

Gabriel Puccia, two days before his death in a car accident.

*Allan F. Williams, PhD*

# EARNING A DRIVER'S LICENSE

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## SYNOPSIS

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TEENAGE DRIVERS IN the United States have greatly elevated crash rates, primarily a result of qualities associated with immaturity and lack of driving experience. State licensing systems vary substantially, but most have allowed quick and easy access to driving with full privileges at a young age, contributing to the crash problem. Formal driver education has not been an effective crash prevention measure. Following the introduction of graduated licensing in New Zealand, Australia, and Canada, this system has been considered in many states and has been implemented in some. Graduated systems phase in full privilege driving, requiring initial experience to be gained under conditions of lower risk. The author describes the first five multistage graduated systems enacted in the United States in 1996 and 1997. Factors that will influence the acceptability and effectiveness of these new licensing systems are discussed.

**T**he risk of being in a motor vehicle crash is inordinately high for young, beginning drivers in the United States. When calculated per mile driven, the crash rate for 16-year-olds is eight times that of drivers ages 20 and older and three times that of teenagers 18 to 19 years old.<sup>1</sup> To address this problem, many U.S. jurisdictions have been considering changes in their licensing systems, in particular moving toward a system called graduated licensing.

### The Young Driver Problem

The combination of youthful age and lack of driving experience has resulted in a major public health problem in the United States. Motor vehicle injuries are the leading cause of death among teenagers, accounting for about one-third of all the deaths of 16- to 19-year-olds. Table 1 displays crash involvement by driver age based on three denominators: total mileage driven, number of licensed drivers, and population. In each of these categories, teenagers as a group have higher crash rates than any other age group. However, there are wide differences within the 16- to 19-year-old age group.

In terms of crash risk, as measured by crashes per mile driven, 16-year-olds have the highest rates, followed by 17-year-olds. Sixteen-year-olds also have the highest crash rate per licensed driver, even though in 1990, the latest year for which data are available, the average annual miles driven by 16-year-olds (4405) was slightly lower than that of 17-year-olds (5383) and substantially lower than miles driven by 18-year-olds (9033) and 19-year-olds (9016). Sixteen-year-olds do not have the worst crash rate per capita primarily because a lower percentage in this age group—less than half—have licenses compared to other age groups. Yet despite their lower licensure rate and their lower average annual miles driven relative to older drivers, the crash rate for 16-year-olds is still extremely high.

Youthful age and lack of driving experience contribute about equally to the young driver problem.<sup>2</sup>

Regardless of their age, inexperienced drivers are at higher risk than more experienced drivers, but qualities associated with the stage of adolescent development of 16- and 17-year-olds also contribute strongly to the problem. Qualities generally associated with immaturity (such as chance taking, testing limits, poor decision-making, overconfidence) are associated with the more risky driving styles characteristic of teenage drivers (speeding, following too closely, dangerous passing).<sup>3,4</sup> When these styles combine with characteristics of driving inexperience—especially a relatively lesser ability to detect and respond to hazardous situations—crash

