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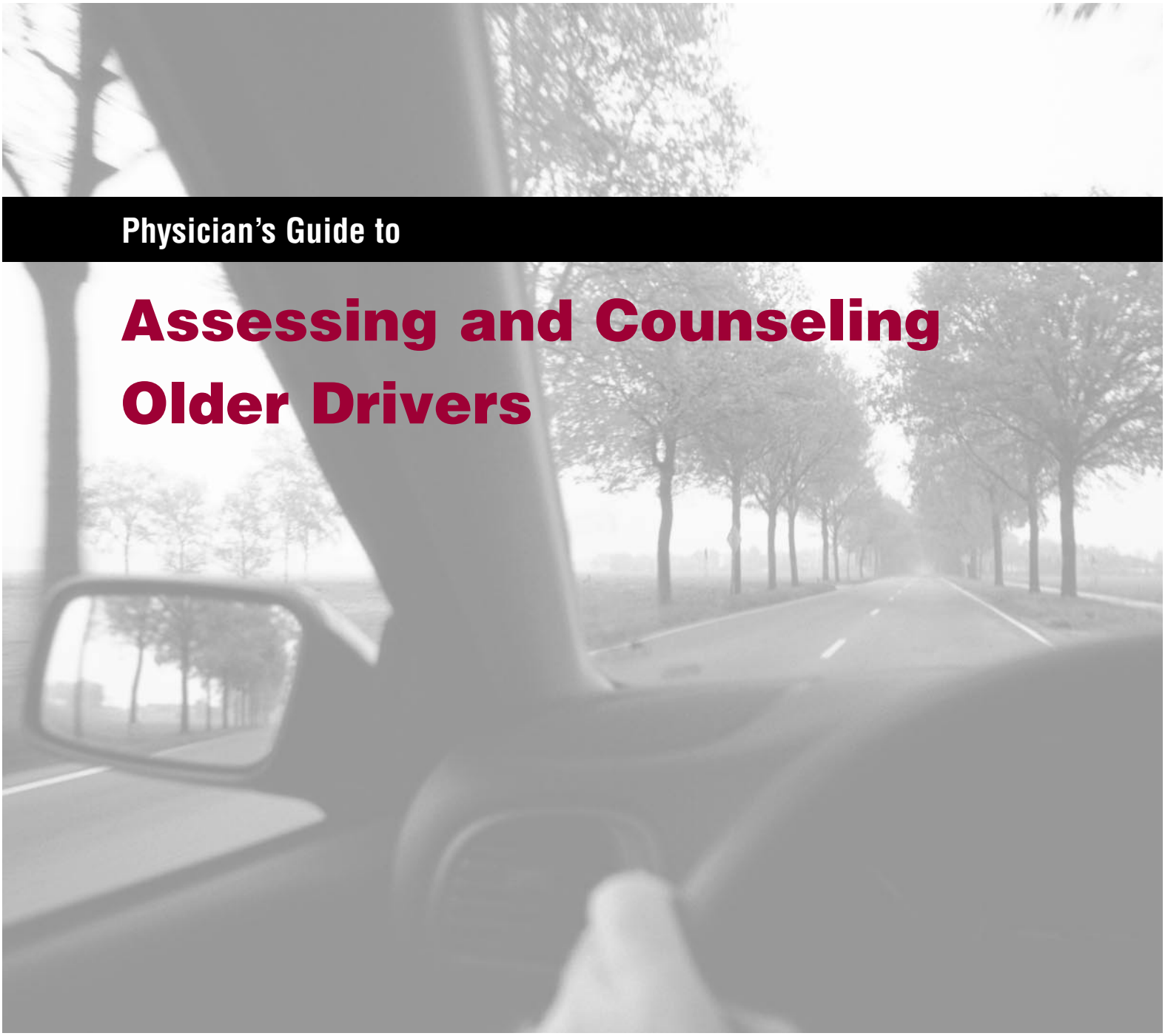

Physician's Guide to

Assessing and Counseling Older Drivers

NHTSA

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Physician's Guide to

Assessing and Counseling Older Drivers

American Medical Association
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U.S. Department
of Transportation
National Highway Traffic Safety Administration

The information in this guide is provided to assist physicians in evaluating the ability of their older patients to operate a motor vehicle safely as part of their everyday, personal activities. Evaluating the ability of patients to operate commercial vehicles or to function as a professional driver involves more stringent criteria and is beyond the scope of this book.

This guide is not intended as a standard of medical care, nor should it be used as a substitute for physicians' clinical judgement. Rather, this guide reflects the scientific literature and views of experts as of May 2003, and is provided for informational and educational purposes only. None of this guide's materials should be construed as legal advice nor used to resolve legal problems. If legal advice is required, physicians are urged to consult an attorney who is licensed to practice in their state.

The American Medical Association (AMA) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The AMA designates this educational activity for a maximum of 3 category 1 credits toward the AMA Physician's Recognition Award. Each physician should claim only those credits that he/she actually spent in the activity.

Additional copies of the guide can be downloaded or ordered online at the AMA's Older Drivers Project Web site: http://www.ama-assn.org/go/olderdrivers.

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Preface

The science of public health and the practice of medicine are often deemed two separate entities. After all, the practice of medicine centers on the treatment of disease in the individual, while the science of public health is devoted to the prevention of disease in the population. However, physicians can actualize public health priorities through the delivery of medical care to their individual patients.

Among these priorities is the prevention of injury—one of the leading health indicators identified by the US Department of Health and Human Services' Healthy People 2010. More than 400 Americans die each day as a result of injuries sustained from motor vehicle crashes, firearms, poisonings, suffocation, falls, fires and drowning. The risk of injury is so great that most people sustain a significant injury at some time during their lives.

This *Physician's Guide to Assessing and Counseling Older Drivers* was created by the American Medical Association (AMA) with support from the National Highway Traffic Safety Administration (NHTSA) to help physicians address preventable injuries—in particular, those injuries incurred in motor vehicle crashes. Currently, motor vehicle crashes are the number one cause of injury-related deaths in the 65-74 age group. While traffic safety programs have been successful in reducing the fatality rate for drivers under the age of 65, the fatality rate for older drivers has consistently remained high. Clearly, additional efforts are needed.

Physicians are in a forefront position to address and correct this health disparity. By providing effective health care, physicians can help their patients maintain a high level of fitness, enabling them to preserve safe driving skills later in life and protecting them against serious injuries in the event of a crash. By adopting preventive practices—including the assessment and counseling strategies outlined in this guide—physicians can better identify drivers at increased risk for crashes, help them enhance their driving safety, and ease the transition to driving retirement if and when it becomes necessary.

Through the practice of medicine, physicians have the opportunity to promote the safety of their patients and of the public. The AMA and NHTSA welcome you to use the tools in this *Physician's Guide to Assessing and Counseling Older Drivers* to forge a link between public health and medicine.

American Medical Association

Physicians dedicated to the health of America

515 North State Street
Chicago, Illinois 60610

June 6, 2003

Dear Reader:

We are pleased to present the *Physician's Guide to Assessing and Counseling Older Drivers,* the first product of a cooperative agreement between the American Medical Association (AMA) and the National Highway Traffic Safety Administration (NHTSA). This agreement was spurred by our mutual concern for the safety of older drivers—a public health issue that increasingly affects society as the older population (persons 65 years and older) expands at nearly twice the rate of the total population.

Motor vehicle injuries are the leading cause of injury-related deaths among 65- to 74-year olds, and are the second leading cause (after falls) in the 75 years and older age group. In the upcoming years, an increasing percentage of older persons will be licensed to drive, and these license-holders will drive an increasingly higher mileage. With the older population's significant expansion and increase in mileage, its traffic fatalities could potentially triple in the upcoming years.

Efforts in the medical community can help stem this increase. While most older drivers are safe drivers, this population is more prone to motor vehicle crashes due to disease- and medication-related functional deficits. By providing appropriate driver counseling in the course of disease management, physicians can help their patients avoid crashes. Furthermore, physicians can help patients maintain or even improve their driving skills by periodically assessing their patients for functional deficits and tailoring treatment to enhance their level of function.

Beginning with its *Medical Guide for Physicians in Determining Fitness to Drive a Motor Vehicle,* first published in 1958, the AMA has long been committed to providing physicians with tools for addressing driver safety. This current publication presents recommendations for physicians on assessing and counseling older patients on medical fitness-to-drive. These recommendations are based on the consensus of experts in the field of older driver safety and representatives from medical, health care, and public health societies; national and state government agencies; automobile and driver safety organizations; patient advocacy groups; and other organizations with an interest in older driver safety.

We hope you find this Guide useful, and we look forward to a continued relationship with NHTSA and our other partners in older driver safety.

Sincerely,

Michael D. Maves, MD, MBA
Executive Vice President, CEO
American Medical Association

U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

Administrator

400 Seventh St., S.W.
Washington, D.C. 20590

June 6, 2003

Dear Colleague:

As an emergency physician, I have seen first-hand the effect that many medical conditions can have on cognitive and motor function, both essential to driving ability. I have also seen the traumatic consequences of those medical conditions going unattended. As the Administrator of the National Highway Traffic Safety Administration (NHTSA), I have come to understand that there is much the medical and health care community must do to address the issue of safe mobility for older patients.

NHTSA is proud of its partnership with the American Medical Association and the other health care organizations whose representatives participated in the development of the *Physician's Guide to Assessing and Counseling Older Drivers.* This groundbreaking publication will give physicians in this country a reference that addresses their questions and concerns about medical conditions and their potential effect on driving, based on the strongest scientific evidence available. They will have at their fingertips guidance on how to use the history and physical examination to identify health problems that are likely to cause driving hazards. Perhaps most importantly, physicians will find in this publication many proactive ideas for helping older drivers stay on the road safely, as well as approaches for dealing with medical/driving problems.

The *Physician's Guide to Assessing and Counseling Older Drivers* holds great promise, in providing physicians and many other health care professionals with the tools they need to address the issue of safe mobility in the older patient population. While the Physician's Guide focuses on older drivers, age alone should not be the sole criterion for determining whether someone is a safe driver. Each patient's ability should be assessed individually, irrespective of age.

My challenge to you, the health care community, is to make assessing and counseling patients about their fitness to drive part of your practice in the care of all older Americans. As we move forward into the 21st century and our population advances in age, we must continue to meet and anticipate our patients' evolving needs. Ultimately, by ensuring the safe mobility of older patients, we can enhance the safe passage of all Americans on our roadways.

I extend my appreciation to the members of the Older Drivers Project for the long hours of hard work they dedicated to this effort. The results speak for themselves: a publication that each member can be proud to have crafted. Finally, I want to acknowledge the American Medical Association for its leadership and for its support in producing the *Physician's Guide to Assessing and Counseling Older Drivers.*

Sincerely yours,

Jeffrey W. Runge, M.D.

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Chapter 1

Safety and the Older Driver: An Overview

Mrs. Simon, a 67-year-old woman with Type II diabetes mellitus and hypertension, mentions during a routine check-up that she hit a stop sign while making a right-hand turn in her car two weeks ago. Although she was uninjured, she has felt anxious about driving since that episode. She wants to know if you think she should stop driving. What do you say?

Mr. Evans, a 72-year-old man with hypertension and congestive heart failure, comes to see you because he has felt "lightheaded every once in awhile" for the past two weeks. When listening to his heartbeat, you notice that it is irregularly irregular. You perform a careful history and physical exam and order some lab tests to determine the cause of his atrial fibrillation. When you ask Mr. Evans to schedule a follow-up appointment for the following week, he tells you that he cannot come because he is about to embark on a two-day road trip to visit his daughter and newborn grandson. What do you do?

Patients like Mrs. Simon and Mr. Evans are becoming more common in daily practice. Buoyed by the large ranks of "baby boomers" and increased life expectancy, the United States' older population is growing nearly twice as fast as the total population.[1, 2] Within this population, an increasing proportion will be licensed to drive, and these license-holders will drive more miles than older drivers do today.[3]

As the number of older drivers rises, patients and their families will increasingly turn to physicians for guidance on safe driving. Physicians will have the challenge of balancing their patients' safety against their transportation needs.

This guide is intended to help you answer the questions, "Is my patient safe to drive?" and "What can I do to help my patient drive more safely?"* To these ends, we have reviewed the scientific literature and collaborated with clinicians and experts in this field to produce the following two physician tools:

- An office-based assessment of medical fitness to drive. This assessment is outlined in the algorithm, *Physician's Plan for Older Drivers' Safety* (PPODS), found later in this chapter on page 19 (see Figure 1.1).
- A reference list of medical conditions and medications that may impair driving, with specific recommendations for each one. This list can be found in Chapter 9.

In addition to these tools, we also present the following resources:

- Information to help you navigate the legal and ethical issues regarding patient driving safety and patient reporting. This information can be found in Chapter 7.
- A state-by-state list of licensing criteria, license renewal criteria, reporting laws, and DMV contact information. This information can be found in Chapter 8.
- Recommended Current Procedural Terminology (CPT®) codes for assessment and counseling procedures. These codes can be found in Appendix A.
- Handouts for your patients and their family members. These handouts, which are found in Appendix B, include a self-assessment of driving safety, safe driving tips, suggested driving alternatives, and a resource sheet for concerned family members.

We understand that you may feel uncomfortable talking to your patient about driving because you fear delivering bad news, not having any solutions to offer, and potentially dealing with the patient's anger. Driving is a sensitive subject, and the loss of driving privileges can be traumatizing to your patient. While these are very real concerns, there are ways to minimize damage to the physician-patient relationship when discussing driving. We have provided sample approaches in the appropriate chapters for suggesting the need for driving assessment, rehabilitation, limitation, and retirement.

We want this information to be available to you, wherever you are. You can access this guide over the Internet from the AMA Web site at www.ama-assn.org/go/olderdrivers. Additional copies may also be ordered on the Web site.

Before you read about the assessment strategy, you may wish to familiarize yourself with key facts about older drivers.

Older Drivers: Key Facts

Fact: Safety for older drivers is a public health issue.

Motor vehicle injuries are the leading cause of injury-related deaths among 65- to 74-year olds and are the second leading cause (after falls) among 75- to 84-year olds.[4] Compared with other drivers, older drivers have a higher fatality rate per mile driven than any other age group except drivers under the age of 25. On the basis of estimated annual travel, the fatality rate for drivers 85 and older is 9 times higher than the rate for drivers 25 to 69 years old.[1]

* Please be aware that the information in this guide is provided to assist physicians in evaluating the ability of their older patients to operate a motor vehicle safely as part of their everyday, personal activities. Evaluating the ability of patients to operate commercial vehicles or to function as a professional driver involves more stringent criteria and is beyond the scope of this guide.

There are two reasons for this excess in fatalities. First, drivers 75 years and older are involved in significantly more motor vehicle crashes per mile driven than middle-aged drivers. Second, older drivers are considerably more fragile. Fragility begins to increase at ages 60 to 64 and increases steadily with advancing age.[5] By age 80, male and female drivers are 4 and 3.1 times more likely, respectively, than 20-year olds to die as a result of a motor vehicle crash.[6]

In the year 2000, 37,409 Americans died in motor vehicle crashes.[7] Of this number, 6,643 were people aged 65 years and older. This population represented 13% of the total US population but accounted for 18% of all traffic fatalities.[8] As the older population in this country continues to grow, *drivers alone* aged 65 and older are expected to account for 16% of all crashes and 25% of all fatal crashes.[9]

Fact: Although many older drivers self-regulate their driving behavior, this is not enough to keep crash rates down.

As drivers age, they may begin to feel limited by slower reaction times, chronic health problems, and side effects from medications. Many reduce their mileage or stop driving altogether because they feel unsafe or lose their confidence. In 1990, males over the age of 70 drove, on average, 8,298 miles compared with 16,784 miles for males aged 20-24 years; for females, the figures were 3,976 miles and 11,807 miles, respectively.[10]

Older drivers not only drive substantially less, but also modify when and how they drive. Older drivers may reduce their mileage by eliminating long highway trips, thus driving mainly on local roads, which often contain more hazards in the form of signs, signals, traffic congestion and confusing intersections. Decreasing mileage, then, may not always proportionately decrease safety risks.[11] On the other hand, older drivers are more likely to wear safety belts and are less likely to drive at night, speed, tailgate, consume alcohol prior to driving, and engage in other risky behaviors.[15]

Despite all these self-measures, the crash rate per mile driven begins to increase at age 65.[5] On a case-by-case level, the risk of crash depends on whether each individual driver's decreased mileage and behavior modifications are enough to counterbalance any decline in driving ability. In some cases, decline—for example, in the form of peripheral vision loss—may occur so insidiously that the driver is not aware of it until he/she experiences a motor vehicle crash. In the case of dementia, drivers may lack the insight to realize they are unsafe to drive. In a series of focus groups conducted with older adults who had stopped driving within the past five years, 40% of the participants knew someone over the age of 65 who had problems with his or her driving but was still behind the wheel.[12] Clearly, some older drivers require outside assessment and intervention when it comes to driving safety.

Fact: The majority of older Americans rely on driving for transportation.

In a survey of 2,422 adults aged 50 years and older, 86% of survey participants reported that driving was their usual mode of transportation. Within this group, driving was the usual mode of transportation for 85% of participants aged 75 to 79, 78% of participants aged 80 to 84, and 60% of participants aged 85 and older.[13]

Driving can be crucial for performing necessary chores and maintaining ties to society. Many older adults continue to work past retirement age or engage in volunteer work or other organized activities. In many cases, driving is their preferred means of transportation. In some rural or suburban areas, driving may be their sole means of transportation.

