

# Teen and Child Motor Vehicle Crash Data Analysis



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-carole cochran, South Dakota KIDS COUNT

We have been informed, challenged and gratified by the chance to work with carole at South Dakota KIDS COUNT. We appreciate the opportunity to learn from her.

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And finally, although our work is an attempt to shed some light on child and teen death rates from motor vehicle crashes, we acknowledge that no explanation can adequately compensate a community for the loss of a child or teen to parents and families, to classmates and peers, or to the social fabric of small rural communities, where everyone literally knows everyone. The numbers do not adequately state the heartbreaking reality that visits families when a child or teen dies so tragically.

-Daphne Herling & Thale Dillon, Montana KIDS COUNT

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## ABSTRACT

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The Annie E. Casey Foundation made funds available for KIDS COUNT state grantees to analyze data from the KIDS COUNT Datacenter. The online database provides an opportunity for research to increase understanding of child well-being.

KIDS COUNT grantees in Montana and South Dakota received funding to work together on research of child and teen death rates. The data analysis specifically investigated deaths as a result of motor vehicle crashes.

Data compiled for the period 1990-2004 from the KIDS COUNT Data Center on child and teen deaths were used to analyze and describe child/teen mortality from motor vehicle crashes. The available data for child/teen deaths were split into deaths from accidents and deaths from other causes. Deaths from accidents were further grouped into motor vehicle fatalities and other accidents.

The research explored child and teen deaths from motor vehicle crashes in two parts: quantitative statistical analysis and qualitative data from case studies. The statistical analysis used National KIDS COUNT demographic, social and economic data for all 50 states to determine their influence on child/teen mortality. Policies that are used by states to address highway safety were included as variables in this stage of the analysis to determine if any of them had a statistically significant influence on child and teen death rates.

In the qualitative portion of the research, child and teen death rates were longitudinally examined to determine if there were states that have moved from a high rate of child/teen deaths to a low rate of child/teen deaths. To find a preliminary explanation for the reduction, six states representing geographic and demographic diversity were chosen for more thorough case studies. Demographic, social-economic and geographic indicators were compared and emphasis was placed on whether policies were enacted or not by those states. KIDS COUNT grantees and state government entities in these states were interviewed for insights on any idiosyncratic political or social factors that would help explain the crash rate reductions.

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## INTRODUCTION

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The purpose of this study was to determine the factors involved in child and teen deaths from motor vehicle crashes. An executive summary of the study can be found on-line at: <http://www.sdkidscount.org/> and <http://montanakidscount.org>.

Questions addressed by the research were:

- a. What are the demographic, social and economic factors that help explain high or low rates of child and teen deaths? Are there “predictors” of child and teen mortality from motor vehicle crashes?
- b. What policies or lack of policies might explain the high or low rates of child and teen deaths?
- c. Which states moved from a high to a low rate of child/teen deaths from motor vehicle crashes, and what are some of the reasons for this improvement?

The data used for the analysis were gathered from various sources, including the KIDS COUNT Data Center, the National Highway Traffic Safety Administration (Fatality Analysis Reporting System—FARS), the U. S. Census Bureau’s American Community Survey, and variables collected from state agencies in all 50 states.

Further consideration lead to the conclusion that child and teen death rates resulting from motor vehicle crashes could not be analyzed together from the point of view of policy evaluation and/or development. While some underlying causes for motor vehicle deaths are common to both groups, such as the driver’s blood alcohol content or a lack of seatbelt use, others are more prevalent either for child deaths (incorrect installation of child safety seats) or for teen deaths (driver being inexperienced, driver being distracted by other teens in the car). Analyzing the two age groups together would have misstated the influence of the policy variables, complicating interpretation. Consequently, the research analyzed the two age groups separately. Regression models were used to identify the variables that are significant predictors of child and teen mortality rates. Predictors were analyzed in terms of their impact on mortality rates and in relation to policy interventions for lowering child and teen mortality rates. In proposing the development of regression analyses, the aim was to not only identify determining factors, but also to measure the impact of each relative to the other factors.

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## QUANTITATIVE RESEARCH METHODOLOGY

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### *Statistical Analysis*

The goal of the statistical analysis was two-fold:

- 1) To determine which of an array of independent variables are significant, and which are not, in predicting child and teen death rates from motor vehicle crashes; and
- 2) To determine the relationship between the dependent variable and the several independent variables.

These goals were achieved through two separate regression analyses of the factors thought to be determining or underlying child and teen deaths resulting from car crashes in all 50 states. The research used regression analyses to determine the existence and strength of the relationship between selected variables within the dataset, expressed in mathematical terms as a statistical model (Kleinbaum and Kupper). Through a regression analysis, such a model shows the statistical relationship between what one is trying to predict (the dependent variable) and the factors (the independent variables) that have the greatest influence on the level and direction of change of what one is interested in analyzing. The dependent variable is a statistical tool frequently used when the independent variables are non-controllable and each proposed relationship has just one dependent variable, as is the case for this study.

A statistical model like the one estimated below, where a linear relationship is assumed between the variables contains three main components: a dependent variable, a constant, and one or more independent variables. The general mathematical equation representing this straight line looks like this:

**Dependent Variable=Constant + Coefficient (Independent Variable),**  
where the constant is the *y intercept* of the line, and the coefficient is the *slope* of the line. In terms of the significance of these components for explaining the relationships within the statistical model, the coefficient associated with each included independent variable describes the impact of that particular independent variable on the dependent variable. **Other factors not included in the model will show up as the constant which represents the “starting point”—positive or negative—of the postulated linear relationship.**

When analyzing statistical data using a regression model, the goal is not only to estimate the degree of influence of each independent variable, but also the strength of that influence, or each variable's *significance*. Most commonly, *significance levels* of 90 or 95 percent are used, which implies a 90 or 95 percent certainty that a variable is significant. The higher the significance level, the more likely the relationship is real and not the result of chance.

Finally, the statistical model itself is evaluated to determine if it explains the data appropriately. This is done through the computation of a *correlation coefficient*, referred to as the *adjusted R-square*, which is a measure of association between the dependent and the independent variables. The adjusted R-square is measured as a percentage which refers to the

portion of the data that can be explained by the model. For example, a model with an adjusted R-square of 75 percent explains 75 percent of the variation within the dataset.

### ***Strategies for Statistical Analysis***

The Annie E. Casey Foundation maintains an extensive KIDS COUNT Data Center. The system contains state- and city-level data for over 100 measures of child well-being. A *child* is defined as aged 1 through 14 and a *teen* as aged 15 through 19 in the database. The database has death rates from all causes for children and teens in every state. Furthermore, the Casey KIDS COUNT Data Center contains death rate data from 1990 through 2004, enabling an evaluation for each state's trend over fifteen years. It should be noted that the Annie E. Casey Foundation also funds KIDS COUNT organizations in Puerto Rico and The U. S. Virgin Islands. These two organizations are not included in this analysis because data are unavailable for many of the variables.

Trends observed in the course of those fifteen years will vary across the 50 states, and cumulative effects have resulted in highly diverse death rates for children and teens. The events causing child and teen deaths are varied as well. The Centers for Disease Control, in a Congressional Testimony to the Committee on Health, Education, Labor, & Pensions; United States Senate (May 2008), noted the leading causes of injury deaths by age group:

**Table 1 - Leading Causes of Injury Death by Age Group, 2005**

Age Range	Leading Causes of Injury Death, 2005
1-3 years	Unintentional drowning; unintentional motor vehicle crashes; unintentional fire/burn
4-11 years	Unintentional motor vehicle crashes; unintentional fire/burn; unintentional drowning
12-19 years	Unintentional motor vehicle crashes; homicide (firearm); suicide (firearm)

The reoccurring contributor is motor vehicle fatalities. In light of this, the focus for this research is on rates of death caused by such crashes. Table 2 shows child and teen death rates for the age groups of 1-14 and 15-19. Further, the research focuses on motor vehicle crash-related death rates for children and teens in 2005 as a culmination of trends observed during the previous 15 years.

Table 2-Child and Teen Death Rates, per 100,000 by Age Cohorts 1-14 and 15-19

2005	Child Death Rates, all deaths (1-14)	Child Death Rates, traffic (1-14)	Teen Death Rates, all causes (15-19)	Teen Death Rates, traffic (15-19)
<b>United States</b>	<b>20</b>	<b>3</b>	<b>65</b>	<b>23</b>
Alabama	26	6	88	46
Alaska	24	5	83	13
Arizona	24	5	87	40
Arkansas	29	5	94	44
California	17	3	60	17
Colorado	21	3	60	21
Connecticut	14	1	43	15
Delaware	18	2	58	27
Florida	22	3	75	29
Georgia	22	3	71	28
Hawaii	16	2	37	24
Idaho	23	4	56	28
Illinois	17	2	62	18
Indiana	25	4	64	24
Iowa	19	2	66	22
Kansas	23	3	66	23
Kentucky	25	5	83	35
Louisiana	34	4	103	28
Maine	18	2	63	31
Maryland	16	2	66	17
Massachusetts	10	1	41	11
Michigan	21	2	57	14
Minnesota	15	1	49	18
Mississippi	33	7	101	39
Missouri	21	3	84	40
Montana	25	4	87	40
Nebraska	22	4	65	39
Nevada	24	5	75	27
New Hampshire	8	1	55	15
New Jersey	14	1	45	13
New Mexico	31	8	87	31
New York	16	1	45	11
North Carolina	21	4	70	27
North Dakota	23	10	80	40
Ohio	20	2	61	17
Oklahoma	28	6	90	35
Oregon	18	3	51	20
Pennsylvania	19	3	67	19
Rhode Island	20	1	39	8
South Carolina	25	5	84	34
South Dakota	29	2	96	42
Tennessee	24	5	79	38
Texas	21	4	66	22
Utah	22	2	56	19
Vermont	26	1	68	24
Virginia	19	2	57	24
Washington	16	2	53	19
West Virginia	26	4	87	41
Wisconsin	20	2	64	24
Wyoming	20	6	103	53

Assuming a linear relationship between dependent and independent variables, and using two models – one for child deaths and one for teen deaths – a linear regression was employed to predict child and teen death rates for the year 2005 for all 50 states. The dependent variables included the rates of death resulting from motor vehicle crashes for children ages 1 through 10 and for teens ages 11 through 19.

These age ranges are not those used by the Casey Foundation in their dataset; however, they were chosen deliberately. Ultimately any age segmenting of children under 18 is more or less arbitrary and this analysis is not an exception.

The basic difference between children and teens in terms of motor vehicle crash death rates is *who causes* the fatality. Both age groups are at the mercy of the random effects of others' actions on the road, be it those driving the vehicle in which they are a passenger, or the driver of another car involved in a fatal crash. However, for teens, an additional dimension is added: the teen can be the driver of the motor vehicle involved in a fatal crash (or a passenger in a motor vehicle driven by another teen), and as such, some of the randomness is removed, as compared to that of children. Children become the victims of other people's actions, while teens face the additional threat of becoming victims of their own actions.

The problem, or the arbitrariness, enters when trying to decide at what age a child becomes a teen. While it is understood that these two groups exhibit distinct characteristics and thus face different underlying reasons for perishing in a motor vehicle crash, when does this change occur? Children do not drive the motor vehicles that are involved in fatal crashes. It is primarily adults who drive the motor vehicles in which children are passengers. However, at some point they transition to a situation where, though still too young to drive themselves, they have friends who have their driver's licenses as well as access to a motor vehicle. At this point, they are vulnerable to both their own and their friends' actions and choices. Chen, Elliott, Durbin, and Winston (2005), in a study titled "Teen drivers and the risk of injury to child passengers in motor vehicle crashes," noted the excess risk to child passengers in motor vehicles driven by teens. The study noted, among other things, that 40 percent of the children driven by teen drivers were less than 13 years. While only four percent of the children in the study were driven by teens, they faced about three times the injury risk when compared with children driven by adult drivers.

The authors felt that the transition alluded to above begins around age 11, thus creating a child category including ages 1-10 and a teen category including ages 11-19. In the end, there will always be overlap between the two cohorts, and there is a gray-zone in the middle of the 1-18 age range where fatalities from motor vehicle crashes will fit both profiles, regardless of where the cut-off is set.

### *Variables*

The empirical nature of the analysis necessitates that the investigation begins with a large number of variables as potential determinants of child and teen death rates across the states. The hypothesized factors underlying child and teen death rates were measured by data on socio-economic, youth risk behavior and juvenile justice variables, traffic-safety policies and community-description measures. Socio-economic variables included data on poverty, family structure, education, employment and income; youth risk behavior measures included drug, alcohol and tobacco use, issues related to drinking and driving, and seatbelt use; juvenile justice variables focused on risk behaviors and included arrest rates for alcohol and drug-related crimes, as well as violent crimes; policy variables included those focused on traffic safety and included licensing programs for young drivers, seat belt laws and child restraint use; community-description measures included racial diversity, rates of commitment at drug/alcohol rehabilitation facilities, per-capita spending on alcohol in bars, rural/urban attributes, and teen depression. The basic traffic mortality measures were obtained from the Fatality Analysis Reporting System (FARS) through the National Highway Traffic Safety Administration's National Center for Statistics and Analysis (Appendix A).

## QUANTITATIVE RESEARCH ANALYSIS

The analysis focused on two measures of death rates: one for teens age 11 through 19 who died as a result of a motor vehicle crash and one for children age 1- 10 one who died as a result of a motor vehicle crash. While hypothesized factors relating to teen deaths are numerous, factors relating to child deaths are fewer as the degree of randomness underlying child deaths is greater, and happen through no fault of their own.

### ***Death Rate Resulting from Motor Vehicle Crashes: Teens 11-19***

Death rates for teens resulting from motor vehicle crashes vary greatly across all 50 states. Hawaii has the lowest teen death rate at 6.63 teen deaths per 100,000 teens, followed by Connecticut at 6.74. Mississippi finds itself at the bottom, with the highest teen death rate in the country, at 33.16, a rate about five times higher than that of Hawaii. It is the only state with a rate over twice the national average of 14.67 (Appendix B).

As discussed above, one difference between the rates of teen and child deaths resulting from motor vehicle crashes is that teen deaths are more commonly the result of their own actions and choices, or those of other teen drivers.

### ***Factors Associated with Teen Death Rates Resulting from Motor Vehicle Crashes***

The factors identified as being significant predictors of teen deaths resulting from motor vehicle crashes include:

1. The portion of a state's highway miles that is rural;
2. The portion of high school students who drove while drinking alcohol;
3. The portion of high school students who had used tobacco at least once in the past month; and
4. The prevalence of single-parent families.

This regression resulted in an adjusted R-square value of 0.762, which means that just over three-fourths of the variability within the cross-sectional data can be explained by this model. All variables were significant at the 100-percent level (Appendix C)

### **Rural Highway Miles**

The rurality of a state has strong positive influence on teen death rates indicating that the more rural the state, the larger the portion of teens who die as a result of motor vehicle accidents. In fact, the majority of fatal motor vehicle accidents occur in rural areas or on rural roads. A 2006 National Highway Traffic Safety Administration (NHTSA) report noted that only one-fifth of the nation's population lives in rural areas, yet two-fifths of the vehicle miles traveled and three-fifths of all fatal crashes occur there. In sparsely populated areas of rural states such as Montana, North Dakota, South Dakota and Wyoming, death rates resulting from motor vehicle crashes are among the highest in the nation. When motor vehicle crashes happen in these remote areas, medical attention can be delayed as it takes longer for an accident to be discovered, for authorities to be notified, for medical help to arrive, and for

transportation to a medical clinic or hospital. The NHTSA report cited above identified environmental factors and conditions that contribute to disproportionately high numbers of deaths and injuries in rural areas. Among these were timely emergency response and treatment, seen as crucial environmental challenges in rural areas, contributing to the high fatality rate. The longer it takes for EMS personnel to arrive at a crash scene, the more likely it is that crash victims will die before they can reach a hospital. The report noted that:

- It takes more than twice as long for EMS personnel to arrive at a crash scene in a rural community, as compared to an urban community—19 minutes versus 7 minutes.
- Overall, the total time from the occurrence of a crash to delivery of the victim to a hospital averages almost an hour in rural areas (53 minutes) in contrast to about one-half hour in urban areas (36 minutes).
- In 2004, only 35 percent of rural passenger vehicle occupant fatalities were taken to a hospital. In comparison, 50 percent of urban victims reached a hospital and its potentially life-saving facilities.

