



How well do parents manage young driver crash risks?

Bruce G. Simons-Morton*, Jessica L. Hartos

Prevention Research Branch, Division of Epidemiology, Statistics, and Prevention Research, National Institute of Child Health and Human Development, 6100 Executive Boulevard, 7B05, Bethesda, MD 20892-7510, USA

Abstract

Motor vehicle crashes are extremely high among young drivers during at least the first year of licensure. Crash risks decline with increased experience, but the more newly licensed teenagers drive, the greater their risk exposure. Hence, the dilemma facing policy makers and parents is how to provide young drivers with driving experience without unduly increasing their crash risk. Graduated driver licensing policies serve to delay licensure and then limit exposure to the highest risk conditions after licensure, allowing young drivers to gain experience only under less risky driving conditions. A similar strategy is needed to guide parents. Parents do not appear to appreciate just how risky driving is for novice drivers and tend to exert less control over their teenage children's driving than might be expected. Recent research has demonstrated that simple motivational strategies can persuade parents to adopt driving agreements and impose greater restrictions on early teen driving.

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1. Introduction

Teenagers between the ages of 16 and 19 years are more likely to die or be injured as a result of motor vehicle crashes than for any other cause (Centers for Disease Control and Prevention, 1999; Cvijanovich, Cook, Mann, & Dean, 2001; Ulmer, Williams, & Preusser, 1997). Crash rates among young drivers are disproportionately high on weekends, with teen passengers, and at nighttime (Chen, Baker, Braver, & Li, 2000; Cvijanovich et al., 2001; Doherty, Andrey, & MacGregor, 1998; Farrow, 1987; Preusser, Ferguson, & Williams, 1998; Ulmer et al., 1997; Williams, 1985). Oddly, driving skill is a less important factor in driving risk (Vernick et al., 1999) than driving judgment, which depends more on age and driving experience than on skill in managing the vehicle. Moreover, while risky driving behavior is common enough among teen drivers to be a contributing factor to teen crash risk (Jonah & Dawson, 1987), risk taking appears to be less important than young age and inexperience.

Recognition of the elevated crash risk of teenage driving, particularly under high-risk conditions such as at night and with teen passengers (Doherty et al., 1998; Williams & Preusser, 1997), has stimulated many states to adopt grad-

uated driver licensing (GDL) programs. Research indicates that certain components of GDL programs, including delayed ages at permit and provisional license, increased supervised driving, and nighttime driving restrictions, have resulted in reduced rates of teen risky driving behaviors, crashes, violations, and overall amount of driving (Ferguson, Leaf, Williams, & Preusser, 1996; Foss, Feaganes, & Rodgman, 2001; McCart, Leaf, Farmer, Ferguson, & Williams, 2001; Preusser, Zador, & Williams, 1993; Shope, Molnar, Elliott, & Waller, 2001). However, the characteristics of GDL programs vary from state to state and few jurisdictions have all the elements of an optimal program, as identified by the Insurance Institute for Highway Safety (1999). Presumably, states with more of the specified provisions would be most effective in reducing teen crashes. As an added benefit, GDL programs may enhance and support parents' efforts to moderate teen driving (McCart et al., 2001).

Parents are ambivalent about teen driving—concerned about the risks, but interested in reducing the time they spend transporting teens. Most parents experienced a considerably simpler driver licensing process when they were teenagers, before knowledge about the risk of teen crashes and the benefits of restrictions on newly licensed drivers were fully understood. Also, many parents perceive their teenage children to be generally responsible and want to give them what they want—and what teens want is to drive. Driving is a veritable right of passage for American teens,

* Corresponding author.

E-mail address: mortonb@mail.nih.gov (B.G. Simons-Morton).

conferring adult status of sorts on teens and presenting new opportunities for independence from adult supervision (Arnett, 2002). Hence, parents and youth may share a common motivation for teens to become independent drivers and parents must balance the convenience that early teen licensure provides with concerns about safety.

