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## Parenting and the Young Driver Problem

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### Abstract

Crash rates increase sharply at the age teenagers begin to drive and remain elevated relative to adult levels well into the twenties. Parents have important roles to play in managing the risk for teenage drivers before and after licensure. Parents can be involved in their teenagers' driving, allowing them to test for permit and licensure, supervising practice driving, providing access to a vehicle, and setting and enforcing limits on driving privileges after licensure. However, the management practices of many parents may not be sufficient to provide safety effects. The literature indicates that the two most important decisions parents can make to reduce teenagers driving risk is to delay licensure and impose limits on high-risk driving conditions (such as driving at night and with teenage passengers) during the first year of licensure. Two intervention programs have been shown to increase parent limit setting as a means of reducing risky driving behaviors and improving driving performance among novice teenage drivers. This article describes the contexts of and opportunities for parent involvement in teenage driving and the efficacy of interventions to increase and improve parental management of young drivers.

### I. INTRODUCTION

Crash rates increase sharply at the age teenagers begin to drive and remain elevated relative to adult levels well into the twenties.<sup>1,2</sup> The phenomenon of persistently high crash rates among teenage drivers has come to be known as the "young driver problem." The first year of licensure is a special part of the young driver problem, here called the "novice young driver problem," which is typified by highly elevated crash rates immediately after licensure that decline rapidly for about 6 months and then more slowly for years.<sup>3,4</sup> It seems that novice drivers are not very good when first licensed, but get much better over time. This article focuses on novice teenagers (16–18 years old) because this part of the young driver problem is particularly amenable to licensing policy and parent involvement.

Parents provide substantial influence on adolescent behavior in general and have particularly important roles to play with respect to novice teenage driving. Notably, licensing programs leave to parents many important decisions regarding teenage driving. Specifically, parents can determine when their teenagers test for a learner's permit, when they take driver education and which course they select, how much and what type of supervised practice driving they get, when they can test for an independent license, when they are allowed access to a vehicle, and what their driving privileges are after licensure.<sup>5,6</sup> However, the actual role parent play in novice teenage driving has not been well studied, and the literature is incomplete with respect

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to the extent and nature of parent involvement. As central as parents seem to be in this process, they have largely been an afterthought in licensing programs. This article describes parent involvement at each step of the early driving process and reviews the efficacy of interventions to increase and improve parent management of novice young drivers.

## I. CONTEXTS OF PARENT INVOLVEMENT

**I.1. Authoritative Parenting Practices**—Parental influence on adolescent behavior is best considered within broad social and cultural contexts.<sup>7,8</sup> Recognizing that there is considerable variability in parent-child relationships, parental influence during teenage years stems partly from the many years of parenting practices and parent-child bonding prior to adolescence.<sup>9</sup> Consequently, the effectiveness of parenting practices with respect to age-specific adolescent behavior depends on the extent to which adolescents have internalized the behavioral norms established by parents and whether adolescents' concern for parental regard provides a sustaining influence on their behavior.<sup>10</sup>

The authoritative parenting conceptualization, updated and applied to adolescents by Darling and Steinberg<sup>11</sup> from the earlier work of Baumrind<sup>12,13</sup> and Maccoby and Martin,<sup>14</sup> suggests that parents' persistent style is largely determined by their goals and values. A consistent parenting style that is relatively demanding in terms of child behavior, performance, and discipline, and responsive to the child's need of support, communication, and autonomy provides the best outcomes with respect to psychological adjustment, school engagement, and problem behavior.<sup>10,11,15–18</sup> Over the relatively long course of childhood, parenting style interacts with the unique character of the child,<sup>19</sup> resulting in a certain level of socialization (some youth are more amenable to socialization than others) and openness to influence from continued parental involvement (and other adult influences). The more authoritative parents have been in the past and the stronger the bond between parent and child, the more effective parenting practices are likely to be with adolescents. Accordingly, parents should be able to influence early adolescent driving experience to the extent adolescents have been well socialized, and parents value safety, and are demanding and responsive with respect to driving.<sup>18</sup>

