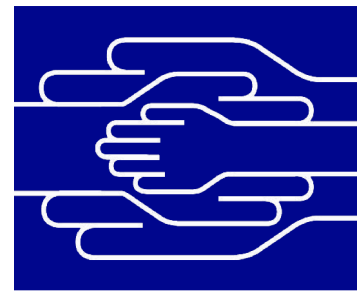


Public Policy & Aging Report



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A Brief Look at Driver License Renewal Policies in the United States

*Lisa J. Molnar
David W. Eby*

Driver license renewal policies in the United States vary from state to state in terms of the length of the renewal cycle, requirements for accelerated renewal for older drivers, and other renewal provisions (see Table 1, P. 14). Most states and the District of Columbia require that drivers renew their license every 4 or 5 years (19 and 18 jurisdictions, respectively). However, seven states have up to a 6-year renewal, four states up to an 8-year renewal, two states a 10-year renewal, and one state (Arizona) no renewal until age 65. Fourteen states require accelerated renewal for older drivers. The beginning age for accelerated renewal ranges from 61-years-old (Colorado) to 81-years-old (Illinois), with the length of the accelerated renewal cycle ranging from 1 year (Illinois for age 87 and older) to 5 years (Arizona, Colorado, South Carolina). One state (Tennessee) actually has decelerated renewal for older drivers with no renewal required after age 65.

Seventeen states have other special renewal provisions for older drivers, including requirements for in-person renewal, vision tests, or other testing or certification (e.g., written and road tests, certification of fitness). In many states, the vision test requirement can be met either through testing in the licensing agency itself, or by providing results of a test performed elsewhere. The beginning age for renewing in person

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Public and Private Policy Initiatives to Move Seniors Forward

*Loren Staplin
Katherine Freund*

To chart a path that will advance policy supporting safe and independent mobility for America's seniors, significant barriers must be overcome and dead ends must be avoided. Seeking solutions that shift large numbers of people out of private vehicles is one example of a dead end. Surveys find older persons consistently and overwhelmingly expressing their intent to meet personal mobility needs via private vehicles. This reality should send an unambiguous message to policymakers to focus squarely on the barriers to keeping people safely in their own cars, and then on assuring the availability of *desirable* alternatives when older persons can no longer drive. Foremost among these barriers is cost.

This article will critically examine policy for managing resources in two complementary areas: making changes to the infrastructure to accommodate an aging society and implementing alternative transportation that seniors will actually want to use.

Infrastructure Changes On Behalf of Older Drivers—How Much is Enough?

Safe, independent mobility has been established as the penultimate need among America's seniors to maintain an individual's quality of life, being second only to medical-health status itself. Loss

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Public Policy & Aging Report

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Older Drivers: Policy and Practice Issues

Robert B. Hudson, Editor

The question of when and if older people should cease driving is both a very private and a very public one. For older people and their families, the need or requirement to give up driving is a painful one. Among the public at large, widespread concern exists about the dangers associated with drivers of advanced age. Conceptually, the solution to the older driver question lies in a combination of valid determination of when driving cessation must begin and the provision of reliable transportation alternatives to those individuals. Operationally, making these determinations about ability and generating the resources for the alternatives represent major barriers to public policy success. These issues are addressed in this issue of *PP&AR*.

Loren Staplin and Katherine Freund wrestle with the degree to which drivers with diminished abilities should be accommodated in light of cost and safety concerns. Their basis for "drawing the line" is "do not adapt roadway design beyond the level of functional loss associated with a significantly elevated crash risk." In a provocative second part of their article, Staplin and Freund ask what should become of the private resources devoted to driving when an older person stops driving, suggesting that private as well as public resources should be directed to transportation alternatives for older people.

A critical aspect of the older driver question centers on assessing individuals' ability to drive. Lisa Molnar and David Eby review current driver license renewal policies in the states. While there is considerable variation in renewal provisions across states, a majority of states have accelerated license renewal and special renewal provisions for older drivers. Overall, the authors conclude that "the lack of conclusive evidence about the effectiveness of specific renewal provisions, coupled with cost constraints by licensing agencies" helps explain the variety of policies currently in place.

Bonnie Dobbs and David Carr review screening (by professionals, licensing agencies and individuals themselves) and assessment protocols (conducted both in-office and on-the-road) for "medically at-risk" drivers. They stress the need for improved validity and reliability in such tests, and they recommend that renewed attention be paid to self-screening and liberalized reimbursement for professional assessment. In a second article, Eby and Molnar endorse the call for more emphasis on self-screening and review four of the instruments that are available for this purpose. The merits of professional assessment and the need for broadened reimbursement for such services are set forth in an article by Elin Schold Davis and Maureen Freda Peterson.

We are pleased that many of the authors contributing to this issue are associated with the Transportation and Aging Interest Group of The Gerontological Society of America (GSA). Indeed, the final article in this issue is a summary of the policy recommendations made by the group to the 2005 White House Conference on Aging on behalf of GSA. Appropriately, the recommendations mirror concerns represented in the other articles: better screening and assessment, development and evaluation of older driver programs, and development of driving alternatives which are available, adaptable, and affordable.

Finally, we would like to express special thanks to Lisa Molnar, who worked closely with the editors in preparing this issue of *PP&AR*.

—Continued From Page 1

of independent mobility, with its attendant social isolation, is one of the strongest predictors of declining health among older persons. Driving or riding in private automobiles is vastly preferred by seniors—at margins of 95 percent and higher—as the means of meeting their personal mobility needs. In this regard, public sentiment strongly reinforces significant public investment in infrastructure improvements that can help seniors drive safely longer.

Beginning in the 1980's, the U.S. Department of Transportation initiated a high-priority research program to identify changes in the design and operation of public roads with demonstrated potential to 'accommodate' age-related diminished abilities among the nation's growing older driver population. This program culminated in the publication by the Federal Highway Administration (FHWA) of the *Highway Design Handbook for Older Drivers and Pedestrians* in 2001. The FHWA subsequently embarked on an ambitious program of education and outreach which, as of 2005, has delivered workshops on how to apply the *Handbook* to over 1,000 practicing State and local engineers, planners, and other traffic safety professionals across the country. Recommendations in the *Handbook* also have been considered and adopted in revisions to the governing standards for roadway design and traffic operations on streets and highways throughout the U.S. These are found in the FHWA's *Manual on Uniform Traffic Control Devices* and *A Policy on the Geometric Design of Streets and Highways*, published by the American Association of State and Highway Transportation Officials.

Costly as many of these recommendations about signs, pavement markings, and the layout of traffic lanes and intersections might be, the FHWA makes an important point that such changes will provide benefits for *all* drivers, not just older ones. Nowhere is it suggested that a wholesale retrofitting of the surface transportation system take place only to make it more "senior-friendly." At the same time, both national and grassroots organizations that advocate for better senior mobility have taken the FHWA recommendations to heart, recognizing in them a formula for spending tax dollars that yields immediate and tangible results with direct (perceived) benefit for their constituencies. It may be assumed that the influence of such groups will grow in the years ahead.

Depending on overall scope, the price tag for redesigning and upgrading public roads could be enormous. Modifications could range from changes to signs, signals, and markings to the basic design of roadways themselves. Current reconstruction costs for

frequently requested roadway improvements provide useful points of reference. To install an overhead sign structure, costs may vary between \$10,000 and \$150,000; to convert a stop sign-controlled intersection to one with four-way signalization, including protected turn phasing, can easily approach \$1 million. Looking to the future, it is reasonable to ask where the limits are, and how they will be defined.

Older Drivers, Functional Ability, and Costs

Some guidance for weighing this balance of costs and benefits is provided by the results of an extensive program of research undertaken by the National Highway Traffic Safety Administration (and complementary work sponsored by the National Institute on Aging) that has validated a core set of 'functional abilities' which appear essential for safe driving. These abilities do decline with age but at vastly different rates for different people. Scientific studies have established such abilities as 'visual search with divided attention' and 'visual information processing—speed' as significant predictors of crash involvement—specifically, *at-fault* crashes—among a representative sample of nearly 2,000 older drivers (source: <http://www.nhtsa.dot.gov/people/injury/olddrive/index.html>). Looking at cognitive abilities in particular, the risk of causing a crash among this sample was up to five times greater for individuals whose abilities fell below an empirically-derived performance threshold than for those who 'passed' the cutoff. Further, computer-based techniques that make it practical to quickly and reliably screen large numbers of people on these key abilities have been developed and field-tested by motor vehicle agencies in multiple states. In at least one jurisdiction (Maryland), the advent of functional capacity screening has improved the efficiency of the Medical Advisory Board's process for fitness-to-drive reviews such that its costs may be offset by operational savings.

It may now be possible to broach the subject of screening for some minimum level of functional ability to maintain unrestricted driving privileges if the techniques are properly validated; if the public perceives that they are fair; and if that public is not overly inconvenienced by their application. A handful of states—now including Florida—are requiring a vision check for seniors over a specified age in order for them to renew their licenses. In this context, an additional, brief cognitive screen does not seem beyond the realm of possibility.