Rurality did actually have a stronger effect on teens than it had on children (see below). One reason for this is that teens tend to be more active outside the home (school, after-school activities, friends), effectively spending more time in cars, compared both to rural children and to urban teens. Additionally, rural teens that are high school drop-outs are more likely to be idle, i.e. not employed. Rural unemployment rates tend to be higher than in urban areas and education opportunities scarce.

### Drinking and Driving

As expected, when a teen drives while drinking alcohol, it increases the risk of a fatal accident. Intoxication affects teen drivers much more strongly than adults, making driving under the influence of alcohol more impairing to a teen (Hingson, Heeren, and Winter, 1994). It follows, then, that states where a high portion of teens drive while drinking have a higher teen death rate.

### Tobacco Use

While using tobacco may not seem to impair a person's ability to drive, tobacco has been shown to be a gateway predictor of other addictive behaviors, such as alcohol and other drug consumption. As such, it becomes an indicator of risk behavior within a community or state: the higher the portion of high school students who use tobacco, the more prevalent other risk behavior will be (Seninger and Herling, 2005). States with high teen tobacco use rates will see more incidences of driving while intoxicated and taking unnecessary risks while driving, such as exceeding the speed limit, having too many distractions in the motor vehicle, and using their cell phones, both for talking or sending text messages while driving.

### Single-Parent Families

States with a higher portion of single-parent families also showed higher rates of teen deaths, illustrating the demands that are placed on such families. Single parents face considerable challenge to achieve even basic economic success. The potential for financial instability in a one-earner household places a tremendous demand on a single parent's resources, both in terms of time and money. Unable to pay for quality childcare to allow for the job commitments required to make ends meet, single parents may be forced to leave children and teens without adult supervision while not in school.

### ***Rate of Deaths Resulting from Motor Vehicle Crashes: Children 1-10***

For the year 2005, death rates for children as a result of motor vehicle crashes varied greatly across the 50 states as well, ranging from 0.62 deaths per 100,000 children in Connecticut, to 8.20 in North Dakota. Three states (New Mexico, Mississippi and North Dakota) had rates more than double that of the national average of 2.91 per 100,000 (Appendix D).

### ***Factors Associated with Child Rates of Deaths Resulting from Motor Vehicle Crashes***

Several factors at the state level were empirically identified, from a list of possible factors, as significant predictors of a state's child rate of death resulting from motor vehicle crashes. The factors include:

1. The portion of a state's highway miles that is rural;
2. The presence of a Young Driver Licensing (YDL) program; and
3. The rate of Food Stamps eligibility combined with a state's portion of idle youth

The regression analysis run with these three variables achieved an adjusted R-square value of 0.660, indicating that two-thirds of the variation within the cross-sectional data can be explained by this model (see Appendix E: Model Summary 1).

### Rural Highway Miles

The portion of a state's highway miles that is rural had a positive and statistically significant (at 100-percent level of confidence) impact on child death rates as well, although not as strong as for teens. This was not a surprising finding as children tend to be more "stationary" than teens, and obviously less independent.

### Young Drivers Licensing

The only variable that was shown to lower a state's child death rate from motor vehicle crashes was the presence of a rigorous Young Driver Licensing (YDL) program. Depending on the state, YDL programs apply to young drivers between the ages of 14 and 18 and place restrictions on the young driver in an effort to promote safer driving practices. Restrictions include limits on night time driving, limits on the number of passengers allowed, and required hours of driver's education and training.

The measure reflected the quality of each state's YDL program based on a rating system developed by the Insurance Institute for Highway Safety, Highway Loss Data Institute. The Institute grades each state's program on a 4-point scale (good, fair, moderate and poor), which is converted into a dichotomous variable where states with "good" or "fair" programs given a one, and states with "moderate" or "poor" programs given a zero. This variable was statistically significant at the 100-percent level, and had a negative coefficient, meaning it helps to lower the death rate from motor vehicle crashes.

Having a rigorous YDL program works to lower the number of child deaths from motor vehicle crashes in two critical ways. First, the presence of such a program increases awareness and improves driving practices for the teens who drive the four percent of the children referred to in the study by Chen et al., cited above (p.7). A key piece of the YDL program is driver education and as such, it can create a better-educated cohort of young drivers and, subsequently, young parents, who will be more committed to child safety while driving. Second, the presence of a rigorous YDL program can be seen as a measure of the general level of political commitment to highway safety within a state. Such a commitment will also carry over into prevention in all realms of motor vehicle fatalities.

### **Food Stamps/Idle Youths**

Food Stamps eligibility rates combined with portion of idle youth within a state had a strong positive effect on child death rates, meaning it contributed to a higher death rate. Food Stamps eligibility rate is a measure of poverty within a state; its positive effect indicates that the higher the poverty rate, the higher the state's child death rate.

Idle youth is defined as teens not in school, not working, and not in the military. Combining this measure with Food Stamps eligibility yields a measure of people who are young, poor, and feel disconnected from their community because they have no specific role to fill in society. These data are related to a lack of economic opportunity for families and young people. The question is why do these combined indicators affect child death rates?

A World Health Organization (WHO) publication (2007) noted that

The socioeconomic condition of a family affects the likelihood of a child or young adult being killed or injured in a road traffic crash, with those from economically poor backgrounds at greatest risk. This relationship is true not just between higher-income and lower-income countries, but within countries as well. For instance, data from both Sweden and the United Kingdom show that the risk of children and young adults for road traffic injuries is higher if they are from families of a lower social class. In Kenya, the choice of transport used is often related to a family's income – with those from low-income families more likely to be vulnerable road users at increased risk of injuries. (p.4-5)

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Idle youths are just that: idle. A KIDS COUNT Indicator Brief, Reducing the Number of Disconnected Youth from The Annie E. Casey Foundation (July 2003), states

Young people who spend long stretches of time out of school and out of work often face multiple risks and day-to-day difficulties. Compared with other teens and young adults, they are more likely to live in single-parent families, low-income families, families that receive welfare, and families in which parents lack a high school diploma. (p. 4)

Perhaps parents living in poverty are less likely to be able to afford a new automobile with up-to-date safety features, or perhaps they cannot afford a child safety/booster seat. Some older automobiles may not be compatible with a child safety/booster seat. They may be forced to forego a seat all together, or rely on used seats of unknown origin and background (the protective ability of a seat that has been in an accident is severely compromised).

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## VARIABLES THAT WERE EXCLUDED FROM THE MODELS

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The data set used contained several measures of poverty, risk behavior, juvenile crime, rurality, highway safety policies and racial diversity. All were tested at the 90 percent significance level and better, but still found to be statistically not significant. These were excluded from the final statistical models.

### *Poverty*

For poverty, the following variables were tested:

- Food Stamps eligibility
- Percentage of families on TANF
- Eligibility for free or reduced-price school lunch, and
- Median household income

The last three were not significant predictors for teen or child death rates.

### *Risk Behavior*

There were several measures of risk behavior among high school students, however, only tobacco use and driving while drinking were found to be significant predictors of teen deaths. Variables that were not significant predictors included:

- Illicit drug use
- Binge drinking
- Riding with someone who has been drinking
- Seat belt habits, and
- Alcohol/drug addiction and/or abuse

### *Juvenile Crime*

Juvenile crime was included as a separate facet of risk behavior. However, none of the indicators were found to be statistically significant. Measures included were the juvenile arrest rates for the following offenses:

- Violent crime
- Vandalism
- Drug abuse violations
- DUI, and
- Disorderly conduct

### **Rural Highway Miles**

Several measures of the relative rural nature of a state were tested. These included:

- The percentage of highway miles within a state that is rural
- A state's population density, and
- Whether or not a state can be classified as rural or urban.

The latter measure combined population density, percentage of rural highway miles, and the urban/rural population ratio. In the end, the percentage of highway miles that are rural was found to be statistically significant as a predictor for both teen and child deaths.

### **Highway Safety Policies**

When it comes to highway safety policies one preconception was that states with strong safety policies in place would boast the lowest child and teen traffic death rates. Following analysis of both the teen and child death rate models, these measures were found to be less significant than foreseen. The safety measures considered were the presence of rigorous policies in the following areas:

- Young Driver Licensing (YDL) program
- Child safety seat law, and
- Seat belt law

States were assigned values of one or zero based on the rigorous nature of each of the policies noted above. The values were based on the rating system developed by the Insurance Institute for Highway Safety, Highway Loss Data Institute. The Institute grades each state's program on a 4-point scale (good, fair, moderate and poor), which was then converted into a dichotomous variable where states with "good" or "fair" programs were given a one, and states with "moderate" or "poor" programs were given a zero. While additional policies are likely important in terms of impact on death rates, they were all but identical between the states and would not add anything to either of the models. These include policies on driving while intoxicated and cell phone use in cars.

A safety policy measure that was found to be significant was the presence of a rigorous Young Driver Licensing program. This measure was statistically significant in predicting *child death rates*, but **not** *teen death rates*. While the reasoning for this variable's significance in the child death rate model has been discussed above, the variable's lack of significance within the teen death rate model deserves some discussion as well. Though no highway safety policy was found to be significant predictors of teen death rates, it does not mean these policies do not work. The Healthy States Council on State Government's (CSG) Partnership to Promote Public Health released a Graduated Driver's License (GDL) Tool Kit in 2007. The Tool Kit notes that having some form of a GDL program has proven to be effective in reducing crash rates of 16-17 year olds. One study found significant reductions in the number of fatalities in states with GDL systems that were ranked by the Insurance Institute for Highway Safety

(IIHS) as good. According to IIHS, “good” programs required a six-month learner’s permit, restricted driving during the hours between 10 p.m. and 5 a.m. or allowed only one passenger while driving unsupervised, and did not allow an unrestricted license before a driver turned 17. When it comes to teen drivers, significant benefits of a GDL policy can be achieved through a rigorous GDL policy. Since driving is a complex task, it is far better to introduce the task in increments over time instead of all at once. The Tool Kit states, “the ideal GDL system consists of three stages:

- A supervised learner’s period that lasts at least six months;
- An intermediate period that allows unsupervised driving in less risky situations; and
- Full licensure.

In terms of policies dictating the use of child safety seats, the use of such seats, especially for infants and very young children, may not be dictated so much by policy as it is by peer pressure, appropriate available training opportunities in child safety seat use and timely education from the medical community. For example, in Montana a parent(s) is not allowed to leave the hospital without the baby being in an appropriate seat.

In the end, a law or policy matters little unless it is enforced. An additional reason why the statistical analysis did not capture the true significance of highway safety policies is that there are no measures of degree of enforcement. The enforcement of the existing policies will vary greatly, not only from one state to another, but from one county to another within a state. A state may have very strict laws on how to deal with drivers convicted of driving under the influence but, if these laws are not enforced, or enforced sporadically, it will have the same effect on motor vehicle fatality rates as having no laws at all.

### ***Racial Diversity***

Another assumption based on comments from various sources (Lapidus, Smith, Ebel, and Romero, 2005; J. Williams personal communication September 2007; S. Yeakel, personal communication October 31, 2007), was that racial diversity, especially the presence of a large minority group would contribute to higher death rates, both for children and teens. This may well be the case, as research has indicated that the motor vehicle fatality rates of American Indian/Alaska Native children are three times the national average in the Pacific Northwest alone (Lapidus et al. 2005). However, differences in racial diversity, be it populations of Whites, Blacks, Asians, Hispanics, or American Indians/Alaska Natives, get “washed out” when examined at the national level. For example, American Indians constitute less than one percent of the population in the vast majority of states. Only a small cluster of states (Alaska, New Mexico, South Dakota, Oklahoma, Montana and North Dakota) have an American Indian population exceeding five percent of the state total. Of those, only two have ten percent or more American Indians in their overall populations. The same trend holds true for Blacks, Asian, and Hispanics as well. This lopsided distribution obfuscates any trend that may be present in the data.

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## QUALITATIVE RESEARCH METHODOLOGY

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### *Introduction*

Six states were chosen for in-depth analysis based on their history of improving teen or child death rates over the time period of 1990 – 2004. The case studies are to inform Montana and South Dakota, whose teen death rates have consistently ranked worst among all 50 states. Thus these two states are included in the overview section and in all comparative sections for both teen and child death rates.

The states used for the case studies were identified by creating graphs of teen and child death rates from all causes from 1990 to 2004 for all 50 states. Each graph included the national trend line. This presented an immediate visual representation of which states improved during the time period. Then the maximum and minimum, the mean and the standard deviation were calculated for all states to provide numerical comparisons to each other and the nation. This method produced two groups of states: one that improved child death rate and one that improved teen death rates. It is interesting to note that the states with most improvement, improved in both reducing their child death rates and their teen death rates.

However, the states that saw the most dramatic improvement in death rates were all eastern, mid-Atlantic, densely populated, small-sized states: Massachusetts, New Jersey, Rhode Island and Connecticut. This created the need to look further down the list of “most improved” states to identify ones that have more relevance to Montana and South Dakota, both sparsely populated, western states.

A total of six states were chosen to give a numerical balance to each area of study for teen deaths and child deaths. Three states were chosen for each area of study from the west, the Rocky Mountains and the east. States from the east coast would seem to be of marginal interest to Montana and South Dakota. However, from a policy perspective, it is important to consider eastern states that might have a higher propensity for enacting new, perhaps more restrictive laws than the “independent-minded” western states.

States that improved their teen death rates from motor vehicle crashes (1990 – 2004) chosen for case study are Utah, Vermont and Washington.

From 1990 to 2004 the US improved its teen death rate from 89 per 100,000 to 66 per 100,000. The US mean during this time period was 75.87.

Utah reduced its teen death rate from 91 per 100,000 in 1990 to 50 per 100,000 in 2004. Utah’s mean was 68.93.

Vermont reduced its teen death rate from 90 per 100,000 in 1990 to 35 per 100,000 in 2004. Vermont’s mean was 63.53.

Washington reduced its teen death rate from 81 per 100,000 in 1990 to 54 per 100,000 in 2004. Washington’s mean was 65.13.

States that improved their child death rates from motor vehicle crashes (1990 – 2004) that were chosen for case study are Colorado, New York<sup>1</sup> and Oregon.

From 1990 to 2004 the US improved its child death rate from 31 per 100,000 to 20 per 100,000. The US mean during this time period was 25.33.

Colorado reduced its child death rate from 30 per 100,000 in 1990 to 17 per 100,000 in 2004. Colorado's mean was 23.47.

New York reduced its child death rate from 30 per 100,000 in 1990 to 16 per 100,000 in 2004. New York's mean was 21.87.

Oregon reduced its child death from 29 per 100,000 in 1990 to 18 per 100,000 in 2004. Oregon's mean was 24.13.

KIDS COUNT grantees in the six states identified for the in-depth analysis were contacted to determine their experiences with the issues, their suggestions for key stakeholders on the issues and their interest and/or relevance to the interviewing process. The consistent response was that grantees assisted other groups in the state who work to reduce child and teen deaths from motor vehicle crashes. Some of the KIDS COUNT grantees have new staff and were unsure if the organization had worked directly on the issue of motor vehicle deaths in the previous decade. Grantees provided known resources on state specific information on child or teen deaths from motor vehicle crashes.

In addition, pertinent websites in the six states were identified and examined for further information and insights. Traffic safety offices in all states were the best source of information for data, programs and overall analysis of child death and teen deaths from motor vehicle crashes<sup>2</sup>.

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<sup>1</sup> Despite its huge metropolitan association, New York for the most part is a large, rural state with a significant number of rural roads and highways.

<sup>2</sup> For information about traffic safety policies see the Insurance Institute for Highway Safety (IIHS) website: <http://www.iihs.org> and the Governor's Highway Safety Association (GHSA) website, <http://ghsa.org/index.html> contains a wealth of data and research. A list of direct links to all state traffic safety offices is available at <http://ghsa.org/html/links/highwaysafetywebsites.html>

### *National Context*

It is important to look at the states that reduced their teen and child death rates from motor vehicle crashes in the context of what was going on nationally during the time period from 1990 to 2004. All six states that were interviewed alluded to this being a major component to their success in reducing their rates. Indeed, the overall death rate trend in the United States during this time period dropped significantly. However, the six states chosen for review had trends that were consistently below lower than the national trend, with the exception of a couple of years.

