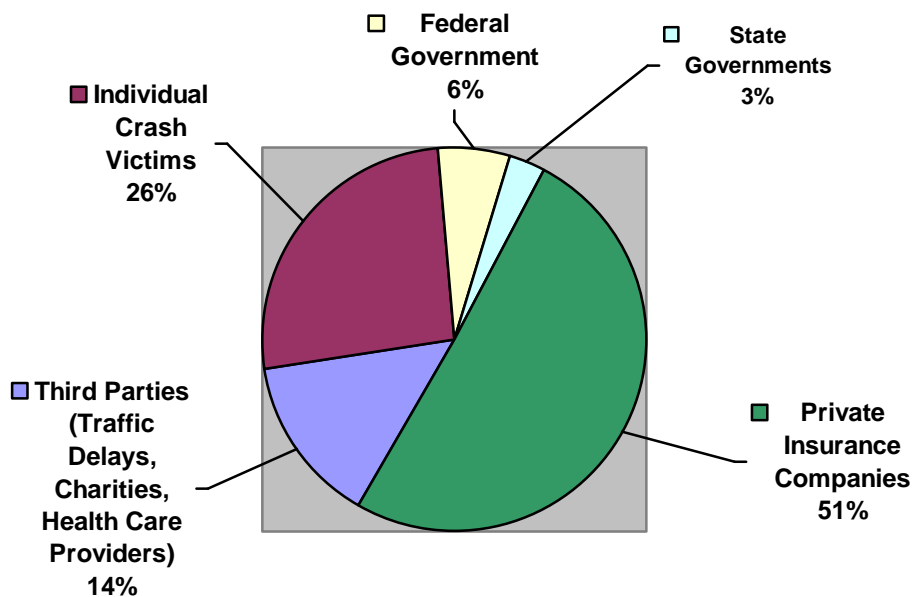
Present and future medical costs due to injuries occurring in 2000 were \$32.6 billion, representing 14 percent of the total costs. Medical costs accounted for 26 percent of costs from non-fatal injuries. Travel delay cost \$25.6 billion or 11 percent of total crash costs.

The lifetime economic cost to society for each fatality is over \$977,000. Over 80 percent of this amount is attributable to lost workplace and household productivity. Each critically injured survivor costs an average of \$1.1 million. Medical costs and lost productivity accounted for 84 percent of the cost for this most serious level of non-fatal injury.

### Who Pays for Automobile Crashes?

Private insurers pay approximately 51 percent of all costs—significantly affecting the pricing of automobile insurance. Individual crash victims pay approximately 26 percent while third parties such as uninvolved motorists delayed in traffic, charities, and health care providers pay about 14 percent. Approximately 9 percent of all motor vehicle crash costs are paid from public revenues. Federal revenues accounted for 6 percent and states and localities paid for approximately 3 percent. Overall, those not directly involved in crashes pay for nearly three quarters of all crash costs, primarily through insurance premiums, taxes and travel delay. In 2000 these costs, borne by society rather than by crash victims, totaled over \$170 billion.

**FIGURE 1.4 — Payers of Automobile Crashes, Percent of Total (230.6 Billion)**



## Insurance Industry Action

Since private insurers pay out approximately \$116 billion annually in automobile losses, they have a strong desire to reduce hazards and risks on the highway. Doing so improves public safety and fosters more stable financial results for insurance companies. By identifying and understanding automobile hazards, insurance professionals are able to make good underwriting decisions and identify better risk selection. This promotes public safety by rewarding good risks and penalizing poor risks—ultimately encouraging the public to drive safer cars and engage in safer driving habits.

Major goals of automobile insurers are to minimize underwriting losses and keep the price of automobile insurance affordable for consumers. By keeping underwriting losses to a minimum, insurers are able to more accurately predict future losses; this leads to more stability and avoids wide swings in financial results. The cost of automobile insurance is determined by numerous factors. The most significant of these factors include the cost and crashworthiness of automobiles and the abilities and habits of drivers.

For several decades, the insurance industry has worked to reduce crash costs and suffering by supporting safer cars and safe driving initiatives. Here are some examples:

- The Insurance Institute for Highway Safety (IIHS) was formed in 1969 by the insurance industry. This organization is an independent, nonprofit, scientific and educational organization dedicated to reducing the losses—deaths, injuries, and property damage—from crashes on the nation's highways. It is best known for its research, testing and reporting of automobile crashworthiness. The work by the IIHS has led to better vehicle designs that prevent and minimize injuries.
- Advocates for Highway and Auto Safety is an alliance of consumer, health and safety groups and insurance companies and agents working together to make America's roads safer. Advocates encourages the adoption of federal and state laws, policies and programs that save lives and reduce injuries. By joining its resources with others, Advocates helps build coalitions to increase participation of a wide array of groups in public policy initiatives which advance highway and auto safety.
- The Insurance Research Council (IRC) is a non-profit division of the American Institute for Chartered Property Casualty Underwriters and the Insurance Institute of America. Supported by leading property-casualty insurance organizations, the IRC provides timely and reliable empirical research to all parties involved in public policy issues

affecting risk and insurance.

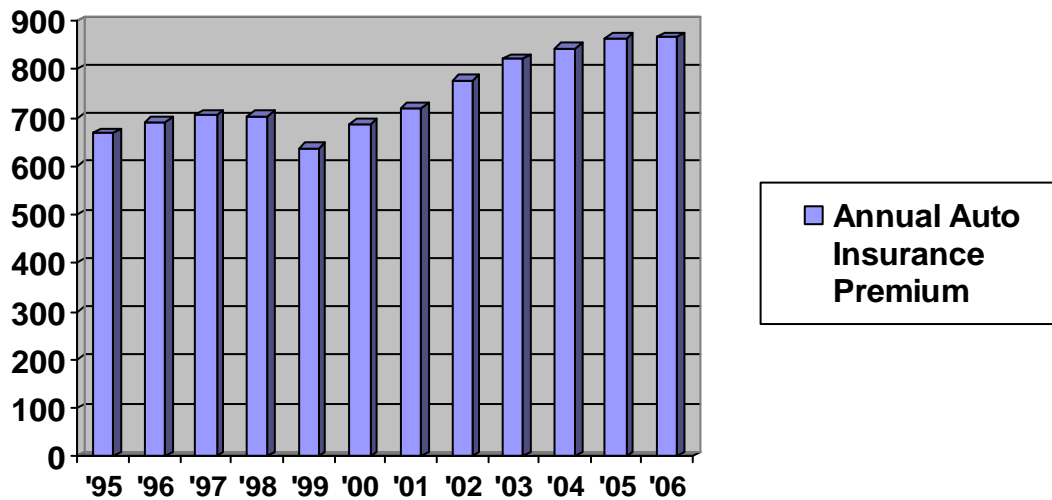
- The Partners for Child Passenger Safety (PCPS) was formed in 1997 by a unique partnership consisting of the Children's Hospital of Philadelphia, the University of Pennsylvania, and State Farm Mutual Automobile Insurance Company. This organization addresses an alarming national problem—motor vehicle crashes are the leading cause of death and disability in children over age one in the United States. The PCPS conducts research to determine how and why children are injured or killed in automobile accidents.

### Automobile Insurance Premiums

The cost of auto insurance rose about 0.5 percent in 2006, the smallest increase in six years, reports the Insurance Information Institute (I.I.I.) on its web-site [www.iii.org](http://www.iii.org).

The average annual cost for auto insurance nationwide for 2006 is estimated at \$867—an increase of just \$4 per vehicle from the year before, according to the I.I.I, despite record vehicle-related losses arising from the 2005 hurricane season. The projected increase represents a continued slowdown from 2005 when auto insurance costs rose by 2.5 percent.

**FIGURE 1.5 — Average Auto Insurance Expenditures in U.S.**



“The cost of auto insurance is increasing by about one-sixth the rate of inflation and little more than a single gallon of gasoline,” said Robert Hartwig, senior vice president and chief economist of the I.I.I. “Many people who, for example, drive safe cars, have excellent safety records and good credit-based insurance scores may see their rates go down, often by 3 to 5 percent

or about \$25 to \$50 per vehicle. This is welcome news for drivers who have been battered by record high gas prices over the past year," he added. "What's more," Hartwig said, "people who trade-in their expensive gas-guzzlers for smaller, more fuel efficient and less expensive vehicles may see even lower insurance costs in many cases. Smaller cars that cost less with fewer horsepower are often less expensive to insure because repair costs are less. Some insurers now even offer special discounts for hybrid vehicles. It may also pay to just leave the car at home. People who make the switch to public transportation may also qualify for lower insurance premiums if they no longer use the vehicle commuting and drive it significantly fewer miles each year," said Hartwig.

Hartwig cited the declining number of auto accidents, safer cars, new auto theft technology, fraud-fighting efforts and graduated licensing laws for teen drivers as additional key factors contributing to the cost slowdown. However, he observed that rising costs for medical care and vehicle repairs as well as defense costs and jury awards remain a problem, according to I.I.I.'s analysis. Potentially harmful restrictions on the use of credit-based insurance scores in several states are also a threat to millions of drivers. "Insurance scores are highly accurate predictors of future loss, allowing insurers to more accurately price insurance and create a more fair and equitable rating environment for all drivers. Efforts to ban scoring will lead directly to higher insurance rates for good drivers while, ironically, lowering rates for people who are involved in the most accidents," said Hartwig, adding that efforts by some states to restrict other underwriting factors that have been used by some insurers for decades could have a similar negative impact on policyholders.

"Unfortunately, while drivers today are filing fewer claims, those that are filed cost more," Hartwig said. "It costs more to repair cars, particularly following accidents involving sport utility vehicles."

Although the 2006 auto insurance annual premium in the United States was \$867, the actual premium an insured pays varies greatly from state to state. As a general rule, densely populated urban states have much higher auto insurance premiums than sparsely populated rural states. For example, the [www.iii.org](http://www.iii.org) web-site indicates that in 2004, New Jersey (\$1,221) and New York (\$1,171) had the highest premiums, and North Dakota (\$562) and Iowa (\$580) had the lowest.

The premium an individual driver pays also varies by insurance company and many other factors. According to the [www.iii.org](http://www.iii.org) web-site, factors that influence the cost of coverage may include:

- Type of car and specific safety features;

- Number of miles driven and type of driving;
- Family claim record, including the number of accidents and their severity;
- Driving record, including speeding tickets;
- Age, gender and experience of driver; and
- Credit-based insurance score.