**I.2. Safety vs. Mobility Driving Dilemma**—In surveys, parents indicate that they understand that teenage drivers are at elevated risk for crashes, plan to be involved in the learning-to-drive process, and intend to set some limits on their newly licensed teenagers.<sup>20</sup> However, parents' goals and values regarding novice teenage driving may be challenged by the general transportation trade-off between safety and mobility. Not surprisingly, teenagers want to get licensed, and parents like to please their teenagers and are eager to relinquish chauffeur responsibilities.<sup>21,22</sup> Therefore, parents concerns for safety are balanced by the advantages of their teenager being able to drive independently.<sup>22,23</sup>

**I.3. Covariation in Parent and Adolescent Driving Behavior**—Parents and adolescents covary substantially in their attitudes, values, and behaviors,<sup>8,15,24</sup> including driving-related behaviors such as safety belt use, drinking and driving, tickets, and crashes.<sup>25–31</sup> However, the extent to which these associations may be due to shared genetics, parental role modeling, or other socializing influences of parents cannot be determined.<sup>25</sup> Socializing influences may be the direct result of parenting attitudes, values, and practices, or may operate through past influences of parents on the norms of their children and children's development of self-control and respect for parental authority and expectations. Parental influences on teenage driving are poorly researched and little is known about how parental modeling, attitudes, and values influence adolescent driving behavior.

**1.4. Summary**—Contexts for understanding parental involvement with novice teenage driving include the parent-child relationship, parents' relative values for safety and mobility, and the role of other socializing influences owing to genetics, modeling, or other factors not well understood.

## II. DRIVER LICENSE POLICIES AND PARENTING

Licensing policy largely determines the timing and nature of parental involvement in novice teenage driving. In the United States, there is considerable variability in the licensing policies. In 2007, 44 states (out of 50) and the District of Columbia had in place some form of graduated driver licensing (GDL) with three distinct periods: the learner's permit period, a provisional licensing period in which teenagers can drive independently under some restrictions, and full licensure.<sup>32–34</sup> In a majority of states, teenagers can obtain a learner's permit usually at the age of 15 years and some months (range 14–16 years) and hold it for about 6 months (range 0–1 year) while they complete a driver education course (where required) and obtain a specified number of hours of parent-supervised practice driving (range 0–60 hours). Provisional licensure can usually be obtained at age 16 and some months, and the most important restrictions imposed are on driving at night and with passengers.<sup>32</sup> GDL is a notable policy advance that addresses to some degree the factors most associated with the novice teenage driving problem: age, inexperience, skill deficiencies, increased exposure, and risk taking. GDL policies recognize the high crash rates of novice teenage drivers and sets limits on the highest-risk driving conditions during the provisional licensing period.

Evaluations have demonstrated that GDL programs enjoy wide parent support<sup>35–37</sup> and can effectively reduce motor vehicle crashes.<sup>38,39</sup> However, the provisions of GDL range considerably from state to state and generally do not meet the criteria designed by the Insurance Institute for Highway Safety, including length of the learner's permit period and night and passenger driving restrictions.<sup>40</sup> The unmistakable message of GDL is that novices need a great deal of practice prior to independent licensure and, for a time after licensure, should have limited driving privileges. While GDL policies tacitly recognize the importance of parent involvement in teaching and managing novice teenage drivers, parents are not systematically prepared for the important role they should play in making these policies effective.

### II.1. Parent Involvement in the Steps Leading to Provisional Licensure

In the next sections, the strength of the evidence of the actual proposed solutions in relation to the young driver problem are addressed (see Table 1). Then, the role of parents at each step of the licensing process is exposed.

#### II.1.1. Driver education

**II.1.1.1 Strength of evidence:** The amount of training prior to licensure has not been shown to lead to improved safety (e.g., less tickets and crashes) after licensure.<sup>41</sup> Learning to manage a vehicle modestly well can be accomplished by most novices in only a few hours of training,<sup>42</sup> which is sufficient for most U.S. teenagers to pass driving tests, which are designed to test basic vehicle management skills and not complex, safety-related driving skills.<sup>43</sup> However, the rapid development of basic vehicle management skills and the ability to pass a driving test do not assure that novices have developed the type of complex driving skills that are highly associated with safety and which develop only through substantial independent driving experience.<sup>44,45</sup> Deficiencies in complex driving skills have been found long after licensure.<sup>46,47</sup> The overwhelming evidence from observational and experimental studies is that driving performance improves and crash rates diminish over time with independent driving experience.