This line of reasoning could be used as a rational basis for "drawing the line" on the expenditure of public funds to accommodate declining abilities among older road users: *do not adapt roadway design beyond the level of functional loss associated with a significantly*

elevated crash risk. It is not in society's interest, nor is it its obligation, to attempt to keep *everyone* behind the wheel. From an engineering standpoint, not all individuals *can* be accommodated. However, with continuing human factors research, enhancements to specific highway design elements can be prioritized by our new understanding of the relationship between functional status and crash risk. Coupled with systems and procedures—including the possibility of screening at renewal—to remove or restrict exposure for those with serious functional loss, this approach will appropriately target resources to the overwhelming majority of seniors who retain the ability (and privilege) to safely operate a motor vehicle.

In short, limiting driving by those with significant functional impairments, while simultaneously increasing resources for infrastructure improvements directed at those who may remain safely behind the wheel, would represent a significant policy advance. Add in the availability of desirable alternatives to those who need them, and the end of the path is in sight.

Affording the Transportation Alternatives That Some Seniors May Require

Approximately one million older Americans stop driving every year. Many others limit their driving to daylight hours, familiar surroundings, fair weather conditions, and non-rush hour trips. Described as “self-regulation” by safety researchers, this gradual and voluntary transition from the driver's seat to the passenger seat must be supported by viable transportation alternatives that preserve access to healthcare, nutrition, family, and the social and civic engagement that supports community and quality of life. Moreover, these alternatives must meet the consumer needs and preferences of a population that has grown up and grown old with the private automobile. More than 90 percent of person-trips for the over 65 population are taken in the private automobile, compared to fewer than 2 percent on public transportation of any kind (source: National Personal Transportation Survey). This is a staggering demonstration of consumer choice. Policy makers who would craft the policies to guide society safely into the future will do well to take notice.

The cost to fund the transportation needs of these older citizens will be great. One estimate calculates the 2030 annual cost of four round-trips a week at more than \$50 billion, assuming a \$15 cost per ride (not adjusted for inflation) for 25 percent of the over 75 population. As detailed in the Transportation Research Board's *Transportation in an Aging Society: A Decade of Experience*, the projected 30-year cost, from 2000 to

2030, for the same level of service may be calculated at \$1,144,238,160,000 (source: K. Freund, *p.116*).

A critical question is whether all or most of these costs should be borne publicly. Because, while the streets and highways on which the nation's motor vehicles operate are largely public—built and maintained at taxpayer expense—the vehicles that travel upon them are not. Private dollars fund commercial and personal transportation and do so at a truly astonishing rate. In 1998, private expenditures for transportation equaled \$675 billion, five times greater than government expenditures for all roads, highways and transit systems (source: www.transact.org/reports/driven/driven/htm). At the household level, 17.9 percent of the average household budget was for transportation, second only to housing at 19 percent. Private transportation dollars are spent on automobiles. Of the \$6,312 out-of-pocket annual transportation expense for the typical American household, \$6,200 was spent purchasing, fueling, insuring and maintaining personal cars and trucks.

What should happen to these private resources when an older person stops driving? Is it reasonable for policy makers to assume that a person who is unable to drive is similarly unable to pay for alternate transportation? Or is it possible that a person who has paid handsomely, and willingly, for personal transportation most of his or her life might still be willing to pay if there were a transportation service that met his/her mobility needs? Finally, what policies might the federal government and the states advance to guide these vast private resources into place to help meet the transportation needs of America's aging population?

Public Transportation Policies and Private Alternatives

Current federal policy for senior transportation is an amalgam of 15 programs administered through the Federal Transit Administration and the Administration on Aging (source: http://www.ctaa.org/fednews/senior_mobility.asp). There is an on-going effort, United We Ride, to achieve greater efficiency among these numerous public programs. However, key questions regarding the much larger source of funds—private dollars—remain unasked and unanswered. The still largely unquestioned assumption that seniors who are unable to drive are also unable to pay for transportation alternatives continues to confine the solutions exclusively to policies that depend upon scarce public resources. In light of the enormous sums projected to meet the needs of the nation's seniors, notably Social Security and Medicare, it is apparent that there will be

little left to meet the mobility needs of America’s aging population.

To supplement—but not to replace—public transportation and the public policies that support it, society needs sustainable transportation alternatives that guide private resources into place. Policies that create incentives for the use of private resources or that remove unnecessary barriers to the use of private resources must become viable options. Federal policies to develop and deploy sustainable solutions that operate independently of taxpayer support are another important piece of the future policy mix.

Table 1 presents a framework for examining policies that create incentives for the use of private resources to meet personal transportation needs. The policies are ranked according to their impact on the taxpayer, with the most favorable policies being those with the least such impact. Along the other axis are arranged people and organizations that may be motivated to participate in these incentive programs, such as adult children, volunteers and the seniors themselves.

Within this framework, it is possible to see policies favorable to senior mobility that actually cost the taxpayer nothing. Two policies in the State of Maine, for example, remove barriers to the use of private resources. One (4D) prohibits insurance companies from unreasonably and unfairly raising the insurance premiums for volunteers who use their automobiles to drive others. The other (4C), exempts non-profit senior transportation organizations from car dealership laws when seniors trade their no-longer used vehicles to establish accounts to fund their own transportation.

An example of a possible federal policy with a minimal impact is a once-in-a-lifetime tax deduction for seniors who use the equity in their personal automobile to fund a transportation account to pay for their own

rides (3A). Another possible federal policy with moderate impact would allow adult children to fund their parent’s transportation with pre-tax dollars (2B). With a little creativity and an open mind to private resources and private solutions, the wealth of consumer dollars for senior transportation opens to policy makers.

A bill currently being considered by members of Congress would take advantage of this approach. The *Older Americans Sustainable Mobility Act of 2005* would establish Qualified Transportation Accounts with several of these creative approaches to private resources. Using pre-tax dollars, the bill would encourage seniors and their adult children to plan for their own mobility needs beyond the driving years. It would also provide for the deployment of sustainable alternatives that meet the mobility needs of older Americans

without relying on taxpayer subsidy. By using policy to guide private resources into place and to deploy sustainable alternatives, policy makers will also help to advance an independence model for senior mobility, one in which America’s oldest and most experienced citizens and their families are empowered to actively participate in their own future mobility.

Loren Staplin, PhD, is the Principal Partner at TransAnalytics, LLC, a consulting firm in the Philadelphia area, who has served as Principal Investigator on numerous federally-funded research projects concerning aging, traffic safety, and personal mobility. Katherine Freund, MA, is a policy analyst specializing in senior transportation, founder of the Independent Transportation Network®, and President and Executive Director of ITNAmerica™ in Portland, Maine.

Table 1 Policies That Create Incentives for the Use of Private Resources to Fund Personal Transportation Accounts for Seniors, Ranked by Impact to Taxpayer

Taxpayer Impact & Policy Type		Parties Motivated to Participate			
		A) Seniors	B) Adult Children, Families & Caregivers	C) Businesses & Organizations	D) Volunteers
1) Maximum impact	Publicly funded program	Public transportation (numerous federal, state & local policies)			
2) Moderate impact	Tax credit		Paying for parents' rides with pre-tax dollars (proposed)		
3) Minimal impact	Tax expenditure	Once in a lifetime tax deduction for car trade (proposed)			
4) No impact	Remove barriers			Exemption from car dealership laws for non-profit senior transit (Maine, LD36, 122 nd Maine Legislature, unanimous ought to pass, Transportation Committee, 2/10/05)	Insurance companies may not raise rates for volunteer drivers (Maine, PL 1995, Ch132, §1)

Screening and Assessment of Medically At-Risk Drivers

Bonnie M. Dobbs
David Carr

Driving is the primary means of transportation in North America. As such, driving is central to mobility and independence for most people, and older adults are no exception. In recent years, the 'older driver' issue has received increased attention. The increased attention from academics, health professionals, licensing agencies, public service organizations, media organizations, and the general public is due to the recognition of the elevated crash rates of older drivers (per distance driven). Concerns related to the 'older driver' often are focused on issues related to safety and mobility.

Results from both Canada and the United States indicate that older drivers are the fastest growing segment of the driving population. Studies also show that current older adults are increasing their driving exposure and driving longer into old age.

Older persons have greater fragility, which means that they have a greater risk of being killed or seriously injured when involved in a crash. For those who survive, the injuries are more severe, and the older driver is more likely to require hospitalization, and their recovery is longer and less complete than for their younger counterparts. Thus, there is a critical need to minimize the risk of any type of motor vehicle crash for older adults given their vulnerability to injury. Moreover, most older driver crashes are multiple vehicle crashes, demonstrating that the safety risk extends beyond the older driver.

Safety-Enhancing Efforts

In recent years, considerable resources have been devoted to increasing the safety of road users. Initiatives include seat belt legislation, graduated licensing programs for the novice driver, restricted licenses for the 'medically compromised' driver, and improvements in vehicle and roadway design. An

examination of the safety enhancing effect of these initiatives for reducing crash rates is instructive. Data from the Fatality Analysis Reporting System (FARS) in the U.S. are shown in Figure 1, which shows fatality rates per 100,000 kilometers driven for different age groups.