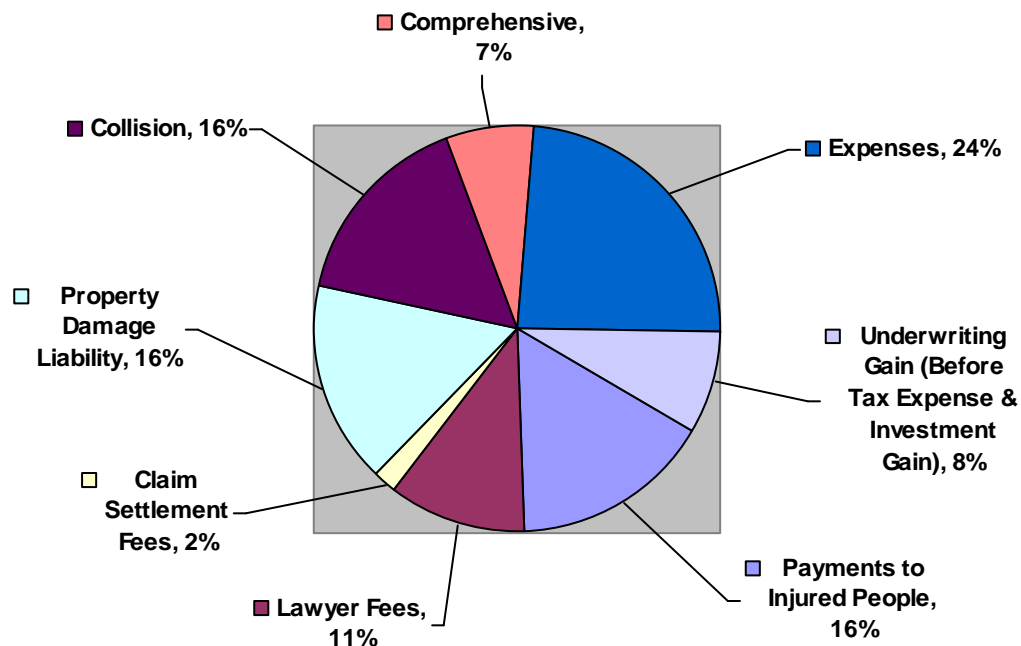
## Where do the Premiums Go?

In 2005 claims accounted for \$68 of every \$100 earned in private passenger auto insurance premiums in the United States, so states the [www.iii.org](http://www.iii.org) web-site.

Lawyers' fees accounted for \$11 out of every \$100 in premiums. Half of the fees went to plaintiffs' attorneys and the remainder to defendants' attorneys.

Theft accounted for about 25 percent of the dollars that go to pay comprehensive claims, or 2 percent of premiums earned for private passenger auto insurance.

**FIGURE 1.6 — Where Private Passenger Auto Premiums Go**



## Bodily Injury Claims

According to the [www.iii.org](http://www.iii.org) web-site, in 2006 insurers paid between \$15 and \$20 billion in medical claims. Higher costs for hospitalization and

pharmaceuticals, and state regulations that encourage abuse of medical treatments and associated legal costs are also to blame. "Collectively, these high costs in some states more than offset the decline in accident frequency, pushing overall rates upward," Hartwig observed.

Medical costs are an important factor in the auto insurance market. Each year more than three million car accidents involve injuries. More than one in four auto accidents resulted in injury claims in 2003, according to the Insurance Research Council (IRC).

The average cost of a bodily injury claim exceeded \$10,000 in 2005, but can easily run into the tens of thousands of dollars.

Higher jury awards in vehicular liability cases continue to put additional upward pressure on auto insurance rates. The average jury award in auto liability cases was \$261,000 in 2003, according to the most recent available data from Jury Verdict Research. "Auto insurance litigation is very expensive," said Hartwig. "In 2004 auto insurers spent more than \$4.1 billion defending policyholders from lawsuits brought against them. Auto liability issues are much more important than people realize," he continued. "About 60 percent of auto premiums paid in 2005—almost \$60 billion—was for liability coverage. As we look at 2006 and into 2007, we see this trend continuing."

## **Auto Theft & Fraud**

Auto theft is another significant factor that affects rates. According to the Federal Bureau of Investigation (FBI), an automobile is stolen every 26 seconds in the United States. While the number of auto thefts decreased by 1.9 percent in 2004, the first decrease in five years, there were still 1.24 million vehicles reported stolen. The good news is that preliminary FBI data for the first half of 2005 indicate that the auto theft rate fell by 2.1 percent. Declines were posted in every region except the West.

The I.I.I. reports that decreases over the past two years come on the heels of a 1.2 percent increase in auto thefts in 2003, 1.5 percent in 2002, 5.9 percent in 2001 and 0.7 percent in 2000. The nation's highest theft rates were found in the West and South, with the lowest rates occurring in the Midwest and Northeast. Automobile theft is a much bigger problem for some cities than others. Modesto, California, was the auto theft capital of the United States in 2004, with an auto theft rate nearly quadruple that of the country overall. Other problem cities include Las Vegas, Phoenix and Seattle.

New vehicle security devices, such as electronic tracking systems can help police find stolen vehicles and keep premiums down. Some insurers offer car

owners these tracking systems at a special price in combination with premium discounts.

Fraud and abuse remain major problems in some states, such as New York, Maryland, Florida and Massachusetts. However, crackdowns by law enforcement agencies and insurers have put a definite dent into organized insurance fraud.

## **Automobile Risks & Hazards**

It is important for insurance professionals to recognize which risks and hazards have the largest impact on automobile claims and losses—and to know their magnitude. It is essential to know the underlying root causes of these risks and hazards, their financial costs, explore ways to reduce them, and understand the trends that are occurring in our society. Armed with this knowledge, insurance professionals can better price their automobile insurance products and can more accurately underwrite individual risks.

Therefore, the remainder of this course will focus on some of the most significant topics regarding automobile risks and hazards: (a) impaired driving; (b) speeding & inattentive driving; (c) safety device underutilization; and (d) risk predictors.

## 2—Impaired Driving Risk

### Alcohol Involved Crashes

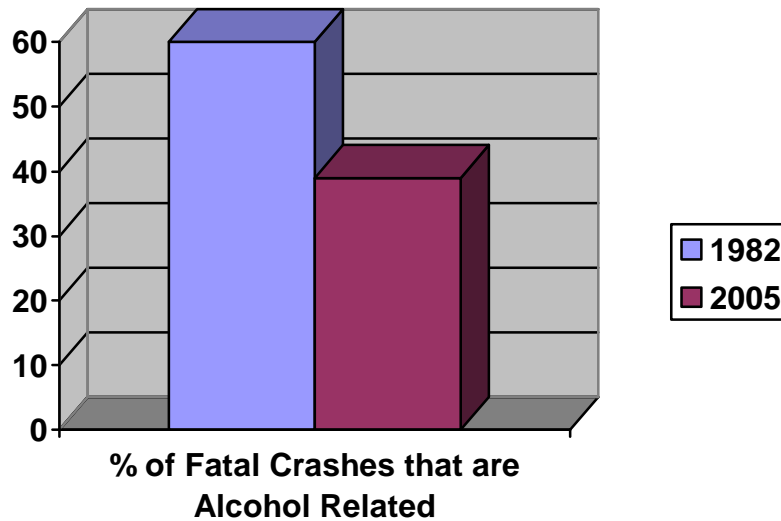
*Beer is living proof that God loves us and wants us to be happy.* Those words said by Benjamin Franklin more than 250 years ago symbolize the desire by many Americans to take pleasure in a beer while watching their favorite football team on TV, to enjoy a glass of wine with their meal, and a cocktail with friends after a hard day at work. Franklin said those words about 150 years before the invention of the automobile. Little did he know that some day his beloved beer would cause more than 10,000 Americans to lose their lives each year in traffic accidents. If Franklin were alive today, it's likely he would have some words of wisdom for us regarding the evils of drinking and driving.

Alcohol consumption is a major cause of motor vehicle crashes and injury. Historically, about half of all motor vehicle fatalities occur in crashes in which a driver or non-occupant has consumed a measurable level of alcohol prior to the crash, and of these cases, nearly 80 percent involved a level of consumption which met the typical legal definition for intoxication or impairment. In the last decade, there has been an increased awareness of the problems caused by impaired driving.

Many groups, from NHTSA to Mothers Against Drunk Driving (MADD), Students Against Destructive Decisions (SADD) and state and local agencies, have promoted the enactment of laws and implemented public awareness campaigns to assist in combating this problem. Legal measures such as administrative license revocation/suspension have been enacted in numerous states. As a result, there has been a marked decrease in the number of fatalities resulting from alcohol-involved crashes. Alcohol involvement in fatal crashes has declined from 60 percent of all fatalities in 1982 to 39 percent in 2005. While this decline is encouraging, alcohol still remains a significant causative factor in motor vehicle crashes.

In 2000, alcohol-involved crashes in the United States resulted in 16,792 fatalities (one death every 30 minutes), 513,000 nonfatal injuries, and \$50.9 billion in economic costs, accounting for 22 percent of all crash costs.

In 2005, overall alcohol-related fatalities increased 1.7 percent from 16,694 in 2004 to 16,972 in 2005.

**FIGURE 2.1 — Reduction in % of Fatal Crashes that are Alcohol Related**

## Facts about Alcohol

The amount of alcohol in a person's body is measured by the weight of the alcohol in a certain volume of blood. This is called the blood alcohol concentration, or "BAC."

Alcohol is absorbed directly through the walls of the stomach and the small intestine, goes into the bloodstream, and travels throughout the body and to the brain. Alcohol is quickly absorbed and can be measured within 30 to 70 minutes after a person has had a drink.

A typical drink equals about half an ounce of alcohol (.54 ounces, to be exact). This is the approximate amount of alcohol found in:

- one shot of distilled spirits, or
- one 5-ounce glass of wine, or
- one 12-ounce beer.

How fast a person's BAC rises varies with a number of factors:

- **The number of drinks**—the more you drink, the higher the BAC.
- **How fast you drink**—when alcohol is consumed quickly, you will reach a higher BAC than when it is consumed over a longer period of time.
- **Your gender**—women generally have less water and more body fat per pound of body weight than men. Alcohol does not go into fat cells

as easily as other cells, so more alcohol remains in the blood of women.

- **Your weight**—the more you weigh, the more water is present in your body. This water dilutes the alcohol and lowers the BAC.
- **Food in your stomach**—absorption will be slowed if you've had something to eat.

Medications or drugs will not change your BAC. However, if you drink alcohol while taking certain medications, you may feel—and be—more impaired, which can affect your ability to perform driving-related tasks.

Because of the multitude of factors that affect BAC, it is very difficult to assess your own BAC or impairment. Though small amounts of alcohol affect one's brain and the ability to drive, people often swear they are "fine" after several drinks—but in fact, the failure to recognize alcohol impairment is often a symptom of impairment.

While the lower stages of alcohol impairment are undetectable to others, the drinker knows vaguely when the "buzz" begins. A person will likely be too impaired to drive before looking—or maybe even feeling—"drunk."

## Drinking and Driving Risks

In October 2000, Congress passed, and the President signed into law, a provision making .08% BAC the national standard for impaired driving. States that did adopt .08% BAC laws by 2004 would have certain highway construction funds withheld. With Minnesota's .08% BAC legislation taking effect in August 2005, now all 50 States, the District of Columbia, and Puerto Rico have enacted .08% BAC laws.

