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Résumé de l'article

Des initiatives récentes faites au Canada, aux États-Unis et ailleurs dans le monde dans le but de solutionner le problème de collisions chez les jeunes conducteurs ont toutes été centrées sur l'émission des permis, principalement par l'introduction du système graduel, concept qui peut remonter au début des années 1970. Ce système a d'ailleurs actuellement fait l'objet de législation dans plusieurs pays, alors que plusieurs autres envisagent également de l'adopter.

L'examen des programmes graduels d'émission des permis révèle que chacun possède un caractère unique. En effet, ces programmes varient considérablement sous l'angle de leurs caractéristiques de fonctionnement, notamment dans les différences d'âge minimum, dans la variété des conditions et dans les restrictions applicables en différentes circonstances. Mais, ce qui est le plus important, même considérant cette diversité, la plupart de ces programmes demeurent conformes à un principe fondamental de prévention dans une perspective de minimiser l'exposition au risque. Toutefois, il existe aussi des similarités importantes entre les programmes.

Finalement, les résultats des recherches des quelques études d'évaluation des programmes graduels d'émission des permis sont encourageants. L'expérience acquise dans certains pays suggère qu'un programme graduel des permis peut engendrer une baisse d'au moins 6 à 8 % dans le nombre de collisions.

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Des initiatives récentes faites au Canada, aux États-Unis et ailleurs dans le monde dans le but de solutionner le problème de collisions chez les jeunes conducteurs ont toutes été centrées sur l'émission des permis, principalement par l'introduction du système graduel, concept qui peut remonter au début des années 1970. Ce système a d'ailleurs actuellement fait l'objet de législation dans plusieurs pays, alors que plusieurs autres envisagent également de l'adopter.

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ABSTRACT

Recent initiatives in Canada, the United States and elsewhere to resolve the problem of novice driver crashes have focused on driver licensing, primarily the introduction of graduate licensing which is a concept that can be traced back to the early 1970s. Several jurisdictions have already introduced graduated licensing and many others are considering doing so.

The review of graduated licensing programs reveals that each of these programs is unique. Indeed, these graduated licensing programs vary substantially in their operational features – e.g., different minimum ages, a variety of conditions and restrictions that are applied in a number of different ways. Importantly, however, even given this diversity, most of these programs still remain true to basic prevention principle under conditions that minimize exposure to risk. However, there are also important similarities across programs.

Finally, research results of the few evaluation studies of graduated licensing are encouraging. The experience in some jurisdictions suggests that in at least a 6 to 8% reduction in collisions.

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INTRODUCTION

New drivers, especially young ones, have a higher risk of collision than more experienced drivers (Mayhew and Simpson 1990; Mayhew and Simpson 1995). Historically, the mainstay of prevention strategies to address this serious road safety and social problem has been some form of licensing that requires beginners to qualify for a license before achieving the privilege of operating a motor vehicle on public highways. Typically, they must meet certain minimal driving standards deemed necessary to operate a motor vehicle safely in traffic. The applicant is tested for knowledge about the rules of the road, visual acuity, and skills in operating a vehicle.

The licensing program also sets the minimum age for obtaining a license and often includes special licenses, for example, a learner's permit, so that the novice can practice driving under supervised conditions, before attempting the road test and, if passed, being granted a regular license. In most programs, the learner's permit is not a mandatory requirement or it is required for only a brief period of time before the novice can take the road test.

Recent concern about the problem of young driver crashes and the recognition that existing licensing programs have largely failed to deal with it effectively have focussed attention on a system of licensing called "graduated". Such a system differs markedly from a conventional licensing approach in that it delays entry to full, unrestricted driving until the novice has gained experience in lower risk, more protective settings. Exposure to progressively more demanding and risky conditions is permitted after the beginner has gained some on-road experience. For example, the novice may be initially required to accumulate driving experience under supervision during less risky daylight hours, before progressing to unsupervised driving and more risky conditions, such as driving at night.