**II.1.1.2. Parent involvement:** Scant literature exists on how parents decide when a teenager can enroll in driver education or on the effect of driver education on parent involvement in teenage driving. Parents and adolescents generally assume that driver education does a reasonable job of teaching teenagers to manage the vehicle and preparing them for licensure.<sup>37</sup> Driver education in the United States provides only a few hours of instruction, leaving parents to provide the bulk of the supervised practice driving. However, there is some evidence from a study in Quebec, where driver education is optional, that adolescents whose parents chose driver education received less parent-supervised driving than those whose parents opted out of driver education.<sup>48</sup>

## II.1.2. Supervised practice driving

**II.1.2.1. Strength of evidence:** In the United States, due mainly to the adoption of GDL, the minimum requirements for parental supervised driving have increased in recent years. The idea is that the more supervised practice driving teenagers get prior to licensure, the better they should be able to manage the vehicle, the more experience they should have under a wide range of driving conditions, and the more time parents would have to impress upon their children the importance of safe driving behavior. Estimates from retrospective surveys of the amount of parent-supervised practice driving U.S. teenagers obtain range from 40–75 hours.<sup>49,50</sup> Australian surveys found similar results: 80% of teenagers were supervised for periods of 24 to 72 hours<sup>51</sup> (mean of about 60 hours).<sup>52</sup>

Surprisingly, there is little evidence that the amount of parent-supervised practice driving is associated with reduced post-licensure crash rates in U.S. teenagers.<sup>53</sup> Also, no effect on independent driving crash rates was found in France for newly licensed 18-year-olds who had driven a mean of 5,000 kilometers under supervision prior to licensing.<sup>54</sup> However, a study conducted in Sweden with 18-year-old and older drivers found that extensive supervised practice driving (mean of about 120 hours) reduced post-licensure crashes.<sup>55,56</sup> Promising findings were reported in a recent Australian study, in which 17- to 24-year-old drivers with 42–50 hours of supervised driving were less likely to have a traffic offence in their first year post-licensure than those with fewer than 42 hours of practice.<sup>52</sup> No published studies have examined the link between the amount of parent-supervised driving and the development of complex driving skills, such as visual scan and hazard perception. More research is needed on how much supervised practice driving teenagers actually obtain and the nature and effects of this instruction on driving skills and driving safety.

**II.1.2.2. Parent involvement:** Although the majority of parents (71%) and adolescents (52%) in one survey reported enjoying the supervised practice driving experience,<sup>49</sup> it is unclear to what extent U.S. families would tolerate or comply with substantial increases in supervised-driving requirements. Only marginal increases in supervised practice driving were reported after Maryland revised its GDL laws to set a mandatory minimum number of 40 hours of supervised driving.<sup>57</sup> In France, where the extended supervised driving program is not mandatory, only about 20% to 25% of families choose it, as opposed to the regular program requiring no supervision and only driver education.<sup>54</sup> In the United States, increases in the amount of supervised practice driving required by GDL tend to be associated with increased age at licensure, which provides protective effects against crashes by reducing driver exposure.<sup>33</sup> No matter how much supervised practice driving teenagers obtain or the quality of instruction parents provide, there are a number of reasons that the safety benefits of parent-supervised practice driving are likely to be limited. When supervising novice teenage drivers, instructors and parents can be expected to maintain a high priority on safety, guiding teenagers through complex driving situations, anticipating and warning of hazards, keeping internal vehicle environment free from distraction, and otherwise co-driving.<sup>6,58</sup> During supervised practice, teenagers tend to be exposed to a limited number of driving situations.<sup>49,51,54</sup> The

lack of varied practice and co-driving by parents could largely explain why parent-supervised practice driving is very safe relative to the early period of independent driving.<sup>3,59</sup> Given rapid improvements in novices' vehicle management skills,<sup>42</sup> parents and adolescents may develop a false sense of confidence in the teenagers' ability to manage complex driving situations, leading to early licensure and perhaps to increased willingness to take driving risks.<sup>37,60</sup> However, only with the onset of independent driving do teenagers begin to deal on their own with complex driving situations—some not encountered previously while supervised—often in the presence of teenage passengers.

