

Restrictions during the Intermediate Licensing Phase: A Content Analysis

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ABSTRACT

Introduction: This study analyzed the content of intermediate licensing restrictions of all 50 US states and examined the variation in strictness and language of four restriction categories: minimum age, nighttime driving restrictions, passenger restrictions, and traffic violation penalties.

Methods: We analyzed state intermediate licensing restrictions using data from four online sources (AAA Guide to Teen Driver Safety, National Conference of State Legislatures, Teen Driving Laws, and Insurance Institute for Highway Safety). Two trained coders independently coded the content of the restrictions, identified four restricted categories and subthemes for each category, and scored each subtheme from 0 to 2, with a higher score indicating a stricter restriction. Direct quotes from state laws were identified to support each subtheme.

Results: All 50 states included a minimum age for obtaining an intermediate license. Of 50 states, 49 (98.0%) contained nighttime driving restrictions, 46 (92.0%) contained passenger restrictions, and 43 (86.0%) included traffic violation penalties. Variations existed in the minimum age for an intermediate license and length required in the learner permit phase, the starting time and length of the nighttime driving restrictions, the number and age of passengers in passenger restrictions, the minimum time the driver needs to be violation-free before obtaining a full license, and the type and severity of traffic violation penalties.

Conclusions: Although all states have intermediate licensing restrictions, variations exist in the strictness and language of these restrictions. Future research should assess how these variations impact driving safety among teens when they first start driving unsupervised.

Introduction

Motor vehicle crashes (MVCs) are the leading cause of injury and death among teens in the United States (US) (Curry et al., 2017), claiming, on average, the lives of six teens 16 to 19 years old every day (Kirley et al., 2008). Crash-related death rates are highest among teens 15 to 17 years old during the first months after receiving their intermediate license, which is the first time teens are legally able to drive independently without supervision (Williams, 2017). According to the Insurance Institute for Highway Safety (IIHS), fatal crash rates per mile driven of teen drivers aged

16 to 19 are nearly three times the rate of drivers 20 years or older, with teen drivers 16 and 17 years old at the highest risk (IIHSA). In addition to the burden on teens and their families, teen MVCs are a major burden on the health care system and society. In 2018, fatal and nonfatal MVC-related injuries among teens 13 to 19 years old resulted in \$11.8 billion in medical and work loss costs (Centers for Disease Control and Prevention [CDC] & National Center for Injury Prevention and Control [NCIPC]).

To prevent MVC-related injuries and deaths among teen drivers, beginning in 1996, all 50 US states and the District of Columbia established Graduated Driver Licensing (GDL) systems or similar programs (Masten et al., 2011). These systems and programs commonly require teen drivers to complete two phases prior to obtaining their full driving privileges: 1) a Learner Permit Phase, during which only supervised driving is allowed, culminating with a driving test; and 2) an Intermediate Licensing Phase, in which unsupervised driving is first permitted but with restrictions (e.g., nighttime driving restrictions, passenger restrictions). The intermediate licensing phase extends the learning period by restricting when (e.g., minimum age and driving hours) and under what conditions (e.g., limiting high-risk driving situations) teens can drive, providing teens with the opportunity to gain driving experience and enhance driving skills under lower risk conditions (Curry et al., 2017; Masten et al., 2011). Research demonstrates that novice teen drivers benefit from the extended learning period as they tend to overestimate their own driving abilities and often have difficulties recognizing and responding to hazards, which increases their risk for MVCs (Poszich, 2016).