For young beginners, graduated licensing not only creates a protective environment for skill acquisition, it affords time for the beneficial effects of increased maturity to develop.

This paper outlines the rationale of graduated licensing, describes the history of and recent developments in graduated licensing, and discusses support for and the effectiveness of such programs.

RATIONALE OF GRADUATED LICENSING

The basic objective of a graduated licensing system is to provide all new drivers with the opportunity to gain driving experience under conditions that minimize their exposure to risk. Somewhat like an apprenticeship program, it is intended to ease the novice into the full range of traffic conditions. For example, night driving is initially prohibited because this time period has been shown to be risky for beginners, especially young drivers (Williams 1996). As experience and competence are gained at low-risk times, such as during daylight hours, the opportunity for exposure to increasingly risky situations is gradually phased in. Thus, graduated licensing addresses experience-related factors that give rise to novice driver crashes.

It also addresses the age-related factors – i.e., peer pressure, a propensity to take risks – that contribute to the higher crash risk of young novice drivers. For example, a night curfew prohibits young people from driving during late night hours when social pressures to consume alcohol are greatest.

Briefly, this is how the system would work. Limitations are placed on the new driver in terms of such things as when they can drive, where they can drive, with whom, and how. These restrictions are gradually removed so that new, more complex traffic conditions can be mastered as driving experience is being acquired. Eventually, full "unrestricted" driving privileges are granted.

DEVELOPMENTS IN GRADUATED LICENSING

The concept of graduated licensing is certainly not new and, in fact, dates to the early 1970s when the National Highway Traffic Safety Administration (NHTSA) recommended a model program (Croke et al. 1977) to address the overrepresentation of young drivers in crashes. At that time, graduated licensing was viewed with considerable skepticism and only a few states adopted elements of the system. Today, however, the concept of graduated licensing is gaining wider acceptance and has been embraced by many as a potentially effective means for reducing the high rates of collision involvement among novice drivers, especially young ones. This section describes the history of and recent developments in graduated licensing in the United States, New Zealand, Australia and Canada.

☐ Initiatives in Graduated Licensing in the United States

Since the mid-1970s, NHTSA has advocated that young novice drivers should not receive full driving privileges immediately upon becoming licensed. At that time, NHTSA developed a model graduated licensing system that recommended beginners (under the age of 18) proceed through a three-stage licensing process over a 24-month period, prior to obtaining full, unrestricted driving privileges. The three stages involved a six-month learner phase, a six-month restricted phase, and a 12-month provisional license phase.

The model program was never fully implemented, although several states — Maryland, California and Oregon — adopted a number of its key features.

More recently, NHTSA has reaffirmed its support for graduated licensing and together with the American Association of Motor Vehicle Administrators (AAMVA) recommended a new three-stage system (NHTSA 1995; Hedlund and Miller 1996). In 1996 and 1997, several states implemented some version of the NHTSA/AAMVA model program and others are considering doing so (see the accompanying paper by Williams for a description of state programs).

☐ The New Zealand Program

The first comprehensive graduated licensing system was introduced in New Zealand in August 1987 and it applies only to drivers age 15 through 25, with the exception of motorcyclists. All motorcycle riders, regardless of age, must pass through the graduated license system.

The New Zealand scheme has three Phases.

Phase I is a Learner's period.

- The Learner's license must be held for minimum of six months.
- The six month requirement can be reduced to three months if the learner completes an accredited driver training course.
- During this initial phase the learner must drive under adult supervision at all times.

Phase II is a Restricted period.

- It is 18 months in duration but can be reduced to nine months if an Advanced Driving Course is completed.
- No passengers are allowed unless the front seat occupant is over 20 and has had unrestricted license for over 2 years.
- There is a low BAC limit of 30 mg%.
- There is also a night curfew from 10 p.m. to 5 a.m.

The third phase of the system is graduated to full driving privileges.