### II.1.3. Timing of provisional license

**II.1.3.1. Strength of evidence:** Delaying teenage licensure is one of the important safety effect associated with GDL programs.<sup>33</sup> States that allow licensing soon after the age of 16, compared with states that allow licensure at age 16 ½ or 17 (e.g., in New Jersey), have higher crash rates among all 16-year-olds in the state (whether licensed or not).<sup>2</sup> When the effect of exposure is controlled for in analyses of crash rates, the effect of older age at licensure appears to moderate crash rates only a little.<sup>3,61,62</sup> Crash rates during the first year of licensure tend to be about as high for drivers who are age 17 at licensure as they are for drivers who are age 16 at licensure. While crash risk increases substantially at licensure, almost regardless of age at licensure, delaying licensure serves to reduce exposure and crash rates for a time, providing an overall reduction in lifetime crash risk. The finding that crash rates are initially high at licensure regardless of age suggests that it is less maturity than exposure and inexperience that account for the safety effects of delaying licensure. However, the additional logical advantage of delaying licensure is that adolescents are invariably more mature at 17 than at 16 because their brains have had one more year to develop,<sup>63</sup> they have developed better self-control,<sup>64</sup> social expectations for mature behavior are greater, and they have more experience in general.

**II.1.3.2. Parent involvement:** Most GDL programs have the effect of postponing teenage access to independent driving in the U.S., but most teenagers can have legal access to a permit at the age of 16 with the consent of their parents. While parents are aware that they can postpone their teenagers' access to independent driving until the age of 18, most teenagers get their permit or provisional license a few months after the law allows them to.<sup>65</sup> The reasons invoked by parents for rapid access to the permit or license were that teenagers wanted to get licensed,<sup>65</sup> were "ready" or mature,<sup>65,66</sup> had enough practice to master driving skills,<sup>66</sup> and it allowed them to drive themselves.<sup>65</sup> One study indicated that early licensure occurred more often among teenagers who have higher grade point averages, live with two parents, and have more highly educated parents.<sup>67</sup> Among the reasons associated with delayed access to permit or licensure are lack of completion of driver education and supervised practice driving requirements, the need for more practice, insurance costs,<sup>37,65</sup> and parents' unwillingness to let teenagers drive.<sup>37</sup>

## II.2. Parental Involvement During Provisional Licensure

Parental involvement is probably most important once teenagers obtain their provisional license and can drive independently. This section describes parental involvement in limit setting, the use of electronic monitoring devices, and issues of vehicle access and safety.

**II.2.1. Limit setting—**Teenage drivers are at particularly elevated risk under certain driving conditions, including driving at night,<sup>68</sup> with teenage passengers,<sup>69,70</sup> and while using electronic devices (e.g., cell phones).<sup>71</sup> Whether crash increases are due to overt risky driving or inexperience, it would seem prudent to limit the complexity of driving conditions for some months after licensure while newly licensed teenagers develop complex driving skills. Several studies (reviewed by Simons-Morton and Ouimet)<sup>6</sup> have found that teenagers whose parents

imposed more strict limits on teenage passengers and night driving reported less risky driving behavior<sup>66,72</sup> and fewer traffic violations and crashes.<sup>53,73,74</sup>

GDL provisions, such as limits on driving at night or with passengers, are secondary offenses and not actively enforced by police,<sup>75,76</sup> leaving parents responsible for ensuring compliance. Parents report a high level of support for GDL,<sup>35–37</sup> with the night curfew restrictions receiving more support than the passenger restrictions.<sup>37</sup> Nearly all parents set limits on their newly licensed teenage drivers, and these limits have been shown to be greater in a state with GDL than in one without GDL.<sup>77</sup> The greater parental restrictions reported by Maryland teenagers on driving at night and with passengers 1 year after adoption of a revised GDL policy suggests that one reason for the effectiveness of GDL is that it may increase parent limit setting.<sup>77</sup> Parents may set limits because they recognize that teenage drivers are not particularly safe. However, these limits tend not to be strict, may not be the most important limits to set as far as reducing crash risk (e.g., trip conditions, such as getting permission to drive, are more restricted than risk conditions, such as driving at night), and are not maintained for long.<sup>72,78</sup>