Just as the driver's license is a symbol of independence for adolescents, the ability to continue driving may mean continued mobility and independence for older drivers, and have a great impact on their quality of life and self-esteem.[14]

Fact: The crash rate for older drivers is related to physical and mental changes associated with aging.[15]

Compared with younger drivers, whose car crashes are often due to inexperience or risky behaviors,[16] older driver crashes tend to be related to inattention or slowed perception and response.[3] Older driver crashes are often multiple-vehicle events that occur at intersections and involve left-hand turns. The crash is usually caused by the older driver's failure to heed signs and grant the right-of-way. At intersections with traffic signals, left-hand turns are a particular problem for the older driver; at stop sign-controlled intersections, older drivers may not know when to resume driving.[15]

Fact: Physicians can influence their patients' decision to modify or retire from driving. They can also help their patients maintain safe driving skills.

Although most older drivers believe that they should be the ones to make the final decision about driving, they also agree that their physician should advise them. In a series of focus groups conducted with older adults who had retired from driving within the last five years, all agreed that the physician should talk to older adults about driving if there was a need. As one panelist started, "when the doctor says you can't drive anymore, that's definite. But when you decide for yourself, there might be questions." While family advice alone had limited influence on the participants, most agreed that if their physician advised them to stop and their family concurred, then they would certainly stop.[12]

Figure 1.1—PPODS Chart

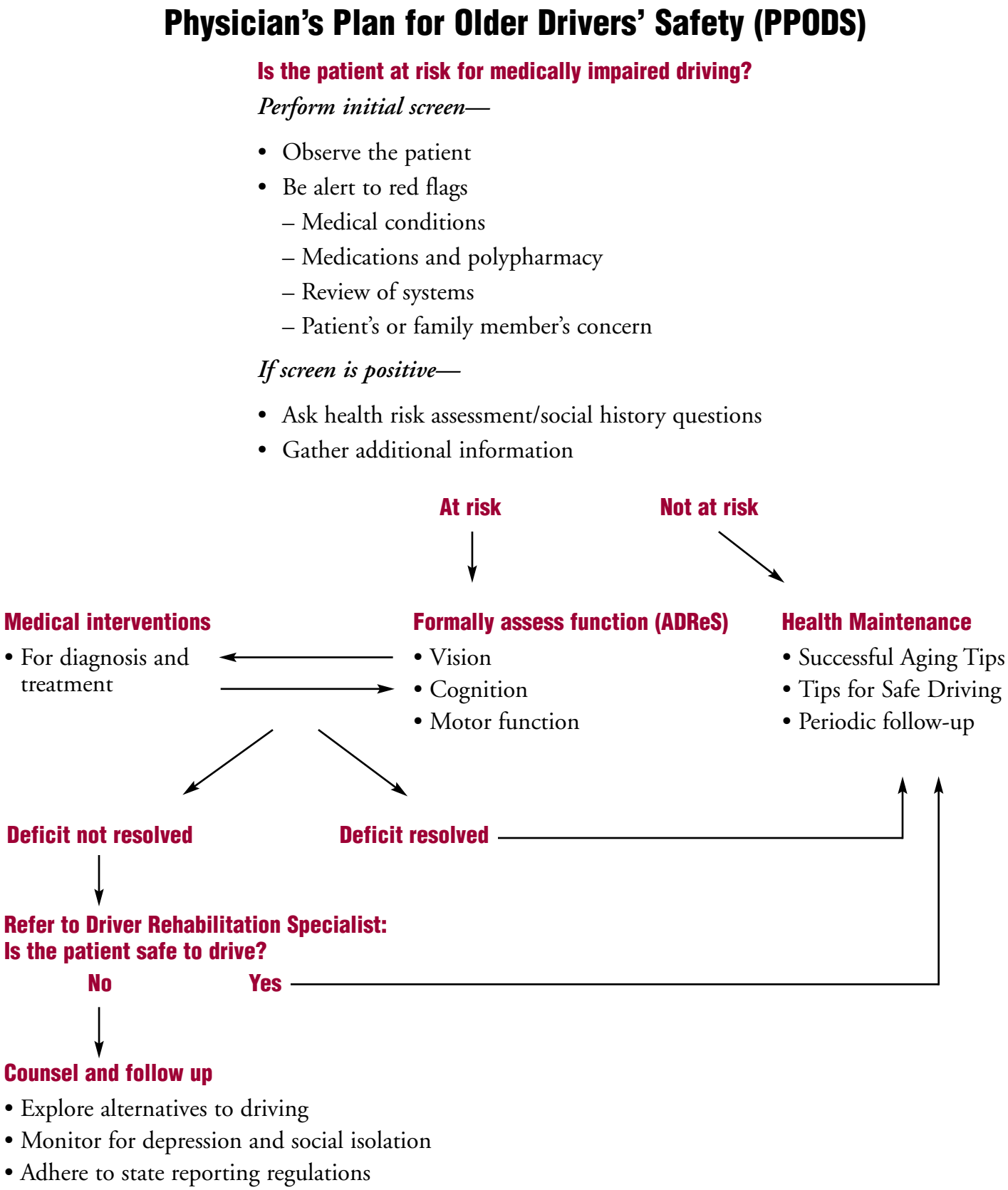

Figure 1.2
American Medical Association Ethical Opinion
E-2.24 Impaired Drivers and their Physicians

The purpose of this report is to articulate physicians' responsibility to recognize impairments in patients' driving ability that pose a strong threat to public safety and which ultimately may need to be reported to the Department of Motor Vehicles. It does not address the reporting of medical information for the purpose of punishment or criminal prosecution.

(1) Physicians should assess patients' physical or mental impairments that might adversely affect driving abilities. Each case must be evaluated individually since not all impairments may give rise to an obligation on the part of the physician. Nor may all physicians be in a position to evaluate the extent or the effect of an impairment (eg, physicians who treat patients on a short-term basis). In making evaluations, physicians should consider the following factors: (a) the physician must be able to identify and document physical or mental impairments that clearly relate to the ability to drive; and (b) the driver must pose a clear risk to public safety.

(2) Before reporting, there are a number of initial steps physicians should take. A tactful but candid discussion with the patient and family about the risks of driving is of primary importance. Depending on the patient's medical condition, the physician may suggest to the patient that he or she seek further treatment, such as substance abuse treatment or occupational therapy. Physicians also may encourage the patient and the family to decide on a restricted driving schedule, such as shorter and fewer trips, driving during non-rush-hour traffic, daytime driving, and/or driving on slower roadways if these mechanisms would alleviate the danger posed. Efforts made by physicians to inform patients and their families, advise them of their options, and negotiate a workable plan may render reporting unnecessary.

(3) Physicians should use their best judgement when determining when to report impairments that could limit a patient's ability to drive safely. In situations where clear evidence of substantial driving impairment implies a strong threat to patient and public safety, and where the physician's advice to discontinue driving privileges is ignored, it is desirable and ethical to notify the Department of Motor Vehicles.

(4) The physician's role is to report medical conditions that would impair safe driving as dictated by his or her state's mandatory reporting laws and standards of medical practice. The determination of the inability to drive safely should be made by the state's Department of Motor Vehicles.

(5) Physicians should disclose and explain to their patients this responsibility to report.

(6) Physicians should protect patient confidentiality by ensuring that only the minimal amount of information is reported and that reasonable security measures are used in handling that information.

(7) Physicians should work with their state medical societies to create statutes that uphold the best interests of patients and community, and that safeguard physicians from liability when reporting in good faith. (I, III, IV, VII)

Issued June 2000 based on the report "Impaired Drivers and Their Physicians," adopted December 1999.

Physicians help their older patients maintain safe mobility in two ways. By providing effective treatment and preventive health care, physicians enable their patients to preserve their functional abilities later in life, prolonging their driving years. Also, better baseline health protects against serious injuries and speeds the recovery process in the event of a crash.

In addition, physicians can play a more active role in preventing motor vehicle crashes by assessing their patients for medical fitness to drive and recommending safe driving behaviors, driver rehabilitation, or driving limitations as needed. In many cases, physicians can help their patients stay on the road longer by identifying and managing medical obstacles to safe driving, such as vision problems or arthritis.

There is a crucial need for this latter intervention. To date, there has been little organized effort in the medical community to help older adults improve or maintain their driving skills. Research and clinical reviews on the assessment of older drivers have traditionally focused on screening methods to identify unsafe drivers and restrict older drivers. Physicians are in a position to identify patients at increased risk for unsafe driving or self-imposed driving cessation due to functional impairments, and treat underlying medical causes to help their patients drive safely as long as possible.

To achieve this end, primary care physicians can follow the algorithm, *Physician's Plan for Older Drivers' Safety* (PPODS) (see Figure 1.1), which recommends that physicians:

- ***Be alert*** to red flags for medically impaired driving;
- ***Assess*** driving-related functional abilities in those patients who are at risk for medically impaired driving;
- ***Treat*** underlying causes of functional decline;
- ***Refer*** patients who require further evaluation and/or adaptive training to a driver rehabilitation specialist;
- ***Counsel*** patients on safe driving behavior, driving restrictions, driving cessation, and/or alternative transportation options as needed; and
- ***Follow-up*** with patients who retire from driving for signs of depression and social isolation.

While primary care physicians may be in the best position to perform PPODS, specialists have a responsibility to discuss driving with their patients as well. Ophthalmologists, neurologists, psychiatrists, physiatrists, orthopedic surgeons, emergency room physicians, and other specialists all manage conditions, prescribe medications, or perform procedures that may have a large impact on driving skills. When counseling their patients, physicians may wish to consult the Chapter 9 reference list of medical conditions and medications that may impair driving.

In the following chapters, we will guide you through PPODS and provide you with the tools you need to perform it. Before we begin, you may wish to review the American Medical Association's ethical opinion regarding impaired drivers (see Figure 1.2).[17] This opinion can be applied to older drivers with medical conditions that impair their driving skills and threaten their personal safety.

References

1 Traffic Safety Facts 2002: Older Population. US Department of Transportation, National Highway Traffic Safety Administration. Available at: http://www-fars.nhtsa.dot.gov/pubs/7.pdf. Accessed January 17, 2003.

2 Calculated from: Population Projections of the United States by Age, Sex, Race, Hispanic, Origin, and Nativity: 1999 to 2100. Population Projections Program, Population Division, US Census Bureau, Washington, DC. Internet release date: January 13, 2000. Revised Date: February 14, 2000. Available at: http://www.census.gov/population/projections/nation/summary/np-t.txt. Accessed January 17, 2003.

3 Eberhard J. Safe mobility for senior citizens. *International Association for Traffic and Safety Services Research.* 1996;20(1):29-37.

4 10 Leading Causes of Injury Deaths, United States, 1999, All Races, Both Sexes. Office of Statistics and Programming, National Center for Injury Prevention and Control, Center for Disease Control. Data source: National Center for Health Statistics Vital Statistics System.

5 Li G, Braver ER, Chen LH. Fragility versus excessive crash involvement as determinants of high death rates per vehicle-mile of travel among older drivers. *Accident Analysis and Prevention.* 2003;35(2): 227-235.

6 Evans L. Risks older drivers face themselves and threats they pose to other road users. *International Journal of Epidemiology.* 2000;29:315-322.

7 Traffic Safety Facts 2000: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System. Washington, DC: US Department of Transportation, National Highway Traffic Safety Administration; 2001.

8 Calculated from reference 7.

9 Eberhard J. Older Drivers Up Close: They Aren't Dangerous. *Insurance Institute for Highway Safety Status Report* (Special Issue: Older Drivers). 2001;36(8):1-2.

10 Evans L. How Safe Were Today's Older Drivers When They Were Younger? *American Journal of Epidemiology.* 1993;137(7);769-775.

11 Janke MK. Accidents, mileage, and the exaggeration of risk. *Accident Analysis and Prevention.* 1991;23:183-188.

12 Persson D. The elderly driver: Deciding when to stop. *The Gerontologist.* 1993;33(1):88-91.

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

14 Stutts JC. Do older drivers with visual and cognitive impairments drive less? *Journal of the American Geriatrics Society.* 1998;46(7):854-861.

15 Preusser DF, Williams AF, Ferguson SA, Ullmer RG, Weinstein HB. Fatal crash risk for older drivers at intersections. *Accident Analysis and Prevention.* 1998;30(2):151-159.

16 Williams AF, Ferguson SA. Rationale for graduated licensing and the risks it should address. *Injury Prevention.* 2002;8:ii9-ii16.

17 2.24 Impaired Drivers and Their Physicians. In: American Medical Association, Council on Ethical and Judicial Affairs. *Code of Medical Ethics: Current Opinions.* 2002-2003 ed. Chicago, IL: American Medical Association; 2002:46-47.

Chapter 2

Is the Patient at Increased Risk for Unsafe Driving?

Mr. Phillips, a 72-year-old man with a history of hypertension, congestive heart failure, Type II diabetes mellitus, macular degeneration, and osteoarthritis, comes in for a routine check-up. You notice that Mr. Phillips has a great deal of trouble walking to the exam room, even aided by a cane. You also notice that he has trouble seeing the room numbers by the exam room doors, even with his glasses. While taking a social history, you ask him if he drives, and he says that he drives to do errands, go to appointments, and meet with his bridge club.

Mr. Bales, a 60-year-old man with no significant past medical history, presents at the emergency department (ED) with an acute onset of substernal chest pain. He is diagnosed with acute myocardial infarction. Following an uneventful hospital course, he is stable and ready to be discharged. On the day of his discharge, he mentions that he had driven himself to the ED and would now like to drive himself home, but cannot find his parking ticket.

In this chapter, we will discuss the first step of the *Physician's Plan for Older Drivers' Safety* (PPODS). In particular, we will provide you with a strategy for answering the question, "Is this patient at risk for medically impaired driving?"

To answer this question, first—

Observe the patient throughout the encounter.

Careful observation is often the initial step in diagnosis. As you observe the patient, be alert to:

- Poor hygiene and grooming
- Difficulty walking or getting into and out of chairs
- Difficulty with visual tasks
- Difficulty with attention, memory and comprehension

In the example above, Mr. Phillips has difficulty walking and seeing the room numbers. This raises the question of whether he can handle vehicle foot pedals properly or see well enough to drive safely.

Be alert to red flags in the patient's history, list of medications, and review of systems.

As you take the patient's history, be alert to 'red flags'—any medical condition, medication or symptom that can impair driving skills, either through acute effects or chronic functional deficits (see *Red Flags for Medically Impaired Driving* on page 28). For example, Mr. Evans in Chapter 1 presents with lightheadedness associated with atrial fibrillation. This is a red flag, and he should be counseled to cease driving until control of heart rate and symptoms has been achieved. Similarly, Mr. Bales' acute myocardial infarction is a red flag. Prior to his discharge from the hospital, his physician should counsel him about driving according to the recommendations in Chapter 9. (See Figure 2.1 for further discussion of counseling in the inpatient setting.)

Figure 2.1 Counseling the driver in the inpatient setting

When caring for patients in the inpatient setting, it can be all too easy for physicians to forget about driving. In a survey of 290 stroke survivors who were interviewed 3 months to 6 years post-stroke, fewer than 35% reported receiving advice about driving from their physicians, and only 13% reported receiving any type of driving evaluation.[1] While it is possible that many of these patients suffered such extensive deficits that both the patient and physician assumed that it was unlikely for the patient to drive again, patients should still receive driving recommendations from their physician.

Counseling for inpatients may include recommendations for permanent driving cessation, temporary driving cessation, or driving assessment and rehabilitation when the patient's condition has stabilized. Such recommendations are intended to promote the patient's safety and, if possible, help the patient regain his/her driving abilities.

Figure 2.2
Health Risk Assessment

A health risk assessment is a series of questions intended to identify potential health and safety hazards in the patient's behaviors, lifestyle, and living environment. A health risk assessment may include questions about, but not limited to—

- Physical activity and diet
- Dental hygiene
- Use of safety belts
- Presence of smoke detectors and fire extinguishers in the home
- Presence of firearms in the home
- Episodes of physical or emotional abuse

The health risk assessment is tailored to the individual patient or patient population. For example, a pediatrician may ask the patients' parents about car seats, while a physician who practices in a warm-climate area may ask about the use of hats and sunscreen. Similarly, a physician who sees older patients may ask about falls, injuries, and driving.

Mr. Phillips does not have any acute complaints, but his medical history is filled with red flags. His macular degeneration may prevent him from seeing well enough to drive safely. His osteoarthritis may make it difficult for him to operate vehicle controls or turn to view traffic. Regarding his hypertension, diabetes, and congestive heart failure, does he experience any end-organ damage, sensory neuropathies, or cognitive decline that may affect his driving ability? Could any of his medications impair his driving performance?

Keep in mind that many prescription and non-prescription medications have the potential to impair driving skills, either by themselves or in combination with other drugs. (See Chapter 9 for an in-depth discussion about medications and driving.) Older patients generally take more medications than their younger counterparts and are more susceptible to their central nervous system effects. Whenever you prescribe one of these medications or change its dosage, counsel your patient on its potential to impair driving safety. You may also recommend that your patient undergo formal assessment of function (the next step in PPODS) while he/she is on the medication.

The review of systems can reveal symptoms that may interfere with the patient's driving ability. For example, loss of consciousness, feelings of faintness, memory loss, and muscle weakness all have the potential to endanger the driver.

Perhaps the most glaring red flag of all is the patient's or family member's concern. If your patient asks, "Am I safe to drive?" (or if a family member expresses concern), find out the reason for the concern. Has the patient had any recent crashes or near-misses, or is he/she losing confidence due to declining functional abilities?

Please note that age alone is not a red flag! While many people experience a decline in vision, cognition, and motor skills as they grow older, people experience functional changes at different rates and to different degrees.

Ask about driving during the social history/health risk assessment.