Existing studies indicate that driving restrictions (i.e., nighttime driving restrictions and passenger restrictions) during the intermediate licensing phase help reduce the risk of MVCs and MVC-related injuries among teen drivers when they first start driving unsupervised (McCartt et al., 2010; Morrisey et al., 2006; Shope, 2007; Williams et al., 2016). In a systematic review, Lin and Fearn (2003) documented that the number and rate of teen MVCs decreased following implementation of nighttime driving restrictions leading to a 21% reduction in the risk of evening crashes (9 p.m.–11:59 p.m.) and a 53% reduction in night crashes (midnight–4:59 a.m.) among 16-year-old drivers (Shope et al., 2001). Other studies have found that passenger restrictions that allow no more than two passengers in the car reduce fatal crashes among 15- to 17-year-old drivers (Shope, 2007), with a restriction of no passengers having the greatest reduction in fatal MVCs (Fell, Todd, et al., 2011). Citations and traffic violation penalties also decreased after placing driving restrictions on teen drivers 15 to 17 years old, suggesting that the restrictions resulted in improvement in safe driving habits and behaviors in this age group of teen drivers (DePesa et al., 2017).

Although existing studies have investigated the effects of state GDL programs on MVC-related injuries and deaths, few studies have specifically examined the content of intermediate licensing restrictions across states. To address this gap in the literature, we analyzed the content of intermediate licensing restrictions for all 50 states and identified the variation in strength (quantitatively) and language (qualitatively) of four common restriction categories: 1) minimum age, 2) nighttime driving restrictions, 3) passenger restrictions, and 4) traffic violation penalties. The findings of this study may be useful to lawmakers when revising or updating state intermediate licensing restrictions that aim to protect teen drivers during the first months of unsupervised driving, the group at highest risk for MVCs and MVC-related injuries and deaths in the US (Fleming, 2010).

Methods

Data source

We obtained the contents of intermediate licensing restrictions for all 50 US states, excluding the District of Columbia and US territories, obtained from four online sources: 1) The AAA Guide to Teen Driver Safety, which provides specifics on state GDL laws and the process teens must complete to obtain their license (AAA Foundation for Traffic Safety); 2) The National Conference of State Legislatures: State Penalties for Graduated Driver's License Violations Report, which summarizes state penalties for GDL violations (*State Penalties for Graduated Driver's License*

Violations 2011); 3) Teen Driving Laws, which highlights teen driving laws by state and provides legal advice for teen driving incidents (NOLO); and 4) Insurance Institute for Highway Safety, Highway Loss Data Institute, which summarizes different GDL components by state and license type (IIHSb).

Four common categories

We selected four common restriction categories of intermediate licensing following a comprehensive review of the content of the restrictions. The four categories were 1) minimum age, defined as language that described the age-related eligibility for a license; 2) nighttime driving restrictions, defined as language that prohibited driving during certain nighttime hours; 3) passenger restrictions, defined as language that limited the number of passengers that could be in the car when the teen was driving; and 4) traffic violation penalties, defined as traffic violations (e.g., moving versus non-moving violations) and their associated penalties (e.g., fines, license suspension, etc.).

Two trained coders independently reviewed and analyzed each state's intermediate licensing restrictions and extracted the content (i.e., direct quotes) that was relevant to the four selected categories. After removing duplicates, the extracted content for each category was organized by state. This study was determined to be non-human research and was waived from approval by the Institutional Review Board at Nationwide Children's Hospital.

Subthemes of the four common categories

To identify subthemes that reflected the strictness of and variations in each of the four selected categories, we analyzed the content and language of each state's intermediate licensing restrictions using the constant comparative method (Kolb, 2012). We first created a preliminary coding list based on existing literature (Fell, Jones, et al., 2011; Williams et al., 2016), and then applied the coding list to the four selected categories of state intermediate licensing restrictions to test and confirm our preliminary coding list, while identifying new codes based on the language used in the intermediate licensing restrictions. After refining and expanding our coding list, the two coders independently reviewed and analyzed the intermediate licensing restrictions of all 50 US states, identifying subthemes based on recurring content in the intermediate licensing restrictions. Any discrepancies in the subthemes were brought to the research team and resolved through discussion. After several iterations, the subthemes were finalized. This process resulted in three subthemes for the minimum age category and four subthemes for the other three categories.