Parents and adolescents apparently do not always agree about what rules are in place. Parents generally perceive that they have established more strict rules than teenagers perceive have been established,<sup>79</sup> and more parents than teenagers report having driving rules in the form of a contract.<sup>80</sup> Hartos and colleagues<sup>81</sup> conducted in-depth interviews with parents and teenagers and found that limit setting and enforcement were relatively fuzzy activities, with both parents and teenagers not always clear about what rules were in effect or how rule violations would be handled. Moreover, most parents and teenagers reported that the most likely consequence of a violation of a parent-imposed driving rule would be talking and not additional restrictions on driving privileges.

In brief, it appears that parent limit setting provides safety effects. But most limits are modest, vary considerably, do not last long, are understood differently by parents and teenagers, and are not well enforced with respect to consequences.

**II.2.2. Electronic monitoring devices**—Parents tend to lack information about the behavior of their adolescent children, and what little information they obtain comes largely from the teenagers themselves.<sup>10</sup> With respect to driving, parents are more likely to set and maintain limits on when a teenager can take and return home with a vehicle (behavior they can monitor, but which provides no known safety benefits) and less likely to set and maintain limits on driving with teenage passengers (behavior they cannot directly monitor, but which is known to be associated with safety).<sup>78</sup> However, technology is now available that allows parents to monitor elements of their teenagers driving. These devices, which have mostly been adapted from fleet monitoring technology, usually contain accelerometers that record rapid acceleration, deceleration, and turning. Some devices also include cameras that record in-vehicle driver and occupant activities, and out-of-vehicle driving conditions, and save this information when an event (e.g., an acceleration of .5 g or more) occurs. One pre-post trial (no control group) provided preliminary evidence that careful feedback of data from one such device to the parent and teenager may reduce events.<sup>82</sup> Few of these devices are in general use, but as the availability and diversity of such technologies increase, evaluation studies will be needed to determine their potential utility for safety. As for parents' opinion about these devices, a study<sup>65</sup> indicated that about half parents had heard of them, but only about 1% intended to use one to monitor their teenagers driving after licensure. About half of the parents sampled reported that they would consider installing such a device. Parents who showed an interest in these devices indicated that they would like to know what happened in the vehicle, to feel better about teenagers driving alone, and to reduce their concerns about safety. The risky behaviors that parents were most interested in were speeding, distraction or inattention, use of a cell phone, and the number and identity of passengers. However, very few parents believed

that these devices would help improved their children driving abilities. Reasons most cited by parents not interested in these devices were that they trusted their teenager children, did not want to invade teenage privacy, and expense.

### II.3. Vehicle access and safety

One of the most important ways parents can protect teenage drivers is to restrict the amount they drive by limiting vehicle access. Teenagers with exclusive access to a vehicle drive more than those who share one, and it may be more difficult for parents to set driving limits when teenagers have their own vehicles.<sup>83,84</sup> In one study,<sup>83</sup> teenagers with exclusive access to a vehicle were about 4 times more likely at licensure, and about 3 times more likely 12 months after licensure, to drive more than once a day, compared with teenagers without exclusive access to a vehicle. About half of teenagers had exclusive access to a vehicle at licensure and 74% had it within a year of licensure, with no discernable gender differences. Higher family income and greater number of family vehicles were associated with early vehicle ownership. While little is known about how families make decisions regarding vehicle access, these decisions are not simply a matter of safety. They also involve issues of mobility convenience, status, and accountability.<sup>23</sup>