With or without GDL, parents have the potential to reduce teen driving risks by carefully managing their teens' early driving experience. Parents are involved in their teenagers' driving from the beginning and they have the opportunities to teach teens to drive, determine when they can apply for a permit or license, govern their access to vehicles, and limit exposure. Unfortunately, involvement for most parents does not extend much beyond supervising practice driving. The modest initial restrictions many parents place on their newly licensed children are generally not restrictive enough to be consistent with safety (Hartos, Eitel, Haynie, & Simons-Morton, 2000). In this paper, we examine the role of parents in the management of young drivers. First, we discuss parent attitudes and practices related to teen driving, with particular attention to the potential effects of GDL on parenting behavior. Then, we present findings of recent intervention studies designed to increase parental management of teen driving.

2. Parent attitudes and practices related to teen driving

In this section, we review the available literature on attitudes and practices of parents as they relate to practice driving, time of licensure, managing driving privileges after licensure, and GDL.

2.1. Parental attitudes toward teen driving

Because attitudes are reliable predictors of behavior and modifiable through usual educational means (McGuire, 1984), parent attitudes regarding teen driving should forecast their likely behavior regarding restriction and provide objectives for intervention. One important attitude may be how parents view the risks of teen driving. In recently conducted survey research, we asked a sample of 351 Connecticut parents of teenagers holding learner's permits about their perceptions of risk for a variety of teen driving behaviors. Not surprisingly, 92% of parents rated teen driving after using alcohol or drugs as extremely risky. However, the percentages of parents who reported other teen driving behaviors as extremely risky were considerably lower, including 61% for driving without a seat belt; 48% for driving in bad weather; 42% for driving with friends on a weekend; 32% for driving at night in rain; and 28% for driving with two or more teens in the car. The average score for overall attitudes toward teen driving was 6 of 10 (where 1 = *not much risk* and 10 = *extreme risk*). Hence, this sample of parents appeared to perceive that the most dangerous driving conditions for novice drivers were of only moderate risk.

2.2. Parental involvement in practice driving and influence on time of licensure

Parents are involved in supervised practice driving and provide most of the behind-the-wheel supervised driving experience teens obtain, even where driver education is required (Mayhew, Simpson, Ferguson, & William, 1998). In some states, parent-supervised practice driving is quite extensive. For example, before a teenager can be licensed in Michigan, parents must certify that they have provided at least 50 h (including 10 h at night) of supervised practice driving. A sample of Michigan parents reported an average of over 75 h of supervised practice driving, including over 20 h at night (Waller, Olk, & Shope, 2000). Beck, Shattuck, and Raleigh (2001) surveyed Maryland teenagers, of whom over 90% reported that a parent rode with them at least a few times per week during the permit period and 60% reported that a parent rode with them at least a few times per week during provisional licensure.

At present, however, the nature and the quality of parent supervision of practice driving during the learner's permit period and after licensure have not been well evaluated. Clearly, the more supervised practice driving teens obtain before licensure the better, as teens become better at handling the vehicle and parents have opportunities to teach and communicate their expectations to their teenaged children. Surprisingly, thoughtful analyses have found that greater amounts of practice driving during the learner period do not reduce crash risks after licensure (McCartt, Shabanova, & Leaf, *in press*). While a minimum of practice driving might be necessary to assure that a novice driver has developed the skills required to maneuver a vehicle, crash risks of young drivers do not approximate those of older drivers until they have completed thousands of miles of unsupervised driving (McCartt et al., *in press*).

Early licensure is a risk factor in teen crash rates, so anything that delays licensure can be viewed as protective (McKnight & Peck, 2002; Preusser, Williams, & Lund, 1985). While many teens get licensed as soon as possible, there is some variability in licensure timing (Preusser, Ferguson, Williams, Leaf, & Farmer, 1998) and parents are responsible for some of this delay (Preusser et al., 1985). On average, males get licensed at younger ages than do females, and youth from higher socio-economic status (SES) families get licensed earlier than do those from lower SES families (Preusser, Ferguson, Williams, Leaf, et al., 1998). State licensing laws have a substantial impact on the timing of licensure (McKnight & Peck, 2002; Preusser, Ferguson, Williams, Leaf, et al., 1998); however, logically, parents have substantial potential for influencing or determining the age or timing of teen licensure, but little is known about how much influence parents exert in this regard.