Codebook

Using the final subthemes and existing evidence and literature on GDL programs (Lin & Fearn, 2003; Pressley et al., 2015; Williams, 2017; Williams et al., 2016), we created an initial codebook, with numerical values assigned to each subtheme. These numerical values were determined based on the strictness of the written language of the intermediate licensing restrictions, with a higher score indicating a stricter requirement. A less restrictive written requirement was assigned a score of "1" and a more restrictive written requirement was assigned a score of "2," whereas a written restriction that did not include the specific category or subtheme was assigned a score of "0". Subtheme scores were summed to calculate a summary score for each category.

Once the codebook was created, it was reviewed by two teen driving safety experts outside of the research team. The feedback was then incorporated into the final version of the codebook (Table 1). Finally, the two trained coders independently coded all 50 states' intermediate licensing restrictions. Any numerical differences were reviewed and discussed among the team until consensus was reached.

Table 1: Codebook: Selected Elements and Subthemes of Intermediate Licensing Restrictions

Subtheme	Score	Definition
Minimum Age (Yes = 50)		
Intermediate Licensing Stage Entry Age	0	Not Mentioned
	1	No
	2	Yes
Learner Permit Stage Entry Age	0	Not Mentioned
	1	No
	2	Yes
Mandatory Holding Period of Learner Permit	0	Not Mentioned
	1	No
	2	Yes
Nighttime Driving Restrictions (Yes = 49, No = 1)^{1,2}		
Restriction Starting Time	0	Not Mentioned
	1	No
	2	Yes
Hours Restricted	0	Not Mentioned
	1	No
	2	Yes
Consistent Restriction	0	Not Mentioned
	1	No
	2	Yes
Length of Restriction	0	Not Mentioned
	1	No
	2	Yes
Passenger Restrictions (Yes = 46, No = 4)^{1,2}		
Number of Passengers	0	Not Mentioned
	1	No
	2	Yes
Family Exclusion	0	Not Mentioned
	1	No
	2	Yes
Length of Restrictions	0	Not Mentioned
	1	No
	2	Yes
Age of Passenger	0	Not Mentioned
	1	No
	2	Yes
Traffic Violation Penalties (Yes = 43, No = 7)^{1,2}		
Time Period of Violation Free	0	Not Mentioned
	1	No
	2	Yes
Penalties by Number of Violations	0	Not Mentioned
	1	No
	2	Yes
Penalties by Violation Type	0	Not Mentioned
	1	No
	2	Yes

Penalties by Violation Severity	0	Not Mentioned	Penalties differ based on the severity of the violation (fine, suspension, revocation, etc.)
	1	No	
	2	Yes	

¹All 50 states except VT have nighttime driving restrictions; All 50 states except FL, MS, SD, ND have passenger restrictions; All 50 states except AL, AZ, CO, IN, NY, ND, UT have traffic violation penalties for teen drivers.

²'No' indicates that the state law did include the element, but the element differs from the definition.

Data analysis

We established inter-rater reliability using IBM SPSS Statistics 26 prior to coding to ensure consistency between the two coders. A summary score was calculated for each category and each state, with a higher score indicating a stricter restriction. We analyzed the variation in language used in state intermediate licensing restrictions by pulling direct quotes from state laws to support each subtheme. For some subthemes, multiple quotes were chosen to show the variation in the language and content.

Results

Among the 50 state intermediate licensing restrictions analyzed, 33 (66.0%) allowed teens to obtain their intermediate license at 16 years old (range = 14.5-17.0 years). The mean summary category scores across the 50 states were 3.82 (range = 3-6) for minimum age, 6.00 (range = 0-8) for nighttime driving, 4.96 (range = 0-7) for passenger restrictions, and 2.64 (range = 0-6) for traffic violation penalties.

Minimum age

All 50 states' intermediate licensing restrictions included minimum entry ages for the learner permit and intermediate licensing stages. We identified three subthemes: 1) intermediate licensing stage entry age 2) learner permit stage entry age and 3) mandatory holding period of learner permit (Table 2). Thirty-nine states (78.0%) had a minimum entry age for the intermediate licensing phase of 16 years old or younger, with the most common minimum age being 16 years old (n = 33, 66.0%). Thirty-two states (64.0%) had a minimum entry age for the learner permit phase of 15 years old or younger, with the most common minimum age being 15 years old (n = 23, 46.0%). South Dakota had the lowest minimum age (14.5 years) for obtaining an intermediate license, while New Jersey had the highest minimum age (17 years). All states except New Hampshire had a mandatory holding period for the learner permit. Thirty-seven states had a mandatory holding period of six months or less with the most common length being six months (n = 34, 68.0%).