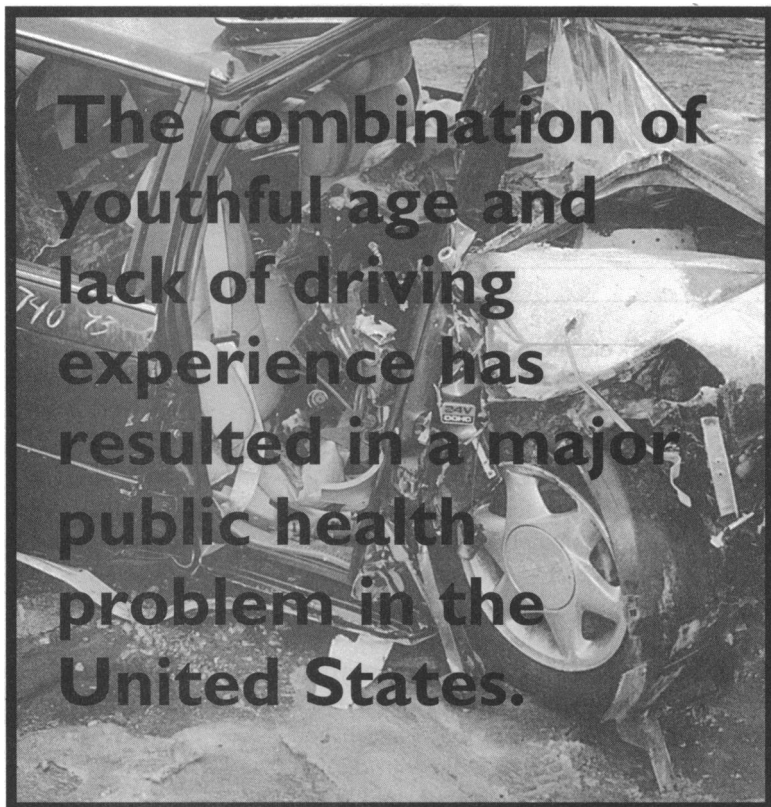
generate revenue. They also have the function of ensuring that a minimum level of competence—typically assessed through a written test on the rules of the road and a simple driving test—is attained before full driving privileges are granted. There has been increased focus on the safety functions of licensing systems over time. Ways in which jurisdictions around the world attempt to ensure competence through licensing systems include specifying a learners period to facilitate acquisition of driving skills under adult supervision, requiring completion of driver education courses, specifying tough test requirements, and withholding licensure from very young people (ages 16 or younger). Initial license holders may be subject to protective restrictions such as prohibitions on night-time driving or being limited to driving only on designated roads. Jurisdictions may attempt to encourage safe driving and identify those who are not ready for full licensure by assigning young license holders to a probationary stage during which they are subject to penalties that are more severe or occur after fewer infractions, or both, than for adults.

In the United States, licensing systems have had three distinguishing characteristics:

*Minimum licensing ages are younger than in much of the rest of the industrialized world.* In Europe, the minimum licensing age is 17 in some countries but more typically 18. In North America, Australia, and New Zealand, licensing ages are younger.<sup>6</sup> Most U.S. states license at age 16, but the minimum age for a regular license is 14 in South Dakota and 15 in five states (Hawaii, Idaho, Montana, New Mexico, and South Carolina). There has been little change over the years in minimum licensing ages; nor is there likely to be. The only recent change is that Mississippi increased its licensing age from 15 to 16 in 1995.

*Pre-licensure requirements in most states are quite minimal.* Many states allow quick and easy passage to licensure, but there are substantial variations among pre-licensure requirements. A survey conducted in early 1995 indicated that almost all states made learner's permits available, but only 30 actually required them.<sup>7</sup> Among states requiring permits, only 11 specified they be held for a minimum period of time, ranging from 14 to 90 days. Seven of these 11 states required holding periods of 30 days or fewer.<sup>7</sup>

In most states, written and driving tests are easy, particularly in comparison with testing requirements in many European countries. Thus, young people in the United States generally have been allowed licensure at very early ages and with minimal driving experience. In most cases, this initial license has included full privileges in terms of where, when, and with whom beginners may drive, although special penalty systems may apply. This situation has pre-



risk is heightened.

Compared with those of older drivers, the crashes of 16- to 19-year-olds are more likely to be single vehicle events, involve one or more driving errors, to include speeding as a factor (driving too fast for conditions or exceeding the posted maximum), and to involve three or more vehicle occupants, who are most often other teenagers. These crash characteristics are particularly prominent among 16-year-olds.<sup>3</sup> Night-time driving is an especially high risk activity for 16- to 19-year-olds, with only about 20% of their mileage accumulated between 9 p.m. and 6 a.m. but almost half their fatal crashes occurring during these hours.<sup>5</sup>

## Licensing Systems

Licensing systems in American states were initially instituted to facilitate the identification of drivers and to

**Table 1. Driver crash involvement by driver age**

Age	Per million	Per 1000	Per 1000
	miles	license holders	population
	1990 <sup>a</sup>	1995	1995
16.....	43	213	92
17.....	30	163	101
18.....	16	152	110
19.....	14	128	96
16-19.....	20	158	100
20-24.....	10	103	89
25-29.....	6	75	75
30-34.....	5	65	60
35-39.....	4	60	56
40-44.....	4	54	51
45-49.....	4	50	48
50-54.....	4	46	43
55-59.....	4	40	37
60-64.....	4	37	33
65-69.....	7	33	28
70+.....	10	34	24
All ages.....	6	63	55

NOTE: Based on the General Estimates System, a probability sample of police-reported crashes in the United States.