The major factor at the national level contributing to the improved trend according to the traffic safety offices interviewed, was the increased knowledge about the true science of injury prevention, understanding the three E's; engineering, education, and enforcement. The specific factors that were mentioned were:

- Overall roads and cars became better engineered
- Airbags became the norm in new cars
- Road construction improved
- The National Highway Traffic Safety Administration (NHTSA) significantly increased its funding to the states for traffic safety programs
- Funds could be spent on a broader array of projects including public education campaigns with purchased advertisements in print, radio, or television outlets
- New laws specific to traffic safety were enacted in many states
- Increased national awareness of the need to buckle children properly
- National awareness around injury prevention

This national context affected all states, thus the question became what was going on in the six states that improved above and beyond the national trend and why did they have more success in teen and child death rate reduction than other states.

## IMPROVEMENT IN TEEN DEATH RATES FROM MOTOR VEHICLE CRASHES

### *Demographic and socio-economic characteristics*

Utah, Washington and Vermont were the three states identified for teen death rate case studies. The table below provides statistics for each state. The year 2005 has been used for the state overview to coincide with the same data year used for the statistical analysis.

**Table 3 - 2005 Demographic and Socio-economic characteristics of teen deaths case study states compared to Montana and South Dakota**

TOTAL POPULATION	UT	WA	VT	MT	SD
	2,400,000	6,100,000	602,00	911,000	746,000
Female	1,200,000	3,100,000	306,000	458,000	377,000
Male	1,200,000	3,100,000	296,000	452,000	369,000
RACE	UT	WA	VT	MT	SD
White	91%	84%	98%	92%	89%
Hispanic	11%	9%	1%	2%	2%
Black/African American	1%	3%	>0.5%	>0.5%	1%
American Indian/Alaska Native	1%	1%	>0.5%	6%	9%
Asian	2%	7%	1%	1%	1%
Native Hawaiian/ and Other Pacific Islander	1%	>0.5%	>0.5%	>0.5%	>0.5%
Some Other Race Alone	4%	4%	>0.5%	1%	1%
AGE	UT	WA	VT	MT	SD
% of Population under 18	30%	24%	22%	22%	25%
% of Population 65 and older	8%	11%	13%	13%	14%
Average Household (# of people)	3.1	2.5	2.4	2.5	2.4

**Table 3 - 2005 Demographic and socio-economic characteristics of teen deaths case study states compared to Montana and South Dakota, continued**

EDUCATION	UT	WA	VT	MT	SD
% High School graduates	90%	89%	90%	91%	89%
% Bachelor's degree or higher	28%	30%	33%	27%	25%
% not enrolled in school & not graduated H.S.	10%	11%	11%	9%	11%
ECONOMIC	UT	WA	VT	MT	SD
Median Household Income	\$47,934	\$49,262	\$45,686	\$39,301	\$40,310
% at or below Federal Poverty Line	10%	12%	12%	14%	14%
% under 18 below the Federal Poverty Line	11%	15%	15%	20%	18%
% low-income working families	8%	8%	8%	11%	10%
Median monthly housing cost for home owners	\$1,200	\$1,454	\$1,242	\$1,026	\$986
Median monthly housing cost for renters	\$665	\$741	\$683	\$552	\$500

Source: U.S. Bureau of the Census, 2005 American Community Survey ([www.census.gov](http://www.census.gov))

### ***Similarities and differences***

All states have a predominantly white population with little racial diversity. The Hispanic population in Washington and Utah, 9 percent and 11 percent respectively, are the highest percentage of minorities in any of the states, while Montana and South Dakota have higher American Indian populations at 6 percent and 9 percent respectively. The percent of the population below 18 years old is relatively similar for all, with Utah being highest. Educational differences between the states are only slight with high proportions of the populations being high school graduates or holding secondary degrees. These high rates would most likely show greater disparities if the indicators were desegregated by race.

Montana and South Dakota are consistently lower on economic indicators with lower median household income, higher poverty rates and more low-income working families. Housing costs are lower in both these states than in the other three.

### *Comparisons on AECF State Rankings 2005*

The 10 AECF KIDS COUNT Data Book Indicators are used to compare Utah, Washington and Vermont to Montana and South Dakota. The National KIDS COUNT Data Book ranks all states on these ten indicators. For the purposes here, the rank among all 50 states is used to determine where the five are positioned in relationship to each other. Table 4 shows the national ranking of the five states on the ten indicators

**Table 4 - 2005 Annie E. Casey Foundation KIDS COUNT state rankings for Washington, Utah, and Vermont compared to Montana and South Dakota**

KIDS COUNT Indicators	WA	UT	VT	MT	SD
% Low-birth weight Babies	1	10	4	7	7
Infant Mortality Rate	2	1	24	28	29
Child Death Rate	6	27	42	38	46
Teen Death Rate	9	11	29	40	47
Teen Birth Rate	12	16	2	21	24
% Teens who are High School Drop-outs	16	16	4	16	16
% Teens not Attending School & not Working	31	6	9	19	19
% Kids Living in Families Where no Parent has full-time, year-round Employment	36	1	16	36	14
% Children in Poverty	16	2	16	36	26
% Children in Single-Parent Families	12	1	26	12	12

Source: Annie E. Casey Foundation (<http://www.kidscount.org/datacenter/>)

Of the 3 states that improved their teen death rates from motor vehicle crashes during 1990 – 2004, Utah and Washington ranked significantly higher than Montana and South Dakota. However, Vermont ranked poorly among all states on both child and teen death indicators at 42<sup>nd</sup> and 29<sup>th</sup>. When Vermont's trend over the period is reviewed, its teen death rate has had some variation; its low population number would account for some of these highs and lows. It was learned during an interview with the traffic safety division that there was one significant motor vehicle crash resulting in multiple teen deaths in that year. The year 2005 may have had an anomalous event that raised its rates, given that in 2004 the state ranked 8<sup>th</sup> best on teen death rates, but in 2005 was down to 29<sup>th</sup>. This does point out some of the problems with using a single year's rankings to compare states; however, for this study it provides a compact way to make an overview examination.

All five states ranked fairly close together on the percent of low birth weight babies with a high ranking of 1 (Washington) and the lowest being 10 (Utah). Utah and Washington ranked first and second in the nation on their infant mortality with none of the states ranking below 7<sup>th</sup>. On the teen birth rate indicator, Vermont stood out as second highest ranking with the others distributed between 12<sup>th</sup> (Washington) and 24<sup>th</sup> (South Dakota).

The next two indicators (percent of teens who are high school drop-outs and percent of teens not attending school & not working) showed some similarities with Vermont ranking best in the nation with all others placing tied at 16<sup>th</sup>. Vermont and Utah both ranked high in the second indicator, with Washington ranking lowest among the five states at 31<sup>st</sup>.

The next three indicators relate to economic security: percent of kids living in families where no parent has full-time, year-round employment; percent of children in poverty; and percent of children in single-parent families. There is great variability between the five states except for Utah which ranked best in the nation on all three indicators. Montana and Washington ranked worse among the five states on the percent of kids living in families where no parent has full-time, year-round employment. Montana and South Dakota had the worst ranking among the five states on the percent of children in poverty. Vermont ranked worse on the percent of children in single-parent families with Washington, Montana and South Dakota tying at 12<sup>th</sup>.

An overall ranking for 2005 for all the states ranked Vermont highest at 2<sup>nd</sup>, Utah at 9<sup>th</sup> and Washington at 14<sup>th</sup>; Montana and South Dakota are at 34<sup>th</sup> and 21<sup>st</sup>, respectively. Using this relatively simple approach of comparing rankings shows that in general Montana and South Dakota have greater social and economic challenges for their vulnerable children and families than do the other three states.

### ***Comparisons from the Statistical Analysis***

The quantitative section of this report identified factors that are significant predictors of teen deaths resulting from motor vehicle crashes. These were used to compare the 3 states that improved their teen death rates from motor vehicle crashes to Montana and South Dakota. These factors are:

- The portion of a state's highway miles that is rural
- The portion of high school students who drove while drinking alcohol
- The portion of high school students who had used tobacco at least once in the past month
- The prevalence of single-parent families

Table 5 shows that all states have substantial percentages of highway miles that are rural. Montana and South Dakota have considerably higher rates than the other states when it comes to both types of high school student risk behaviors. However, Vermont has the highest rate of single parent families, although Washington, Montana and South Dakota are not far behind.

**Table 5 - Comparison of factors determined to be significant predictors of teen deaths resulting from car crashes**

	Washington	Utah	Vermont	Montana	South Dakota
Portion of highway miles that are rural	75%	82%	86%	97%	96%
Drove when drinking alcohol (% of teens 12-17)	0.0%	4.1%	8.9%	18.5%	17.2%
Tobacco use, past month (% of teens 12-17)	11.7%	10.4%	16.4%	19.6%	19.1%
Single parent families (% of all families)	28%	18%	31%	28%	28%

Sources: U.S. Dept. of Transportation; U.S. Dept. of Health & Human Services; Annie E. Casey Foundation

### ***Geographic Size, Characteristics of Roads and Identified Travel Patterns***

Montana (7) and South Dakota (10) have very low population density compared to Utah (31), Washington (91) and Vermont (65). The geographic size of the state is important as it pertains to the distance people travel within the state; Montana is 147,046 square miles, South Dakota is 77,121, Utah is 84,900, Washington is 71,303, and Vermont is 9,609. The number of highway miles that are rural relates to both the size of the state and its population density; by this measure, Montana and South Dakota have a very high percent of rural highway miles with 97 percent and 96 percent respectively. The other three states are somewhat similar with 82 percent in Utah, 74 percent in Washington and 86 percent in Vermont.

There are distinctive commuting travel patterns in all states as reported by the U.S. Census Bureau. All five states were very similar in terms of the percent of people who drove to work alone (75 percent +/- one percentage point); the percent of people who carpooled (11-13 percent); the percent of people who worked at home (5 or 6 percent) and the percent of people who took public transportation (between .5 and 1 percent). The people who lived in the more densely populated states of Utah, Washington and Vermont had a longer commute to work than in Montana and South Dakota.

### **Traffic Safety Policies in Place**

Traffic safety policies for examining teen deaths were identified; these are DUI/DWI laws licensing systems for young drivers, seat belt use laws, and cell phone laws. The Insurance Institute for Highway Safety (IIHS) conducts a comprehensive examination of traffic safety laws and has devised a standardized point system for each law that enables them to rate a state as *Good*; *Fair*; *Marginal* or *Poor*. A comparison of Utah, Washington, Vermont, Montana and South Dakota on the identified traffic safety laws follows.

**Table 6 – Insurance Institute for Highway Safety ratings on traffic safety policies**

<b>Laws and Regulations</b>	<b>WA</b>	<b>UT</b>	<b>VT</b>	<b>MT</b>	<b>SD</b>
DUI/DWI	Fair	Good	Good	Fair	Fair
Young Drivers Licensing system	Good	Good	Good	Marginal	Marginal
Safety belt use	Good	Marginal	Marginal	Marginal	Marginal

### **DUI/DWI laws**

Only Utah and Vermont have a *Good* rating on their DUI/DWI laws. Montana, South Dakota and Washington all rate *Fair*. Washington received the *Fair* rating because of the possibility that driving privileges can be restored after 30 days of a DUI suspension period if the offender can prove special hardship. In Montana and South Dakota there are no administrative license suspensions after the first offense. On the other hand, the other three states require a 90 day suspension after the first offense.

### **Young Driver Licensing**

This is the most complex of the laws and regulations rated by IIHS, and divides the young drivers licensing (YDL) into three parts: learner stage, intermediate stage restrictions on driving while unsupervised, and minimum age at which restrictions may be lifted. Washington and Utah both rate *Good* for their YDL laws and regulations. Vermont rates *Fair*; the state does not have nighttime restrictions during the intermediate stage on driving while unsupervised. It has a 3 month passenger restriction compared to Washington and Utah's 6 month restriction. Montana and South Dakota both rate *Marginal* on their YDL laws. Their minimum entry age is 14 ½ and 14 respectively with South Dakota having no requirement for a minimum amount of supervised driving. Another major difference between Montana and South Dakota and the other states is within the intermediate stage restrictions on driving while unsupervised. Both states have lower minimum age on driving while unsupervised (Montana-15 and South Dakota-14½). The other states require young drivers be 16 year old before they can drive unsupervised.

### Safety Belt Use

Washington is the only state that has a *Good* rating on its safety belt use laws. All others rate *Marginal*. As can be seen, only Washington has a standard enforcement or primary seat belt law, meaning police may stop vehicles solely for seat belt law violations.

### Cell Phones

Cell phone laws are not currently rated by IIHS, although they are included in the laws and regulation summary for each state. Three cell phone restrictions are listed:

- Hand-held ban
- All cell phone ban
- Enforcement.

The cell phone comparisons are shown below.

**Table 7 – Insurance Institute for Highway Safety comparison of cell phone use restrictions of all five states.**

Type of Cell Phone Restrictions	WA	UT	VT	MT	SD
Hand-held ban	Yes (effective 07/01/08); text messaging prohibited	Yes <sup>1</sup>	No	No	No
All cell phone ban	No	No	No	No	No
Enforcement	Secondary	Secondary <sup>1</sup>	N/A	N/A	N/A

Source: [www.iihs.org](http://www.iihs.org)

<sup>1</sup>Utah's law defines careless driving as committing a moving violation (other than speeding) while distracted by use of a hand-held cell phone or other activities not related to driving.

The table shows that only Washington and Utah have any type of hand-held cell phone restriction, although in both states enforcement is secondary, meaning that the police may not stop vehicles solely for cell phone law violations. **Vermont, Montana and South Dakota have not yet passed any cell phone restriction legislation.**

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## KEY INFORMANT INTERVIEWS – TEEN DEATHS

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Traffic Safety Offices in each state were contacted by telephone. The interviewees were enthusiastic and forthcoming about their work and were rightfully proud of their achievements in saving the lives of young people in their state. A total of five people were involved with the interviews; all but one was within the state's Traffic Safety Division, with some having worked there up to fifteen years and others being newer to the Division. The fifth person interviewed was with the State Highway Patrol.

The salient themes that emerged from the interviews are summarized below. The synopsis barely captures the many programmatic efforts and multi-faceted approaches that have contributed to the overall reduction in teen deaths from motor vehicle crashes. This report focuses on the larger picture of traffic safety issues in the states rather than details about specific programs.

### *Coalitions and Collaborations*

Washington and Utah were intentional in building relationships, coalitions and collaborations with other state agencies, as well as creating public/private partnerships. Washington has worked with insurance companies and Seattle-based hospitals to increase funding opportunities, mobilize public efforts, and conduct research projects. Washington's relationship with AAA has been long-standing and productive, providing an ally who often works on legislative issues around traffic safety concerns. The Washington Traffic Safety Commission has further focused efforts by identifying programmatic areas of interest and assigning them to specific staff members. For example, they have staff members dedicated to further research on such issues as DUI, speed, traffic safety corridors, teen driving, etc. In doing so, this allows the staff to build partnership coalitions with those stakeholders interested in working on these specific problem areas.

It was this type of broad stakeholder support across governmental, non-profit, and business organizations that allowed Washington State to frame its Strategic Highway Safety Plan, known as Target Zero. The intent of the agreement is to focus all stakeholders' attention on trying to eliminate all traffic fatalities and disabling injuries in Washington State by 2030. By explicitly detailing goals, objectives, and strategies, it has helped focus efforts across agencies and missions on the broader problems that are impacting traffic safety.

A strong coalition of diverse partners is the number one component needed to address teen deaths, according to those interviewed in Utah. They agreed that just the Highway Safety Office, the State Patrol, and a local community cannot do it alone; rather, the effort has to be an integrated wide-ranging program. Thus, they have built many close relationships, such as with the state's children's hospital, their largest non-profit partnership. They also work closely with AAA. The Utah Safety Council works on traffic safety issues on a state-wide basis and has approximately 200 members. Their corporate partnerships include Toys R Us, car dealerships

as well as local sports teams. On the advocacy side, the Utah chapter of Mothers Against Drunk Driving is active on impaired driving issues and supports traffic safety campaigns such as the “Click It or Ticket” events.

In Vermont, the traffic safety office is involved with other existing partnerships, especially with the Department of Education and the Department of Health, both of which have youth programs focused on safe driving practices. In the Department of Education, the program is called the Vermont Teen Leadership Safety Council, which works specifically in high schools and middle schools. The primary focus is making good choices about not drinking and driving, as well as not riding with a drinking driver. Each year in Vermont, a Governor’s Youth Leadership Safety Conference is held, bringing in a number of students from each member high school and conducting training through peer-to-peer activities. The entire conference is coordinated and managed by teens. These same young adults and teens coordinate programs in their high schools and in their communities.