Some information about parental influence on licensure is available from research we conducted in Maryland (Hartos, Eitel, & Simons-Morton, 2001). At the time of the study, teens could get a learner's permit at age 15 years

and 9 months, hold it for 14 days, and get a provisional license at age 16 years. However, the actual average age at permit was 16 years and 3 months, the average time for holding permits was 4 months, and the average age at provisional licensure was 16 years and 7 months. Some of this “delay” in licensure may have been due to teens self-restricting and to logistical and timing issues, but parents reportedly exerted influence. Over 85% of the 193 parents interviewed reported using several factors in determining when their teens got a provisional license, including when they thought teens were ‘ready,’ had enough practice driving, mastered driving skills, and finished driver’s education. About 70% of parents indicated that age was a factor and about 40% indicated that grades, attitudes/behaviors, and time or financial considerations were factors (Hartos, Eitel, et al., 2001). These findings are consistent with earlier findings (Preusser et al., 1985) and suggest that parents play a role in licensure timing.

2.3. Parental restrictions on driving privileges

A growing body of literature documents the strong relationships between parenting and teen driving (Beck, Hartos, & Simons-Morton, 2002; Simons-Morton, Hartos, & Leaf, 2002). Teenagers report that parents set driving rules such as “don’t drink and drive,” “tell parents where you are going and with whom,” and “be home at a certain time.” (Preusser et al., 1985). In other studies, we have found that parents place greater limits on these kinds of trip conditions (e.g., getting permission, returning home by a certain time) than they do on dangerous driving conditions such as at night and with teen passengers (Hartos et al., 2001). Most teens report that they must tell parents where they are going, with whom, and when they will return; however, an alarming number of teens report having few, if any, driving rules or restrictions for high-risk driving conditions (Beck et al., 2001; Hartos et al., 2000). For example, despite research linking teen passengers with crashes (Chen et al., 2000; Doherty et al., 1998), we found that many newly licensed adolescents were allowed to have ‘many’ teens as passengers ‘most of the time’ (Hartos et al., 2000). Similarly, Beck et al. (2001) found that only a little more than half (55%) of the teen drivers in their survey reported any restrictions on the total number of passengers allowed in the car when they were driving, and only 25% reported being restricted to no teenage passengers.

Several studies show that greater parent involvement is associated with less teen risky driving behavior. Beck et al. (2001) found that more frequent parental supervision and restricted teen access to a car were associated with less likelihood of teens speeding and more likelihood of their using seat belts when driving. With data from 300 adolescents licensed 2 years or less, Hartos et al. (2000) found that low parental monitoring and control were related to risky driving behaviors, traffic violations, and motor vehicle crashes among the teens. Traffic violations were about four

times more likely and crashes were almost seven times more likely with lenient restrictions related to frequency of friends as passengers. In prospective analyses of this data set, teens who initially reported less parental monitoring and fewer parental restrictions reported more frequent risky driving behavior at follow-up (Hartos, Eitel, & Simons-Morton, 2002). Overall, higher levels of teen risky driving behaviors occurred among those who were younger at licensure and whose parents imposed fewer limits on driving in the first month of licensure.

Although parents are in a prime position to influence their teenager children’s driving behaviors, research indicates that many are less involved than they could be. For example, Beck, Shattuck, Haynie, Crump, and Simons-Morton (1999) found that for the majority of incidences, parents were not aware that their teens drove after drinking, rode with other drinking drivers, were distracted by friends/passengers while driving, did not wear seat belts, drove aggressively, or ran stop signs/traffic lights.