Table 2: Minimum Age Quotes

Theme: Minimum Age (Yes = 50)			
Subtheme	Score	State n (%)	Quotes
Intermediate Licensing Stage Entry Age	1	39 (78.0)	<p>“In Montana, license applicants younger than 16 must have completed driver education” (MT)</p> <p>“Applicants for a level two driver’s license must be at least 16 years old...” (MI)</p>
	2	11 (22.0)	“The minimum age for an intermediate license is 16 and 3 months” (IN)
Learner Permit Stage Entry Age	1	32 (64.0)	<p>“There are three classes of learner’s permits — a training instruction permit for people 14, 6 months taking driver education ...” (ID)</p> <p>“In Texas, people who are 15 or older but under 18 must satisfactorily complete and pass the classroom phase of an approved driver education course to be issued a permit.” (TX)</p>
	2	18 (36.0)	“In Oklahoma, 15-year-olds may drive, but only while supervised by an instructor.” (OK)
Mandatory Holding Period of Learner Permit	1	37 (74.0)	<p>“In Arkansas, applicants for an intermediate license must be 16 and must be crash/violation-free for six months.” (AK)</p> <p>“In New Jersey, the permit becomes an intermediate license after six months for drivers younger than 21 and after 3 months for drivers 21 and older.” (NJ)</p>
	2	13 (26.0)	“In Mississippi, license applicants 17 and older are exempt from the 12-month learner’s permit holding period.” (MS)

Nighttime driving restrictions

Forty-nine (98.0%) states' intermediate licensing restrictions contained nighttime driving restrictions. Vermont was the only state that did not restrict teens from driving at night. We identified four subthemes: 1) restriction starting time, 2) total hours restricted, 3) consistent restrictions, and 4) length of restriction (Table 3). Thirty-four state intermediate licensing restrictions included nighttime driving restrictions beginning after 10:00 PM (range = 11:00 PM to 1:00AM), while 15 states had more restrictive times that started at 10:00 PM or earlier. For example, New York's nighttime driving restrictions began at 9:00 PM, while Alaska's nighttime driving restriction did not start until 1:00 AM.

Most states restricted driving for six hours per day (range = 3-10 hours per day). Just over 20% of states (n = 11) restricted driving for eight or more hours per day. North Carolina was among those with a more restrictive law that prohibited teen drivers with an intermediate license from driving between 9:00PM and 5:00AM.

While most nighttime driving restrictions were consistent throughout the year and by day of the week (n = 43, 86.0%), six states had restrictions that varied by day of the week or time of year. For example, Indiana prohibited teens from driving from 11:00 PM-5:00AM on Sunday through Thursday but only prohibited teens from driving from 1:00AM-5:00AM on Fridays and Saturdays. In South Carolina, nighttime driving restrictions began at 8:00PM during daylight savings, while restrictions began at 6:00PM during other times of the year.

We found variations in the length of time that nighttime restrictions applied to teen drivers across states (range = six months to two years). In most states (n = 31, 62.0%), nighttime restrictions lasted for at least one year following intermediate licensure, while in 18 states (36.0%) these restrictions lasted for less than one year.