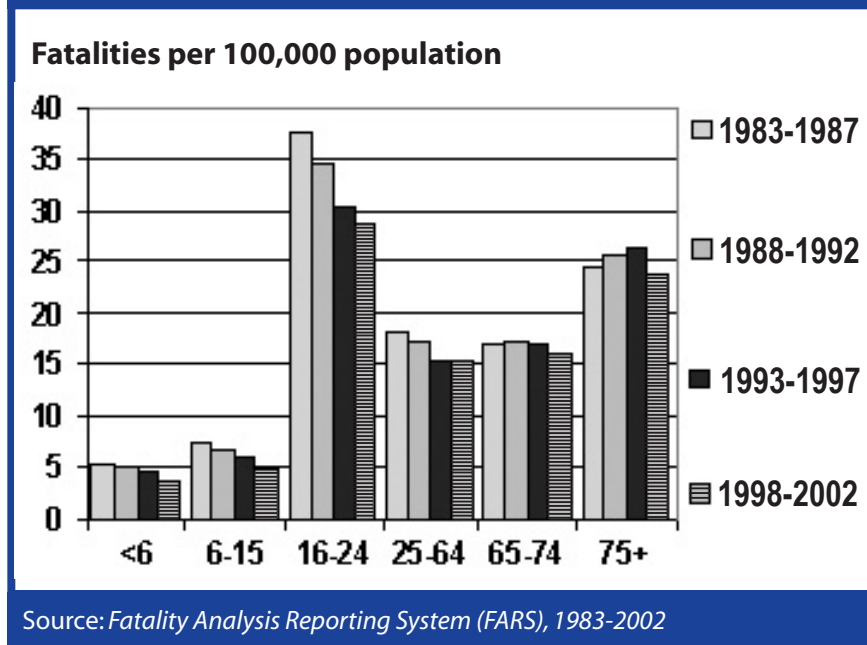
As can be seen, fatality rates for the high risk 16 to 24 age group have steadily decreased across the four time periods. Although less dramatic, the fatality rates for those 25 to 64 years of age also show a consistent pattern of decline from 1983-1987 to 1998-2002. However, there is no analogous decline in fatality rates among those age 65 to 74. For those age 75 and over, the graph does show increasing fatality rates over three time periods,

with the exception of the last reporting period (1998-2002). The results suggest that programs and policies targeting the high risk younger driver (e.g., graduated licensing, zero tolerance for drinking and driving, etc.) have been effective in reducing crash rates of that age group. However, policies and programs (age-based testing, age-triggered medicals) targeting the older driver appear to have had little impact on older driver crash rates.

Although the data shown in Figure 1 relate to fatalities per 100,000 population, and not to the number of drivers per se, the crash rates of older

Figure 1

Fatalities per 100,000 Population, 1983 to 2002, by Age Group



drivers show a similar trend. For example, in Canada, between the years 1979 and 1994, causality crashes of drivers 65 and over increased by 47%. During the same time period, the causality crashes of drivers 64 years of age and younger decreased by 8 percent (Transport Canada, 1997). In the U.S., traffic fatalities for older drivers increased 39% between the years 1989 and 1999, while over all ages, the fatality rate decreased by 9% (U.S. Department of Transportation, 2000). The Insurance Institute for Highway Safety (2001) predicts a continuing discouraging trend for older drivers. Their projection is that fatality rates of those 65 and over will increase from more than 7,700 deaths in 2010 to more than 15,500 in 2030. The combined results suggest that changes in current policies and procedures targeting the older driver are urgently needed to improve the safety of older drivers.

Framing the Issue: Medically At-Risk or Older Driver?

It is unlikely that the increase in crash rates of older drivers, in comparison to middle-age drivers, is caused by changes associated with normal aging. Rather, the increased crash rates are most likely due to age-associated medical illnesses and the medications used to treat those conditions. As such, it is important that any focus of evaluation for declines in driving competence resulting in an unacceptable crash risk is directed to medical conditions and medications.

There are a number of advantages to framing the problem in terms of the ‘medically at-risk’ driver rather than the ‘older’ driver. First, the shift results in an *appropriate* focus on the medically impaired driver and away from an *inappropriate* focus on older drivers. A focus on medical impairments enables an appropriate identification of the issues and targeting solutions. As such, the identification and assessment of the *medically at-risk* older driver using evidence-based procedures, followed by licensing decisions congruent with driving competency, are important steps for the enhancement of older driver safety. That is, identification and assessment techniques need to target those with medical conditions that have been shown to affect driving performance. Importantly, the shift in conceptualization from the older driver to the medically at-risk driver avoids the political backlash of having labeled seniors inappropriately. Removing the medically impaired driver from the road is a goal the general public can support, irrespective of age.

However, there has been an attempt to reduce fiscal and personnel costs by using age as a proxy for screening when it is believed to be associated with impaired health or functional deficits. Breast cancer

screening provides a good example of a data-based use of age to narrow the screened population to those that would receive the greatest benefit. Driving and medical conditions represents an area where the data clearly show that age can be an effective basis for maximizing the societal benefit through increased attention to an older age group. It is because of the age-associated increased prevalence of medical conditions and polypharmacy that have been linked to declines in driving competence that special attention to screening older drivers can be beneficial. For this reason, this paper also will emphasize approaches to the screening and evaluation of older drivers with medically relevant conditions.

In the following sections, we provide an overview of procedures currently used to identify and assess the medically at-risk older driver. The procedures include fitness-to-drive guidelines for the medical community, as well as screening and assessment methods that are currently being employed. For the purposes of this paper, the phrase ‘medically *at-risk* driver’ will refer to drivers who have one or more medical conditions, medications, or treatment interventions that may place them at risk for unsafe driving behaviors or driving retirement, but the individual has not yet been determined to be medically impaired and unsafe. The phrase ‘medically *impaired* driver’ will be used to denote individuals whose medical status has been determined to have reduced their driving to an unsafe level. In the final section of the paper, recommendations for policy and procedural changes, designed to increase the effectiveness of the identifying and assessing the medically at-risk/impaired older driver, are provided.

A. Guidelines for the Identification and Assessment of the Medically At-Risk/Older Driver

Guidelines for Health Professionals. A number of guidelines and consensus statements related to the ‘medically at-risk driver’ or ‘older driver’ have been published over the past several decades. Some guidelines are the result of national and state/provincial government efforts or consensus statements from national organizations that provide information to health professionals in their country or specific locale. These guidelines make recommendations on fitness-to-drive, and often include information on reporting laws and statutes for the medically at-risk driver. The second group consists of review articles on assessing the ‘medically at-risk’ or ‘older driver’ published in health professional journals. These may be based on expert opinion, personal practice patterns,

and/or literature review. A detailed review of those articles is beyond the scope of this manuscript. In general, review articles on the older driver vary in quality and suffer the limitations of guidelines in general (see discussion below). In the following paragraphs, examples of national and state/provincial government efforts or consensus statements from national organizations are provided, along with a discussion of the strengths and limitations of each approach. Policy and/or procedural recommendations also are provided.

National Broad Based Guidelines from Governments and National Organizations.

There have been a number of efforts sponsored by governments or national associations that have sought to provide clinicians with specific statements across a broad range of medical conditions. These guidelines often are based *appropriately* on medical impairments and not on age per se, although many include age as a ‘diagnostic’ category. Examples from U.S. and Canadian governmental organizations include *Medical Fitness Guidelines for Physicians* from the Association for the Advancement of Automotive Medicine with support from the National Highway Traffic Safety Administration (Dobbs et al., 2000); *Determining Medical Fitness to Drive* from the Canadian Medical Association (2000); the *CCMTA Medical Standards for Driving* from the Canadian Council of Motor Transport Administrators (2004). State and provincial guidelines include: *Guide for Physicians in Determining Fitness to Drive a Motor Vehicle* from the British Columbia Medical Association, Canada (1997); *Medical Perspectives on Impaired Driving* from the Massachusetts Medical Society (2002); and *Functional Ability in Driving: Guidelines and Standards for Health Care Professionals* from the State of Utah Department of Public Safety (2005).

Focused Guidelines from Health Professional Organizations.

In addition to the broad national guidelines, there are focused guidelines related to driving competency from health professional organizations. The focus can be on an age category (older drivers) or a specific medical condition. The guidelines from the American Medical Association’s (2003) *Physician’s Guide to Assessing and Counseling Older Drivers* are representative of the first category. Guidelines from national organizations that target specific disease categories include the American Academy of Neurology’s *Practice Parameter: Risk of Driving and Alzheimer’s Disease* (Dubinsky, Stein, and Lyons, 2000); the Canadian Cardiovascular Society’s (2003) guidelines on *Assessment of the Cardiac Patient for Fitness to Drive and Fly*; and

the Canadian Ophthalmological Society’s (2000) recommendations *Vision Standards for Driving in Canada*.

