

**SECONDARY REVIEW OF DATA FROM
“TEEN DRIVER LICENSING PROGRAM SURVEY – 2005”**

Prepared for:

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EXECUTIVE SUMMARY

Background

Motor vehicle crashes are the leading cause of injury and death for youth in the United States and cause more deaths than do the next four causes (i.e., homicide, suicide, cancer, and heart disease) combined. Three countermeasures exist to help combat high crash rates among young drivers—graduated driver licensing (GDL), driver education, and parental involvement in teen driving—and each state has some combination of these in place. In 2004-05, the Oregon Department of Transportation (ODOT) arranged for the Oregon Survey Research Laboratory (OSRL) to conduct a survey in Oregon with parents and their 16- and 17-year-old teenage drivers with and without crashes posted to their Oregon driver records about attitudes, behaviors, and experiences related to teen driving, including aspects of GDL, driver training, and parent involvement in teenage driving. A final report was issued by OSRL for the survey data; however, it did not include significant results or interpretation of any significant results.

Purpose

The purpose of this project was to conduct a secondary review of the data in the *“Teen Driver Licensing Program Survey – 2005”* to determine risk and protective factors related to young driver crashes and policy implications for teenage driver safety utilizing the “Public Health Approach” as promoted by the Centers for Disease Control and Prevention (CDC). This project addresses Steps 2 and 3 of the Public Health Model—to identify risk and protective factors (Step 2) and to develop and test prevention strategies (Step 3).

Methods

Data were abstracted from the *“Teen Driver Licensing Program Survey – 2005”* final report that includes survey results for 1,125 parents and their 16- and 17-year old teenagers (42% of which had crashes posted to their state driver records). Variables of interest included the following: *attitudes toward Oregon’s teen driving laws, teen driver training, opinions about DMV family materials, factors related to choosing education course or 100 hours, amount of supervised practice driving, factors related to age at licensure, teen adherence to Oregon’s teen driving laws, parent confidence in teen driving, parenting practices, teen substance use, teen driving behaviors, and teen driver skills*. Responses for all variables were dichotomized as “category of interest” vs. “referent category” and odds ratios were calculated to represent the difference in risk for crash due to being in the first category vs. the referent category.

Summary of Study Findings and Policy Implications

A number of variables of interest showed significant relations with crash group: some were positively related (“risk” factors) and some were inversely related (“protective” factors). But, there were no significant differences in parent reports or in teen reports for any variables of interest related to the two adolescent age groups addressed in this study (16-only vs. 16-and-17). Therefore, there would be no need to enact different strategies or policies for 16-year-olds than for 17-year-olds.

- Parent Support for and Teen adherence to provisional licensure requirements: Oregon should assess and utilize various strategies to promote (and require) parent and teen understanding of, support for, and adherence to GDL laws because in this study, parent overall support for GDL policies and teen adherence to provisional licensure requirements was related to a reduction in teen crashes of 40% to 100% (1.4 to 2 times less crash risk).

- DMV family materials: Oregon should assess and utilize various strategies to promote (even require) the use of DMV family materials because in this study, use of a log book and the Tuning Up Manual was related to a reduction in teen crash risk of 40% to 60% (1.4 to 1.6 less crash risk).
- Driver education vs. supervised practice: Oregon should promote and support (even require) the completion of driver education for teenagers because in this study, completing driver education vs. 100 hours of supervised practice only was related to a reduction in crash risk of 50% to 80% (1.5 to 1.8 less crash risk).
- Parent confidence in teen driving: Oregon should assess and utilize various strategies to promote (even require) parent efforts to assess their teenagers' driving through both driver education and supervised practice because in this study, parent confidence in teenagers' safe driving, especially as related to teenagers taking driver education and being supervised, was related to a reduction in teen crash risk of 40% to 70% (i.e., 1.4 to 1.7 times less crash risk).
- Parenting practices: Oregon should assess and utilize various strategies to promote the monitoring of teenagers' whereabouts by parents AND the following of parent guidelines by teenagers as they relate to teen driving because in this study, these were related to a reduction in teen crash risk of 40% to 50% (i.e., 1.4 to 1.5 times less crash risk).
- Teen substance use: Oregon should assess and utilize various strategies to promote the zero tolerance policy, and state officials, law enforcement, and parents need to know it, support it, and enforce it because in this study, various substance use behaviors by teenagers were related to an increase in teen crash risk of 50% to 110% (i.e., 1.5 to 2.1 times more crash risk).
- Teen driving behaviors: Oregon should assess and utilize various strategies to promote the primary seat belt law and state officials, law enforcement, and parents need to know it, support it, and enforce it because in this study, teenagers' seat belt use was related to a reduction in teen crashes of 210% to 230% (i.e., 3.1 to 3.3. times less crash risk). In addition, state officials, law enforcement, and parents need to support and enforce penalties for young drivers' risky behaviors because in this study, risky driving, especially using cell phones and speeding, were related to an increase in teen crash risk of 40% to 100% (i.e., 1.4 to 2 times more crash risk).
- Teen driver skills: Oregon should promote (even require) the training of four skills—reacting quickly, paying attention to other road users, obeying the speed limit, and avoiding unnecessary risks—during driving instruction for teenagers (whether with state-sanctioned driver education instructors or parents) because in this study, the lack of these skills by teenagers were related to an increase in teen crash risk of 50% to 140% (i.e., 1.5 to 2.4 times more crash risk).

SECONDARY REVIEW OF DATA FROM “TEEN DRIVER LICENSING PROGRAM SURVEY – 2005”

Motor vehicle crashes are the leading cause of injury and death for youth in the United States and cause more deaths than do the next four causes (i.e., homicide, suicide, cancer, and heart disease) combined (National Center for Injury Prevention and Control, 2007). Adolescent crash rates are higher than those for any other age group under 70 (Ferguson, Teoh, & McCartt, 2007), and highest during the first six months of licensure and first 500 miles of independent driving (Mayhew, Simpson, & Pak, 2003; McCartt, Shabanova, & Leaf, 2003). High crash rates among teen drivers are largely attributed to their young age, lack of driving experience, risky driving behaviors, and driving under high-risk conditions, such as at night and with teen passengers (Ferguson, Teoh, & McCartt, 2007; Williams & Ferguson, 2002). Three countermeasures exist to help combat high crash rates among young drivers—graduated driver licensing (GDL), driver education, and parental involvement in teen driving—and each state has some combination of these in place.

In Oregon, a teenager is eligible for an instruction permit beginning at age 15. A permit is valid for 24 months and must be held for at least six months. During the instruction permit phase, a teenager is required to drive with a licensed adult age 21 or older, and either to complete (a) a traffic safety course and 50 hours of supervised practice or (b) 100 hours of supervised practice (without completing a traffic safety course). With verification of the completion of either of these, a teenager is eligible to obtain a provisional license beginning at the age of 16. During the provisional licensing phase, a teenager cannot drive unsupervised (a) after midnight (except for emergencies, work-related driving, and school-related driving) for the first 12 months; (b) with underage passengers (except for family members) during the first six months; and (c) with more than three underage passengers (except for family members) during the second six months.

Research shows that GDL and parent involvement in teenage driving are related to teen driver safety. For example, adoptions of state GDL policies across the United States are related to overall reductions in teen crash rates by 20-40% (see review, Shope, 2007). Research also shows that parent limits on teen driving are inversely related to teenage risky driving, traffic violations, and crashes (see review, Hartos & Simons-Morton, 2006) and that parents are needed to support, reinforce, and enforce GDL policies for teenage driving (Simons-Morton, 2007).

However, there are mixed results for whether driver training and supervised practice show favorable effects on teenage driver safety. For example, there is no clear evidence linking driver education to safe driving among teenagers; in fact, driver education may increase teen crash risk by allowing teenagers to drive at earlier ages as a result of taking it (Mayhew, 2007; Preusser & Tison, 2007). However, a recent study in Texas shows that when compared to teenagers who opted for professional-taught driver education, those who opted for parent-taught driving (which is allowed in two states: Texas and Oregon) were about three times more likely to be involved in serious crashes (Pezoldt, Womack, & Morris, 2007). In addition, although reductions in crash risk attributed to the learner's phase in GDL may be partially related to increases in supervised practice driving during that extended time period (McKnight & Peck, 2002; Preusser & Tison, 2007), there is no clear-cut evidence for an inverse relationship between supervised practice driving alone and teenage crash risk (Foss, 2007).

In 2004-05, the Traffic Injury Research Foundation (TIRF), conducted a multi-site, multi-jurisdictional investigation under funding from the AAA Foundation for Traffic Safety (AAAFTS) to examine why young drivers continue to crash, even when they are protected by an effective Graduated Driver Licensing (GDL) system. Study findings are contained in a report prepared by

TIRF and published by the AAAFTS entitled “Reducing the Crash Risk for Young Drivers” (Mayhew et al. 2006). As part of this larger study, and on behalf of TIRF, the Oregon Department of Transportation (ODOT) arranged for the Oregon Survey Research Laboratory (OSRL) at the University of Oregon to conduct a survey with 16- and 17-year-old teenage drivers with and without crashes posted to their Oregon driver records and their parents about attitudes, behaviors, and experiences related to teen driving. The goal was to obtain data from equal amounts of teenagers with and without crashes posted to their state driver records. The final report from the OSRL to ODOT listed descriptive statistics for survey items and cross tabulations for survey items and crash groups. However, it did not include significant results or interpretation of any significant results.

Purpose

The purpose of this project was to conduct a secondary review of the data in the “*Teen Driver Licensing Program Survey – 2005*” to determine risk and protective factors related to young driver crashes and policy implications for teenage driver safety utilizing the Public Health Model for addressing public health problems.

The “Public Health Approach” to addressing public health problems—including injuries—as promoted by the Centers for Disease Control and Prevention (CDC) has four steps: define the problem, identify risk and protective factors, develop and test prevention strategies, and assure widespread adoption of effective injury prevention principles and strategies (CDC, 2007). The first step, to define the problem, includes gathering and analyzing all available data related to injury prevalence, severity, at-risk or high-risk groups, trends, and impact or outcomes at the individual, group, community, and policy levels. The second step, to identify risk and protective factors, involves collecting and analyzing all available data to determine coexisting and contributing factors that help or hinder the health or injury issue at the individual, group, community, and policy levels. The third step, to develop and test prevention strategies, involves designing strategies to manipulate or alter the risk and protective factors that were identified in the prior step and then testing their effects on injury prevalence, severity, at-risk or high-risk groups, trends, and impact or outcomes at the individual, group, community, and policy levels. The final step is to assure widespread adoption of the prevention strategies that are shown to be effective.

This project focuses on Steps 2 and 3. In this study, existing survey data from parents and their 16- and 17-year old drivers with and without crashes posted to their Oregon driver records will be used to identify risk and protective factors that are related to young driver crashes in Oregon (Step 2) and then policy strategies to manipulate or alter identified factors at the state level will be suggested to reduce crash risk among young drivers (Step 3).

METHODS

Data

Data for use in this study was abstracted from the “*Teen Driver Licensing Program Survey – 2005*” final report issued by the Oregon Survey Research Laboratory (OSRL). The report contains frequency responses for survey questions and cross-tabulation tables for survey questions by specific variables of interest, including crash groups and age. (Unfortunately, the original dataset is not available, thus, limiting data analysis to information posted in the final report.)

According to the OSRL final report, the Oregon Department of Transportation (ODOT) furnished a list of “all newly licensed teen drivers in Oregon,” and OSRL randomly sampled from this list to obtain 125 completed interviews within each of the following strata prescribed by ODOT: 16-year-old males, no crash; 16-year-old females, no crash; 16-year-old males, crash; 16-year-old females, crash; 17-year-old males, no crash; 17-year-old females, no crash; 17-year-old males, crash; and 17-year-old females, crash. However, crash quotas “proved difficult to fill”; thus, quotas were under-filled in some strata and over-filled in others. This data was gathered and used as part of a larger study conducted by the Traffic Injury Research Foundation (TIRF), with funding from the AAA Foundation, and more information about original study procedures, data collection can be found in Mayhew et al., 2006.

Overall, 1,125 families completed interviews, and Table 1 shows crash status of the teenagers by age and gender. As shown in Table 1, 42% of the total number of 16- and 17-year-old respondents had at least one crash posted to their state driver records, and 38% of 16-year-old respondents had at least one crash posted to their driver records. There was no significant difference in the proportions of crashes between these age groups ($p > .05$).

-Table 1-

Table 2 lists the demographic information for participants as recorded in the OSRL final report. Of the 1,125 responding parents, 66% were mothers; 73% were between the ages of 36 and 50; 91% were married; and the educational statuses of respondents and their partners varied considerably. Most participating parents reported no traffic tickets for moving violations (78%) and no collisions as drivers (81%) for the past three years. For the 1,125 teenagers, about half were 16 years old (47%) and half 17 (53%), and about half were female (52%) and half male (48%). Most were in 11th (57%) or 12th (38%) grades and had “A” (52%) or “B” (36%) averages in school. About 43% worked part-time and 55% did not work.

-Table 2-

Analysis

Tables were reproduced from the OSRL final report for univariate distributions for variables of interest and bivariate distributions for variables of interest by crash groups. To determine factors related to young driver crashes, responses for variables were dichotomized (e.g., “yes” vs. “no” or “never” vs. “ever”) to represent “category of interest” vs. “referent category.” For example, answers to the question “How often do you exceed the speed limit?” were dichotomized as “very often,” which is the behavior of interest related to crash risk, vs. “less,” which is the referent group. Next, odds ratios and 95% confidence intervals were calculated using the online calculator for statistics for 2X2 tables located at <http://home.clara.net/sisa/twoby2.htm>. An odds ratios (OR) represents the difference in risk for

crash due to being in the first category vs. the referent category. Odds ratios are significant if the 95% confidence intervals (95% CI) do not pass through 1.00.

A significant odds ratio with a value over 1 indicates a “risk” relationship in which those in the first category for the dichotomized variable are “ X (i.e., value of odds ratio) times *more likely*” to be in the crash group vs. the referent category. For example, “OR=1.5; 95% CI: 1.21, 1.67” is interpreted as a significant finding because the 95% confidence intervals do not pass through 1.0, and the odds ratio can be interpreted as any of the following: “1.5 times *more likely* to be in the crash group” *or* “1.5 times *more crash risk*” *or* “50% *more crashes*” *or* “an *increase* in crash risk of 50%.”

A significant odds ratio with a value under 1 represents a “protective” relationship in which those in the first category for the dichotomized variable are “ X (i.e., value of odds ratio) times *more likely*” to be in the crash group vs. the referent category. For example, “OR=.54; 95% CI: .21, .67” is interpreted as a significant finding because the 95% confidence intervals do not pass through 1.0, and the odds ratio can be interpreted as either “.54 times *more likely* to be in the crash group” *or* “.54 times *more crash risk*.” For ease of interpretation, odds ratios under 1 can be reversed by dividing “1” by the reported odds ratio to obtain “Y (new value) times *less likely*” to be in the crash group. So, in the example, “OR=.54; 95% CI: .21, .67,” dividing 1 by .54 equals 1.85, and this reversed odds ratio can be interpreted as any of the following: “1.85 times *less likely* to be in the crash group” *or* “1.85 times *less crash risk*” *or* “85% *less crash risk*” *or* “a *reduction* in crash risk of 85%.”

Variables of Interest

Variables of interest in this study were confined to those that would indicate “risk” or “protective” factors for crashes that were not contingent upon the temporal sequence of events because the crashes had already occurred. For example, data was not analyzed related to the many questions about “current” driving experiences or circumstances surrounding “your most recent crash.” The answers to those questions come *after* the crash. In addition, data was not analyzed for current numbers of traffic tickets because the reports may have been influenced by the crash itself (.e.g., if teenagers in “crash” groups report having more tickets than do those in the “no crash” groups, it may be because they received a ticket for the crash that is represented in the quota). The descriptions for the variables of interest in this study are as follows.

Attitudes toward Oregon’s teen driving laws included both parent reports (see Table 3) and teen reports (see Table 4). Parent reports included what parents thought about the length of the permit phase (“not long enough,” “about right,” or “too long”) and the number of supervised practice hours for teenagers who do not take a traffic education course (“not enough,” “about right,” or “too much”), as well as to what extent parents agreed (6-point scale from “strongly disagree” to “strongly agree”) with the following requirements: teenagers with instruction permits must be accompanied by a licensed person 21 or older; to get licensed prior to age 18, teenagers must either complete a traffic education course and 50 hours of supervised practice or 100 hours of supervised practice without a course; during the provisional phase, teens cannot drive unsupervised after midnight for 12 months; during the provisional license, teenagers cannot drive unsupervised with underage passengers (unless they are family members) for six months; and during the provisional license, teenagers cannot drive unsupervised with more than three underage passengers (unless they are family) for the second six months. In addition, parents were asked about their overall opinion for Oregon’s teen driving laws (“strongly disapprove,” “somewhat disapprove,” “somewhat approve,” or “strongly approve”).

