CORRECTIVE PROCESSES

Among a large segment of the public the best way to deal with drivers whose capabilites are diminished by age is to "get them off the road." In many cases this is indeed the only safe solution to the problem. However, in many more cases it is not. Where driving deficiencies themselves cannot be ameliorated their danger to the public can be moderated by altering the kind and amount of driving permitted. Such alterations are sought through the following corrective processes:

- License Restriction;
- Rehabilitation;
- Education, Counseling, and Alternative Trasnportation; and
- Training.

LICENSING RESTRICTIONS

Thomas L. Miller Ph.D.[1]

When considering a system for granting driving privileges, it becomes crucial to strike a delicate balance between the individual's need for maximum mobility and independence and the public's right to safety. While it is critical that all licensed drivers possess the ability to safely operate a motor vehicle, the population must be sensitive to people whose limitations cause hardships that result from the denial of the privilege to drive, especially where no other reasonably practical, accessible means of transportation exists.

Problem

Various human factors studies report that anywhere from 85% to 95% of highway crashes may be attributed to human error. It is logical to assume that there are some drivers who are licensed but nonetheless should be placed under restriction(s) or altogether removed from the highway environment. Many drivers develop limitations connected with age-related problems. Such limitations may be physical and/or cognitive. There is a need, then, to devise restrictions that address driver limitations, yet preserve the maximum possible mobility for each individual motor vehicle operator.

Perfection of "Intelligent Vehicle Highway System" (IVHS) innovations such as advanced vehicle control systems and advanced highway systems hold the promise of "hands-off" driving environments which will be safer for all highway users. Such automatic systems might remove the need for driver restrictions and represent the ultimate goal of safe personal mobility to which we aspire. In addition, recent federal legislation will help fund, among other things, expansions and improvements to make current public transportation systems more available and reliable. These improvements will provide more people with options besides using private automobiles. However, the widespread adoption of "hands-off" motor vehicle operation and a universally available public transportation system is forecast for sometime in the indeterminate future (Parker, 45).

Given the gap between the present and the time our futuristic transportation system will take over, coupled with the ongoing limited ability of public transportation to attract ridership, the private automobile is - and will likely remain - the predominant mode of personal transportation well into the next century. And, while highway crash fatalities are declining, we are still experiencing over 35,000 highway fatalities each year. Highway crashes represent the leading cause of accidental death for drivers age 65 to 74 (Osinski, 4F). Furthermore, one in three drivers will be older (over the age of 55) drivers by the year 2000 (Graduated Driver Licensing, 3). The issue of older driver restrictions is of emerging importance.

Needs

The main need affecting assignment of driving restrictions is more information. Little definitive information exists that shows the relationship of medical impairment to crash causation, and even less is known about the cut-off point at which specific impairment becomes an undue highway hazard (Bowdin, 54). The need for basic causative information is pervasive and is discussed in many of the related issues in this paper.

Medical conditions resulting in obvious functional impairment render individuals unfit to operate any automobile. Current screening programs, although applied differently across states and provinces, can identify those with gross functional impairment which prevent them from safely operating an automobile.

In our current system, persons suffering various degrees of functional impairment are the ones at risk for receiving either overly aggressive driver restrictions or no restrictions. They risk being denied a license to operate a motor vehicle when they could be driving using a restricted license or they risk becoming involved

in a crash because their driving should have been restricted. Routine medical examination of all drivers has not proven to be a cost effective means for resolving the driver impairment problem (Bowden, 54). And, even if it were cost effective, the question still remains as to what impairments are related to crash causation. Research linking functional impairments and crash causation is needed and would provide the basis for issuing driver licenses with appropriate restrictions.

The confidentiality of the physician/patient relationship causes the medical community to under-report persons who are unfit to be drivers. States and provinces vary widely in specifying what is to be reported, who is required to report, and if reports are authorized without liability (State and Provincial Licensing, 91). The physician's role in reporting potentially impaired drivers is unclear and must be communicated to the medical community. Medically acceptable and legally defensible criteria on which physicians can base decisions regarding an impaired driver's functional capability must be developed and communicated (Bowden, 55).

Differences in performance capabilities exist between new and experienced drivers. New older drivers with functional impairments and experienced older drivers who are adapting to losses of identifications/perception skills, predictive ability, decision making skills, or control functions need different driving restrictions. There is a need to devise a system to allow for driving experience when considering driver restrictions for individuals with the same or similar functional impairments.

States and Provinces have different classification systems, or names, for various driver license restrictions. And, when two classification systems appear similar, they often have differing criteria. Visual restrictions are a case in point. The definition of blindness varies widely across States and Provinces. There is a need to standardize the classification systems and their related criteria for all driver license restrictions. A standardized system of driver license restriction is needed to facilitate large scale comparisons and related effectiveness research.

Vision requirements and screening procedures are not uniform across states and provinces. The visual parameters that should be considered relevant to an individual's ability to perform effectively on the road include visual acuity, stereoacuity, binocular field of vision, color discrimination, strabismus (relating to potential diplopia), glare tolerance and recovery time (relating to twilight/night driving), and dark adaptation. However, visual acuity of 20/40 with or without glasses for both eyes or one blind eye is the predominant minimum standard required for unrestricted driving in the United States and Canada (State and Provincial Licensing, 30). And, few test for depth and color perception, field of vision, and bioptics. Differences in visual screening seem to be related to the lack of definitive information about what types and levels of vision are related to highway crashes.