If a patient's presentation and/or the presence of red flags lead you to suspect that he/she is at risk for medically impaired driving, the next step is to ask whether he/she drives. You can do this by incorporating the following questions into the social history or health risk assessment (see Figure 2.2):

- "How did you get here today?"
- "Do you drive?"

If your patient drives, then his/her driving safety should be addressed. For acute events, this generally involves counseling the patient. For example, Mr. Bales should be counseled to temporarily cease driving for a certain period of time after his myocardial infarction. If Mr. Phillips is started on a new medication, he should be counseled about the side effects and their potential to impair driving performance.

For chronic conditions, on the other hand, driving safety is addressed by formally assessing the functions that are important for driving. This is the next step in PPODS, and it will be discussed in the following chapter.

Please note that many chronic medical conditions have both chronic and acute effects. For example, a patient with insulin-dependent diabetes may experience acute episodes of hypoglycemia in addition to chronic complications such as diabetic retinopathy. In this case, the physician should counsel the patient to avoid driving during acute episodes of

hypoglycemia and to keep candy or glucose tablets within reach in the car at all times. The physician should also recommend formal assessment of function if the patient shows any signs of functional decline. (See Chapter 9 for the full recommendation on diabetes and driving.)

If your patient does not drive, you may wish to ask if he/she ever drove, and if so, why he/she stopped driving. If your patient voluntarily stopped driving due to medical reasons that are potentially treatable, you may be able to help him/her return to safe driving. In this case, formal assessment of function can be performed to identify specific areas of concern and measure the patient's improvement with treatment.

Gather additional information.

To gain a better sense of your patient as a driver, ask questions specific to driving. The answers to these questions can help you determine the level of intervention that is needed.

If a collateral source such as a family member is available at the appointment or bedside, consider addressing your questions to both the patient and the collateral source. If this individual has had the opportunity to observe the patient's driving, his/her feedback may be valuable.

Questions to ask include:

- "How much do you drive?" (or "How much does [patient] drive?")
- "Do you usually have any passengers?"
- "Do you have any problems when you drive?" (Ask specifically about day and night vision, ease of operating the steering wheel and foot pedals, confusion, and delayed reaction to traffic signs and situations.)
- "Do you think you are a safe driver?"
- "Do you ever get lost while driving?"
- "Have you gotten any tickets in the past two years?"
- "Have you had any near-misses or crashes in the past two years?"

Understand your patient's mobility needs.

At this time, you can also ask about your patient's mobility needs and encourage him/her to begin exploring alternative transportation options. Even if alternative options are not needed at this time, it is wise for the patient to plan ahead in case he/she ever retires from driving. Some questions you can use to initiate the conversation include:

- "How do you usually get around? Does this work well for you?"
- "If your car ever broke down, how would you get around?

Encourage your patients to plan a safety net of transportation options by telling them, "Mobility is very important for your physical and emotional health. If you were ever unable to drive for any reason, I'd want to be certain that you could still make it to your appointments, pick up your medications, go grocery shopping, and visit your friends." In the event that your patient must retire from driving, the transition from driver to non-driver status will be less traumatic if he/she has already created a transportation plan. The handout in Appendix B, *Getting By Without Driving*, can help your patient get started.

Reference

1 Fisk GD, Owsley C, Pulley LV. Driving after stroke: Driving exposure, advice, and evaluations. *Archives of Physical Medicine and Rehabilitation.* 1997;78:1338-1344.

Red Flags for Medically Impaired Driving

Acute Events

Prior to hospital or emergency department discharge, patients and appropriate caregivers should be counseled as needed regarding driving restrictions and future assessment and rehabilitation. Acute events that can impair driving performance include:

- Acute myocardial infarction
- Acute stroke and other traumatic brain injury
- Syncope and vertigo
- Seizure
- Surgery
- Delirium from any cause

Patient's or Family Member's Concern

Has your patient approached you with the question, "Am I safe to drive?" (Alternatively, a family member may express concern about the patient's driving safety.) If so, find out the cause of concern. Note that age alone does not predict driving fitness—function, not age, is the determining factor. Ask for specific causes of concern, such as recent crashes, near-misses, traffic tickets, becoming lost, poor night vision, forgetfulness, and confusion.

Medical History: Chronic Medical Conditions

Patients may require formal assessment to determine the impact of these conditions on their level of function:

- *Diseases affecting vision,* including cataracts, diabetic retinopathy, macular degeneration, glaucoma, retinitis pigmentosa, field cuts, and low visual acuity even after correction
- *Cardiovascular disease,* especially when associated with pre-syncope, syncope or cognitive deficits, including unstable coronary syndrome, arrhythmias, congestive heart failure, hypertrophic obstructive cardiomyopathy, and valvular disease
- *Neurologic disease,* including dementia, multiple sclerosis, Parkinson's disease, peripheral neuropathy, and residual deficits from stroke
- *Psychiatric disease,* including mood disorders, anxiety disorders, psychotic illness, personality disorders, and alcohol or other substance abuse
- *Metabolic disease,* including Type I and Type II diabetes mellitus and hypothyroidism
- *Musculoskeletal disabilities,* including arthritis and foot abnormalities
- Chronic renal failure
- *Respiratory disease,* including chronic obstructive pulmonary disease and obstructive sleep apnea

Medical History: Medical Conditions with Unpredictable/Episodic Events

The patient should be counseled not to drive during any of the following acute events:

- Pre-syncope or syncope
- Angina
- Seizure
- Transient ischemic attack
- Hypoglycemic attack
- Sleep attack or cataplexy

Medications

Many non-prescription and prescription medications have the potential to impair driving ability, either by themselves or in combination with other drugs. Combinations of drugs may affect drug metabolism and excretion, and dosages may need to be adjusted accordingly. (See Chapter 9 for a discussion of each medication class.) Medications with strong potential to affect the patient's driving performance include:

- Anticholinergics
- Anticonvulsants
- Antidepressants
- Antiemetics
- Antihistamines
- Antihypertensives
- Antiparkinsonians
- Antipsychotics
- Benzodiazepenes and other sedatives/anxiolytics
- Muscle relaxants
- Narcotic analgesics
- Stimulants

Review of Systems

The review of systems can reveal symptoms or conditions that may impair driving performance. In addition to further work-up, driving safety should be addressed.

- ***General:*** fatigue, weakness
- ***HEENT:*** headache, head trauma, visual changes, vertigo
- ***Respiratory:*** shortness of breath
- ***Cardiac:*** chest pain, dyspnea on exertion, palpitations, sudden loss of consciousness
- ***Musculoskeletal:*** muscle weakness, muscle pain, joint stiffness and pain, decreased range of motion
- ***Neurologic:*** loss of consciousness, feelings of faintness, seizures, weakness/paralysis, tremors, loss of sensation, numbness, tingling
- ***Psychiatric:*** depression, anxiety, memory loss, confusion, psychosis, mania

Assessment and Plan

As you formulate a diagnosis/treatment plan for your patient's medical conditions, remember to address driving safety as needed. You may need to counsel your patients about driving when you:

- Prescribe a new medication, or change the dosage of a current medication
- Work up a new-onset disease presentation or treat an unstable medical condition. This includes many of the medical conditions listed above.

Chapter 3

Formally Assess Function

Mr. Phillips (whom you met in Chapter 2) has been accompanied to the clinic by his son, who is in the exam room with him. Mr. Phillips tells you that he is a safe driver, but his son voices concern. Four months ago, Mr. Phillips was involved in a minor car crash, in which he was found to be at fault. He has also had several near-misses in the past two years. However, he has never gotten lost while driving.

In discussing Mr. Phillips' transportation options, you learn that he drove himself to his appointment, as he usually does. Driving is Mr. Phillips' main mode of transportation, and he drives almost every day. Although Mr. Phillips is certain—and his son confirms—that family members and neighbors would be willing to drive him wherever he needs to go, he has never asked for rides. "Why should I ask for rides when I can just drive myself around?" he asks.

In the *Physician's Plan for Older Drivers' Safety* (PPODS), the next step to managing Mr. Phillips' driving safety is a formal assessment of the functions related to driving. Specific information in Mr. Phillips' driving history—namely, the crash and near-misses—further support the need for assessment.

In this chapter, we discuss the functions related to driving and present a test battery, the *Assessment of Driving-Related Skills* (ADReS). Each test in ADReS assesses a key area of function.

How do you suggest assessment to your patient?

Your patient may feel defensive about being assessed and may even refuse assessment for fear of being told that he/she can no longer drive. After all, driving is not only the primary form of transportation for most Americans, but it also represents freedom and independence.

In suggesting assessment to your patient, it is best to use direct language. Reassure your patient that you have his/her safety in mind and emphasize the fact that you would like to help him/her drive safely for as long as possible. If your patient expresses fear that you will "take away the driver's license," you may find it helpful to reassure him/her that you do not have the legal authority to take away anyone's license. Explain that you may recommend retirement from driving if needed and refer him/her to the Department of Motor Vehicles (DMV), but you cannot take away anyone's license.

Here is an example of how you could suggest assessment to Mr. Phillips:

"Mr. Phillips, I'm concerned about your safety when you drive. Your son tells me that you were in a car crash recently and that you've had several near-misses in the past two years. I'd like us to talk about some simple tests we can do – such as having you walk down the hall while I time you. These will help us decide what we can do to help you drive more safely."

"This is how it works: Based on what we've discussed about your health and how well you do on these tasks, we'll do our best to fix anything that needs to be fixed. For example, if you're not seeing as well as you should, then we'll do what we can to improve your vision. If there's something we can't fix, then I'll refer you to a Driver Rehabilitation Specialist. He or she can go out on the road with you to watch you drive, then recommend ways to make your driving safer. Our goal is to keep you on the road safely for as long as possible."

What if your patient refuses assessment?

Despite your best efforts, your patient may refuse ADReS. If this occurs, you have several options:

- Encourage your patient to take the self-assessment (*Am I a Safe Driver?*) found in Appendix B. This may help raise your patient's level of awareness and make him/her more open to ADReS.
- Counsel your patient on the *Successful Aging Tips* and *Tips for Safe Driving*, both found in Appendix B. These may help raise your patient's level of awareness and encourage safe driving habits.
- In the patient's chart, document your concern regarding his/her driving ability and support this with relevant information from the patient's presentation, medical history, medications, and driving history. Document the patient's refusal for further assessment, along with any counseling you have provided. Not only will this remind you to follow up at the next visit, but it could potentially protect you in the event of a lawsuit. (A detailed medicolegal discussion can be found in Chapter 7.)
- Follow up at the patient's next appointment: Did he/she take the self-assessment? Has he/she put any of the Tips into practice? Does the patient have any questions or concerns? Would he/she like to undergo ADReS?
- If the patient's family members are concerned about the patient's driving safety, you can give them a copy of *How to Help the Older Driver,* found in Appendix B. Enlist their aid in creating a transportation plan for the patient and encouraging the patient to undergo ADReS.

- If you are urgently concerned about your patient's driving safety, you may wish to forego ADReS and refer your patient directly to a Driver Rehabilitation Specialist (see Chapter 5) or to your state driver licensing agency for a focused driving assessment. Depending on your state's reporting laws, you may be legally responsible for reporting "unsafe" drivers to the licensing agency. (A detailed discussion of the physician's legal responsibilities and a reference list of reporting laws can be found in Chapters 7 and 8, respectively.)

Assessment of Driving-Related Skills (ADReS)

The three key functions for safe driving are (1) vision, (2) cognition, and (3) motor function. ADReS assesses these three functions to help you identify specific areas of concern.

Please note that ADReS does ***not*** predict crash risk! Many researchers are working to create an easy-to-use test battery that predicts crash risk; however, further research is needed before this can be achieved. Until physicians are able to test their patients ***directly*** for crash risk, they can test them ***indirectly*** by assessing the functions that are necessary for safe driving. Any impairment in these functions may increase the patient's risk for crash.

The tests in ADReS were selected from among the many available functional tests based on their ease of use, availability, amount of time required for completion, and quality of information provided by the patient's test performance. The individual tests in ADReS have been validated as measures of their particular function and in some cases have been studied with relation to driving.

The tests are presented in this chapter, beside a discussion of the key functions for driving. There is an accompanying score sheet at the end of this chapter that you can photocopy and place in the patient's chart. On the score sheet, the tests are presented in the recommended order of execution. Current Procedural Terminology (CPT®) codes for components of ADReS can be found in Appendix A, and the score sheet can serve as documentation for these codes.

To perform ADReS, you will need a Snellen chart, tape to mark distances on the floor, a stopwatch, and a pencil. There are two paper-and-pencil tests in ADReS, one of which requires a pre-printed form. This is included at the end of this chapter.

Vision

Vision is the primary sense utilized in driving, and it is responsible for 95% of driving-related inputs.[1] In every state, candidates are required to undergo vision testing in order to obtain a driver's license. Many states also require vision testing at the time of license renewal.

Aspects of vision that are important for safe driving and can be readily assessed by a physician include:

- Visual acuity
- Visual fields

Numerous studies indicate that visual acuity declines between early and late adulthood, although there is no consensus on the rate of decline or decade of onset. Decline in acuity is related to physiologic changes of the eye that occur with age and the increased incidence of diseases such as cataracts, glaucoma, and macular degeneration.[2] While far visual acuity is crucial to many driving-related tasks, declines in near visual acuity may be associated with difficulty seeing and reading maps, gauges, or controls inside the vehicle. In ADReS, far visual acuity is measured with a Snellen chart.

Visual fields may decline as a result of the natural aging process and medical conditions such as glaucoma, retinitis pigmentosa, and strokes. In addition, upper visual fields may be obstructed by ptosis, which is more common in the older population. Drivers with loss of peripheral vision may have trouble noticing traffic signs or cars and pedestrians that are about to cross their path. Although earlier studies examining the relationship between visual field loss and driving performance were equivocal, more recent studies have demonstrated significant relationships.[3] In ADReS, visual fields are measured through confrontation testing.

Aspects of vision that are important for safe driving but are not included in ADReS are:

- Contrast sensitivity: Older adults require about three times more contrast than young adults to distinguish targets against a background. This deficit in contrast sensitivity is further exacerbated by low light levels. Thus, older drivers may have problems distinguishing cars or pedestrians against background scenery, and this problem tends to be much worse at night or during storms.[4] While contrast sensitivity has been found to be a valid predictor of crash risk among older drivers,[3] most vision care specialists are not familiar with measures of contrast sensitivity, nor is it routinely measured in eye exams. Further research must be performed to produce standardized, validated cut-off points for contrast sensitivity, and further work must be done to introduce this concept to the vision care specialties.

- Accommodation to changes in illumination: Older adults require more time than young adults to adjust to abrupt changes in light or darkness. As a result, older drivers often report difficulties dealing with the sudden onset of bright lights, such as the headlights from an oncoming car. Glare may also play a role in their visual difficulties.[4]

Cognition

Driving is a complex activity that requires a variety of high-level cognitive skills. Among the cognitive skills needed for driving are:

- Memory
- Visual perception, visual processing, and visuospatial skills
- Selective and divided attention
- Executive skills

Both crystallized memory and working memory are necessary for driving. Not only must drivers remember how to operate their vehicle and what signs and signals mean, they must also remember their current destination and how to get there.[6] In addition, drivers must be able to retain certain information while simultaneously processing other information—a skill called working memory. Working memory (and the other cognitive skills in which it plays a role) tends to decline with age, while crystallized memory remains relatively intact across the life span. It is unclear at present whether age-related memory impairments reflect only preclinical forms of age-related diseases or whether these occur independently of disease processes.[7]

Visual perception, visual processing, and visuospatial skills are necessary for the driver to organize visual stimuli into recognizable forms and know where they exist in space. Without these skills, the driver would (for example) be unable to distinguish a stop sign and determine its distance from the car. In general, visual

Assessment of Driving–Related Skills (ADReS)

The Snellen E Chart

The Snellen Chart is used to test far visual acuity. The standard chart measures 9"x 23" and is printed on a durable, tear-resistant latex sheet, with eyelets for easy hanging. Letters are printed on one side, and tumbling 'E' symbols are printed on the reverse.

With the chart hanging on a wall, the patient is instructed to stand 20 feet away. Wearing his/her usual glasses or contact lenses, the patient reads the smallest line possible with both eyes open. The patient's visual acuity is based on the lowest full row that he/she successfully reads. For example, if the best the patient can see is 20/40, then his/her acuity is 20/40 OU (oculus uterque). This process can be repeated for each eye individually (right eye: OD or oculus dexter; left eye: OS or oculus sinister).

For individuals who cannot read, the chart can be reversed to the tumbling 'E' side. The patient is asked to point in the direction that the letter 'E' faces (up, down, right, or left).

This test is best performed in a hallway with good lighting. Tape can be used to mark a distance of 20 feet.

Far visual acuity can also be measured using various other charts, such as the Snellen Chart for a 10 foot distance or the Sloan Low Vision Letter Chart for 6 meters (20 feet).[5]

Near visual acuity can be tested with commercially available charts, and should be considered whenever a patient complains of difficulty seeing or reading maps, gauges or controls within the vehicle.

The Snellen E Chart is available from Prevent Blindness America for $13.50 plus shipping and handling. To order, call 1 800 331-2020.

Visual Fields by Confrontation Testing

The examiner sits or stands 3 feet in front of the patient, at the patient's eye level. The patient is asked to close his/her right eye, while the examiner closes his/her left eye. Each fixes on the other's nose.

The examiner then holds up a random number of fingers in each of the four quadrants, and asks the patient to state the number of fingers. With the fingers held slightly closer to the examiner, the patient has a wider field of view than the examiner. Provided that the examiner's visual fields are within normal limits, if the examiner can see the fingers, then the patient should be able to see them unless he/she has a visual field deficit.