Teens reported (see Table 4) whether they thought that Oregon’s teen driving laws were adequately preparing them for full driving privileges (“yes” or “no”), and their overall opinion

about the laws (“highly approve,” “somewhat approve,” “somewhat disapprove,” or “highly disapprove”). In addition, teenagers responded to which phase they thought a teen driver is at greatest risk of being involved in a collision as the driver: “while they are in the instruction stage,” “within the first six months after obtaining a provisional license,” “during the first year after obtaining their full privilege license,” or “when they are older, after reaching legal drinking age.”

Teen driver training included parent and teen reports (see Table 5) for whether families used a log book to record supervised teen driving practice (“yes” or “no”); whether families used the Tuning Up Manual provided by the Oregon Department of Motor Vehicles (“yes,” “no,” or “not familiar with it”); and whether families used a Safe Driving Agreement (“yes,” “no,” or “not familiar with it”). In addition, parents and teenagers reported whether teenagers completed a traffic safety course, 100 hours of practice, both of these, or neither of these; and whether teenagers received any additional supervised practice driving (“yes” or “no”) after obtaining a provisional license.

Opinions about DMV family materials included parent and teen reports (See Table 7). For parents and teenagers who answered “yes” to using the Tuning Up Manual or a Safe Driving Agreement, they answered follow-up questions for how helpful (“extremely helpful,” “very helpful,” “somewhat helpful,” “not very helpful,” or “not at all helpful”) these were, and parents were asked if they would recommend the manual to others (“yes” or “no”).

Factors related to choosing education course or 100 hours included teen reports (see Table 8). For teenagers who reported completing a traffic education course, they then answered “yes” or “no” to seven follow-up questions about reasons they may have chosen this option (i.e., to qualify for an insurance discount, to help you pass the road test, because your parents told you to, to make you a safer driver, to make you a more skilled driver, to avoid an additional 50 hours of supervised practice, and because it was easier), and were also given the opportunity to list others (see Appendix A for the list of open-ended responses).

For teenagers who reported completing 100 hours of supervised practice, they then answered “yes” or “no” to six follow-up questions about reasons they may have chosen this option (i.e., a course was not available, a course was too costly, your parents told you to, to help you pass the road test, to make you a safer driver, and to make you a more skilled driver), and were also given the opportunity to list others (see Appendix B for the list of open-ended responses).

Amount of supervised practice driving included parent and teen reports (see Table 9) for how many supervised practice hours teenagers received (total from all sources) during the instruction permit. *[Note: The final OSRL report did not post complete data for these by crash groups so crash risk by number of practice hours could not be assessed.]*

Factors related to age at licensure included teen reports (see Table 10) for reasons teenagers did not get a license at age 16. Teenagers responded “yes” or “no” to 11 reasons including: did not know that I could; had not held an instruction permit for required 6 months; still needed more driving practice after I turned 16; couldn’t get into driver education class; couldn’t schedule my first road test; had to retake the road test; no interest/no need to drive/not in a hurry; no vehicle available; parents did not want me to drive; couldn’t afford the cost of insurance; and couldn’t afford the gas/maintenance. *[Note: there was also an open-ended response question for reasons that teenagers did not get a license at age 16, and another open-ended response question for why those who did get licensed as age 16 did so; however, the open-ended responses were not included in the final report issued by OSRL and could not be assessed.]*

Teen adherence to Oregon's teen driving laws included teen reports (see Table 11) for how often they drove under the following conditions: unsupervised during the instruction permit ("never," "rarely," "sometimes," "often," or "always"); unsupervised after midnight during the first 12 months of provisional licensure ("never," "a few times," "a few days per month," "a few days per week," or "almost every day"); unsupervised with underage passengers during the first six months of provisional licensure ("never," "a few times," "a few days per month," "a few days per week," or "almost every day"); and unsupervised with more than three underage passengers during the second six months of provisional license ("never," "a few times," "a few days per month," "a few days per week," or "almost every day").

Parent confidence in teen driving included parent reports (see Table 13) for a primary question about how confident parents are that their teenagers drive safely when parents are not around ("very confident," "somewhat confident," "not too confident," or "not at all confident"). For those that answered "very confident" or "somewhat confident," parents answered four follow-up questions ("yes" or "no") about whether their confidence was a result of any of the following: because teenagers completed driver education; because teenagers passed the road test; because teenagers had supervised practice driving; and/or because teenagers can be trusted.

Parenting practices included teen reports (see Table 15) for how often parents talked to teens about traffic safety and rules of the road since provisional licensure ("never," "rarely," "sometimes," "often," or "very often"); how often parents know where teens are ("never," "rarely," "sometimes," "often," "nearly always," or "always"); how often teenagers follow parents' teachings ("never," "rarely," "sometimes," "often," "nearly always," or "always"); and how often teenagers obey parents' instructions ("never," "rarely," "sometimes," "often," "nearly always," or "always").

Teen substance use included teen reports (see Table 17) for nine questions. Teens reported "yes" or "no" to whether they had used alcohol or recreational drugs in the past 12 months. In addition, teenagers reported how often (on a 6-point scale from "never" to "very often") they perform seven other substance-use behaviors. These behaviors included the following: smoke cigarettes; use alcohol; drive after one or two drinks; drive when you thought you had "too much" to drink; ride as a passenger in a vehicle driven by someone who has been drinking; use recreational drugs other than alcohol; and drive after using marijuana or other drugs.

Teen driving behaviors included teen reports (see Table 19) for 16 questions. Teens reported how often they wore their seat belts as the driver ("always," "nearly always," "often," "sometimes," "rarely," or "never") and as a passenger ("always," "nearly always," "often," "sometimes," "rarely," or "never"), and they reported how often (on a 6-point scale from "never" to "very often") they perform/performed 14 risky driving behaviors. These behaviors included the following: take some risks while driving because it makes driving more fun; exceed a speed limit; use a cell phone while you are driving; missed a stop or yield sign; pulled out too far into an intersection; drove very close to the vehicle in front going too slow; honked your horn to indicate your annoyance to another driver; crossed an intersection knowing that the traffic lights had turned red; disregarded the speed limit on a freeway; failed to check your rearview mirror before pulling out or changing lanes; became angered by a certain type of driver and acted out your hostility; ran your vehicle momentarily off the road due to a distraction; disregarded the speed limit on a residential road; and drove too fast for road conditions.

Teen driver skills included teen reports (see Table 21) for how well ("well above average," "above average," "somewhat above average," "somewhat below average," "below average," or "well below average") teenagers think that they perform 12 driving skills. These skills included the following: anticipate hazards; obey the traffic rules; predict traffic situations ahead; drive

cautiously; react quickly; pay attention to other road users; drive at higher speeds; drive in the dark; adjust your speed to conditions; obey the speed limit; avoid unnecessary risks; and tolerate other drivers' mistakes.

RESULTS

Attitudes toward Oregon's Teen Driving Laws

Table 3 lists results for parent attitudes toward Oregon's teen driving laws. As shown in Table 3, 67% of parents believed that having an instruction permit for six months was "about right" and 70% believed that 100 hours of supervised practice for teenagers who do not take a traffic education class was "about right." When asked about certain requirements, 50-88% of parents "strongly agreed" with them. For example, 88% of parents strongly agreed that teens need to drive with an adult 21 or older during the instruction permit; 71%, that teens need to either complete driver education plus 50 hours of supervised practice or 100 hours of supervised practice; 71%, that teenagers cannot drive unsupervised with underage passengers for the first six months of provisional license; 67%, that teenagers cannot drive unsupervised with more than three underage passengers for the second six months; and 50% that teens need to be supervised while driving after midnight during the provisional license. When asked about their overall opinion for Oregon's teen driving laws, 68% of parents "strongly approve" and only 6% disapproved.

-Table 3-

Teen crash risk was not related significantly to parent agreement with any of the specific GDL requirements; however, teen crash risk was related to parents' overall approval of Oregon's teen driving laws in that teenagers in the 16-and-17 age group were .70 times (OR=.70, CI: .54, .90) *more likely* to crash, or when reversed, 1.43 times *less likely* to crash, if parents "strongly approved" of the teen driving laws overall.

Table 4 lists teen responses for attitudes toward Oregon's teen driving laws. About 83% believed that the laws were adequately preparing them for full-privilege driving, and overall, 21% "highly approve" and 58% "somewhat approve" of Oregon's teen driving laws. In addition, 50% of teenagers believed that the time period for the greatest risk of teenagers being involved in a collision was "within the first six months after obtaining a provisional license," while 25% thought it was "during the first year after obtaining their full privilege license." *These variables were descriptive and not assessed for crash risk.*

-Table 4-

Teen Driver Training

Table 5 shows parent and teen reports related to teen driver training. As shown in Table 5, similar proportions of parents in the 16-and-17 age group and parents in the 16-only age group reported keeping a log book for teen supervised practice (49% & 49%, respectively), using the Tuning Up manual provided by the DMV (35% & 36%, respectively), and using a Safe Driving Agreement (49% & 47%, respectively). Also shown in Table 5, the same percentages of parents in the 16-and-17 age group and parents in the 16-only age group reported that their teenagers completed a traffic safety education program (16%), 100 hours of supervised practice (35%), or both (45%). About 2-3% of parents replied "neither." In addition, 67% of parents in the 16-and-17 age group and 69% of parents in the 16-only age group reported that teens received additional supervised practice after provisional licensure. There were no significant differences in parent reports for any of these variables by age group.

-Table 5-

For teen reports, Table 5 shows that similar proportions of teenagers in the 16-and-17 age group and teenagers in the 16-only age group reported using a log book (45% & 45%, respectively), using the Tuning Up Manual (27% & 25%, respectively), and using a Safe Driving Agreement (46% & 47%, respectively). Table 5 also shows similar percentages of teenagers in the 16-and-17 age group and teenagers in the 16-only age group reporting that they completed an education course (23% & 23%, respectively), 100 hours (29% & 30%, respectively), “both” (38% & 38%, respectively), and “neither” (9% & 8%, respectively). In addition, 40% of teenagers in the 16-and-17 age group and 42% in the 16-only age group reported that they received additional supervised practice after provisional licensure. There were no significant differences in teen reports for any of these variables by age group.

When comparing parent and teen reports, there were no significant differences for reported use of a log book or a Safe Driving Agreement. In fact, the same number (n=248) of parents and teenagers reported using a driving agreement; unfortunately, without the original dataset, it cannot be determined if these parents and teens were from the same families. On the other hand, there were significant differences for parent and teen reports for using the Tuning Up Manual, for whether teenagers completed driver education or 100 hours, and for whether teenagers received any additional supervised practice after provisional licensure.

Within the 16-and-17 age group, parents were about 1.5 times (OR=1.47, 95% CI: 1.23, 1.76) more likely to report, and within the 16-only age group, parents were about 1.7 times (OR=1.73, 95% CI: 1.33, 2.26) *more likely* to report, using the Tuning Up Manual than were the teenagers in those age groups. In addition, parents in the 16-and-17 age group were .58 times (OR=.58, 95% CI: .45, .73) *more likely* to report (or when reversed 1.72 times *less likely* to report), and parents in the 16-only age group were .61 times (OR=.61, 95% CI: .43, .86) *more likely* to report (or when reversed 1.64 times *less likely* to report), that teenagers completed driver education vs. 100 hours of practice than were teenagers in these age groups. For whether teenagers received any additional supervised practice after provisional licensure, parents in the 16-and-17 age group and parents in the 16-only age group were about 3 times (OR=3.03, 95% CI: 2.55, 3.60; OR=3.14, 95% CI: 2.44, 4.05; respectively) *more likely* to report “yes” than were teenagers in those age groups.

Table 6 shows teen crash risk by parent and teen reports for teen driver training. As shown in Table 6, the only parent-reported variable related to crash groups was parent reports for teenagers completing 100 hours of practice driving vs. driver education. The results indicated that for parent reports in the 16-and-17 age group, teenagers were 1.5 times *more likely* to crash, and in the 16-only age group, teenagers were 1.8 times *more likely* to crash, when parents reported that teenagers completed 100 hours instead of driver education. Teen crash risk was not related to parent reports for maintaining a log book, using the Tuning Up Manual, using a Safe Driving Agreement, or obtaining additional practice after provisional licensure.

-Table 6-

Also shown in Table 6, teen reports for using a log book and completing driver education, 100 hours, or both were related to teen crash risk. Teens were about 1.4 times *less likely* to crash in the 16-and-17 age group, and 1.6 times *less likely* to crash in the 16-only age group, when teenagers reported using a log book to record supervised practice driving. In addition, teens in the 16-and-17 age group were 1.4 times *less likely* to crash when they reported using the Tuning Up Manual.

For teen reports for completion of driver education, 100 hours, or both, teenagers in the 16-and-17 age group were about 1.7 times *more likely* to crash, and teenagers in the 16-only age group

were 1.8 times *more likely* to crash, when they completed 100 hours of supervised practice compared to those who completed driver education only. In addition, teenagers in the 16-only age group were about 2 times *less likely* to crash when they completed both the course and 100 hours vs. only completing 100 hours, and teenagers in the 16-and-17 age group were 1.4 times *more likely* to crash when they completed both the course and 100 hours compared to those who completed driver education only. Teen reports for using a Safe Driving Agreement or obtaining additional supervised practice after provisional licensure were not related to teen crash risk.

Opinions about DMV Family Materials

As shown in Table 7, of the parents who reported using the Tuning Up Manual (n=389), 38% reported that it was “very helpful” and 50% “somewhat helpful”; only 5% said it was “not very helpful.” In addition, 95% of parents would recommend the Tuning Up Manual to other parents or driving supervisors. Of parents who reported using a Safe Driving Agreement (n=547), 43% reported that it was “very helpful” and 33% “somewhat helpful”; only 6% reported it “not very” or “not at all” helpful. *These variables were descriptive and not assessed for crash risk.*

-Table 7-

Also shown in Table 7, of the teens that reported using the Tuning Up Manual (n=303), 16% reported that it was “very helpful” and 65% “somewhat helpful”; 17% reported that it was “not very” or “not at all” helpful. Of teens who reported using a Safe Driving Agreement (n=515), 37% reported that it was “very helpful” and 51% “somewhat helpful”; only 6% reported that it was “not very” or “not at all” helpful. *These variables were descriptive and not assessed for crash risk.*

Factors Related to Choosing Education Course or 100 Hours

Table 8 shows teen reports for the reasons teenagers chose to take a traffic education course or to complete 100 hours of supervised practice. Of those who took an education course (n=264), 87% reported “yes” to qualify for an insurance discount; 81%, to make you a more skilled driver; 79%, to make you a safer driver; 72%, to help pass the road test; 68%, because parents told you to; 62%, to avoid an additional 50 hours of supervised practice; and 43%, because it was easier. The open-ended responses for other factors are listed in Appendix A and included the following reasons: stress issues related to being taught by parents, scheduling/convenience issues, driver education was required by the schools, for technical education related to driving, it was a “good idea,” and friends/peers were taking it. *These variables were descriptive and not assessed for crash risk.*

-Table 8-

Also shown in Table 8, for those who completed 100 hours of practice driving (n=326), teenage reports indicated that 40% chose to complete 100 hours to make you a more skilled driver; 36%, to make you a safer driver; 33%, an education course was too costly; 23%, to help pass the road test; 18%, an education course was not available; and 8%, parents told you to. The open-ended responses for other reasons are listed in Appendix B and included the following: scheduling/time issues related to taking the course, convenience issues related to supervised practice, insurance considerations for doing one or the other, did not want to take the course, prefer to be taught by parents, did not need to take the course, expense related to one or the other, and practice driving is more important. *These variables were descriptive and not assessed for crash risk.*

Amount of Supervised Practice Driving

Table 9 shows parent and teen reports for amount of supervised practice driving. When asked how many hours of supervised practice teenagers' performed (total from all sources), parent responses ranged from 0-5,000 hours. About 4% reported between 0-49 hours, 20% between 50-99 hours, 44% between 100-199 hours, and 23% between 200-5,000 hours. When asked how many hours of supervised practice teenagers' performed (total from all sources), teen responses ranged from 1-2,000 hours. About 6% reported between 0-49 hours, 32% between 50-99 hours, 44% between 101-199 hours, and 14% between 200-2,000 hours. Overall, parents reported significantly more supervised practice hours than did teenagers (chi-square=29.70, $p<.00$). *These variables could not be assessed for crash risk because the OSRL final report did not include complete cross tabulation tables for these and crash groups.*

-Table 9-

Factors Related to Age at Teen Licensure

Table 10 shows teen reports for factors related to *not* getting a provisional license at age 16. Of those who were not licensed at age 16 ($n=359$), 35% reported no interest/no need to drive/not in a hurry; 33%, still needed more driving practice after turning 16; 27%, had not held an instruction permit for the required six months; and 13%, said that parents did not want them to drive. All other responses were 10% or less. *These variables were descriptive and not assessed for crash risk.*

-Table 10-

Teen Adherence to Oregon's Teen Driving Laws

Table 11 shows teen reports for adherence to Oregon's teen driving laws. As shown in Table 11, similar amounts of teenagers in the 16-and-17 age group and 16-only age group reported following Oregon teen driving rules. For example, about 85% (85% & 86%, respectively) reported never driving unsupervised during the instruction permit; about 35% (35% & 34%, respectively) reported never driving unsupervised past midnight in the first year of a provisional license; about 24% (24% & 25%, respectively) reported never driving unsupervised with underage passengers during the first six months of a provisional license; and about 31% (31% & 34%, respectively) reported never driving unsupervised with more than three underage passengers during the second six months of a provisional license. Teen reports did not differ significantly by age group for any of these.