<sup>a</sup>Mileage data are from the Nationwide Personal Transportation Survey. The most recent available data are for 1990.

vailed until just recently, even though research conducted decades ago indicated the seriousness of the young driver problem.<sup>8</sup>

Before 1995, only seven states had meaningful driving restrictions for initial license holders in the form of night-driving curfews. These curfews have been found to be very effective in reducing crashes.<sup>5</sup>

*There is great diversity among licensing systems in the 50 states and the District of Columbia; no two are exactly alike.* In addition to the differences in licensing ages, states range from having minimal requirements (optional learner's permit, no driver education) to having a variety of formal requirements.<sup>7</sup> In general, states with more stringent pre-licensure requirements have fewer young driver crashes.<sup>9</sup>

**Graduated licensing systems.** Licensing systems are undergoing revision, primarily in the direction of requiring more driving experience prior to full licensure. In particular, graduated licensing is being considered in many states and has been implemented in some.

Graduated licensing has two stages prior to full-privilege driving: (a) a learner's period of set minimum duration during which driving under supervision is allowed and encouraged and (b) once the driving test is passed, an initial intermediate license that for a minimum period of time restricts unsupervised driving to lower risk settings. If young

people go through these stages without incurring crashes or violations, they graduate to full-privilege licenses.

These are the core features of a graduated system. An ideal system<sup>10</sup> will start the process at age 16 and not allow graduation until age 18, will set a minimum learner's period of 6 to 12 months and an intermediate license stage of one year or more, and will have restrictions on late-night driving and transporting teenage passengers, the two main risk factors for young beginners.<sup>5,11</sup>

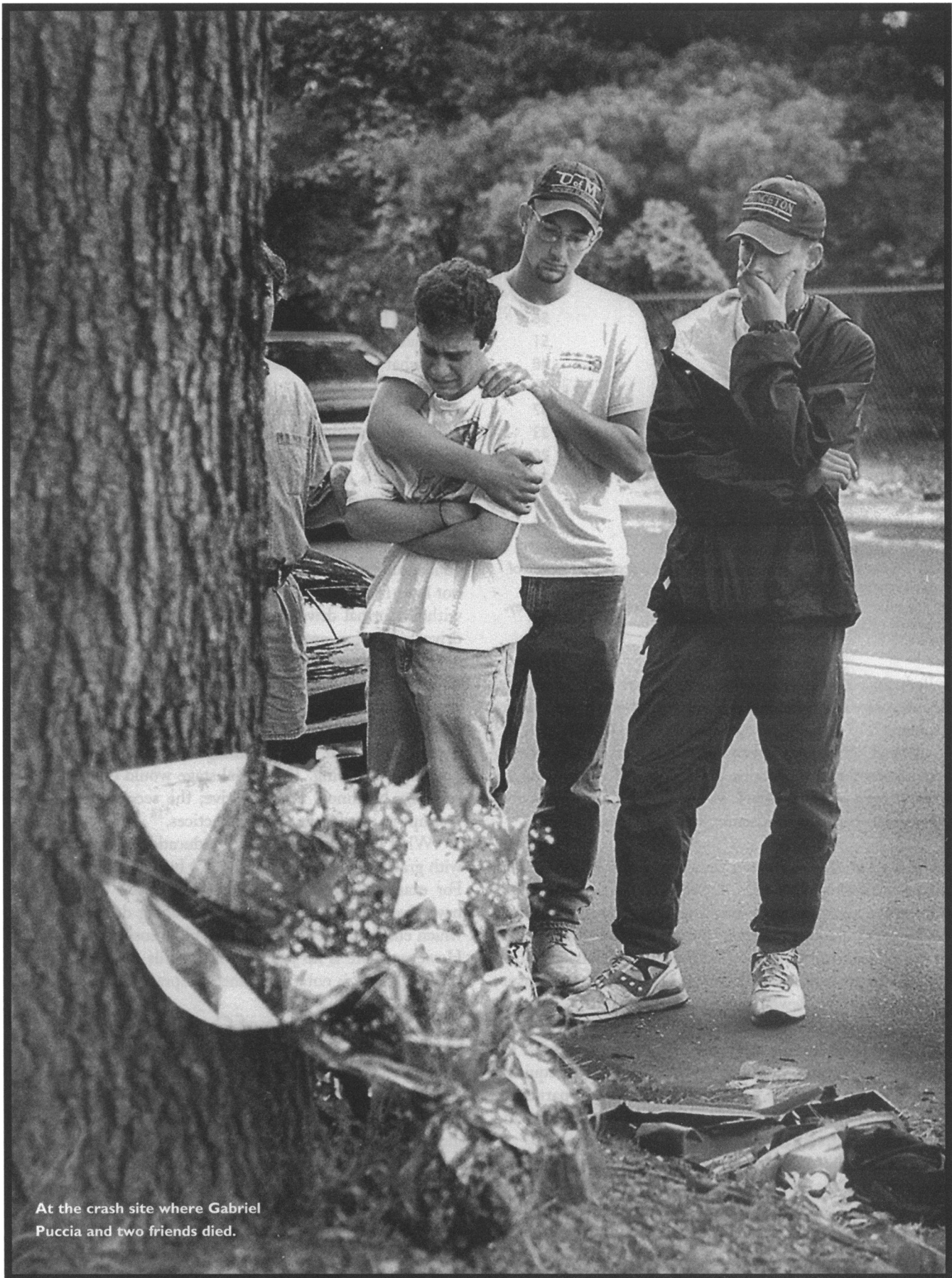
Graduated systems directly address the experience issue, phasing in full-privilege driving by controlling exposure to progressively more difficult driving experiences. This allows for the accumulation of experience with lower risk, on-road driving. The maturity issue also is addressed indirectly because lengthening the licensing process means young people are somewhat older when they obtain full-privilege licenses.

