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State administrators and legislators tend to view graduated licensing structurally, as a set of rules governing operation of motor vehicles by young and new drivers. The rules set conditions under which driving may occur, including the tests that must be taken, limitations on time of day, penalties for traffic violations. While the ultimate objective of the various rules is to reduce the risk of motor vehicle accidents within the target population, the manner in which the rules are expected to achieve the objective is not always clear. The purpose of this paper is to delineate the *functions* that the various elements of graduated licensing are expected to serve.

While graduated license systems may vary in the number of levels according to which licensing is "graduated," most involve three levels:

- Learner's permit the first level of licensing, at which a vehicle can be operated only under the supervision of a fully licensed driver.
- Intermediate license the second level of licensing, at which the vehicle can be operated without supervision but subject to certain conditions or restrictions.
- Full license the final level of licensing, the regular driver's license.

The targets of graduated licensing are new drivers. Some jurisdictions limit the system to young new drivers, allowing adult new drivers to bypass the intermediate license. Yet, although not all new drivers are subject to graduated licensing, all those subject to graduated licensing are new drivers.

Graduated licensing can be expected to reduce the likelihood and severity of motor vehicle accidents among new drivers three ways: by reducing exposure to the risks that lead to accidents, by improving proficiency so that drivers can better cope with the risks to which they are exposed, and by enhancing motivation to avoid risk.

REDUCING EXPOSURE

Elements that serve primarily to reduce the extent to which licensees are exposed to the risk of accident include delayed licensing, night restrictions, passenger limitations, reduced speed limits, retesting delays, lowered license sanction thresholds, visible license status.

Delayed Licensure

Introducing a delay between the start of driving and full licensure extends the period during which licensees are operating under the restrictions. The introduction of graduated licensing usually brings with it the addition of intermediate phase. Within existing graduated licensing systems, the duration of the learner's and intermediate phases varies from one system to another, or may be changed within the same system over time. To the extent that elements of the learner's permit or the intermediate license reduce exposure, increasing the duration of the license extends the period of exposure reduction.

Night Restriction

Late night hours are the most dangerous at any age, in part because of their association with alcohol impaired driving. Among youth they are also associated with various form of irresponsible behavior that often accompany night activities.. Finally, among new drivers, the reduced visibility that characterizes night driving compounds the effects of inexperience and lack of skill. Graduated licensing restrictions postpone exposure to the rigors of night driving until new drivers have learned to drive during the day.

Passenger Limitations

The presence of passengers in a vehicle operated by a new driver poses two potential risks: (1) the extent of injury in any accident is multiplied by the number of people in the vehicle, and (2) youthful passengers create a group influence that may lead to dangerous driving. Passenger limitations may be contrived so as to prevent the greatest danger while imposing the least restriction on legitimate travel, e.g. no passengers at certain hours.

Speed Limits

Speed is correlated with the incidence and severity of accidents, particularly among youthful drivers, who both have a tendency to speed and lack the skills to handle higher speeds. However, the value of attempts to impose

lower speed limits upon new drivers can be questioned. Requiring lower speeds than other drivers on any given road introduces a speed differential that may be a greater hazard than uniformly higher speed; prohibiting travel on high speed roads such as expressways prevents access to what are the safest highways per vehicle mile.

Restraint Use

Making restraint use mandatory uniquely among new drivers has been defended as warranted by (1) their greater risk of accident, (2) the greater number of productive years at risk, and (3) their lower existing restraint use rate. While the great majority of States require restraint use by all drivers, most treat violations as a secondary offense. Under a graduated licensing system elevating restraint violations to a primary offense may be possible for young and new drivers where such is not possible for all drivers.

Delayed Retest

Delaying the period of time that applicants who fail a test must wait before being allowed a retest provides a means of limiting exposure of unqualified applicants while they seek improvement. The greater accident risk of new drivers has been used to justify increasing waiting periods for drivers being licensed under a graduated licensing system.

License Sanctions

Drivers who evidence unsafe driving after licensing, through the accumulation of traffic citations are subject to exposure reduction through license suspension or revocation. Introducing these sanctions at a lower violation threshold for new drivers reduces risk exposure for a subgroup that appears to be inclined toward unsafe driving and distinctly underqualified to cope with the risk it generates. Under some programs a single violation can result in suspension or revocation for up to the duration of the intermediate phase.

Visible Identifier

Most exposure reducing elements of graduated licensing attempt to alter the behavior of those operating under the system. Some jurisdictions also attempt to enlist the cooperation of other drivers in reducing the exposure of the new driver by making their license status visible in the form of a distinctive registration plate or insignia on the vehicle they drive. The hope is that the experienced driver will make allowances for the ineptitude of the new drivers, thus reducing their exposure. The fear is that the identifier will encourage other drivers to take advantage of the new driver, perhaps increasing risk exposure.

IMPROVING PROFICIENCY

Some of the exposure reduction measures that have been described improve safety only at the sacrifice of some mobility. One set of graduated licensing elements attempts to raise the proficiency of intermediate licensees so they can better contend with the risks to which they are exposed, thus allowing them to improve their safety while still driving. These elements include multi-level instruction, multi-level testing, parental guidance, and delayed retesting.