-Table 11-

Table 12 shows teen crash risk by teen reports for adherence to Oregon's teen driving laws. As shown in Table 12, teenagers in the 16-and-17 age group and teenagers in the 16-only age group were about 2 times *less likely* to crash if they had never drove unsupervised with underage passengers during the first six months of provisional licensure. In addition, teens in the 16-and-17 age group were 1.4 times *less likely* to crash if they never drove unsupervised after midnight in the first year of provisional licensure, and 1.6 times *less likely* to crash when they never drove unsupervised with three or more underage passengers during the second six months of provisional license. Teen reports for driving unsupervised during the instruction permit were not related to teen crash risk.

-Table 12-

Parent Confidence in Teen Driving

Table 13 shows parent reports for how confident parents are that their teenagers drive safely when parents are not in the vehicle. Similar percentages of parents in the 16-and-17 age group and the 16-only age group reported “very confident” (54% & 52%, respectively) and “somewhat confident” (42% & 44%, respectively). For those parents who were “very” or “somewhat” confident (n=1073 in the 16-and-17 age group and n=509 in the 16-only age group), about 47% agreed it was because teenagers had completed driver education; about 61% because teenager passed the road test; 87% because teenager had supervised driving practice; and 93% because teenager can be trusted to drive safely. There were no significant differences in any of these parent reports by age group.

-Table 13-

Table 14 shows teen crash risk by parent reports for confidence in teen driving. As shown in Table 14, teens were about 1.5 times *less likely* to crash when parents in the 16-and-17 age group and parents in the 16-only age group reported that they were “very confident” in their teenagers’ driving. In addition, teenagers in the 16-and-17 age group were 1.4 times *less likely* to crash, and teenagers in the 16-only age group were 1.7 *less likely* to crash, when parents in these age groups reported that they were confident because teenagers took driver education, and teenagers in the 16-and-17 age group were about 1.5 times *less likely* to crash when parents reported that that they were confident because teenagers had supervised practice.

-Table 14-

Parenting Practices

Teen reports for parenting practices are shown in Table 15. Similar amounts of teenagers in the 16-and-17 age group and teenagers in the 16-only age group reported that their parents “often” or “very often” talked about traffic safety (37% and 39%, respectively), and “nearly always” or “always” know the teenagers’ whereabouts (79% and 80%, respectively). In addition, the same amounts of teenagers in the 16-and-17 age group and teenagers in the 16-only age group reported that they “nearly always” or “always” follow their parents’ teachings (70%), and “nearly always” or “always” obey their parents’ instructions (72%). There were no significant differences in reporting by age group.

-Table 15-

Table 16 shows teen crash risk by teen reports for parenting practices. As seen in Table 15, teenagers in the 16-and-17 age group were about 1.4 times *less likely* to crash when teenagers reported that their parents know teens’ whereabouts, and about 1.5 times *less likely* to crash when teenagers reported obeying their parents’ instructions. Crash risk was not related to teen reports for parents talking about safety or for teen frequency of following parents’ teachings.

-Table 16-

Teen Substance Use

Teen reports for their substance use and driving are located in Table 17. As indicated, 45% of teenagers in the 16-and-17 age group and 42% of teenagers in the 16-only age group reported using alcohol in the past year, and 15% of teenagers in the 16-and-17 age group and 14% of teenagers in the 16-only age group reported using marijuana in the past year. Similar amounts

of teenagers in the 16-and-17 age group and teenagers in the 16-only age group reported smoking cigarettes (9% and 9%, respectively), using alcohol (10% and 9%, respectively), driving after one or two drinks (4% and 3%, respectively), driving when had too much to drink (1% and 1%, respectively), riding with someone who has been drinking (8% and 8%, respectively), using recreational drugs (10% and 10%, respectively), and driving after using marijuana (6% and 6%, respectively). No reporting of variables differed significantly by age group.

-Table 17-

Table 18 shows teen crash risk by teen reports for substance use. As seen in Table 18, substance use is related to increased crash risk. For example, teenagers in the 16-only age group were 1.9 times *more likely* to crash if they used alcohol in the past year. In addition, teenagers in the 16-and-17 age group were 2.1 times *more likely* to crash if they used marijuana and drove; 1.7 times *more likely* to crash if they used alcohol in the past year, used marijuana in the past year, or rode with a drinking driver; 1.8 times *more likely* to crash if they smoked cigarettes; 1.6 times *more likely* to crash if they used alcohol; and 1.5 times *more likely* to crash if they used recreational drugs. Teen crash risk was not related to teen reports for driving after one or two drinks or driving when you have had too much.

-Table 18-

Teen Driving Behaviors

Table 19 shows teen reports for their driving behaviors. Teenagers in the 16-and-17 age group and teenagers in the 16-only age group reported similar amounts for all driving behaviors. About 97% of teenagers reported “almost always” or “always” wearing their seat belts as drivers and about 96% as passengers. For the risky driving behaviors, fewer teenagers in the 16-and-17 age group and 16-only age group reported ever crossing an intersection on a red light (16% and 15%, respectively), pulling out too far in an intersection (21% and 20%, respectively), honking your horn to indicate annoyance (21% and 25%, respectively), or running the vehicle off the road (25% and 26%, respectively). More teenagers in the 16-and-17 age group and 16-only age group reported ever taking some risks while driving (31% and 35%, respectively), driving very close to the vehicle in front (38% and 36%, respectively), missing a stop sign (46% and 42%, respectively), becoming angry at a certain type of driver (50% and 50%, respectively), and failing to check review mirror (56% and 58%, respectively). Far more teenagers in the 16-and-17 age group and 16-only age group reported ever driving too fast for road conditions (61% and 58%, respectively), speeding on residential roads (72% and 70%, respectively), speeding on freeways (73% and 68%, respectively), using a cell phone while driving (77% and 75%, respectively), and speeding in general (92% and 89%, respectively). The reporting of these behaviors did not differ significantly by age group.

-Table 19-

Table 20 shows teen crash risk by teen reports for their driving behaviors. As shown in Table 20, teenagers in the 16-and-17 age group were 3.3 times *less likely* to crash, and teenagers in the 16-only age group were 3.1 times *less likely* to crash, when they reported wearing their seat belts as drivers. For risky driving behaviors, teenagers in the 16-and-17 age group were 1.9 times *more likely* to crash, and teenagers in the 16-only age group were 1.8 times *more likely* to crash, when they reported using a cell phone while driving; teenagers in the 16-and-17 age group were 1.7 times *more likely* to crash, and teenagers in the 16-only age group were 1.6 times *more likely* to crash, when they reported using the car horn to indicate annoyance; and

teenagers in the 16-and-17 age group were 1.4 times *more likely* to crash when teenagers reported becoming angered by a certain type of driver. In addition, teenagers in the 16-and-17 age group were about 1.6 times *more likely* to crash when reporting high rates of speeding in general and 2 times *more likely* to crash when reporting high rates of speeding on freeways. Teen crash risk was not related to teen reports for wearing a seat belt as a passenger; taking risks while driving; missing stop or yield signs; pulling out too far in intersections; driving very close to the vehicle in front; crossing an intersection on red light; failing to check rearview mirror; or running the vehicle off the road.

-Table 20-

Teen Driver Skills

Table 21 shows teen reports for teen driver skills. Similar percentages of teenagers in the 16-and-17 age group and teenagers in the 16-only age group reported being "somewhat above average" or better for each of the 12 driving skills. These included the following: anticipate hazards (76% and 75%, respectively), obey the traffic rules (88% and 86%, respectively), predict traffic situations ahead (75% and 76%, respectively), drive cautiously (88% and 88%, respectively), react quickly (91% and 93%, respectively), pay attention to other road users (92% and 92%, respectively), drive at higher speeds (76% and 74%, respectively), drive in the dark (87% and 88%, respectively), adjust your speed to conditions (83% and 83%, respectively), obey the speed limit (73% and 76%, respectively), avoid unnecessary risks (86% and 85%, respectively), and tolerate other drivers' mistakes (78% and 76%, respectively). The reporting of these skills did not differ significantly by age group.

-Table 21-

Table 22 shows teen crash risk by teen reports for their driver skills. As shown in Table 22, teenagers in the 16-only age group were 2.4 times *more likely* to crash when they reported that they were below average for reacting quickly, and 2.2 times *more likely* to crash when they reported that they were below average for paying attention to other road users. Teenagers in the 16-and-17 age group were 1.6 times *more likely* to crash when they reported that they were below average for obeying the speed limit, and 1.5 times *more likely* to crash when they reported that they were below average for avoiding unnecessary risks. Teen crash risk was not related to teen reports for their skills to anticipate hazards; obey the traffic rules; predict traffic situations ahead; drive cautiously; drive at higher speeds; drive in the dark; adjust your speed to conditions; or tolerate other drivers' mistakes.

-Table 22-

STUDY FINDINGS AND IMPLICATIONS FOR POLICY

The purpose of this project was to conduct a secondary review of the data in the “*Teen Driver Licensing Program Survey – 2005*” to determine risk and protective factors related to young driver crashes and policy implications for teenage driver safety. Data used in this study were abstracted from the final report generated by the Oregon Survey Research Laboratory (OSRL) for their survey of 1,125 16- and 17-year-old teenage drivers and their parents about attitudes, behaviors, and experiences related to teen driving.

There were several advantages for assessing this data. First, it has large numbers of 16- and 17-year-old teenagers with crashes— $n=468$ (42%) in the 16-and-17 age group and $n=203$ (38%) in the 16-only age group—and the crashes were posted to their driver records; thus, the source for crash data was “objective.” The data also had large numbers of variables to assess, and both parent and teen reports for many of the variables of interest in which to compare self reports. However, a drawback of using this data was that the original dataset was not available, thus, limiting data analysis to information posted in the final report. Therefore, the data could not be verified, manipulated, or combined for other questions of interest.

All variables of interest in this study were assessed for differences in reporting by age group (i.e., 16-and-17 and 16-only). There were no significant differences in parent reports between the two age groups or in teen reports between the two age groups for any variables in the study. Thus, parents of 16-year-olds only did not report different attitudes, behaviors, or experiences than did parents of both 16- and 17-year-olds. The same is true for teenagers; 16-year-olds did not report different attitudes, behaviors, or experiences than did both 16- and 17-year-olds. Therefore, there would be no need to enact different strategies or policies for 16-year-olds than for 17-year-olds.

Oregon’s Teen Driving Laws

For attitudes toward Oregon’s teen driving laws, 50% or more of parents and teens agreed with the various requirements. For example, 88% of parents “strongly agreed” that teens need to drive with an adult 21 or older during the instruction permit; 71%, that teens need to either complete driver education plus 50 hours of supervised practice or 100 hours of supervised practice; 71%, that teens cannot drive unsupervised with underage passengers for the first six months of provisional license; 67%, that teens cannot drive unsupervised with more than three underage passengers for the second six months; and 50%, that teens need to be supervised while driving after midnight during the provisional license. When asked about their overall opinion for Oregon’s teen driving laws, 68% of parents “strongly approve” and only 6% disapproved. Teen crash risk was not related significantly to agreement with any of the specific GDL requirements; however, teen crash risk was related to parents’ overall approval of Oregon’s teen driving laws in that teenagers in the 16-and-17 age group were .70 times (OR=.70, CI: .54, .90) *more likely* to crash, or when reversed, 1.43 times *less likely* to crash, if parents “strongly approved” of the teen driving laws overall.

For adherence to Oregon’s teen driving laws, teen reports indicated that adherence was low for the requirements in the provisional license phase. Although 85% of teenagers reported never driving unsupervised during the instruction permit, only 35% reported never driving unsupervised past midnight in the first year of a provisional license; 24% reported never driving unsupervised with underage passengers during the first six months of a provisional license; and 31% reported never driving unsupervised with more than three underage passengers during the second six months of a provisional license. Teen adherence to provisional licensure requirements was inversely related to teen crash risk. Teenagers in the 16-and-17 age group

and teenagers in the 16-only age group were about 2 times *less likely* to crash if they had never drove unsupervised with underage passengers during the first six months of provisional licensure. In addition, teenagers in the 16-and-17 age group were 1.4 times *less likely* to crash if they never drove unsupervised after midnight in the first year of provisional licensure, and 1.6 times *less likely* to crash when they never drove unsupervised with three or more underage passengers during the second six months of provisional licensure.

For factors related to age at licensure, 32% of teenagers in this study (n=359) did not get licensed at age 16 and reported reasons for this delay. Only 10-35% reported any of the following reasons: no interest/no need to drive/not in a hurry; still needing more driving practice after turning 16; not having an instruction permit for the required six months; and parents not wanting them to drive. Unfortunately, the OSRL final report did not include the open-ended responses to this question or to the question about reasons why those who did get licensed at 16 did so.

Implications for teen driver policy. Parents and teenagers agreed with Oregon's teen driving laws; however, not overwhelmingly so. Although families do not have to agree with the laws in order to follow them, high levels of parents' overall approval of Oregon's teen driving laws in this study were related to teen crash risk. In addition, only up to 35% of teenagers adhered to the requirements for teen driving during provisional licensure, and this adherence was related inversely to crash risk. There is a real need to educate families about GDL provisions and the reasons for them, to determine the extent to which families are complying with them, and to promote family compliance with them (Hedlund, 2007; Mayhew, et al., 2006; Williams, 2007). Oregon should assess and utilize various strategies to promote (and require) parent and teen understanding of, support for, and adherence to GDL laws because in this study, parent support for GDL policies and teen adherence to provisional licensure requirements was related to a reduction in teen crashes of 40% to 100% (1.4 to 2 times less crash risk).

DMV Family Materials

For use of DMV family materials, 50% or fewer of parents and teens reported using any of the DMV family materials. For example, less than 50% of parents and teens reported using a log book to record teen supervised practice; less than 35% reported using the Tuning Up Manual; and less than 47% reported using a Safe Driving Agreement. Interestingly, the same number (n=248) of parents and teenagers reported using a driving agreement; unfortunately, without the original dataset, it cannot be determined if these parents and teens were from the same families. In contrast, parents in the 16-and-17 age group were about 1.5 times *more likely* to report, and parents within the 16-only age group were about 1.7 times *more likely* to report, using the Tuning Up Manual than were the teenagers in those age groups.

For opinions about DMV family materials, the majority of parents and teens who reported using the Tuning Up Manual and a Safe Driving Agreement were positive about them. For example, 88% of parents and 81% of teenagers reported that the Tuning Up Manual was helpful, and 95% of parents would recommend it to other parents or driving supervisors. For those who reported using a Safe Driving Agreement, 76% of parents and 88% of teenagers reported that it was helpful.

The use of certain family driver materials was related inversely to teen crash risk. Teenagers in the 16-and-17 age group were 1.4 times *less likely* to crash, and teenagers in the 16-only age group were 1.6 times *less likely* to crash, when teens reported using a log book to record supervised practice driving. In addition, teenagers in the 16-and-17 age group were 1.4 times *less likely* to crash when teens reported using the Tuning Up Manual.

Implications for teen driver policy. Less than half of the families in this study reported using any of the DMV family materials, and this is unfortunate because use of such materials can help families organize, structure, and document teen driver training and progress (Hartos & Simons-Morton, 2006; Simons-Morton & Ouimet, 2006). Those families in this study who did use the materials thought that they were helpful. Oregon should assess and utilize various strategies to promote (even require) the use of DMV family materials because in this study, use of a log book and the Tuning Up Manual was related to a reduction in teen crash risk of 40% to 60% (1.4 to 1.6 less crash risk).

Driver Education vs. Supervised Practice

For completion of traffic safety education, 100 hours of supervised practice, or both, parent and teen reports differed. About 16% of parents and 23% of teenagers reported that teenagers completed a traffic safety education program; 35% of parents and 29% of teenagers reported that teenagers completed 100 hours of supervised practice; and 45% of parents and 38% of teenagers reported that teenagers completed both. In addition, 67% of parents and 40% of teenagers reported that teens received additional supervised practice after provisional licensure. By age group, parents within the 16-and-17 age group were 1.7 times *less likely* to report, and parents within the 16-only age group were 1.6 times *less likely* to report, that teenagers completed driver education vs. 100 hours of practice than were teenagers in these age groups. Parents in the 16-and-17 age group and parents in the 16-only age group were about 3 times *more likely* to report that teenagers received additional supervised practice after provisional license than were teenagers in those age groups.

For factors related to choosing traffic education course or 100 hours of supervised practice, teenagers had varying responses. For teenagers who completed driver education, their reasons included the following: to qualify for an insurance discount (87%), to make them more skilled drivers (81%), to make them safer drivers (79%), to help pass the road test (72%), because parents told them to (68%), to avoid an additional 50 hours of supervised practice (62%), and because it was easier (43%). In open responses to this question, other reasons included the following: stress issues related to being taught by parents, scheduling/convenience issues, driver education was required by the schools, for technical education related to driving, it was a “good idea,” and friends/peers were taking it.