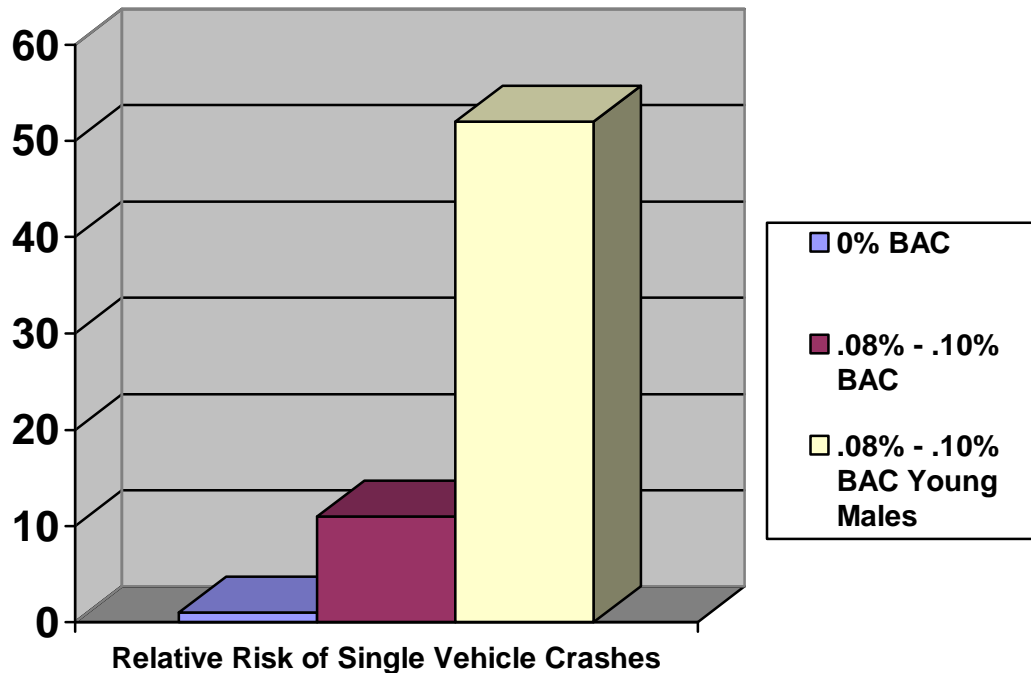
A driver also can be arrested with a BAC below .08% when a law enforcement officer has probable cause, based on the driver's behavior. To reach a BAC of .08%, an average man would have to have four drinks on an empty stomach in one hour—and an average woman would have to have three drinks on an empty stomach in one hour. One drink is defined as roughly a half an ounce of alcohol (generally one beer, one shot, or one glass of wine).

Alcohol steadily decreases a person's ability to drive a motor vehicle safely. The more you drink, the greater the effect. As with BAC, the signs of impairment differ with the individual.

Shown below are the predictable effects on driving at various levels of Blood Alcohol Concentration (BAC):

BAC	Predictable Effects for Most People
.02%	Some loss of judgment; relaxation; slight body warmth; altered mood; decline in visual functions (rapid tracking of a moving target); decline in ability to perform two tasks at the same time (divided attention)
.05%	Exaggerated behavior; may have loss of small-muscle control (e.g., focusing your eyes); impaired judgment; usually good feeling; lowered alertness; release of inhibition; reduced coordination; reduced ability to track moving objects; difficulty steering; reduced response to emergency driving situations
.08%	Muscle coordination becomes poor (e.g., balance, speech, vision, reaction time, and hearing); harder to detect danger; judgment, self control, reasoning, and memory are impaired; concentration; short-term memory loss; speed control; reduced information processing capability (e.g., signal detection, visual search); impaired perception
.10%	Clear deterioration of reaction time and control; slurred speech, poor coordination, and slowed thinking; reduced ability to maintain lane position and brake appropriately
.15%	Far less muscle control than normal; vomiting may occur (unless this level is reached slowly or a person has developed a tolerance for alcohol); major loss of balance; substantial impairment in vehicle control, attention to driving task, and in necessary visual and auditory information processing

According to NHTSA, in single-vehicle crashes, the relative risk of a driver with BAC between .08% and .10% is at least **11 times greater** than for drivers with a BAC of zero, and **52 times greater** for young males. Further, many studies have shown that even small amounts of alcohol can impair a person's ability to drive.

**FIGURE 2.2 — Risk of Drinking and Driving**

Although drinking drivers may experience impaired judgment, perceptions and reaction times, not all crashes in which alcohol was present were caused by alcohol. Crashes in which alcohol was the cause resulted in 13,570 fatalities, over 360,000 nonfatal injuries, and nearly \$40 billion in economic costs. This is approximately 80 percent of the alcohol-related fatalities and 78 percent of costs. It represents 32 percent of all fatalities and 17 percent of all costs from motor vehicle crashes.

The impact of alcohol involvement increases with injury severity. Alcohol-involved crashes accounted for 10 percent of property damage only (PDO) crash costs, 21 percent of nonfatal injury crash costs; and 46 percent of fatal injury crash costs.

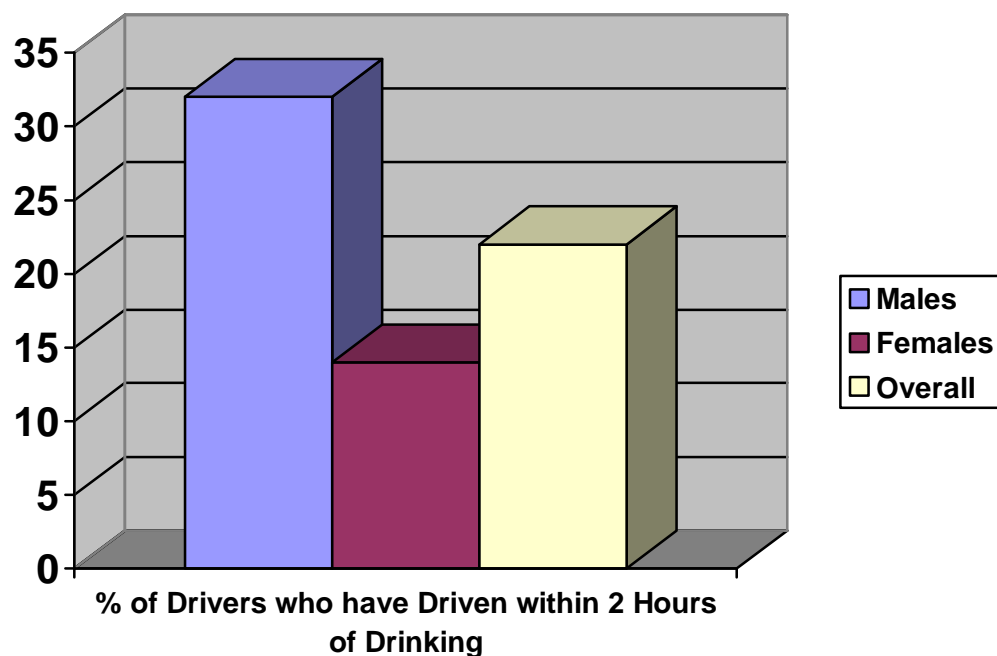
## Drinking and Driving Behavior

The National Highway Traffic Safety Administration (NHTSA) and the Gallup Organization conducts a nationally representative telephone survey periodically to measure the current status of attitudes, knowledge, and behavior of the general driving age public about drinking and driving. This survey tracks the nature and scope of the drinking-driving problem. Gallup conducted interviews with a national sample of 6,002 persons age 16 or older

in the United States between November 3 and December 23, 2001. The findings suggest that despite the public's continued concern about drinking and driving, progress in a number of key areas has slowed.

About 22% of the driving age public has driven a motor vehicle within two hours of consuming alcoholic beverages. Males are more than twice as likely to have driven within two hours of drinking as are females (32% vs. 14%). Adults age 21 to 29 are the most likely to be drinker-drivers (37% males and 20% female) driving within two hours of alcohol consumption. A vast majority (80%) of drunk drivers became intoxicated by consuming beer.

**FIGURE 2.3 —Drinking and Driving**



Drink-drivers (not necessarily drunk-drivers) make between an estimated 809 million and 1 billion driving trips within two hours of consuming alcohol every year. On average, the drink-drivers consume 2.6 drinks within the two hours prior to driving. When the amount of alcohol, timing of drinks, and weight and gender of the drinker are taken into consideration, 2.6 drinks relates to an average blood alcohol concentration (BAC) of .03%. About 5% are estimated to have a BAC of .08% or higher. Drinker-drivers under age 21 consume an average of 5.1 drinks prior to driving. While 16-20 year olds make only about 3% of all drinking-driving trips their BAC levels are nearly three times that of legal age drinkers.

Problem drinkers were defined as having consumed five or more drinks on four or more days in a month, or eight or more drinks on at least one day in

a typical month, or who answered yes to two or more of these questions (“Have you felt you should cut down on your drinking? Have people annoyed you by criticizing you about your drinking? Have you felt bad or guilty about your drinking? Have you had a drink first thing in the morning to steady your nerves or get rid of a hangover?”). Overall, about 11% of the drinking public over age 16 can be classified as problem drinkers. Problem drinkers make up 27% of past year drinking-drivers, accounting for about 46% of all trips in 2001 where driving occurred within 2 hours after drinking. On their most recent drinking-driving trip, problem drinkers were estimated to have a calculated BAC of about .05% compared to .02% for other drinking-drivers.

The NHTSA has convened an Integrated Project Team (IPT) to study the issue and develop a set of recommendations. The full report of the IPT, which recommends 16 separate initiatives covering a broad range of strategies, is posted on the agency’s web site at [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov). However, to regain momentum regarding this issue and achieve the greatest impact as quickly as possible, the agency has identified three priority strategies that are currently being emphasized: (1) high visibility enforcement; (2) support for prosecutors and DWI courts; and (3) alcohol screening and brief intervention.

## Drinking and Driving Attitudes

A majority (62%) of persons of driving age believe that they, themselves, should not drive after consuming two or more alcoholic beverages. Nearly all respondents (97%) said that drinking and driving is a threat to their personal safety, which is consistent with past surveys.

Half of drivers (50%) 16 or older who consume alcoholic beverages report at least one occasion where they refrained from driving when they thought they might have been impaired. This is more prevalent among persons under age 30. Most of these persons rode with another driver (63%).

The proportion of persons age 16-64 who have ridden with someone in the past year who they thought may have had too much alcohol to drive safely has declined significantly from about 15% in 1991 to 12% in 2001.

About one-third (32%) of persons of driving age have been with a friend who may have had too much to drink to drive safely, including half of those under age 30. Most of these (80%) tried to stop the friend from driving and were successful in preventing the impaired person from driving about 75% of the time.

One-third (33%) of those 16 or older have ridden with a designated driver in the past year, with those aged 16-29 most likely (54%), about the same as in the past two surveys. About four in ten drivers (41%) have acted as a

designated driver in the past year, consistent with 1999 levels. Designated drivers were reported to have consumed less than one-quarter of one alcoholic drink, on average, prior to driving.

About 1% of the driving age public report being arrested for impaired driving in the past two years. Males under age 30 were most likely to have been arrested (2%). Drinking-drivers are twice as likely, and problem drinkers were four times more likely, to have been arrested for drinking-driving violations.

Most drivers believe that once convicted of impaired driving for a first offense, drivers will receive a fine (46%) and/or a suspended or restricted license (41%). Only 20 percent think the person will go to jail. They generally feel that an impaired driver is more likely to have a crash than to be stopped by police, an increase since 1999. They feel that about 44% will get in a crash while the police will stop about 32%.

Seven out of ten (71%) feel that drinking-driving penalties should be much (43%) or somewhat more (27%) severe than they are now. Drinking-drivers are much less likely to want penalties to be more severe. About one in three (32%) have seen a sobriety checkpoint in the past year, a significant increase from 1995 and consistent with 1999. About 18% have been through a checkpoint themselves at least once. A majority (62%) feels that sobriety checkpoints should be used more frequently, maintaining support consistent with 1993, but lower than 1995 to 1999.

Over four of five (83%) have heard of blood alcohol concentration levels, but only 27% can correctly identify the legal BAC limit for their state. About six in ten (61%) feel that all or most drivers would be dangerous at the BAC limit in their state.

One in six (16%) persons of driving age were involved in a motor vehicle crash as a driver in the past two years. Drinker-drivers (19%) were more likely to have been in a crash than other drivers. Alcohol was involved in about 2% of all reported crashes, and in 4% of crashes by male drivers.