### **Public Education**

Public education campaigns were considered very important by all three states in their efforts to reduce teen motor vehicle fatalities. Washington mentioned how things began to change in 2000-2001 with high-visibility enforcement campaigns after the National Highway Traffic Safety Administration (NHTSA) changed its rules and allowed funds to be used for purchasing media for public education campaigns. Washington has a public information manager who is responsible for both buying advertisements and for getting stories, public service announcements, and editorials into print and other media outlets resulting in high visibility in the state. The public education component of Washington’s Target Zero rests in the ability to continue to educate citizens about its goals, intent, and potential impact. One component of that education must strive to inform parents about the potential dangers associated with teen driving as well as the statistics related to teen deaths and injuries associated with teen collisions. At least two potential areas where further education can occur include the public instruction component of teen drivers licensing and the licensing process itself. Washington has a Teen Driving Subcommittee working on both avenues in order to build on many of the recent intermediate drivers licensing law provision successes.

Vermont had an interesting perspective that, after many years of educating the public about using seat belts, the good habit is now part of Vermont’s culture. Young adults and parents are more conscious of how to protect their children. Two means by which the state got the word out about safe driving is through partnerships with The Vermont Youth Leadership Conference and the Vermont Teen Leadership Safety Program. Also the Department of Health has a program, Injury Prevention and Healthy Vermonters that focuses on seat belt use. Utah has approached their solutions with education mainly because state traffic laws have not been the strongest in the nation. They have seen the traffic safety education efforts move from very small, localized, mini-grant type programs to very large, state-wide efforts involving media and many new partners. Utah is one of the few states where media reports on whether people killed in motor vehicle crashes were wearing seat belts or not. The media have been very supportive of traffic safety programs and were identified as big advocates for public

safety. The respondents said it has taken years to create relationships with their media but has been well worth the effort.

### ***Positioning of the Traffic Safety Office***

Where the Traffic Safety Division is positioned within state government was considered to be an important factor to Washington and Utah. Washington has a Traffic Safety Commission positioned in the governor's office with the Governor as the chair of the Commission. The commissioners are directors from every state agency with an interest in traffic safety. Both Utah's Office of Highway Safety and Vermont's Governor's Highway Safety Program are positioned in the states' Department of Public Safety. Montana's Traffic Safety Division is within the Department of Transportation, while South Dakota is within the Department of Public Safety.

How each Traffic Safety Office interacts with other state agencies was considered another important factor in improving traffic safety. High level decision-makers comprise the commission in Washington; however, Washington also has a separate teen driving work group made up of representatives from the same agencies that are on the commission, but are positioned at a different level of the organizational chart. Utah's Office of Highway Safety has established a very close relationship with their Department of Transportation and Department of Health. When they discuss this with other states' traffic offices they have found that other states are surprised by this close working relationship. Vermont is a small state both in terms of geography and population, making it easier for its Traffic Safety Division to interact on a regular basis with other departments and agencies within state government. Thus, they did not feel where they were located to be as important as the other two states.

### ***Available funding from the federal government***

All states have similar constraints about how to spend their highway safety dollars from the National Highway Traffic Safety Administration. However, many different issues surfaced when talking about the 1990 – 2004 timeframe, other than the ability to buy media as mentioned above.

Utah responded that there has been adequate, while not overly generous, funding for passenger safety issues. During the timeframe addressed by the study, federal funding levels increased, which is felt to have been part of the success in reducing teen deaths from motor vehicle crashes.

Washington has become more focused in its use of federal funding and has moved away from using it in the most populated counties. [It funds traffic safety task force coordinators in 25 out of 39 counties in the county public works office, the local police department or sometimes in a non-profit organization]. They also decided in 1995/96 to reassess how they spent their traffic safety dollars and moved to more outcome-based assessments of their programs. They now focus only on “the big three”: seat belts, DUI and speed, with as much emphasis as possible on supporting changes in the Young Driver Licensing program.

### ***New laws passed such as young driver licensing laws and seat belt laws***

Washington reported that much of their reduction in teen deaths from motor vehicle crashes can be attributed to the 2001 passage of their Intermediate Driver Licensing (IDL) law. Further refinements on the IDL are being undertaken. However, Washington also had a change in drivers’ education within the last 10 years. There are now very few public schools who offer the program; consequently, most parents have to go to the more expensive private sector to place their teens in driver education programs. These programs often cost from \$350 - \$700, which place them out of the reach for some low-income families.

As in all states, philosophical differences have played a part in what laws have been passed. In Washington this plays out in the difference between a very progressive, liberal west coast and a very conservative, independent-thinking eastern half of the state. Presumably the reason the state does not have immediate impounding of a vehicle after a DUI as a state-wide law is because most of the west coast legislators do not want to punish anyone else in the family who may need to use the car. Another major issue is on checkpoints. A Supreme Court decision ruled check points unconstitutional based on a checkpoint that was used in Seattle in the late ‘80s.

It appears to be much easier to get draft legislation or legislation through the Legislature in Utah when it affects children. In the opinion of the interviewee it was much easier to get the child passenger safety laws for child seats passed than it will be to ever get a primary seat belt law in Utah.

In Vermont, a tragic 1996 crash resulted in the Legislature taking up action on under-age drinking and under- age drinking and driving. They passed a law to fund troopers for DUI enforcement in the state police. It continues to fund a grant program for specific DUI enforcement by local law enforcement and county sheriff. Also, a partnership between a senator and representative established a teen alcohol safety program which de-criminalized the possession of alcohol by an underage person and directed them to a diversion program run by the Diversion Department within the state’s juvenile justice system. If under-age drinkers are caught with alcohol, it does not show up on their driving record. The teen gets one chance to go to a diversion program.

### ***Political Commitment***

Answers differed when asked about political commitment to traffic safety issues in the three states. In Vermont the commitment was felt to ebb and flow. When there is a tragedy, there is much more willingness to act on the issue. When the data shows an improving trend in the number of teens killed, the issue is put on the back burner as other competing interests take precedence. Both Washington and Vermont identified specific legislators who are champions in their state on the issue of teen deaths resulting from motor vehicle crashes. In Utah, it is felt that cultural commitment to children and families ensures a political commitment to reducing child and teen death rates resulting from motor vehicle crashes.

### ***Relationship with enforcement***

Questions were asked about state commitment to enforcing traffic safety laws. Even though the question did not pertain specifically to child passenger safety issues, all three states underlined the commitment to child passenger safety laws at all levels of law enforcement. This is over and above the commitment to traffic safety laws in general.

In Utah, most entities, especially the State Police and also many of the local law enforcement agencies, stress education. The example given was on child seat installation but it illustrated the point. If an officer pulls over a person who does not have a child properly restrained, he or she will assess whether that person had a genuine knowledge of child passenger safety laws or whether there was genuine ignorance. And if the offender is genuinely ignorant the officer will take that opportunity to educate the driver rather than immediately write a ticket.

In rural Utah, some of the traffic safety partnering agencies noted that local law enforcement officers do not want to give tickets to their neighbors and friends for seat belt violations. Washington understands this problem and has been working on it for years. However, the interviewees feel it is probably an issue in all states. They work to overcome the problem by strengthening partnerships with the law enforcement agencies, providing them tools for education and training.

Washington respectfully offers the local community help and this has been successful. Washington State is one of the few highway safety offices in the nation that provides assistance to anyone who may call. They are focused on problem solving and providing resources at the local level. They bid out traffic safety coordinator positions in the community so that it is a local person who implements programs from the traffic safety division. When there is a state-wide program, local coordinators work with law enforcement. The local coordinators form a local task force to put together a comprehensive traffic safety program in their area. It is felt that there are many local community members invested in traffic safety who are willing to put time, energy, and funds on the table to work on these issues.

The law enforcement officer in Washington stressed the advantages of consistently training law enforcement personnel across the state and bringing them together at the same point to do the training. Many states conduct training at regional or local levels, where officers may not be hearing a consistent message. Another point stressed was to spend time in areas where the data shows the problems exist. Law enforcement education must focus on the need to identify youth risk behavior *before* it gets to tragic outcomes; then teens can be encouraged to enter diversion and other education programs. Proactive traffic stops by law enforcement officers is one of the performance measures used by the Washington State Patrol.

In Vermont, the traffic safety office runs a grant program for local and county agencies for specific DUI enforcement. In order to be part of this grant program, police officers or enforcement entities are required to work with other agencies within their area. Most of these agencies are small and do not have enough officers available for safety checks unless they work with other people. A program called Stop Teen Alcohol Risk Taking, which is run through the Department of Health with a Department of Justice grant, funds teams of officers to interdict and discourage underage drinking. The officers go to schools and give talks. If somebody reports a party of underage drinkers in progress, there are funds to call out six officers from six different departments who together go to stop the party and thus the drinking. The officers issue citations for referral into the teen alcohol safety program. If teens have been drinking, the officers make sure that the teens have a safe way home and many times will call parents. So the effort is two-fold: one is prevention of under-age drinking and the other is to react when it does occur.

### ***Reaction to factors***

Each state was asked to react to certain factors identified by this study's statistical analysis which showed them to be significant predictors of a state's teen death rate from motor vehicle crashes. For teens it showed the following factors:

- The portion of a state's highway miles that is rural
- The portion of high school students who drove while drinking alcohol
- The portion of high school students who had used tobacco at least once in the past month
- The prevalence of single-parent families

The first factor resonated with all states. In Washington, 61% of all of fatalities were on rural roads and 39% were on urban roads. In Utah, seat belt usage rates are much lower in the rural communities. Likewise in Vermont, the rural nature of the state requires that teens have longer driving distances between activities. These rural roads may not be paved and are often dangerously winding and more treacherous in the winter.

The second factor, involving the portion of high school students who drove while drinking alcohol, was obvious so few comments were made.

The tobacco issue was not an obvious risk factor. It was speculated that perhaps teens who smoke may be ones who indulge in more risky behaviors than their non-smoking peers, a fact which is stated previously in this report.

The prevalence of single-parent families was recognized as a poverty factor. The correlation between low-income youth and teen death rates was mentioned in the Utah interview. Another factor that was identified was race; Hispanic teens are over-represented in teen death rates. Utah has been trying to provide more information, resources and help around traffic safety issues in Latino communities.

### **Conclusion**

The IIHS ratings are overall better for Washington, Utah and Vermont than for Montana and South Dakota. The latter two states are more rural and have higher poverty rates than the states that improved teen death rates; in the regression analysis both these factors were seen to statistically predict teen deaths resulting from motor vehicle crashes. Likewise, both Montana and South Dakota had higher rates of teens that drove after drinking alcohol.

The IIHS ratings on states' traffic safety policies show that Washington, Utah and Vermont were *Good* in at least two out of the three listed policies (DUI/DWI, young drivers licensing system and seat belt use). Montana and South Dakota did not rate *Good* in any category and rated *Marginal* in two out of the three policy categories (both young drivers licensing system and seat belt use).

When interviewees were asked what they thought was going on in their state during the 1990 – 2004 timeframe to help reduce teen death rates from motor vehicle crashes, several common themes emerged. The most significant factors mentioned by all respondents were establishing collaborations with other stakeholders and general public education on the issue. The interviews demonstrated a high level of successful collaborative efforts. As stated by one of the Washington respondents, "The single greatest advantage to forming a statewide traffic safety coalition is the ability for its partners to focus their efforts across a wide variety of issues that impact traffic safety in every community across the state (education, enforcement, and engineering)." In other words, traffic safety is a multi-faceted issue and must be addressed by all stakeholders.

## IMPROVEMENTS IN CHILD DEATH RATES FROM MOTOR VEHICLE CRASHES

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Colorado, Oregon and New York were the three states identified as decreasing their child death rates resulting from motor vehicle crashes during 1990-2004. There are important differences between child and teen death rates due to motor vehicle crashes. As noted on page 3, according to the Center for Disease Control, the leading causes of death differs by age group. With 1 – 3 year olds the leading cause of death is unintentional drowning and the second leading cause of death is unintentional motor vehicle crashes. Children 4 – 11 and 12 – 19 years old were more likely to die from motor vehicle crashes than all other causes. Another factor differentiating teen deaths and child deaths from motor vehicle crashes is who causes the fatality. Children under the driving age are usually victims of another person's actions. This basic difference plays out in how children are kept safe in motor vehicles and what laws and regulations are passed to help adults look after them.

### *Demographic and socio-economic characteristics*

The following is a table with statistics for each state identified for the case studies. The year 2005 was used for the state overview to coincide with the data year as used for the statistical analysis.

**Table 8 - 2005 Demographic and Socio-economic characteristics of child death case study states compared to Montana and South Dakota**

<b>TOTAL POPULATION</b>	<b>CO</b>	<b>NY</b>	<b>OR</b>	<b>MT</b>	<b>SD</b>
Female	2,300,000	9,700,000	1,800,000	458,000	377,000
Male	2,300,000	9,000,000	1,800,000	452,000	369,000
<b>RACE</b>	<b>CO</b>	<b>NY</b>	<b>OR</b>	<b>MT</b>	<b>SD</b>
White	86%	68%	89%	92%	89%
Hispanic	2%	16%	10%	2%	2%
Black/African American	4%	16%	2%	>0.5%	1%
American Indian/Alaska Native	1%	>0.5%	1%	6%	9%
Asian	3%	7%	4%	1%	1%
Native Hawaiian/ and other Pacific Islander/	>0.5%	>0.5%	>0.5%	>0.5%	>0.5%
Some Other Race Alone	7%	9%	4%	1%	1%
<b>AGE</b>	<b>CO</b>	<b>NY</b>	<b>OR</b>	<b>MT</b>	<b>SD</b>
% of Population under 18	26%	24%	24%	22%	25%
% of Population 65 and older	10%	13%	13%	13%	14%
Average Household	2.5	2.6	2.5	2.5	2.4
<b>EDUCATION</b>	<b>CO</b>	<b>NY</b>	<b>OR</b>	<b>MT</b>	<b>SD</b>
% High School graduates	89%	84%	88%	91%	89%
% Bachelor's degree or higher	36%	31%	28%	27%	25%
% Not enrolled in school & not graduated H.S.	11%	16%	13%	9%	11%

**Table 8 - 2005 Demographic and Socio-economic characteristics of case study states compared to Montana and South Dakota, continued**

ECONOMIC	CO	NY	OR	MT	SD
Median Household Income	\$50,652	\$49,480	\$42,944	\$39,301	\$40,310
% At or below Federal Poverty Line	11%	14%	14%	14%	14%
% Under 18 below the Federal Poverty Line	14%	19%	18%	20%	18%
% Of low-income working families	8%	11%	10%	11%	10%
Median monthly housing cost for home owners	\$1,443	\$1,652	\$1,296	\$1,026	\$986
Median monthly housing cost for renters	\$757	\$841	\$689	\$552	\$500

Source: U.S. Bureau of the Census, 2005 American Community Survey ([www.census.gov](http://www.census.gov))

### *Similarities and differences*

New York is the state with the lowest percent of white population at 68 percent, while Montana at 92 percent has the highest percent white population. New York has the highest African-American population but the lowest American Indian population. New York and Oregon have the highest Hispanic percentage at 16 and 10 percent, respectively. Montana and South Dakota are the only states with a significant American Indian population.

The percent of the population below 18 years old is relatively similar and all are close to the national percent of 25. Educational differences between the states are only slight; large portions of the populations are high school graduates or hold secondary degrees. These high rates would most likely show greater disparity if the indicators were desegregated by race.

There is more income disparity among these states than among the states examined in the teen death rate section. Colorado has the highest median income, followed closely by New York. Oregon is closer to both Montana and South Dakota than any of the other states with an approximate \$2,600 difference. However, poverty rates at 14 percent are exactly the same for all states except Colorado, which has a poverty rate of 11 percent. Housing costs are lower in Montana and South Dakota than in the other three states.

### *Comparisons on AECF State Rankings 2005*

This section uses the 10 KIDS COUNT Data Book Indicators to compare Colorado, New York and Oregon to Montana and South Dakota. The National KIDS COUNT Data Book ranks all states on these ten indicators. For the purposes of this section, the rank among all 50 states is used to determine where the five are positioned in relationship to each other. Table 8 shows the national ranking of the five states on the ten indicators.