The process is repeated for the other eye (patient's left eye and examiner's right eye closed). The examiner indicates any visual field deficits by shading in the area of deficit on a visual field representation.

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Trail-Making Test, Part B

This test of general cognitive function also specifically assesses working memory, visual processing, visuospatial skills, selective and divided attention, and psychomotor coordination. In addition, numerous studies have demonstrated an association between poor performance on the Trail-Making Test, Part B and poor driving performance. (Please see Chapter 4 for further discussion.)

Part B involves connecting, in alternating order, encircled numbers (1-12) and encircled letters (A-L) randomly arranged on a page. This test is scored by overall time required to complete the connections accurately. The examiner points out and corrects mistakes as they occur; the effect of mistakes, then, is to increase the time required to complete the test. This test usually takes 3-4 minutes to administer.

The examiner administers the test to the patient, stating, "Now I will give you a paper and pencil. On the paper are the numbers 1 through 12 and the letters A through L, scattered across the page. Starting with 1, draw a line to A, then to 2, then to B, and so on, alternating back and forth between numbers and letters until you finish with the number 12. I'll time how fast you can do this. Are you ready? Go." The examiner records time-to-complete.[5]

The Trail-Making Test, Part B can be found at the end of this chapter.

Clock Drawing Test

Depending on the method of administration and scoring, the clock drawing test (CDT) may assess a patient's long-term memory, short-term memory, visual perception, visuospatial skills, selective attention, and executive skills. Preliminary research indicates an association between specific scoring elements of the clock drawing test and poor driving performance.[12] (Please see Chapter 4 for further discussion.)

In this form of the CDT, the examiner gives the patient a pencil and a blank sheet of paper and says, "I would like you to draw a clock on this sheet of paper. Please draw the face of the clock, put in all the numbers, and set the time to ten minutes after eleven." This is not a timed test, but the patient should be given a reasonable amount of time to complete the drawing. The examiner scores the test by examining the drawing for each of eight specific elements.[12, 13]

The eight elements of the Freund Clock Scoring for Driving Competency can be found on the ADReS Score Sheet at the end of this chapter.

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processing may slow[4] and complex visuospatial skills may decline with age, while visual perception remains stable.[8]

When driving, many demands are made on a driver's attention. In particular, drivers must possess selective attention—the ability to prioritize stimuli and focus on only the most important—in order to attend to urgent stimuli (such as traffic signs) while not being distracted by irrelevant ones (such as roadside ads). In addition, drivers must possess divided attention in order to focus on the multiple stimuli involved in most driving tasks. Attentional functioning may decline with age,[9] with divided attention showing more pronounced changes than selective attention.[10]

Executive skills are required to analyze driving-related stimuli and formulate appropriate driving decisions. Executive skills allow a driver to appropriately make the decision to stop at a red light, or stop at a green light if a pedestrian is in the path of the vehicle. The capacity for this kind of logical analysis tends to decline with age.[8]

While age itself may be associated with certain types of cognitive decline, medical conditions (such as dementia) and medications common in the older population have a large impact on cognition as well. The fact that crashes involving older drivers commonly occur in complex situations in which there is a risk of cognitive overload suggests that cognitive limitations play a large role in crash causation.[11]

In ADReS, cognition is measured through the Trail-Making Test, Part B (only) and the Clock Drawing Test, Freund Clock Scoring for Driving Competency.

Motor Function

Driving is a physical activity that requires motor abilities such as:

- Muscle strength and endurance
- Range of motion of the extremities, trunk, and neck
- Proprioception[14]

Motor abilities are necessary for operating vehicle controls appropriately and consistently and turning to view traffic. Even before driving, motor abilities are needed to enter the car safely and fasten the seatbelt. The natural process of aging may involve a decline in muscle strength, muscle endurance, flexibility, and joint stability. (Whether proprioception changes appreciably with age has not been solidly established.[14]) Furthermore, osteoarthritis and other musculoskeletal problems are common in the elderly. Patients who suffer pain and limitations from these conditions may not only experience direct effects on their driving ability, but also decrease their physical activity, causing further decline in motor function.

In ADReS, motor function is measured through the rapid pace walk, manual test of range of motion, and manual test of motor strength.

ADReS Score Sheet

When administering ADReS, you may find it helpful to use the ADReS Score Sheet at the end of this chapter. This form may be photocopied, filled out, and placed in the patient's chart. The ADReS Score Sheet presents the tests in the simplest order of administration and provides space for recording test results.

Current Procedural Terminology (CPT®) codes for components of ADReS can be found in Appendix A. The ADReS Score Sheet can serve as documentation for these codes.

Rapid Pace Walk

This is a measure of lower limb strength, endurance, range of motion, balance, and gross proprioception. A 10-foot path is marked on the floor with tape. The subject is asked to walk the 10-foot path, turn around, and walk back to the starting point *as quickly as possible.* If the patient normally walks with a walker or cane, he/she may use it during this test. The total walking distance is 20 feet.

The examiner begins timing the patient when he/she picks up the first foot, and stops timing when the last foot crosses the finish mark. This test is scored by the total number of seconds it takes for the patient to walk 10 feet and back.[5] In addition, the examiner should indicate on the scoring sheet whether the patient used a walker or cane.

Manual Test of Range of Motion

The examiner tests the patient's range of motion by asking the patient to perform the requested motions bilaterally:

- Neck rotation: "Look over your shoulder like you're backing up or parking. Now do the same thing for the other side."
- Finger curl: "Make a fist with both of your hands."
- Shoulder and elbow flexion: "Pretend you're holding a steering wheel. Now pretend to make a wide right turn, then a wide left turn."
- Ankle plantar flexion: "Pretend you're stepping on the gas pedal. Now do the same for the other foot."
- Ankle dorsiflexion: "Point your toes towards you."

The examiner scores the test by choosing the appropriate description of test performance: (1) Within normal limits; or (2) Not within normal limits: Good range of motion with excessive hesitation/pain or very limited range of motion.

Manual Test of Motor Strength

The examiner tests the patient's motor strength by manually flexing/extending the patient's limbs, and asking the patient to resist the examiner's movements. The examiner should test bilateral—

- Shoulder adduction, abduction and flexion
- Wrist flexion and extension
- Hand-grip strength
- Hip flexion and extension
- Ankle dorsiflexion and plantar flexion[15]

Motor strength should be recorded on a scale of 0-5, as stated below:

Grade	*Definition*
5/5	Normal strength: movement against gravity with full resistance
4/5	Movement against gravity and some resistance
3/5	Movement against gravity only
2/5	Movement with gravity eliminated
1/5	Visible/palpable muscle contraction, but no movement
0/5	No contraction[16]

Strength that is slightly less than grade 5/5 but still greater than 4/5 may be recorded as 5-/5. Similarly, strength that is slightly greater than 4/5 but still less than 5/5 may be recorded as 4+/5. This applies to all other grades of strength as well.

Although you may administer the tests in the order that you prefer, we recommend the following order:

- Visual fields by confrontation testing
- Snellen E chart—If your office has a long hallway, hang the chart at the end of the hallway and mark a 20-foot distance on the floor with tape. Have the patient stand at the tape.
- Rapid pace walk—You will also need to mark a 10-foot distance on the floor. With the patient already standing at the 20-foot mark, have him/her walk to the 10-foot mark, then back.
- Manual test of range of motion—This is performed once the patient has returned to the exam room.
- Manual test of motor strength
- Trail-Making Test, Part B
- Clock Drawing Test—Ask the patient to turn over the Trail-Making Test sheet and draw a clock on the blank side.

A discussion of these tests' efficacy, scoring, and recommended interventions based on performance is included in the next chapter.

References

1 Shinar D, Schieber F. Visual requirements for safety and mobility of older drivers. *Human Factors.* 1991;33(5):507-519.

2 Carr DB. Assessing older drivers for physical and cognitive impairment. *Geriatrics.* 1993;48(5):46-51.

3 Dobbs BM. *Medical Conditions and Driving: A Review of the Scientific Literature.* Washington, DC: National Highway Traffic Safety Administration; 2003.

4 Owsley C, Ball K. Assessing visual function in the older driver. *Clinics in Geriatric Medicine.* 1993;9(2):389-401.

5 Staplin L, Lococo KH, Stewart J, Decina LE. *Safe Mobility for Older People Notebook.* Washington, DC: National Highway Traffic Safety Administration; 1999.

6 Colsher PL, Wallace RB. Geriatric assessment and driver functioning. *Clinics in Geriatric Medicine.* 1993;9(2):365-375.

7 Gabrieli JDE, Brewer JB, Vaidya CJ. Memory. In: Goetz CG, Pappert EJ, eds. *Textbook of Clinical Neurology,* 1st Ed. W.B. Saunders Company, 1999:56-69. Available at: http://www.mdconsult.com. Accessed January 23, 2003.

8 Cohen GD. Aging and Mental Health. In: Beers MH, Berkow R, eds. *The Merck Manual of Geriatrics.* Merck & Co., Inc., 2000. Available at: http//www.merck.com/pubs/mm-geriatrics. Accessed January 23, 2003.

9 Hartley AA. Attention. In: Craik FIM, Salthouse TA, eds. *The Handbook of Aging and Cognition.* Hillsdale, NJ: Erlbaum; 1992:3-50.

10 Madden DJ, Turkington TG, Provenzale JM, Hawk TC, Hoffman JM, Coleman RE. Selective and divided visual attention: Age-related changes in regional cerebral blood flow measured by H215O PET. *Human Brain Mapping.* 1997;5:389-409.

11 Lundberg C, Hakamies-Blomqvist L, Almkvist O, Johansson K. Impairments of some cognitive functions are common in crash-involved older drivers. *Accident Analysis and Prevention.* 1998;30(3):371-377.

12 Freund B, Gravenstein S, Ferris R. Use of the clock drawing test as a screen for driving competency in older adults. Presented at: Annual Meeting of the American Geriatrics Society; May 9, 2002; Washington, DC.

13 E-mail correspondence from Barbara Freund, PhD, dated 9/16/02, 9/17/02, and 9/19/02.

14 Marottoli RA, Drickamer MA. Psychomotor mobility and the elderly driver. *Clinics in Geriatric Medicine.* 1993;9(2):403-411.

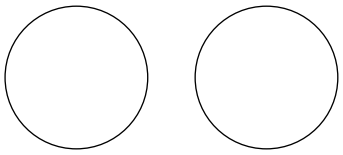
15 Messinger-Rapport BJ, Rader E. High risk on the highway: How to identify and treat the impaired older driver. *Geriatrics.* 2000;55(10):32-45.

16 Maxwell RW. *Maxwell Quick Medical Reference,* 3rd ed. Maxwell Publishing Company, Inc., 1996.

ADReS Score Sheet

Patient's Name: _____ **Date:** _____

1. **Visual fields:** Shade in any areas of deficit.



Patient's R L

2. **Visual acuity:** _____ OU
   Was the patient wearing corrective lenses? If yes, please specify: _____

3. **Rapid pace walk:** _____ seconds
   Was this performed with a walker or cane? If yes, please specify: _____

4. **Range of motion:** Specify 'Within Normal Limits' or 'Not WNL.' If not WNL, describe.

	Right	**Left**
Neck rotation		
Finger curl		
Shoulder and elbow flexion		
Ankle plantar flexion		
Ankle dorsiflexion		

Notes:

5. **Motor strength:** Provide a score on a scale of 0-5.

	Right	**Left**
Shoulder adduction		
Shoulder abduction		
Shoulder flexion		
Wrist flexion		
Wrist extension		
Hand grip		
Hip flexion		
Hip extension		
Ankle dorsiflexion		
Ankle plantar flexion		

Patient's Name: _____ **Date:** _____

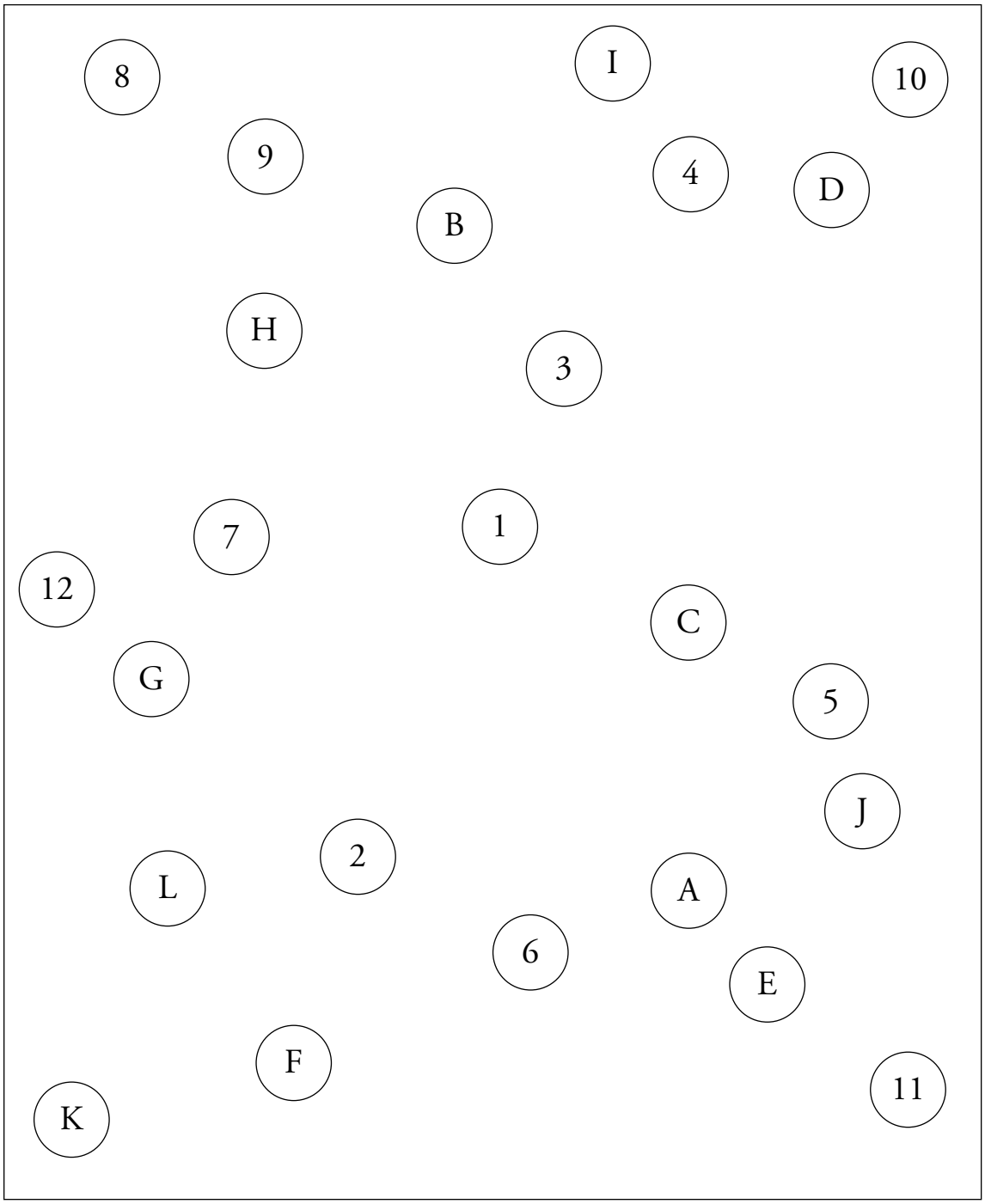
6. **Trail-Making Test, Part B:** _____ seconds

7. **Clock drawing test:** Please check 'yes' or 'no' to the following criteria.

	Yes	No
All 12 hours are placed in correct numeric order, starting with 12 at the top		
Only the numbers 1-12 are included (no duplicates, omissions, or foreign marks)		
The numbers are drawn inside the clock circle		
The numbers are spaced equally or nearly equally from each other		
The numbers are spaced equally or nearly equally from the edge of the circle		
One clock hand correctly points to two o'clock		
The other hand correctly points to eleven o'clock		
There are only two clock hands		

Trail-Making Test, Part B

Patient's Name: _____ **Date:** _____



Chapter 4

Physician Interventions

Despite your encouragement, Mr. Phillips declines to take ADReS because "I don't see the need for it." You reiterate your concerns for his safety, and give him a copy of the **Am I A Safe Driver?** *worksheet to complete at home. In addition, you counsel Mr. Phillips on the* **Successful Aging Tips** *and* **Tips for Safe Driving.** *Mr. Phillips agrees to allow his son to observe his driving, and you give his son the* **How to Help the Older Driver** *resource sheet. You document all of this in Mr. Phillips' chart.*

At Mr. Phillips' next visit, you ask him if he has tried putting any of the **Tips** *into practice. He admits that he had another near-miss, and the son states he observed several driving errors. These motivated Mr. Phillips to complete the* **Am I A Safe Driver** *worksheet. He claims that this was an eye-opening experience, and he is now willing to undergo ADReS.*

On ADReS, Mr. Phillips completes the rapid pace walk in 9.5 seconds. His visual acuity is 20/70 OU. His motor strength is 4-/5 in both lower extremities, and 4/5 in both upper extremities. He has limited range of motion on the finger curl and neck rotation; ankle plantar flexion and dorsiflexion are within normal limits. It takes him 82 seconds to complete the Trail-Making Test, Part B, and his clock drawing is scored as 'normal' for all eight criteria.

Now that your patient has undergone ADReS, what does his/her performance indicate? In this chapter, we will help you interpret your patient's test performance by providing you with scoring cut-offs. We also provide examples of interventions to help you manage and treat any functional deficits that are identified through ADReS.