☐ Developments in Australia

Since 1984 there has been considerable interest in the graduated licensing approach in Australia where the Federal Office of Road Safety designed a model system for discussion based on the work of Waller (1974, 1975, 1986), Coppin (1977) and Croke and Wilson (1977). The model specifically targeted the problems of alcohol abuse, night driving and passengers, and included the following characteristics (Boughton et al. 1987):

- Stage 1 – supervised day driving only, no passengers, zero or low BAC.
- Stage 2 – supervised, may carry passengers during the day, and may drive at night, zero or low BAC.
- Stage 3 – unsupervised during the day, passengers day or night if supervised, zero or low BAC.
- Stage 4 – unsupervised day or night if solo, supervised if carrying passengers at night, zero or low BAC.

As in the United States, the licensing of novice drivers is a State (or Territory) responsibility and the Federal Office of Road Safety (similar to NHTSA) cannot enact graduated licensing. It has, however, promoted the system described above and encouraged its adoption. Indeed, the implementation of a graduated license scheme for novice drivers was part of a major initiative to improve road safety announced by the Federal Department of Transport in December, 1989. The graduated licensing components of a 10-point safety package included:

- zero BAC for learner drivers and for the first three years of probationary license up to age 25;
- no learner permits to be issued before 16;

- no probationary license to be issued before 17;
- minimum period for learner permit to be 6 months; and
- licenses issued for automatic vehicles for probationary period unless manual test taken.

Since 1989, various Australian states have adopted some of the components of the recommended graduated licensing system but none really conform to the concept of graduated licensing (Haworth 1994).

The system introduced in the state of Victoria in July 1990 is probably the best known Australian version of graduated licensing but is really a very weak version of it. It applies to all newly licensed drivers, regardless of age, which is unlike the New Zealand scheme that is limited to drivers under the age of 26. The "Victoria" system is rather complex as a result of the differential restrictions and requirements at various ages. Briefly, the scheme includes (1) a learner's permit, now available at age 16, to enable greater supervised driving experience. A learner's permit must be held for at least 12 months before entering the next, probationary stage but the applicant must be at least 18 years of age to do so; (2) the probationary phase lasts for three years. A special Hazard Perception Test has also been developed and is currently administered at the same time as the road test to move from the learner to probationary phase.

In the probationary phase, two restrictions apply — a zero BAC requirement and a limit on the horsepower of vehicle that can be operated. Passenger restrictions are limited to the learner's phase, although they are also imposed in the second phase in cases where the probationary driver is convicted of a serious offence during the first twelve months. In Victoria, Australia drivers under the graduated licensing system must display special plates (a white "P" on a red background) on their vehicle and carry a distinctive red probationary driver's license. There is no night curfew in the Victoria, Australia system, although it remains on the agenda for future consideration.

☐ Recent Developments in Canada

Interest in graduated licensing has also recently emerged in Canada. The Canadian Council of Motor Transport Administrators (representing the various provincial Ministries of Transport as well as Transport Canada, and the agency equivalent of the American Association of Motor Vehicle Administrators) accepted a commit-

tee recommendation in 1990 that "each jurisdiction should introduce a probationary/graduated licensing system tailored to the specific needs of the jurisdiction".

The province of Ontario was the first to introduce a graduated license system. Implemented in April 1994, it applies to all new drivers not just those who are young. The system spans two years in two distinct phases each of which lasts 12 months. The level one phase requires the beginner to pass vision and knowledge tests to enter and the following five conditions apply:

- must not drive alone;
- zero BAC for the driver; a .05 BAC limit for the accompanying front seat passenger;
- night curfew – midnight to 5 a.m.;
- each person must have a seat belt; and
- no driving on high-speed expressways.

This phase lasts for 12 months but can be reduced to eight months if the beginner successfully completes an approved driver education program.

The novice must pass a road test to move to level two, during which the following conditions apply:

- zero BAC; and
- each person must have a seat belt.