**Table 9 - 2005 AECF KIDS COUNT state rankings for Colorado, New York and Oregon compared to Montana and South Dakota**

KIDS COUNT Indicators	CO	NY	OR	MT	SD
% Low-birthweight Babies	41	27	1	7	7
Infant Mortality Rate	18	10	13	28	29
Child Death Rate	22	6	12	38	46
Teen Death Rate	16	5	8	40	47
Teen Birth Rate	32	8	16	21	24
% Teens who are High School Drop-outs	27	9	16	16	16
% Teens not Attending School & not Working	9	19	19	19	19
% Kids Living in Families Where no Parent has full-time, year-round Employment	16	30	44	36	14
% Children in Poverty	11	30	26	36	26
% Children in Single-Parent Families	8	39	16	12	12

Source: Annie E. Casey Foundation (<http://www.kidscount.org/datacenter/>)

As can be seen from the table, the three states that improved their child death rates resulting from motor vehicle crashes all ranked higher than Montana and South Dakota. There were also significant differences in indicators other than child death rates. Oregon, Montana and South Dakota ranked within the top ten best in the percent of low birth weight babies. For the latter two states this reversed when looking at infant mortality rates and teen birth rates; Colorado, Oregon and New York ranked much better than Montana or South Dakota.

The next two indicators (percent of teens who are high school drop-outs and percent of teens not attending school & not working) placed Oregon, Montana and South Dakota in a similar position relative to each other. The only factor to really stand out in these indicators is Colorado's 27<sup>th</sup> position on its high school drop-out rates compared to the four other states that were all positioned in the top third of the country.

The next three indicators are very closely related to economic security: percent of kids living in families where no parent has full-time, year-round employment, percent of children in poverty and percent of children in single-parent families. There is great variability between the five states. Colorado had the best ranking of the percent of children in poverty at 11<sup>th</sup>, with all other four states being 26<sup>th</sup> or lower. South Dakota ranked well in percent of full-time, year round employed parents and percent of children in single-parent families. New York ranked

lowest on the latter indicator at 44<sup>th</sup> worse in the nation. Except for Colorado's ranking of 8<sup>th</sup> in the percent of children in single-parent families, all other states were ranked in double figures.

An overall national ranking for 2005 shows that Oregon ranked highest among the five states at 18<sup>th</sup>, then New York at 20<sup>th</sup> and Colorado at 26<sup>th</sup>. Montana and South Dakota ranked 34<sup>th</sup> and 21<sup>st</sup> respectively. Using this approach at comparing the 5 states, it would not appear that there is a significant difference between them, except for Montana which is the only state ranking in the bottom third of all states.

### *Comparisons from the Statistical Analysis*

This section looks at the factors identified by the statistical analysis as significant predictors of child deaths resulting from motor vehicle crashes. They are compared between the five states. The factors are:

- Highway miles that are rural
- The presence of a Young Driver Licensing program
- The rate of Food Stamps eligibility combined with a state's portion of idle youth.

**Table 10 - Comparison of factors determined to be significant predictors of child deaths resulting from motor vehicle crashes**

	Colorado	New York	Oregon	Montana	South Dakota
Portion of highway miles that are rural	76%	54%	87%	97%	96%
The presence of a Young Driver Licensing program	yes	yes	yes	yes	yes
Food Stamps eligibility rate as a percent of total population	9.6%	14.6%	12.6%	13.9%	12.4%
Percent of idle youth	7%	8%	8%	8%	8%

Sources: U.S. Dept. of Transportation; Insurance Institute for Highway Safety; U.S. Dept. of Agriculture; Annie E. Casey Foundation

Table 10 does not show great differences between the five states on the last three factors. However, the number of rural highway miles is much higher in Montana and South Dakota. The presence of a Young Driver Licensing program will be discussed in the section on traffic safety policy as there are great differences within each state on what this policy entails.

### ***Comparisons of Geographic Size, Characteristics of Roads and Identified Travel Patterns***

Montana (7 persons per square mile) and South Dakota (10 persons per square mile) have very low population density per square mile compared to Colorado (42 persons per square mile), New York (402 persons per square mile) and Oregon (36 persons per square mile). The large difference in the population density of New York relative to the other states is due to the concentration in New York City; when New York City is removed from this calculation, the population density in the state is 196 people per square mile. The geographic size of the states is important as it pertains to the distance people travel within the state. Montana has 147,046 square miles; South Dakota has 77,121, Colorado 104,100, New York 54,471 and Oregon 98,386. The number of highway miles that are rural relates to both the size of the state and its population density; by this measure, Montana and South Dakota have a high percent of rural highway miles with 97 percent and 96 percent respectively. Oregon has the next highest number of rural miles at 87 percent; Colorado and New York have smaller percentages at 76 and 54 percents.

There are distinctive commuting travel patterns in all states as reported by the U.S. Census Bureau. All states except for New York were very similar in terms of the percent of people who drove to work alone (75 percent +/- two percentage points); the percent of people who carpooled (10 -11 percent); the percent of people who worked at home (all 6 percent) and the percent of people who took public transportation (between 0.5 and 1 percent). New York was the only state with differences: 55 percent of people drove to work alone; 8 percent of people carpooled; 3 percent of people worked at home and 26 percent of people took public transportation. The people who lived in the more densely populated states of Colorado, New York and Oregon had a longer commute to work than in Montana and South Dakota.

### ***Examination and Comparison of Traffic Safety Policies in Place***

Traffic safety policies for examining child deaths were identified as licensing systems for young drivers, seat belt use laws/child restraint use, cell phone laws and DUI/DWI laws. Although children in the 1 – 10 age group are not drivers, the young drivers licensing, DUI/DWI and cell phone restriction are important as they pertain to the drivers of the vehicles in which young children are passengers. The most important laws in this section are the child restraint laws, which determine size and age of children who must be placed in a child safety seat, and the type and position of the safety seat in which they must be placed. These laws were discussed at length in the case study interviews.

The Insurance Institute for Highway Safety (IIHS) has the most comprehensive examination of traffic safety laws and has devised a standardized point system for each traffic safety law that enables them to rate each on a scale of *Good*; *Fair*; *Marginal* and *Poor*. A comparison of Colorado, New York, Oregon, Montana and South Dakota on the identified traffic safety laws can be found in Appendix G. It shows how the states compare on the IIHS rating system. The table also breaks down each law or regulation into its different components so that details can be compared across states. Table X shows just the IIHS ratings on the pertinent laws.

**Table 11 Insurance Institute for Highway Safety ratings on traffic safety policies**

Laws and Regulations	CO	NY	OR	MT	SD
DUI/DWI	Good	Fair	Fair	Fair	Fair
Young Drivers Licensing system	Good	Good	Good	Marginal	Marginal
Safety belt use	Marginal	Fair	Good	Marginal	Marginal

### DUI/DWI laws

Only Colorado has a *Good* rating on their DUI/DWI laws; New York, Oregon, Montana and South Dakota all rate *Fair*. New York and Oregon have lenient policies on restoration of driving privileges during DUI suspension, although the restoration is contingent on proving special hardship. However, in Montana and South Dakota there is not an administrative license suspension after the first offense. Colorado and Oregon require a 90 day suspension after the first offense; New York's suspension is just until prosecution is complete.

### Young Driver Licensing

This is the most complex of the laws and regulations rated by IIHS. Their system separates the young driver licensing (YDL) into three parts: learner stage, intermediate stage restrictions on driving while unsupervised, and minimum age at which restrictions may be lifted. Colorado, New York and Oregon all rate *Good* for their YDL laws and regulations. Montana and South Dakota both rate *Marginal* on their YDL laws. Minimum entry age is 14 ½ and 14, respectively, and South Dakota does not have a minimum requirement for supervised driving. Another major difference between Montana and South Dakota and the other states is within the intermediate stage restrictions on driving while unsupervised. Both states have a lower minimum age on driving while unsupervised (MT -15 and SD - 14½); the other states require that young drivers be 16 before they can drive unsupervised.

### Safety Belt Use

Oregon is the only state that has a *Good* rating on its safety belt use laws; New York rates a *Fair* and all others rate *Marginal*. Both Oregon and New York have standard enforcement or primary seat belt laws, meaning police may stop vehicles solely for seat belt violations. New York rates a *Fair* as it does not require seat belt use in rear seats.

### Child Restraint Use

All states except Montana rate *Good* on this policy measure. Montana rates *Marginal* because of its secondary enforcement of child restraint use laws that requires all children younger than 13 in all vehicle seats use infant restraints, child seats or safety belts.

**Cell Phone**

Cell phone laws are not currently rated by IIHS, although they are included in the laws and regulation summary for each state; three cell phone restrictions are listed:

- Hand-held ban
- All cell phone ban
- Enforcement

The cell phone comparisons are provided in the table below.

**Table 12 – Insurance Institute for Highway Safety comparison of cell phone use restrictions of all five states**

Type of Cell Phone Restrictions	CO	NY	OR	MT	SD
Hand-held ban	No	Yes	No	No	No
All cell phone ban	Learner’s permit holders	No	Learner’s permit and intermediate license holders	No	No
Enforcement	secondary	primary	secondary	N/A	N/A

Source: Insurance Institute for Highway Safety website: [www.iihs.org](http://www.iihs.org)

Only New York has any type of hand-held cell phone restriction paired with a primary enforcement law. Colorado and Oregon have restrictions on learners using cell phones, although neither have this as a primary law.

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## KEY INFORMANTS INTERVIEWS – CHILD DEATHS

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Traffic Safety Offices in each state were contacted by phone. The interviewees were enthusiastic and forthcoming about their work and were rightfully proud of their achievements in saving the lives of children in their state. A total of ten people were involved with the interviews; all but three were within the states' Traffic Safety Division. These three all worked, in part, with issues concerned with traffic safety for the Oregon Public Health Division. Some interviewed had worked in traffic safety since the early 1990s and others had only just started in their positions. One of the people interviewed was with the state police but working within the Occupant Protection Unit of the state's traffic safety division.

The salient themes that emerged from the interviews are summarized below. The synopsis barely captures the many programmatic efforts and multi-faceted approaches that have been responsible for the overall reduction in child deaths from motor vehicle crashes. This report focuses on the big picture of traffic safety issues in the states rather than details about specific programs.

One clear difference between the interviews with these states versus the interviews that were teen-focused reflected the general difference between teens and children. The safety of children is not a sensitive issue based on values or perceptions; it is politically easier to "sell" and the cause gets a wider range of allies behind it. No one believes that the child is responsible when he or she dies in a motor vehicle crash. However, teenagers engage in risky behaviors that sometimes lead to bad decisions when driving. Thus the values and perceptions of society come into play when passing laws, developing media campaigns or doing community outreach in this area.

### *The Increased Focus on Child Safety Programs*

All states focused on programmatic improvements during the 1990 – 2004 timeframe using increased federal funding. A significant program established in this time period was the certification of child passenger safety technicians and the establishment of a set curriculum to train these technicians. Each state established slightly different programs, but all used their funding for grants to communities. Colorado established demographic-specific programs with five or six different curricula. The prevailing cultural norm in Oregon places a certain value on health and safety and the traffic safety division felt that this really helped their efforts.

The influx of new federal money for child passenger safety education projects made a significant difference in New York. The state created an easy application to the state grant program for which local communities could apply to establish a permanent fitting station, host a technician training course, car seat check events held at public venues and for car seat distribution programs for low-income families. New York, unlike many other states, will not pay overtime for members of law enforcement to perform these functions; instead they request that these activities are considered to be community services.

### ***Passage of Child Safety Laws***

Oregon identified key traffic safety laws around occupant protection that were passed during 1990-2004. These included child passenger safety laws as well as seat belt laws. In 2003, the Oregon state legislature passed a law that allowed a fine of up to \$10,000 if a person was convicted of a DUI and had a passenger in the vehicle who was under 18 years of age and at least three years younger than the driver. The commitment continues with improvements made to existing laws.

### ***Public Education***

The increased funding for child safety programs resulted in intensive public awareness campaigns. Using culturally appropriate materials is considered a priority in Colorado and Oregon.

The focus on and the high rate of seat belt use in Oregon was seen to have a trickle-down effect in motivating peoples' efforts to get children into safety seats. Also, Oregon tries to bring media attention to new laws that are passed, both through stories covered by local and state media outlets and through purchasing advertisements. The state promotes an 800 number which connects to a non-profit organization contracted to run a child safety seat resource center.

New York had an interesting result from one of their public education campaigns when the National Highway Transportation Safety Administration (NHTSA) was encouraging states to conduct public education campaigns to place children in the back seats of vehicles. Although New York did not have a law requiring this, the campaign was so successful that, when polled, people in Long Island thought there was a law prohibiting them from putting children in the front seat.

### ***Relationship with Enforcement***

The close relationship between traffic safety offices and the state police was obvious throughout the interviews; this point seemed stronger than in the teen-focused interviews. Ensuring that child safety traffic laws were enforced was a key reason that Colorado felt they had succeeded in reducing child deaths resulting from motor vehicle crashes.

Colorado's child safety seat technician training program works with law enforcement offices to train police. It also has developed a laminated card that helps officers identify infractions and how to educate the driver/adult about proper safety seat restraint of children. There was a significant commitment to ensuring that law officers understood and knew the law and how to help people follow it.

Oregon has a large number of law enforcement officers that are certified child passenger safety technicians. At the local level, ticketing is used as a way to fund child passenger safety education programs. For example, several counties have used diversion programs. If someone was sentenced for a seat belt violation, they could opt to attend a diversion program, such as an education program, instead of paying a fine. Any dollars raised through issuing tickets then

go back to that county or district to continue to purchase child safety seats or booster seats for low-income families. Enforcement by officers was felt to be very high; the general public knows that if they do not have seat belts on, they *will* be ticketed. Funds in Oregon have also been used to train school resource officers.

If there is a problem with a law not being enforced, one of the Oregon respondents felt it to be “a disconnect” between the law and the courts. He used an example about minors in possession to illustrate his point, although he felt “the disconnect” held true for any type of traffic safety law. In Oregon, the minor in possession law used to be attached to a very harsh penalty that judges would not enforce. The judges wanted a third choice, something between nothing and the harsh penalty. The state saw a 32 percent reduction in recidivism on kids that went through the teen court treatment.

New York considers the state police to be one of their biggest or most important? partners, with someone from the state police force being housed in the traffic safety office to run high visibility public awareness campaigns such as “Click it or Ticket”. The enforcement that goes along with these educational campaigns is key to their success.

### ***Coalitions and Collaborations***

Colorado, New York, and Oregon mentioned that establishing coalitions and collaborations was key to improved child death rates. State and local hospitals were identified as important partners by all three states. The partnerships’ strength was in reaching new parents about correct child safety seat use or in letting new parents know about available resources for obtaining the safety seats.

The ability to fund local coalition efforts was important in Oregon and Colorado; the latter particularly mentioned being able to get into very small, diverse communities with culturally appropriate materials and outreach efforts.

Colorado partnered with the Department of Education to visit pre-school and early elementary schools in order to reach parents of young children about the use of child restraint seats. Their coalitions and community outreach programs run the gamut but always include state or local law enforcement. They are working on getting funding commitments from state agency partners for technician trainings and for purchasing child safety seats. They have also been successful over the years in establishing public-private partnerships with various corporations and sports teams.

After identifying passage of child traffic safety laws, Oregon identified strong community collaborations as being a factor in their reduction of child death rates. The occupant protection manager worked to decentralize the office to allow for more community control. All three states mentioned the Safe Kids campaigns with both statewide efforts and community level efforts as an important aspect of child safety. Colorado also has strong traffic safety coalitions in many local communities.

Oregon has a child death review team in every county which is led by the district attorney. The review team is expected to come up with policy recommendations should their reviews show the need for changes in current laws.

New York also has a traffic safety board in every county, which is a helpful conduit for educating the community. This and other statewide and local coalitions and collaborations result in close working relationships between many partners. At a higher level, the Governor's Traffic Safety Committee (which houses the traffic safety office) is directed by the commissioner of motor vehicles and committee members are directors from the other 12 state agencies. The closeness between those involved in the child passenger safety program was highlighted as evidence of a commitment to and rewards from working on the issue.