As you review the recommended interventions,* remember that the goal of physician intervention is to identify and correct any functional deficits that may impair the patient's driving performance.

Visual Acuity

Although many states currently require far visual acuity of 20/40 for an unrestricted license, current research indicates that there is no scientific basis for this cut-off. In fact, studies undertaken in some states have demonstrated that there is no increase crash risk between 20/40 and 20/70, resulting in several new state requirements.[1]

General recommendations regarding visual acuity and driving are stated below. Please note that these recommendations are subject to each state's licensing requirements.

For visual acuity less than 20/40, the physician should:

- Ensure that the underlying cause of vision loss is adequately treated, if treatment is possible. If the patient is not currently under the care of a specialist, referral is recommended.
- Ensure that the patient has and uses the appropriate glasses or contact lenses. Again, if the patient is not currently under the care of a specialist, referral is recommended.
- Recommend that the patient reduce the impact of decreased visual acuity by restricting travel to low-risk areas and conditions (eg, familiar surroundings, non-rush hour traffic, low speed areas, daytime, and good weather conditions).
- Be aware that the patient may require future re-testing of visual acuity for vision decline caused by chronic, progressive diseases.

For visual acuity less than 20/70, the physician should follow the recommendations stated above, and:

- Recommend an on-road assessment performed by a driver rehabilitation specialist to evaluate the patient's performance in the actual driving task, where permitted and available.

For visual acuity less than 20/100, the physician should follow the recommendations stated above, and:

- Recommend that the patient not drive unless safe driving ability can be demonstrated in an on-road assessment performed by a driver rehabilitation specialist, where permitted and available.

Visual Fields

Research indicates that visual field loss can significantly impact driving safety. In an examination of 10,000 volunteer California license applicants, significant deterioration in visual fields was found among drivers over 60 years old. In addition, drivers with binocular visual field loss had driving accident and conviction rates more than twice as high as age- and gender-matched drivers with normal fields.[2]

* Please be aware that the recommendations stated in this chapter are subject to your state's reporting laws and driver licensing requirements.

While it is known that adequate visual fields are important for safe driving, there is no conclusive evidence to define what is meant by "adequate." Most likely, this varies widely from patient to patient. For example, a driver with limited peripheral vision but excellent scanning ability may drive as safely as a driver with unrestricted peripheral vision but poor neck rotation.[1]

General recommendations regarding visual fields and driving are stated below. Physicians should be aware of their state's visual field requirements, if any, and adhere to them.

For visual field deficits noted on clinical exam, the physician should:

- Ensure that the underlying cause is adequately treated, if treatment is possible. If the patient is not currently under the care of a specialist, referral is recommended. Automated visual field testing may help define the extent of the deficit.
- For binocular visual fields of questionable adequacy (as deemed by clinical judgment), an on-road assessment performed by a driver rehabilitation specialist is strongly recommended. Through driving rehabilitation, the patient may learn to compensate for decreased visual fields. In addition, the driver rehabilitation specialist may prescribe enlarged side and rear-view mirrors as needed and train the patient in their use.
- Be aware that the patient may require future re-testing of visual fields for visual field deficits caused by chronic, progressive diseases.

Cognition

Although the following cognitive tests are scored separately, interventions are recommended if the patient reaches designated cut-off values (as described below) on either of them.

Trail-Making Test, Part B

A time for completion of greater than 180 seconds signals a need for intervention.[3]

Numerous studies have demonstrated an association between performance on the Trail-Making Test, Part B (TMT-B) and cognitive function and/or driving performance. In a study of 1,700 drivers aged 65 and older applying for renewal of their North Carolina driver's license, TMT-B test results were strongly associated with recent prior crash involvement.[4] A study of 105 drivers in Nebraska aged 65-88 indicated that on-road driving performance significantly correlated with TMT-B performance (correlation coefficient -0.42).[5] Most recently, data from the Maryland Pilot Older Driver Study†—a study of 2,508 drivers aged 55 and older, including license renewal applicants, medically referred drivers, and older drivers in a residential community—demonstrated a significant correlation between TMT-B performance and future at-fault crash in the license renewal sample (odds ratio 2.21).[3]

Clock Drawing Test, Freund Clock Scoring for Driving Competency

Any incorrect element in the Freund Clock Scoring signals a need for intervention.

Clock drawing tests (CDT) have been found to correlate significantly with traditional cognitive measures, and to discriminate healthy older patients from ones with dementia.[6] Several versions of the CDT are available, each varying slightly in the method of administration and scoring.[7] The Freund Clock Scoring is based on eight 'principal components' (as outlined on the ADReS Score Sheet), which were derived by analyzing the clock drawings of 88 drivers aged 65 and older against their performance on a driving simulator. Errors on these principal components were found to correlate significantly with specific hazardous driving errors, signaling the need for formal driving evaluation.[8, 9]

If the patient's performance signals the need for interventions, the physician should:

- Perform (or refer for) more detailed cognitive testing as needed.
- Identify the cause of the cognitive decline:
  - Based on historical data and the results of physical and cognitive testing, order lab tests as needed to evaluate for causes of cognitive decline: CBC for anemia or infection; comprehensive metabolic profile for electrolyte imbalance and renal function; finger stick for transient hypoglycemia; pulse oximetry for hypoxia; TSH for hypothyroidism; liver function tests; Vitamin B12 and folate for vitamin deficiency dementia; noncontrast CT or MR for dementia or stroke; etc.[10]
  - Based on level of suspicion, screen for depression.[11]
  - Based on level of suspicion, review the patient's medication regimen and the side effects of the medications, and question the patient about the onset of cognitive decline with new medications or dosage changes. Be aware of the potential effects of polypharmacy on cognitive ability.

† Among the tests used in the Maryland Pilot Older Driver study, performance on the Motor Free Visual Perception Test, Visual Closure Subtest was most predictive of at-fault crash involvement by drivers in the license renewal sample. However, this test was not included in ADReS because it is not readily accessible to physicians.

- If possible, treat the underlying disorder and/or adjust the medication regimen as needed.
- Refer the patient to a neurologist, psychiatrist, or neuropsychiatrist for treatment as needed.
- Recommend an on-road assessment performed by a driver rehabilitation specialist to assess the patient's performance in the actual driving task. A comprehensive on-road assessment is particularly useful for assessing the patient's sustained attention while driving.
- If the patient's cognitive decline is chronic and progressive, be aware that the patient may require re-testing at regular intervals. Strongly recommend that the patient begin exploring alternative forms of transportation now, and encourage the patient to involve family members/caregivers in these discussions. (See also Figures 4.1 and 4.2)

Motor Ability

Although the following tests are scored separately, interventions are recommended if the patient reaches designated cut-off values (as described below) on any of them.

Rapid Pace Walk

A time for completion of greater than 9.0 seconds signals a need for intervention.[3]

The rapid pace walk assesses lower limb mobility, trunk stability, and balance. In a prospective cohort study of 283 drivers aged 72 years and older, subjects who took longer than 7 seconds to complete the test were twice as likely to experience an adverse traffic event (traffic crash, violation, or being stopped by the police) in the year following the test.[14] More recently, data from the Maryland Pilot Older Driver Study—a study of 2,508

Figure 4.1
Dementia and Driving

We encourage all physicians to pursue a diagnosis of dementia where appropriate. Dementia is one of the most serious disorders in the older population, and it affects 4 to 5 million persons in the United States.[12] However, it is frequently unrecognized and undocumented by primary care physicians[13]—a situation that is particularly unfortunate since early treatment and planning may slow the course of the disease and improve the safety and comfort of the patient.

With regards to driving, patients with progressive dementia ultimately become unsafe to drive, yet often lack the cognitive abilities to be aware of this. When it becomes unsafe for these patients to drive, it frequently falls upon family members and caregivers to enforce driving cessation and arrange alternative forms of transportation. With early diagnosis, patients and their families have the opportunity to plan early for a smooth transition from 'driving' to 'non-driving' status. (For a more detailed discussion of driving cessation and the dementia patient, see Chapter 6.)

Figure 4.2
The Co-Pilot Phenomenon

Co-piloting refers to a situation in which an individual drives with the assistance of a passenger who provides navigational directions and instructions on how to drive. In contrast to passengers who lend the driver company and provide simple navigational aid (eg, reading a map or finding an address), co-pilots participate more actively in the driving task. For example, patients with dementia may rely on co-pilots to tell them where to drive and how to respond to driving situations, while patients with vision deficits may require passengers to alert them to traffic signs and signals.

The use of co-pilots is not rare. In a study of the prevalence and cessation of driving among older men with dementia, about 10% of the 59 subjects still driving relied on co-pilots.[16] It has even been recommended that individuals with mild to moderate cognitive decline (Global Deterioration Score 2, 3, 4) drive only with a co-pilot,[17] and that state driver licensing agencies accommodate these individuals by permitting on-road assessment with co-pilots.[18]

Nonetheless, patients should not continue driving unless they are capable of driving safely without the use of a co-pilot. In many traffic situations, there is insufficient time for the co-pilot to detect a hazard and alert the driver, and for the driver to then respond quickly enough to avoid a crash. In such situations, the driver places not only himself/herself in danger, but also the co-pilot and other road users. Furthermore, the use of co-pilots to meet standards for licensure raises questions of who, exactly, is licensed to drive, how the presence of the co-pilot can be ensured, and what standards for medical fitness-to-drive should be applied to the co-pilot.[19]

Patients who are not safe to drive should be recommended to retire from driving, regardless of the use of a co-pilot. *Co-pilots should never be recommended to unsafe drivers as a means to continue driving.* Instead, efforts should focus on helping the patient find safe transportation for himself/herself and the co-pilot.

drivers aged 55 and older, including license renewal applicants, medically referred drivers, and older drivers in a residential community—demonstrated a correlation between performance on the rapid pace walk and future at-fault crash in the license renewal sample (odds ratio 1.70).[3]

Manual Test of Motor Strength

Less than grade 4/5 strength in either upper extremity or the right lower extremity signals a need for intervention. (If the patient drives a vehicle with manual transmission, or if the patient reports using both feet to operate the brake and accelerator pedals,[††] this applies to the left lower extremity as well.)

The manual test of motor strength evaluates separate muscle groups in both the upper and lower limbs. The United States Public Health Service guidelines regarding musculoskeletal ability and driving state that a driver should have at least grade 4/5 strength in the right lower extremity and both upper extremities.[15] The physician should also be aware that the amount of strength required for safe driving may depend on the vehicle driven by the patient. For example, a patient who drives an older car that does not have power steering may require greater strength to safely drive this vehicle.

Manual Test of Range of Motion

If the patient's range of motion is not within normal limits (ie, if the patient has a good range of motion with excessive hesitation/pain or a very limited range of motion), this signals the need for intervention.

The scoring for range of motion is vague, and this is due to several reasons: (1) Range of motion requirements vary with automobile design, and so it is difficult to specify exact requirements; (2) as discussed earlier in the visual fields section, the impact of limited range of motion on driving safety also depends on other functions; and (3) as with all the other tests in ADReS, a patient's poor performance should act as a stimulus for optimization of function, rather than for immediate driving restrictions.

If the patient's performance on this test is not within normal limits, the physician should be certain to elicit the reason: Do these movements cause muscle or joint pain? Does the patient complain of tight muscles or stiff joints? Do these movements cause a loss of balance? Knowing the answers to these questions will help in the management of the patient's physical limitations.

If the patient's performance warrants interventions, the physician should:

- Encourage the patient to drive a vehicle with power steering, power brakes, and automatic transmission, if he/she does not already do so.
- Recommend that the patient maintain or commence a consistent regimen of physical activity, including cardiovascular exercise, strengthening exercises, and stretching. (*Successful Aging Tips,* found in Appendix B, includes some exercise suggestions.)
- Refer the patient to a physical therapist or occupational therapist as needed for physical conditioning.
- Provide effective pain control, if the patient's range of motion and mobility are limited by pain. This may include prescribing analgesics or medications that treat the underlying disorder (eg, a urate lowering drug for treatment of gout) or changing when the patient takes pain medications so that relief is achieved prior to driving. Please note that many analgesics (including narcotics and narcotic-like substances) have the potential to impair driving ability and may be more deleterious to driving performance than the instigating pain. These medications should be avoided, if possible, or prescribed in the lowest effective dose.
- Refer the patient to a specialist for management of any joint disease, foot pain, or foot abnormalities that interfere with the patient's handling of car controls.
- Refer the patient to a specialist as needed for management of neuromuscular disorders and residual deficits from stroke.
- Recommend an on-road assessment performed by a driver rehabilitation specialist to assess the patient's performance in the actual driving task. A comprehensive on-road assessment is particularly useful for assessing the impact of physical fatigue on the patient's driving skills. In addition, the driver rehabilitation specialist may prescribe adaptive devices as needed (eg, a spinner knob on the steering wheel to compensate for poor hand grip or an extended gear shift lever to compensate for reduced reach) and train the patient in their use.

†† Although this is not the recommended way of driving, many older drivers initially learned to drive using both feet to operate the pedals.

What do you do next?

After administering ADReS, you can follow one of three courses of action. (See also *Physician's Plan for Older Drivers' Safety* in Chapter 1.)

- If the patient performs well on all three sections of ADReS, you may recommend that he/she continue driving without further work-up or treatment. Counsel the patient on health maintenance by providing the *Successful Aging Tips* and *Tips for Safe Driving* (found in Appendix B), and periodically follow up on the patient's driving safety.
- If the patient performs poorly on any section of ADReS but the causes of poor performance are medically correctable, pursue medical treatment until the patient's function has improved to the fullest extent possible. The patient may need to be counseled to limit driving as treatment proceeds. Assess the patient's level of improvement with repeat administration of ADReS. If the patient now performs well on all three sections of ADReS, counsel him/her on health maintenance as above.
- If the patient's poor performance on ADReS cannot be medically corrected, or if the patient's function shows no further potential for improvement with medical interventions, refer him/her to a driver rehabilitation specialist (DRS).

ADReS is useful as an in-office assessment, but it does not evaluate the patient's performance in the actual driving task. For this, an on-road assessment performed by a driver rehabilitation specialist (DRS) is needed. The DRS can more specifically determine the patient's level of driving safety and help correct the patient's functional impairments, if possible, through adaptive techniques or devices. We will discuss the role of the DRS in the next chapter.

References

1 American Academy of Ophthalmology. Policy statement: vision requirements for driving. Approved by Board of Trustees, October 2001. Available at: http://www.aao.org/age/member/policy/driving.cfm. Accessed January 9, 2003.

2 Johnson CA, Keltner JL. Incidence of visual field loss in 20,000 eyes and its relationship to driving performance. *Archives of Ophthalmology*. 1983;101:371-375.

3 Staplin L, Lococo K, Gish K, Decina L. *Model Driver Screening and Evaluation Program Final Technical Report, Volume 2: Maryland Pilot Older Driver Study.* Washington, DC: National Highway Traffic Safety Administration. In Press.

4 Stutts JC, Stewart JR, Martell C. Cognitive test performance and crash risk in an older driver population. *Accident Analysis and Prevention.* 1998;30(3):337-346.

5 Tarawneh MS, McCoy PT, Bishu RR, Ballard JL. Factors associated with driving performance of older drivers. *Transportation Research Record.* 1993;1405:64-71.

6 Royall DR, Cordes JA, Polk MJ. Clox: An executive clock drawing task. *Journal of Neurology, Neurosurgery, and Psychiatry*. 1998;64:588-594.

7 Royall DR, Mulroy AR, Chiodo LK, Polk MJ. Clock drawing is sensitive to executive control: A comparison of six methods. *Journal of Gerontology: Psychological Sciences.* 1999;54B(5):328-333.

8 Freund B, Gravenstein S, Ferris R. Use of the clock drawing test as a screen for driving competency in older adults. Presented at: Annual Meeting of the American Geriatrics Society; May 9, 2002; Washington, DC,

9 E-mail correspondence from Barbara Freund, PhD, dated 9/16/02, 9/17/02, and 9/19/02.

10 Messinger-Rapport BJ, Rader E. High risk on the highway: How to identify and treat the impaired older driver. *Geriatrics.* 2000;55:32-45.

11 Knopman DS. Practice parameter: Diagnosis of dementia (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2001;56(9):1143-1153.

12 Marcantonio E. Dementia. In: Beers MH, Berkow R. *The Merck Manual of Geriatrics.* Merck & Co., Inc. 2000. Available at: http://www.merck.com/pubs/mm-gereatrics/home.html. Accessed January 24, 2003.

13 Valcour CG, Masaki KH, Curb JD, Blanchette PL. The detection of dementia in the primary care setting. *Archives of Internal Medicine.* 2000;160:2964-2968.

14 Marottoli RA, Cooney LM, Wagner R, Doucette J, Tinetti ME. Predictors of automobile crashes and moving violations among elderly drivers. *Annals of Internal Medicine.* 1994;121(11):842-846.

15 As described in: Marottoli RA, Drickamer MA. Psychomotor mobility and the elderly driver. *Clinics in Geriatric Medicine.* 1993;9(2):403-411.

16 Foley DJ, Masaki KH, Ross GW, White LR. Driving cessation in older men with dementia. *Journal of the American Geriatrics Society.* 2000;48(8):928-930.

17 Freedman ML, Freeman DL. Should Alzheimers disease patients be allowed to drive? A medical, legal, and ethical dilemma. *Journal of the American Geriatrics Society.* 1996;44(7):876-877.

18 Shua-Haim JR, Gross JS. The "co-pilot" driver syndrome. *Journal of the American Geriatrics Society.* 1996;44(7):815-817.

19 Fox GF, Bashford GM. Dementia and driving: balancing personal independence and public safety. *Medical Journal of Australia.* 1997;167:406-407.