Table 3: Nighttime Driving Restriction Quotes¹

Theme: Nighttime Driving Restrictions (Yes = 49 states)			
Subtheme	Score	State n (%)	Quotes
Restriction Starting Time	1	34 (68.0)	“Teen Drivers issued a State or Georgia Class D intermediate license cannot drive between the hours of 12:00 AM and 6:00 AM.” (GA) “An intermediate driver’s license permits the holder to drive unsupervised except from 1:00 AM to 5:00 AM.” (WA)
	2	15 (30.0)	“Level One Learner Permit holders must drive with supervision between the hours of 10:00 PM and 6:00 AM.” (DE)
Hours Restricted	1	38 (76.0)	“The junior licensee is also prohibited from driving between 12:30 AM and 5:00 AM.” (MA) “Teens with a youth operator license may not drive between 1:00 AM and 4:00 AM.” (NH)
	2	11 (22.0)	“16-year-olds may begin driving alone to other locations between 5:00 AM and 9:00 PM.” (KS)
Consistent Restriction	1	6 (12.0)	“A conditional license permits the holder to drive unsupervised from 6:00 AM until 6:00 PM (until 8:00 PM during daylight savings time).” (SC) “Mississippi does not allow teens with intermediate licenses to drive between 10:00 PM and 6:00 AM Sunday-Thursday nights or 11:30 PM – 6:00 AM Friday and Saturday nights...” (MS)
	2	43 (86.0)	“Level two license holders cannot drive between the hours of 10:00 PM to 5:00 AM.” (MI)
Length of Restriction	1	18 (36.0)	“For the first six months, the teen may not drive between midnight and 5:00 AM.” (MN)
	2	31 (62.0)	“For the first 12 months they may not drive between 11:00 PM and 5:00 AM (some exceptions are granted).” (CA) “Provisional license holders are not allowed to drive unsupervised between 5 a.m. and midnight. At age 18, teens are eligible for a full unrestricted license if they have held their provisional license for a minimum of 18 months.” (MD)

¹49 states had nighttime driving restrictions in their GDL law. Calculations are based off all 50 states.

Passenger restrictions

Forty-six (92.0%) states' intermediate licensing restrictions contained passenger restrictions. We identified four sub-themes: 1) number of passengers, 2) family exclusion, 3) length of restrictions, and 4) age of passenger(s) (Table 4). The number of passengers permitted ranged from 0 to 3 passengers. While 36 states (72.0%) allowed no more than one passenger, 10 states (20.0%) allowed two or more passengers. Georgia's intermediate licensing requirement stated that "for the first 6 months, the teen driver may not drive with any passengers other than family members. For the second 6 months, the teen driver may not drive with more than one passenger under age 21 other than family members."

Family exclusions were another aspect of passenger restrictions. Most passenger restrictions (n= 40, 80.0%) did not apply to family members, regardless of the passenger limit. Only two states (New Jersey and Vermont) limited the number of family members that could be in the car with a teen driver. In New Jersey, teen drivers could only drive with one passenger regardless of whether they were a family member.

The length of passenger restrictions was either specified or applied for the duration of the intermediate licensing phase. More than half (n = 26, 52.0%) of passenger restrictions lasted one year or more. Pennsylvania required that "for the first six months, junior licensees can carry only one minor passenger," whereas Rhode Island required that "for the first 12 months, they may not drive with more than one passenger under age 21."

Some states' passenger restrictions included the age of the passenger(s) prohibited from riding with the teen driver. Fifteen states (30.0%) included passengers 21 years or older in the passenger restrictions. Indiana required that "for the first 180 days, new drivers may not drive with any passengers. . . unless they're accompanied by a parent, guardian, licensed adult age 25 or older...", while Maryland required that "drivers are not allowed to have passengers under age 18."