Strengths and Limitations of Guidelines.

Guidelines, in general, have the potential to improve consistency in decision making by the practitioners in the clinical setting. They also have the potential for closing the gap between what is done in clinical practice and what the scientific evidence supports. National broad-based guidelines on fitness-to-drive may cover the entire gamut of medical conditions and provide focused comments on the assessment of driving risk. Focused guidelines, on the other hand, can cover a wide range of medical conditions specific to a particular age group (e.g., AMA [2003] guidelines) or address driving fitness specific to a medical condition (e.g., cardiovascular disease, diabetes, dementia). Both broad and focused guidelines represent quick sources of referral to clinicians. In addition, they often provide a profile of the issue (medically at-risk drivers) that is targeted appropriately (medical conditions) to the right audience (physicians). Finally, when the guidelines are produced by a government agency or national health professional organization, they may give legal backing to the practitioner who makes a driving recommendation based on the guideline.

There are, however, numerous limitations to the current fitness-to-drive guidelines (broad based and/or focused). First, there are limitations in the guidelines’ basis for recommendations about fitness-to-drive. According to Woolf and colleagues (1999), “scientific evidence about what to recommend is often lacking, misleading, or misinterpreted” and the “guideline may be wrong or at least wrong for individual patients” (p. 529). Given the centrality of driving to independence and mobility, guidelines that are incorrect or without supporting evidence have the potential to unfairly penalize drivers who are competent to drive.

A second major limitation is that the majority of the fitness-to-drive guidelines are based on consensus conference or consensus opinion of a working group. As such, the recommendations often are based on the experience and ‘expert’ opinion of members of the working group, with comments from other individuals and organizations. The limited scientific basis for recommendations is troubling given the importance of the decisions. There needs to be a strong emphasis on scientific data to justify each recommendation. This is problematic, however, given that limited data are available. Nevertheless, scientific evidence should remain the preferred basis

for a recommendation, and it would be instructive to physicians if each recommendation had an accompanying ‘rating’ which designated the basis for the recommendation (from ‘experience and opinion’ to various levels of scientific backing).

A third major limitation of fitness-to-drive guidelines relates to the issue of multiple medical problems, multiple medications, and/or the combined effects of co-morbidities and medications. Fitness-to-drive guidelines, for the most part, focus on a single medical condition or disease (epilepsy, Alzheimer’s disease). The combination of co-morbidities and polypharmacy, particularly relevant to the older driver, make decisions about driving competency difficult, if not impossible, for the clinician based on those guidelines. This will become increasingly difficult, given the demographics of an aging population and a growing number of patients with multiple medical problems and multiple medications.

Finally, many guidelines are simply too broad or vague to be useful to the clinician. As discussed, they often lack validation and often are not regularly updated based on new evidence. In addition, appropriate funding is needed to determine the impact of the recommendations for assessment and evaluation processes on driving safety. More studies are needed to determine whether educational programs on driving and medical conditions for clinicians can be successfully disseminated and whether they make an impact on changing clinician knowledge and behavior. Finally, driving cessation is an outcome that is important, but less studied or discussed. More guidelines should emphasize the barriers of needed driving cessation in older adults, counseling techniques to prepare for driving retirement, and their use in assisting the clinician in everyday practice.

B. Screening and Assessment of the Medically At-Risk or Older Driver

Screening and assessment of the medically at-risk or older driver occurs within a number of settings and at differing levels of complexity. Screening typically focuses on the identification of those whose competence may have been reduced to an unsafe level and in need of further evaluation. In the section that follows, types of screening, along with examples of screening tools, are reviewed. An overview of assessment procedures for determining fitness-to-drive follows. Recommendations for policy and/or procedural recommendations also are provided.

1. Screening:

The primary means of screening are: screening

activities within licensing agencies, those conducted by health care professionals, and, more recently, self-screening. Current screening methods, along with examples, are profiled below.

Screening at Licensing Agencies. State and provincial governments employ a variety of methods to assist in the identification of the medically at-risk or high risk older driver. However, licensing policies and procedures vary across jurisdictions. Methods include vision tests and/or knowledge tests, road tests, in-person renewal requirements, and shorter renewal periods. Vision tests have been shown to be associated with reductions in fatality rates for older drivers. Unclear, however, is the role of in-person renewal as a confounding variable in those studies. The effects of in-person renewal, vision tests, road tests, and the frequency of license renewal on older driver fatality rates were recently examined by Gabrowski and colleagues (2004). Results indicated that in-person license renewal for the oldest old age category (85+) was the only licensing policy related to lower driver fatality rates. No associated safety benefits of mandatory assessment of older drivers by licensing agencies were reported in a recent Australian study (Langford et al., 2004). (Greater detail on driver licensing and renewal procedures is found in the article by Molnar and Eby in this issue.)

Screening by Physicians. Physicians are well-placed to screen or identify those who may be medically at-risk to drive or be at-risk for negative consequences associated with driving cessation. Many states and provinces, in addition to the courts, view physicians as one of the key players in determining driving fitness and in keeping unsafe drivers off the road. However, lack of physician knowledge related to reporting policies and procedures or about evaluation of fitness-to-drive, and the lack of valid and reliable in-office assessment tools are two of the major barriers associated with physician screening for medically at-risk drivers. Initiatives that would assist physicians in identifying the medically at-risk older driver include: 1) training in medical schools on driving risks relevant to certain medical conditions and medications, as well as State or Provincial reporting laws and procedures regarding medically at-risk or impaired drivers (see the National Transportation Safety Board [2004] recommendation H-04-08); 2) the development and implementation of continuing medical education (CME) courses for *practicing* physicians focused on the medically at-risk driver, including evaluation, and counseling approaches. An important component in that educational program would be the inclusion of a ‘red flag’ list of medical

conditions and medications that have been shown in the extant literature to be associated with impaired fitness-to-drive; 3) the development of a screening tool that has demonstrated validity and reliability in the physician's office setting. Any screening tool should have good sensitivity and specificity, be easy to administer with a short administration time, a high degree of acceptability, and low cost. Unfortunately, there currently is no screening tool available that satisfies those criteria; and 4) information and mentoring on how to counsel older adults and families on transportation alternatives for seniors that will soon or have reached driving retirement.

Self-Screening. In recent years, the role of self-screening has received attention. Self-screening tools are intended to increase awareness and knowledge about issues related to safe driving, and to increase awareness about functional declines that may impact driving. (Self-screening is discussed elsewhere in this issue by Eby and Molnar.)

2. Assessment:

Decisions about driving for older individuals often are difficult because of the presence of multiple chronic medical conditions and the use of multiple medications. In fact, the interactions between age, medical conditions, and medications make predictions about medical fitness-to-drive using medical guidelines or screening tools next to impossible. In these cases, referral for an objective driving assessment can be helpful. An objective driving assessment also has the added benefit of using functional competence rather than diagnosis or age as the basis for the licensing decision. Individualized functional assessments for determining driving competency are congruent with a recent ruling by the Supreme Court of Canada (*British Columbia v. British Columbia*, 1999). There are a number of in-office and on-road assessments currently available. A sampling is described below to illustrate contrasting approaches.

In-Office Assessments. The Assessment of Driving-Related Skills (ADReS), published by the American Medical Association (2003), is an in-office assessment designed to test three areas of functioning: vision, cognition, and motor function. The assessment battery, based on views of experts, is currently undergoing field evaluation. DriveABLE has developed a driving assessment to evaluate the driving competence of drivers with medical conditions and/or medications that can impair the ability to drive safely (Dobbs, 1997; Dobbs, Heller, and Schopflocher, 1998). The evaluation, which is available in Canada and parts of the US, was developed and validated

on over 1,000 healthy normal drivers and drivers with clinically confirmed medical conditions. The in-office component of the evaluation showed a 95 percent accuracy in identifying drivers who fail the scientifically based road-test. Occupational therapists or driving rehabilitation specialists also use in-office assessments of older drivers. These generally follow a domain approach wherein cognitive and motor skills putatively relevant for safe driving are assessed. There is an emphasis on consensus conference guidance of the domains to evaluate, while preserving the clinical judgment of the evaluator regarding the selection of individual tests for each domain. There is an emphasis on rehabilitation but a lack of validation of the individual screens.

On-Road Assessments. The DriveABLE on-road assessment was developed by comparing the driving performance of medically impaired drivers with the performance of healthy drivers. The driving errors found to differentiate the groups and signal competence declines are scored and weighted according to their ability to differentiate the impaired drivers. Driving errors found not to differentiate between the impaired and the safe drivers are not scored. This protects healthy drivers from false identification. The road course layout and performance criterion are based on the research findings. There is a strong emphasis on standardization. The on-road assessments performed by occupational therapists or driving rehabilitation specialists emphasize planning road testing that is specialized for the driving of the individual. If an individual primarily drives in a particular area, the testing may emphasize, or be limited to, that or a similar area. As with the in-office testing, there is an emphasis on preserving the clinical judgment of the individual assessor in deciding on the criteria for decisions about driving performance. There is a strong emphasis on attending to the possibilities of rehabilitation and this underlies the diversity and orientation away from standardization.

