



## Review article

Effectiveness of Parent-Focused Interventions to Increase  
Teen Driver Safety: A Critical ReviewAllison E. Curry, Ph.D., M.P.H.<sup>a,b,\*</sup>, Corinne Peek-Asa, Ph.D., M.P.H.<sup>c</sup>,  
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## A B S T R A C T

**Purpose:** We critically reviewed recent parent-directed teen driving interventions to summarize their success in meeting stated goals; identify promising intervention components and knowledge gaps; aid in the selection, adaptation, and dissemination of effective interventions; and guide future research efforts.**Methods:** We focused on interventions that included a direct parent component, explicitly stated outcomes related to the teen and/or their parents, were evaluated for parent or teen outcomes, targeted drivers younger than the age of 21 years, and had at least one evaluation study published since 1990 and in English. We conducted a comprehensive systematic search of 26 online databases between November 2013 and January 2014 and identified 34 articles representing 18 interventions.**Results:** Several interventions—in particular, those that had an active engagement component, incorporated an in-vehicle data recorder system, and had a strong conceptual approach—show promise in improving parental supervisory behaviors during the learner and early independent phases, increasing teen driver skill acquisition, and reducing teens' risky driving behaviors.**Conclusions:** We identify essential characteristics of effective parent-involved teen driving interventions and their evaluation studies, propose a comprehensive and multitiered approach to intervention, and discuss several research areas and overarching issues for consideration.

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IMPLICATIONS AND  
CONTRIBUTION

To inform development of parent-involved teen driving interventions and promote methodological rigor of corresponding evaluation studies, we identify successes and challenges in intervention approach, recruitment/retention, and participant selection, propose a set of essential intervention and evaluation characteristics, and discuss areas of research and overarching issues that merit consideration.

**Conflicts of Interest:** The authors were involved in the development and evaluation of two of the interventions reviewed in this article (J.H.M. and A.E.C.: TeenDrivingPlan; C.P.-A. and C.J.H.: Steering Teens Safe). A.E.C. and C.P.-A. received a small honorarium from the National Institutes of Health for this work.**Disclaimer:** Publication of this article was supported by the National Institutes of Health's Office of Disease Prevention and the intramural program of the Eunice Kennedy Shriver National Institute of Child Health and Human Development. The opinions or views expressed in this article are those of the authors and do not necessarily represent the official position of the funders.

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Parents strongly influence their children's development. In general, involved parents who are responsive (i.e., warm, accepting), set developmentally appropriate behavioral limits, and avoid harsh discipline and psychologically controlling behaviors (e.g., guilt induction) positively affect development [1–5]. Parent-focused programs and interventions can foster positive child development by targeting factors such as parenting skills, beliefs, and practices [2,6–8].

Because of the individual and societal burden of motor vehicle crashes among teenagers, a growing body of research seeks to

explain the mechanisms by which parents influence teenagers' driving behaviors and to modify these influences via a myriad of intervention approaches [9,10]. Akin to other domains of development, research with young drivers and their parents has demonstrated the importance of shared genetic and environmental factors (e.g., home safety climate, neighborhood), parental knowledge and modeling of behavior, parenting style, and monitoring of teens' driving behaviors [11–19]. However, research has shown gaps in parent success in this role and in our knowledge about specific parent attributes and parent–teen interactions that have the most beneficial effect on teen drivers' safety [20]. Parents generally exhibit poor monitoring and control of teens' risky driving behaviors, often fail to clearly define driving rules and expectations [13,21–23], have varying levels of engagement in helping their teens mature to independent drivers, and face challenges in knowing how to promote safe, skilled driving [24–27].

Given increases in research activity and parent-directed interventions, a focused synthesis of these efforts would aid in the selection, adaptation, and dissemination of effective interventions and guide future research efforts. Thus, we describe and critically review recent parent-directed teen driving interventions to summarize their success in meeting stated goals, identify the most promising intervention components and knowledge gaps, provide guidance on research needs, and inform the development of future interventions.