2.4. Parenting attitudes and behavior and GDL

Parents should be supportive of GDL because these policies increase parents’ ability to manage their children’s driving. For example, GDL policies tend to increase the permit period, giving parents greater opportunity to provide their teens with supervised driving practice and to delay licensure. In addition, many GDL policies impose nighttime curfews and some limit teen passengers during provisional licensure. Although not actively enforced unless a teen is stopped for another traffic offense or for some other reason (Foss & Goodwin, 2003), these laws establish the norms for the driving behavior of the cohort of young drivers to which they apply. Theoretically, this should make it much easier for parents to require their children to limit their teen passengers or to be home before the nighttime curfew (Simons-Morton et al., 2002). It is clear that parents support restrictions for beginning drivers (Ferguson & Williams, 1996; Waller et al., 2000). Notably, Ferguson and Williams (1996) surveyed a national sample of parents of 17-year-olds about teen licensure and found general satisfaction with state licensing processes, and support among most parents for policies restricting new teenage drivers such as night driving restrictions, limits on the number of teenage passengers, and delayed full-privilege licensure.

GDL may even alter parents’ perceptions of the risks of teen driving and of the responsibilities of parents for restricting teen driving. However, little research has been reported on the effects of GDL on parental management of teen driving behavior. Two recent studies address this issue. Beck, Shattuck, Raleigh, and Hartos (in press) compared teen-reported driving restrictions before and after Maryland strengthened its GDL program to include a longer permit period, increased number of required supervised driving hours, and a longer provisional licensure period. The results indicated that, after the program changed, teens reported

more supervised practice driving and overall parent restrictions; however, there were no notable increases in any of the specific restrictions, such as night driving restrictions or teen passenger limits. In analyses in progress of data from a GDL and non-GDL state it appears that parents impose stricter overall limits and limits on teen driving with teen passengers, on high-speed roads, and weekend night driving in GDL states (Hartos, Simons-Morton, Beck & Leaf, 2002).

3. Increasing parental management of young drivers

While GDL provides a modern framework for states in the licensing of young drivers, a framework is needed to guide parental management. Parent–teen driving agreements or contracts are a potentially important tool for framing and promoting parental management practices regarding teen driving. Driving agreements are based on the principles of behavioral contracting and such contracts have been employed successfully in a wide range of contexts and with a wide range of behaviors (Kazdin, 1989). Behavioral contracts provide a structure that can enable the establishment of expectations, performance standards, consequences for noncompliance, and the period of successful compliance required to earn additional privileges (Kazdin, 1989; Kirschenbaum & Flanery, 1983). A number of groups market parent–teen driving agreements as tools that can help clarify parental expectations and establish consequences for unacceptable teen driving behavior; however, few educational materials have been developed to encourage and teach parents how to manage teen driving risk and few systematic evaluations of the use and utility of these materials have been conducted. Currently, a series of randomized trials is being conducted to determine the efficacy and effectiveness of the Checkpoints Program.

The Checkpoints Program is based on the concept of authoritative parenting, which posits that to be effective, parents should be both demanding and responsive (Simons-Morton & Hartos, 2002). Accordingly, effective parents establish high expectations for behavior and remain highly involved, monitoring and supporting behavior and ultimately rewarding responsible behavior with increased autonomy. In the context of driving, authoritative parents would establish clear expectations for initial driving privileges (e.g., the number of passengers, curfew, allowable driving purposes) and increase driving privileges over time as the teenager gains experience and demonstrates responsible driving behavior. Thus, the Checkpoints Program aims to motivate parents to strictly manage their teens' early driving and relax these restrictions over time.

The motivational components of the Checkpoints Program include a videotape and newsletters designed to persuade parents and teens that teen driving is risky; that parental restrictions on teen driving are common and effective; and that the Checkpoints Parent–Teen Driving Agreement is a useful tool for managing teen driving. Pilot work

on drafts of the Checkpoints materials found that exposure to the newsletters altered parents' attitudes toward the risks of teen driving and the benefits of restrictions, as intended (Simons-Morton et al., 2002). In other preliminary research, parents reported using, liking, and adopting the Checkpoints Parent–Teen Driving Agreement (Hartos, Nissan, & Simons-Morton, 2001).