C. Recommendations for Policy and Procedural Changes for the Identification and Assessment of the Medically At-Risk/ Impaired Driver.

The dramatic aging of our population, combined with the high crash rates of older drivers, underscores the need for identification and assessment of the medically at-risk driver. In this paper, we have provided an overview of current policies and procedures used to identify and assess the medically at-risk/older driver. It is clear from this overview that much work has been done in the area of the medically

at-risk/medically impaired older driver. It also is clear the significant advancements are needed if we are to reduce the fatalities and injury rates of older drivers.

Recommendations:

General

- A move to *medically at-risk* and away from *older driver* when talking about driving and/or crash risk.

Guidelines for Medically at-Risk Drivers

- Scientific data should be used to justify each recommendation whenever possible. A rating system designating the basis for the recommendation (from ‘experience and opinion’ to various levels of scientific backing) should be incorporated into all new guidelines, with existing guidelines updated to include the rating system.

Screening

- Screening tests currently available need to be tested for validity and reliability. Motor vehicle crashes are often touted to be the focus for ‘evidence-based medicine.’ However, their infrequent occurrence and multifactorial causes from intrinsic and extrinsic factors make extrapolation difficult when designing useful screens. Thus, a move toward the use of relevant driving outcomes such as scientifically based performance testing as the outcome measure for screening research is recommended.
- Research into the benefits and risks of self-screening is strongly recommended before broad implementation in the community.
- Physicians play a central role in the identification of medically at-risk drivers. Reimbursement for physicians for in-office screening for medically at-risk drivers is recommended.
- Implementation of immunity protection for physicians who report patients to licensing authorities should be in place in all jurisdictions, and there should be a move toward consistency across states/provinces.

Assessments

- Individualized, scientifically based and validated functional assessments of driving competency are recommended for patients with medical conditions

having functional impairments that are chronic in nature (e.g., dementia). Decisions about driving competency for medical conditions with functional impairments that are acute in nature (e.g., epilepsy) should be based on scientific evidence when available. When sufficient scientific knowledge is lacking, policy based decisions using the consensus approach or estimates of relative risk of harm are recommended.

- Reimbursement for fitness-to-drive assessments that are triggered by the presence of a medical condition or conditions is recommended.

Education

- The development of broad based educational materials targeting the ‘medically at-risk driver’, rather than the older driver, is recommended.
- Medical education training related to identification, evaluation, and counseling of the medically at-risk driver should be introduced into the medical curriculum.
- The development and implementation of continuing medical education (CME) courses for *practicing* physicians with significant percentages of older patients in their practices, including evaluation and counseling approaches, is recommended.

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ranges from 65 (Connecticut) to 70 years (Arizona, California, Louisiana). The age at which a vision test is required at renewal ranges from 40 years (Maryland) to 80 years (Virginia). Illinois and New Hampshire require a road test at renewal for drivers age 75 and older.

Even with these special provisions, it may be several years before older drivers have to actually appear at a licensing agency to renew their license. Thus, licensing agencies also rely on review of driver history records and referrals from health professionals (e.g., physicians, occupational and physical therapists, social workers, vision specialists), law enforcement officers, courts, and families and friends of older drivers, to alert them to situations in which an individual's driving fitness may be in question. However, few states require physician or other professional reporting of unfit drivers to licensing agencies, although many encourage physician reporting or at least do not forbid it. Close to half the states provide some type of protection from liability for physicians, while a fewer number offer legal protection or anonymity.

Based on the outcomes of special renewal provisions for older drivers, as well as other information available to licensing agencies, agency personnel have several choices. They can allow a driver to keep his or her license, refuse to renew the license or suspend, revoke, restrict the license (e.g., prohibit night driving, require vehicle adaptive equipment, restrict driving to specific times or distances from home), or shorten the renewal cycle. In making these choices, licensing agencies consider each individual's abilities and circumstances and the options available for driving compensation and remediation. They may also rely on the advice of their state medical advisory board if one is in place.

Given that driver license renewal provisions represent public policies aimed at increasing the driving safety of the public, it is reasonable to ask how well these policies are doing in reducing crash-related injuries and deaths, particularly among older drivers. Unfortunately, research on the effects of older driver license renewal provisions has been limited. There is some evidence that vision testing at renewal may be associated with reduced motor vehicle deaths among older drivers (e.g., see Levy, Vernick, and Howard, 1995). However, a recent examination of renewal provisions in the contiguous United States found that only in-person renewal was related to reduced fatalities, and only among the oldest old (age 85 and older; Grabowski, Campbell, and Morrissey, 2004). Vision tests, road tests, and accelerated license renewal did not result in additional benefits. Recent work in Australia also failed to demonstrate safety benefits associated with mandatory testing of older drivers (Langford, Fitzharris, Koppel, and Newstead, 2004). However, a new model

of screening and evaluation in licensing agencies, the *Model Driver Screening and Evaluation Program*, was recently pilot tested in Maryland with promising results (Staplin and Lococo, 2003). The goals of the program are to keep people driving safely longer, while protecting the public through early identification of gross functional impairments related to vision, cognition, and physical movement.

The lack of conclusive evidence about the effectiveness of specific renewal provisions, coupled with the cost constraints faced by licensing agencies, may help to explain the variety of policies in place around the country. Testing can be expensive to implement and when clear guidelines are lacking about the best way to identify at-risk drivers during the renewal process, there may be little incentive for states to re-examine their existing policies. Further research on the effects of license renewal provisions for older drivers is certainly warranted.

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Table 1 Driver License Renewal Policies in the United States

State	Renewal Cycle (Years)	Accelerated Renewal For Older Drivers	Other Renewal Provisions
Alabama	4	No	None
Alaska	5	No	No mail renewal for age 69 and older; no more than one mail renewal in a row for all ages; vision test required at renewal for all ages
Arizona	Until age 65	5 yr. for age 65 and older	No mail renewal for age 70 and older; vision test verification required for age 65 and older mail renewal; vision test required every 12 yr. for all ages
Arkansas	4	No	Vision test required at renewal for all ages
California	5	No	No mail renewal for age 70 and older; no more than two successive mail renewals for all ages
Colorado	10	5 yr. for age 61 and older	No mail renewal for age 66 and older or electronic renewal for age 60 and older; no more than one mail/electronic renewal in a row for all ages
Connecticut	4 or 6	Age 65 and older may choose 2 or 6 yr.	Mail renewal for age 65 and older only if show hardship; vision test required at first renewal and then every other renewal for all ages
Delaware	5	No	None
Dist. of Columbia	5	No	Physician certification of physical/mental driving competency, vision test, and possible reaction test required at renewal for age 70 and older; written and road tests may be required at renewal for age 75 and older
Florida	6, 4-bad record	No	Vision test required at renewal for age 80 and older; no more than two successive mail/electronic renewals for all ages

A Brief Look at Driver License Renewal Policies in the United States

State	Renewal Cycle (Years)	Accelerated Renewal For Older Drivers	Other Renewal Provisions
Georgia	4	No	Vision test required at renewal for all ages; mail/electronic renewal every other renewal for all ages
Hawaii	6	2 yr. for age 72 and older	Vision test required at renewal for all ages
Idaho	4	4- or 8-yr. for age 21-62; 4-yr. for 63 and older	Vision test required at renewal for all ages
Illinois	4	2 yr. for age 81-86; 1 yr. for age 87 and older	Road test required at renewal for age 75 and older; vision test required for in-person renewal
Indiana	4	3 yr. for age 75 and older	Vision test required at renewal for all ages; electronic renewal every other renewal if meet eligibility criteria
Iowa	5	2 yr. for age 70 and older	Vision test required at renewal for all ages
Kansas	6	4 yr. for age 65 and older	Vision test required at renewal for all ages
Kentucky	4	No	None
Louisiana	4	No	No mail renewal for age 70 and older; no more than one mail renewal in a row for all ages
Maine	6	4 yr. for age 65 and older	Vision test required at every other renewal for age 40-61 and at every renewal for age 62 and older
Maryland	5	No	Vision test required at every renewal for age 40 and older; age 70 and older new licensees must show proof of prior safe car operation or physician's certification of fitness; age alone not grounds for re-examination
Massachusetts	5	No	Age discrimination w/ regard to licensing prohibited