Multi-level Instruction

It might seem reasonable to believe that drivers should be given all possible instruction before being allowed to drive at all, in order that they might enjoy the full benefits of instruction at the time when its fruits are most needed. However, much of driving ability appears to be hierarchical in that (1) certain elemental abilities must be acquired before higher level abilities can be acquired and (2) some degree of exposure to driving risks helps make students more receptive to certain forms of risk-reduction instruction. A hierarchical structure argues for multi-level instruction. Since the primary impetus for seeking instruction comes from licensing requirements, multi-tiered licensing provides a means of bringing about multi-level instruction.

Multi-level Testing

The hierarchical nature of driving abilities suggests that the assessment of driving ability be carried out in phases just like its development. It is widely acknowledged that the skill test that serves as the basis of initial licensing can only certify the minimum level of ability needed to enter the traffic stream and that the level of ability needed to reach what might be considered normal "safe" driving can require extensive period of experience. While multi-level instruction and multi-level testing obviously go together, the testing can serve as an element of graduated licensing regardless of whether instruction is provided under the system.

Parent Guidance

Given the limitations in resources available to support instruction, public or private, parents (or other responsible adults) can play an important role in developing the proficiency needed for safe driving. Parents are not expected to provide instruction, but rather to guide practice in driving in a way that will yield maximum benefit. Graduated licensing affords an opportunity to introduce various forms of parental guidance at the points where each is most appropriate. The greatest obstacle to be overcome is a way of encouraging parents to participate without penalizing those whose parents will not or cannot do so.

Improvement Courses

Courses of driver improvement given to traffic violators include instruction intended to acquaint drivers with laws, rules, procedures and principles of safe driving, both to reinforce and add to instruction received before licensing. Under most state driver improvement systems it takes a series of violations, such as three in one or two years, to furnish evidence of a problem requiring remedial instruction. However, in a graduated licensing system, the threshold for assignment to such courses may be lowered such that a single violation triggers action. Early intervention with new drivers has been justified on the basis of the new drivers' marginal qualifications and conditional licensing.

Delayed Retest

A delay in retesting after test failure, in addition to reducing exposure, provides a period of time for the acquisition of information and the development of skill before a license is issued. Since the length of delay in most jurisdictions is brief relative to the total span of driving, the benefits of additional instruction during the interim may outweigh those of reduced exposure.

ENHANCING MOTIVATION

In addition to enabling new drivers to better cope with driving risks, graduated licensing systems can enhance the motivation of individuals to avoid circumstances giving rise to those risks. Such enhancement takes the form of making relief from various restrictions contingent upon a good driving record, imposing sanctions upon violators and instituting courses designed to modify attitudes toward risky driving.

Contingent Restrictions

While the imposition of the various exposure-reducing restrictions described earlier provides a means of reducing accidents, tying the lifting of restrictions to violation-free driving record can serve as an incentive to lawful, safe driving. If the removal of restrictions truly functions to motivate safe driving, any resulting increase in exposure may be offset by safer driving, while at the same time allowing new drivers greater mobility in the freedom to operate at night, with passengers, and on expressways.

License Sanctions

The ability to introduce license sanctions such as suspension and revocation at a lower threshold under a graduated license system, in addition to reducing accident exposure, can also motivate safer driving. Fear of sanction is expected to have a *general* deterrent effect upon the population of new drivers, while the experience of license sanction is expected to have a *specific* deterrent effect upon those new drivers already convicted of an offense. It appears that much of the specific deterrent effect of license suspension is confined to the period of the sanction, i.e. people driving on suspended or revoked licenses tend to be more cautious than they would otherwise be. However, there is evidence of a residual effect beyond the period of sanction.

Improvement Courses

In addition to its role in the development of proficiency, driver improvement seeks to modify attitudes in a way that will motivate safer driving. While attitudes are deemed to play a major role in unsafe driving, they are almost totally responsible for the traffic violations that result in assignment to driver improvement courses. Reducing assignment thresholds under graduated licensing offers a means of enhancing motivation to operate within the law.

SUMMARY

The prospective elements of graduated licensing are many and varied, as are the ways in which they can contribute to the safety of new drivers. Integrating the various elements into effective graduated licensing system requires a design process that takes full account of the way in which the elements relate to driving safety as well as their relationship with one another. It is evident that existing graduated licensing systems have not benefitted from any such process. Elements of demonstrated effectiveness, such as night driving restrictions have been passed over in favor of elements that have not as yet evidenced a beneficial effect, such as special license plates or lowered speed limits. The function of some graduated licensing provisions seems to be primarily to discourage licensing, something that could be equally well accomplished by raising the licensing age. In the absence of valid guidance as to what works, jurisdictions seem to have instituted programs on the basis of political expediency rather than proven effectiveness.

Two decades ago the National Highway Traffic Safety Administration funded design of a graduated licensing system. That effort was as successful as any could be in the absence of any experience with graduated licensing. While the intervening years have failed to produce an optimal design, they have furnished experience — good and bad — that can provide valid and useful guidance to administrators and legislatures. Now, when interest in graduated license systems is greater than ever, it is the obligation of the scientific community to make the best possible use of what experience has been gained.