In addition to limiting access, parents can also protect their teenagers by providing access to safer vehicles. Among teenagers with their own vehicle in the study describe above,<sup>83</sup> 35% drove midsize or large passenger cars, which have the highest safety ratings; 42% drove small cars, which generally provide less protection than larger passenger vehicles; and 25% drove SUVs, pickups, or sports cars, which are generally the most dangerous vehicles. Newer vehicles are generally safer than older ones, but teenagers in this study drove mostly older vehicles, with 70% driving a vehicle at least 6 years old and 35% driving a vehicle at least 10 years old. Owned vehicles tended to be older and smaller compared with the shared vehicles that teenagers drove. These findings are consistent with previous research.<sup>84,85</sup> Studies have shown that parents tend to value economy more than safety in vehicle selection for their teenager.<sup>84,86</sup>

### II.4. Summary

As shown in Table 1, the evidence of efficacy of solutions proposed by licensing programs to reduce the young driver problem is greatest for delaying licensure and limiting high-risk driving conditions, both of which can be done by policy and parents. GDL policies tend to delay licensure<sup>33</sup> and establish limits on the highest risk conditions for a time after licensure. GDL is one key to improvements in the novice young driver problem, but parent involvement is essential and can be highly complementary.

## III. Interventions to Increase Parent Involvement

Parents can and should be involved in novice teenage driving, and their appropriate involvement might partially alleviate the teenage driving problem. Parent involvement at each step of the driving process is important, but the evidence indicates that the most important actions would be to delay licensure and then, for some months after licensure, to maintain strict limits on high-risk driving conditions while novices gain experience and develop complex driving skills. These actions can augment the benefits of these GDL policies.

Many parents may believe that their teenager would be a safe driver after completing requirements from licensing programs, such as driver education, supervised practice driving, and passing a state-mandated driving test.<sup>32</sup> However, parents are poorly educated about novice teenage driving risks. No systematic parent education programs appears to be in place,<sup>5</sup> but several studies have shown that it is possible to increase parental management of teenage

driving. In the final section of this paper we discuss the literature on interventions to increase parent involvement in various aspects of novice teenage driving.

### III.1. Interventions to Increase Parent-Supervised Practice Driving

There is no evidence to date that licensing programs can influence the amount or the way that parents supervise their children's practice driving when encouraged to do so. For example, the effects of an informative booklet developed by the Network of Employers for Traffic Safety (NETS) to provide general tips about teaching teenagers to drive and how to plan practice driving sessions was evaluated by Goodwin and colleagues.<sup>49</sup> The booklet was delivered at the time teenagers obtained a learner's permit. Participants reported about 40–50 hours of supervised practice driving. However, no effects of the intervention on the amount of practice driving were found. Also, a study was conducted in Tennessee with parents of teenagers who had just obtained a learner's permit.<sup>87</sup> One group received a motivational letter and a second group received the letter and the NETS booklet described previously. A third group received the same materials as the second group plus four informational cards sent out at 2-month intervals. There was no effect of the intervention on supervised practice driving or parent supervision of teenage driving upon licensure. These studies relied on the simple distribution of print materials about supervised practice driving, and it is possible that more comprehensive approaches might yield greater effects.

### III.2. Interventions to Increase Parental Limit Setting

Only two intervention programs designed to increase parental limits on teenage driving have been evaluated. The Checkpoints Program<sup>73,74</sup> has been demonstrated to increase parent limit setting in each of the three randomized controlled trials conducted either at the time of learner's permit or at licensure (see review in Simons-Morton and Ouimet).<sup>6</sup> The efficacy of the Safe Drivers Wanted Program<sup>80</sup> has been demonstrated in one study. Characteristics of the most recent version of the Checkpoints Program and the Safe Drivers Wanted Program are outlined in Table 2 and briefly described here. These studies provide substantial evidence for the efficacy of interventions to increase parent limit setting on teenage drivers and limited evidence of the effectiveness of intervention to reduce driving risk.