A Brief Look at Driver License Renewal Policies in the United States

State	Renewal Cycle (Years)	Accelerated Renewal For Older Drivers	Other Renewal Provisions
Michigan	4	No	Vision test required at in-person renewal for all ages; no more than one mail renewal in a row for all ages
Minnesota	4	No	Vision test required at renewal for all ages; age alone not grounds for re-examination
Mississippi	4	No	None
Missouri	6	3 yr. for age 70 and older	Vision test required at renewal for all ages
Montana	8 (4 by mail)	4 yr. for age 75 and older	Vision test required at renewal for all ages; Mail renewal for all ages only in areas with no driver license services - no more than one in a row
Nebraska	5	No	Vision test required at renewal for all ages
Nevada	4	No	Medical report required at mail renewal for age 70 and older; no more than two successive mail/electronic renewals for all ages; age alone not grounds for re-examination
New Hampshire	5	No	Road test required at renewal for age 75 and older
New Jersey	4	No	Vision test may be required at renewal for all ages
New Mexico	4 or 8	4 yr. if turn 75 in 2nd half of 8-yr. renewal cycle	Vision test may be required at renewal for all ages
New York	5	No	Vision test required at renewal for all ages
North Carolina	5	No	Parallel parking not required in road test for age 60 and older; vision test required at renewal for all ages
North Dakota	4	No	Certification of vision required at renewal for all ages
Ohio	4	No	Vision test required at renewal for all ages
Oklahoma	4	No	License fees reduced for age 62-64, waived for age 65 and older

A Brief Look at Driver License Renewal Policies in the United States

State	Renewal Cycle (Years)	Accelerated Renewal For Older Drivers	Other Renewal Provisions
Oregon	8	No	Vision screening required every 8 years for age 50 and older
Pennsylvania	4	Age 65 and older may choose 4 or 2 yr.	Vision test may be required at renewal for all ages
Rhode Island	5	2 yr. for age 70 and older	None
South Carolina	10	5 yr. for age 65 and older	Vision test required at renewal for age 65 and older; beginning Oct. 1, 2008, vision test required every 5 years for all ages
South Dakota	5	No	Vision test required at renewal for all ages
Tennessee	5	No	No expiration for licenses issued to age 65 and older; no more than one mail/electronic renewal in a row at all ages; fees reduced age 60 and older
Texas	6	No	Vision test required at renewal for all ages
Utah	5	No	Vision test required for age 65 and older; vision test required every 10 years for all ages; no more than one electronic renewal in a row for all ages
Vermont	4	No	None
Virginia	5	No	Vision test required at renewal for age 80 and older; no more than one mail/electronic renewal in a row for all ages
Washington	5	No	Vision test required at renewal for all ages; no more than one mail/electronic renewal in a row for all ages
West Virginia	5	No	None
Wisconsin	8	No	Vision test required at renewal for all ages
Wyoming	4	No	Vision test required at renewal for all ages; no more than one mail renewal in a row for all ages

Sources: American Automobile Association, 2005; Insurance Institute for Highway Safety, 2004; Molnar, Eby, and Miller, 2003, and individual state driver licensing web sites.

Self-Screening by Older Drivers

David W. Eby
Lisa J. Molnar

Community mobility has been described as an instrumental activity of daily living, but it is more than that—it is a basic human need. While community mobility is often taken for granted by young people, aging in older adulthood can lead to significant mobility reductions. Because transportation modes such as public transportation, walking, or transport by family members may be impractical or undesirable for many older people, driving remains the primary mode of transportation for satisfying this need. Abilities related to safe and efficient driving, however, tend to decline in old age. Declines in driving-related abilities may increase a driver's chance of being involved in a crash. There is good evidence that in a crash older drivers are more likely to be injured than younger drivers due to increased frailty. At the same time, stopping or reducing driving can lead to reduced community mobility, and associated declines in emotional well-being and quality of life.

Maintaining safe and efficient community mobility for older people is a challenging social problem for many countries. As solutions are identified and investigated, there is general agreement that accurate screening and assessment of a person's ability to drive safely is an important component. Screening is generally the term used for instruments or procedures that are used to detect gross impairment in abilities. Screening instruments can be either self-administered (self-screening) or administered by someone other than the older driver, but not necessarily a specialist. Assessment, on the other hand, is generally used to detect and understand specific impairments and is usually administered by someone who is a specialist in the field being assessed (such as a physician or a driving instructor). An important component of screening is to suggest appropriate assessments.

Self-Screening: Advantages and Limitations

Self-screening plays an important role in maintaining safe older driver mobility. The greatest potential benefit is that self-screening is conducted in an environment chosen by the individual, providing both a confidential and non-threatening source of information about the individual's ability to drive. As such, those who may be reluctant to have their abilities assessed by someone else may be more willing to engage in self-screening. A second benefit is that the self-screening process and the information it yields may facilitate discussion within families about older driver mobility. Self-screening instruments must be easy to use with little or no outside help. Thus, a third benefit is that people may screen themselves and get feedback more frequently and thereby be more likely to discover driving-related deficits at

an earlier stage. A fourth benefit is that a properly designed self-screening instrument can help people plan for their future transportation needs by providing individualized feedback concerning potential problems before they begin experiencing serious problems. A final benefit is that self-screening instruments can be easily distributed, either through handouts, the mail, or a world-wide-web site, allowing a large number of people to benefit from them.

Self-screening, however, also has limitations. The most serious is that individuals can only use a self-screening instrument if they are free of serious cognitive impairment. Because cognitive impairment is likely to be related to elevated crash risk in the older population, some people in need of screening may not be able to self-screen. More importantly, cognitively impaired people might engage in self-screening and incorrectly conclude that they are safe drivers. Another limitation is that users must be internally motivated to answer the questions honestly and consider the feedback seriously. Those in denial about their age-related declines or reduced driving abilities may not have the motivation to use self-screening. A final limitation is that whenever people are asked to think about themselves and what they are experiencing, accuracy of responses can be compromised for a variety of reasons. Inaccurate responses can result in the person receiving inappropriate feedback, leading to potential traffic safety consequences.

Self-Screening Instruments

For older drivers motivated to assess their own driving abilities, or encouraged by family members or other concerned individuals to do so, there are currently only four comprehensive self-screening instruments available: *Drivers 55 Plus: Check Your*

Own Performance (based upon research by Malfetti & Winter, 1987 conducted for the AAA Foundation for Traffic Safety, 1994); the *Older Driver Skill Assessment and Resource Guide: Creating Mobility Choices* (American Association of Retired Persons, AARP, 1992); *AAA Roadwise Review: A Tool to Help Seniors Drive Safely Longer* (American Automobile Association, 2005); and the *Driving Decisions Workbook* (Eby et al., 2003). All were designed to increase self-awareness of driving abilities, and to educate and motivate drivers to adopt appropriate compensatory driving strategies.

Drivers 55-Plus is a 16-page booklet composed of three sections. The first section contains a self-screening survey composed of 15 questions. The second section instructs drivers on how to compute a composite score for the survey and explains what the score means. The third section, the majority of the booklet, consists of suggestions older drivers can utilize to improve their driving performance. Discussion in these sections is organized around the 15 survey questions and includes several related safety tips. Also included are recommendations for restricting driving and warnings for older drivers to prepare for the day when they can no longer drive. No validation or evaluation of this instrument has been conducted.

The *Older Driver Skill Assessment and Resource Guide: Creating Mobility Choices* self-screening instrument is a 24-page booklet that combines survey items and hands-on, self-administered tests. For example, visual search time is tested by the self-timed *Trail Making Test A*. The instrument is organized into sections that allow self-assessment of reaction time, attention, vision, near-crash experiences, and driving behavior. Throughout the instrument are educational statements that inform readers about automobile safety equipment and tips for safer driving. Also included are tips for vehicle maintenance, self-restriction suggestions, and safe driving-related behaviors. The booklet concludes with information about the AARP *55 Alive* driver retraining course and a list of telephone numbers for transportation departments, motor-vehicle divisions, and agencies for the aging in each state. No validation or evaluation of this instrument has been conducted.

The *AAA Roadwise Review: A Tool to Help Seniors Drive Safely Longer* was based on results from the Model Driver Screen and Evaluation Program (Staplin & Lococo, 2003). This CD-ROM-based tool guides users through a screening of eight functional abilities that have been shown to be related to safe driving using both video and text instruction. Some of the screens require help from a partner. After each

of the eight sections, the user is provided with the screening results and advice about how to continue to keep driving safely including recommendations for further assessment if necessary. While no evaluation has been published, AAA reports that users enjoy *Roadwise Review* and that 90 percent of users surveyed by AAA reported that they would follow through with the recommendations offered by the self-screening instrument. Further evaluation of *Roadwise Review* is proceeding.

The *Driving Decisions Workbook* was developed at the University of Michigan Transportation Research Institute (UMTRI) with sponsorship from General Motors Corporation pursuant to an agreement with the National Highway Traffic Safety Administration (NHTSA). The *Driving Decisions Workbook* is a self-screening instrument intended to increase older drivers' self-awareness and general knowledge about driving-related declines in abilities, and to make recommendations about driving compensation and remediation strategies that could extend safe driving, as well as further assessment that might be needed (see Eby & Molnar, 2001; Eby, et al., 2000, 2003). Development of the workbook was based on a comprehensive review of the literature on older drivers, a series of focus groups with older drivers and the adult children of older drivers, and a panel of experts on older driver abilities and evaluation. Preliminary validation/evaluation of the *Driving Decisions Workbook* showed that outcomes of the instrument were correlated with observed problems with actual driving on a standardized road test and that users liked it, learned from it, and reported intentions to adopt safe driving practices after using it (Eby et al., 2003).