Table 4: Passenger Restriction Quotes¹

Theme: Passenger Restrictions (Yes = 46 states)			
Subtheme	Score	State n (%)	Quotes
Number of Passengers	1	10 (20.0)	“Your teen is restricted to no more than two passengers under age 21, unless accompanied by a licensed driver age 21 or older. The only exceptions to the passenger limit are for family members and for transporting students to and from school.” (SC)
	2	36 (72.0)	“They are also prohibited from driving with more than one passenger in the vehicle, not including a parent or legal guardian of the licensee.” (AL) “They may transport no more than one person under age 21 who is not a family member.” (TX)
Family Exclusion	0	4 (8.0)	
	1	40 (80.0)	“They may transport no more than one person under age 18 who is not a household member.” (HI)
	2	2 (4.0)	“For the first 3 months of licensure, teens may not drive with any passengers. During the next 3 months, teens may drive with family members.” (VT) “No more than one additional passenger (including siblings) is allowed besides parents, guardians, and dependents of the permit holder.” (NJ)
Length of Restrictions	1	20 (40.0)	“For the first six months, a teen driver with a provisional license is limited to no more than one passenger under age 19 (certain family members are exempt).” (NE)
	2	26 (52.0)	“For the first 12 months of licensing or until your teen turns 18, whichever comes first, the number of passengers is limited to one person under age 20.” (IL)
Age of Passenger	0	11 (22.0)	
	1	20 (40.0)	“Teens are not allowed to have more than one non-family passenger in the vehicle under age 18 for the first six months, unless this restriction is waived by a parent.” (IA) “Teens holding a junior operator’s license may not drive with any passengers under age 18.” (MA)
	2	15 (30.0)	“Arkansas teens also may not drive with more than one non-family passenger under age 21 unless accompanied by a licensed driver 21 or older.” (AR) “During the first 6 months of licensure, teens are prohibited from driving with more than one passenger under age 25.” (NH)

¹46 states had passenger restrictions in their GDL law. Calculations are based off all 50 states.

Traffic violation penalties

Forty-three (86.0%) states' intermediate licensing restrictions contained traffic violation penalties specific to teen drivers during the intermediate licensing phase. We identified four subthemes: 1) time period violation-free, 2) penalty by number of violations, 3) penalty by type of violation, and 4) penalty by severity of violation (Table 5). Among the 50 states, 14 (28.0%) required that the teen be violation-free for more than six months before progressing to the full or unrestricted licensing phase. However, 20 states (40.0%) allowed teens who were violation-free for six months or less to progress to a full license. Maryland had the most restrictive requirement, where "At age 18, teens are eligible for a full unrestricted license if they have held their provisional license for a minimum of 18 months and have been conviction-free during that period."

The penalties by number of violations differed across states. Although most states did not specify differences in penalties based on the number of violations, 14 states (28.0%) had a different penalty for first versus repeat offenders. For example, Kansas's intermediate licensing requirement stated: "for a first conviction, a fine of \$250 will be levied, with a license suspension of 30 days, for a second conviction, the fine will be \$500 and the suspension will be 90 days; for the third and subsequent convictions the fine will be \$500, and the suspension will be one year."

While most states did not specify penalties by the type of violation, three states (6.0%) posed penalties based on whether the violation was a moving or non-moving violation. For example, Iowa defined different penalties for different types of violation: "Moving violation: Remedial driver improvement program or suspension of license, six months' violation-free required to reapply..."

Half of the states' intermediate licensing restrictions ($n = 25$, 50.0%) specified penalties (e.g., fines, suspensions, revocations) based on the severity of the violation. For example, Tennessee stated "accumulation of six or more points or traffic accident during intermediate stage: \$10 fine and 90-day delay in next stage of licensure..."