Chapter 5

The Driver Rehabilitation Specialist

After scoring Mr. Phillips' performance on ADReS, you discuss the results with him. You assure him that he scored well on the cognitive tests, but that his performance on the visual and motor tasks signals the need for improvement.

You recommend that Mr. Phillips make an appointment to see his ophthalmologist, whom he has not seen in the past year. You also recommend that he begin exercising regularly by walking for 10-minute intervals, three times a day, and stretching gently afterwards. His son, who is present at the clinic visit, offers to walk and stretch with him several times a week. You ask Mr. Phillips to return to your office in one month.

When Mr. Phillips arrives for his follow-up appointment, he is wearing new glasses. His vision with the new glasses is 20/30 OU. You retest his motor skills, and he is now able to complete the Rapid Pace Walk in 8.0 seconds. His lower extremity strength has improved to 4+/5, but his range of motion on finger curl and neck rotation have not improved. With Mr. Phillips' agreement, you refer him to a driver rehabilitation specialist for vehicle adaptive devices to help him improve his steering wheel grip and side and rear view.

Despite your interventions, your patient will sometimes continue to experience functional deficits that may impair his/her driving performance. In this case, a driver rehabilitation specialist (DRS) is an excellent resource. A DRS can perform a more in-depth functional assessment and evaluate your patient's performance in the actual driving task. Based on the patient's performance, the DRS may recommend that the patient continue driving with or without further restrictions or interventions, recommend adaptive techniques and devices to overcome functional deficits, or recommend that the patient retire from driving.

This chapter will provide you with information you should know before you refer your patient to a DRS.

What is a driver rehabilitation specialist?

A DRS is one who "plans, develops, coordinates, and implements driving services for individuals with disabilities."[1] DRSs are often, but not necessarily, occupational therapists who undergo additional training in driver rehabilitation. Aside from occupational therapy, DRSs also come from backgrounds such as physical therapy, kinesiotherapy, psychology, and driver education.

Many driver rehabilitation specialists receive certification from the Association for Driver Rehabilitation Specialists (ADED)* by fulfilling education and experience qualifications[2] and passing a certification exam.[3] Certified driver rehabilitation specialists (CDRS) renew their certification every three years by fulfilling a minimum amount of continuing education units. While many DRSs either hold certification or are in the process of obtaining the necessary education and experience, certification is not required to practice driver rehabilitation nor for ADED membership.

What do DRSs do?

A DRS evaluates the client's driving skills and provides rehabilitation as needed to enable the client to resume or continue driving safely. Although driver rehabilitation programs may vary, most typically include the elements listed in Figure 5.1 in their evaluation.

Figure 5.1
Elements of DRS Evaluation[4]

Driver Evaluation

- Clinical assessment, including review of driving history, driving needs, and license status; review of medical history and medications; visual/perceptual assessment; assessment of range of motion, motor strength, coordination, sensation, and reaction time; and cognitive assessment.
- Functional (on-road) assessment, including assessment of vehicle ingress/egress, mobility aid management (eg, ability to transport a wheelchair or scooter), vehicle preparation, vehicle control, adherence to traffic rules and regulations, environmental awareness and interpretation, and consistent use of compensatory strategies for visual, cognitive, physical, and behavioral impairments.
- Communication of assessment results and recommendations to the client:
  - Return to driving, with or without adaptive driving equipment.
  - Limit driving with restrictions placed on either the geographic areas or conditions in which the client drives.
  - Attend a remedial driving course to establish/maintain defensive driving skills.
  - Receive adaptive driving instruction or driver retraining using a vehicle matched to the client's individual needs.
  - Cease driving. This is advised when a client does not demonstrate the necessary skills to resume driving, and potential for improvement with retraining is poor. In these cases, alternative transportation options should be reviewed with the client.
  - Receive re-evaluation. This option is indicated if a client's function is expected to improve, or if a client demonstrates adequate skills to drive at present but has a progressive disorder that may cause future decline.

(continued on page 54)

* The acronym 'ADED' was retained when the association changed its name from the Association of Driver Educators for the Disabled to its current name.

Passenger Vehicle Evaluation

- Assessment of vehicle, vehicle modifications, and equipment needed for the client's safe transport as a passenger.
- Consideration of the needs of the patient's family (for example, certain lifts or tie-down systems may be preferable due to an assisting family member's physical limitations).

Treatment and Intervention

- Adaptive driving instruction or driver retraining, with or without vehicle modifications.
- Coordination of vehicle modifications—
  - Vehicle consultation: The DRS serves as a consultant to clients who are purchasing a new vehicle to ensure that the vehicle will accommodate the necessary adaptive equipment.
  - Vehicle modification recommendations: The DRS provides written recommendations for all vehicle/equipment needs to the client, third party payer, and vehicle/equipment dealer.
  - Vehicle inspection: The DRS assists the client and adaptive equipment dealer in a final fitting to ensure optimal functioning of the recommended vehicle/equipment.

An initial driver evaluation can last one to four hours, depending on the client's presenting disabilities and driving needs. Following the clinical assessment, clients undergo an on-road assessment if they meet the minimum state standards for health and vision, and the client holds a valid driver's license or permit. The on-road assessment is performed in a driver rehabilitation vehicle equipped with dual brakes, rear-view mirror and eye-check mirror for the DRS, and any necessary adaptive equipment.

Please note that clients who perform poorly on the clinical assessment may still undergo on-road assessment. In these cases, the DRS may recommend on-road assessment for one of two reasons: (1) Clients who perform poorly on individual components of the clinical assessment may still demonstrate safe driving due to overlearning the driving task; and (2) clients and family members may need concrete evidence of unsafe driving, which can only be documented through observation of behind-the-wheel performance.

Who can DRSs help?

Driver assessment and rehabilitation are appropriate for a broad spectrum of physical and cognitive disabilities. DRSs work with clients who have dementia, stroke, arthritis, low vision, learning disabilities, limb amputations, neuromuscular disorders, spinal cord injuries, mental health problems, cardiovascular diseases, and other causes of functional deficits.

Driver rehabilitation can be as straightforward as providing extended gear shift levers, padded steering wheels, and extra mirrors to patients with arthritis, and training them in their use. It can also be as complex as working with a client with dementia and his/her caregivers to determine the client's driving needs, plan driving routes for the client, supervise practice drives, and provide close and extended follow-up.

What is the cost of driver assessment and rehabilitation?

While the cost of driver assessment and rehabilitation varies between programs and according to the extent of services provided, it is typically $200 to $400+ for a full assessment and $100 an hour for rehabilitation. If adaptive equipment is required, it can cost approximately $70 for a spinner knob, $300 for a left foot accelerator, $700 for hand controls, and thousands of dollars for reduced-effort steering systems, wheelchair lifts, and raised roofs and dropped floors on vans.

Two programs consistently pay for all driver assessment, driver rehabilitation, and vehicle modifications; namely, each state's Workers Compensation and Vocational Rehabilitation programs. Unfortunately, many older drivers do not qualify for either program, and insurance coverage from Medicare, Medicaid, and private insurance companies is variable. In general, Medicare does not reimburse for driving services, and private insurance companies—basing their coverage on Medicare's covered services—act accordingly. However, some driver rehabilitation programs have successfully pursued insurance reimbursement from Medicare and other providers. (Note that while Medicare may provide partial or full reimbursement for driver assessment and rehabilitation, it does not cover the cost of adaptive equipment.) At present, the American Occupational Therapy Association (AOTA) is actively lobbying for consistent Medicare coverage of OT-performed driver assessment and rehabilitation, with the assertions that these services fall under the scope of OT practice and that driving is an instrumental activity of daily living (IADL).

Because rates and extent of insurance reimbursement vary between driver rehabilitation programs, you will need to ask each individual driver rehabilitation

program about its rates, insurance coverage, and payment procedures (eg, patient pays up-front and is reimbursed when insurance payments are received, or payment is collected directly from the insurance provider).

Where can I find a DRS?

Driver rehabilitation programs and DRSs in private practice are often affiliated with hospitals, rehabilitation centers, driving schools,† and state driver licensing agencies. DRSs can sometimes be found through Area Agencies on Aging, universities, and area Departments of Education as well.

To locate a DRS in your area, you may wish to start by calling the occupational therapy departments in your local hospitals and rehabilitation centers. The Association for Driver Rehabilitation Specialists' (ADED) online directory is another good place to start. The directory, which can be found by clicking on the 'Directory' button at www.driver-ed.org or www.ADED.net, lists all 637 ADED members as of January 2003. You can search the directory by state, country, type of facility, services offered, and professional background of the DRS, as well as by name of the DRS or name of the driver rehabilitation program. Please note that not all ADED members provide assessment and rehabilitation services; some are involved solely in vehicle modification, as indicated in their 'program and services' field.

When selecting a DRS or driver rehabilitation program, there are several things you should ask:

- How many years' experience does the DRS (or program) have? In many cases, experience may be a more important indicator of quality than certification alone—there are many well-qualified DRSs who are not certified.
- Does the DRS provide both the clinical assessment and on-road assessment? A DRS who provides both components of the evaluation (or a program whose specialists perform both components as a team) is ideal. Referral to two separate specialists or centers is inconvenient to the physician and patient, and often presents a greater insurance reimbursement challenge.
- Does the DRS provide rehabilitation and training? A good DRS (or program) should be experienced in both assessment and rehabilitation, and should be able to prescribe adaptive devices or vehicle modifications and train the patient in their use.
- How much can the patient expect to pay out-of-pocket for assessment, rehabilitation and adaptive equipment?
- Who will receive a report of the assessment outcome? In most cases, reports are sent to the patient and to the physician and/or referring agency (eg, Workers Compensation or Vocational Rehabilitation). Some DRSs also send reports to family members, at the request of the family and with the client's consent. Whether or not the DRS reports to the state driver licensing agency is highly variable: In states with reporting laws, the DRS and/or physician sends a report; if reporting is not legally required, some DRSs will still send a report in the interest of public safety.
- If the patient is recommended to retire from driving, does the DRS provide any counseling or aid in identifying alternative forms of transportation?††

Making the referral

Prior to making the referral, let your patient know why he/she is being referred, what the assessment and rehabilitation will accomplish, what these will consist of, and how much he/she can expect to pay out of pocket for these services.

For example, you could tell Mr. Phillips

"Mr. Phillips, I'm pleased that you can see better with your new glasses, and that your physical fitness has improved with your walking and stretching. I'd like you to keep up the good work. However, I'm worried about your poor hand grip and I'm concerned that you can't see around you well enough to drive safely. I'd like to send you to someone who can help you with these things."

"This person, who's called a driver rehabilitation specialist, will ask you some questions about your medical history and test your vision, strength, range of motion, and thinking skills—similar to what we did the last time you were here. He/she will also take you out on the road and watch you while you drive. Afterwards, he/she might recommend some accessories for your car, such as extra mirrors, and show you how to use them."

"The cost of this assessment is $400. Training costs $100 an hour, and the car accessories may cost around $100 to $200. However, your insurance will pay for 80% of the assessment and training. This means

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† Before referring patients to driving schools for driver assessment and rehabilitation, physicians are urged to ascertain that the staff has training and experience in driver rehabilitation. A background in driver education alone may be insufficient for appropriate assessment of medically impaired drivers and correct interpretation of the assessment.

†† Please note that DRS counseling does not preclude the need for physician follow-up. Many times, the patient may be too distressed at the time of DRS counseling to absorb information. Physician counseling is crucial for reinforcement of this information, and it demonstrates to the patient the physician's involvement and support.

that you'll pay $80 for the assessment, and—if you need them—$20 an hour for training and $100 to $200 for accessories.††† I know this sounds like a lot of money, but I think this is important for your safety. If you were to ever get into a car crash, your medical bills could end up costing you more money, and you might suffer a great deal of pain and disability. I'd like to prevent that from happening."

When writing the prescription, list a specific reason for assessment and rehabilitation. Assessment because the patient is "elderly," "debilitated," or "frail" does not provide much guidance to the DRS and can complicate insurance reimbursement. On the other hand, "OT driver evaluation for poor finger flexion and neck rotation secondary to arthritis," "DRS evaluation for hemianopia secondary to stroke," and "CDRS evaluation for cognitive deficits secondary to Alzheimer's Disease" provide more guidance for the DRS and are more likely to be reimbursed by insurance.

Remind your patient to follow up with you after he/she undergoes evaluation. If your patient is safe to drive (with or without restrictions, adaptive devices, and/or rehabilitation), reinforce any recommendations made by the DRS. When applicable, family and caregivers should be informed of these recommendations. Also remember to counsel your patient on the *Tips for Successful Aging* and *Safe Driving Tips,* and encourage your patient to start planning alternative forms of transportation in case they ever become necessary. If your patient is not safe to drive, then you will need to counsel your patient on driving cessation. This is discussed in the following chapter.

What if driver assessment is not an option?

Unfortunately, driver assessment and rehabilitation may not always be feasible options for your patients. In some areas, DRSs simply are not available. Even if a DRS is available, your patient may refuse further assessment or be unable to afford it.

If driver assessment is not an option, you have several choices:

- Advise your patient to continue, restrict, or retire from driving based on the medical history, the results of ADReS, and your clinical judgment. As always, document your recommendation in the patient's chart.
- If there are changes in driving behavior that you feel are likely to improve your patient's driving safety (eg, avoiding driving at night, driving only on fixed routes), make these recommendations to your patient and follow up for compliance.
- If you are urgently concerned about your patient's driving safety, you may wish to refer your patient to your state's driver licensing agency for a focused driving assessment. Depending on your state's reporting laws, you may be legally responsible for reporting "unsafe" drivers to the licensing agency. (A discussion of the physician's legal and ethical responsibilities and a reference list of reporting laws can be found in Chapters 7 and 8, respectively.)
- If you advise your patient to continue driving, remember to counsel your patient on the *Tips for Successful Aging* and *Safe Driving Tips* and encourage him/her to start planning alternative forms of transportation.

References

1 Association for Driver Rehabilitation Specialists: Driver Rehabilitation Specialist Certification Exam fact sheet. Available at: http://www.driver-ed.org/public/articles/index.cfm?Cat=10 Accessed January 23, 2003.

2 "Candidates must fulfill one of the following requirements: A. An undergraduate degree or higher in a health related area of study with 1 year full time experience in degree area of study and an additional 1 year full time experience in the field of Driver Rehabilitation; B. Four-year undergraduate degree or higher with a major or minor in Traffic Safety and/or a Driver and Traffic Safety Endorsement with 1 year full time experience in Traffic Safety and an additional 2 years of full time experience in the field of Driver Rehabilitation; C. Two-year degree in health related area of study with 1 year experience in degree area of study and an additional 3 years full time experience in the field of Driver Rehabilitation; D. Five years of full time work experience in the field of Driver Rehabilitation." Found in: Association for Driver Rehabilitation Specialists: Driver Rehabilitation Specialist Certification Exam fact sheet. Available at: http://www.driver-ed.org/public/ articles/ index.cfm?Cat=10. Accessed January 23, 2003.

3 Examination content includes (1) program administration, (2) the pre-driving assessment, (3) the in-vehicle assessment, (4) the on-road evaluation, (5) interpretation of assessment results, and (6) planning and implementation of recommendations. Found in: Association for Driver Rehabilitation Specialists: Driver Rehabilitation Specialist Certification Exam fact sheet. Available at: http://www.driver-ed.org/public/articles/ index.cfm?Cat=10. Accessed January 23, 2003.

4 This information is adapted from an overview of the program for the Sunnyview Rehabilitation Hospital's Driving Center in Schenectady, New York.

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††† Please note that these costs are provided only as examples for this case scenario. The actual cost of assessment and training varies between driver rehabilitation programs, and insurance coverage is also variable.

Chapter 6

Counseling the Patient Who is No Longer Safe to Drive

Mr. Phillips returns for follow-up after undergoing driver assessment and rehabilitation. From the Driver Rehabilitation Specialist (DRS) report, you know that his DRS has helped fit his car with a steering wheel spinner knob to compensate for decreased hand grip and a wide-angle rearview mirror to compensate for decreased neck rotation. Mr. Phillips has successfully undergone training with these adaptive devices and now states that he is driving more confidently with them. You counsel him on the Tips for Safe Driving and Successful Aging Tips, *advise him to continue exercising, and encourage him to start planning alternative transportation options.*

You continue to provide care for Mr. Phillips' chronic conditions and follow up on his driving safety. Three years later, Mr. Phillips' functional abilities have declined to the extent that you believe it is no longer safe for him to drive. You also feel that further driver rehabilitation is unlikely to improve his driving safety. Mr. Phillips has decreased his driving over the years, and you tell him that it is now time for him to retire from driving. Mr. Phillips replies, "We've talked about this before, and I figured it was coming sooner or later." He feels that rides from family, friends and the senior citizen shuttle in his community will be adequate for his transportation needs, and he plans to give his car to his granddaughter.

One week after this visit, you see a new patient. Mrs. Allen is a 76-year-old widow who has not seen a doctor in the past five years despite urging by her daughter, who accompanies her to the clinic today. She presents with a sore throat, fever and chills. Mrs. Allen is unable to provide you with any history, and she has trouble following instructions throughout the clinic visit. Your rapid strep test confirms strep throat, and you prescribe antibiotics and ask her to return in one week for follow-up and a full physical exam. You are concerned about her cognitive state, and wonder if it is due to the infection. You confirm that Mrs. Allen's daughter drove her to the clinic, and you ask Mrs. Allen to refrain from driving until you see her for follow-up.