For teenagers who completed 100 hours of supervised practice, only 18-40% of teenagers reported any of the following reasons: to make them safer drivers, an education course was too costly, to help pass the road test, or an education course was not available. In open responses to this question, other reasons included the following: scheduling/time issues related to taking the traffic education course, convenience issues related to supervised practice, insurance considerations for doing one or the other, did not want to take the course, prefer to be taught by parents, did not need to take the course, and practice driving is more important.

Completion of traffic education course, 100 hours of supervised practice, or both was related to teen crash risk. Teenagers in the 16-and-17 age group were 1.5 times *more likely* to crash, and teenagers in the 16-only age group were 1.8 times *more likely* to crash, when parents reported that teenagers completed 100 hours vs. driver education. In addition, teenagers in the 16-and-17 age group were about 1.7 times *more likely* to crash, and teenagers in the 16-only age group were 1.8 times *more likely* to crash, when teenagers reported completing 100 hours of supervised practice compared to those who reported completing driver education only. Moreover, teenagers in the 16-only age group were about 2 times *less likely* to crash when they reported completing both the course and 100 hours vs. completing 100 hours only; and teenagers in the 16-and-17 age group were 1.4 times *more likely* to crash when they reported

completing both the course and 100 hours compared to those who reported completing driver education only. Thus, in terms of crash risk, completing 100 hours of supervised practice only is related to greater crash risk for teenage drivers than is completing both 100 hours and driver education, which in turn is related to greater crash risk than is completing driver education only (which includes 50 hours of supervised practice).

One would think that doing “more” supervised practice is “better” than doing “less”; however, there is no research that indicates that that is the case, or for what the optimal number of hours or amount of time for supervised practice might be (Foss, 2007; Simons-Morton, 2007). In addition, little is known about the actual quality or quantity of family supervised practice since most states do not require families to keep a log to record practice driving (Foss, 2007; Simons-Morton, 2007). Moreover, Simons-Morton and Ouimet (2007) suggest that supervised practice can only do so much because at some point teenagers need to learn to make decisions on their own without a “supervisor” ensuring that safe decisions are made. Thus, completing 50 hours of supervised practice in combination with an education course may be sufficient, and completing 100 hours may be “overkill.”

For amount of supervised practice driving, parents reported significantly more supervised practice hours than did teenagers (chi-square=29.70, $p<.00$). Parent reports ranged from 0-5,000 hours with 20% between 50-99 hours, 44% between 100-199 hours, and 23% between 200-5000 hours. Teen reports ranged from 1-2,000 hours with 32% between 50-99 hours, 44% between 101-199 hours, and 14% between 200-2,000 hours. Only 4% of parents and 6% of teenagers reported completing fewer than 50 hours. Unfortunately, teen crash risk could not be assessed by number of practice hours because the OSRL final report did not post complete information for practice hours by crash groups.

Implications for teen driver policy. It is very interesting that more teenagers reported completing a driver education course than did their parents, who were more likely to report that teenagers completed 100 hours of supervised practice. The discrepancy suggests a “disconnect” within families and their understanding of Oregon’s teen driving laws for what families are supposed to do and what they are actually doing. Whatever the reason for the disconnect, both parent and teen reports indicated that completing driver education is a protective factor against teen crash risk over completing 100 hours of supervised practice only. Similar results were recently released in Texas that showed that teenagers who were parent-taught to drive were almost three times more likely to be involved in serious crashes when compared to those who were taught by professionals (Pezoldt, Womack, & Morris, 2007). Although driver education has not shown consistent findings related to young driver safety (e.g., Mayhew, 2007), it seems the importance of an education course is to provide the technical education related to driving that families probably do not provide (Mayhew, 2007), as indicated by responses for reasons teenagers chose to take driver education course over 100 hours of supervised practice in this study. Oregon should promote and support (even require) the completion of driver education for teenagers because in this study, completing driver education vs. 100 hours of supervised practice only was related to a reduction in crash risk of 50% to 80% (1.5 to 1.8 less crash risk).

Parent Involvement

For parent confidence in teen driving, about 54% of parents reported that they were “very confident” and 42% were “somewhat confident” that their teens were safe drivers when unsupervised by parents. Parent confidence was attributed to the following reasons: teenagers can be trusted to drive safely (93%); teenagers had supervised driving practice (87%); teenagers had passed the road test (61%); and teenagers had completed driver education

(47%). Parent confidence in teen driving was inversely related to teen crash risk. Teens were about 1.5 times *less likely* to crash when parents in the 16-and-17 age group and parents in the 16-only age group reported that they were “very confident” in their teenagers’ driving. In addition, teenagers in the 16-and-17 age group were 1.4 times *less likely* to crash, and teenagers in the 16-only age group were 1.7 *less likely* to crash, when parents in these age groups reported that they were confident because teenagers took driver education, and teenagers in the 16-and-17 age group were about 1.5 times *less likely* to crash when parents reported that that they were confident because teenagers had supervised practice.

For parenting practices, 37% of teenagers reported their parents “often” or “very often” talked about traffic safety and 79% reported that parents “nearly always” or “always” know the teenagers’ whereabouts. In addition, 70% of teenagers reported that they “nearly always” or “always” follow their parents’ teachings and 72% reported that they “nearly always” or “always” obey their parents’ instructions. Several parenting practices were inversely related to teen crash risk. Teenagers in the 16-and-17 age group were about 1.4 times *less likely* to crash when teenagers reported that their parents know teens’ whereabouts, and about 1.5 times *less likely* to crash when teenagers reported obeying their parents’ instructions.

Implications for teen driver policy. Only 54% of parents in this study were “very confident” that their teenagers were safe drivers. The first question that comes to mind, then, is “Why are the rest of these parents letting their teenagers drive?” Parent confidence as a result of teenagers’ completion of driver education and of supervised practice driving was inversely related to crash risk. The value of these confidences should not be overlooked because driver education provides important technical information about driving and supervised practice relates to crucial practical experience (Hartos & Huff, 2007; Mayhew, 2007; Simons-Morton, 2007). Oregon should assess and utilize various strategies to promote (even require) parent efforts to assess their teenagers’ driving through both driver education and supervised practice because in this study, parent confidence in teenagers’ safe driving, especially as related to teenagers taking driver education and being supervised, was related to a reduction in teen crash risk of 40% to 70% (i.e., 1.4 to 1.7 times less crash risk).

Parenting practices, such as monitoring (i.e., knowing your teenagers’ whereabouts when they are not with you), and teen compliance, such as following directions, predict many areas of adolescent adjustment (e.g., school performance and risk behaviors). In this case, parents’ knowledge of their teenagers’ whereabouts and teenagers’ following of parent instructions were inversely related to crash risk. Oregon should assess and utilize various strategies to promote the monitoring of teenagers’ whereabouts by parents AND the following of parent instructions by teenagers as they relate to teen driving because in this study, these were related to a reduction in teen crash risk of 40% to 50% (i.e., 1.4 to 1.5 times less crash risk).

Teen Behaviors

For teen substance use, 45% of teenagers reported using alcohol in the past year and 15% reported using marijuana in the past year. Only 10% or less of teenagers reported any of the other risk behaviors, i.e., smoking cigarettes (9%), using alcohol (10%), driving after one or two drinks (4%), driving when had too much to drink (1%), riding with someone who has been drinking (8%), using recreational drugs (10%), and driving after using marijuana (6%). Teen substance use was related to crash risk. For example, teenagers in 16-only age group were 1.9 times *more likely* to crash if they used alcohol in the past year. For teenagers in the 16-and-17 age group, they were 2.1 times *more likely* to crash if they used marijuana and drove; 1.7 times *more likely* to crash if they used alcohol in the past year; 1.7 times *more likely* to crash if they rode with a drinking driver;

1.8 times *more likely* to crash if they smoked cigarettes; 1.6 times *more likely* to crash if they used alcohol; and 1.5 times *more likely* to crash if they used recreational drugs.

For teen driving behaviors, about 97% of teenagers reported “almost always” or “always” wearing their seat belts as drivers and about 96% as passengers. For the risky driving behaviors, fewer teenagers reported ever crossing an intersection on a red light (16%), pulling out too far in an intersection (21%), honking the horn to indicate annoyance (21%), or running the vehicle off the road (25%). More teenagers reported ever taking some risks while driving (31%), driving very close to the vehicle in front (38%), missing a stop sign (46%), becoming angry at a certain type of driver (50%), and failing to check rearview mirror (56%). Far more teenagers reported ever driving too fast for road conditions (61%), speeding on residential roads (72%), speeding on freeways (73%), using a cell phone while driving (77%), and speeding in general (92%).

Several teen driving behaviors were related to crash risk. For example, teenagers in the 16-and-17 age group are 3.3 times *less likely* to crash, and teenagers in the 16-only age group are 3 times *less likely* to crash, when they reported wearing their seat belts as the driver. For risky driving behaviors, teenagers in the 16-and-17 age group were 1.9 times *more likely* to crash, and teenagers in the 16-only age group were 1.8 times *more likely* to crash, when they reported using a cell phone while driving; teenagers in the 16-and-17 age group were 1.7 times *more likely* to crash, and teenagers in the 16-only age group were 1.6 times *more likely* to crash, when they reported using the car horn to indicate annoyance; and teenagers in the 16-and-17 age group were 1.4 times *more likely* to crash when teenagers reported becoming angered by a certain type of driver. In addition, teenagers in the 16-and-17 age group were about 1.6 times *more likely* to crash when reporting high rates of speeding in general and 2 times more likely to crash when reporting high rates of speeding on freeways.

For teen driver skills, most teenagers reported being “somewhat above average” or better for each of the 12 driving skills. These included the following: anticipate hazards (76%), obey the traffic rules (88%), predict traffic situations ahead (75%), drive cautiously (88%), react quickly (91%), pay attention to other road users (92%), drive at higher speeds (76%), drive in the dark (87%), adjust your speed to conditions (83%), obey the speed limit (73%), avoid unnecessary risks (86%), and tolerate other drivers’ mistakes (78%). Several driver skills were related to teen crash risk. Teenagers in the 16-only age group were 2.4 times *more likely* to crash when they reported being below average for reacting quickly, and 2.2 times *more likely* to crash when they reported being below average for paying attention to other road users. Teenagers in the 16-and-17 age group were 1.6 times *more likely* to crash when they reported being below average for obeying the speed limit, and 1.5 times *more likely* to crash when they reported being below average for avoiding unnecessary risks.

Implications for teen driver policy. Risky driving behaviors, especially seat belt non-use and cell phone use, are not uncommon among teenagers, and although the teenagers in this study did not report high rates of speeding or substance use behaviors, these are all high-risk activities for teenagers because they are inexperienced drivers and drinkers/druggers and drivers (Ferguson, Teoh, & McCartt, 2007; Williams & Ferguson, 2002). There are real needs to educate law enforcement and families about laws pertaining to teen driver risk, and to enforce them, because evidence suggests that young drivers, even if they are caught, do not receive real penalties (e.g., tickets or suspension of driving privileges) for these behaviors (e.g., Foss, 2007; Williams, 2007). Oregon should assess and utilize various strategies to promote the zero tolerance policy, and state officials, law enforcement, and parents need to know it, support it, and enforce it because in this study, various substance use behaviors by teenagers were related to an increase in teen crash risk of 50% to 110% (i.e., 1.5 to 2.1 times more crash risk).

In addition, Oregon should assess and utilize various strategies to promote the primary seat belt law and state officials, law enforcement, and parents need to know it, support it, and enforce it because in this study, teenagers' seat belt use was related to a reduction in teen crashes of 210% to 230% (i.e., 3.1 to 3.3. times less crash risk). In addition, state officials, law enforcement, and parents need to support and enforce penalties for young drivers' risky behaviors because in this study, risky driving, especially using cell phones and speeding, were related to an increase in teen crash risk of 40% to 100% (i.e., 1.4 to 2 times more crash risk).

Teen driver skills are, of course, going to be an issue for teenagers because it takes years to become a skilled driver. That most teens in this study self-reported better-than-average driving skills is not surprising. What is surprising is that some teenagers reported that their skills were below average—whether this was their appraisal before or after crashes cannot be determined in this study, but I suspect the latter. Indeed, not reacting quickly, not paying attention to other road users, not obeying the speed limit, and not avoiding unnecessary risks are contributing factors to teen crashes. Oregon should promote (even require) the training of four skills—reacting quickly, paying attention to other road users, obeying the speed limit, and avoiding unnecessary risks—during driving instruction for teenagers (whether with state-sanctioned driver education instructors or parents) because in this study, the lack of these skills by teenagers were related to an increase in teen crash risk of 50% to 140% (i.e., 1.5 to 2.4 times more crash risk).

Conclusions

This project was based on Steps 2 and 3 of the “Public Health Approach” to addressing injury prevention as promoted by the Centers for Disease Control and Prevention (CDC, 2007). Step 2 involves identifying risk and protective factors through collecting and analyzing all available data to determine coexisting and contributing factors that help or hinder the injury issue at the individual, group, community, and policy levels. Step 3 involves developing prevention strategies through the manipulation or alteration of the risk and protective factors that were identified in Step 2 and then testing their effects on injury prevalence, severity, at-risk or high-risk groups, trends, and impact or outcomes at the individual, group, community, and policy levels. In this project, when using the available data from the “*Teen Driver Licensing Program Survey – 2005*” final report, a number of variables of interest showed significant relations with crash group: some were positively related (“risk” factors) and some were inversely related (“protective” factors). When assessing differences in parent reports or in teen reports for any variables of interest related to the two adolescent age groups addressed in this study (16-only vs. 16-and-17), none were found. Therefore, when determining strategies to manipulate or alter risk and protective factors, there would be no need to enact different strategies or policies for 16-year-olds than for all drivers under age 18. Oregon should consider the results of this study and the suggested policy implications related to them, but take care in implementing changes and evaluating the effects of any changes.

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Table 1: Participation Rates by Age, Gender, and Crash Status

Age Group	Total		No Crash Group		Crash Group	
	N	%	N	%	N	%
16 & 17 year olds	1125	100	657	58	468	42
Male	538	48	317	28	221	20
Female	587	52	340	30	247	22
16 year olds	528	100	325	62	203	38
Male	259	49	163	31	96	18
Female	269	51	162	31	107	20
17 year olds	597	100	332	56	265	44
Male	279	47	154	26	125	21
Female	318	53	178	30	140	23

Note: The two highlighted age groups are the ones used in analyses

Table 2: Participant Demographic Information

Parent	Frequency (N=1125)		Teen	Frequency (N=1125)	
	N	%		N	%
Relationship to Teen			Teen age		
Mother	740	66	16	528	47
Father	366	32	17	597	53
Other guardian	19	2	Total	1125	100
Total	1125	100			
Respondent age			Teen gender		
20-35	11	0	Female	587	52
36-50	817	73	Male	538	48
51 and older	297	26	Total	1125	100
Total	1125	100			
Marital status			Work status		
Single, never married	13	1	Full time	25	2
Widowed	14	1	Part time	483	43
Divorced or separated	75	7	Not working	617	55
Married	1023	91	Total	1125	100
Total	1125	100			
Respondent's Education			Grade in school		
Some grade school or high school	14	1	9	1	0
Completed high school	193	17	10	40	4
Attended college or university	250	22	11	642	57
Community college/2-year degree	134	12	12	426	38
Bachelors degree	319	28	Total	1109	99
Graduate or professional degree	214	19			
Total	1124	99			
Spouse's Education			Grades in school		
Some grade school or high school	17	2	A	580	52
Completed high school	249	22	B	402	36
Attended college or university	189	17	C	126	11
Community college/2-year degree	128	11	D	9	1
Bachelors degree	303	27	Total	1117	100
Graduate or professional degree	208	18			
Total	1094	97			
Traffic tickets in the past three years					
None	880	78			
One	192	17			
Two or more	51	5			
Total	1123	100			
Crashes in the past three years					
None	911	81			
One	191	17			
Two or more	22	2			
Total	1124	100			

Note: N=1125; "Total" n's less than this reflect missing data; individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 3: Parent Reports for Attitudes toward Oregon's Teen Driving Laws

Item	Response	Frequency (N=1125)	
		N	%
Beginning drivers under the age of 18 must have an instruction permit for at least 6 months	Not long enough	357	32
	About right	752	67
	Too long	9	1
	Total	1118	100
Oregon law requires 100 hours of supervised driving practice for 16 & 17 year olds without a driver education course before they are licensed	Not enough	263	23
	About right	787	70
	Too much	63	6
	Total	1113	99
Teens with an instruction permit must be accompanied by a licensed person who is at least 21 years old	Strongly disagree	16	1
	2	10	1
	3	22	2
	4	16	1
	5	73	7
	Strongly agree	988	88
	Total	1125	100
16 & 17 year olds must complete a traffic safety course and certify 50 hours of supervised practice. For those without a driver education course, they must certify 100 hours of supervised practice	Strongly disagree	19	2
	2	17	2
	3	57	5
	4	87	8
	5	146	13
	Strongly agree	798	71
	Total	1124	101
Teens need a supervisor to drive after midnight for the first year after obtaining their provisional license	Strongly disagree	46	4
	2	65	6
	3	130	12
	4	159	14
	5	161	14
	Strongly agree	561	50
Total	1122	100	
For the first six months after licensing, teenagers cannot carry passengers under the age of 20 unless immediate family member, part of a certified driver education course, or driving with a licensed parent or stepparent	Strongly disagree	48	4
	2	29	3
	3	52	5
	4	66	6
	5	129	12
	Strongly agree	799	71
Total	1123	101	
For the second six months, teenagers cannot carry more than three passengers under the age of 20 unless immediate family member, part of a certified driver education course, or driving with a licensed parent or stepparent	Strongly disagree	42	4
	2	32	3
	3	74	7
	4	81	7
	5	142	13
	Strongly agree	753	67
Total	1124	101	
Overall opinion of Oregon's Teen Driving Laws	Strongly disapprove	15	1
	Somewhat disapprove	60	5
	Somewhat approve	277	25
	Strongly approve	768	68
	Total	1120	99