Level two lasts for 12 months and a new test of overall driving ability must be passed to earn a full license.

More recently, in October, 1994, a graduated license system was introduced in the province of Nova Scotia. This scheme spans two and a half years in two distinct phases: a learner's stage that last six months; and a newly licensed stage that last two years. A vision and knowledge test must be passed to enter the learner's stage. In this stage, the following two conditions apply:

- no passengers except an experienced driver; and
- zero BAC.

This stage lasts for six months but can be reduced to three months by completing driver education. To move to the second stage requires passing a road test. In the second, newly licensed stage, the following three conditions apply:

- zero BAC;

- only one front seat passenger; rear seat passengers limited to number of available seat belts; and
- night curfew – no driving between midnight and 5 a.m., unless accompanied by an experienced driver.

To graduate from the newly licensed stage, the novice must complete a six-hour defensive driving course.

SUPPORT FOR GRADUATED LICENSING

Research has shown that parents, and even teens, support the concept of a graduated licensing program, and endorse its specific features, such as a night curfew. Support has been found both in jurisdictions that are considering implementing graduated licensing as well as those that have such a system in operation.

Prior to its introduction graduated licensing attracts widespread support (e.g., Ferguson and Williams 1996; Williams et al. 1996). For example, Ferguson and Williams (1996) recently interviewed a national sample of 1,000 parents with 17 year-olds to obtain their views of driver licensing practices in the United States. Nearly 60% of those surveyed supported the notion of graduated licensing programs that include delayed full privilege licensure.

Perhaps of even greater importance, support for graduated licensing has been found in jurisdictions that have implemented a system. For example, Begg et al. (1995) has shown that the graduated licensing program in New Zealand has been generally accepted by both parents and teenagers. Indeed, interviews with 18 year-olds on the various stages of the graduated system revealed that about 70% agreed with the restrictions.

More recently, Mayhew et al. (in press) interviewed 450 teens (age 16 to 18) and 500 parents in the province of Nova Scotia to determine if they support a graduated licensing program which had been in place for about two years. Nearly 90% of the parents who have teens in the program approve of the graduated licensing program, as do the majority of teens who face the driving restrictions — 61% of teens in the first stage of the program and 67% of teens in the second stage expressed approval. In a related study, Mayhew et al. (1997) interviewed 500 parents in the province of Ontario and found a comparably high level of support for the graduated licensing program which was implemented in 1994 — over 80% of parents

who had teenagers in the program approved of it. Moreover, eight out of ten (78%) parents said that the graduated licensing program is adequately preparing their teenager for full driving privileges.

Concerns that parents and teens will oppose graduated licensing appear to be unfounded. Results of surveys conducted in Canada and elsewhere illustrate a high level of support for graduated licensing among teenagers and especially parents of teenagers before the program has been implemented and after it is in operation.

■ THE SAFETY IMPACT OF GRADUATED LICENSING PROGRAMS

The safety benefits of graduated licensing programs have been well documented. Early initiatives in the United States in Maryland, Oregon and California have all been evaluated and found to reduce the collision involvement of young drivers. More recent evaluations of the graduated licensing programs in New Zealand and Ontario have also produced positive results.

☐ Effectiveness of Early Initiatives in the United States

The programs introduced in Maryland, California and Oregon included some of the elements from the model program NHTSA recommended in the early 1970s but fell far short of being fully developed graduated licensing systems. Despite this fact and the differences in program elements in these three states, evaluations have found all of them to have safety benefits.

In Maryland, an evaluation by McKnight et al. (1990) found a 5% reduction in daytime crashes attributable to the implementation of the new program. The program introduced in California resulted in a 5.3% reduction in the crash rate of 15-17 year olds (Hagge and Marsh 1988). The evaluation of the program in Oregon had mixed results — Jones (1991) found a 16% reduction in crashes for male drivers age 16-17 but no significant differences for females.

☐ Effectiveness of Graduated Licensing Systems Introduced Outside the United States.

