

## Chapter 10

# **Moving Beyond This Guide:**

*Research and Planning for Safe Transportation  
for the Older Population*

The previous chapters provide physicians with recommendations and tools for enhancing the driving safety of their patients. As in other aspects of patient care, however, better tools can lead to more effective care. As research advances, it may yield validated in-office tools for assessing patients' crash risk. At the same time, improved access to driver assessment and rehabilitation, safer roads and vehicles, and better alternatives to driving may also help older drivers stay on the road safely as long as possible.

In this chapter, the American Medical Association (AMA) advocates for coordinated efforts among the medical and research communities, policy makers, community planners, automobile industry, and government agencies to achieve the common goal of safe transportation for the older population. As the older population continues to expand, society has the challenge of keeping pace with its transportation needs.

Listed below is the AMA's "wish list" of research initiatives, applications, and system changes that we feel are crucial for improving the safe mobility of the older population. We encourage the readers of this guide to use this list as a starting point for their future plans and efforts.

## **We wish for:**

### **Optimal physician tools for the assessment of driving safety**

Physicians need a comprehensive assessment that reliably identifies patients who are at increased risk for crash. This test battery should assess the primary functions that are related to driving, and should form a basis for medical interventions to correct any functional deficits that are identified. In addition, this assessment must be brief, inexpensive, easy to administer, and validated to predict crash risk.

At present, this assessment does not exist. Individual functional tests (such as the Trail-Making Test, Parts A and B) have been repeatedly shown to correlate with crash risk,<sup>1-3</sup> and researchers are presently studying other tests with relation to driving. Based on these findings, researchers have assembled and tested batteries of functional tests—most recently in the Maryland Pilot Older Driver Study<sup>1</sup>—with varying degrees of success.

While researchers work towards achieving a comprehensive test battery, physicians can best evaluate their patients' driving safety by assessing the functions related to driving (see the *Assessment of Driving-Related Functions* in Chapter 3). The AMA will continue to promote awareness of the most recent assessment and rehabilitation tools, and we encourage physicians to stay informed of these developments.

### **Increased availability and affordability of driver rehabilitation**

When the results of physician assessment are unclear, or when further medical correction of functional deficits is not possible, driver rehabilitation specialists (DRSs) are an excellent resource. DRSs can perform a focused clinical assessment, observe the patient in the actual driving task, and train the patient in the use of adaptive techniques or devices to compensate for functional deficits. (See Chapter 5 for additional information.)

Unfortunately, access and cost are two major barriers to the utilization of DRSs by older drivers and their referring physicians. DRSs are not available in all communities, and there are presently too few to provide services to all drivers who are in need of them. Furthermore, driver assessment and rehabilitation are expensive, and Medicare and private insurance companies rarely provide coverage for these services.

The American Occupational Therapy Association (AOTA) is addressing these issues through two initiatives. First, AOTA is devising a framework to increase the number of DRSs within the occupational therapy (OT) profession. This framework will include strategies to promote older driver practice among current OT practitioners, curriculum content for continuing education programs, and training modules for entry-level OT educational programs. Secondly, AOTA is actively lobbying for consistent Medicare coverage of OT-performed driver assessment and rehabilitation, under the assertions that these services fall under the scope of OT practice and that driving is an instrumental activity of daily living (IADL). Individual DRS programs have also pursued insurance coverage from Medicare and other providers, with varying degrees of success.

In the effort to help older drivers stay on the road safely as long as possible, increased access to and affordability of driver assessment and rehabilitation are essential. At the same time, DRS practices may be enhanced by continued research to identify and validate best practices. We support the AOTA's initiatives and the efforts of the research community, and we encourage physicians to utilize DRSs as a resource for their patients whenever possible.

### **Increased investigation into the use of driver assessment technologies**

The use of validated driver assessment technologies may help make driver assessment more widely available to older drivers. Preliminary research with a commercially available driving simulator has shown a strong correlation between simulated driving performance and on-road performance in cognitively impaired and healthy older drivers.<sup>4</sup>

Unlike on-road assessment, simulators can also evaluate performance in driving situations that would otherwise be infeasible or dangerous. Further research and experience may confirm that driving simulators are safe, effective, and readily acceptable to the public.

Other technologies are available as well. DriveABLE Assessment Centres Inc. offers an evaluation designed specifically for individuals whose ability to drive safely may be compromised by medical conditions or medications. This evaluation has been scientifically developed and validated, and includes an in-office component of computer-based testing as well as road evaluation if needed. The DriveABLE assessment process has been accepted by licensing authorities in five Canadian provinces, and is also being used in research settings.