Note: N=1125; "Total" n's less than this reflect missing data; individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 4: Teen Reports for Attitudes toward Oregon's Teen Driving Laws

Item	Response	Frequency (N=1125)	
		N	%
Do you think that Oregon's teen driving laws are adequately preparing you for full driving privileges?	Yes	937	83
	No	182	16
	Total	1119	99
What is your overall opinion of Oregon's teen driving laws	Highly approve	235	21
	Somewhat approve	655	58
	Somewhat disapprove	198	18
	Highly disapprove	33	3
	Total	1121	100
When do you think a teen driver is at greatest risk of being involved in a collision as the driver?	While they are in the instruction stage	65	6
	Within the first six months after obtaining a provisional license	558	50
	During the first year after obtaining their full privilege license	283	25
	When they are older, after reaching legal drinking age	218	19
	Total	1124	100

Note: N=1125; "Total" n's less than this reflect missing data; individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 5: Parent and Teen Reports for Teen Driver Training

Item	Age Group	Response	Parent Reports						Teen Reports					
			Total		No Crash Group		Crash Group		Total		No Crash Group		Crash Group	
			N	%	N	%	N	%	N	%	N	%	N	%
Did parent, teen, or anyone else maintain a log book to record teen's practice driving?	16 & 17 (n=1125)	Yes	553	49	334	30	219	19	507	45	316	28	191	17
		No	566	50	319	28	247	22	617	55	340	30	277	25
		Total	1119	99	653	58	466	41	1124	100	656	58	468	42
	16 only (n=528)	Yes	259	49	161	30	97	19	236	45	159	30	77	15
		No	265	51	161	30	104	21	291	55	165	31	126	24
		Total	524	100	322	60	201	40	527	100	324	61	203	39
Did parent or anyone else who supervised teen's driving use the Tuning Up Manual provided by the DMV?	16 & 17 (n=1125)	Yes	389	35	237	21	152	14	303	27	195	17	108	10
		No	558	50	309	27	249	22	733	65	408	36	325	29
		Not familiar	155	14	101	9	54	5	84	8	51	5	33	3
	16 only (n=528)	Yes	191	36	117	22	74	14	132	25	90	17	42	8
		No	262	50	159	30	103	20	358	68	212	40	146	28
		Not familiar	65	12	42	8	23	4	34	6	20	4	14	2
Did parent, teen, or anyone in your household use any kind of Safe Driving Agreement?	16 & 17 (n=1125)	Yes	547	49	307	27	240	21	515	46	295	26	220	20
		No	574	51	347	31	227	20	598	53	353	31	245	22
		Not familiar	0	0	0	0	0	0	3	1	3	1	0	0
	16 only (n=528)	Yes	248	47	144	27	104	20	248	47	148	28	100	19
		No	276	53	178	34	98	19	272	52	170	32	102	19
		Not familiar	0	0	0	0	0	0	3	1	3	1	0	0
Did teen complete an approved traffic safety education course or 100 hours of supervised practice?	16 & 17 (n=1125)	Course	185	16	119	11	66	6	264	23	176	16	88	8
		100 hours	397	35	216	19	181	16	326	29	175	16	151	13
		Both	506	45	302	27	204	18	433	38	255	23	178	16
		Neither	26	2	16	1	10	1	98	9	48	4	50	4
		Total	1114	98	653	58	461	41	1121	99	654	59	467	41
	16 only (n=528)	Course	85	16	59	11	26	5	120	23	79	15	41	8
		100 hours	186	35	103	20	83	16	160	30	82	16	78	15
		Both	235	45	150	28	85	16	203	38	136	26	67	13
		Neither	16	3	10	2	6	1	42	8	26	5	16	3
Total	522	99	322	61	200	38	525	99	323	62	202	39		

Note: For 16 & 17: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 5 cont'd: Parent and Teen Reports for Teen Driver Training

Item	Age Group	Response	Parent Reports						Teen Reports					
			Total		No Crash Group		Crash Group		Total		No Crash Group		Crash Group	
			N	%	N	%	N	%	N	%	N	%	N	%
After provisional licensure, did teen drive with an adult for more driving practice?	16 & 17 (n=1125)	Yes	752	67	436	39	316	28	454	40	272	24	182	16
		No	367	33	218	19	149	13	671	60	385	34	286	25
		Total	1119	100	654	58	465	41	1125	100	657	58	468	41
	16 only (n=528)	Yes	365	69	217	41	148	28	222	42	141	27	81	15
		No	160	30	107	20	54	10	306	58	184	35	122	23
		Total	525	99	324	61	202	38	528	100	325	62	203	38

Note: For 16 & 17: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 6: Teen Crash Risk by Parent and Teen Reports for Teen Driver Training

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"			
		Parent Reports		Teen Reports	
		Odds Ratio	95% Confidence Intervals	Odds Ratio	95% Confidence Intervals
Maintained a log book (yes vs. no)	16 & 17 16 only	NS NS		.74* .63*	.58, .94 .44, .91
Used the Tuning Up Manual (yes vs. no/not familiar)	16 & 17 16 only	NS NS		.71* NS	.54, .93
Used a Safe Driving Agreement (yes vs. no/not familiar)	16 & 17 16 only	NS NS		NS NS	
Completed driver training (100 hours vs. course)	16 & 17 16 only	1.51 1.83	1.05, 2.17 1.06, 3.15	1.73 1.83	1.23, 2.41 1.12, 2.99
Completed driver training (both course + 100 hours vs. 100 hours)	16 & 17 16 only	NS NS		NS .51*	
Completed driver training (both course + 100 hours vs. course)	16 & 17 16 only	NS NS		1.40 NS	1.01, 1.92
Drove with adult for additional practice after provisional license (yes vs. no)	16 & 17 16 only	NS NS		NS NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0

* **When reversed:** *.74 times more likely = 1.35 times less likely*
.63 times more likely = 1.59 times less likely
.71 times more likely = 1.41 times less likely
.51 times more likely = 1.96 times less likely

Table 7: Parent and Teen Reports for Opinions about DMV Family Materials

Item	Response	Parent Reports		Teen Reports	
		N	%	N	%
How helpful would you say the Tuning Up Manual was? (n=389 for parents; n=303 for teens)	Not at all helpful	1	0	8	3
	Not very helpful	18	5	43	14
	Somewhat helpful	196	50	197	65
	Very helpful	148	38	47	16
	Extremely helpful	22	6	5	2
	Total	385	99	300	100
Would you recommend this manual to other parents or driving supervisors? (n=385 for parents)	Yes	365	95	--	--
	No	17	4	--	--
	Total	382	99		
How helpful would you say the Safe Driving Agreement was? (n=547 for parents; n=515 for teens)	Not at all helpful	11	2	4	1
	Not very helpful	19	4	25	5
	Somewhat helpful	178	33	264	51
	Very helpful	237	43	188	37
	Extremely helpful	95	17	32	6
	Total	540	99	513	100

Note: Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Tables 8: Teen Reports for Factors Related to Choosing Education Course or 100 Hours

Item	Reason	"Yes" Responses	
		N	%
Did you choose to take a traffic education course rather than complete 100 hours of driving practice for any of the following reasons? (n=264)	To qualify for an insurance discount	229	87
	To help you pass the road test	190	72
	Because your parents told you to	180	68
	To make you a safer driver	209	79
	To make you a more skilled driver	214	81
	To avoid an additional 50 hours of supervised practice	163	62
	Because it was easier	113	43
	For some other reason (see these in Appendix A)	32	12
Did you choose to take 100 hours of practice rather than a traffic education course for any of the following reasons? (n=326)	A course was not available	59	18
	An education course was too costly	109	33
	Your parents told you to	25	8
	To help you pass the road test	74	23
	To make you a safer driver	118	36
	To make you a more skilled driver	129	40
	For some other reason (see these in Appendix B)	156	48

Table 9: Parent and Teen Reports for Amount of Supervised Practice Driving

Response	Parent Reports		Teen Reports	
	N	%	N	%
0-9 hours	4	0	4	0
10-19 hours	3	0	5	0
20-29 hours	7	1	15	1
30-39 hours	16	1	21	2
40-49 hours	17	2	26	2
50 hours	68	6	122	11
51-59 hours	5	0	20	2
60-69 hours	47	4	69	6
70-79 hours	68	6	86	8
80-89 hours	23	2	40	4
90-99 hours	16	1	23	2
100 hours	307	27	303	27
101-109 hours	4	0	8	1
110-119 hours	14	1	28	2
120-129 hours	58	5	62	6
130-139 hours	1	0	4	0
140-149 hours	6	1	3	0
150-159 hours	81	7	80	7
160-169 hours	3	0	1	0
170-179 hours	10	1	7	1
180-189 hours	8	1	2	0
190-199 hours	0	0	0	0
200 hours	103	9	84	7
201-249	6	1	4	0
250-299 hours	20	2	12	1
300 hours	38	3	22	2
301-399 hours	7	1	3	0
400-499 hours	12	1	2	0
500-599 hours	32	3	17	2
600-999 hours	7	1	3	0
1000 hours	18	2	3	0
1001-5000 hours	11	1	3	0
Missing	105	9	43	4
Total	1125	99	1125	98

Note: Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error

Table 10: Teen Reports for Factors Related to Age of Licensure

Item	Reason	"Yes" Responses	
		N	%
Why didn't you get a provisional license as soon as you turned 16? (n=359)	Did not know that I could	6	2
	Had not held an instruction permit for required 6 months	95	27
	Still needed more driving practice after I turned 16	117	33
	Couldn't get into driver education class	17	5
	Couldn't schedule my first road test	30	8
	Had to retake the road test	33	9
	No interest / no need to drive / not in a hurry	127	35
	No vehicle available	35	10
	Parents did not want me to drive	48	13
	Couldn't afford the cost of insurance	33	9
	Couldn't afford the gas/maintenance	20	6

Table 11: Teen Reports for Adherence to Oregon’s Teen Driving Laws

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
When you had an instruction permit, how often did you drive on public roads without having an adult supervisor in the front seat with you?	16 & 17 (n=1125)	Never	953	85	568	50	385	34
		Rarely	119	11	62	6	57	5
		Sometimes	22	2	11	1	11	1
		Often	14	1	7	1	7	1
		Always	16	1	9	1	7	1
		Total	1124	100	657	59	467	42
	16 only (n=528)	Never	452	86	281	53	171	32
		Rarely	56	11	31	6	25	5
		Sometimes	11	2	6	1	5	1
		Often	5	1	4	1	1	0
		Always	4	1	3	0	1	0
Total	528	101	325	61	203	38		
During the first 12 months of your provisional license, how often did you drive after midnight without an adult supervisor (other than for school events, your job or emergencies)?	16 & 17 (n=1125)	Never	389	35	248	22	141	13
		A few times	456	41	275	24	181	16
		A few days per month	184	16	89	8	95	8
		A few days per week	81	7	39	3	42	4
		Almost every day	14	1	6	1	8	1
		Total	1124	100	657	58	467	42
	16 only (n=528)	Never	177	34	115	22	62	12
		A few times	224	42	145	27	79	15
		A few days per month	90	17	44	8	46	9
		A few days per week	32	6	18	3	14	3
		Almost every day	5	1	3	1	2	0
Total	528	100	325	61	203	39		
During the first six months of your provisional license, how often did you drive with a passenger under age 20 who was not a member of your immediate family?	16 & 17 (n=1125)	Never	266	24	187	17	79	7
		A few times	405	36	238	21	167	15
		A few days per month	159	14	96	8	63	6
		A few days per week	165	15	74	7	91	8
		Almost every day	130	12	62	6	68	6
		Total	1125	101	657	59	468	42
	16 only (n=528)	Never	133	25	97	18	36	7
		A few times	198	38	119	23	79	15
		A few days per month	73	14	45	9	28	5
		A few days per week	67	13	30	6	37	7
		Almost every day	57	11	34	6	23	4
Total	528	101	325	62	203	38		
During the second six months of your provisional license, how often did you drive with more than three passengers under age 20 who were not members of your immediate family?	16 & 17 (n=726) *	Never	225	31	132	18	93	13
		A few times	262	36	132	18	130	18
		A few days per month	100	14	51	7	49	7
		A few days per week	94	13	31	4	63	9
		Almost every day	40	6	20	3	20	3
		Total	721	100	366	50	355	50
	16 only (n=290) *	Never	100	34	58	20	42	14
		A few times	102	35	45	16	57	20
		A few days per month	36	12	22	8	14	5
		A few days per week	37	13	17	6	20	7
		Almost every day	11	4	4	1	7	2
Total	286	98	146	51	140	48		

Note: For 16 & 17: “Total” N=1125, “No Crash Group” N=657, and “Crash Group” N=468. For 16 only: “Total” N=528, “No Crash Group” N=325, and “Crash Group” N=203. Any “totals” less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the “total” percentages; thus, these may be between 98-101 due to rounding error

* These were the only ones who had been driving long enough to answer the question. Total numbers less than these indicate missing data.

Table 12: Teen Crash Risk by Teen Reports for Adherence to Oregon's Teen Driving Laws

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"	
		Odds Ratio	95% Confidence Intervals
Drove unsupervised during instruction permit (never vs. ever)	16 & 17	NS	
	16 only	NS	
Drove unsupervised after midnight during provisional license (never vs. ever)	16 & 17	.71*	.55, .91
	16 only	NS	
Drove unsupervised with underage passengers during first 6 months of provisional license (never vs. ever)	16 & 17	.51*	.38, .69
	16 only	.51*	.33, .78
Drove unsupervised with more than 3 underage passengers during second 6 months of provisional license (never vs. ever)	16 & 17	.63*	.46, .87
	16 only	NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0

* **When reversed:** *.71 times more likely = 1.41 times less likely*
.51 times more likely = 1.96 times less likely
.63 times more likely = 1.59 times less likely

Table 13: Parent Reports for Parent Confidence in Teen Driving

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
How confident are you that when you are not in the vehicle your teen drives safely?	16 & 17 (n=1125)	Very confident	606	54	382	34	224	20
		Somewhat confident	467	42	255	23	212	19
		Not too confident	40	4	15	1	25	3
		Not at all confident	9	1	3	0	6	1
		Total	1122	101	655	58	467	43
	16 only (n=528)	Very confident	275	52	181	34	94	18
		Somewhat confident	234	44	135	26	99	19
		Not too confident	16	3	7	1	9	2
		Not at all confident	2	0	1	0	1	0
		Total	527	99	324	61	203	39
♦ Confident because teen completed driver education	16 & 17 (n=1073)	Yes	502	47	319	30	183	17
		No	571	53	318	30	253	23
		Total	1073	100	637	60	436	40
	16 only (n=509)	Yes	236	46	162	32	74	15
		No	273	54	154	30	119	24
♦ Confident because teen passed the road test	16 & 17 (n=1073)	Yes	650	61	400	37	250	23
		No	423	39	237	22	186	17
		Total	1073	100	637	59	436	40
	16 only (n=509)	Yes	325	64	210	41	115	23
		No	184	36	106	21	78	15
♦ Confident because teen had supervised practice driving	16 & 17 (n=1073)	Yes	933	87	565	53	368	34
		No	140	13	72	7	68	6
		Total	1073	100	637	60	436	40
	16 only (n=509)	Yes	445	87	282	55	163	32
		No	64	13	34	7	30	6
♦ Confident because teen can be trusted to drive safely	16 & 17 (n=1073)	Yes	1003	93	601	56	402	37
		No	70	7	36	3	34	3
		Total	1073	100	637	59	436	40
	16 only (n=509)	Yes	473	93	295	58	178	35
		No	36	7	21	4	15	3
Total	509	100	316	62	193	38		

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 14: Teen Crashes by Parent Reports for Parent Confidence in Teen Driving

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"	
		Odds Ratio	95% Confidence Intervals
Teen drives safely (very confident vs. less)	16 & 17	.66*	.52, .84
	16 only	.68*	.48, .97
• Because teen completed driver education (yes vs. no)	16 & 17	.72*	.56, .92
	16 only	.59*	.41, .85
• Because teen passed road test (yes vs. no)	16 & 17	NS	
	16 only	NS	
• Because teen had supervised practice (yes vs. no)	16 & 17	.69*	.48, .99
	16 only	NS	
• Because teen is trustworthy (yes vs. no)	16 & 17	NS	
	16 only	NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0

* **When reversed:** *.66 times more likely = 1.52 times less likely*
.68 times more likely = 1.47 times less likely
.72 times more likely = 1.39 times less likely
.59 times more likely = 1.69 times less likely
.69 times more likely = 1.45 times less likely