Despite the positive evaluation of the *Driving Decisions Workbook*, when scores on the health section of the workbook (including medical conditions and medication use) were compared with observed driving problems, no significant correlation was found. In retrospect, such a result was not surprising—the interaction between medical conditions, the drugs used to treat them, and their combined influence on driving skills is complex. In addition, a properly treated medical condition may not produce any change in driving ability and the side effects of certain medications may not adversely affect driving except under certain circumstances. Thus, a diagnosis of a certain medical condition, or treatment with a certain medication, will not necessarily affect driving adversely as is assumed in the *Driving Decisions Workbook*. Developing a questionnaire-format self-screening instrument that covered all of the various

Self-Screening by Older Drivers

medical diagnoses, treated in various ways, under a wide variety of driving circumstances, would be a monumental task that would yield an instrument that would be too large to be useful. Therefore, with sponsorship from NHTSA, UMTRI is developing a self-screening instrument that will focus entirely on health concerns; that is, the perceivable changes in an individual caused by medical conditions, drug use, and the aging process. This approach attempts to simplify the self-screening process by focusing on the medical complaints that directly affect driving skills. The development of this instrument will be based on the logical assumption that while there are a myriad of medical conditions, medications, and age-related declines, they produce a relatively small number of health concerns that can vary in severity, which in turn affect driving. Thus, it should be possible to self-assess the severity of these complaints and give drivers specific feedback about how the severity of each health concern affects driving and what they can do to continue driving safely. This project is expected to be completed by the fall of 2006.

Conclusion

Clearly, self-screening can play an important role in helping older drivers maintain safe driving. Self-screening can educate drivers about their own ability levels and suggest appropriate compensation strategies and follow-up assessments. At the same time, none of the currently available self-screening tools has been evaluated to determine if users actually engage in the behaviors they report they are planning as a result of completing the self-screening process. Future research should follow subjects who self-screen for some period of time to determine whether they actually change their driving-related behaviors, and thereby reduce their risk of crash involvement. Another topic of interest is whether and how self-screening tools facilitate discussions about driving problems within families of older drivers.

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Identification of At-Risk Drivers: Professional and Reimbursement Issues

*Elin Schold Davis
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By 2030, one in four drivers will be age 65 or older. For some, advancing age brings changes in strength, flexibility, vision, speed of movement, or cognition. These changes can affect driving. For example, the ability to turn the wheel quickly can be impeded by arthritic pain. Or, interpreting unfamiliar road signs and making safe navigation decisions are challenging for a person with vision impairments. Information and education, driving evaluation, adapted devices, and interventions such as exercise and target therapy are resources available to senior citizens to address the functional declines that may affect driving.

An accident or a crushed mail box often can trigger a conversation within a senior's family about driving concerns. Today, however, roads are too congested and traffic patterns too complex to wait for someone to have an incident before identifying risk. Senior drivers are better served if the public and health care community recognize the importance of identifying driving risk factors as a preventive first step in the evaluation, intervention, adaptation, or compensation efforts of driving rehabilitation, instead of the last step before "taking away the keys." Early education by self-assessment, safety courses, and intervention by a driving rehabilitation specialist allow a person to make informed decisions and changes before posing a safety risk to self or others.

Professional Roles

Driving has become a "hot topic" of transportation, medical, and social services organizations. Emphasis is now focused on keeping seniors driving for as long and as safely as possible. Organizations such as the National Highway Traffic Safety Administration, AARP, and AAA have launched major educational initiatives to give older drivers and their families the tools and resources for addressing driving. The American Occupational Therapy Association (AOTA) has a national initiative under way to educate all occupational therapists to address driving concerns routinely as an instrumental activity of daily living (IADL), to educate seniors about the risks and resources available to address those risk factors and concerns, and to offer the option of having a driving evaluation earlier to identify risks and develop a plan. Although many

fear that discussing driving concerns is negative or "none of my business," in actuality, moving driving into the normal conversations of seniors, families, and health care providers is the first step toward proactively addressing functional declines that can affect safe driving and to seeking the many resources available.

Driving evaluation by trained driving rehabilitation specialists has two distinct components: the clinical portion and the on-road

"Historically, driving rehabilitation dates back to the early days of cars."

portion. An evaluation can result in specific and individualized recommendations, such as no recommendations or restrictions or a refresher

of the driving rules. Some seniors have never attended formal driver's training, and the complex signage and traffic systems in their locale may be confusing. Enhanced knowledge and understanding can improve response speed at, for example, the time a senior needs to determine his or her response to an interchange decision. A class may work for some, but for others, knowing that a driving rehabilitation specialist can tailor that learning to their specific geographic area and individual challenges is extremely helpful. A driving "lesson" can address and improve driving habits and safe-driving techniques to decrease risk.

Also, interventions can focus on fitness or underlying physical or cognitive skills and abilities. For example, a senior can work with a member of the rehabilitation team to address flexibility and strength needed for turning to check blind spots or managing vehicle controls. In addition, an occupational therapist can recommend adapted equipment and provide training in its use. Further, driving

Identification of at Risk Drivers

restrictions could be imposed, including geographical restrictions such as a limited driving radius or condition restrictions such as no night driving (for seniors who are unable to discern shapes or people in low lighting) or no driving in stormy weather (in recognition of changes in vision and speed of response).

Finally, the least desired outcome by driving rehabilitation specialists and clients is driving cessation, which is the appropriate and safest option in situations in which impairments pose too great of a risk to self or others for driving to continue. When cessation is recommended, occupational therapists who are driving rehabilitation specialists can suggest resources for appropriate community mobility options given the challenges a client may face. Also, family members may need access to resources and strategies to assist them with the often-difficult phase of helping their loved one not drive. Particularly for clients with altered cognition such as dementia, their families can benefit from learning strategies and interventions to help them keep their loved one off the road and safe, especially if he or she may not have the ability to recall the driving restriction.

Historically, driving rehabilitation dates back to the early days of cars. President Franklin Delano Roosevelt likely had the first adapted equipment (hand controls) designed to enable him to drive, despite having polio. As vehicle technology has advanced, so has the array of devices and options available. The array of adaptive devices runs the gamut from basic to complex, low cost to expensive. Most manufacturers provide a seat belt extender that reduces the amount of reach required to cross over and buckle the seat belt. A small ribbon tied to the shoulder strap can reduce the right shoulder flexion and adduction required to grasp hold of the belt over one's left shoulder. A person who has lost the use of one hand can be trained (by a driver rehabilitation specialist) to use a spinner knob. Power seats allow a person with a short stature to adjust the factory seat to a safe height. In addition, a firm pillow added to the driver's seat can bring the driver's line of sight to a safer distance (three inches is recommended) above the steering wheel. As personal vehicles are routinely equipped with more sophisticated devices, people with a broader array of abilities will have an opportunity to drive after receiving appropriate driver rehabilitation training.

Reimbursement Issues

Driving rehabilitation specialists offer many resources to seniors. Some programs may serve a specialized population and be affiliated with a rehabilitation center or vocational rehabilitation program. Other programs may be privately owned businesses or are part of an interdisciplinary array of services. However, even with all the models of driving programs available today, there are not enough programs to serve the growing population of older drivers. For this reason, AOTA and the Association for Driver Educators are working to increase the number of trained driving rehabilitation specialists available to address the needs of aging drivers.

Even with this need, reimbursement for driving education and evaluation is an area of concern and debate. Is driving a right or a privilege?

"...reimbursement for driving education and evaluation is an area of concern and debate."

Should medical insurance cover the driving evaluation? Can states afford to provide specialized services to senior drivers experiencing changes that make them at risk? Costs and coverage for driving

evaluations, adapted equipment, and training vary widely across the country, as do the reimbursers of this service.

Occupational therapists have had inconsistent and limited success in being reimbursed for a driving evaluation. Use of the actual term "driving," although appropriately listed as an IADL in occupational therapy guiding documents, often serves as a "red flag" by many reimbursement sources reviewing claims for payment and leads to denial of reimbursement requests. At the same time, occupational therapists routinely receive third party reimbursement for general clinical evaluations, which often consist of the very same assessments that help identify functional deficits related to safe driving (e.g., visual-perception, cognition, range of motion, strength).

Ideally, new policy for payment through all health care third party payers, including Medicare, would be aimed at building programs and systems that keep older drivers safely on the road as long as possible. Both the programmatic emphasis and the public message would be clear that preserving driving independence is the primary goal and cessation is a last option. Messages that acknowledge the critical link between independence and the ability to drive safely, while promoting

public awareness that some types of functional loss associated with unsafe driving can be remedied with appropriate training, strategies, and/or adaptive equipment, deserve broad dissemination. Perhaps most important is the message that, when functional impairments that predict at-risk driving are identified, all are best served by a clear communication of evaluation results and their implications.