**Driver education.** The role of formal driver education in graduated licensing systems warrants special mention. Driver education is one possible way to increase driver proficiency and is relied upon to do so in many states. Surveys indicate that most people think it is a valuable way to prepare young people to drive competently and safely.<sup>12</sup> However, research worldwide indicates that graduates of driver education—even courses considered state-of-the-art—do not have fewer subsequent crashes than drivers who learned without formal driver education.<sup>13</sup> It is possible that new driver education programs will be developed for graduated systems that will add to their effectiveness, and ways that might accomplish this objective have been suggested.<sup>13</sup> For example, the National Highway Traffic Safety Administration (NHTSA) has recommended a two-stage driver education program that takes advantage of the multiple stages of graduated licensing. The initial stage would concentrate on teaching beginners how to drive; the second stage would attempt to instill safe driving practices.<sup>14</sup>

What is critical is that driver education not be integrated with graduated licensing in ways not beneficial to the system. For example, graduated systems outside the United States have given time discounts for those taking driver education, which enable them to graduate to full licensure more quickly. However, there is no justification for this measure on safety grounds, and it is not a recommended practice.<sup>13</sup>

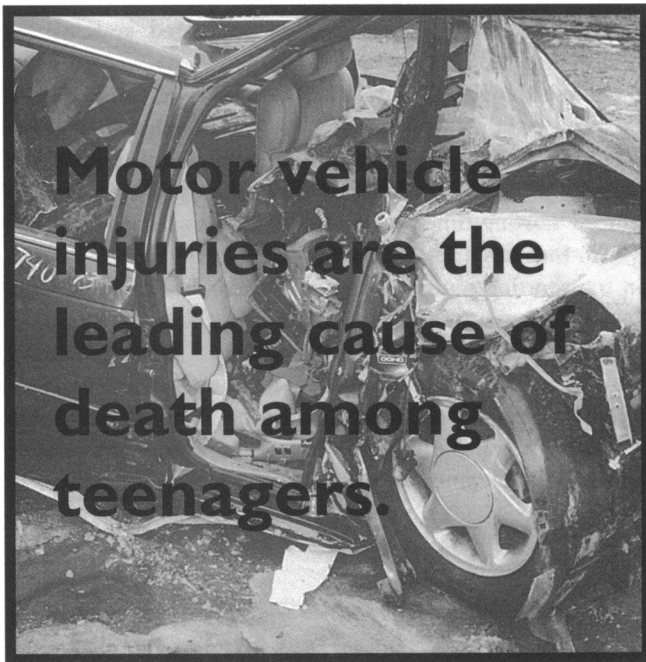
## Early Consideration of Graduated Licensing