## **Auto Insurance & Alcohol**

Due to the appalling statistics regarding alcohol related auto crashes, insurers pay an enormous amount of attention to this risk factor. Many insurers have underwriting rules that reject applications from drivers who have driving under the influence (DUI) violations. If an existing insured is convicted of a DUI, the insurer might keep the risk but charge a considerably higher premium. A few companies have rules that reject drivers if they drink any alcohol whatsoever—even if they do not drink and drive. Some

companies even have alcohol exclusions and will not pay a claim if the cause of the accident was alcohol related.

## 3—Speeding & Inattentive Driving Risk

### Speed-Related Crashes

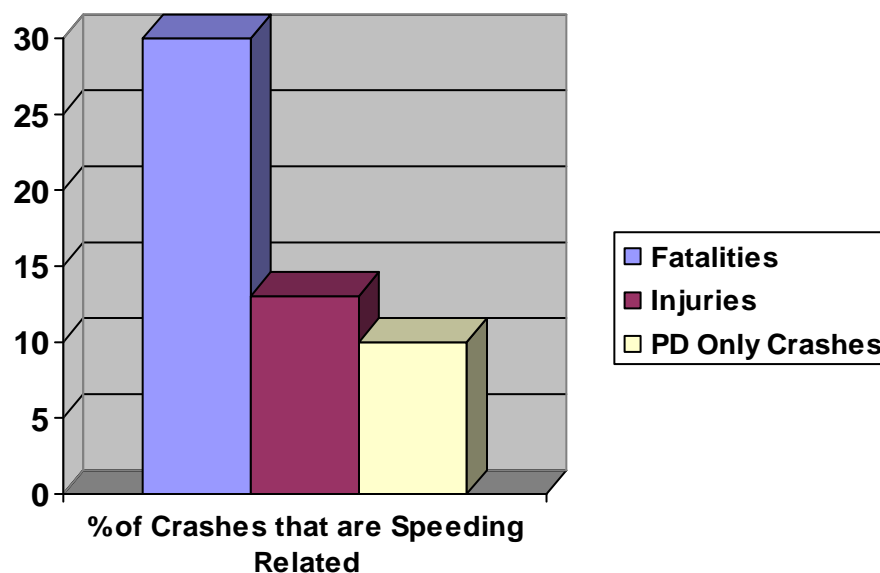
A speed-related crash is defined as any crash in which the police indicate that one or more drivers involved was exceeding the speed limit or driving too fast for conditions. NHTSA considers a crash to be speeding-related if the driver was charged with a speeding-related offense or if an officer indicated that racing, driving too fast for conditions, or exceeding the posted speed limit was a contributing factor in the crash.

Speeding is one of the most prevalent factors contributing to traffic crashes.

Crashes in which at least one driver was exceeding the legal speed limit or driving too fast for conditions cost \$40.4 billion in 2000—\$76,865 per minute or \$1,281 per second.

In the U.S. in 2005, speed-related crashes were associated with 13,192 fatalities, about 700,000 nonfatal injuries and damage to roughly 2.3 million vehicles in property damage only crashes. This represents 30 percent of all fatalities, 13 percent of all nonfatal injuries, and 10 percent of all property damage only crashes. Overall, speed-related crashes comprised 29 percent of all motor vehicle crashes and cost an average of \$144 for every person in the United States.

**FIGURE 3.1 — Speeding & Crashes**

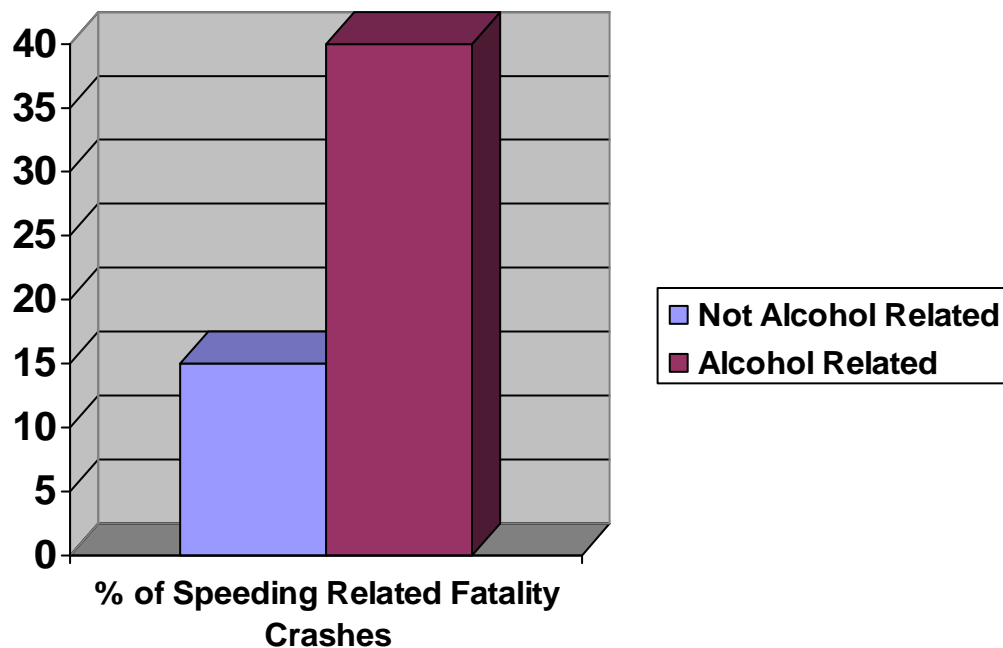


Excess speed can contribute to both the frequency and severity of motor vehicle crashes. At higher speeds, additional time is required to stop a vehicle and more distance is traveled before corrective maneuvers can be implemented. Speeding reduces a driver's ability to react to emergencies created by driver inattention, by unsafe maneuvers of other vehicles, by roadway hazards, by vehicle system failures (such as tire blowouts), or by hazardous weather conditions. The fact that a vehicle was exceeding the speed limit does not necessarily mean that this was the cause of the crash, but the probability of avoiding the crash would likely be greater had the driver or drivers been traveling at slower speeds.

For drivers involved in fatal crashes, young males are the most likely to be speeding. The relative proportion of speeding-related crashes to all crashes decreases with increasing driver age. In 2004, 38 percent of the male drivers age 15 to 20 who were involved in fatal crashes were speeding at the time of the crash.

Speeding and alcohol are clearly a deadly combination. Alcohol involvement is prevalent for drivers involved in speeding-related crashes. In 2004, 40 percent of the drivers with a blood alcohol concentration (BAC) of .08 grams per deciliter (g/dL) or higher involved in fatal crashes were speeding, compared with only 15 percent of the drivers with a BAC of .00 g/dL involved in fatal crashes.

**FIGURE 3.2 — Speeding & Alcohol**



Alcohol and speeding seem to go hand in hand. In 2004, 26 percent of the speeding drivers under age 21 who were involved in fatal crashes also had a BAC of .08 g/dL or higher. In contrast, only 12 percent of the non-speeding drivers under age 21 involved in fatal crashes in 2004 had a BAC of .08 g/dL or higher.

For drivers between the ages of 21 and 24 who were involved in fatal crashes in 2004, 49 percent of speeding drivers had a BAC of .08 g/dL or higher, compared with only 25 percent of non-speeding drivers.

For both speeding and non-speeding drivers involved in fatal crashes, the percentage of those who had been drinking, with a BAC of .01 g/dL or higher, at the time the crash occurred was higher at night than during the day. Between midnight and 3 a.m., 77 percent of speeding drivers involved in fatal crashes had been drinking.

In 2004, 36 percent of all motorcyclists involved in fatal crashes were speeding, approximately twice the rate for drivers of passenger cars or light trucks. The percentage of alcohol involvement was 31 percent higher for motorcyclists than for drivers of passenger vehicles.

In 2004, only 48 percent of speeding passenger vehicle drivers under age 21 who were involved in fatal crashes were wearing safety belts at the time of the crash. In contrast, 67 percent of non-speeding drivers in the same age group were restrained. For drivers age 21 and older, the percentage of speeding drivers involved in fatal crashes who were using restraints at the time of the crash was 44 percent, but 72 percent of non-speeding drivers in fatal crashes were restrained.

In 2004, 21 percent of speeding drivers involved in fatal crashes had an invalid license at the time of the crash, compared with 10 percent of non-speeding drivers.

Speeding was a factor in 29 percent of the fatal crashes that occurred on dry roads in 2004 and in 34 percent of those that occurred on wet roads. Speeding was a factor in 50 percent of the fatal crashes that occurred when there was snow or slush on the road and in 59 percent of those that occurred on icy roads.

Speeding was involved in 31 percent of the fatal crashes that occurred in construction/maintenance zones in 2004.

In 2004, 86 percent of speeding-related fatalities occurred on roads that were not Interstate highways.

## Auto Insurance & Speeding

As long as a driver has a valid driver's license, insurance companies generally do not reject a driver if they have speeding tickets. Nevertheless, insurers do charge higher premiums if the insured has speeding violations. Excess speeding (usually 20+ mph over the limit) is considered a major violation and can result in an even higher premium increase. Premium increases due to speeding generally last for three years.

## Inattentive Driving

In April 2006, the National Highway Traffic Safety Administration (NHTSA) and the Virginia Tech Transportation Institute (VTTI), released a landmark research report indicating that driver inattention is the leading factor in most crashes and near-crashes.

Nearly 80 percent of crashes and 65 percent of near-crashes involved some form of driver inattention within three seconds before the event. Primary causes of driver inattention are distracting activities, such as cell phone use, and drowsiness.

"This important research illustrates the potentially dire consequences that can occur while driving distracted or drowsy. It's crucial that drivers always be alert when on the road," said Jacqueline Glassman, acting administrator of NHTSA.

The 100-Car Naturalistic Driving Study tracked the behavior of the drivers of 100 vehicles equipped with video and sensor devices for more than one year. During that time, the vehicles were driven nearly 2,000,000 miles, yielding 42,300 hours of data. The 241 drivers of the vehicles were involved in 82 crashes, 761 near crashes, and 8,295 critical incidents. "The huge database developed through this breakthrough study is enormously valuable in helping us to understand—and prevent—motor vehicle crashes," said Dr. Tom Dingus, director of VTTI.

In addition, a follow-on analysis to the 100-Car Study has also been released. Focused on the types of driver inattention and their associated risk, key findings include:

- Drowsiness is a significant problem that increases a driver's risk of a crash or near-crash by at least a factor of four. But drowsy driving may be significantly under-reported in police crash investigations.
- The most common distraction for drivers is the use of cell phones. However, the number of crashes and near-crashes attributable to

dialing is nearly identical to the number associated with talking or listening. Dialing is more dangerous but occurs less often than talking or listening.

- Reaching for a moving object increased the risk of a crash or near-crash by 9 times; looking at an external object by 3.7 times; reading by 3 times; applying makeup by 3 times; dialing a hand-held device (typically a cell phone) by almost 3 times; and talking or listening on a hand-held device by 1.3 times.
- Drivers who engage frequently in distracting activities are more likely to be involved in an inattention-related crash or near-crash. However, drivers are often unable to predict when it is safe to look away from the road to multi-task because the situation can change abruptly leaving the driver no time to react even when looking away from the forward roadway for only a brief time.

The 100-Car Study and its follow-on analysis were co-sponsored by NHTSA, the Virginia Transportation Research Council (the research division of the Virginia Department of Transportation) and Virginia Tech.