## Methods

This review focused on teen driving-related interventions that included a direct parent component and at least one outcome related to the teen driver and/or their parent that was explicitly stated and measured. Furthermore, interventions had to target drivers younger than the age of 21 years and have at least one evaluation study available since 1990 and in English. We did not select studies based on how they defined “parent”; studies used a range of inclusion criteria and definitions. To identify interventions, a comprehensive systematic search of peer-reviewed and gray literature in 26 online databases was conducted by an experienced information specialist (see Appendix A for details). Searches occurred between November 2013 and January 2014. A total of 219 studies were identified and reviewed independently by three study authors (C.P.-A., A.E.C., and C.J.H.) to ensure they met inclusion criteria; eight disagreements were resolved by consensus of the three reviewers. Thirty-one articles representing 15 interventions met inclusion criteria. Interventions that were evaluated on process outcomes such as feasibility and/or acceptability but to our knowledge were not evaluated on impact outcomes were not included in this review [28–30].

The qualifying 15 interventions were categorized by approach as follows: (1) passively disseminated media (print, online, and/or video) with no or minimal direct parent engagement; (2) disseminated media and directly engaged parents (via phone, Web, in-person); and (3) used an in-vehicle data recorder (IVDR). We provide a brief description of each intervention (see also Table 1) and summarize the collective knowledge gained from evaluation of these interventions with the goal of identifying characteristics associated with effectiveness and providing direction to further intervention development.

## Results

### *Interventions involving passive dissemination of media*

Five interventions (accounting for 13 published articles) delivered content via video, print, online, or a combination of these with no or minimal direct engagement of parents (other than during recruitment and/or data collection activities).

**Checkpoints.** The *Checkpoints* program—the most widely evaluated parent-directed teen driving intervention—is guided by social learning theory and protection motivation theory [11,31–38]. Checkpoints aims to increase parental restriction of high-risk driving conditions among novice teen drivers by altering parental attitudes, perceptions, and expectations around managing driving restrictions through persuasive messages and a parent–teen driving agreement (PTDA). An early randomized controlled trial (RCT) ( $n = 469$ ) and subsequent statewide trial ( $n = 4,344$ ) in Connecticut recruited teens and parents at licensing centers at the time of the learner's permit; in both studies, a very high percentage ( $>90\%$ ) of eligible families agreed to participate. A series of educational materials were mailed to intervention families, including a PTDA just before licensure; most parents reported receiving and using intervention materials. Although the same proportion of intervention and comparison parents reported completing a PTDA (44%), intervention parents were four times more likely than comparison parents to be using the PTDA at 3 months postlicensure [35]. In general, intervention parents reported higher levels of restriction of high-risk driving conditions at licensure and 3 months postlicense [32]. However, effects were modest, in some cases did not differ for peer passenger or weekday night restrictions, and generally decayed over the first year of licensure [35], although a weakening of effects may be consistent with the Checkpoints recommendation of a gradual relaxation of limits over time. The statewide trial had similar outcomes and identified parents' perceived risk and expectations at licensure as important mediators [31,38]. Adjusted models found no effect of the intervention on teen-reported crashes at 3 months postlicensure (odds ratio [OR], .98; 95% confidence interval [CI], .82–1.19) and a negative association with traffic violations at 6 months postlicensure (OR, .81; CI, .67–.99) but not at 3 or 12 months [37,38].

**Tennessee novice driver safety project.** Chaudhary et al. [39] evaluated an intervention implemented by the Tennessee Department of Transportation which aimed to increase parental involvement in the learning-to-drive process and parental restrictions in the intermediate stage. Parents of teens with learner's permits were assigned (no indication of randomization) to receive a mailed (1) motivational letter and instructional booklet that provided guidance to parents on supervising practice; (2) welcome letter, instructional booklet, and series of informational cards; or (3) welcome letter with general advice for parents about supervising their teen's practice. Postlicensure telephone surveys were conducted but no overall response rate provided. Although most intervention group participants remembered receiving materials, very few could identify the content. The intervention had no discernable effect on parent-reported supervisory practice behaviors (e.g., planning), use of PTDA's, or teen crashes or citations.

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