**III.2.1. Checkpoints Program**—The Checkpoints Program was designed to increase parental limits on novice teenage independent driving, especially under high-risk conditions. The purpose of the three Checkpoints randomized controlled trials was to evaluate the efficacy of the program. The most recent study<sup>74</sup> also evaluated the effectiveness of the intervention on risky driving behaviors, traffic violations, and crashes during the first year of independent driving. Families were recruited and randomized at the time of permit<sup>73,74,88</sup> or licensure.<sup>89,90</sup>

Based on protection motivation theory,<sup>91</sup> the Checkpoints Program includes a videotape entitled “Who Wants to Be A Driver?,” persuasive newsletters, and the Checkpoints Parent-Teen Driving Agreement. The video and newsletters were designed to be persuasive and highlighted teenage driving risks, recommended parent actions, and included testimonials from satisfied families. For the studies conducted at permit, the video was mailed early in the learner's permit period, and newsletters were mailed every 4 to 8 weeks during the learner's permit period and the first 6 months of licensure. A copy of the driving agreement was included with the newsletter mailed just before the teenager became eligible to test for a provisional license.<sup>73,74,88</sup> For the study conducted at licensure, the video, one newsletter, and the driving agreement were delivered 1 week after licensure.<sup>89,90</sup> Comparison families received driving-relevant materials in the form of newsletters on such topics as vehicle maintenance.



The Checkpoints Program was shown to have significant effects at licensure on risk perceptions, expected limits, and outcome expectations for parent limits, which significantly mediated limit setting.<sup>89,92</sup> Significant treatment effects were found on parent limit setting and on teenage risky driving behavior and traffic violations during the first 12 months of licensure.<sup>73,74,88</sup>

**III.2.2. Safe Drivers Wanted**—This study evaluated the effect of home visits on teenage driving outcomes with families who had been participating in the Raising Healthy Children Project since the children were in elementary school.<sup>80</sup> The Raising Health Children Project is a comprehensive family- and school-based social development intervention designed to reduce developmental expression of risk factors for problem behaviors while increasing protective factors.

Safe Drivers Wanted was one of the five interventions offered to families in the experimental group. It included one home visit scheduled prior to licensure and a second after licensure. The first session provided information and skills to parents and teenagers about healthy development, adolescent risk taking, driving laws, and risks. The post-licensure session was designed to help parents and teenagers develop a written contract, including family expectations about safe driving, a system to monitor compliance with driving guidelines, and consequences for compliance or noncompliance. About half of these sessions were conducted in-person at the home of the families (56%); the other half were conducted via mail (44%) with phone contact to encourage completion of materials and to answer questions. The control group received no special treatment. The researchers reported an intervention effect on the development of driving rules and adoption of a written contract, and significantly lower frequency of drinking and driving, and drinking and riding over the 3-4-year follow-up period. Major strengths of this study are that it targeted lower-income families and included a personal family intervention delivered during home visits, but a limitation is that the study was conducted with participants who were part of a long standing intervention program so that the results might be less generalizable than those of the Checkpoints Program.

**III.2.3. Practical Lessons From These Programs**—The significant effects achieved in the relatively few studies conducted suggest that it is possible to increase parent limit setting on teenage drivers and that doing so is associated with better outcomes after licensure. Notably, it has been demonstrated that it is possible to recruit large numbers of families into these studies and maintain their participation for up to a year after licensure. Effects were demonstrated using a variety of delivery approaches, including mailed materials, personal delivery at Department of Motor Vehicles licensing offices, and home visits. Despite the motivation of both parents and teenagers to increase teenage mobility through independent driving, most families were amenable to persuasion that parent limit setting would reduce teenage driving risks. Families participating in these studies reported high levels of satisfaction with the interventions.<sup>80,88</sup> The majority of the families in these studies adopted and maintained parent-adolescent driving agreements and found them a useful tool for limit setting. In other behavior modification intervention programs, agreements or contracts are commonly used and have been effective with a wide range of topics and populations.<sup>93</sup> In the young driver context, contracts have the advantage of clarifying rules, expectations, consequences, and conditions for earning increased driving privileges, which are important because teenagers routinely report more driving privileges and fewer limits than do parents.<sup>88</sup>

A major difficulty in this research is how best to reach families. The Checkpoints studies used Department of Motor Vehicles licensing offices to recruit families, but delivered the intervention through the mail because DMV offices are generally too busy to allow effective intervention on-site. Haggerty and colleagues<sup>80</sup> delivered their intervention in home visits, but it is unclear the extent to which families not part of a long-term study would be open to this

delivery approach. While these efficacy studies provide a sound base, effectiveness trials are lacking, and it is unclear whether similar interventions could serve as the model for broad scale programs.