Graduated licensing is not a new concept. It was discussed in the early 1970s, and in 1976 NHTSA identified key elements of graduated licensing<sup>7</sup> and offered states financial incentives to adopt graduated systems.<sup>15</sup> In response, Maryland in 1979 and California in 1983 changed their licensing systems. Oregon also adopted a revised licensing system in 1989. Maryland's system included a 1 a.m. to 6 a.m. driving restriction (later changed to start at midnight), which applies for 12 months or until age 18, whichever occurs first. California's system, designed to involve parents in the licensing



At the crash site where Gabriel Puccia and two friends died.

Pam Berry/Boston Globe



process, added a minimum permit instruction period of one month with a supervisor age 25 or older. California also added a two-week waiting period upon failure of a road test and introduced an accelerated penalty schedule. For example, after a second traffic conviction or an at-fault crash within 12 months, a one-month restriction is imposed requiring the young driver to be accompanied by a parent or other adult age 25 or older.

Oregon added a written test on safe driving practices, a 28-day waiting period between attempts for those who fail the road test, and tougher penalties, applied after fewer infractions than would be the case for adults. These licensing systems were successful in reducing young driver crash involvement but fell short of NHTSA's recommendations for graduated systems.<sup>16-18</sup>

The new system in Maryland, and to a limited extent those in California and Oregon, contained elements aimed at controlling exposure of teenagers to risky situations by limiting high risk driving, which is a central feature of graduated licensing. The systems were also based on

increasing motivation to drive safely through such features as augmented penalties, provisions for extending driving restrictions if traffic violations are committed, and methods designed to increase proficiency through new tests and parent involvement.<sup>19</sup>

As these law changes were being introduced, other states considered but rejected graduated licensing provisions. The modifications in Maryland, California, and Oregon plus the increase in the minimum licensing age in Mississippi were the only significant licensing changes that occurred in the United States during the 1970s, 1980s, and early 1990s. Although some states had elements of graduated licensing or other requirements or regulations that made them more effective than others in controlling young driver crashes, no state enacted a *bona fide* graduated system containing all of its main features.

In the meantime, other countries had begun to introduce graduated licensing. New Zealand was first to do so, in 1987, and an Australian state, Victoria, enacted a version in 1990. In 1994, the Canadian provinces of Ontario and Nova Scotia introduced graduated systems. Provisions of the systems in New Zealand and Nova Scotia, which are more far-reaching than in other jurisdictions, are shown in Table 2. Both are classic graduated systems in that they specify extended minimum periods of driving restrictions both before and after initial licensure, with significant restrictions on high risk activities in the intermediate license stage. New Zealand has a minimum stay of 3 to 6 months in the learner's stage and 9 to 18 months in the initial license stage with restrictions on late-night driving and on transporting

**Table 2. Selected characteristics of the New Zealand and Nova Scotia graduated licensing systems**

	New Zealand	Nova Scotia
Learner's phase . . . . .	Minimum age 15 Practice at least 6 months, or 3 months with driver education	Minimum age 16 Practice at least 6 months, or 3 months with driver education
Intermediate license . . . .	Minimum age 15 years, 3 months, to 15 years, 6 months, depending on driver education  Minimum period 18 months, or 9 months with advanced driver education course  10 p.m.-5 a.m. curfew  0.03% maximum blood alcohol concentration  No passengers without adult front-seat occupant	Minimum age 16 years, 3 months, to 16 years, 6 months, depending on driver education  Minimum period 24 months  Midnight-6 a.m. curfew  Zero blood alcohol concentration  Complete 6-hour defensive driving course to obtain full license
Full license . . . . .	Minimum age 16 to 17, depending on driver education	Minimum age 18 years, 3 months

## Graduated Licensing

teenage passengers; shorter stays in the stages are available to those with driver education. The Nova Scotia system requires 3 to 6 months in the learner's stage depending on driver education, and a lengthy period of 24 months in the initial license stage with a 10 p.m. curfew.