## Cell Phone Use While Driving

According to the Insurance Information Institute ([www.iii.org](http://www.iii.org)), many studies have shown that using hand-held cell phones while driving can constitute a hazardous distraction. However, the theory that hands-free sets are safer has been challenged by the findings of several studies. A study from researchers at the University of Utah, published in the summer 2006 issue of *Human Factors*, the quarterly journal of the Human Factors and Ergonomics Society, concludes that talking on a cell phone while driving is as dangerous as driving drunk, even if the phone is a hands-free model. An earlier study by researchers at the university found that motorists who talked on hands-free cell phones were 18 percent slower in braking and took 17 percent longer to regain the speed they lost when they braked.

A September 2004 study from the NHTSA found that drivers using hand-free cell phones had to redial calls 40 percent of the time, compared with 18 percent for drivers using hand-held sets, suggesting that hands-free sets may provide drivers with a false sense of ease.

According to [www.iii.org](http://www.iii.org), the number of state legislatures debating measures that address the problem of cell-phone use while driving and other driver distractions continues to rise. According to the National Conference of State Legislatures, as of November 2006, 14 states had passed laws banning or restricting young drivers from using cell phones.

The city of Chicago has banned the use of hand held cell phones while driving, imposing penalties of \$50 or \$200 (the latter if the driver is involved in an accident). In October 2005 a Connecticut law banning the use of hand-held cell phones while driving went into effect. The measure goes further than some similar laws in other states and municipalities. Drivers in Connecticut can be fined \$100 not only for using a cell phone, but those pulled over for speeding or other moving violations can be fined for other driving distractions such as putting on makeup or turning to discipline children in the back seat. In January 2004 New Jersey passed a bill prohibiting the use of cell phones while driving and in April of that year the District of Columbia (DC) followed suit. In New Jersey fines range between \$100 and \$250; in DC fines are \$100. New York was the first state to enact such legislation in 2001. Drivers there face fines of \$100 for the first violation, \$200 for the second and \$500 thereafter.

The Insurance Information Institute ([www.iii.org](http://www.iii.org)) reports that in June 2003 federal and state highway safety agencies issued new guidelines for reporting crashes caused by distracted drivers. The authorities are asking police across the nation to note whether a driver was distracted and the source of the distraction, such as cell phone, radio, passenger, or another vehicle.

As many as 40 countries may restrict or prohibit the use of cell phones while driving. Countries reported to have laws related to cell phone use include Australia, Austria, Belgium, Brazil, Botswana, Chile, the Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Jordan, Kenya, Malaysia, the Netherlands, Norway, the Philippines, Poland, Portugal, Romania, Russia, Singapore, the Slovak Republic, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, Turkmenistan, the United Kingdom and Zimbabwe. Most countries prohibit the use of hand-held phones while driving. Drivers in the Czech Republic, France, the Netherlands and the United Kingdom may use cell phones but can be fined if they are involved in crashes while using the phone. Drivers in the United Kingdom and Germany also can lose insurance coverage if they are involved in a crash while talking on the phone.

Although only a handful of high-profile cases have gone to court, employers are still concerned that they might be held liable for accidents caused by their employees while driving and conducting work-related conversations on cell phones. Under the doctrine of vicarious responsibility, employers may be held legally accountable for the negligent acts of employees committed in the course of employment. Employers may also be found negligent if they fail to put in place a policy for the safe use of cell phones. In response, many companies have established cell phone usage policies. Some allow employees to conduct business over the phone as long as they pull over to the side of the road or into a parking lot. Others have completely banned the use of all

wireless devices.

In July 2004, the California Association of Employers recommended that employers develop a cell phone policy that requires employees to pull off the road before conducting business by cell phone.

In December 2004 a civil case involving a car crash caused by a driver using a cell phone for business reasons was dismissed when the driver's employer, Beers Skanska Inc., agreed to pay the plaintiff \$5 million. The plaintiff in the case being heard in Georgia's Fulton County Superior Court was severely injured in the crash. The suit is among the most recent of several cases where an employer has been held liable for an accident caused by a driver using a cell phone.

In mid-October 2004 in the case of Yoon v. Wagner, a Virginia jury awarded \$2 million in damages to the family of a young girl who was killed by a driver using a cell phone at the time of the accident. The plaintiff also filed a suit against the driver's employer after it became clear through an examination of phone records that the driver had been talking to a client when she hit the girl.

### **Auto Insurance & Inattentive Driving**

U.S. auto insurers generally do not have any specific exclusions, underwriting, or rating rules specifically aimed at cell phone use. However, if a driver violates a cell phone use law or is ticketed for inattentive driving, he/she will likely see an auto insurance premium increase that probably will last for three years.

## 4—Safety Device Underutilization Risk

### Safety Belt Use

According to NHTSA, safety belt non-use represents an enormous lost opportunity for injury prevention. In the year 2000 alone, over 9,200 persons were killed and 143,000 were injured unnecessarily because they failed to wear their safety belts, costing society \$26 billion.

On the bright side, in the year 2000, safety belts prevented 11,900 fatalities and 325,000 serious injuries, saving \$50 billion in medical care, lost productivity, and other injury related costs.

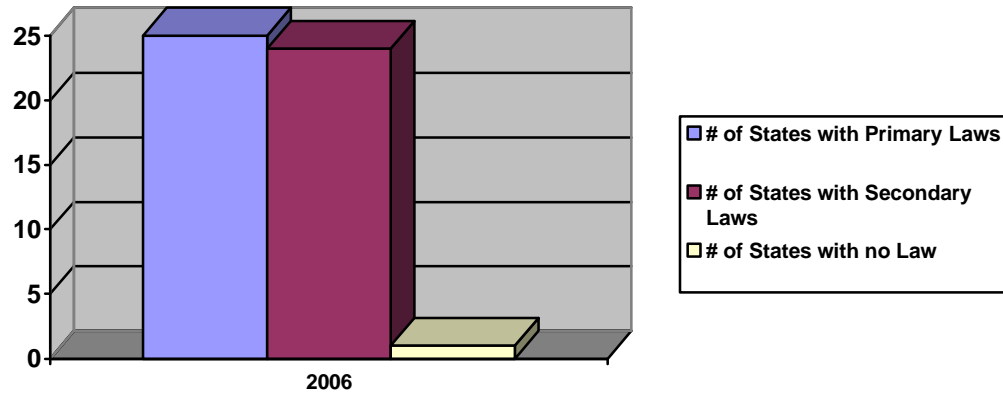
Over the last 26 years, safety belts have prevented 135,000 fatalities and 3.8 million injuries. This saved society \$585 billion in medical care, lost productivity, and other injury related economic costs. During the same time period, nearly 315,000 additional fatalities and 5.2 million serious injuries could have been prevented by safety belts if all occupants had used them. This represents an economic loss of \$913 billion in unnecessary expenses and lost productivity.

When properly fastened, safety belts provide significant protection to vehicle occupants involved in a crash. The simple act of buckling a safety belt can improve an occupant's chance of surviving a potentially fatal crash by from 45 to 73 percent, depending on the type of vehicle and seating position involved. They are also highly effective against serious nonfatal injuries. Belts reduce the chance of receiving moderate to critical injuries by 44 to 78 percent. The effectiveness of safety belts is a function of vehicle type, restraint type, and seat position.

Although all passenger vehicles have been equipped with safety belts since 1968, a sizable minority of vehicle occupants still neglect to use these devices. It is estimated that in 1984, only about 14% of occupants wore safety belts. In 1994 safety belt usage was about 58 percent—ten years later in 2004 it had risen to about 80 percent. The steady rise is largely in response to public education programs sponsored by state and Federal safety agencies, as well as private consumer and safety advocacy groups. A major factor in this increase has been the passage of safety belt use laws. As of September 2006, all states except New Hampshire have some form of adult usage law. These laws can take the form of either primary enforcement laws, under which police can stop drivers specifically for failing to wear safety belts, or secondary laws, under which fines can only be levied if a driver is stopped for some other offense. As of September 2006, 24 states have

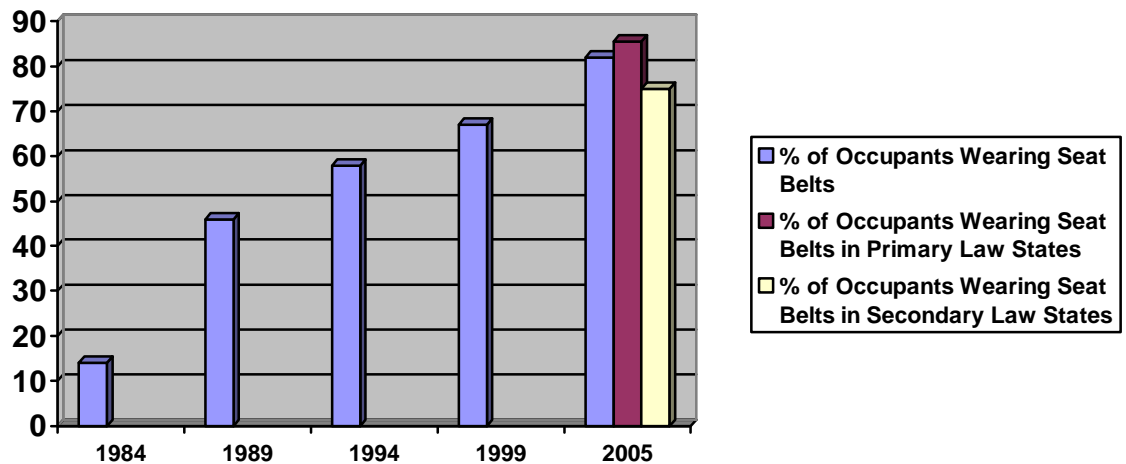
secondary laws, while 25 states have primary laws.

**FIGURE 4.1 — Safety Belt Laws**



Primary enforcement laws are far more effective in increasing safety belt use. Experience in a number of states indicates that usage rates rise from 10-15 percentage points when primary laws are passed. For example, usage in California jumped from 70 percent to 82 percent when a primary law was passed in 1993. Similar impacts occurred in Louisiana where usage rose 18 points, in Georgia where usage rose 17 points, in Maryland where usage rose 13 points, and in the District of Columbia where usage rose 24 points when they combined a new primary enforcement law with penalty points. Recent surveys show the average use rate for primary law states was 85.5 percent and 75 percent for secondary law states.

**FIGURE 4.2 — Safety Belt Use**



## Teen Belt Use

Teens have lower safety belt use rates than adults. In 2003, 63 percent of 16- to 20-year-old passenger vehicle occupants were unrestrained in fatal crashes, compared to 55 percent of unrestrained fatally injured adults 21 or older.

To address this problem, many states have developed and implemented traffic safety programs focusing on belt use among teens. These programs vary considerably in their strategies and levels of success. In an effort to identify the most effective approaches to increasing teen belt use, NHTSA sponsored a project that reviewed the scientific literature and relevant traffic safety programs. The Pacific Institute for Research and Evaluation conducted these reviews and prepared a report that presents the magnitude of the problem of teen safety belt use and summarizes programs, interventions, and strategies that can potentially increase safety belt usage by teens.

Research has demonstrated that primary safety belt laws, if highly publicized, increase safety belt usage in the general population. NHTSA recently estimated that adopting primary safety belt laws raises safety belt use by 11 percentage points. This strategy may have the greatest effect on teen safety belt usage as well.