Table 15: Teen Reports for Parenting Practices

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Since you got your provisional license, how often have your parents or others in your household talked to you about traffic safety and the rules of the road?	16 & 17 (n=1125)	Never	30	3	14	1	16	1
		Rarely	248	22	136	12	112	10
		Sometimes	428	38	271	24	157	14
		Often	264	23	161	14	103	9
		Very often	155	14	75	7	80	7
		Total	1125	100	657	58	468	41
	16 only (n=528)	Never	14	3	8	2	6	1
		Rarely	98	19	63	12	35	7
		Sometimes	208	39	134	25	74	14
		Often	129	24	79	15	50	9
		Very often	79	15	41	8	38	7
		Total	528	100	325	62	203	38
How often do your parents know where you are when you are not in school or at work?	16 & 17 (n=1125)	Never	6	1	4	0	2	0
		Rarely	23	2	7	1	16	1
		Sometimes	65	6	32	3	33	3
		Often	139	12	79	7	60	5
		Nearly always	563	50	343	30	220	20
		Always	327	29	191	17	136	12
	16 only (n=528)	Never	1	0	1	0	0	0
		Rarely	5	1	3	1	2	0
		Sometimes	32	6	16	3	16	3
		Often	65	12	37	7	28	5
		Nearly always	256	48	166	31	90	17
		Always	169	32	102	19	67	13
How often do you follow your parent's teachings	16 & 17 (n=1125)	Never	0	0	0	0	0	0
		Rarely	10	1	5	0	5	0
		Sometimes	96	9	45	4	51	5
		Often	231	21	140	12	91	8
		Nearly always	561	50	327	29	234	21
		Always	227	20	140	12	87	8
	16 only (n=528)	Never	0	0	0	0	0	0
		Rarely	3	1	3	1	0	0
		Sometimes	44	8	21	4	23	4
		Often	111	21	73	14	38	7
		Nearly always	270	51	164	31	106	20
		Always	100	19	64	12	36	7
Total	528	100	325	62	203	38		

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 15 cont'd: Teen Reports for Parenting Practices

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
When your parents tell you to do something, how often do you obey?	16 & 17 (n=1125)	Never	2	0	1	0	1	0
		Rarely	11	1	5	0	6	1
		Sometimes	80	7	42	4	38	3
		Often	229	20	119	11	110	10
		Nearly always	579	52	359	32	220	20
		Always	224	20	131	12	93	8
		Total	1125	100	657	59	468	42
	16 only (n=528)	Never	1	0	1	0	0	0
		Rarely	3	1	3	1	0	0
		Sometimes	39	7	23	4	16	3
		Often	102	19	56	11	46	9
		Nearly always	283	54	180	34	103	20
		Always	100	19	62	12	38	7
		Total	528	100	325	62	203	39

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 16: Teen Crash Risk by Teen Reports for Parenting Practices

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"	
		Odds Ratio	95% Confidence Intervals
Parents talked to teens about driver safety (often or more vs. less)	16 & 17	NS	
	16 only	NS	
Parents know teen's whereabouts (nearly always or always vs. less)	16 & 17	.73*	.55, .98
	16 only	NS	
Teenagers follow parents' teachings (nearly always or always vs. less)	16 & 17	NS	
	16 only	NS	
Teenagers obey parents' instructions (nearly always or always vs. less)	16 & 17	.69*	.53, .89
	16 only	NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0.

* **When reversed:** *.73 times more likely = 1.37 times less likely*
.69 times more likely = 1.45 times less likely

Table 17: Teen Reports for Teen Substance Use

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
In the past 12 months, have you used alcohol?	16 & 17 (n=1125)	No	619	55	399	35	220	20
		Yes	506	45	258	23	248	22
		Total	1125	100	657	58	468	42
	16 only (n=528)	No	300	57	205	39	95	18
		Yes	228	42	120	23	108	20
		Total	528	99	325	62	203	38
In the past 12 months, have you used a recreational drug, such as marijuana	16 & 17 (n=1125)	No	960	85	578	51	382	34
		Yes	165	15	79	7	86	8
		Total	1125	100	657	58	468	42
	16 only (n=528)	No	453	86	283	54	170	32
		Yes	75	14	42	8	33	6
		Total	528	100	325	62	203	38
Smoke cigarettes	16 & 17 (n=1125)	Never	1025	91	612	54	413	37
		2	32	3	16	1	16	1
		3	22	2	10	1	12	1
		4	13	1	6	0	7	1
		5	15	1	7	1	8	1
		Very often	18	2	6	1	12	1
		Total	1125	100	657	58	468	42
		16 only (n=528)	Never	480	91	298	56	182
	2		15	3	9	2	6	1
	3		12	2	5	1	7	1
	4		7	1	4	1	3	1
	5		7	1	5	1	2	0
	Very often		7	1	4	1	3	1
	Total	528	99	325	62	203	38	
Use alcohol	16 & 17 (n=1125)	Never	1012	90	602	54	410	36
		2	60	5	32	3	28	2
		3	35	3	13	1	22	2
		4	7	1	5	1	2	0
		5	8	1	4	0	4	0
		Very often	3	0	1	0	2	0
		Total	1125	100	657	59	468	40
		16 only (n=528)	Never	480	91	299	57	181
	2		24	5	15	3	9	5
	3		17	3	6	1	11	2
	4		3	1	2	0	1	0
	5		2	0	2	0	0	0
	Very often		2	0	1	0	1	0
	Total	528	100	325	61	203	41	

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 17 cont'd: Teen Reports for Teen Substance Use

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Drive after one or two drinks	16 & 17 (n=1125)	Never	1081	96	633	56	448	40
		2	30	3	17	2	13	1
		3	10	1	6	1	4	0
		4	3	0	0	0	3	0
		5	1	0	1	0	0	0
		Very often	0	0	0	0	0	0
		Total	1125	100	657	59	468	41
	16 only (n=528)	Never	512	97	313	59	199	38
		2	9	2	6	1	3	1
		3	5	1	5	1	0	0
		4	1	0	0	0	1	0
		5	1	0	1	0	0	0
		Very often	0	0	0	0	0	0
		Total	528	100	325	61	203	39
Drive when you thought you had "too much" to drink	16 & 17 (n=1125)	Never	1111	99	649	58	462	41
		2	12	1	7	1	5	0
		3	1	0	0	0	1	0
		4	1	0	1	0	0	0
		5	0	0	0	0	0	0
		Very often	0	0	0	0	0	0
		Total	1125	100	657	59	468	41
	16 only (n=528)	Never	522	99	321	61	201	38
		2	4	1	3	1	1	0
		3	1	0	0	0	1	0
		4	1	0	1	0	0	0
		5	0	0	0	0	0	0
		Very often	0	0	0	0	0	0
		Total	528	100	325	62	203	38
Ride as a passenger in a vehicle driven by someone who has been drinking	16 & 17 (n=1125)	Never	1033	92	614	55	419	37
		2	73	6	33	3	40	4
		3	12	1	7	1	5	0
		4	7	1	3	0	4	0
		5	0	0	0	0	0	0
		Very often	0	0	0	0	0	0
		Total	1125	100	657	59	468	41
	16 only (n=528)	Never	482	92	300	57	182	34
		2	38	7	18	3	20	4
		3	6	1	5	1	1	0
		4	2	0	2	0	0	0
		5	0	0	0	0	0	0
		Very often	0	0	0	0	0	0
		Total	528	100	325	61	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 17 cont'd: Teen Reports for Teen Substance Use

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Use recreational drugs other than alcohol	16 & 17 (n=1125)	Never	1013	90	602	54	411	37
		2	54	5	32	3	22	2
		3	19	2	9	1	10	1
		4	24	2	12	1	12	1
		5	8	1	1	0	7	1
		Very often	7	1	1	0	6	1
		Total	1125	101	657	59	468	43
	16 only (n=528)	Never	474	90	292	55	182	34
		2	24	5	18	3	6	1
		3	9	2	4	1	5	1
		4	16	3	10	2	6	1
		5	3	0	0	0	3	1
		Very often	2	0	1	0	1	0
		Total	528	100	325	61	203	38
Drive after using marijuana or other drugs	16 & 17 (n=1125)	Never	1053	94	627	56	426	38
		2	35	3	16	1	19	2
		3	17	2	7	1	10	1
		4	8	1	4	0	4	0
		5	8	1	0	0	8	1
		Very often	4	0	3	0	1	0
		Total	1125	101	657	58	468	42
	16 only (n=528)	Never	496	94	307	58	189	36
		2	15	3	9	2	6	1
		3	10	2	3	1	7	1
		4	5	1	4	1	1	0
		5	0	0	0	0	0	0
		Very often	2	0	2	0	0	0
		Total	528	100	325	62	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 18: Teen Crash Risk by Teen Reports for Teen Substance Use

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"	
		Odds Ratio	95% Confidence Intervals
Used alcohol in the past 12 months (yes vs. no)	16 & 17	1.74	1.37, 2.22
	16 only	1.94	1.36, 2.77
Used a recreational drug, such as marijuana, in the past 12 months (yes vs. no)	16 & 17	1.65	1.18, 2.30
	16 only	NS	
Smoke cigarettes (ever vs. never)	16 & 17	1.81	1.20, 2.74
	16 only	NS	
Use alcohol (ever vs. never)	16 & 17	1.55	1.05, 2.29
	16 only	NS	
Drive after one or two drinks (ever vs. never)	16 & 17	NS	
	16 only	NS	
Drive when you thought you had too much to drink (ever vs. never)	16 & 17	NS	
	16 only	NS	
Ride in a vehicle driven by someone who has been drinking (ever vs. never)	16 & 17	1.67	1.09, 2.56
	16 only	NS	
Use recreational drugs other than alcohol (ever vs. never)	16 & 17	1.52	1.03, 2.24
	16 only	NS	
Drive after using marijuana or other drugs (ever vs. never)	16 & 17	2.06	1.27, 3.34
	16 only	NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0

Table 19: Teen Reports for Teen Driving Behaviors

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
When you drive, how often do you wear your seat belt	16 & 17 (n=1125)	Always	1019	91	607	54	412	37
		Nearly always	70	6	39	3	31	3
		Often	21	2	7	1	14	1
		Sometimes	7	1	1	0	6	1
		Rarely	2	0	1	0	1	0
		Never	6	1	2	0	4	0
		Total	1125	101	657	58	468	42
	16 only (n=528)	Always	482	91	299	57	183	34
		Nearly always	29	5	20	4	9	2
		Often	11	2	4	1	7	1
		Sometimes	4	1	1	0	3	1
		Rarely	0	0	0	0	0	0
		Never	2	0	1	0	1	0
		Total	528	99	325	62	203	38
As a passenger, how often do you wear your seat belt	16 & 17 (n=1125)	Always	924	82	550	49	374	33
		Nearly always	156	14	84	7	72	7
		Often	21	2	10	1	11	1
		Sometimes	17	2	10	1	7	1
		Rarely	3	0	2	0	1	0
		Never	3	0	1	0	2	0
		Total	1124	100	657	58	467	42
	16 only (n=528)	Always	439	83	273	52	166	31
		Nearly always	68	13	39	7	29	5
		Often	10	2	5	1	5	1
		Sometimes	8	2	6	1	2	0
		Rarely	1	0	1	0	0	0
		Never	1	0	0	0	1	0
		Total	527	100	324	61	203	37
Take some risks while driving because it makes driving more fun	16 & 17 (n=1125)	Never	776	69	452	40	324	29
		2	222	20	136	12	86	8
		3	78	7	43	4	35	3
		4	34	3	18	2	16	1
		5	10	1	6	1	4	0
		Very often	5	0	2	0	3	0
		Total	1125	100	657	59	468	41
	16 only (n=528)	Never	355	67	216	41	139	26
		2	114	22	71	13	43	8
		3	37	7	23	4	14	3
		4	16	3	10	2	6	1
		5	3	1	3	1	0	0
		Very often	3	0	2	0	1	0
		Total	528	100	325	61	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 19 cont'd: Teen Reports for Teen Driving Behaviors

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Exceed a speed limit	16 & 17 (n=1125)	Never	90	8	57	5	33	3
		2	232	21	138	12	94	8
		3	323	29	202	18	121	11
		4	232	21	125	11	107	10
		5	155	14	90	8	65	6
		Very often	93	8	45	4	48	4
		Total	1125	101	657	58	468	42
	16 only (n=528)	Never	57	11	35	7	22	4
		2	114	22	67	13	47	9
		3	158	30	105	20	53	10
		4	98	19	56	11	42	8
		5	67	13	43	8	24	5
		Very often	34	6	19	3	15	3
		Total	528	101	325	62	203	39
Use a cell phone while you are driving	16 & 17 (n=1125)	Never	259	23	181	16	78	7
		2	294	26	186	17	108	10
		3	228	20	124	11	104	9
		4	171	15	90	8	81	7
		5	117	10	56	5	61	5
		Very often	56	5	20	2	36	3
		Total	1125	99	657	59	468	41
	16 only (n=528)	Never	130	25	93	18	37	7
		2	156	30	104	20	52	10
		3	99	19	50	9	49	9
		4	70	13	41	8	29	5
		5	48	9	28	5	20	4
		Very often	25	5	9	2	16	3
		Total	528	101	325	62	203	38
Missed a stop or yield sign	16 & 17 (n=1125)	Never	609	54	362	32	247	22
		2	433	38	255	23	178	16
		3	66	6	31	3	35	3
		4	9	1	4	0	5	0
		5	6	1	4	0	2	0
		Very often	2	0	1	0	1	0
		Total	1125	100	657	58	468	41
	16 only (n=528)	Never	305	58	188	36	117	22
		2	179	34	117	22	62	12
		3	34	6	16	3	18	2
		4	4	1	1	0	3	1
		5	5	1	3	1	2	0
		Very often	1	0	0	0	1	0
		Total	528	100	325	62	203	37

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 19 cont'd: Teen Reports for Teen Driving Behaviors

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Pulled out too far into an intersection	16 & 17 (n=1125)	Never	885	79	528	47	357	32
		2	206	18	117	10	89	8
		3	29	3	8	1	21	2
		4	4	0	3	0	1	0
		5	0	0	0	0	0	0
		Very often	1	0	1	0	0	0
		Total	1125	100	657	58	468	42
	16 only (n=528)	Never	421	80	265	50	156	30
		2	88	17	55	10	33	6
		3	16	3	3	1	13	2
		4	2	0	1	0	1	0
		5	0	0	0	0	0	0
		Very often	1	0	1	0	0	0
		Total	528	100	325	61	203	38
Drove very close to the vehicle in front going too slow	16 & 17 (n=1125)	Never	563	50	345	31	218	19
		2	312	28	196	17	116	10
		3	156	14	77	7	79	7
		4	61	5	22	2	39	3
		5	24	2	13	1	11	1
		Very often	9	1	4	0	5	0
		Total	1125	100	657	58	468	40
	16 only (n=528)	Never	262	50	167	32	95	18
		2	150	28	96	18	54	10
		3	75	14	43	8	32	6
		4	28	5	11	2	17	3
		5	7	1	4	1	3	1
		Very often	6	1	4	1	2	0
		Total	528	99	325	62	203	38
Honked your horn to indicate your annoyance to another driver	16 & 17 (n=1125)	Never	808	72	501	45	307	27
		2	188	17	101	9	87	8
		3	88	8	42	4	46	4
		4	27	2	7	1	20	2
		5	8	1	2	0	6	1
		Very often	6	1	4	0	2	0
		Total	1125	101	657	59	468	42
	16 only (n=528)	Never	395	75	254	48	141	27
		2	89	17	55	10	34	6
		3	28	5	11	2	17	3
		4	9	2	1	0	8	2
		5	3	1	1	0	2	0
		Very often	4	1	3	1	1	0
		Total	528	101	325	61	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 19 cont'd: Teen Reports for Teen Driving Behaviors

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Crossed an intersection knowing that the traffic lights had turned red	16 & 17 (n=1125)	Never	946	84	558	50	388	34
		2	152	14	87	8	65	6
		3	20	2	8	1	12	1
		4	5	0	3	0	2	0
		5	1	0	0	0	1	0
		Very often	1	0	1	0	0	0
		Total	1125	100	657	59	468	41
	16 only (n=528)	Never	448	85	283	54	165	31
		2	68	13	37	7	31	6
		3	11	2	4	1	7	1
		4	0	0	0	0	0	0
		5	0	0	0	0	0	0
		Very often	1	0	1	0	0	0
		Total	528	100	325	62	203	38
Disregarded the speed limit on a freeway	16 & 17 (n=1125)	Never	309	27	204	18	105	9
		2	252	22	137	12	115	10
		3	284	25	184	16	100	9
		4	147	13	71	6	76	7
		5	76	7	37	3	39	3
		Very often	57	5	24	2	33	3
		Total	1125	99	657	57	468	41
	16 only (n=528)	Never	168	32	110	21	58	11
		2	122	23	73	14	49	9
		3	124	23	83	16	41	8
		4	58	11	28	5	30	6
		5	32	6	17	3	15	3
		Very often	24	5	14	3	10	2
		Total	528	100	325	62	203	39
Failed to check your rearview mirror before pulling out or changing lanes	16 & 17 (n=1125)	Never	497	44	283	25	214	19
		2	400	36	234	21	166	15
		3	169	15	105	9	64	6
		4	43	4	24	2	19	2
		5	10	1	8	1	2	0
		Very often	5	0	3	0	2	0
		Total	1124	100	657	58	467	42
	16 only (n=528)	Never	223	42	138	26	85	16
		2	189	36	108	20	81	15
		3	86	16	63	12	23	4
		4	22	4	11	2	11	2
		5	6	1	4	1	2	0
		Very often	2	0	1	0	1	0
		Total	528	99	325	61	203	37