Because its introduction is so recent, very little evidence has yet been gathered on the effectiveness of more comprehensive

graduated licensing programs. The only available evidence comes from New Zealand and Ontario, Canada.

A report released by the Ministry of Transport in New Zealand found initially a substantial drop in casualties of about 25%, coincidental with the introduction of graduated licensing. The more stable and sustained effect yielded an 8% reduction in collisions (Frith and Perkins 1992).

A more recent evaluation of the New Zealand graduated licensing program produced similar findings. Langley et al. (1996) report that the introduction of the graduated licensing program was closely followed by a substantial reduction in car crash injuries for all age groups, especially 15-19 year olds (23% reduction for 15-19 year olds compared to 16% for drivers aged 25 and over). According to these authors, the excess decline of 7% (23% less 16%) among 15-19 year olds can be attributed to the new program.

The graduated licensing program implemented in Ontario, Canada in 1994 is currently being evaluated but the final results are not yet available. However, preliminary results suggest that the program is having a positive safety impact. As reported in the Ottawa Citizen in an article entitled "A License to Live By", graduated licensing is seen as the reason for a dramatic drop in teen deaths. It observed that:

> during the two years before graduated licensing, there were 46 fatalities among 16-year-old drivers across Ontario. Since the new rules that number has been cut by 55%. (November 7, 1996)

■ SUMMARY AND CONCLUSION

Recent initiatives in Canada, the United States and elsewhere to resolve the problem of novice driver crashes have focused on driver licensing, primarily the introduction of graduated licensing which is a concept that can be traced back to the early 1970s. Such a system encourages the accumulation of driving experience in lower risk, more protective environments, and in so doing, effectively targets both the experience- and age-related factors that render young drivers at high risk of collision. Several jurisdictions have already introduced graduated licensing, many others are considering doing so, and major efforts are underway in the public and private sectors to encourage these licensing changes.

The review of graduated licensing programs reveals that each of these programs is unique. Indeed, these graduated licensing programs vary substantially in their operational features — e.g., different minimum ages, a variety of conditions and restrictions that are applied in a number of different ways over varying time frames. Importantly, however, even given this diversity, most of these programs still remain true to the basic prevention principle of graduated licensing which is to provide opportunities to obtain driving experience under conditions that minimize exposure to risk.

In this context, there are important similarities across programs. The most common components of programs include: multi-tiered licensing phases — typically two or three stages before a full license; an extended mandatory learners period of three to six months duration to enable greater supervised driving experience; a provisional or intermediate phase that lasts for one or two years; restrictions in the learners and/or intermediate stages intended to minimize exposure to risk — e.g., zero alcohol tolerance, night curfew, passenger restrictions; greater parental involvement in the learning process; and early driver improvement interventions tailored to meet the needs of youthful violators.

In a few jurisdictions, a special relationship has also been established with driver education and training. For example, completion of a driver education course qualifies the young driver for a reduction in the length of time they must spend in the graduated licensing system. Safety may be compromised, however, by incentives to take driver education, which allows earlier access to a full license and has not been found to produce safety benefits that compensate for less time in the graduated licensing program (Mayhew and Simpson 1996). An alternative, and more promising approach, is to ensure that driver education articulates well with the multi-phased graduated licensing program. In this context, NHTSA/AAMVA have recommended a two-stage driver education program: a basic driver education course in the learner stage of graduated licensing and a more safety oriented course in the intermediate stage. A comparable system has been implemented in Michigan.

Finally, research has shown that parents, and even teens, support the concept of a graduated licensing program, and endorse its specific features such as a night curfew. Perhaps more importantly, the results of the few evaluation studies of graduated licensing are encouraging. The early initiatives in California, Oregon and Maryland and the programs more recently introduced in New Zealand and Ontario have been shown to reduce young driver

crashes. The experience in these jurisdictions suggests that a graduated licensing program may result in at least a 6 to 8% reduction in collisions.

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