A majority of states have adopted graduated driver licensing (GDL) laws with three phases of licensure. Some of these GDL laws either include safety belt usage as a provision, or provide for sanctions if a safety belt violation occurs. However, most teens and parents are not aware of this GDL requirement. For example, in a recent North Carolina study, 92 percent of parents and 96 percent of teen drivers were aware of nighttime restrictions in the GDL law; 82 percent of parents and 86 percent of teen drivers were aware of the passenger restrictions. Only 5 percent of parents and 3 percent of teen drivers, however, were aware of a safety belt requirement in North Carolina's GDL law, and that a safety belt violation would adversely affect their graduation to the next phase in the GDL program. If states publicize GDL safety belt requirements and consequences for safety belt violations, this element of GDL could substantially increase safety belt usage by teens in the future.

The highly publicized Click It or Ticket (CIOT) mobilizations have demonstrated safety belt usage will increase even in secondary enforcement States. If CIOT enforcement is tailored to young drivers (e.g., near high schools, colleges, and recreational facilities) and is publicized over youth-oriented radio and television stations (e.g., MTV), teen drivers may start wearing their safety belts more often.

While legislation, public information and education, and enforcement are all sound approaches to addressing teen safety belt usage, previous research and NHTSA demonstration projects indicate that combining these approaches provides the best strategy for influencing behavior. A combined approach might include strengthening the safety belt laws in a given State, educating the public, publicizing the new or existing law, enforcing the law, and working with community organizations to provide outreach to the citizens.

While enhanced safety belt reminders such as buzzers, lights, and messages on the dashboard target the general population, they may be particularly effective for teen drivers. This may be because teens have a lower safety belt use rate to begin with, they tend to “forget” to buckle up when other teens are in the car, and they are probably less likely to disengage such systems. Some parents may want to purchase cars for their teens equipped with reminder systems to ensure or enhance safety belt usage.

Other technological solutions hold great promise for the future. Enhanced safety belt reminders appear to be effective for all age groups. Safety belt use recorders could allow parents and caregivers to monitor teens’ behavior, if accepted by the public. Interlock systems, such as not allowing the radio or compact disk player to turn on until all passengers are wearing safety belts also hold promise in influencing teen safety belt use.

In-vehicle computer systems already exist to record and monitor safety belt usage, speed, and other behaviors. If parents purchase vehicles for their teens equipped with these monitors, use of the systems could increase teen safety belt usage substantially.

Peer-led educational and awareness approaches hold promise in changing youth norms and attitudes about safety belt usage. It is unclear whether this leads to sustained high usage rates. However, there is some evidence that youth-initiated monitoring of safety belt usage has a modest effect on teen belt usage.

Mothers Against Drunk Driving (MADD) and other organizations have developed multimedia shows for schools that attempt to persuade youth to wear safety belts and not engage in underage drinking. Preliminary evaluation of some of these shows, which include a peer-to-peer message, indicate that self-reported safety belt use has increased for students exposed to them. There is no supporting observational data to date.

At least one study showed that brief counseling in a medical setting increases self-reported safety belt use by teens. If medical professionals introduce brief interventions at medical settings more frequently to reduce abusive drinking and impaired driving, they might also be effective in increasing safety belt

use, especially by youth.

Parents talking to teens about safety belt use, without supporting activities, probably will not be effective. However, parental communication combined with close monitoring and supervision of teen driving behavior could have an effect. Teens report that their parents have more influence over them than parents think. For example, one state observational survey showed that youths age 5 to 15 wore safety belts 72 percent of the time; however, when an adult driver used a safety belt, 5- to 15-year-old passengers were restrained 85 percent of the time. Other public health areas have indicated that parents can have an influence on risk-taking behavior (e.g., smoking). This strategy has potential for increasing teen safety belt use.

### **Public Opinion Regarding Safety Devices**

The National Highway Traffic Safety Administration (NHTSA) conducts a national telephone survey approximately every two years to monitor the public's attitudes, knowledge, and self-reported behavior regarding occupant protection devices (safety belts, child restraints, air bags). The 2003 survey consisted of two questionnaires, each administered to a randomly selected sample of about 6,000 persons age 16 and older. Interviewing ran from January 8, 2003 to March 30, 2003.

The percentage of drivers with air bags in their primary vehicles has continued to increase. In 2003, 77 percent reported air bags in their primary vehicles, compared to 67% in late 2000. Usually the vehicle had an air bag in front of both the driver and front seat passenger (63 percent) as opposed to driver only (12 percent). Seven percent of vehicles had air bags in other locations within the vehicle as well. Some persons were unsure as to the presence or location of air bags in their motor vehicles.

Most of the public (87 percent) said they would prefer to have air bags in their next vehicle, and another 4 percent were unsure. The percentage has been steadily rising since 1996, when the question was first asked. In 1996, 72 percent said they would prefer air bags in their next vehicle.

More than half the population (53 percent) said they felt safer in motor vehicles with air bags than in motor vehicles without air bags. Most others said they felt about the same (38 percent). Five percent felt less safe and 4 percent were unsure. Nearly nine in ten persons believed an air bag would provide either a lot (36 percent) or some (53 percent) protection in a crash involving major motor vehicle damage.

Air bags and safety belts are two parts of a vehicle's passenger safety system. Safety experts emphasize that drivers and passengers should always

wear their safety belts, regardless of whether or not the vehicle contains an air bag. The overwhelming majority of the public (95 percent) knew that the presence of air bags does not substitute for safety belt use. The percentage was slightly higher among drivers who had air bags in their motor vehicles (97 percent).

Also, reported belt use was higher among drivers having air bags in their primary vehicles: 85 percent said they used safety belts “all the time” while driving as opposed to 80 percent of drivers not having air bags.

Even though 87 percent of the public would prefer an air bag in their next vehicle, many (43 percent) still expressed concerns about the safety of air bags.

Females (47 percent) were more likely to have safety concerns than were males (37 percent). When asked what concerns they had, the respondents tended to refer specifically to injuries from air bags, or else describe some functional characteristic of the air bag that they considered a safety issue. Many of those having concerns explicitly mentioned injuries to children (26 percent) or to adults (37 percent).

The majority of the public believed that an adult sitting in the front seat would somewhat likely or very likely be injured by an air bag that deployed in a normal manner. However, they were more likely to believe that an injury would occur if the adult was unbelted (78 percent) rather than wearing a safety belt (53 percent). Children were considered particularly vulnerable to injury from air bags, with 85 percent believing a small child sitting in the front seat would very likely (64 percent) or somewhat likely (21 percent) be injured by an air bag opening normally.

The 2003 survey asked a detailed set of child car seat questions to a sub-sample of parents of children under age 9, and non-parents living with children under age 9 who at least sometimes drove with those children. The questions were asked of those members of the sub-sample for whom a specific child was identified that was using a child car seat. Almost all (99 percent) knew that the back seat is the safest place in the vehicle to place a child’s car seat. Yet, 6 percent still usually placed the car seat in the front.

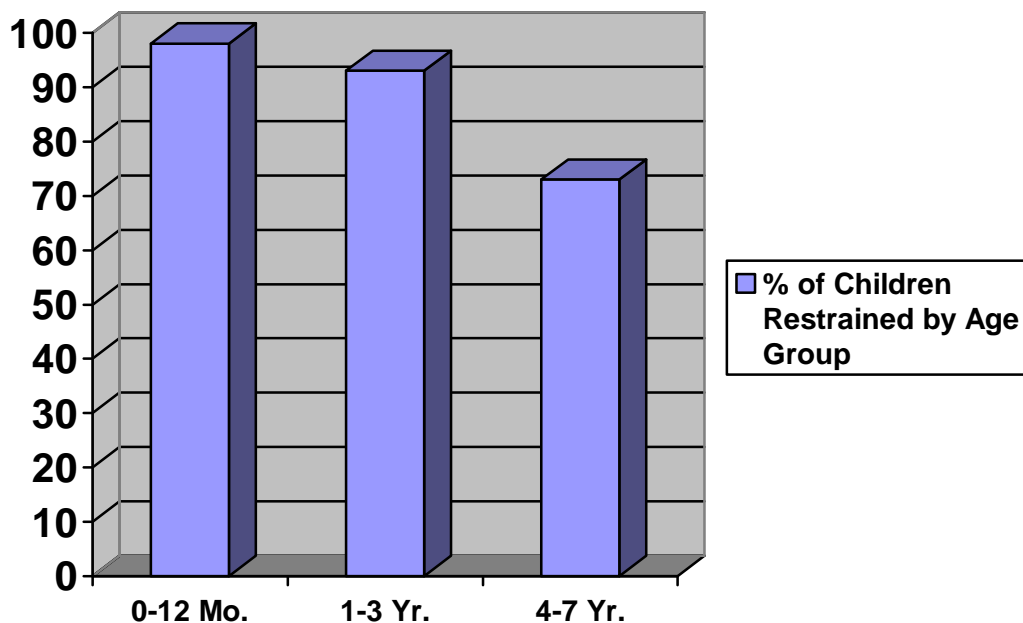
The percentage dropped to 3 percent if the respondent’s primary vehicle had a passenger frontal air bag. Most (92 percent) knew that it was unsafe to place a rear-facing car seat in the front seat of a motor vehicle having a passenger air bag. However, 3 percent erroneously believed it was safe and 4 percent were unsure.

## **NOPUS Child Restraint Study**

Infants and toddlers continue to be restrained at high use levels when riding in motor vehicles, while use among children ages 4-7 has declined. This result is from the National Occupant Protection Use Survey (NOPUS), which provides the only probability-based observed data on child restraint use in the United States. The NOPUS is conducted by the National Center for Statistics and Analysis in the National Highway Traffic Safety Administration (NHTSA).

Specifically, 98% of infants and 93% of children ages 1-3 observed in passenger vehicles stopped at a stop sign or stoplight in 2004 were restrained in some type of restraint, whether a rear or front facing safety seat, a booster seat, or a safety belt. In contrast, only 73% of children ages 4-7 were restrained, down from 83% two years ago.

**FIGURE 4.3 – Child Restraint Use**



The 2004 survey also found the following:

- Drivers who restrain themselves continue to be more likely to restrain their child passengers. In 2004, 86% of 0-7 year old children driven by belted drivers were restrained, compared to 50% for children with unbelted drivers. This suggests that getting adults to buckle up may also result in more restrained children.
- In 2004, there was marked improvement in placing child passengers in the rear seat, away from the possible harm of a front seat air bag.

However, older children continue to be in the front seat far too often, with 14% of children ages 4-7 observed in the front seat.

- The survey found mixed results on the types of restraints used for children. Fewer infants are being prematurely graduated to front facing safety seats and fewer children ages 1-3 to booster seats, but more infants were restrained in safety belts and backless booster seats.

## **NHTSA Child Restraint Systems Misuse Study**

NHTSA awarded a contract in fall 2001 whose objective was to obtain a measure of the current level of Child Restraint System (CRS) misuse among the general public. The study convened a group of experts to identify “critical” misuses, defined as forms of misuse that could reasonably be expected to raise the risk of injury to a child in the event of a crash. The critical misuses composed the overall misuse measure for the study. The critical misuse measures were:

- Age and weight appropriateness of CRS;
- Direction of CRS;
- Placement of CRS in relation to air bags;
- Installation and secureness of CRS to the vehicle seat (tight safety belt);
- Secureness/tightness of harness straps and crotch strap of the CRS;
- Use of locking clip for certain vehicle safety belts;
- Fit of vehicle safety belt across child in belt-positioning booster seat; and
- Defective or broken CRS elements.