The trend toward graduated licensing now has spread to the United States. In 1996, six states (Connecticut, Florida, Kentucky, Michigan, Minnesota, and Virginia) established required minimum learner's periods of six months. Florida and Michigan took the next step, adding restrictions in the intermediate licensing stage. During the first half of 1997, three states (North Carolina, Georgia, and New Hampshire) adopted multistage graduated systems. As of August 1997, Louisiana and Illinois had also enacted graduated systems, and legislation was pending in other states. Some fea-

tures of the first five multistage graduated systems are described in Table 3.

These systems all have the multiple stages of graduated licensing, but they vary in ways that will influence their effectiveness. For example, the minimum age for acquisition of a learner's permit varies from 14 years, 9 months, to 16 years. Curfew starting times range from 9 p.m. to 1 a.m. Georgia's system includes a restriction for intermediate license holders on transporting multiple teenage friends. The minimum age for a full license varies from 16½ to 18 years.

The problem of alcohol-impaired driving among teenagers has been reduced through the adoption of measures such as increasing the minimum alcohol purchase age to 21. Most states now have zero blood alcohol concentration (BAC) tolerance for people under age 21, including the

**Table 3. Selected characteristics of U.S. graduated licensing systems**

	<i>Florida</i>	<i>Michigan</i>	<i>North Carolina</i>	<i>Georgia</i>	<i>New Hampshire</i>
Effective date	July 1996	April 1997	December 1997	January 1998	January 1998
Learner's phase . . . . .	Minimum age 15	Minimum age 14 years, 9 months	Minimum age 15	Minimum age 15	Minimum age 16
	Practice at least 6 months	Practice at least 6 months	Practice at least 12 months	Practice at least 12 months	Practice at least 3 months
	...	Must have completed Segment One driver education to enter learner's phase	...	...	...
		Parents must certify 50 hours of training			
Intermediate license. . . . .	Minimum age 16	Minimum age 16	Minimum age 16	Minimum age 16	Minimum age 16 years, 3 months
	11 p.m.–6 a.m. curfew for 16-year-olds; 1 a.m.–5 a.m. curfew for 17-year-olds	Midnight–5 a.m. curfew	9 p.m.–5 a.m. curfew	1 a.m.–5 a.m. curfew	1 a.m.–5 a.m. curfew
	...	Minimum period 6 months	Minimum period 6 months	Minimum period 12 months	No minimum period (must hold until age 18)
	...	Must have completed Segment Two driver education to obtain intermediate license	...	No more than 3 passengers younger than age 21 unless family members	...
Full license. . . . .	Minimum age 18	Minimum age 17	Minimum age 16	Minimum age 18	Minimum age 18

five states in Table 3, and Federal legislation requires all states to have such laws by October 1998 or lose highway construction funds. However, alcohol-impaired driving among minors still needs to be addressed. A BAC threshold of zero (mandating that any drinking while driving is illegal) for those who have not reached the minimum legal drinking age should be a state requirement. In a sense, a zero BAC threshold is itself part of a graduated system pertaining to permissible drinking and driving. When drivers turn 21 and are permitted legal purchase of alcohol, they can drive after drinking as long as they are not impaired by alcohol (0.08% or 0.10% BAC threshold, depending on the state).

In addition to measures designed to reduce high risk driving, all five graduated systems include contingencies to motivate safe driving; accumulation of traffic violations or crashes results in licensing penalties and in some states can involve extensions of restriction periods. Some systems also include provisions designed to improve proficiency. For example, Michigan adopted a version of the two-stage driver education system recommended by NHTSA and requires parents to provide extensive supervision. An assumption of graduated licensing is that proficiency will also be achieved through the sheer accumulation of on-road driving experience during the years in which young people are in the system.

### Effectiveness of Graduated Licensing

The five recently implemented systems have core elements of graduated licensing, and every component of an ideal system can be found in one or more of these states.<sup>10</sup> How well these systems will work, however, is a different question from how sound they are conceptually. The systems should work by delaying the attainment of full-privilege licensure, thus improving per capita crash rates for 16- to 17-year-olds. However, it also is important to reduce the likelihood that drivers in the system will be involved in crashes—in other words, to reduce crashes per license holder.