The Checkpoints Parent–Teen Driving Agreement is designed to facilitate parents' ability to establish limits on high-risk driving conditions at the time of teen licensure. Accordingly, parents and teens negotiate initial limits on driving, including the number of teen passengers allowed, nighttime driving, weather conditions, and road conditions. Parents and teens also negotiate the rules for trip conditions that the teen must satisfy before they can take the car (including where they plan to go, who would ride with them, and when they will return with the vehicle), and establish specific consequences for violating the rules and markers of experience and success that will enable teens to earn greater driving autonomy. At each of several "checkpoints" after licensure, parents and teens return to the Checkpoints Agreement to review teen driving performance and revise the terms of the agreement.

Opportunities to intervene with parents and teens are limited as they are seldom together at the same time in a convenient location. Theoretically, driver education courses could provide excellent opportunities for intervention. However, at present, driver education courses are devoted exclusively to teaching teens the basics of controlling the car and following rules of the road and do not include parents substantially in the process. Indeed, there have been no published evaluations of driver education programs with parent education included. Department of Motor Vehicles (DMV) offices provide a convenient location, although they can be crowded, noisy, and busy. Nevertheless, parents commonly accompany their teens when they test for a permit or license, so both teens and parents are available at a time that both may be focused on young driver issues. We have recruited parent–teen dyads at DMV offices in several randomized trials testing the efficacy of the Checkpoints Program.

3.1. Connecticut Checkpoints

Preliminary to a statewide randomized trial that will test the effect of the Checkpoints Program on traffic citations and motor vehicle crashes, a vanguard study was conducted to test the impact on parental restriction of teen driving of exposure to the Checkpoints Program administered at the time teens obtained a learner's permit. We recruited 452 of 486 (93%) eligible families at five offices of the Connecticut DMV. Participating families were randomized into two groups—one that received the Checkpoints Program materials and one that received a general set of materials related to driving and cars. The strengths of this study include the delivery of multiple messages (newsletters) tailored and timed

to correspond to the teen’s driving experience and the focus on a single tool (Checkpoints Parent–Teen Driving Agreement) to organize parental management of teen driving.

The results indicated that most parents and teens reported receiving, watching, and discussing the video, and receiving, reading, and discussing the newsletters. Just under half of parents and teens reported completing the parent–teen driving agreement, and these families were satisfied with it and would recommend it to other families. Teens and parents in the intervention group reported significantly higher levels of restrictions for each of several risk conditions (teen passengers, weekend night driving, and high-speed roads) at both 1- and 3-month follow-ups. The three risk conditions were combined to form a composite measure of driving limits and the scores are shown in Fig. 1. Significant treatment group effects favoring the Checkpoints Program were observed for both teens and parents at licensure (teens: $t=4.99, P<.0001$; parents: $t=4.31, P<.0001$) and 3 months postlicensure (teens: $t=3.64, P<.0003$; parents: $t=3.70, P<.0003$) (Simons-Morton et al., 2002).

This is the first randomized trial to demonstrate that persuasive communications mailed home over time can effectively alter parent management practices of teen driving. The results indicated that families were amenable to information about how to manage teen driving and that well-developed informational materials could foster the use of a parent–teen driving agreement and modestly increase restrictions on teen driving. The advantage of beginning intervention at the time the teen obtained a learner’s permit is the potential to alter over time both teen’s and parents’ expectations about driving privileges at licensure. While these results are promising, it remains to be seen whether these differences translate into increased teen driver safety and reduced crashes. In addition, Connecticut is one of the

few remaining states without a provisional licensure phase for young drivers so additional research is needed to determine the effect of similar intervention approaches in states with GDL. It may be that that in states where GDL is implemented, parents may not need as much ‘persuading’ to limit teen driving. However, it may be that in such states, parents are less willing to place additional restrictions on teen driving because the state sets restrictions.