We encourage state licensing authorities and driver rehabilitation programs to investigate the use of technologies to increase the availability of reliable driver assessment services to the public. Such technologies, if integrated into and aligned with current practices, could help form an intermediate step between physician assessment and driver rehabilitation. In addition, they could potentially increase the licensing authority's capacity to offer specialized driver assessment to medically at-risk drivers.

### **The enhanced role of the driver licensing agency in promoting the safety of older drivers**

As the agency that ultimately awards, renews, and invalidates the driver's license, each state's driver licensing agency has the task of distinguishing unsafe drivers from safe drivers. While each state has its own procedures, unsafe drivers are usually identified by one of four means: (1) failure of the individual to meet licensing or license renewal criteria; (2) self-report

from the individual; (3) report from physicians, driver rehabilitation specialists, vision care specialists, law enforcement officers, family members, and others; and (4) judicial report.

To meet the standards for licensing, the driver licensing agency initially requires individuals to pass an evaluation of knowledge, vision, and driving skills. License renewal tends to be less stringent, with many states permitting renewal by mail. In recent years, certain states have increased their efforts to identify older drivers who are at risk for medically impaired driving by stipulating special renewal procedures for this population. These procedures include shortened renewal intervals, in-person renewal, and mandatory reassessment of knowledge, vision, and driving skills.

We encourage all states to maintain or adopt renewal procedures for the most effective identification of at-risk drivers. (See also 'Enhanced role of the medical advisory board' on the following page.) We also encourage states to base their standards for licensing on current scientific data. Visual acuity standards, for example, that are based on outdated research may be unnecessarily restrictive to all drivers and to older drivers in particular.

In addition to the vision screens that are currently in use, driver licensing agencies may also wish to utilize newer tools (such as contrast sensitivity<sup>5</sup> and the useful field of view test<sup>6</sup>) that have been shown to correlate with crash risk.\* Driver assessment technologies (as described previously) may also prove useful.

Many individuals are understandably reluctant to report themselves to the driver licensing agency as unsafe drivers. However, drivers may be encouraged to "refer" themselves if they view this as a positive step for their safety. Driver

licensing agencies can do their part by creating a more supportive system for older drivers. For example, the agency can work more closely with the at-risk drivers' physicians or the medical advisory board to correct functional deficits through medical treatment, if possible. Drivers with a high potential for rehabilitation can be referred by the agency to a driver rehabilitation specialist to learn adaptive techniques and devices. Agencies can also consider the patient's driving needs by issuing restricted licenses (with restrictions such as driving during daylight hours only or within a certain radius from the individual's home<sup>8</sup>) whenever possible to help the driver maintain mobility while protecting his/her safety. For those drivers who must "retire" their license, the agency can provide guidance in seeking alternative transportation.

At-risk drivers can also be brought to the attention of the driver licensing agency by physician referral. However, many physicians are not aware of their state's referral procedures,<sup>9</sup> and others fear legal liability for breach of confidentiality. With the advent of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), physicians may have questions about the extent and detail of patient information they should provide in a referral. Driver licensing agencies can encourage physician referral by establishing clear guidelines and simple procedures for referral (eg, comprehensive referral forms that can be accessed over the internet) and promoting physician awareness of these guidelines and referral procedures.

### **Increased legal protection for good-faith reporting**

In many states, physicians who refer patients to their driver licensing agency are not granted legal protection against liability for breaching the patient's confidentiality. Several states encourage

\* These tools, along with other tests of function and driving skills, are undergoing field testing by the California Department of Motor Vehicles as part of their three-tier assessment system.<sup>7</sup> Its findings may be useful to other driver licensing agencies that are interested in establishing similar assessment systems.

or require physicians to report impaired drivers without specifically offering this legal protection.

State legislatures are encouraged to establish or maintain good-faith reporting laws that provide for immunity from breach of confidentiality lawsuits for physicians and others who report impaired drivers to their state licensing authority.

### **Enhanced role of the medical advisory board**

A medical advisory board (MAB) is generally composed of local physicians who work in conjunction with the driver licensing agency to determine whether mental or physical conditions may affect an individual's ability to drive safely. MABs vary between states in size, role, and level of involvement. For example, the MAB of the Maryland Department of Motor Vehicles (DMV) reviews the fitness of individuals to drive safely, while California's MAB provides recommendations to DMV staff in the development of policies that affect medically and functionally impaired drivers.<sup>10</sup> Other states lack an MAB altogether.