The graduated systems in North America are too new to adequately assess their effect on crashes, and there have been some difficulties evaluating the slightly older New Zealand system. But there has been an estimated reduction of at least 7% in injury involvement of 15- to 19-year-old New Zealanders, with much of the reduction attributable to reduced licensure at these ages.<sup>20</sup>

One major determinant of the impact of graduated licensing is the extent to which young people actually acquire driving experience under the prescribed lower risk conditions. It would be possible to pass through the required time-dependent stages without driving at all, remaining violation- and crash-free and advancing through the system without delay. The limited information available on this topic, based on a survey of Nova Scotia teenagers, suggests this is not a common occurrence.<sup>21</sup> Another way to circumvent the purpose of graduated

licensing systems would be for young drivers to simply violate restrictions such as night-driving curfews. It is thus important that the restrictions and their rationales be well explained to parents, teenagers, and police. Evidence from several jurisdictions with night-driving curfews indicates that many young people violate curfews but say they do so infrequently.<sup>21,22</sup>

It is important to document the effects of graduated licensing to determine if it works as intended. The U.S. systems that changed only the learner's phase, extending it to six months, should also be evaluated. Although restrictions in the high risk intermediate license phase are considered the engine of graduated licensing, partial systems may also be effective. In states such as Connecticut and Kentucky, where the beginning age for permits is 16, the provision requiring six months in the learner's stage basically raises the minimum licensing age to 16½ (16 years, 4 months, in Connecticut, with driver education) as well as providing an extended period for supervised driving. Kentucky also added features including an accelerated penalty schedule and some required parental involvement.

### Opinions about Graduated Licensing

Graduated licensing systems are viewed favorably by parents of teenagers. When American parents of 17-year-olds were asked about a full graduated system including extensive practice periods, night-driving curfews, and prohibitions against transporting other teenagers, 58% were in favor.<sup>23</sup> Sixty-nine percent of parents of graduating seniors in four northeastern states also favored such a system.<sup>24</sup> When parents of 15-year-olds who were about to enter Florida's new licensing system were asked if they approved of it, 74% said yes.<sup>24</sup>

Parents are highly supportive of night-driving curfews but less supportive of passenger restrictions. Among U.S. parents of 17-year-olds, 43% approved of passenger restrictions while 74% were in favor of night curfews.<sup>23</sup> Other surveys have found even higher support for curfews, particularly in states where they already exist. For example, 94% of parents of graduating seniors in New York approved of that state's 9 p.m. curfew.<sup>24</sup>

Understandably, teenagers affected by graduated licensing restrictions are less favorable toward them. However, teenagers in New Zealand have reacted with overall favor to their graduated licensing system. A group of New Zealand teenagers were interviewed before licensure at age 15 and again at age 18, after licensure. At both ages, more than 70% said they agreed with the driving restrictions.<sup>25</sup> In Nova Scotia, 67% of young people with restricted licenses said they approved of the graduated system.<sup>17</sup> In contrast, among Nova Scotia's restricted license holders who are subject to a two-year 10 p.m. curfew, only 28% were found to be in favor of this restriction in a 1996 study.<sup>21</sup> There is some evidence that many teenagers no longer affected by curfews understand and approve of them. Further evidence



suggests that where curfews have been in place for some time, teenagers accommodate to them and accept them as the norm.<sup>5</sup>

### To Whom Should Graduated Systems Apply?

A major difference between the graduated licensing systems in the United States and abroad is that the U.S. systems apply only to people younger than age 18, the legal age of adulthood, whereas in other countries they apply to beginners of older ages (all beginners in Canada, up to age 25 in New Zealand). Since graduated systems are designed to build driving experience in a protective environment and inexperience is a risk factor regardless of driver age, it makes sense to apply such systems to all beginners.