#### IV. Discussion and Conclusion

This article focuses on the role of parents in teenage driving. The young driver problem is complicated, and it is notable that novices become safer drivers only gradually as they gain independent driving experience. The main options for parents and policy makers concerned about teenage driving are to delay licensure, improve driver education, extend requirements for supervised practice driving, and limit the driving conditions for a time after licensure. GDL is the most important and effective tool for reducing teenage crash rates, and improvements and broader adoption of strict GDL policies are warranted and are likely to be supported by parents. However, additional reductions in teenage crash rates could be achieved if, in addition to improving GDL policies, parents could be persuaded to delay licensure and adopt strict limits on driving conditions for a period of time, particularly night driving, teenage passengers, and in-vehicle secondary tasks. Parents are concerned about teenage driving risk, appear to provide reasonable amounts of supervised practice driving, and set limits on the driving conditions of their newly licensed teenagers, but parent limits tend not to be very strict or to last very long. Unfortunately, there are no systematic programs for educating parents about how best to protect teenage drivers, despite the demonstrated efficacy of programs designed to improve parent limit setting. However, much more needs to be learned about the best way to deliver these programs and their essential components. Also, there is a need for translation research to determine how best to get in place programs that would increase parent management of teenage driving. Moreover, while it is logical that increased parent-imposed limits on teenage driving conditions would reduce crash risk, the extent to which such programs can be delivered widely and with sufficient impact to improve driving outcomes on a population basis is yet to be determined.

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**Table 1**

Possible causes and solutions of the young driver problem and strength of evidence of efficacy of the proposed solutions

Possible cause	Solution	Strength of evidence of efficacy
Pre-license skills	Pre-license training	None
Pre-license practice	Increase amount, improve quality	Weak
Exposure	Delay licensure; limit high-risk driving conditions	Strong
Inexperience	Limit high-risk driving conditions	Strong
Risk taking	Delay licensure; limit high-risk driving conditions	Strong

*Note.* This table was created using the references reviewed by the authors in the text.

**Table 2**

Descriptions of the Checkpoints and the Safe Drivers Wanted parent management programs

	Checkpoints Program <sup>73,74,88-90</sup>	Raising Healthy Children Project/Safe Drivers Wanted <sup>80</sup>
Purpose	Test efficacy and effectiveness of program	Test efficacy and effectiveness of program
Design	Randomized controlled trials of participants recruited at DMVs in two treatment conditions (experimental vs. comparison groups)	Randomized controlled trials of 10 schools with high-risk level, recruited as part of the Raising Healthy Children Project in two treatment conditions (experimental vs. control groups)
Sample	Permit: N = 469 and N = 3743 parent-adolescent dyads Licensure: N = 658 parent-adolescent dyads	N = 924 parent-adolescent dyads
Theory	Protection motivation theory	Social development
Intervention	At permit: <ul style="list-style-type: none"> <li>- Experimental: persuasive newsletters from permit to 6-months postlicensure; video at permit; driving agreement when eligible to test for a license</li> <li>- Comparison: newsletters related to driving, but not to safety from permit to 6-months postlicensure</li> </ul> At licensure: <ul style="list-style-type: none"> <li>- Experimental: persuasive newsletter; video, driving agreement, personal admonishment</li> <li>- Comparison: newsletter related to driving, but not to safety</li> </ul>	<ul style="list-style-type: none"> <li>- Experimental: two targeted in-person or mailed family sessions focusing on driving issues prior to and after teenagers received license, delivered within the context of the Raising Healthy Children Project</li> <li>- Control: no special treatment</li> </ul>
Results	Experimental group (significant treatment group effects): <ul style="list-style-type: none"> <li>- More likely to report adopting and maintaining a driving agreement</li> <li>- Stricter limits on driving privileges</li> <li>- Fewer risky driving behaviors</li> <li>- Fewer traffic violations</li> </ul>	Experimental group (significant treatment group effects): <ul style="list-style-type: none"> <li>- More likely to report completing a driving agreement</li> <li>- Less driving under the influence of alcohol and with someone under age 21 who had been drinking</li> </ul>

DMV = department of motor vehicles.