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 19 cont'd: Teen Reports for Teen Driving Behaviors

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Became angered by a certain type of driver and acted out your hostility	16 & 17 (n=1125)	Never	701	62	430	38	271	24
		2	267	24	141	13	126	11
		3	98	9	48	4	50	4
		4	37	3	25	2	12	1
		5	15	1	9	1	6	1
		Very often	7	1	4	0	3	0
		Total	1125	100	657	58	468	41
	16 only (n=528)	Never	339	64	218	41	121	23
		2	118	22	64	12	54	10
		3	45	9	24	5	21	4
		4	15	3	9	2	6	1
		5	6	1	6	1	0	0
		Very often	5	1	4	1	1	0
	Ran your vehicle momentarily off the road due to a distraction	16 & 17 (n=1125)	Never	845	75	496	44	349
2			222	20	125	11	97	9
3			45	4	25	2	20	2
4			7	1	5	1	2	0
5			4	0	4	0	0	0
Very often			2	0	2	0	0	0
Total			1125	100	657	58	468	42
16 only (n=528)		Never	393	74	241	46	152	29
		2	109	21	67	13	42	8
		3	19	4	11	2	8	2
		4	4	1	3	1	1	0
		5	2	0	2	0	0	0
		Very often	1	0	1	0	0	0
Disregarded the speed limit on a residential road		16 & 17 (n=1125)	Never	316	28	201	18	115
	2		348	31	204	18	144	13
	3		278	25	155	14	123	11
	4		95	8	53	5	42	4
	5		61	5	30	3	31	3
	Very often		27	2	14	1	13	1
	Total		1125	99	657	59	468	42
	16 only (n=528)	Never	161	30	107	20	54	10
		2	161	30	93	18	68	13
		3	131	25	79	15	52	10
		4	40	8	25	5	15	3
		5	27	5	16	3	11	2
		Very often	8	2	5	1	3	1
	Total	528	100	325	62	203	39	

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 19 cont'd: Teen Reports for Teen Driving Behaviors

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Drove too fast for road conditions	16 & 17 (n=1125)	Never	442	39	263	23	179	16
		2	408	36	235	21	173	15
		3	194	17	116	10	78	7
		4	53	5	28	2	25	2
		5	20	2	13	2	7	1
		Very often	8	1	2	0	6	1
		Total	1125	100	657	58	468	42
	16 only (n=528)	Never	220	42	133	25	87	16
		2	191	36	119	23	72	14
		3	81	15	53	10	28	5
		4	25	5	15	3	10	2
		5	5	1	5	1	0	0
		Very often	6	1	0	0	6	1
		Total	528	100	325	62	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 20: Teen Crash Risk by Teen Reports for Teen Driving Behaviors

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"	
		Odds Ratio	95% Confidence Intervals
Wear seat belt as the driver (nearly always or always vs. less)	16 & 17	.30*	.15, .62
	16 only	.33*	.12, .90
Wear seat belt as a passenger (nearly always or always vs. less)	16 & 17	NS	
	16 only	NS	
Take some risks while driving because it makes driving more fun (ever vs. never)	16 & 17	NS	
	16 only	NS	
Exceed a speed limit (very often vs. less)	16 & 17	1.55	1.02, 2.38
	16 only	NS	
Use a cell phone while you are driving (ever vs. never)	16 & 17	1.90	1.41, 2.56
	16 only	1.80	1.17, 2.76
Missed a stop or yield sign (ever vs. never)	16 & 17	NS	
	16 only	NS	
Pulled out too far into an intersection (ever vs. never)	16 & 17	NS	
	16 only	NS	
Drove very close to the vehicle in front going too slow (ever vs. never)	16 & 17	NS	
	16 only	NS	
Honked your horn to indicate your annoyance to another driver (ever vs. never)	16 & 17	1.68	1.30, 2.19
	16 only	1.57	1.06, 2.34
Crossed an intersection knowing the traffic lights had turned red (ever vs. never)	16 & 17	NS	
	16 only	NS	
Disregarded the speed limit on a freeway (very often vs. less)	16 & 17	2.00	1.17, 3.43
	16 only	NS	
Failed to check rearview mirror before pulling out or changing lanes (ever vs. never)	16 & 17	NS	
	16 only	NS	
Became angered by certain type of driver and acted out hostility (ever vs. never)	16 & 17	1.38	1.08, 1.76
	16 only	NS	
Ran vehicle momentarily off the road due to a distraction (ever vs. never)	16 & 17	NS	
	16 only	NS	
Disregarded the speed limit on a residential road (very often vs. less)	16 & 17	NS	
	16 only	NS	
Drove too fast for road conditions (ever vs. never)	16 & 17	NS	
	16 only	NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0.

* **When reversed: .30 times more likely = 3.31 times less likely**
.33 times more likely = 3.05 times less likely

Table 21: Teen Reports for Teen Driver Skills

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Anticipate hazards	16 & 17 (n=1125)	Well above average	111	10	59	5	52	5
		Above average	339	30	211	19	128	11
		Somewhat above average	400	36	238	21	162	14
		Somewhat below average	252	22	140	12	112	10
		Below average	15	1	7	1	8	1
		Well below average	6	1	2	0	4	0
		Total	1123	100	657	58	466	41
	16 only (n=528)	Well above average	45	9	24	5	21	4
		Above average	154	29	105	20	49	9
		Somewhat above average	198	38	122	23	76	14
		Somewhat below average	120	23	68	13	52	10
		Below average	8	2	5	1	3	1
		Well below average	3	0	1	0	2	0
		Total	528	101	325	62	203	38
Obey the traffic rules	16 & 17 (n=1125)	Well above average	384	34	223	20	161	14
		Above average	397	35	243	22	154	14
		Somewhat above average	200	18	109	10	91	8
		Somewhat below average	111	10	65	6	46	4
		Below average	28	2	15	1	13	1
		Well below average	5	0	2	0	3	0
		Total	1125	99	657	59	468	41
	16 only (n=528)	Well above average	188	36	114	22	74	14
		Above average	177	34	111	21	66	13
		Somewhat above average	88	17	51	10	37	7
		Somewhat below average	55	10	37	7	18	3
		Below average	17	3	10	2	7	1
		Well below average	3	1	2	0	1	0
		Total	528	101	325	62	203	38
Predict traffic situations ahead	16 & 17 (n=1125)	Well above average	117	10	67	6	50	4
		Above average	339	30	196	17	143	13
		Somewhat above average	390	35	237	21	153	14
		Somewhat below average	234	21	134	12	100	9
		Below average	41	4	22	2	19	2
		Well below average	4	0	1	0	3	0
		Total	1125	100	657	58	468	42
	16 only (n=528)	Well above average	55	10	35	7	20	4
		Above average	162	31	98	19	64	12
		Somewhat above average	182	34	119	23	63	12
		Somewhat below average	108	20	60	11	48	9
		Below average	19	4	13	2	6	1
		Well below average	2	0	0	0	2	0
		Total	528	99	325	62	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 21 cont'd: Teen Reports for Teen Driver Skills

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Drive cautiously	16 & 17 (n=1125)	Well above average	341	30	195	17	146	13
		Above average	432	38	250	22	182	16
		Somewhat above average	211	19	128	11	83	7
		Somewhat below average	111	10	67	6	44	4
		Below average	27	2	16	1	11	1
		Well below average	3	0	1	0	2	0
		Total	1125	99	657	57	468	41
	16 only (n=528)	Well above average	146	28	85	16	61	12
		Above average	208	39	128	24	80	15
		Somewhat above average	107	20	68	13	39	7
		Somewhat below average	50	9	34	6	16	3
		Below average	14	3	9	2	5	1
		Well below average	3	0	1	0	2	0
		Total	528	99	325	61	203	38
React quickly	16 & 17 (n=1125)	Well above average	298	26	165	15	133	12
		Above average	468	42	285	25	183	16
		Somewhat above average	259	23	150	13	109	10
		Somewhat below average	80	7	48	4	32	3
		Below average	19	2	9	1	10	1
		Well below average	1	0	0	0	1	0
		Total	1125	100	657	58	468	42
	16 only (n=528)	Well above average	131	25	76	14	55	10
		Above average	221	42	145	27	76	14
		Somewhat above average	138	26	88	17	50	9
		Somewhat below average	28	5	12	2	16	3
		Below average	10	2	4	1	6	1
		Well below average	0	0	0	0	0	0
		Total	528	100	325	61	203	37
Pay attention to other road users	16 & 17 (n=1125)	Well above average	291	26	169	15	122	11
		Above average	453	40	267	24	186	17
		Somewhat above average	294	26	177	16	117	10
		Somewhat below average	79	7	40	4	39	3
		Below average	7	1	3	0	4	0
		Well below average	1	0	1	0	0	0
		Total	1125	100	657	59	468	41
	16 only (n=528)	Well above average	137	26	83	16	54	10
		Above average	210	40	131	25	79	15
		Somewhat above average	138	26	92	17	46	9
		Somewhat below average	39	7	18	3	21	4
		Below average	3	1	0	0	3	1
		Well below average	1	0	1	0	0	0
		Total	528	100	325	61	203	39

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 21 cont'd: Teen Reports for Teen Driver Skills

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Drive at higher speeds	16 & 17 (n=1125)	Well above average	186	17	104	9	82	7
		Above average	378	34	231	21	147	13
		Somewhat above average	297	26	171	15	126	11
		Somewhat below average	186	17	109	10	77	7
		Below average	54	5	29	3	25	2
		Well below average	23	2	12	1	11	1
		Total	1124	101	656	59	468	41
	16 only (n=528)	Well above average	77	15	44	8	33	6
		Above average	176	33	119	23	57	11
		Somewhat above average	142	27	86	16	56	11
		Somewhat below average	93	18	51	10	42	8
		Below average	30	6	18	3	12	2
		Well below average	10	2	7	1	3	1
		Total	528	101	325	61	203	39
Drive in the dark	16 & 17 (n=1125)	Well above average	262	23	130	12	132	12
		Above average	422	38	262	23	160	14
		Somewhat above average	287	26	173	15	114	10
		Somewhat below average	123	11	73	6	50	4
		Below average	28	2	17	2	11	1
		Well below average	3	0	2	0	1	0
		Total	1125	100	657	58	468	41
	16 only (n=528)	Well above average	129	24	66	13	63	12
		Above average	199	38	129	24	70	13
		Somewhat above average	136	26	93	18	43	8
		Somewhat below average	50	9	30	6	20	4
		Below average	11	2	5	1	6	1
		Well below average	3	1	2	0	1	0
		Total	528	100	325	62	203	38
Adjust your speed to conditions	16 & 17 (n=1125)	Well above average	273	24	150	13	123	11
		Above average	388	34	237	21	151	13
		Somewhat above average	275	24	165	15	110	10
		Somewhat below average	164	15	88	8	76	7
		Below average	21	2	14	1	7	1
		Well below average	3	0	3	0	0	0
		Total	1124	99	657	58	467	42
	16 only (n=528)	Well above average	120	23	66	13	54	10
		Above average	186	35	120	23	66	12
		Somewhat above average	126	24	81	15	45	9
		Somewhat below average	79	15	45	9	34	6
		Below average	15	3	11	2	4	1
		Well below average	2	0	2	0	0	0
		Total	528	100	325	62	203	38

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 21 cont'd: Teen Reports for Teen Driver Skills

Item	Age Group	Response	Total		No Crash Group		Crash Group	
			N	%	N	%	N	%
Obey the speed limit	16 & 17 (n=1125)	Well above average	252	22	146	13	106	9
		Above average	308	27	191	17	117	10
		Somewhat above average	268	24	171	15	97	9
		Somewhat below average	208	18	106	9	102	9
		Below average	80	7	39	3	41	4
		Well below average	9	1	4	0	5	0
		Total	1125	99	657	57	468	41
	16 only (n=528)	Well above average	125	24	75	14	50	9
		Above average	153	29	95	18	58	11
		Somewhat above average	125	24	82	16	43	8
		Somewhat below average	85	16	50	9	35	7
		Below average	37	7	22	4	15	3
		Well below average	3	1	1	0	2	0
	Avoid unnecessary risks	16 & 17 (n=1125)	Well above average	303	27	180	16	123
Above average			409	36	241	21	168	15
Somewhat above average			251	22	155	14	96	9
Somewhat below average			130	12	67	6	63	6
Below average			28	2	12	1	16	1
Well below average			4	0	2	0	2	0
Total			1125	99	657	58	468	42
16 only (n=528)		Well above average	137	26	83	16	54	10
		Above average	197	37	121	23	76	14
		Somewhat above average	116	22	79	15	37	7
		Somewhat below average	61	12	33	6	28	5
		Below average	14	3	7	1	7	1
		Well below average	3	1	2	0	1	0
Tolerate other drivers' mistakes		16 & 17 (n=1125)	Well above average	215	19	133	12	82
	Above average		351	31	215	19	136	12
	Somewhat above average		311	28	175	16	136	12
	Somewhat below average		173	15	101	9	72	6
	Below average		65	6	29	3	36	3
	Well below average		10	1	4	0	6	1
	Total		1125	100	657	59	468	41
	16 only (n=528)	Well above average	89	17	59	11	30	6
		Above average	171	32	111	21	60	12
		Somewhat above average	147	28	86	16	61	12
		Somewhat below average	83	16	50	9	33	6
		Below average	35	7	17	3	18	3
		Well below average	3	1	2	0	1	0
	Total	528	101	325	60	203	39	

Note: "Total" N=1125, "No Crash Group" N=657, and "Crash Group" N=468. For 16 only: "Total" N=528, "No Crash Group" N=325, and "Crash Group" N=203. Any "totals" less than these reflect missing data. Individual percentages were rounded to two decimal places and then added to generate the "total" percentages; thus, these may be between 98-101 due to rounding error.

Table 22: Teen Crash Risk by Teen Reports for Teen Driving Skills

Variable (dichotomy: category of interest vs. referent category)	Age Group	Outcome is "Crash Group"	
		Odds Ratio	95% Confidence Intervals
Anticipate hazards (below average vs. above average)	16 & 17 16 only	NS NS	
Obey the traffic rules (below average vs. above average)	16 & 17 16 only	NS NS	
Predict traffic situations ahead (below average vs. above average)	16 & 17 16 only	NS NS	
Drive cautiously (below average vs. above average)	16 & 17 16 only	NS NS	
React quickly (below average vs. above average)	16 & 17 16 only	NS 2.35	1.20, 4.59
Pay attention to other road users (below average vs. above average)	16 & 17 16 only	NS 2.16	1.15, 4.04
Drive at higher speeds (below average vs. above average)	16 & 17 16 only	NS NS	
Drive in the dark (below average vs. above average)	16 & 17 16 only	NS NS	
Adjust your speed to conditions (below average vs. above average)	16 & 17 16 only	NS NS	
Obey the speed limit (below average vs. above average)	16 & 17 16 only	1.58 NS	1.21, 2.06
Avoid unnecessary risks (below average vs. above average)	16 & 17 16 only	1.49 NS	1.07, 2.08
Tolerate other drivers' mistakes (below average vs. above average)	16 & 17 16 only	NS NS	

Note: NS = not significant; **Odds Ratios represent the difference in risk for crash due to being in the first category vs. the referent category for the variable of interest.** Odds ratios are significant if the 95% confidence intervals do not pass through 1.0

Appendix A: Open-ended Responses for Factors Related to Choosing Education Course

Actual Responses

1. Because I didn't want to wait.
2. Because it was a mandatory requirement in the high school.
3. Convenience.
4. For all the reasons.
5. I felt safer.
6. I got bribed into it. They told me if I took the class I wouldn't have to pay my own insurance.
7. I heard that it was good to take the course and it was free at my school.
8. I just did it for the education.
9. I thought it was required to graduate.
10. I thought that was what everybody did.
11. I wanted to drive with someone else.
12. I was afraid of driving and we thought that would help.
13. It was a choice.
14. It was faster; it wouldn't take so long.
15. It was just because I felt more comfortable driving with the Drivers Ed teacher than with my parents it was less stressful.
16. It was mandatory in the State of California.
17. It was very difficult for me to drive with my parents. I could not get along with them behind the wheel.
18. We needed an outside opinion. The course was a lot less stressful because I was not with my family; more polite and better behavior.
19. Just for my schedule cause I didn't have enough time to do 100 hours.
20. My father didn't have as much time to teach me driving as he had taught his previous children.
21. School requires it.
22. That was I felt like I could learn better from someone who wasn't pressuring as much as your parents were.
23. The class came up.
24. The main reason is because my good friends had to, and she did not want to be alone.
25. Thinks is a good idea to take course.
26. To become more aware about driving.
27. To drive with someone other than my parents.
28. To get my parents off my back.
29. To learn some of the technical things like driving in winter conditions that I might not encounter around here when I have an adult supervising me.
30. We knew the instructor.
31. Work schedule and everything else; it just fit better.
32. You had to at the school you went too.