### ***Political commitment***

Colorado felt that commitment to passing and improving child passenger safety laws is high. Oregon has found that their legislature responds well to data to enact new laws or to adjust existing laws. The one caveat was that the legislature does not respond well to perceived reduction in personal freedoms. The commitment to traffic safety issues from within all levels of state government was felt to be strong. During the time period studied, all three governors in office demonstrated their commitment to child traffic safety. Improvement in Oregon's child restraint use is one of two performance measures from the traffic safety division that has become a priority for the Department of Transportation's annual safety plan.

New York mentioned that, like in other states, a tragic accident is sometimes the motivation to pass new laws or to improve current laws. This happened recently and resulted in changes to the state's graduated licensing laws.

### ***Reaction to factors***

Each state was asked to react to certain factors identified in the statistical analysis, which showed them to be significant predictors of a state's child death rate from motor vehicle crashes. For children it showed the following factors:

- Highway miles that are rural
- The presence of a Young Driver Licensing program
- The rate of Food Stamps eligibility combined with a state's portion of idle youth

The first factor resonated with all states as most of their motor vehicle fatalities happen on rural roads.

An interesting point was made during the Colorado interview: there are many county roads where the State Patrol is mandated to enforce laws but they do not have the manpower to police them. This leaves the county roads up to local law officers, but traffic enforcement is not usually one of their big priorities. The sheriffs' voters are traveling the rural roads, which is a disincentive to enforce traffic laws. Additionally, because of the higher number of drivers,

there is more revenue potential on state highways, which is an incentive for state police to enforce laws there rather than on rural roads.

New York pointed to its many rural areas and agreed that rural highways are a factor in motor vehicle crashes. The traffic safety grants program targets specific populations in rural areas, such as Native American reservations and Amish settlements.

Oregon speculated that crashes on rural highways are a long way from first responders and often even further from hospitals. They also mentioned that it is in the rural areas where seat belt use is lower. In Oregon, rural areas are the most difficult places to find volunteers to provide program services, to have either a seat distribution or seat check fitting station.

The presence of a graduated drivers licensing program did not resonate strongly. Young drivers licensing laws are aimed at new drivers and look to cautiously introduce them to the risks of driving by gradually allowing them greater freedoms to drive alone, drive after dark or drive without adult supervision. That this was a factor that showed statistical significance in child death rates did not really “make sense” to the interviewees. Oregon mentioned that they have not seen data showing their young drivers are carrying siblings or younger children when they have crashes.

Poverty factors, however, did resonate with all three states. Colorado does significant outreach to financially challenged populations, which tend to be in the rural areas. It was pointed out that in these areas the choice is sometimes between putting gas in the car and buying a car seat. Colorado is trying to get more free child safety seats into these areas to be given away at the fitting stations. They rely on the local community groups involved with child passenger safety issues to know who and where to target outreach efforts.

Colorado also mentioned that there seems to be a lot of reluctance among officers to write citations for child traffic safety law infractions. The officers understand there are families that struggle financially and if they get a \$50, \$75 or \$100 fine, it will prohibit them from not only buying a car seat, but also basic necessities.

New York understands that poverty plays a factor in non-compliance with child safety laws, such as trying to put too many people in a vehicle. They also have large migrant worker populations and other immigrant populations which are struggling. An interesting outcome of the debate in the state about issuing drivers licenses for immigrants was that this population stopped coming to the free child safety seat programs because they thought they would be apprehended. New York is using the local communities that work with this population to do outreach and education.

It was agreed that income does factor into Oregon’s child death rate from motor vehicle crashes primarily because affordable vehicles tend to be less reliable or less safe. Likewise families with low incomes find it difficult to purchase car seats even though there is an intensive outreach effort in low-income communities about the availability of free seats.

### **Conclusion**

There is less clarity than with teen deaths in why these three states improved their child death rates from motor vehicle crashes during 1990-2004. The different ways to view the states as a group [through poverty measures, through the IIHS ratings or through travel patterns] did not completely explain differences between the five states. The significant difference in the rural highway miles in Montana and South Dakota compared to the other states may well be the most telling factor.

The IIHS ratings shows that Colorado, New York and Oregon are overall doing better on their traffic safety policies than Montana and South Dakota. Colorado and Oregon received *Good* on three out of four policies; New York received two *Good* and two *Fair* assessments, whereas Montana and South Dakota received one *Good* assessment between them and five grades of *Marginal*.

In the interviews some similarities were seen, especially in the area of coalitions and collaborations. The passage and enforcement of child passenger safety laws seem to have played a significant role in the opinions of all the traffic safety offices in reducing child deaths from motor vehicle crashes. However, there was no mention of the importance of where the traffic safety division is housed during the child-focused interviews as there was in the teen-focused interviews.

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## SUMMARY & CONCLUSION

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### *Summary*

The purpose of the study was to determine factors involved in child and teen deaths from motor vehicle crashes. Specifically, child and teen death rates were longitudinally examined to determine if there are states that have moved from a high rate of child/teen deaths to a low rate of child/teen deaths. Questions that the research addressed were:

- a. What are the demographic, social and economic factors that help explain high or low rates of child and teen deaths? Are there “predictors” of child and teen mortality from motor vehicle crashes?
- b. What policies or lack of policies might explain the high or low rate of child and teen deaths?
- c. Which states moved from a high to a low rate of child/teen deaths from motor vehicle crashes, and what are some of the reasons for this improvement?

The empirical nature of the analysis necessitated that the investigation begin with a large number of variables as potential determinants of child and teen death rates across the states. A variety of data were used to statistically examine child and teen death rates for 2005 for all 50 states. The basic traffic mortality measures were obtained from the Fatality Analysis Reporting System (FARS) through the National Highway Traffic Safety Administration’s National Center for Statistics and Analysis.

The hypothesized factors underlying child and teen death rates were measured by data on socio-economic, youth risk behavior and juvenile justice variables, traffic-safety policies and community-description measures. Socio-economic variables included data on poverty, family structure, education, employment and income; youth risk behavior measures included drug, alcohol and tobacco use, issues related to drinking and driving, and seatbelt use; juvenile justice variables focused on risk behaviors and included arrest rates for alcohol and drug-related crimes, as well as violent crimes; policy variables included those focused on traffic safety and included licensing programs for young drivers, seat belt laws and child restraint use; community-description measures included racial diversity, rates of commitment at drug/alcohol rehabilitation facilities, per-capita spending on alcohol in bars, rural/urban attributes, and teen depression.

Several factors at the state level were empirically identified from a list of possible factors as significant predictors of a state's child rate of death resulting from motor vehicle crashes. The factors include:

1. The portion of a state's highway miles that is rural;
2. The presence of a Young Driver Licensing (YDL) program; and
3. The rate of Food Stamps eligibility combined with a state's portion of idle youth

The regression analysis run with these three variables achieved an adjusted R-square value of 0.660, indicating that two-thirds of the variation within the cross-sectional data can be explained by this model

The factors identified as being significant predictors of teen deaths resulting from motor vehicle crashes include:

1. The portion of a state's highway miles that is rural;
2. The portion of high school students who drove while drinking alcohol;
3. The portion of high school students who had used tobacco at least once in the past month; and
4. The prevalence of single-parent families.

The regression resulted in an adjusted R-square value of 0.762, which means that just over three-fourths of the variability within the cross-sectional data can be explained by this model. All variables were significant at the 100-percent level.

It is important to note the majority of the variables from the empirical analysis were not included in the final models. The data set used contained several measures of poverty, risk behavior, juvenile crime, rurality, highway safety policies and racial diversity. All were tested at the 90 percent significant level and better, but still found to be statistically not significant.

For poverty, the following variables were not significant predictors for child or teen death rates:

- Percentage of families on TANF
- Eligibility for free or reduced-price school lunch, and
- Median household income

Risk behavior variables that were not significant were:

- Illicit drug use
- Binge drinking
- Riding with someone who has been drinking
- Seat belt habits, and
- Alcohol/drug addiction and/or abuse

Juvenile crime was included as a separate facet of risk behavior. However, none of the indicators listed below were found to be statistically significant.

- Violent crime
- Vandalism
- Drug abuse violations
- DUI, and
- Disorderly conduct

Rurality variables that were not significant were:

- A state's population density, and
- Whether a state can be classified as rural or urban.

When it comes to highway safety policies, one preconception was that states with strong safety policies in place would boast the lowest child and teen traffic death rates. Following analysis of both the child and teen death rate models, these measures were found to be less significant than foreseen. The safety policy measures considered were the presence of a rigorous:

- Young Driver Licensing (YDL) program
- Child safety seat law, and
- Seat belt law

Six states were chosen for in-depth analysis based on their history of improving teen or child death rates over the time period of 1990 – 2004. Three states were chosen for each area of study from the West, the Rocky Mountains and the East. The case studies are to inform Montana and South Dakota, whose teen death rates have consistently ranked worst among all 50 states.

States were identified for case studies by creating graphs of teen and child death rates from all causes from 1990 to 2004 for all 50 states. Each graph included the national trend line. This presented an immediate visual representation of which states improved during the time period. Then the maximum and minimum, the mean and the standard deviation were calculated for all states to provide numerical comparisons to each other and the nation. This method produced two groups of states: one that improved child death rate and one that improved teen death rates. It is interesting to note that the states with most improvement, improved in both reducing their child death rates and their teen death rates.

Utah, Vermont and Washington were chosen for case study because of their improved teen death rates from motor vehicle crashes for the period (1990 – 2004).

Colorado, New York and Oregon were chosen for case study because of their improved child death rates from motor vehicle crashes for the period (1990 – 2004).

### **Conclusion**

There was no immediately obvious, single factor that explained why the six states examined in the case study were successful in reducing their child and teen death rates from motor vehicle crashes. Rather, a multi-dimensional set of factors gives some insight. In sum, the factors examined showed overall that Montana and South Dakota are not doing as well socio-economically, and that the IIHS ratings are overall better for all states than for Montana and South Dakota. Also, Montana and South Dakota are more rural and thus have more rural roads, and have higher poverty rates than the states that improved their teen and child death rates; in the statistical analyses both these factors were seen to statistically predict deaths from motor vehicle crashes. The rurality factor may well be the most significant explanation as to why Montana and South Dakota have such high traffic fatalities. Addressing this in a policy sense is challenging.

Salient themes that emerged during the interviews were:

- Establishing collaborations with other stakeholders,
- General public education on the issues;
- Passage of new laws pertaining to passenger safety;
- The relationship between traffic safety offices and all levels of law enforcement; and
- The degree of political commitment within state government helped or hindered efforts around passenger safety.

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## POLICY RECOMMENDATIONS

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### **Traffic Safety Laws:**

This report looked at in-place policies in the states which improved their teen and child death rates and compared them to the policies in Montana and South Dakota. There are a number of proven occupant safety policies used by states to address the problem of teens and children dying as a result of motor vehicle crashes. Using the Insurance Institute for Highway Safety (IIHS) rating system it was noted that the latter two states rated lower over-all in their safety laws pertinent to occupant safety. These safety laws were DUI/DWI laws, licensing systems for young drivers, seat belt use laws, child restraint laws and cell phone laws.

### ***DUI/DWI Laws***

The IIHS rates highest those states that have:

- An administrative license revocation law that mandates at least a 30-day revocation for a violation with few or no exceptions for hardship;
- A blood alcohol concentration (BAC) legal limit at or above 0.08 percent;
- A readily enforceable law under which it is illegal for anyone younger than 21 to drive with any measurable BAC
- Sobriety checkpoints permitted by law

### ***Young Driver Licensing (YDL) Laws***

The YDL rating system is a complex, multi-faceted law. For a state to receive the best rating the law must have the following components:

- Learners' can obtain a drivers permit at age 16.
- Learner's permit is valid for at least a period of six months
- A 30 hour practice driving certification
- Night driving restriction starting at 9 or 10 PM
- Restriction of the number of underage passengers in the car to one
- States received a higher rating based on the driver education track used. This only happens when and if completion of driver education changes a legal requirement,
- A 12 month or more difference between the minimum unrestricted license age and minimum intermediate license age.

### ***Safety belt use laws***

The IIHS rated states highest if their seat belt use law has the following components:

- Primary enforcement (police may stop and ticket motorists for belt law violations alone)
- Fines and/or license points are imposed for violations
- Law applies to occupants in rear seats as well as front seats

### *Child restraint use laws*

States with the following child restraint use laws received the highest rating:

- All children younger than 13 in all vehicle seats are required to ride in infant restraints, child booster seats, or use occupant restraints (safety belts)
- Enforcement is primary, i.e., you can be stopped for not using child restraint systems for children in the motor vehicle

### *Cell Phone Laws*

States have only recently started enacting cell phone laws, thus the IIHS does not yet rate states on these laws. However according to the National Highway Traffic Safety Administration (NHTSA):

Research shows that driving while using a cell phone can pose a serious cognitive distraction and degrade driver performance. The data are insufficient to quantify crashes caused by cell phone use specifically, but NHTSA estimates that driver distraction from all sources contributes to 25 percent of all police-reported traffic crashes. (Glassbrenner and Ye, 2006)

Among the six states examined in this report that improved their teen and child fatalities, all states except Vermont have passed some type of cell phone restriction. Montana and South Dakota likewise have no laws regarding cell phone use.

### Factors

Examining the policy implications of the factors this report identified as significant predictors of teen or child death from motor vehicle crashes give some insight about what might help to reduce fatalities.

### *Rural Roads*

- The portion of a state's highway miles that is rural

Very little can be done about the portion of a state's roads that are rural; it is factor of the state's geography and population density. However, one can address this by ensuring adequate young drivers licensing laws so that teenage drivers gain the necessary experience to handle the challenges of rural roads. Funding for highway improvement can also ensure that particularly dangerous stretches of roads are upgraded.

### *Youth Risk Factors*

- The portion of high school students who drove while drinking alcohol
- The portion of high school students who had used tobacco at least once in the past month

According to the Center for Disease Control (CDC) actions to decrease alcohol-related fatal crashes involving young drivers have been effective. There has been a 60 percent decrease

over the past 20 years in the number of teen deaths from alcohol-related fatal motor vehicle crashes. However, this progress has stalled in the past few years. The recommendation of CDC is for communities to implement and enforce strategies that are known to be effective, such as minimum legal drinking age laws and "zero tolerance" laws for drivers under 21 years of age. (Elder & Shults 2002)

The American Cancer Society reports that tobacco use is linked to other harmful behaviors and that research has shown teen tobacco users are more likely to use alcohol and illegal drugs than are non-users. Cigarette smokers are also more likely to get into fights, carry weapons, attempt suicide, suffer from mental health problems such as depression, and engage in high-risk sexual behaviors. (American Cancer Society, 2007)

### *YDL*

- The presence of a Young Driver Licensing program

NHTSA has developed a comprehensive approach to teen driver safety embodied by a three-tiered strategy to prevent motor-vehicle-related deaths and injuries for teens. These are:

- increasing seat belt use
- implementing graduated driver licensing, and
- reducing teens' access to alcohol.

All three strategies can be addressed through policy improvement and educational outreach.

### *Poverty Factors*

- The prevalence of single-parent families
- The rate of Food Stamps eligibility combined with a state's portion of idle youth

These factors are related to poverty and their presence as predictive factors did not surprise the traffic safety personnel interviewed for this report. Low-income may affect a family's ability to own and operate vehicles with the most recent technological safety mechanisms such as lower anchors and tethers or side air bags. Older cars have fewer of these safety features.

### *Enforcement*

The importance of enforcement was frequently mentioned by the six states interviewed for this project. To ensure this enforcement the state Traffic Safety Offices had established a close, working relationship with the law enforcement entities. The need to target limited law enforcement dollars to areas identified as problems was stressed as was consistent, standardized training for law officers from all jurisdictions.