Actions

- Initiate a study to see if current restrictions are well founded in research.
- Conduct a feasibility study to investigate standardization, across States and Provinces, of driver restriction classification systems and their related criteria.
- Develop research that will relate functional impairments and their associated driver restrictions to crash causation. Also, a scale rating the degree of functional impairments to crash causation should be developed. This will provide the basis for imposing driver restrictions and guide medical professionals in determining what driver limitations to report.
- Undertake research to standardize driver impairment and driver restriction terminology across state and provincial lines. Driver impairments, functional limitations and driver restriction codes must mean the same thing or, at a minimum, be able to be matched up before research programs are initiated.
- Modify crash reports to include data on operator license restrictions. The rationale and procedures for capturing this information should be incorporated into accident investigation courses taught to enforcement personnel.
- Communicate the role practicing physicians should play in reporting drivers who should receive driving restrictions. Issues such as the preservation of patient confidentiality and liability of the medical provider in choosing not to report should also be communicated.
- Determine the role of previous driving experience and factor it into driving restrictions imposed on drivers with the same or similar functional impairments.
- Utilize a more organized system of uniform, automated screening devices and simulators to effect a periodic driver screening process since complete medical evaluations for all older drivers would be cost prohibitive. A system should be designed to assure that those who are licensed as drivers are screened to meet some minimal medical or visual standard necessary to operate a motor vehicle safely. Such a regimented system would need to be tempered with a built-in mechanism for referral to an individualized or specialized medical review of the specific functional

impairments discovered in the simulation or screening process. This would help to prevent unnecessary limitation of precious driving privileges.

- Recognize and address issues concerning visual screening procedures and examiner awareness of the potential limitations and pitfalls of the visual screening process. These include variable performance with lighting/illumination conditions, memorization of test objects by examinees, use of concealed visual aids to overcome refractive disabilities (i.e., contact lenses), dependence of standardized signal positions and shapes to mask a visual limitation, and the use of telescopic low vision aids to pass tests of central acuity while severely compromising field or breadth of lateral awareness.
- Establish the relationship between types and levels of visual deficits and crash causation. This would provide the basis for visual restrictions based on crash probability.

References

Bowden, Charles L., et al. "Functional Aspects of Driver Impairment: A Guide for State Medical Advisory Boards." Guidelines for Motor Vehicle Administrators. U.S. Department of Transportation, National Highway Safety Administration and American Association of Motor Vehicle Administrators, Washington, D.C., 1980.

"Graduated Driver Licensing: Creating Mobility Choices." American Association of Retired Persons, Washington, D.C., 1992.

Osinski, Bill. "What Happens When You Can't Drive Anymore?" Newspaper Column. Tampa Tribune 15 August 1993.

Parker, George. "Putting IVHS to Work to Enhance Safety." IVHS Review 1:1 (Spring 1993).

"State and Provincial Licensing Systems: Comparative Data 1990." Guidelines for Motor Vehicle Administrators. U.S. Department of Transportation, National Highway Traffic Safety Administration and American Association of Motor Vehicle Administrators, Washington, D.C., September, 1990.

---

[1] The author acknowledges the assistance of Elizabeth E. Oteza, M.D. and Peter Reed Pavan, M.D.

REHABILITATION OF ELDERLY DRIVERS

Sonia Coleman, M.Ed., OTR/L

When an individual tries to identify the common characteristics of an elderly person, several images come to mind. The elderly may react slower than other younger people in all areas - learning new tasks, accomplishing routine tasks, speaking and understanding what was said, responding to questions or comments. Sometimes the image is correct; sometimes it is not.

Problem

The elderly population suffer from more medical problems than other younger people. As an individual gets older, vision becomes more impaired. The variety of social and work related activities become more limited in the elderly population especially if physical impairments are present. The images and characteristics just described may not apply to all elderly persons, but are more prevalent among this population than other age groups. This paper will attempt to describe how health professionals can assist this population in improving their driving performance to overcome the above limitations imposed on them by the aging process. Considering an individual's lifestyle as well as measurable physical abilities, a plan for retraining and keeping the elderly driving safely can be formed.

Usually, people learn how to drive in their adolescent/young adult years. State law requires that they get relicensed at regular intervals without having to demonstrate continued satisfactory driving performance. An individual continues to drive until something drastic occurs which limits the person's ability to drive. Often, this drastic event is a physically disabling condition (i.e. a stroke, hip fracture, sickness, etc.). Individuals are less likely to limit their driving because of a mental disability as they often do not realize the impact mental/ cognitive functions have on driving performance. When people are forced to restrict their driving because of a physical impairment, health professionals usually see these people at the time they are questioning their ability to drive. What has developed is a comprehensive driving rehabilitation system offered through hospitals to evaluate and retrain persons to drive.

Needs

Health professionals, including occupational therapists, physical therapists, vocational counselors, speech therapists, optometrists, and psychologists can assist elderly persons to improve their driving performance or retain some type of community mobility to accomplish their daily needs. Occupational therapists (OT) work to enable a person to be as independent as possible. Usually, the driving evaluation and on-road training is administered by an OT because driving is an important activity of daily living for most people and allows them to be independent in community mobility. For those persons who have slow reaction times, occupational