However, U.S. applicants ages 18 and older do not have to go through the graduated systems in states in which such systems exist. Beginners who have begun but not yet completed graduated licensing by age 18 are immediately exempt from further requirements. Sixteen-year-olds and 17-year-olds constitute a large percentage of U.S. beginning drivers and are an especially high risk group. Thus, graduated licensing in the United States is addressed to the most appropriate population, but it is important that its provisions apply to *all* 16- and 17-year-olds instead of letting some individuals graduate prior to age 18, as can be done in Michigan and North Carolina by starting in the system at the earliest age allowed. Graduation at age 18 can be accomplished by applying requirements to all 16- and 17-year-olds (as in Florida), fixing the starting date and the required minimum times for the stages so that graduation cannot occur until at least age 18, or by requiring people to be 18 to obtain a full license even though they can progress through all the stages before reaching 18 (as in Georgia and New Hampshire).

There also has been discussion about graduated licensing for older drivers—curtailing privileges such as night-time driving as visual and other age-associated impairments develop. This is practiced in most states on an individual basis. It is an attractive concept in that such a procedure allows older drivers to retain essential driving privileges. However, while many older people already self-limit their driving, many who should do not. Individual assessment of potential driving problems is often based on recent problems such as involvement in a crash, whereas the intent is to institute limitations on driving prior to a crash.

### Graduated Licensing Now

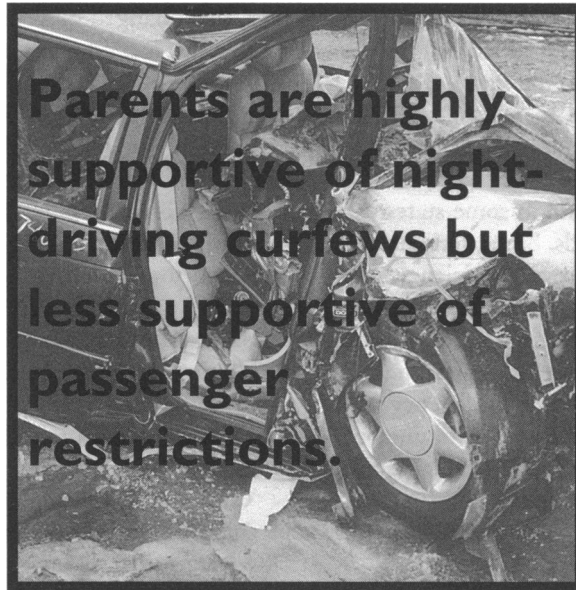
Graduated licensing has received extensive media coverage in the past few years. Nearly every major safety organization in the United States has endorsed it.<sup>26</sup> Now graduated licensing legislation is being debated in many states. Why is there such interest now when the concept has been around for 20 or more years without catching on and the young driver problem has been known and recognized as serious for decades?

The recent groundswell of interest in this country is not fully explainable. It may be prompted in part by the successful launch of graduated licensing in New Zealand. There also seems to be greater recognition that driver education, traditionally a cornerstone of addressing the young driver problem, is not the solution to reducing crashes in this group. As legislators in more states debate graduated licensing, the concept is becoming better known, with greater recognition that it represents a sensible way to introduce beginners to full-privilege driving. The endorse-

ments by safety organizations have resulted in much publicity and have created a “bandwagon” effect for graduated licensing.

On the other hand, graduated licensing does limit the mobility of young people. There still is considerable question about the extent to which legislatures will enact such provisions. Opponents of night-driving curfews have characterized them as unfair to young people, arguing that even though supervised night-time driving and essential driving such as to and from work are typically allowed, curfews penalize everyone in the applicable age group, including many responsible drivers.

That fact is that all beginners are inexperienced drivers in need of on-road practice to become more proficient at this complex task, and it makes sense from a public health standpoint that they obtain their initial experience in lower risk situations. Yet graduated licensing provisions involve trade-offs, and societies have to decide where to strike the balance between mobility for young people and safety concerns for all road users. What does being fair to young people mean in this context? This is the question now being debated as graduated licensing comes under consideration throughout the nation. Certainly raising the driving age to 17 or 18, as is the norm in Western European countries, would seriously affect mobility and be perceived in the United States as an infringement on personal liberties. Perhaps graduated licensing, which affects but does not shut down mobility, will be



acceptable, especially given that research establishing its safety benefits is beginning to emerge.

This work was supported by the Insurance Institute for Highway Safety.

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