**RECOMMENDATIONS**

- Strengthen existing policies on DUI/DWI, young drivers licensing, seat belt use, child restraint laws and cell phone restrictions. Stricter laws have been shown to be instrumental in reducing traffic fatalities
- Expand efforts to get child seat distribution points and technician training for installing child seats and child booster seats into low-income areas
- Improve rural road
- Strengthen relationships with all stakeholders, e.g., highway patrol, highway safety, civic groups, schools, in improving the lives of teens and children.
- Explore collective training opportunities so that a standard consistent message is received by all law enforcement entities.
- Ensure adequate funding so traffic safety laws are enforced at all levels- state, counties and municipalities.
- Consistent and comprehensive public education campaigns.
- Deliver effective anticipatory guidance to unlicensed teenaged drivers

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## DATA SOURCES

Variable Name/ Definition	Data Year	Source
American Indian/Alaska Native (% of population that is AI/AN alone)	2005	U.S. Census Bureau, American Community Survey <a href="http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&amp;_submenuId=&amp;_lang=en&amp;_ts=">http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&amp;_submenuId=&amp;_lang=en&amp;_ts=</a>
Asian alone (% of population that is Asian alone)	2005	U.S. Census Bureau, American Community Survey
Black alone (% of population that is Black alone)	2005	U.S. Census Bureau, American Community Survey
White alone (% of population that is white alone)	2005	U.S. Census Bureau, American Community Survey
Hispanic (% of population that is of Hispanic ethnicity)	2005	U.S. Census Bureau, American Community Survey
Non-White (% of population that is non-White)	2005	U.S. Census Bureau, American Community Survey
Non-Hispanic, Non-White (% of population that is non-White and non-Hispanic)	2005	U.S. Census Bureau, American Community Survey
Single parent families (% of families with one parent present)	2005	Annie E. Casey Foundation <a href="http://www.kidscount.org/datacenter/db_rawdata_07.jsp">http://www.kidscount.org/datacenter/db_rawdata_07.jsp</a>
8th graders below basic math level (% of 8 <sup>th</sup> graders testing below basic)	2005	Annie E. Casey Foundation
8th graders below reading proficiency (% of 8 <sup>th</sup> graders testing below basic)	2005	Annie E. Casey Foundation
8th graders below science proficiency (% of 8 <sup>th</sup> graders testing below basic)	2005	Annie E. Casey Foundation
Median income for families w/children (the income of family w/ children such that half of other families w/ children have higher income and half has lower)	2005	Annie E. Casey Foundation
Teen unemployment rate (the unemployment rate for teens aged 16-19)	2005	Annie E. Casey Foundation
Teen birth rate (number of children born per 1,000 teen girls aged 16-19)	2005	Annie E. Casey Foundation
Children under 18 below 100% poverty (children below age 18 living below the Federal Poverty Level for 2005)	2005	Annie E. Casey Foundation
People 18-24 below 100% poverty people aged 18-24 living below the Federal Poverty Level for 2005)	2005	Annie E. Casey Foundation
Low-income working families w/children (% of low-income working families that have children under 18)	2005	Annie E. Casey Foundation
Idle Youth (teens aged 15-19 who are not in school and not working)	2005	Annie E. Casey Foundation

Variable Name/ Definition	Data Year	Source
Teens who are high school drop-outs ages 15-19	2005	Annie E. Casey Foundation
Children <6 w/ no parent in labor force	2005	Annie E. Casey Foundation
Children in household where household head is high school drop-out	2005	Annie E. Casey Foundation
Children in household where household head has bachelor's degree or higher	2005	Annie E. Casey Foundation
Children that speak a language other than English at home	2005	Annie E. Casey Foundation
Children <18 in foster care (% of children under 18 living in foster care)	2005	Annie E. Casey Foundation
Juvenile arrests, violent crime	2005	Federal Bureau of Investigation, Uniform Crime Report (UCR) <a href="http://www.fbi.gov/ucr/05cius/data/table_69.html">http://www.fbi.gov/ucr/05cius/data/table_69.html</a>
Juvenile arrests, vandalism	2005	Federal Bureau of Investigation, UCR
Juvenile arrests, drug abuse violation	2005	Federal Bureau of Investigation, UCR
Juvenile arrests, DUI	2005	Federal Bureau of Investigation, UCR
Juvenile arrests, disorderly conduct	2005	Federal Bureau of Investigation, UCR
Illicit drug use, past month (% of 12-17 year olds who used illicit drugs in the past month)	2004-05	U.S. Dept. of Health & Human Services, Substance Abuse & Mental Health Services Administration (SAMHSA): National Survey on Drug Use & Health (NSDUH) <a href="http://oas.samhsa.gov/NSDUH.htm#NSDUHinfo">http://oas.samhsa.gov/NSDUH.htm#NSDUHinfo</a>
Marijuana use, past month	2004-05	NSDUH
Alcohol use, past month	2004-05	NSDUH
Binge drinking, past month	2004-05	NSDUH
Tobacco use, past month	2004-05	NSDUH
Alcohol dependency/abuse, past year	2004-05	NSDUH
Illicit drug dependency/abuse, past year	2004-05	NSDUH
Rode in car w/driver who had been drinking alcohol	2004-05	NSDUH
Drove when drinking alcohol	2004-05	NSDUH
Rarely/never wore seat belt	2004-05	NSDUH
Teens w/major depressive episode, age 12-17	2004-05	NSDUH
Per-capita spending on alcohol in bars (per-capita dollar amount spent on alcoholic beverages in bars)	2002	U.S. Census Bureau, Economic Census <a href="http://factfinder.census.gov/servlet/IQRTTable?_bm=y&amp;-ds_name=EC0200A1&amp;-NAICS2002=7224&amp;-lang=en">http://factfinder.census.gov/servlet/IQRTTable?_bm=y&amp;-ds_name=EC0200A1&amp;-NAICS2002=7224&amp;-lang=en</a>

Variable Name/ Definition	Data Year	Source
Substance abuse treatment admissions, age 12-17	2003	U.S. Department of Health & Human Services, Centers for Disease Control & Prevention, Behavioral Risk Factor Surveillance System (BRFSS) <a href="http://www.cdc.gov/brfss/technical_infodata/surveydata/2003.htm#data">www.cdc.gov/brfss/technical_infodata/surveydata/2003.htm#data</a>
Food stamp eligibility (% of population that is eligible for the Food Stamp Program)	2005	U.S. Department of Agriculture, Food & Nutrition Service <a href="http://www.fns.usda.gov/fsp/">http://www.fns.usda.gov/fsp/</a>
School Lunch program participation (% of school-age children who participated in the program)	2005	U.S. Department of Agriculture, Food & Nutrition Service
TANF recipient families	2005	U.S. Department of Health & Human Services, Administration for Children & Families <a href="http://www.acf.hhs.gov/programs/ofa/tanf/index.html">http://www.acf.hhs.gov/programs/ofa/tanf/index.html</a>
Rural/Urban state	2005	United States Department of Transportation - Federal Highway Administration Highway Statistics 2001 NATIONAL HIGHWAY SYSTEM LENGTH - 2001 MILES BY FUNCTIONAL SYSTEM <a href="http://www.fhwa.dot.gov/ohim/hs01/hm41.htm">http://www.fhwa.dot.gov/ohim/hs01/hm41.htm</a>
Young Driver Licensing program	2007	Insurance Institute for Highway Safety, Highway Loss Data Institute <a href="http://www.iihs.org/laws/default.aspx">http://www.iihs.org/laws/default.aspx</a>
Safety belt use	2007	Insurance Institute for Highway Safety, Highway Loss Data Institute
Child restraint use	2007	Insurance Institute for Highway Safety, Highway Loss Data Institute
Portion of highway miles that are rural	2001	United States Department of Transportation - Federal Highway Administration Highway Statistics 2001 NATIONAL HIGHWAY SYSTEM LENGTH - 2001 MILES BY FUNCTIONAL SYSTEM <a href="http://www.fhwa.dot.gov/ohim/hs01/hm41.htm">http://www.fhwa.dot.gov/ohim/hs01/hm41.htm</a>
Population density	2005	U.S. Census Bureau <a href="http://www.census.gov/population/www/censusdata/density.html">http://www.census.gov/population/www/censusdata/density.html</a>
Percent of voting-age population who voted in Presidential election	2004	U.S. Census Bureau, Current Population Survey <a href="http://www.census.gov/compendia/statab/cats/elections/voting_age_population_and_voter_participation.html">http://www.census.gov/compendia/statab/cats/elections/voting_age_population_and_voter_participation.html</a>

## APPENDIX A: VARIABLES

	Minimum	Maximum	Mean	Std. Deviation
White alone	.249	.966	.79058	.129113
Black alone	.004	.365	.09890	.095375
American Indian/Alaska Native	.001	.142	.01592	.028430
Asian alone	.004	.420	.03382	.059984
Hispanic	.006	.436	.09036	.096356
Non-White	.034	.751	.20942	.129113
Non-Hispanic, Non-White	.031	.691	.16794	.119504
Single parent families	.18	.47	.3072	.04912
8th graders below math proficiency	.19	.48	.3080	.07682
8th graders below reading proficiency	.17	.42	.2692	.06734
8th graders below science proficiency	.00	.60	.3440	.16017
Median income for families w/children	37	76	53.72	9.575
Teen unemployment rate, age 16-19	.46	.72	.5940	.06963
Teen birth rate, 15-19	.18	.63	.4000	.11818
Children under 18 below 100% poverty	.09	.31	.1772	.04936
People 18-24 below 100% poverty	.12	.31	.2244	.04608
Low-income working families w/children	.10	.28	.1860	.04508
Teens, 15-19, not in school, not working	.05	.11	.0812	.01745
Teens who are high school drop-outs	.03	.11	.0734	.01757
Children <18 in foster care	.261	.909	.45292	.115049
Juvenile arrests, violent crime	3.45	45.94	15.4696	9.61037
Juvenile arrests, vandalism	4.69	42.98	20.8708	10.63498
Juvenile arrests, drug abuse violation	7.56	98.25	35.0336	16.85521
Juvenile arrests, DUI	.00	11.28	4.0782	2.62591
Juvenile arrests, disorderly conduct	.00	157.47	36.3440	30.48408
Illicit drug use, past month	.083	.144	.10596	.013817
Marijuana use, past month	.053	.123	.07488	.014924
Alcohol use, past month	.121	.226	.17437	.022605
Binge drinking, past month	.077	.156	.11071	.017925
Tobacco use, past month	.103	.210	.14960	.025058

	Minimum	Maximum	Mean	Std. Deviation
Alcohol dependency/abuse, past year	.043	.090	.06133	.010843
Illicit drug dependency/abuse, past year	.041	.068	.05136	.006508
Rode in car w/driver who had been drinking alcohol	.000	.374	.22092	.119460
Drove when drinking alcohol	.000	.220	.09260	.056487
Rarely/never wore seat belt	.000	.196	.09222	.061071
Per-capita spending on alcohol in bars	10.24	257.76	61.4031	44.92429
Substance abuse treatment admissions, age 12-17	.002	.400	.09996	.065062
Food stamp eligibility	.069	.217	.12566	.033831
TANF recipient families	.002	.058	.02026	.009657
School Lunch program participation	.350	.723	.53834	.104644
Rural/Urban state	0	1	.26	.443
Young Driver Licensing program	0	1	.80	.404
Safety belt use	0	1	.52	.505
Child restraint use	0	1	.66	.479
Portion of highway miles that are rural	.25	.97	.7380	.17283
Population density	1.00	996.00	164.7840	213.17668
Children <6 w/ no parent in labor force	.05	.14	.0954	.02043
Children in household where household head is high school drop-out	.06	.27	.1354	.04648
Children in household where household head has bachelor's degree or higher	.17	.39	.2714	.05660
Children that speak a language other than English at home	.03	.44	.1308	.09125
Percent of voting-age population who voted	.462	.767	.61227	.063822
Teens w/major depressive episode, age 12-17	.071	.510	.09660	.060102

## APPENDIX B: TEEN DEATH RATES BY STATE, 2005

	Teen Death Rates (ages 11-19; rates per 100,000)		Teen Death Rates (ages 11-19; rates per 100,000)
United States	14.67	Missouri	25.24
		Montana	22.72
Alabama	26.04	Nebraska	18.24
Alaska	11.56	Nevada	13.87
Arizona	18.36	New Hampshire	10.18
Arkansas	23.56	New Jersey	7.83
California	11.33	New Mexico	24
Colorado	11.77	New York	6.98
Connecticut	6.74	North Carolina	19.4
Delaware	18.82	North Dakota	21.56
Florida	21	Ohio	12.54
Georgia	17.63	Oklahoma	23.44
Hawaii	6.63	Oregon	14.2
Idaho	17.95	Pennsylvania	12.66
Illinois	11.04	Rhode Island	7.92
Indiana	15.53	South Carolina	21.99
Iowa	18.91	South Dakota	28.31
Kansas	16.98	Tennessee	19.51
Kentucky	23.97	Texas	15.92
Louisiana	17.72	Utah	9.17
Maine	18.13	Vermont	16.32
Maryland	8.87	Virginia	13.52
Massachusetts	7.79	Washington	8.51
Michigan	12.06	West Virginia	24.93
Minnesota	11.78	Wisconsin	16.46
Mississippi	33.16	Wyoming	28.92

## APPENDIX C: PREDICTIVE MODEL RESULTS--TEEN DEATHS

**Teen Death Rate Definition:** The annual rate of death for teens age 11-19 per 100,000 population of that age within each state in the nation. The model year was 2005.

TABLE E1: DESCRIPTIVE STATISTICS, DEPENDENT VARIABLE

	Minimum	Maximum	Mean	Std. Deviation
Motor vehicle death rate, age 11-19	6.63	33.16	16.6334	6.54392

The following model summary lists statistically significant predictors that had a positive or negative effect on motor vehicle crash death rates in all 50 states. The variables are listed in order of magnitude of effect based on standardized, or Beta, coefficients that adjust for differences in units of measurement for the independent variables, i.e. percentages versus rates per population. None of the variables in the teen model had a negative coefficient. A negative coefficient associated with an independent variable will have a negative effect on the dependent variable—i.e. it will lower its value. In this case, a variable with a negative coefficient will contribute to decreasing a death rate. Conversely, an independent variable with a positive coefficient will contribute to increasing a death rate.

TABLE E2: DESCRIPTIVE STATISTICS, INDEPENDENT VARIABLES

	Minimum	Maximum	Mean	Std. Deviation
Tobacco use, past month	.103	.210	.14960	.025058
Drove when drinking alcohol	.000	.220	.09260	.056487
Portion of highway miles that is rural	.25	.97	.7380	.17283
Young Driver Licensing program	0	1	.80	.404
Food Stamps X Idle Youth	.003	.024	.01068	.004967
Single parent families	.18	.47	.3072	.04912

**MODEL SUMMARY: TEEN DEATH RATES FROM MOTOR VEHICLE CRASHES**

Dependent Variable: State rate of *teen* death caused by motor vehicle crashes

Predictor Variables (significant at 100 percent):

Increased Death Rate	Percentage of single-parent families Tobacco use, past month, by high school students Percentage of high school students who drove while drinking alcohol Portion of highway miles that is rural
Decreased Death Rate	None
<u>Percent of Variation Explained:</u>	76 percent

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.883(a)	.780	.762	3.01092

a Predictors: (Constant), Single parent families, Tobacco use, past month, Portion of highway miles that are rural, Drove when drinking alcohol

**ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	1635.974	4	408.994	45.115	.000(a)
	Residual	462.349	51	9.066		
	Total	2098.323	55			

a. Predictors: (Constant), Single parent families, Tobacco use, past month, Portion of highway miles that are rural, Drove when drinking alcohol

b. Dependent Variable: Traffic death rate, age 11-19

**Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-32.167	3.963		-8.116	.000
	Portion of highway miles that are rural	19.808	2.770	.523	7.152	.000
	Drove when drinking alcohol	28.640	8.852	.247	3.235	.002
	Tobacco use, past month	68.804	20.933	.263	3.287	.002
	Single parent families	69.131	9.102	.519	7.595	.000

a. Dependent Variable: Traffic death rate, age 11-19

## APPENDIX D: CHILD DEATH RATES BY STATE, 2005

	Child Death Rates (ages 1-10; rates per 100,000)		Child Death Rates (ages 1-10; rates per 100,000)
United States	2.91	Missouri	3.71
		Montana	4.78
Alabama	5.02	Nebraska	1.87
Alaska	2.81	Nevada	3.71
Arizona	3.8	New Hampshire	1.07
Arkansas	3.89	New Jersey	1.28
California	2.78	New Mexico	6.96
Colorado	2.27	New York	1.11
Connecticut	0.62	North Carolina	3.05
Delaware	0.83	North Dakota	8.2
Florida	3.95	Ohio	1.83
Georgia	3.77	Oklahoma	4.11
Hawaii	1.11	Oregon	2.18
Idaho	4.28	Pennsylvania	1.67
Illinois	1.6	Rhode Island	0.71
Indiana	2.97	South Carolina	4.43
Iowa	3.35	South Dakota	4.34
Kansas	4.78	Tennessee	3.16
Kentucky	4.86	Texas	3.65
Louisiana	4.74	Utah	3.62
Maine	2.51	Vermont	3.99
Maryland	2.61	Virginia	2.5
Massachusetts	0.93	Washington	2.79
Michigan	2.74	West Virginia	3.5
Minnesota	2.42	Wisconsin	2.21
Mississippi	7.91	Wyoming	4.23

## APPENDIX E: PREDICTIVE MODEL RESULTS--CHILD DEATHS

Child Death Rate Definition: The annual rate of death for children ages 1-10 per 100,000 population of that age within each state in the nation. The model year was 2005.