Part of any new system that helps older drivers stay safely on the road would include third party reimbursement for thorough and specialized clinical evaluations by licensed therapists, as well as coverage for an evaluation that includes review of driving along with traditional activities, such as self care. When evaluation results document an impact on “driving” or “community mobility,” this should *not* impact reimbursement. Consequently, occupational therapists would routinely be reimbursed for all “in-clinic” portions of a driving assessment. Where there is a diagnosis of early dementia or other progressive conditions, not only the initial clinical evaluation but also intermittent re-evaluations must be eligible for reimbursement.

Because this broad social issue is not solely a health care problem, related issues will need to be addressed as more and more drivers require identification and intervention. Education and awareness need to be improved among health care providers, family members and others in contact with older drivers including aging service networks, transportation systems and the police and judicial systems. Issues concerning payment may need to be discussed not only in the health care context but also in social services and licensing systems. For instance, if problems must be addressed to meet state driving license requirements or to satisfy court orders, payment for services may be more appropriately sought from non-health care sources. These are the questions policy makers must grapple with but they must consider them with the full knowledge of what driving evaluation and intervention can contribute to the independence and well-being for older individuals and society as a whole.

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Policy Recommendations to the 2005 White House Conference on Aging¹

Lisa J. Molnar, David W. Eby, Bonnie M. Dobbs

Older driver safety and mobility is a significant issue in the United States (Transportation Research Board, 1988, 2004) and elsewhere (Hakamies-Blomqvist and Peters, 2000). By 2030, the number of people age 65 and over in the U.S. is expected to reach 70 million, comprising over 20 percent of the population (U.S. Census Bureau, 2004). Older drivers are at increased crash risk per mile driven compared to all other age groups except the youngest drivers (McKenzie and Peck, 1998; National Highway Traffic Safety Administration, 2000). However, studies suggest that because they adapt their driving to circumstances under which they feel safest, thereby reducing their annual miles driven, older drivers are not at increased crash risk per year driven relative to other age groups (McKenzie and Peck, 1998; National Highway Traffic Safety Administration, 2000). In addition, the older driver crash rate per mile driven may be biased upward due to the tendency of older drivers to drive shorter distances (see e.g., Langford, Fitzharris, Newstead, et al., 2004). Nevertheless, older drivers are clearly at increased risk of death and serious injury, given a motor vehicle crash (Massie and Campbell, 1993), due to age-related frailty (Li, Braver, and Chen, 2003).

For many older adults, the continuation of driving is considered essential to independence and quality of life (Carp, 1988; Kaplan, 1995). Driving provides an opportunity for them to stay engaged civically and socially, and to participate in activities that enhance their well being. Loss of driving privileges can lead to increased social isolation by preventing regular contact with friends and family (Ragland, Satariano, and MacLeod, 2004), and is associated not only with a loss of independence, mobility, and freedom (Dobbs and Dobbs, 1997; Huntley et al., 1986), but also with feelings of diminished self-worth, reductions in self-esteem, and loss of identity (Eisenhandler 1990). Results from Marottoli, Mendes de Leon, Glass, et al., (1997) indicate that driving cessation was among the strongest predictors of increased depressive symptoms in a large cohort of older drivers.

As older drivers have come under increased scrutiny, it has become apparent that it is not age, per se, that leads to problems with driving. Rather, the declines in driving-related abilities are primarily the result of medical conditions, other health problems, and/or the medications used to treat those conditions.

Although those medical conditions can occur at any age, they are more likely to occur as one gets older. Because not all drivers experience these declines in the same way, there is widespread agreement that the focus of traffic safety effort should be on helping older drivers who are competent to continue to drive safely to do so, and to identify and provide community mobility support to those who are no longer competent to drive. It is imperative that decisions about driving ability be based on functional ability rather than arbitrary criteria such as age.

Given the knowledge of older driver issues highlighted here, it is understandable that two of the most important older driver safety and mobility issues to emerge during the recent White House Conference on Aging sessions are: 1) keeping older drivers safely on the road; and 2) providing alternative transportation to those who need it. Relative to these issues, the Transportation and Aging Interest Group of The Gerontological Society of America makes the following policy recommendations:

Policy Recommendation 1:

- *Support the development of validated and reliable screening and assessment tools for identifying at-risk drivers, in a variety of settings, based on functional impairments rather than age per se.*

Screening and assessment can occur within a number of settings and at multiple levels. Within licensing agencies, it can include visual inspection of drivers' appearance or demeanor when they first come to the counter, asking them questions about their health and medication use, reviewing their driving history, and/or conducting screening tests for visual, cognitive, or psychomotor deficits that may impair driving (e.g., see Janke, 2001; Staplin and Lococo, 2003; Staplin, Lococo, Gish, and Decina, 2003a,b; Staplin, Lococo, Stewart, and Decina, 1999). Results of these initial screening activities are best used to determine whether a more in-depth evaluation of driving competency is necessary. Recent work examining mandatory assessment of older drivers by licensing agencies in Australia found no associated safety benefits (see Langford, Fitzharris, Koppel, et al., 2004; Langford, Fitzharris, Newstead, et al., 2004). Consistent with these preliminary findings, our policy recommendation does not suggest that mandatory population-based screening and assessment

be required in licensing agencies. The focus of the recommendation is on developing valid and reliable tools that provide opportunities for functionally-based screening and assessment in various settings.

Physicians can assess driving-related problems as part of more general medical treatment and care (e.g., see Wang, Kosinski, Schwartzberg, et al., 2003), with early identification of declines in abilities providing an opportunity to recommend compensatory or remedial action (e.g., vehicle adaptations, driver training, modified drug therapy regimens, or fitness training). The complexities of multiple chronic medical conditions and multiple medications common in older patients often make the decisions about driving for these people extremely difficult for physicians (Dobbs, Triscott, and McCracken, 2004; McCracken, Triscott, and Dobbs, 2001). In these cases, referral for an objective driving assessment can be especially helpful (Dobbs et al., 2004).

Other health professionals, such as occupational therapists or driving rehabilitation specialists, also can help a segment of older drivers (e.g., those drivers whose declines are remedial), once declines have been identified, by assessing whether a return to driving is possible through training and rehabilitation, and by determining what specific remedial activities should be undertaken. Self-screening can be useful in providing cognitively capable older drivers with information about driving-related declines so that they can make more informed decisions about driving, and facilitating discussions between older drivers and their families about driving-related concerns (e.g., see Eby, Molnar, Shope, Vivoda, and Fordyce, 2003). Self-screening is likely to be ineffective in individuals with a cognitive impairment due to impaired insight. Collectively, the various types of screening and assessment contribute to a comprehensive, multifaceted approach for identifying older drivers who may be at risk.

Policy Recommendation 2:

- *Support efforts to develop and scientifically evaluate programs to help older drivers maintain safe driving through education, remediation of functional impairments, and driving restrictions.*

Most older drivers will eventually be faced with questions about their ability to continue to drive safely. How they answer these questions and even whether they are willing to consider them depends to a great extent on the information available to them about age-related declines in abilities that can affect driving, strategies for compensating for, or overcoming, these

declines, and how to plan for a time when driving is no longer possible.

One focus of many education programs is simply to increase older drivers' awareness and knowledge about declining abilities. Other programs combine education with some type of training to help older drivers compensate for, or when possible, to overcome age-related declines. Unfortunately, little is known about the impact of efforts such as driver refresher courses and on-road driver training on actual crash risk, although they may help older drivers overcome problems related to lack of knowledge, and thus may be of some value in enhancing elderly community mobility.

Policy Recommendation 3:

- *Support efforts to develop and scientifically evaluate alternatives to driving that are available, accessible, acceptable, adaptable, and affordable to older drivers, building on existing models that have shown promise for enhancing community mobility.*

People who are no longer able to drive must still be able to meet their transportation needs in order to maintain community mobility. This can be especially challenging for older drivers, given the increasing trend for people to age in place, where they may have fewer transportation resources available to them than if they sought out more transportation-friendly retirement areas (e.g., see Coughlin and Lacombe, 1997, U.S. Department of Transportation, 1997). Unfortunately, few people plan for the time when they will no longer be able to drive. When the time comes, they often rely on friends and relatives to drive them. For many older drivers however, the availability and willingness of family and friends has become increasingly constrained by trends toward smaller family size, higher divorce rates, and more women in the workplace (U.S. Department of Transportation, 1997).

Public transportation is often not available or simply not used by older people—public transportation accounts for less than 3 percent of trips by older people (Federal Highway Administration, 1997). To some extent, this is because many of the same deficits in abilities that are problematic for driving also discourage the use of public bus services (e.g., difficulty walking to the bus stop, waiting for the bus to arrive, climbing aboard, standing if no seats are available, and knowing when to get off at their stop). Other reasons for not using public transportation include safety concerns, lack of knowledge regarding use, inability to pay the costs, being fearful of

getting lost, and inconvenience (Beverly Foundation, 2004). Improving the availability, accessibility, acceptability, adaptability, and affordability of alternative transportation services can go a long way toward preserving the community mobility of older people. One promising group of alternative transportation programs, often called supplemental transportation programs, provide flexible and highly responsive services to meet individual needs. While these programs vary considerably in term of location, organization, and services offered, the common theme is that they provide options that allow older people to stop driving without losing their community mobility.

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