Table 5: Traffic Violation Quotes¹

Theme: Traffic Violation Penalties (Yes = 43 states)			
Subtheme	Score	State n (%)	Quotes
Time Period of Violation Free	0	9 (18.0)	
	1	20 (40.0)	“After holding an intermediate driver’s license for six months without any moving violations, a teen can apply for an unrestricted driver’s license.” (MS)
	2	14 (28.0)	“At age 18, teens are eligible for a full unrestricted license if they have held their provisional license for a minimum of 18 months and have been conviction-free during that period.” (MD)
Penalty by Number of Violations	0	29 (58.0)	
	2	14 (28.0)	<p>“Under age 18-point violation: suspension for six months on first offense, 12 months on subsequent offense. Any 4-point offense: suspension for six months on first offense, 12 months on subsequent offense.” (GA)</p> <p>“Moving violation: 90-day minimum revocation after second moving violation for instruction permit; driver improvement program for first offense, and license revoked for second offense while holding an intermediate license.” (WV)</p>
Penalty by Violation Type	0	40 (80.0)	
	2	3 (6.0)	<p>“Moving violation: Remedial driver improvement program or suspension of license, six months’ violation-free required to reapply. Accident: remedial driver improvement program or suspension of license, six-month violation-- fee required to reapply.” (IA)</p> <p>“Traffic violations: suspension for one month upon first offense, three months for subsequent violations, Negligent Driving: suspension for one month upon first offense, three months for subsequent violations.” (DE)</p>
Penalties by Violation Severity	0	18 (36.0)	
	2	25 (50.0)	<p>“Minors who accumulate six driving points or who are caught speeding 26 miles per hour or more over the posted limit will face a 90-day suspension. A subsequent violation will result in a 120-day suspension.” (PA)</p> <p>“Speeding (20mph over the speed limit): 60-day license suspension, \$125 license restoration fee, court fines.” (CT)</p>

¹43 states had traffic violations in their GDL law. Calculations are based off all 50 states.

Discussion

This study analyzed the content of four categories of state intermediate licensing restrictions: minimum age, nighttime driving restrictions, passenger restrictions, and traffic violation penalties. The main findings showed that although all 50 states have intermediate licensing restrictions, variation exists in the strictness and content of these requirements across states. Specifically, minimum age for intermediate licensing ranged from 14.5 to 17.0 years, although minimum age of 16 years was set for two-thirds of the states. Within the nighttime driving restrictions, only 15 states had restriction starting times earlier than 10:00 PM, and even fewer states had nighttime driving restrictions for eight or more hours per day. Variation in the passenger restriction included the number and age of passengers permitted. While most states specified a minimum number of months a teen must be violation-free before they could obtain a full license, not all states specified traffic violation penalties specific to teen drivers with an intermediate license. Our findings may be useful to lawmakers when they are revising or updating state intermediate licensing restrictions that aim to protect teen drivers from MVCs and MVC-related injuries and deaths when they first start driving unsupervised.

Although most state intermediate licensing restrictions contained nighttime driving restrictions, the strictness and content of the restrictions varied widely across states. The starting time of nighttime driving restrictions is important because it keeps teen drivers 15 to 17 years old off the road during the night, a potentially high-risk driving condition due to decreased visibility, driver fatigue, and increased likelihood of drunk driving (Fell, Jones, et al., 2011; Fell, Todd, et al., 2011; McKnight & Peck, 2002). Prior studies show that nighttime driving restrictions that start at 10:00 PM or earlier are most effective (Conner & Smith, 2017; Jiang & Lyles, 2011; Lin & Fearn, 2003; McCartt et al., 2010; Williams, 2017). Masten and colleagues (2013) found that nighttime driving restrictions that start at 10:00 PM or earlier were associated with a 19% lower fatal MVC incidence among 16-year-olds. Despite the effectiveness of earlier nighttime restrictions (Fell, Todd, et al., 2011; Masten et al., 2013; Williams, 2017), most state intermediate licensing nighttime driving restrictions started after 10:00 PM. This is concerning because teen drivers are more likely to sustain an MVC-related injury between 10:00 PM and midnight than any other two-hour period during the night (Jiang & Lyles, 2011). Our results have important implications for lawmakers, suggesting that states should consider revising and enforcing nighttime driving restrictions from 10:00 PM or earlier to reduce MVCs and MVC-related injuries and deaths among teen drivers with an intermediate license.