TABLE C1: DESCRIPTIVE STATISTICS, DEPENDENT VARIABLE

	Minimum	Maximum	Mean	Std. Deviation
Motor Vehicle death rate, age 1-10	.62	8.20	3.2242	1.68231

The following model summary lists statistically significant predictors that had a positive or negative effect on motor vehicle crash death rates in all 50 states. The variables are listed in order of magnitude of effect based on standardized, or Beta, coefficients that adjust for differences in units of measurement for the independent variables, i.e. percentages versus rates per population. Only one of the variables in the child death model had a negative coefficient. A negative coefficient associated with an independent variable will have a negative effect on the dependent variable—i.e. it will lower its value. In this case, a variable with a negative coefficient will contribute to decreasing a death rate. Conversely, an independent variable with a positive coefficient will contribute to increasing a death rate.

TABLE C2: DESCRIPTIVE STATISTICS, INDEPENDENT VARIABLES

	Minimum	Maximum	Mean	Std. Deviation
Tobacco use, past month	.103	.210	.14960	.025058
Drove when drinking alcohol	.000	.220	.09260	.056487
Portion of highway miles that is rural	.25	.97	.7380	.17283
Young Driver Licensing program	0	1	.80	.404
Food Stamps X Idle Youth	.003	.024	.01068	.004967
Single parent families	.18	.47	.3072	.04912

**MODEL SUMMARY: CHILD DEATH RATES FROM MOTOR VEHICLE CRASHES**

Dependent Variable: State rate of *child* death caused by motor vehicle crashes

Predictor Variables (significant at 100 percent):

Increased Death Rate      Food Stamps eligibility X Idle Youth  
 Percentage of highway miles that is rural

Decreased Death Rate      Presence of rigorous Young Driver Licensing Program

Percent of Variation Explained:      66 percent

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.824(a)	.679	.660	.92569

a Predictors: (Constant), Food Stamps X Idle Youth, Young Driver Licensing program, Portion of highway miles that are rural

**ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.119	3	31.373	36.612	.000(a)
	Residual	44.559	52	.857		
	Total	138.678	55			

a Predictors: (Constant), Food Stamps X Idle Youth, Young Driver Licensing program, Portion of highway miles that are rural

b Dependent Variable: Traffic death rate, age 0-10

**Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.098	.840		.117	.908
	Young Driver Licensing program	-1.503	.365	-.361	-4.122	.000
	Portion of highway miles that are rural	3.875	.857	.398	4.520	.000
	Food Stamps X Idle Youth	137.537	27.135	.406	5.069	.000

a Dependent Variable: Traffic death rate, age 0-10

APPENDIX F:  
COMPARISON OF LAWS AND REGULATION AND IIHS RATINGS  
ON TEEN TRAFFIC SAFETY RESTRICTIONS

Laws and Regulations	WA	UT	VT	MT	SD
<b>DUI/DWI</b>	Fair	Good	Good	Fair	Fair
BAC defined as illegal per se	0.08	0.08	0.08	0.08	0.08
Administrative license suspension 1st offense?	90 days	90 days	90 days	No	No
Restore driving privileges during suspension?	After 30 days <sup>1</sup>	No	No	Not applicable	N/A
Do penalties include interlock?	Yes	Yes	No	Yes	No
Do penalties include vehicle forfeiture for multiple offenses?	Yes	No	Yes	Yes	No
Open container laws	Driver/ passenger	Driver/ passenger	Driver/ passenger	Driver/ passenger	Driver/ passenger
<b>Licensing system for young drivers - learner stage</b>	G	G	F	M	M
Minimum entry age	15 <sup>2</sup>	15 <sup>1</sup>	15	14, 6 months <sup>1</sup>	14 <sup>1</sup>
Mandatory holding period	6 months	6 months	1 year	6 months	6 mo (3 mo with driver's ed.)
Minimum amount of supervised driving	50 hours, 10 of which must be at night	40 hours, 10 of which must be at night	40 hours, 10 of which must be at night	50 hours, 10 of which must be at night	None <sup>1</sup>

Laws and Regulations	WA	UT	VT	MT	SD
<b>Licensing system for young drivers - intermediate stage restrictions on driving while unsupervised</b>	Good	Good	Fair	Marginal	Marginal
Minimum age	16 <sup>3</sup>	16 <sup>2</sup>	16 <sup>1</sup>	15 <sup>2</sup>	14, 6 mo (14, 3 mo with driver ed.)
Nighttime restrictions	1 am-5 am <b>secondary enforcement</b>	Midnight - 5 am	None	11 pm - 5 am	10 pm - 6 am
Passenger restrictions (family members excepted, unless otherwise noted)	1 <sup>st</sup> 6 mo- no passengers younger than 20; 2 <sup>nd</sup> 6 mo - no more than 3 pass. younger than 20 <b>secondary enforcement</b>	1 <sup>st</sup> 6 mo - no passengers <sup>3</sup> <b>secondary enforcement</b>	1 <sup>st</sup> 3 mo - no pass. without exception; 2 <sup>nd</sup> 3 mo - no pass. except family members	1 <sup>st</sup> 6 mo - no more than 1 pass. younger 18; 2 <sup>nd</sup> 6 mo - no more than 3 pass. younger than 18	None
<b>Licensing system for young drivers - minimum age at which restrictions may be lifted</b>	Good	Good	Good	Marginal	Marginal
Nighttime restrictions	17 <sup>4</sup>	17	No	16	16
Passenger restrictions	17 <sup>4</sup>	16, 6 months	16, 6 months	16	No

Laws and Regulations	WA	UT	VT	MT	SD
Safety belt use	Good	Good	Marginal	Marginal	Marginal
Initial effective date	06/11/86	04/28/86	01/01/94	10/01/87	01/01/95
Standard enforcement?	Yes; 07/01/02	No (yes for children <19 years)	No	No	No
Who is covered? In which seats?	16+ years in all seats	16+ years in all seats	16+ years in all seats	6+ years in all seats	18+ years in front seat
Maximum fine 1st offense	\$37	\$45	\$25	\$20	\$20
Can nonuse decrease monetary awards for injuries in lawsuits?	No	No	No	No	No

Source: [www.iihs.org](http://www.iihs.org)

### Washington

<sup>1</sup>Drivers usually must demonstrate special hardship to justify restoring privileges during suspension and then privileges often are restricted.

<sup>2</sup>Permit applicants in Washington must be enrolled in driver education; otherwise the minimum permit age is 15, 6 months

<sup>3</sup>Driver education is required for license applicants younger than 18.

<sup>4</sup>Intermediate license holders with a crash or violation history are ineligible for an unrestricted license until age 18.

### Utah

<sup>1</sup>Permit holders younger than 18 may only drive under the supervision of a driving instructor, a parent or guardian, or a responsible adult who accepted liability for the permit holder's driving by signing the permit application. Regardless of age, permit applicants in Utah must be enrolled in driver education.

<sup>2</sup>Regardless of age, license applicants must have completed driver education.

<sup>3</sup>Passenger restrictions in Utah end when a driver has been licensed for 6 months or when the driver turns 18, whichever occurs first.

### Vermont

<sup>1</sup>Driver education is required for license applicants younger than 18 in Vermont.

### Montana

<sup>1</sup>Enrollment in or completion of driver education is required for permit applicants younger than 15 in Montana.

<sup>2</sup>License applicants younger than 16 must have completed driver education.

### South Dakota

<sup>1</sup>Learner's permit holders may not drive between 10 p.m. and 6 a.m. unless under the supervision of their parent or guardian who is occupying a seat beside them.

APPENDIX G:  
COMPARISON OF LAWS AND REGULATION AND IIHS RATINGS  
ON CHILD TRAFFIC SAFETY RESTRICTIONS

<b>Laws and Regulations</b>	<b>CO</b>	<b>NY</b>	<b>OR</b>	<b>MT</b>	<b>SD</b>
<b>DUI/DWI</b>	Good	Fair	Fair	Fair	Fair
BAC defined as illegal per se	0.08	0.08	0.08	0.08	0.08
Administrative license suspension 1st offense?	3 months	variable <sup>1</sup>	90 days	No	No
Restore driving privileges during suspension?	yes <sup>1</sup>	yes <sup>2</sup>	After 30 days <sup>1</sup>	Not applicable	N/A
Do penalties include interlock?	Yes	Yes	Yes	Yes	No
Do penalties include vehicle forfeiture for multiple offenses?	No	Yes	Yes	Yes	No
Open container laws	Driver/ passenger	Driver/ passenger	Driver/ passenger	Driver/ passenger	Driver/ passenger
<b>Licensing system for young drivers - learner stage</b>	Good	Good	Good	Marginal	Marginal
Minimum entry age	15 <sup>2</sup>	16 <sup>3</sup>	15	14, 6 months <sup>1</sup>	14 <sup>1</sup>
Mandatory holding period	12 months	Up to 6 months <sup>3</sup>	6 months	6 months	6 mo (3 mo with driver ed.)
Minimum amount of supervised driving	50 hours, 10 of which must be at night	20 hours	50 hours <sup>2</sup> (100 hours without driver education)	50 hours, 10 of which must be at night	None <sup>1</sup>

Laws and Regulations	CO	NY	OR	MT	SD
<b>Licensing system for young drivers - intermediate stage restrictions on driving while unsupervised</b>	Good	Good	Good	Marginal	Marginal
Minimum age	16	16, 6 months <sup>3</sup>	16 <sup>2</sup>	15 <sup>2</sup>	14, 6 mo (14, 3 mo with driver ed.)
Nighttime restrictions	Midnight-5 am <b>secondary enforcement</b>	9 pm-5 am	Midnight-5 am	11 pm - 5 am	10 pm - 6 am
Passenger restrictions (family members excepted unless otherwise noted)	1 <sup>st</sup> 6 mo- no passengers; 2 <sup>nd</sup> 6 mo- no more than 1 passenger <b>secondary enforcement</b>	No more than 2 passengers younger than 21 <sup>3</sup>	1 <sup>st</sup> 6 mo- no passengers younger than 20; 2 <sup>nd</sup> 6 mo- no more than 3 passengers younger than 20	1 <sup>st</sup> 6 mo - no more than 1 pass. younger 18; 2 <sup>nd</sup> 6 mo - no more than 3 pass. younger than 18	None
<b>Licensing system for young drivers - minimum age at which restrictions may be lifted</b>	Good	Good	Good	Marginal	Marginal
Nighttime restrictions	17	17 (18 without driver education) <sup>3</sup>	17	16	16
Passenger restrictions	17	17 (18 without driver	17	16	No

		education) <sup>3</sup>			
<b>Laws and Regulations</b>	<b>CO</b>	<b>NY</b>	<b>OR</b>	<b>MT</b>	<b>SD</b>
<b>Safety belt use</b>	Marginal	Fair	Good	Marginal	Marginal
Initial effective date	07/01/87	12/01/84	12/07/90	10/01/87	01/01/95
Standard enforcement?	No	Yes	Yes	No	No
Who is covered? In which seats?	16+ years in front seat	16+ years in front seat	16+ years in all seats	6+ years in all seats	18+ years in front seat
Maximum fine 1st offense	\$15	\$50	\$90	\$20	\$20
Can nonuse decrease monetary awards for injuries in lawsuits?	Yes	Yes	Yes	No	No

Laws and Regulations	CO	NY	OR	MT	SD
Child restraint laws	Good	Good	Good	Marginal	Good
Must be in child restraint	Younger than 1 yr and less than 20 lbs. in a rear-facing infant seat; 1 through 3 yrs and 20-40 lbs. in a forward-facing child safety seat; 4 through 5 years and less than 55 inches in a booster seat. <sup>3</sup>	3 and younger unless they weight more than 40 lbs. and are seated where there is no available lap/shoulder belt; 4 through 6 yrs unless they are seated where there is no available lap/shoulder belt.	Younger than 1 yr or 20 lbs. or less must be in a rear facing child safety seat; 40 lbs or less must be in a child safety seat; more than 40 lbs but 4'9" or less must be in a safety system that elevates the child so that an adult seat belt fits properly.	5 yrs and younger and less than 60 lbs.	4 yrs and younger and less than 40 lbs.

Laws and Regulations	CO	NY	OR	MT	SD
Adult safety belt permissible	6 through 15 yrs. Or 55 inches or more.	7 through 15 yrs; children who weight more than 40 lbs. or children 4 through 6 yrs in a seating position where there is no available lap/shoulder belt.	Taller than 4'9"	Not permissible	5 through 17 yrs; all children 40+ lbs., regardless of age
Maximum fine 1 <sup>st</sup> offense	\$50	\$100 <sup>5</sup>	\$90	\$100	\$20
Seating preference	Law states no preference for rear seat.	Law states no preference for rear seat.	Law states no preference for rear seat.	Law states no preference for rear seat.	Law states no preference for rear seat.
Children not covered	All children covered.	All children covered.	All children covered.	All children covered.	All children covered.

Source: [www.iihs.org](http://www.iihs.org)

### Colorado

<sup>1</sup>Drivers usually must demonstrate special hardship to justify restoring privileges during suspension, and then privileges often are restricted.

<sup>2</sup>The minimum permit age varies. Fifteen year-olds who are enrolled in driver education may apply for an instruction permit. Their supervising driver must be a parent, stepparent, grandparent, guardian, or driving instructor. A person age 15, 6 months may apply for an instruction permit which allows driving while supervised by a parent, stepparent, grandparent, or guardian. Although driver education is not required at this age, applicants for this permit must have completed a 4-hour driver awareness program. At 16, young drivers may apply for a permit that allows driving while supervised by a licensed driver age 21 or older.

<sup>3</sup>In Colorado, if a child 4-5 years and less than 55 inches is being transported in a vehicle equipped with a lap belt only, then the child must be restrained with the lap belt. The law is secondary for children ages 4-5 years who must be in booster seats.

### New York

<sup>1</sup>In New York, administrative license suspension lasts until prosecution is complete.

<sup>2</sup>Drivers usually must demonstrate special hardship to justify restoring privileges during suspension, and then privileges often are restricted.

<sup>3</sup>Currently, New York law does not have a minimum holding period for the learner's permit. The minimum age for an unrestricted driver's license is 18 (17 if the applicant has completed driver education). The exception is New York City where driving is prohibited unless the driver is 18 or older. Effective, September 1, 2003, New York enacted a passenger restriction that applies to permit holders and license holders younger than 18 (17 if the applicant has completed driver education). The law also created a new class of license, the limited DJ license. Permit holders who pass a road test and certify 230 or more hours of practice driving may be given a limited DJ license which allows unsupervised driving to and from school, school activities, work, medical appointments, and day care for family members. The night driving and passenger restrictions apply to this license. Permit holders may apply for the limited DJ license at any time. There is, however, a six month holding period for the regular DJ license which allows unsupervised driving anywhere but retains the night driving and passenger restrictions. For the purpose of determining if the six month holding period has passed, both the time spent in the learner's permit phase and the time a person spends in the limited DJ phase is counted.

<sup>4</sup>New York only assesses points when the violation involves a child under 16.

<sup>5</sup>This state assesses points for violations.

### Oregon

<sup>1</sup>Drivers usually must demonstrate special hardship to justify restoring privileges during suspension, and then privileges often are restricted.

<sup>2</sup>Driver education is required of license applicants younger than 18. However, it is waived for applicants who certify an additional 50 hours of supervised driving.

### Montana

<sup>1</sup>Enrollment in or completion of driver education is required for permit applicants younger than 15 in Montana.

<sup>2</sup>License applicants younger than 16 must have completed driver education.

### South Dakota

<sup>1</sup>Learner's permit holders may not drive between 10 p.m. and 6 a.m. unless under the supervision of their parent or guardian who is occupying a seat beside them.

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