Six States were selected in which to conduct observations: Arizona, Florida, Mississippi, Missouri, Pennsylvania, and Washington. Each State had a State site coordinator (SSC) who was responsible for the data collection effort in that State, including arranging sites, hiring field staff, and setting up quality control procedures. All SSCs were nationally certified CPS instructors/technicians. Data collection began late September 2002 and concluded early January 2003. The observation sites spanned diverse socioeconomic and demographic characteristics. Children under 80 lbs formed the target group. Field observation sites were primarily parking areas at community shopping centers, child merchandise department stores, fast

food restaurants, health and medical facilities, and community events. The inspection sites were unannounced in order to avoid a self-selected sample of parents who had made a planned decision to go to a location to have a seat checked.

The field teams collected data on restraint use by 5,527 children under 80 lb in 4,126 vehicles. Among the key findings of the study:

- 72.6 percent of 3,442 observed CRSs displayed one or more critical misuses. The most common misuses were loose vehicle safety belt attachment to the CRS and loose harness straps securing the child to the CRS. The level of misuse was greatest for CRSs appropriate for infants and toddlers: 83.9 percent of 497 infant seats, 83.5 percent of 140 rear-facing convertible seats, 81.9 percent of 1,247 forward-facing convertible seats, and 79.3 percent of 766 forward-facing-only seats.
- 71.5 percent of 4,698 children under 60 lb in the current study were observed using a CRS compared to 50.6 percent of 5,865 children under 60 lb in the earlier NHTSA study. The increase in CRS use corresponded with a decrease in children using safety belts alone (without use of a child restraint), from 36.6 percent to 19.0 percent. Thus, comparison between the two studies suggested that children were being kept in CRSs longer.
- 11.8 percent of the children observed in the study were not using any type of occupant restraint (CRS or safety belt). Among children 60-to-79 lb, almost one-in-four (24.2 percent) was unrestrained.

## Child Safety Recommendations

Most new cars have air bags for front-seat passengers. When used with safety belts, air bags work very well to protect older children and adults. Air bags do not work with rear-facing child seats (those used with infants). Airbags could seriously injure or even kill an unbuckled child or adult who is sitting too close to the air bag or who is thrown toward the dash during emergency braking. In a crash, the air bag inflates very quickly. It could hit anything close to the dashboard with enough force to cause severe injuries or even death. Because the back of a rear-facing child seat sits very close to the dashboard, the seat could be struck with enough force to cause serious or even fatal injuries to a baby. Even older children (who have outgrown child seats) are at risk from a deploying air bag, if they are not properly restrained.

The rear seat is the safest place for children of any age to ride. An infant in a rear-facing child seat must ride in the back seat if the vehicle has a

passenger air bag. Everyone in the front seat must be properly buckled up and seated as far back from the air bags as is reasonably possible. All young children must be properly secured in an age and size appropriate restraints.

NHTSA recommends the following concerning the type of restraint that children should use when traveling in motor vehicles:

- Children under one year of age should be in a rear facing safety seat.
- Children older than one year who are between 20 and 40 pounds should be in a front facing safety seat.
- Children who have exceeded the height or weight limit for their forward-facing safety seat, are less than eight years old, and are less than 4'9" tall should be in a booster seat.

## **Air Bags**

Frontal air bags have been standard equipment in all passenger cars since model year 1998 and all SUV's, pickups and vans since model year 1999.

Side air bags (SABs) are being offered as standard or optional equipment on many new passenger vehicles. SABs can provide significant safety benefits to adults in side impact crashes. NHTSA estimates that if all the vehicles on U.S. roads were equipped with head protection SABs, 700 to 1,000 lives would be saved per year in side impact crashes. NHTSA also estimates that, in side-impact crashes involving at least one fatality, nearly 60 percent of those killed have suffered brain injuries.

## **Auto Insurance & Safety Devices**

Auto insurance policies do not contain exclusions for non-use or misuse of vehicle safety devices. Insurance claims are paid regardless of whether or not the occupants were buckled or if the vehicle had a passive restraint device.

Most automobile insurers provide a credit for a policy on a car that has air bags, automatic safety belts, or other safety features that don't have to be turned on or activated manually. These automatic features reduce the risk of injury and are known as "passive" restraints since they are reactive devices. However, the discount usually only applies to the coverages relating to the injuries of occupants of the insured's vehicle—such as Medical Expense (or Personal Injury Protection in some states), Uninsured Motorist, Underinsured Motorist, and Accidental Death and Dismemberment.

## 5—Risk Predictors

### Use of Risk Predictors

Is discrimination legal in insurance underwriting? Yes, it is. Although insurance companies steer clear of discrimination based on race, ethnicity, religion, and sexual orientation, they have practiced other forms of legal underwriting discrimination for many years. For decades, it has been common practice for auto insurers to charge premiums based on driver age, gender, marital status, and location.

Actuarial data clearly shows that young drivers (especially unmarried males) and people who live and drive in highly congested urban areas are involved in more accidents than other people. Most auto insurance companies use this data to determine rates—not for risk selection. Therefore, a 17 year old unmarried male living in Detroit will not be denied auto insurance, but all other factors being equal, he will certainly pay much more than a 40 year old woman living in Minot, North Dakota.

Within the past few years, armed with supporting actuarial data, many auto insurers have also introduced credit based insurance scores as a rating factor. Some consumer groups are opposed to credit based insurance scoring, because they say it unfairly discriminates against poor people and certain ethnic groups. Insurance companies, however, insist that a person's credit based insurance score is not tied to income, race, ethnicity, religion, and other illegal forms of discrimination. They maintain how responsible a person is with handling their money is a reliable indicator in predicting how responsible of a driver they are and the likelihood of filing a claim.

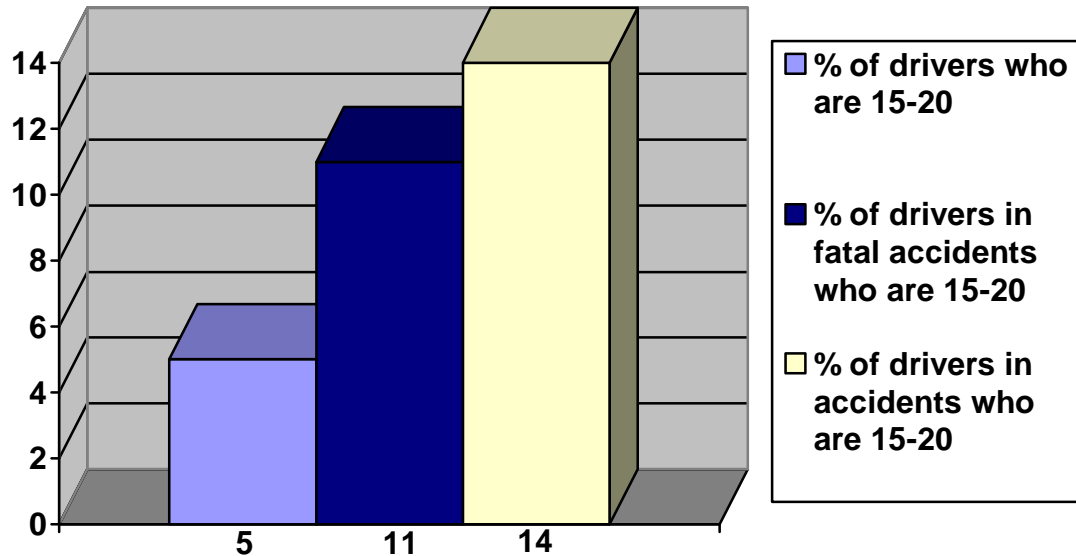
Is it fair that auto insurance companies charge more based on age, gender, location, marital status and credit? Maybe it is and maybe it isn't. Regardless of your opinion, these risk predictors are legally being used and probably will be for the foreseeable future.

### Young Drivers

According to the National Highway Traffic Safety Administration (NHTSA), 3,620 drivers in the 15-20 year old age group died in car crashes in 2004. Motor vehicle crashes are the leading cause of death for this age group. Twenty-four percent of the teen drivers killed were intoxicated. The estimated economic cost of police-reported crashes involving drivers between the ages of 15 and 20 years old was \$40.8 billion.

Drivers between the ages of 15 and 20 years old have the highest rate of fatal crashes compared to other age groups. To emphasize this point, the risk of being involved in a fatal crash for teens is three times greater than for drivers age 65 to 69. According to the National Safety Council, drivers under 20 make up just 5% of the total drivers in the U.S. but are the drivers in 11% of the fatal accidents and the drivers in 14% of all accidents.

**FIGURE 5.1 — Percent of Drivers Age 15-20**



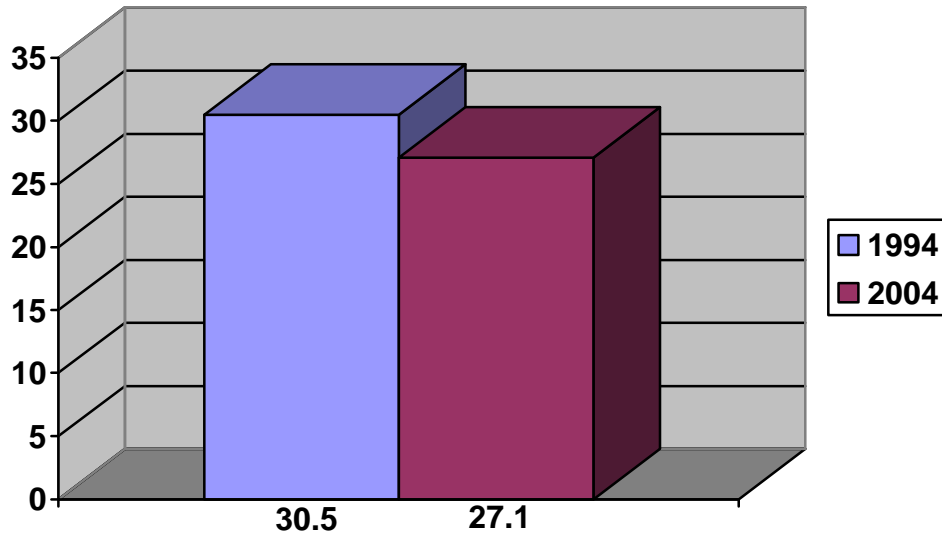
The leading factors that contribute to high accident rates among teens include lack of driving experience and immaturity. A 2005 study by the National Institute of Mental Health shows that the judgment part of the human brain does not mature until about age 25. Some people believe 16-year-olds are too young to drive. However, efforts to increase the minimum driving age have not garnered much support.

States began to pass graduated drivers license (GDL) laws in the mid-1990s as an effort to reduce teen driving accidents. Florida, in 1996, was the first state to enact a GDL program. Most of these laws include a three-phase approach to allow teens to gradually develop driving experience: (1) a learner's permit; (2) an intermediate license; (3) full license. GDL laws generally have provisions for supervised driving along with time-of-day and passenger restrictions before a full license can be obtained. As of June 2006, 41 states had laws that limit the number and ages of passengers a teen driver may transport. The states without a GDL law were: Alaska, Arizona, Hawaii, Kansas, Kentucky, Montana, North Dakota, Oklahoma, and Wyoming.

The NHTSA reports that the fatality rate for 16 to 20 year old vehicle occupants in motor vehicle crashes per 100,000 population was 27.07 in

2004, down from 30.46 in 1994. The rate in 2004 was the lowest since this statistic was started in 1975.

**FIGURE 5.2 — Traffic Fatalities per 100,000 16-20 Year Olds**



It is widely believed that GDL laws are a major factor in this improvement. The NHTSA's Fatality Analysis Reporting System examined fatal crash data in 36 of the states that had GDL programs and in seven states that did not. They found that in states that had six or seven components, the fatal crash reduction was 21 percent.