While most states limited the number of teen passengers to one or no passengers, 10 states permitted two or more teen passengers. Only two states limited the number of youth family members who could be in the car with the teen driver, meaning that in most states a teen driver with an intermediate license could have up to four young siblings in the car, even if only one teen passenger is permitted during this licensing phase. Teen passengers can distract teen drivers and influence unsafe behaviors that lead to MVCs (Lin & Fearn, 2003). Young passengers are also less likely to buckle up, which increases their chance of MVC-related injuries and death (Fell, Todd, et al., 2011). The recommended number of passengers for teen drivers during the intermediate licensing phase is zero to one passenger (Fell, Todd, et al., 2011; Williams, 2017). Limiting the number of passengers, including teen family members, is key to reducing MVCs and MVC-related injuries and deaths among teen drivers with an intermediate license. Furthermore, we found that approximately half of states had passenger restrictions for one year or more. These restrictions, even though the enforcement of such restrictions is secondary, are important because prior studies show that fatal crash incidence rates are 15% lower for 16 to 17 year old drivers who are restricted to one teen passenger or less for at least six months (Masten et al., 2013). Additional evidence is needed on the effect of limiting passengers, including family members, to one or less on protection of both teen drivers and their passengers (McCartt et al., 2010).

Traffic violation penalties are used to help deter teens from engaging in risky driving behaviors (McCartt et al., 2003; Waller et al., 2001), yet only 43 states' intermediate licensing restrictions contained traffic violation penalties specific to teen drivers with an intermediate license; others listed violations and their associated penalties for all drivers regardless of their age. We also found that traffic violation penalties for teen drivers varied widely among states; for example, some states had more severe penalties for repeated traffic violations, while others did not. Previous research suggests that up to 73% of teen drivers commit at least one traffic offense within seven years of receiving

their driver license, with a six-month re-offense rate as high as 55.8% (Ekeh et al., 2008; Manno et al., 2012). Stronger penalties for traffic violations, especially for repeat offenses, during the intermediate licensing phase may reduce teen driver-related MVCs and MVC-related injuries and deaths, keeping everyone safer on the road (McCartt et al., 2003; Simons-Morton et al., 2006; Waller et al., 2001). Studies suggest that enforcing penalties for traffic violations as well as more instructive teaching for teen drivers can reduce the rate of traffic offenses (McCartt et al., 2003; McKnight & Peck, 2003; Shell et al., 2015); therefore, enforcement of traffic violation penalties during the intermediate licensing phase may benefit teens later in life (Bingham et al., 2006; McCartt et al., 2003; Pressley et al., 2015; Vardaki & Yannis, 2013). Our study demonstrates that states have an opportunity to strengthen their traffic violation penalties for teen drivers during the intermediate driving phase, which, in turn, may prevent subsequent traffic violations and reduce the risk of MVCs and MVC-related injuries and deaths.

This study has several limitations. First, we only examined strictness and language of four common categories of intermediate licensing restrictions, without considering other categories of restrictions during the intermediate licensing phase. Additionally, we did not analyze any licensing restrictions during the learner permit phase, another important phase of state GDL programs. Future studies should analyze the language and variation in more categories of both phases of GDL programs and how these variations may impact driving behaviors among teen drivers. Second, we obtained data on state intermediate licensing restrictions from four online sources; thus, any recent changes in these restrictions may not be reflected in this study. Third, not all states specified traffic violation penalties exclusively to teen drivers in the intermediate licensing phase and as such some of these penalties may not be applied to teen drivers with an intermediate license. Fourth, we coded the intermediate licensing restrictions based on our subjective interpretation of the strictness of each category of the restrictions. Therefore, our findings should not be interpreted as 'scoring' the appropriateness or effectiveness of the intermediate licensing restrictions.

Conclusions

MVCs are a significant public health concern, especially among teen drivers when they first start unsupervised driving. Studies show that applying restrictions during the intermediate licensing phase is an effective strategy to reduce the number of MVCs and MVC-related injuries and deaths among teen drivers ages 16 or 17 years, although the effectiveness of these restrictions vary from state to state. We found a wide variation in the language used in state intermediate licensing restrictions, which led to differences in the strictness of the requirements. Such differences may impact the effectiveness of these state licensing requirements. Future research should develop and test an evidence-based, comprehensive rating system to quantify the strength of licensing restrictions during both the learner permit and intermediate licensing phases. This rating system could also be used to examine the impact of licensing restrictions on reducing MVCs and MVC-related injuries and deaths among teen drivers.

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