Two days later, you receive a phone call from Mrs. Allen's daughter. The daughter reports an improvement in her mother's symptoms, but now wishes to speak to you about her mother's mental decline. She reports that her mother, who lives alone, is having increasing difficulty dressing herself, performing personal hygiene tasks, and completing household chores. She is particularly concerned about her mother's daily trips to the grocery store two miles away. Mrs. Allen has gotten lost on these trips and—according to the store manager—has handled money incorrectly. Dents and scratches have appeared on the car without explanation. Mrs. Allen's daughter has asked her mother to stop driving, but Mrs. Allen responds with anger and resistance each time. The daughter would like to know how to manage her mother's long-term safety and health, and—most urgently—how to address the driving issue. What do you tell her?

For many, driving is a source of independence and a self-esteem. When an individual retires from driving, he/she not only loses a form of transportation, but all the emotional and social benefits derived from driving.

For various reasons, physicians may be reluctant to discuss driving retirement with their patients. Physicians may fear delivering bad news or depriving the patient of mobility and all its benefits. Physicians may avoid discussions of driving altogether because they believe that a patient will not heed their advice.

These concerns are all valid. However, physicians have a responsibility to protect their patients' safety through assessment of driving-related functions, exploration of medical and rehabilitation options to maintain their patients' driving safety, and—when all other options have been exhausted—recommendations of driving restriction or driving retirement. Physicians are influential in a patient's decision to stop driving; in fact, advice from a doctor is one of the most frequently cited reasons that a patient retires from driving.[1]

In this chapter, we discuss the key steps in counseling a patient on driving retirement and provide strategies for managing challenging cases.

How Do You Recommend Driving Retirement to Your Patient?

If you must recommend driving retirement to your patient, there are several things you can do to make this conversation more comfortable for both of you. First, use the term 'driving retirement' to help normalize the experience. After all, retirement is generally considered a more natural and positive life experience than "quitting" or "giving up." Second, involve your patient in the decision making process by openly discussing why his/her driving safety is at risk and addressing his/her needs and concerns. Third, acknowledge that safe mobility is a priority by encouraging your patient to develop a list of alternative transportation options.

Figure 6.1
Alternatives to Driving

- Walking
- Public transportation
- Rides from family and friends
- Cabs
- Paratransit services
- Community transportation services
- Hospital shuttles
- Medi-car
- Delivery services and house calls
- Volunteer drivers (through the church, synogogue, or community center)

Figure 6.2
Tips For Involving the Family

- Encourage family members to promote the health and safety of their loved one by supporting your recommendations and assisting in the creation of a transportation plan.
- Encourage questions regarding patient care.
- If a third party accompanies your patient into the examination room, involve all parties in the discussion. Take care not to ignore your patient.
- Provide resources to the family, including the *How to Help the Older Driver* resource sheet found in Appendix B.
- Refer the family to the National Family Caregivers Association (NCFA) at 800 896-3650 or www.nfcacares.org to find resources and tips on caring for their loved one.
- Be alert to signs of caregiver burnout.

When discussing driving retirement with your patient, you may find it helpful to follow these four steps:

Explain to your patient why it is important to retire from driving.

If your patient has undergone ADReS or assessment by a driver rehabilitation specialist, explain the results of the assessment in simple language. Clearly explain what the results tell you about his/her level of function, then explain why this function is important for driving. State the potential risks of driving, and end with the recommendation that your patient retire from driving. (If your patient presents with significant cognitive impairment and/or lacks decision-making capacity, see the suggestions on page 63.)

For example, you could say to Mr. Phillips:

"Mr. Phillips, the results of your eye exam show that your vision isn't as good as it used to be. Good vision is important for driving, because you need to be able to see the road, other cars, pedestrians, and traffic signs. With your vision, I'm concerned that you'll get into a car crash. For your own safety and the safety of others, it's time for you to retire from driving."

This recommendation may upset or anger your patient. Let him/her know that this is normal, and that you understand his/her reaction.

While you should be sensitive to the practical and emotional implications of driving retirement, it is also necessary for you to be firm with your recommendation. At this time, it is best to avoid engaging in disputes or long explanations. Rather, you should focus on making certain your patient understands your recommendation and understands that this recommendation was made for his/her safety.

Discuss transportation options.

Now that you have recommended driving retirement, the next step is to explore alternative transportation options with your patient. Encourage your patient to maintain his/her mobility by creating a transportation plan—a list of alternatives to driving.

You can begin discussing transportation options by asking the following questions:

- How do you usually get around when your car is in the shop?
- Do these get you everywhere you need to go?
- Have you ever thought about how you would get around if you couldn't drive?

Discuss whether these options can fulfill all of your patient's transportation needs, and suggest other options for your patient to consider. (A list of alternatives to driving can be found in Figure 6.1 and in the patient resource sheet, *Getting By Without Driving,* found in Appendix B.) Address any barriers your patient identifies, including financial constraints, limited service and destinations, reluctance to depend on family and friends for rides, and challenging physical requirements for accessibility (eg, unsheltered bus stops and steep bus stairs).

Help your patient choose the most feasible transportation options and encourage him/her to use the patient resource sheet, *Getting By Without Driving,* as a tool for developing and utilizing a personal transportation plan. In developing this transportation plan, recommend to your patient that he/she contact the local Area Agency on Aging (AAA) for information about local resources such as taxis, public transportation, and senior-specific transportation services. (This contact information is included in the patient resource sheet.)

Remind your patient to plan for transportation to social activities because it is important—especially at this time—for him/her to maintain a strong social support system.

In addition to exploring transportation options, your patient should also consider how to eliminate unnecessary trips by combining activities and utilizing delivery and house-call services. For example, your patient can reduce the number of trips needed by scheduling all appointments in the same area for the same day, or arranging to have groceries and medications delivered.

Encourage your patient to involve family members in the creation of a transportation plan. With your patient's permission, contact family members and encourage them to offer rides and help formulate a weekly schedule for running errands. They can also arrange for the delivery of groceries, newspapers, medications, and other necessities/services. (See Figure 6.2 for more tips.)

Reinforce driving cessation.

Because your patient may initially offer resistance or fail to comprehend your recommendation for driving retirement, it is important to reinforce this recommendation at the current and future office visits.

To reinforce this recommendation:

- Ask your patient if he/she has any questions regarding the assessment or your recommendation. Reassure your patient that you are available to answer questions and provide further assistance.
- Ask your patient to repeat back to you why he/she must not drive. Emphasize that this recommendation is for personal safety and the safety of others on the road.
- A prescription with the words "Do Not Drive" may help your patient understand that your recommendation constitutes "official" medical advice. (See Figure 6.3 for other reinforcement tips.)
- If your state has a reporting law, discuss this with your patient before submitting the required report. (A discussion of the legal and ethical role of the physician and a state-by-state list of reporting laws can be found in Chapters 7 and 8, respectively.)
- Send your patient a follow-up letter (see Figure 6.6 for a sample letter). This letter should be written in language that is easy to understand and should emphasize your concern for his/her safety and well-being. Send copies to the patient and—with his/her permission—to concerned family members, and keep another copy in the patient's chart as documentation.
- Ask your patient to return to your office in one month for follow-up.

Follow up with your patient.

At your patient's one-month follow-up appointment, you should:

- Ask your patient if he/she has retired from driving.
- Determine if he/she has successfully developed and utilized a transportation plan.
- If indicated, assess your patient for signs of isolation and depression.

You can begin the discussion by asking your patient how he/she got to the appointment that day. For example, you could say to Mr. Phillips:

> ***Physician:*** *Good morning, Mr. Phillips. It's good to see you again. Did you have any problems getting to the office today?*
>
> ***Mr. Phillips:*** *No, not at all.*

Figure 6.3
Tips to Reinforce Driving Cessation

Tip 1:

Give the patient a prescription on which you have written "Do Not Drive." This aids as a visual reminder for your patient and also emphasizes the strength of your message.

Tip 2:

Remind your patient that this recommendation is for his/her safety and for the safety of other road users.

Tip 3:

Ask the patient how he/she would feel if he/she got into a crash and injured someone else.

Tip 4:

Use economic arguments. Point out the rising price of gas and oil, the expense of car maintenance (tires, tune-ups, insurance), registration/license fees, financing expenses, and the depreciation of car value.

Tip 5:

Have a plan in place that involves family member support for alternative transportation.

Physician: *How did you get here today?*

Mr. Phillips: *My son dropped me off. We've worked out a schedule so that he and his wife can give me rides to all my appointments.*

Physician: *That's wonderful! Aside from these rides, have you found any other ways to get around?*

During the office visit, remember to be alert to signs of depression, neglect, and isolation. Driving cessation has been associated with an increase in depressive symptoms in the elderly.[2, 3] In addition to direct effects on the patient's well-being, depressive symptoms have been linked to physical decline and mortality in the elderly.[4] Ask your patient how he/she is managing without driving and assess for depression (see Figure 6.4) and neglect (see Figure 6.5) as indicated. Educate family members and caregivers about signs of depression, and encourage them to contact you if they have concerns about their loved one's well-being.

Continue to assess and manage your patient's functional impairments and the underlying disorders. If they improve to the extent that your patient is safe to drive again, discuss this with your patient and help him/her develop a plan for a safe return to driving. This can include a driver evaluation performed by a driver rehabilitation specialist (see Chapter 5), limiting driving to familiar, uncongested areas until the patient regains his/her confidence, and/or reviewing the *Safe Driving Tips* found in Appendix B.

Situations That Require Additional Counseling

It may be necessary to provide additional counseling to encourage driving retirement or to help your patient cope with this loss. In this section, we discuss situations that require additional counseling and offer recommendations for the management of these situations.

Situation 1: The resistant patient

If your patient is belligerent or refuses to retire from driving, it is important for you to understand why. Knowing this will help you address your patient's concerns.

In the care of your patient, you may find it helpful to:

- ***Let your patient know that you are listening.***

  Use empathetic statements when addressing your patient's concerns. Remind your patient that you are an advocate for his/her safety and health.

  For example, you could say to your patient:

  Physician: *Mr. Adams, it worries me that you drove yourself to your appointment today. At our last visit, we talked about why it was no longer safe for you to drive, and I recommended that you retire from driving. Can you tell me why you're still driving?*

  Mr. Adams: *Well, Doctor, I don't understand it. My driving is just fine. Frankly, I don't think you have the right to tell me not to drive.*

  Physician: *I know this is a frustrating situation for you. I also know that it's not easy for you to retire from driving, but I still think it's best for your safety and health. As your doctor, your safety and health are my concern. I want to make sure we understand each other, and I'd like to help you as much as possible. Can you tell me some of your concerns about retiring from driving?*

- ***Have the patient define when he/she feels a person would be unsafe to drive.***

  This may help your patient become involved in the decision to retire from driving, and help you assess his/her judgment and insight.

  Physician: *Mr. Adams, when do you think it's best for a person to retire from driving?*

  Mr. Adams: *Well, when they're running red lights and getting into crashes, I guess.*

  Physician: *Do you know anyone who drives like this?*

  Mr. Adams: *A friend of mine doesn't drive too well. He drives all over the road and runs red lights. I don't want to get into the car with him anymore because I don't trust his driving.*

  Physician: *That sounds like a scary situation for your friend and for other people on the road. I think it's time for him to retire from driving. Do you think it's a good idea for people to retire from driving when they're a danger to themselves and others?*

Many older drivers are able to identify peers whose driving they consider unsafe, yet may not have the insight to make similar observations about their own driving. By asking your patient about friends whose driving is unsafe and why he/she considers their driving unsafe, your patient may be able to recognize similarities in his/her own driving performance.

Assure your patient that he/she will not be alone in driving retirement. After all, many people make the decision to restrict or retire from driving when safety becomes a concern. Encourage your patient to seek a second opinion if he/she feels that additional consultation is necessary.

- ***Have your patient identify support systems.***

  Ask your patient to list friends and relatives who have retired from driving and ways that they have continued to remain active and mobile. Also, your patient can list family members, neighbors, church groups, and other support groups that are able and willing to help with transportation decisions. Remind your patient to plan for transportation to social activities so that he/she can maintain a social life.

- ***Help your patient view the positives.***

  Often, discussions of driving retirement tend to focus on the negative aspects, such as "losing independence" or "giving up freedom." Help your patient view the positives by pointing out that this is a positive step towards his/her safety and the safety of other road users. Mention the benefits of not owning a car and of utilizing community services (such as decreased costs and the potential to meet new people).

- ***Refer your patient to a social worker.***

  Your patient may need additional help securing resources and transitioning to a life without driving. Social workers can provide counseling to patients and their families, assess your patient's psychosocial needs, assist in locating and coordinating community services and transportation, and enable your patient to maintain safety, independence, and a high quality of life. The National Association of Social Workers *Register of Clinical Social Workers* is a valuable resource for locating a social worker in your area who has met national verified professional standards for education, experience and supervision. You can access the Register or place an order online at www.socialworkers.org. (See Appendix B for more details.)

Situation 2: Your patient presents with symptoms of depression.

Driving cessation has been associated with an increase in depressive symptoms.[2, 3] This can result from a combination of factors, including social isolation, feelings of loss, and perceived poor health status. If your patient presents with signs or symptoms of depression, assess further by asking specific questions (see Figure 6.4).

Talk to your patient and appropriate family members about the symptoms of depression and available options. These can include referral to a mental health professional for full assessment and treatment or direct referral for individual therapy, group therapy, or social/recreational activities. Acknowledge that your patient has suffered a loss and that this is a difficult time for him/her. Let your patient know that these feelings are normal.

Situation 3: Your patient lacks decision-making capacity.

If your patient presents with significant cognitive impairment and/or lacks insight and decision-making capacity, it is imperative that you employ the aid of the appointed guardian or caregiver to help the patient comply with your recommendation of driving retirement. Let family and caregivers know that they play a crucial role in helping the patient find safer alternatives to driving.

If necessary, an expert evaluation can be used to appoint a legal guardian for the patient. In turn, the guardian may forfeit the patient's car and license on behalf of the safety of the patient. These actions should be used when needed, but only as a last resort.

Figure 6.4

Questions to Assess for Depression
(adapted from the DSM-IV-TR)[5]

- How has your mood been lately?
- Have you noticed any changes in appetite?
- Have you noticed any changes in sleeping habits?
- Have you noticed feeling particularly tired or anxious lately?
- Have you been taking part in and enjoying your usual activities?

Figure 6.5

Signs of Neglect or Self-Neglect

- Patient has an injury that has not been properly treated
- Symptoms of dehydration and/or malnourishment without illness-related cause
- Weight loss
- Soiled clothing
- Evidence of inadequate or inappropriate administration of medications

Situation 4: Your patient shows signs of self-neglect or neglect.

At times, a patient may not be able to secure resources for himself/herself and may lack support from family, friends, or the appointed caregiver. If you suspect that your patient does not have the capacity to care for himself/herself—or that family and caregivers lack the ability to adequately care for your patient—be alert to signs of self-neglect and neglect (see Figure 6.5).

Self-neglect is defined as the failure to provide for one's own essential needs, while neglect is the failure of a caregiver to fulfill his/her caregiving responsibilities due to willful neglect or an inability arising from disability, stress, ignorance, lack of maturity, or lack of resources. If you identify signs of neglect or self-neglect, notify the Adult Protective Services (APS). APS will investigate and confirm cases of neglect and self-neglect, and arrange for services such as case planning, monitoring and evaluation, and medical, social, economic, legal, housing, law enforcement, and other emergency or supportive services. To obtain contact information for your state APS office, call the Eldercare Locator at 1 800 677-1116.

References

1 Persson D. The elderly driver: deciding when to stop. *The Gerontologist.* 1993;33:88-91.

2 Marottoli RA, Mendes de Leon C, Glass TA, Williams CS, Cooney LM, Berkman LF, and Tinetti M. Driving cessation and increased depressive symptoms: prospective evidence from the New Haven EPESE. *Journal of the American Geriatrics Society.* 1997;45:202-210.

3 Fonda SJ, Wallace RB, Herzog AR. Changes in driving patterns and worsening depressive symptoms among older adults. *Journals of Gerontology*. 2001:56(6):S343-351.

4 Berkman LF, Berkman CS, Kasl S, et al. Depressive symptoms in relation to physical health and functioning in the elderly. *American Journal of Epidemiology.* 1986;124:372-388.

5 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders,* 4th ed. Text Revision. Washington DC: American Psychiatric Association; 2000.

Figure 6.6

July 1, 2003

Clayton Phillips
123 Lincoln Lane
Sunnydale, XX 55555

Dear Mr. Phillips:

I am writing to follow up on your clinic visit on June 20, 2003. During the visit, we talked about your safety when you drive a car. I tested your vision (eyes), strength, movement, and thinking skills, and asked you about your health problems and medicines. Because your vision, strength and movement might make you drive unsafely, I recommended that you retire from driving.

I know that driving is important to you, and I know that it is hard to give up driving. Still, your safety is more important than driving. To help you get around, you can ask for rides from your son and your friends. You can also use the senior bus in your neighborhood. The Patient Resource Sheet (enclosed) has some other ideas that we talked about. As we agreed, I am also sending a copy of these materials to your son so that the two of you can read them together.

I want to make sure you can still do your chores, visit your friends, and go other places without a car. It is important for you to maintain your lifestyle. Please see me again in one month—we will talk about how this is working for you.

As we discussed, the state of _____ requires me to refer unsafe drivers to the Department of Motor Vehicles (DMV). Because I am required by law to do this, I have sent a report to the ____ DMV. The DMV will send you a letter in a few weeks to discuss your driver's license.

Please call my office if you have any questions. I look forward to seeing you next month.

Sincerely,

Your Physician

Enc: Patient Resource Sheet
cc: Your son

* Note that this sample letter has been written at a 5th grade reading level, as measured by the SMOG Readability Formula.