We encourage each state driver licensing agency to maintain or enhance the role of its MAB to provide an optimal capacity for assessment, rehabilitation and support to older drivers. We also encourage those states that lack an MAB to—at the very least—assemble a one-time multidisciplinary team of medical experts to develop and implement recommendations on medical fitness to drive for their state's licensed drivers. Such recommendations should be based on current scientific data and clinical consensus.

Currently, the National Highway and Traffic Safety Administration (NHTSA) and American Association of Motor Vehicle Administrators (AAMVA) are investigating the function of the MAB through a study of each state's MAB

practices. This project will detail the function of each state's MAB, its regulatory guidelines, and barriers to the implementation of screening, counseling, and referral activities. In those states that lack an MAB, the project will investigate how their licensing agencies address drivers with medical conditions and functional deficits that may impair driving. The findings of this project may highlight the most effective MAB practices and provide guidance for the management of medically at-risk older drivers.

### **Increased public awareness of medication side effects that may impair driving performance**

Many prescription and over-the-counter medications have the potential to impair driving performance. Despite warnings on the label and counseling by physicians and pharmacists, many patients are unaware of these risks.

To address this problem, the National Transportation Safety Board (NTSB) has issued Safety Recommendation I-00-5, advising that the US Food and Drug Administration (FDA) establish a clear, consistent, and easily recognizable warning label for all prescription and over-the-counter medications that may interfere with the individual's ability to operate a vehicle. This recommendation was the focus of an FDA/NTSB joint public meeting held in November 2001. This meeting hosted presentations of epidemiological and controlled data on the effects of sedating drugs and crash risk, as well as presentations from innovators of devices that are designed to test the degree to which drugs may impair driving.

As a result of the meeting, the FDA and NTSB concluded that steps must be taken to better educate the public and physicians on the effects of potentially sedating medications on driving. Strengthened labeling for prescription

sedative-hypnotics, warning labels for over-the-counter drugs, and an education campaign are all in development. Standardized methods for evaluating the impairing properties of medications are also being considered.

### **Vehicle designs that optimize the safety of older drivers and their passengers**

Age-related changes in vision, cognition, and motor ability may affect an individual's ability to enter/egress a motor vehicle with ease, access critical driver information, and handle a motor vehicle safely. Furthermore, older persons are less tolerant of crash forces and less able to endure injuries sustained in a crash. We encourage vehicle manufacturers to explore and implement enhancements in vehicle design that address and compensate for these physiological changes.

In particular, vehicle designs based on the anthropometric parameters of older persons—that is, their physical dimensions, strength, and range of motion—may be optimal for entry/egress, seating safety and comfort, safety belt/restraint systems, and placement and configuration of displays and controls. Improvements in headlamp lighting to enhance nighttime visibility and reduce glare, as well as the use of high-contrast legible fonts and symbols for in-vehicle displays, may help compensate for age-related changes in vision.<sup>11</sup> In addition, prominent analog gauges may be easier to see and interpret than small digital devices.<sup>12</sup>

In the event of a crash, crashworthy vehicle designs and restraint systems designed for fragile occupants may enhance the safety of older drivers and their occupants. Furthermore, certain add-on features may make current vehicle designs safer and more accessible to older drivers. For example, handholds and supports on door frames may facilitate entry/egress for drivers and their passengers. Padded steering wheels and seat

## Figure 10.1

### The Five A's of Senior Friendly Transportation

(reproduced with permission of the Beverly Foundation<sup>18</sup>)

#### Availability

Transportation exists and is available when needed (eg, transportation is at hand, evening and/or weekends).

#### Accessibility

Transportation can be reached and used (eg, bus stairs can be negotiated; bus seats are high enough; van comes to the door; bus stop is reachable).

#### Acceptability

Deals with standards relating to conditions such as cleanliness (eg, the bus is not dirty); safety (eg, bus stops are located in safe areas); and user-friendliness (eg, transit operators are courteous and helpful).

#### Affordability

Deals with costs (eg, fees are affordable; fees are comparable to or less than driving a car; vouchers or coupons help defray out-of-pocket expenses).

#### Adaptability

Transportation can be modified or adjusted to meet special needs (eg, wheelchair can be accommodated; trip chaining is available).

adjuster handles (rather than knobs) may benefit drivers with decreased hand grip, while adjustable steering wheels and foot pedals may aid drivers with limited range of motion.<sup>13</sup> Other adjustable controls and displays may allow older drivers to tailor their vehicle to their changing abilities and needs.