3.2. Maryland checkpoints

The Maryland study tested the effects of the Checkpoints Program on family management of teenage driving when delivered at a motor vehicle administration (MVA) office in a state with GDL. A salient advantage of this approach is that exposure to the materials could be assured, as the parents and teens were more or less captive in the waiting area. A disadvantage of this approach is that the day of licensure may be somewhat late in the process because teens’ and parents’ expectations about driving privileges might already be set. However, it could also be that parents and the teen, despite their time together while the teen learned to drive, may never have discussed or come to agreement on driving privileges once the teen was licensed, making the day of licensure timely indeed.

A total of 658 parents and their 16-year-old adolescents were recruited from a local MVA site as adolescents successfully tested for provisional licenses. At that time, parents completed written surveys about expected teen driving during the first month of provisional licensure. Afterwards, on weeks assigned as intervention, parents watched the Checkpoints video, “Who Wants to Be a Driver?,” and were given the video and the Checkpoints Parent–Teen Driving Agreement to take home. Parents and teens completed follow-up telephone interviews about amounts and limits on teen driving at 1 month (579 dyads), 4 months (529 dyads), and 9 months (528 dyads).

For both parent and teen reports, significant treatment group effects were found at 1- and 4-month follow-ups. Intervention parents and teens reported a greater use of a driving agreement and stricter limits on teen driving (Simons-Morton & Hartos, 2002b). Not surprisingly, group differences in restrictions on teen driving were no longer present at 9 months postlicensure. Despite the decay over time in effect, this is the first study to demonstrate that it is possible to increase parental restrictions on teen driving privileges through a brief intervention delivered at the DMV, and the question becomes: How should we maintain restrictions over a longer period of time?

4. Discussion

A great deal remains unknown about how parents manage young drivers, including how much effort they put into supervised practice driving; how they determine when their

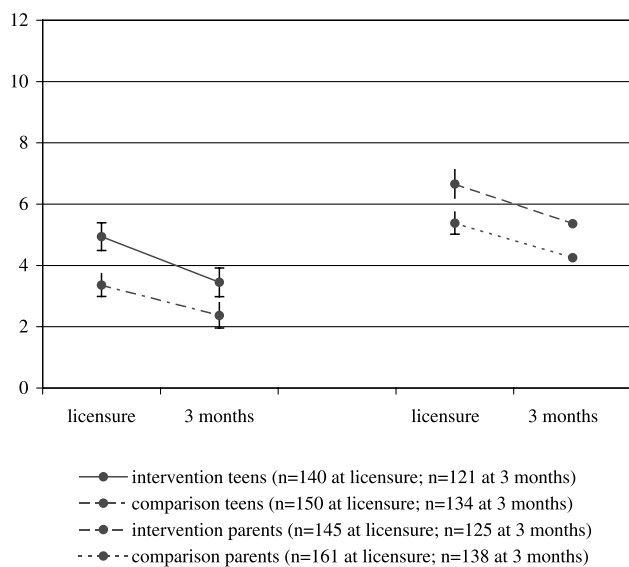


Fig. 1. Treatment group differences for overall driving limits, Connecticut Checkpoints.

teenage children can apply for a driver license; how they determine initial teen driving restrictions and modify them; and the effects each of these on teen driving risk in GDL and non-GDL states. The lack of research is frustrating, particularly because the dynamics of parental management of teen driving is likely to change rapidly as the epidemiological evidence of teen driving risks rapidly filters into public awareness and policy (Simons-Morton, 2002). Without good information on current parenting behavior, it will be difficult to assess the impact of any changes of parenting. Parents are supportive of licensing policies that restrict teen driving, and the establishment of GDL policies is likely to impact on parental perceptions of risk and parental management practices of teen driving. The existing research indicates that parental management practices are important influences on teen driving practices and safety when imposed; but unfortunately, parents do not perceive teen driving as highly risky and establish few restrictions on teens after licensure. While a great deal remains to be learned, we have demonstrated in several small, randomized trials the efficacy of brief motivational interventions for increasing parental restrictions on teen driving during the first months of licensure.

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