Categories Created from Responses

Stress issues for being taught by parents

- ◆ I wanted to drive with someone else.
- ◆ It was just because I felt more comfortable driving with the Drivers Ed teacher than with my parents it was less stressful.
- ◆ It was very difficult for me to drive with my parents. I could not get along with them behind the wheel.
- ◆ We needed an outside opinion. The course was a lot less stressful because I was not with my family; more polite and better behavior.
- ◆ That was I felt like I could learn better from someone who wasn't pressuring as much as your parents were.
- ◆ To drive with someone other than my parents.
- ◆ To get my parents off my back.

Scheduling/convenience issues

- ◆ Because I didn't want to wait.
- ◆ Convenience.
- ◆ It was faster; it wouldn't take so long.
- ◆ Just for my schedule cause I didn't have enough time to do 100 hours.

- ◆ My father didn't have as much time to teach me driving as he had taught his previous children.
- ◆ Work schedule and everything else; it just fit better.

Driver education was required

- ◆ Because it was a mandatory requirement in the high school.
- ◆ I thought it was required to graduate.
- ◆ It was mandatory in the State of California.
- ◆ School requires it.
- ◆ You had to at the school you went too.

To receive technical education related to driving

- ◆ I felt safer.
- ◆ I just did it for the education.
- ◆ I was afraid of driving and we thought that would help.
- ◆ To become more aware about driving.
- ◆ To learn some of the technical things like driving in winter conditions that I might not encounter around here when I have an adult supervising me.

Good idea

- ◆ I heard that it was good to take the course and it was free at my school.
- ◆ Thinks is a good idea to take course.

Friends/peers

- ◆ I thought that was what everybody did.
- ◆ The main reason is because my good friends had to, and she did not want to be alone.

Other

- ◆ For all the reasons.
- ◆ I got bribed into it. They told me if I took the class I wouldn't have to pay my own insurance.
- ◆ It was a choice.
- ◆ We knew the instructor.

Appendix B: Open-ended Responses for Factors Related to Choosing 100 Hours

Actual responses

1. Activities got in the way with the driver-education class.
2. An insurance thing.
3. At the time I was too busy to take the driver education course, with sports.
4. Because I didn't feel like taking it, I would rather have my mom there.
5. Because I didn't, we had just moved and I didn't want to go to the high school and do the driver education course.
6. Because I had good grades my insurance was already gonna drop by 30 %.
7. Because it was less expensive.
8. Because my father knows how to teach me better than most other people.
9. Because of a time constraint.
10. Because we didn't think it would take anything off our insurance.
11. Busy working no time for it.
12. Because I got a job that week so I couldn't take the class and I couldn't get out of it.
13. Cause I wanted to drive with my parents.
14. Cause I'm too lazy to take the class.
15. Class had to be there at a certain time and with my parents I could just go out at any time.
16. Confidence in own driving.
17. Convenience. (2 answers)
18. Convenient.
19. Course does not seem that entertaining.
20. Did not have time for the class.
21. Did not want to take the course. I knew I was a good enough driver and I didn't see the need.
22. Didn't have enough time to take the course.
23. Didn't have room in my school schedule.
24. Didn't have the time.
25. Didn't have time.
26. Didn't have time to do the course.
27. Didn't have time to do the other.
28. Didn't help with the insurance.
29. Didn't really look into it.
30. Didn't want to do the driver education, just didn't feel like doing it.
31. Didn't want to take the class.
32. Didn't want to.
33. Driving for so long saw no need to.
34. Easier.
35. Easier on the family; since we're busy a lot of the time, this was more convenient for us. Drivers Ed. was on Wednesdays and that's when I had sports and stuff.
36. Father was basically an instructor.
37. Felt more comfortable with parents and the insurance thing didn't matter because I have good grades, I didn't feel that it was necessary.
38. For just experience.
39. He already had over 100 hours by the time he could have taken the class.
40. I am home schooled so we don't do that as much.
41. I could already get a different discount for good grades.
42. I couldn't because of school work.
43. I did not have enough time because I live in Yoncalla and my parents drove me to school in Eugene.
44. I did not want to.
45. I didn't have the time to take the education class.
46. I didn't have time. (2 answers)
47. I didn't have time to do the class.
48. I didn't have time to take it.
49. I didn't know there was a driver education course.

50. I didn't take the course because it didn't help with insurance.
51. I didn't want to take a Driver Ed course.
52. I drove a lot already with parents and course did not seem necessary.
53. I felt I didn't need it because I've been driving around the farm ever since I can remember.
54. I felt I was a lot more comfortable driving with my father than someone who I was less acquainted with.
55. I felt that my parents could teach me to drive just as well as an instructor, well my dad drove for a living and you have to be a good driver to not get fired from your job and I didn't have to take a class and they felt the same.
56. I figured I could do it quicker.
57. I had my license before driver education course started. I wasn't allowed to take it at my school.
58. I had so many hours just working with my parents and stuff, it just seemed like the way to go.
59. I had time I did not go get my license.
60. I just didn't ever have the right time to take the class.
61. I just didn't have time to go to classes.
62. I just didn't take Drivers Ed because it was a waste of time.
63. I just didn't want to take one.
64. I just enjoyed driving more.
65. I just never got around to it.
66. I just never got around to taking a course.
67. I just went with my dad; I was doing fine so I didn't need it.
68. I knew I already had 100 hours so I didn't need to take the traffic course.
69. I knew I was good at driving. I race all the time.
70. I missed it, I got my permit and the class was already over, so I was just like screw it and did the 100 hours.
71. I missed the sign up for it.
72. I simply didn't have enough time with the rest of my school curriculum.
73. I thought it would be easier.
74. I took an online teen driver test for insurance company.
75. I wanted to depend more on my parent's thanes someone I did not know.
76. I was in a lot of sports didn't really have time.
77. I was in sports every season and didn't have time to take a class.
78. I was just busy with sports, I never took it.
79. I was out of town during the course.
80. I was too busy.
81. I'm involved in sports, and I didn't have enough time.
82. I'm not sure I just didn't take the class.
83. Insurance.
84. Insurance company didn't offer a reduction based on driver's ed. and good grades.
85. It seemed more reasonable and could get more experience and it was cheaper, and our insurance company would lower the price every month.
86. It didn't help our insurance any to take a class and I felt safer with my mom.
87. It just inconvenient timing because I had too much schooling.
88. It was available but I didn't sign up soon enough and I turned 16 and I wanted to get it on my birthday
89. It was be easier than Driver's Ed. .
90. It was easier.
91. It was easier because I didn't have any time due to school and sports and work and all of that.
92. It was easier that way. It was easier to learn with my parents thank an instructor.
93. It was inconvenient to take the class.
94. It was more convenient, I didn't have time for the course.
95. It was more convenient.
96. It was more time-efficient.
97. It was the easiest.
98. It was too expensive and no insurance break or reduction.
99. It was too far to go for the drivers' course and that made it too difficult.
100. It wasn't convenient time wise.
101. It wouldn't make a difference to my insurance if I took the course.

102. Just because I wanted to drive as oppose to taking a course in a class.
103. Just cause it's easier.
104. Just did not want to.
105. Just didn't have time.
106. Just didn't have time for Driver's Ed class.
107. Just didn't think of it.
108. Just didn't want to do Driver's Ed. I didn't want to wake up early.
109. Just easier to do it, because I was kinda busy.
110. Just more convenient.
111. Just the cost of it was going to work out better to not pay for it for insurance deductions and also time
112. Just time, scheduling.
113. Just was easier to be with my parents then to schedule time to go in.
114. Just what I wanted to do.
115. Learning through practice is a better way to do it.
116. Mainly because didn't get an insurance discount for it and it was very expensive-- the traffic safety course.
117. Mainly because I didn't have time.
118. More convenient.
119. My friend said it was pointless.
120. My insurance company does not give discounts for the course.
121. My parents are experienced drivers.
122. My parents didn't want me to do it because they didn't feel the need for it.
123. My schedule is too busy and I didn't have time.
124. My sister said I should just do it with mom instead of taking the course.
125. No time.
126. Never got around to it.
127. Never got around to it and then I would have to take an adult class.
128. No time.
129. No time for Driver's Ed.
130. No time for taking the class.
131. No time.
132. No, not really.,
133. Our insurance wouldn't lower it even if we took the course.
134. Probably just convenience.
135. So I know what I'm doing.
136. So I wouldn't have to take the course it's a waste of time.
137. Sports and "things like that" didn't allow time.
138. Sports conflicts.
139. Sports interferences.
140. The classes didn't fit into my busy schedule.
141. The course was not available to fit into his schedule. He didn't want to change his schedule.
142. The education course took too much time.
143. The hours I had to drive didn't fit with the practice.
144. The insurance and the more you practice the better you are at it.
145. The insurance would not give me a discount even if I took it.
146. The times that the courses were offered conflicted with other stuff I had to do.
147. They thought it was too much.
148. Timing; I logged on more hours faster doing it with my family.
149. Too far away.
150. Too expensive.
151. Was too busy.
152. We only just got six hours behind the wheel in a class we need to have more.
153. We weren't offered an Ed course at my school, and I did not have time to do it because I worked on weekends.
154. Well I think I didn't take a course with a professional because I thought that my dad had a lot of experience as a driver and I felt confident that he could teach me.
155. Where I live: too far to where I can be trained.

156. You can get a discount from doing a log on my insurance program.

Categories Created from Responses

Scheduling/time issues for course

1. Activities got in the way with the driver-education class.
2. At the time I was too busy to take the driver education course, with sports.
3. Because of a time constraint.
4. Busy working no time for it.
5. Because I got a job that week so I couldn't take the class and I couldn't get out of it.
6. Did not have time for the class.
7. Didn't have enough time to take the course.
8. Didn't have room in my school schedule.
9. Didn't have the time.
10. Didn't have time.
11. Didn't have time to do the course.
12. Didn't have time to do the other.
13. I couldn't because of school work.
14. I did not have enough time because I live in Yoncalla and my parents drove me to school in Eugene.
15. I didn't have the time to take the education class.
16. I didn't have time.
17. I didn't have time to do the class.
18. I didn't have time to take it.
19. I just didn't ever have the right time to take the class.
20. I just didn't have time to go to classes.
21. I missed it, I got my permit and the class was already over, so I was just like screw it and did the 100 hours.
22. I missed the sign up for it.
23. I simply didn't have enough time with the rest of my school curriculum.
24. I was in a lot of sports didn't really have time.
25. I was in sports every season and didn't have time to take a class.
26. I was just busy with sports, I never took it.
27. I was out of town during the course.
28. I was too busy.
29. I'm involved in sports, and I didn't have enough time.
30. It just inconvenient timing because I had too much schooling.
31. It was available but I didn't sign up soon enough and I turned 16 and I wanted to get it on my birthday
32. Just didn't have time.
33. Just didn't have time for Driver's Ed class.
34. Just time, scheduling.
35. Mainly because I didn't have time.
36. My schedule is too busy and I didn't have time.
37. No time.
38. No time.
39. No time for Driver's Ed.
40. No time for taking the class.
41. Sports and "things like that" didn't allow time.
42. Sports conflicts.
43. Sports interferences.
44. The classes didn't fit into my busy schedule.
45. The course was not available to fit into his schedule. He didn't want to change his schedule.
46. The education course took too much time.
47. The hours I had to drive didn't fit with the practice.
48. The times that the courses were offered conflicted with other stuff I had to do.
49. Time
50. Was too busy.

Convenience issues for supervised practice

1. Class had to be there at a certain time and with my parents I could just go out at any time.
2. Convenience
3. Convenient.
4. Easier.
5. Easier on the family; since we're busy a lot of the time, this was more convenient for us. Drivers Ed. was on Wednesdays and that's when I had sports and stuff.
6. I figured I could do it quicker.
7. I had so many hours just working with my parents and stuff, it just seemed like the way to go.
8. I had time, I did not go get my license.
9. I thought it would be easier.
10. It was be easier than Driver's Ed.
11. It was easier.
12. It was easier because I didn't have any time due to school and sports and work and all of that.
13. It was easier that way. It was easier to learn with my parents than an instructor.
14. It was inconvenient to take the class.
15. It was more convenient, I didn't have time for the course.
16. It was more convenient.
17. It was more time-efficient.
18. It was the easiest.
19. It was too far to go for the drivers' course and that made it too difficult.
20. It wasn't convenient time wise.
21. Just cause it's easier.
22. Just didn't want to do Driver's Ed. I didn't want to wake up early.
23. Just easier to do it, because I was kinda busy.
24. Just more convenient.
25. Just was easier to be with my parents then to schedule time to go in.
26. More convenient.
27. Probably just convenience.
28. Timing; I logged on more hours faster doing it with my family.
29. Too far away.
30. We weren't offered an Ed course at my school, and I did not have time to do it because I worked on weekends.
31. Where I live: too far to where I can be trained.

Insurance considerations for doing one or the other

1. An insurance thing.
2. Because I had good grades my insurance was already gonna drop by 30 %.
3. Because we didn't think it would take anything off our insurance.
4. Didn't help with the insurance.
5. For insurance deductions
6. I could already get a different discount for good grades.
7. I didn't take the course because it didn't help with insurance.
8. Insurance.
9. Insurance company didn't offer a reduction based on driver's ed. and good grades.
10. It didn't help our insurance any to take a class.
11. It wouldn't make a difference to my insurance if I took the course.
12. Mainly because didn't get an insurance discount for it .
13. My insurance company does not give discounts for the course.
14. No insurance break or reduction.
15. Our insurance company would lower the price every month.
16. Our insurance wouldn't lower it even if we took the course.
17. The insurance.
18. The insurance thing didn't matter because I have good grades,
19. The insurance would not give me a discount even if I took it.
20. You can get a discount from doing a log on my insurance program.

Did not want to take the course

1. Because I didn't, we had just moved and I didn't want to go to the high school and do the driver education course.
2. Cause I'm too lazy to take the class.
3. Course does not seem that entertaining.
4. Did not want to take the course.
5. Didn't really look into it.
6. Didn't want to do the driver education, just didn't feel like doing it.
7. Didn't want to take the class.
8. Didn't want to.
9. I did not want to.
10. I didn't want to take a Driver Ed course.
11. I just didn't take Drivers Ed because it was a waste of time.
12. I just didn't want to take one.
13. I just never got around to it.
14. I just never got around to taking a course.
15. I'm not sure I just didn't take the class.
16. Just did not want to.
17. Just didn't think of it.
18. Never got around to it.
19. Never got around to it and then I would have to take an adult class.

Prefer to be taught by parents

1. Because I didn't feel like taking it, I would rather have my mom there.
2. Because my father knows how to teach me better than most other people.
3. Cause I wanted to drive with my parents.
4. Father was basically an instructor.
5. Felt more comfortable with parents, I didn't feel that it was necessary.
6. I felt I was a lot more comfortable driving with my father than someone who I was less acquainted with.
7. I felt that my parents could teach me to drive just as well as an instructor, well my dad drove for a living and you have to be a good driver to not get fired from your job and I didn't have to take a class and they felt the same.
8. I wanted to depend more on my parent's thanes someone I did not know.
9. Well I think I didn't take a course with a professional because I thought that my dad had a lot of experience as a driver and I felt confident that he could teach me.
10. I felt safer with my mom.
11. My parents are experienced drivers.
12. My parents didn't want me to do it because they didn't feel the need for it.
13. My sister said I should just do it with mom instead of taking the course.
14. So I know what I'm doing.

Did not need to take the course

1. Confidence in own driving.
2. I knew I was a good enough driver and I didn't see the need.
3. Driving for so long saw no need to.
4. I drove a lot already with parents and course did not seem necessary.
5. I felt I didn't need it because I've been driving around the farm ever since I can remember.
6. I just went with my dad; I was doing fine so I didn't need it.
7. I knew I already had 100 hours so I didn't need to take the traffic course.
8. I knew I was good at driving. I race all the time.
9. I knew I was a good enough driver and I didn't see the need.
10. Already had over 100 hours by the time could have taken the class.
11. My friend said it was pointless.
12. So I wouldn't have to take the course it's a waste of time.

Expense for one or the other

1. Because it was less expensive.
2. It was cheaper
3. It was too expensive
4. It was very expensive-- the traffic safety course.
5. Just the cost of it was going to work out better to not pay for it.
6. They thought it was too much.
7. Too expensive.

Getting practice is more important

1. Could get more experience.
2. For just experience.
3. I just enjoyed driving more.
4. Just because I wanted to drive as oppose to taking a course in a class.
5. Learning through practice is a better way to do it.
6. The more you practice the better you are at it.
7. We only just got six hours behind the wheel in a class we need to have more.

Other

1. I am home schooled so we don't do that as much.
2. I didn't know there was a driver education course.
3. I had my license before driver education course started. I wasn't allowed to take it at my school.
4. I took an online teen driver test for insurance company.
5. Just what I wanted to do.
6. No, not really,