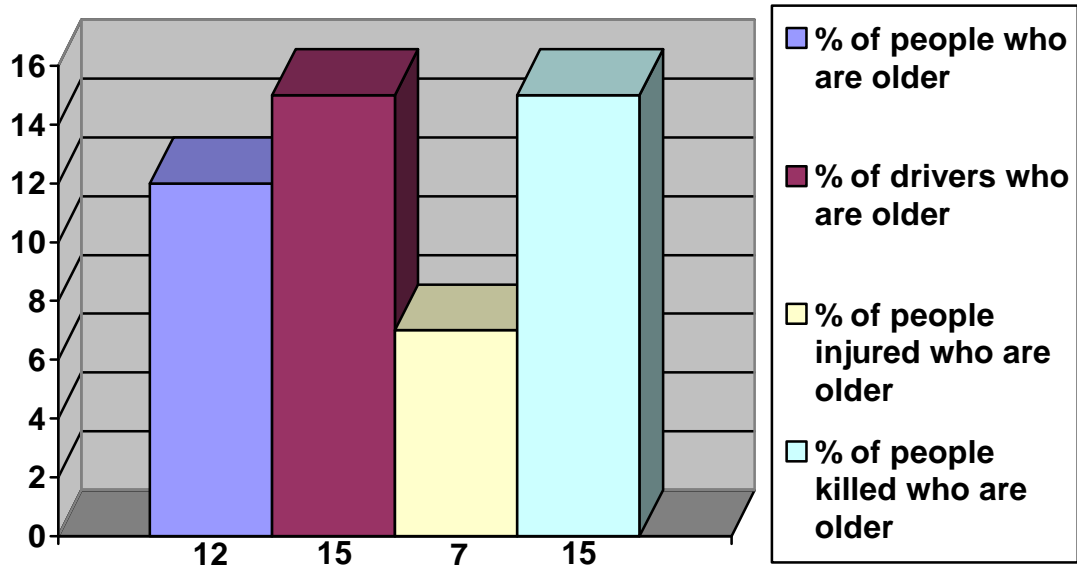
Despite the reduction in teen accidents over the last decade, virtually all auto insurance companies charge a substantially higher rate for young drivers. The rate for young male drivers is more than young female drivers, and the rate for unmarried young drivers is more than married young drivers. In some auto insurance companies, unmarried males up to age 29 are rated up. Since actuarial data proves that good students are safer drivers, most auto insurance carriers offer a "good student" discount to young drivers who maintain a "B" average or better.

## Older Drivers

In 2005, 12 percent of the total U.S. resident population (over 36 million) were people age 65 years and older. There were over 28 million older licensed drivers in 2004 (2005 data not available)—a 17-percent increase from 1994. In contrast, the total number of licensed drivers increased by only 13 percent from 1994 to 2004. Older drivers made up 15 percent of all licensed drivers in 2004, compared with 14 percent in 1994.

In 2005, 191,000 older individuals were injured in traffic crashes, accounting for 7 percent of all the people injured in traffic crashes during the year. These older individuals made up 15 percent of all traffic fatalities, 14 percent of all vehicle occupant fatalities, and 20 percent of all pedestrian fatalities.

**FIGURE 5.3 — Percent of Older Drivers**



Most traffic fatalities involving older drivers in 2005 occurred during the daytime (79%), on weekdays (73%), and involved other vehicles (73%).

Of all adult drivers, older drivers involved in fatal crashes had the lowest proportion of total drivers with blood alcohol concentrations (BAC) of .08 grams per deciliter (g/dL) or higher. Among all fatally injured adult pedestrians, older pedestrians also had the lowest proportion of total drivers with BAC of .08 g/dL or higher.

Three-fourths (75%) of all older occupants of passenger vehicles involved in fatal crashes were using restraints at the time of the crash, compared to 62 percent for other adult occupants (18 to 64 years old).

For older people, 69 percent of pedestrian fatalities in 2005 occurred at non-intersection locations. For other pedestrians, 82 percent of fatalities occurred at non-intersection locations. In two-vehicle fatal crashes involving an older driver and a younger driver, the vehicle driven by the older person was nearly twice as likely to be the one that was struck (60% and 33%, respectively). In 45 percent of these crashes, both vehicles were proceeding straight at the time of the collision. In 25 percent, the older driver was turning left—five times as often as the younger driver.

Auto insurers generally do not charge higher premiums for older drivers. In fact, in many states, older drivers (usually 55 and over) can receive an auto insurance discount for completing a driver safety course. Although older drivers have higher crash rates and fatality rates (per miles driven) than any other group except for teenagers, they have low crash rates per capita (per person). A majority of older drivers drive fewer miles, drive slower, and are less likely to drive in congested areas, drive when the weather is bad, and drive while intoxicated. The relatively high traffic death rate of older people is due in large part to their frailty and being more susceptible than younger persons to medical complications following traffic accidents.

## **Credit Based Insurance Scoring**

Auto insurance companies who use credit as a pricing factor do so by using an individual's credit based insurance score. Although a credit based insurance score is determined by looking at person's credit history, it is not the same as a credit score. A credit score predicts how likely someone will repay a loan or other financial obligation, while a credit based insurance score measures how well a person manages their finances. About 90% of auto insurance companies in the U.S. use credit as a rating factor. These companies believe that people who manage their finances well, also tend to be more responsible in managing other things like driving safe, not drinking and driving, and keeping their cars maintained and safe.

In 2003, EPIC Actuaries, LLC conducted a nationwide actuarial analysis of 2.7 million personal auto insurance records. They concluded—without doubt—that credit based insurance scores are directly linked to the chance of loss, and are among the most predictive factors of a claim in the future. For instance, for property damage liability coverage, insureds with the lowest credit based insurance scores had losses of 33 percent above average. Those with the highest scores had losses 19 percent below average. The EPIC study also strongly concluded that credit based insurance scoring is an independent risk factor and cannot be obtained by looking at other data such as vehicle type, gender, age, marital status, driving record, and location.

Extensive studies by the actuarial consultant firm Tillinghast have revealed a 99 percent correlation between credit based insurance scores and loss ratios—the cost of claims paid compared to the premium dollars received. These studies further prove that credit based insurance scores are a reliable predictor of future losses and claims.

The Texas state legislature commissioned an independent study regarding the use of credit based insurance scoring. It was conducted by the Bureau of Business Research at the University of Texas using information from five insurers and 153,326 policies. Credit based insurance scores were matched

up with claims data. The results, published in March 2003, found a direct correlation between credit history and the filing of an auto insurance claim. Insureds with the worst credit scores had claim losses that averaged \$918, which is 53 percent above average. Insureds with the best credit based insurance scores had losses that averaged \$558, which is 25 percent below average.

Credit based insurance scoring is a necessary component in the fair and accurate pricing of auto insurance. Drivers that have a lower-than-average chance of having a claim should pay less, and those that have a higher-than-average chance of having a claim should pay more.

When someone applies for insurance, the insurance company orders credit information from one or more of the three major U.S. credit bureaus. This information—such as payment history, debt-to-income ratio and collections—is put into the insurance company's computer system which uses a credit "formula" to generate a credit based pricing factor that is used along with other factors to determine the auto insurance premium. Most of the auto insurers that use credit do not allow their "formula" to be made public.

Fair Isaac is a company that develops credit based insurance scores for insurance companies. According to Fair Isaac, "76 percent of insurance consumers exhibit good or fair credit management behavior, and only four percent are "no hits" who have no credit history." The Insurance Information Institute on its web site [www.iii.org](http://www.iii.org), says, "Many people have no idea they are beneficiaries of insurance scoring. More than 50 percent of policyholders have a lower premium because of good credit, insurers say, although consumers themselves, when asked, think most people do not benefit."

A common argument that some consumer groups use against the use of credit based insurance scoring is that insurers can already get all the information they want about predictors (such as traffic violations and accidents) from the states. However, the [www.iii.org](http://www.iii.org) web site says that a 2002 Insurance Research Council study found that motor vehicle records (MVRs) are typically inaccurate. One in five convictions may be missing. An earlier study found that on average only 40 percent of reportable accidents appeared on MVRs. An analysis of current laws shows the amount of useful information is very limited. Some states don't require records of information that show how drivers perform, such as convictions for drunk driving. If a driver is found guilty of an out-of-state infraction, that information is not automatically provided to the state where the licensed driver or vehicle is registered. Other states offer drivers an opportunity to obtain a lesser sentence or to avoid having information noted in the official record. By contrast, credit records are generally complete and where they are not or are inaccurate, there is a clearly defined review process for correcting the

deficiencies.

Insurers who use credit based insurance scoring must follow the Fair and Accurate Credit Transactions Act of 2003 (FACTA) which was signed into law in December 2003. It permanently reauthorized the Fair Credit Reporting Act. The new law overrules state privacy laws, some of which are stricter than the federal law. The law protects consumers with new identify-theft and fraud safeguards. The law also entitles one free credit report a year upon request from the three major credit reporting agencies: Experian, Equifax, and TransUnion. Consumers can get their free credit reports by going to the [www.annualcreditreport.com](http://www.annualcreditreport.com) web site, which is a free service provided by the three credit reporting agencies.

FACTA requires insurers to inform customers if they are using credit for rating or underwriting purposes. If credit information is used to reject an application or charge more premium it is considered to be an “adverse action.” In compliance with FACTA, insurers must notify a consumer of any adverse action that was taken due to their credit information.

FACTA directed the Federal Trade Commission (FTC) to conduct a study—with the Office of Fair Housing and Urban Development—on the use of credit information by financial services companies, including the use of credit based insurance scoring. The study is to determine the effect the use of credit has on the affordability and availability of financial products, including insurance. It must also determine the degree to which it may have a “disparate impact” on various demographic groups. FACTA directed that the study must be submitted within two years that FACTA was enacted. However, as of December 2006, the report had not yet been released.

Insurers are also required to follow state laws and administrative rules that regulate the use of credit information. Many states base their credit based insurance scoring laws on a model law created in December 2002 by the National Conference of Insurance Legislators (NCOIL). The model legislation requires insurers to disclose to consumers that a credit report may be used and to notify the policyholder in compliance with the federal Fair Credit Reporting Act when credit is the basis for an adverse action. It also prohibits the use of credit information as the sole basis for refusal to insure or to non-renew or cancel.

Insurers are required to file their credit based insurance scoring model with the departments of insurance in all the states they do business in. Some states only allow the use of credit to determine pricing, and prohibit its use to determine acceptance or rejection of a particular risk. Many states exclude health care provider debt and disputed information when calculating a credit based insurance score.

The NCOIL model prohibits individuals from being penalized if they have no credit experience, i.e. “no hit.” For example, some people do not make purchases on credit due to their age, religion, or ethnic background. Therefore, they have no “credit.” Insurers are required to treat these situations as neutral. In other words, their credit based pricing factor will not reflect a discount or an extra charge.

Information on the [www.iii.org](http://www.iii.org) web site states that according to Property Casualty Insurers Association of America, 18 states considered 48 bills dealing with insurance scoring in 2006. Of those, 27 would have completely banned the use of credit scoring by insurers. In 2005, there were 31 bills from 18 states that sought to ban the use of credit. In November 2006, voters in Oregon soundly rejected (65% to 35%) ballot initiative 42 which would have banned the use of credit based insurance scores for rating and underwriting. It appears that the Oregon vote has given momentum to insurance companies to continue the use of credit based insurance scoring—not only in Oregon, but also nationwide.

**FIGURE 5.4 — Oregon Ballot Initiative Vote, November 2006**