#### Optimal environments for older drivers and pedestrians

Many older road users are at a disadvantage on roads and highways that are most heavily used by and traditionally designed for a younger population. In a telephone survey of 2,422 persons aged 50 and older, nearly one out of five participants considered inconsiderate drivers to be a significant problem. Other commonly identified problems included traffic congestion, crime, and fast traffic.<sup>14</sup>

These problems may be ameliorated through traffic law enforcement and better road, signage and traffic control designs. One of the top requests of the nearly 200 Iowans (senior citizens, transportation professionals, and senior-related professionals) who attended the Iowa Older Drivers Forum was stepped-up enforcement of speed and aggressive driving laws.<sup>15</sup> In terms of road and traffic engineering, the Federal Highway Administration has recognized and addressed the needs of older road users in its *Highway Design Handbook for Older Drivers and Pedestrians*, a supplement to existing standards and guidelines in the areas of highway geometry, operations, and traffic control devices.<sup>16</sup> These design features may be implemented in new construction, renovation and maintenance of existing structures, and “spot” treatment at certain locations where safety problems are present or anticipated.<sup>17</sup>

#### Better alternatives to driving

For the older population, alternatives to driving are often less than ideal or nonexistent. When faced with the choice of driving unsafely or losing mobility, many risk their safety by continuing to drive.

Existing forms of transportation clearly need to be optimized for use by older persons. In a telephone survey of 2,422 persons aged 50 and older, ride-sharing was the second most common mode of transportation (after driving); however, nearly a quarter of the survey participants cited feelings of dependency and concerns about imposing as a barrier to use. Public transportation was the usual mode of transportation for fewer than 5% of survey participants, with many citing unavailable destinations, problems with accessibility, and fear of crime as barriers to use. Fewer than 5% used taxis as their usual mode of transportation due to their high cost.<sup>18</sup> Until these barriers are addressed, these forms of transportation will remain of limited use to older persons.

Transportation programs created specifically for the older population, such as senior shuttles and vans, exist in certain communities. These programs fulfill *The Five A's of Senior Friendly Transportation*; namely, availability, accessibility, acceptability, affordability, and adaptability (see Figure 10.1).<sup>18</sup> As the older population continues to grow, we encourage the creation of new programs and the expansion of existing ones to keep pace with passengers' needs. We also encourage stronger community outreach to increase the awareness of such programs.

## Additional resources

The following resources, which are referenced in our wish list, contain additional information on meeting the mobility needs of the older population:

Ritter AS, Straight A, Evans E. *Understanding Senior Transportation: Report and Analysis of a Survey of Consumers Age 50+*. Washington, DC: American Association of Retired Persons; 2002. This study was developed to explore the problems of persons aged 50+ and, in particular, those 75+ with relation to transportation. The information presented may be used in the development of policies that expand and improve transportation options for older persons.

Staplin L, Lococo K, Byington S, Harkey D. *Highway Design Handbook for Older Drivers and Pedestrians*. Washington, DC: Federal Highway Administration; 2001. This applications-oriented handbook provides detailed design recommendations for five types of sites: (1) intersections (at grade), (2) interchanges (grade separation), (3) roadway curvature and passing zones, (4) construction/work zones, and (5) highway-rail grade crossings. This handbook is primarily intended for highway designers, traffic engineers, and highway safety specialists involved in the design and operation of highway facilities. It may also be of interest to researchers concerned with issues of older road user safety and mobility.

*Ageing and Transport: Mobility Needs and Safety Issues*. Paris, France: Organisation for Economic Co-Operation and Development; 2001. The Organisation for Economic Co-Operation and Development (OECD), an international organization dedicated to addressing the economic, social, and governance challenges of a globalised economy, produced this investigation of the travel patterns, transport and safety needs, and mobility implications of tomorrow's elderly. This work is intended to inform strategists, policy makers, regulators, and the general public of the aging population's safety and mobility needs; dispel myths and misconceptions about older road users; and present the latest research findings to assist decision-makers in formulating sound policies and programs for the safe mobility of the aging population.

Beverly Foundation. *Supplemental Transportation Programs for Seniors*. Washington, DC: AAA Foundation for Traffic Safety; 2001. This report contains the findings of the Supplemental Transportation Program for Seniors project, which was initiated in 2000 by the AAA Foundation for Traffic Safety, a philanthropic foundation in Washington, DC and the Beverly Foundation, a private foundation in Pasadena, California. This project was designed as a nine-month effort to gather information about community-based transportation programs for seniors in the United States. In describing and evaluating these programs in order to provide their findings to interested organizations, the project staff recognized the importance of five criteria for senior friendly transportation, which are listed in Figure 10.1.

## References

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- 14 Ritter AS, Straight A, Evans E. *Understanding Senior Transportation: Report and Analysis of a Survey of Consumers Age 50+*. Washington, DC: American Association of Retired Persons; 2002.
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