Chapter 7

Legal and Ethical Responsibilities of the Physician

Please note that this chapter is provided for informational purposes only. It is not intended to constitute legal advice. If legal advice is required, the services of a competent professional should be sought.

Upon further evaluation of Mrs. Allen, you diagnose her with Alzheimer's disease. It is readily apparent that her condition has progressed to the extent that she is no longer safe to drive and that rehabilitation is not likely to improve her driving safety. You tell Mrs. Allen that she must retire from driving for her own safety and the safety of others on the road. You also explain that the state reporting law requires you to report her to the DMV. Initially, Mrs. Allen does not comprehend, but when you specifically tell her that she can no longer drive herself to the grocery store every day, she becomes agitated and screams, "I hate you!" and "I'm going to sue you!" The daughter understands your decision to report Mrs. Allen to the DMV, but is now concerned that she will encounter legal problems if her mother attempts to drive without a license. She asks if it is absolutely necessary for you to report her mother. What do you say?

Driving is a difficult topic to address, particularly when there is the risk of damaging the patient-physician relationship, violating patient confidentiality, and potentially losing patients. To complicate matters, many physicians are uncertain of their legal responsibility, if any, to report unsafe drives to their state Department of Motor Vehicles (DMV).[1, 2] As a result, physicians are often faced with a dilemma: Should they report the unsafe driver to the state DMV at the expense of breaching confidentiality and potentially damaging the patient-physician relationship, or should they forego reporting and risk being liable for any future patient or third-party injuries?

This chapter will help clarify your legal and ethical responsibilities. In particular, we will discuss the duties of the physician, offer recommendations on how to balance these duties, and provide strategies for putting them into practice. To aid you in navigating legal terminology and concepts, we have assembled a table of definitions (see Figure 7.1). Because reporting laws vary by state, we have compiled a state-by-state reference list of reporting laws, licensing requirements, license renewal information, and DMV contact information. This list can be found in Chapter 8.

The Physician's Legal and Ethical Duties

Current legal and ethical debates highlight duties of the physician that are relevant to the issue of driving. These include:

Protecting the patient

Protecting the patient's physical and mental health is considered the physician's primary responsibility. This includes not only treatment and prevention of illness, but also caring for the patient's safety. With regards to driving, physicians should advise and counsel their patients about medical conditions and possible medication side effects that may impair their ability to drive safely. Case law illustrates that failure to advise the patient about such medical conditions and medication side effects is considered negligent behavior.[3-5]

'Duty to Protect,' or protecting public safety

In addition to caring for their patients' health, physicians may, in certain circumstances and jurisdictions, have some responsibility for protecting the safety of the public.*[6, 7] With regards to driving, legal precedents demonstrate that in some cases, physicians can be held liable for their patient's car crash and for third-party injuries caused by their patient. Several cases have found physicians liable for third-party injuries because they failed to advise their patients about medication side effects,[3, 4, 8, 9] medical conditions,[5, 10-12] and medical apparati[13] that may impair driving performance.

Maintaining patient confidentiality

Confidentiality is defined as the physician's ethical obligation to keep information about the patient and his/her care unavailable to those—including the patient's family, the patient's attorney, and the government—who do not have the authorization to receive this information.[14, 15] Confidentiality is crucial within the physician-patient relationship because it encourages the free exchange of information, allowing the patient to describe symptoms for diagnosis and treatment.[16] Without confidence in the confidentiality of their care, individuals may be less likely to seek treatment, disclose information for effective treatment, or trust the health care professional.

There are several exceptions to maintaining confidentiality. Information may be released if the patient gives his/her consent. Also, information may be released without patient authorization in order to comply with various reporting statutes (such as child abuse reporting statutes) and court orders.

* It should be noted that the Tarasoff ruling per se, upon which the principles of 'Duty to Warn' and 'Duty to Protect' are based, originally applied only in the state of California and now applies only in certain jurisdictions. The U.S. Supreme Court has not heard a case involving these principles. Many states have adopted statutes to help clarify steps that are considered reasonable when a physician is presented with someone making a threat of harm to a third party.[6]

Figure 7.1
Common Terninology

Mandatory Medical Reporting Laws: In some states, physicians are required to report patients who have specific medical conditions (eg, epilepsy, dementia) to their state Department of Motor Vehicles (DMV). These states generally provide specific guidelines and forms that can be obtained through the DMV.

Physician Reporting Laws: Other states require physicians to report 'unsafe' drivers to their state DMV, with varying guidelines for defining 'unsafe.' The physician may need to provide (a) the patient's diagnosis and (b) any evidence of a functional impairment that can affect driving (eg, results of neurological testing) to prove that the patient is an unsafe driver.[19]

Physician Liability: Case law illustrates situations in which the physician was held liable for civil damages caused by his/her patient's car crash when there was a clear failure to report an at-risk driver to the DMV prior to the incident.

Immunity for Reporting: Several states exempt physicians from liability for civil damages brought by the patient if the physician reported the patient to the DMV beforehand.

Anonymity and Legal Protection: Several states offer anonymous reporting and/or legal protection against civil actions for damages caused by reporting in good faith. Many states will maintain the confidentiality of the reporter, unless otherwise required by a court order.

Duty to Protect: Case law in certain jurisdictions demonstrates that physicians have a legal duty to warn the public of danger their patients may cause, especially in the case of identifiable third parties.[20] With respect to driving, mandatory reporting laws and physician reporting laws provide physicians with guidance regarding their duty to protect.

Renewal Procedures: License renewal procedures vary by state. Some states have age-based renewal procedures; that is, at a given age, the state may reduce the time interval between license renewal, restrict license renewal by mail, require specific vision, traffic law and sign knowledge testing, and/or require on-road testing. Very few states require a physician's report for license renewal.[17]

Restricted Driver's License: Some states offer the restricted license as an alternative to revoking a driver's license. Typical restrictions include prohibiting night driving, restricting driving to a certain radius, requiring adaptive devices, and shortening the renewal interval.

Medical Advisory Boards: Medical Advisory Boards (MAB) generally consist of local physicians who work in conjunction with the DMV 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.

Driver Rehabilitation Programs: These programs, run by driver rehabilitation specialists (DRS), help identify at-risk drivers and improve driver safety through adaptive devices and techniques. Clients typically receive a clinical evaluation, driving evaluation, and—if necessary—vehicle modifications and training. (Driver assessment and rehabilitation are discussed in greater detail in Chapter 5.)

Many physicians are reluctant to report impaired drivers to the DMV for fear of jeopardizing the patient-physician relationship,[17] breaching patient confidentiality, and—more recently—violating the Health Insurance Portability and Accountability Act of 1996 (HIPAA). However, while some courts have previously held the health care system liable for breaching confidentiality,[17] physicians generally enjoy immunity for complying with mandatory reporting statutes in good faith.[14] Some states specifically protect health care professionals from liability for reporting unsafe drivers in good faith. Furthermore, the HIPAA *Standards for Privacy of Individually Identifiable Health Information* ("Privacy Rule") permit health care providers to disclose protected health information without individual authorization *as required by law.* It also permits health care providers to disclose protected health information to public health authorities authorized by law to collect or receive such information for preventing or controlling disease, injury, or disability.[18]

Adhering to State Reporting Laws

Physicians must know and comply with their state's reporting laws. Because each state has its own reporting laws, we have provided a state-by-state reference list in the following chapter.

Please note that in states where there are no laws authorizing physicians to report patients to the DMV, physicians must have patient consent in order to disclose medical information. In these states, physicians who disclose medical information without patient consent may be held liable for breach of confidentiality. Nonetheless, this should not dissuade physicians from reporting when it is necessary and justified, as reporting may provide protection from liability for future civil damages.

Before consulting the reference list in Chapter 8, you may wish to familiarize yourself with the legal terms and concepts provided in Figure 7.1.

Putting it all together

With these competing legal and ethical duties, how can you fulfill them while legally protecting yourself? In this section, we provide recommendations for achieving this balance.

Counsel your patient.

Patients should be advised of medical conditions, procedures and medications that may impair driving performance. (A reference list of medical conditions and medications that may impair driving performance, with recommendations for each one, can be found in Chapter 9.)

Recommend driving cessation as needed.

As discussed in the previous chapters, you should recommend that a patient retire from driving if you believe that the patient's driving is unsafe and cannot be made safe by any available medical treatment, adaptive device, or adaptive technique. As always, base your clinical judgment on the patient's function rather than age, race, or gender.[21]

Know and comply with your state's reporting laws.

You must know and comply with your state's reporting laws (see the list in the following chapter). If you fail to follow these laws, you may be liable for patient and third-party injuries.

If your state has a mandatory medical reporting law, report the required medical condition(s) using the DMV's official form. If your state has a physician reporting law, submit your report using the DMV's official form and/or any other reporting guidelines. If the DMV's guidelines do not state what patient information must be reported, provide only the minimum of information required to support your case.

Reduce the impact of breaching patient confidentiality.

In adhering to your state's reporting laws, you may find it necessary to breach your patient's confidentiality. However, you can do several things to reduce the impact of breaching confidentiality on the patient-physician relationship.

Before reporting your patient to the DMV, tell your patient what you are about to do. Explain that it is your legal responsibility to refer him/her to the state DMV, and describe what kind of follow-up he/she can expect from the DMV. Assure your patient that out of respect for his/her privacy, you will disclose only the minimum of information required and hold all other information confidential. Even in states that offer anonymous reporting, it is a good idea to be open with your patients.

When submitting your report, provide only the information required. Consider giving your patient a copy of his/her report. By providing your patients with as much information as possible, you can involve them in the process and give them a greater sense of control.

Before contacting your patient's family members and caregivers, request the patient's permission to speak with these parties. If your patient maintains decision-making capacity and denies permission for you to speak with these parties, you must respect the patient's wishes.

Document thoroughly.

Through documentation, you provide evidence of your efforts to assess and maintain your patient's driving safety. In the event of a patient or third-party crash injury, thorough documentation may protect you against a lawsuit.

To protect yourself legally, you should document your efforts, conversations, recommendations, and any referrals for further testing in the patient's chart.[22] In other words, you should document all the steps of PPODS (see Chapter 1) that you have performed, including:

- Any direct observations of functional deficits, red flags, or crash-related injuries that lead you to believe that your patient may be at risk for medically impaired driving.
- Any counseling specific to driving (eg, documenting that the patient is aware of the warning signs of hypoglycemia and its effects on driving performance).
- Formal assessment of your patient's function (eg, documenting that the patient has undergone ADReS and including the ADReS scoring sheet in the chart).
- Any medical interventions and referrals you have made to improve the patient's function and any repeat testing to measure improvement.
- A copy of the driver rehabilitation specialist (DRS) report, if the patient has undergone driver assessment and/or rehabilitation.
- Your recommendation that the patient continue driving or cease driving. If you recommend that the patient cease driving, include a summary of your interventions (eg, 'discussed driving retirement with patient and sent letter to reinforce recommendation,' 'discussed transportation options and gave copy of *Getting By Without Driving*,' 'contacted family members

with patient's permission,' and 'reported patient to DMV with patient's knowledge'). Include copies of any written correspondence in the chart.

- Follow-up for degree of success in utilizing alternative transportation options and any signs of social isolation and depression. Document any further interventions, including referral to a social worker, geriatric care manager, or mental health professional.

Additional legal and ethical concerns

What should you do if you find yourself in a particularly challenging situation? In this section, we offer recommendations for several potential situations:

Situation 1: My patient threatens to sue me if I report him/her to the DMV.

A patient's threat to sue should by no means influence you against complying with your state's reporting laws. If a patient threatens to sue, there are several steps you can take to protect yourself in the event of a lawsuit:

- Know if your state has passed legislation specifically protecting health care professionals against liability for reporting unsafe drivers in good faith. (This information can be found in the following chapter.)
- Even if your state has not passed such legislation, physicians generally run little risk of liability for following mandatory reporting statutes in good faith.[14] Consult your attorney or malpractice insurance carrier to determine your degree of risk.
- Make certain you have clearly documented your reasons for believing that the patient is an unsafe driver.

Be aware that physician-patient privilege does not prevent you from reporting your patient to the DMV. Physician-patient privilege, which is defined as the patient's right to prevent disclosure of any communication between the physician and patient by the physician, does not apply in cases of required reporting.

Situation 2: Should I report an unsafe driver even if my state does not have any reporting laws?

In this situation, the physician's first priority is to ensure that the unsafe driver does not drive. If this can be accomplished without having the patient's license revoked, then there may be no need to report the patient to the DMV.

However, if your patient refuses to stop driving despite your best efforts, then you must consider which is more likely to cause the greatest amount of harm: breaching the patient's confidentiality vs. allowing the patient to potentially injure himself/herself and third parties in a motor vehicle crash. According to AMA Ethical Opinion E-2.24 (listed in full in Chapter 1), "in situations where clear evidence of substantial driving impairment implies a strong threat to patient and public safety, and where the physician's advice to discontinue driving privileges is ignored, it is desirable and ethical to notify the Department of Motor Vehicles." Before reporting your patient, you may address the risk of liability for breaching patient confidentiality by following the steps listed under Situation 1.

Situation 3: My patient has had his/her license suspended by the DMV for unsafe driving, but I am aware that he/she continues to drive.

This patient is clearly violating the law, and several questions are raised: Is the physician responsible for upholding the law at the expense of breaching patient confidentiality? Since the license has been revoked by the DMV, is the driving safety of the patient now in the care of the DMV, the physician, or both?

There are several steps you can take in this situation:

- Ask your patient why he/she continues to drive. Address the specific causes brought up by your patient (see the previous chapter for recommendations). With your patient's permission, the family should be involved in finding solutions.
- Ask your patient if he/she understands that he/she is breaking the law. Reiterate your concerns about the patient's safety, and ask how he/she would feel about causing a crash and potentially being injured or injuring someone else. Discuss the financial and legal consequences of being involved in a crash without a license or auto insurance.
- If your patient is cognitively impaired and lacks insight into this problem, the issue must be discussed with the individual who holds decision-making authority for the patient and with any other caregivers. These parties should understand their responsibility to prevent the patient from driving.
- If your patient continues to drive and your state has a physician reporting law, adhere to the law by reporting your patient as an unsafe driver (even if you have already done so previously, resulting in the revocation of your patient's license). If your state does not have a physician reporting law, base your decision to report as in Situation 2. The DMV, as the agency that grants and revokes the driver's license, will follow up appropriately.

Situation 4: My patient threatens to find a new doctor if I report him/her to the DMV.

This situation, while unfortunate, should not prevent you from adhering to your state's reporting laws. As a physician, it is your responsibility to care for your patients' health and safety, regardless of such threats.

There are several strategies that may help you diffuse this situation:

- Reiterate the process and information used to support your recommendation that the patient retire from driving.
- Reiterate your concern for the safety of your patient, his/her passengers, and those sharing the road.
- Remind your patient that you try to provide the best possible care for his/her health and safety. State that driving safety is as much a part of patient care as encouraging patients to wear a safety belt, keep a smoke detector in the home, floss their teeth, and have regular physical check-ups.
- Encourage your patient to seek a second opinion. The patient may see a driver rehabilitation specialist if he/she has not already done so, or consult another physician.
- If your state DMV follows up on physician reports with driver retesting, inform the patient that just as it is your responsibility to report him/her to the DMV, it is the patient's responsibility to prove his/her driving safety to the DMV. Emphasize that the DMV makes the final decision, and that only the DMV can revoke the license. Remind your patient that you have done everything medically possible to help him/her pass the driver test.
- As always, maintain your professional behavior even if your patient ultimately makes the decision to seek a new physician.

References

1 Kelly R, Warke T, Steele I. Medical restrictions to driving: The awareness of patients and doctors. *Postgraduate Medical Journal*. 1999;75:537-539.

2 Miller D, Morley J. Attitudes of physicians toward elderly drivers and driving policy. *Journal of the American Geriatrics Society.* 1993;40:722-724.

3 *Gooden v Tips*, 651 SW 2d 364 (Tex Ct App 1983).

4 *Wilschinsky v Medina,* 108 NM 511 (NM 1989).

5 *Freese v Lemmon,* 210 NW 2d 576, 577-578, 580 (Iowa 1973).

6 *DiMarco v Lynch Homes—Chester County,* 583 A 2d 422 (Pa 1990).

7 *Tarasoff v Regents of University of California,* 13 Cal 3d 177 (1974).

8 *Kaiser v Suburban Transportation System,* 65 Wash 2d 461, 398 P.2d 14 (Wash 1965).

9 *Duvall v Goldin,* 362 NW 2d 275 (Mich App 1984).

10 *Calwell v Hassan,* 260 Kan 769, 770, 925 P.2d 422 (Kan 1996).

11 *Myers v Quesenberry,* 144 Cal App 3d 888, 894, 193 Cal Rptr 733, 743 (1983).

12 *Schuster v Alternberg,* 424 NW 2d 159 (Wis 1988).

13 *Joy v Eastern Maine Medical Center,* 529 A2d 1364 (Me 1987).

14 Duckwork K, Kahn M. Interface with the legal system. In: Tasman A, Kay J, Lieberman JA, Fletcher J, eds. *Psychiatry*. 1st ed. WB Saunders Company; 1997:1803-1821. Available at: http://www.mdconsult.com. Accessed January 20, 2003.

15 Justice J. Patient confidentiality and pharmacy practice. *The Consult Pharmacist.* 1997:12(11). Available at: http://www.ascp.com/public/pubs/tcp/1997/nov/patient.html. Accessed January 20, 2003.

16 Retchin SM, Anapolle J. An overview of the older driver. *Clinics in Geriatric Medicine.* 1993;9(2): 279-296.

17 Tripodis VL. Licensing policies for older drivers: balancing public safety with individual mobility. *Boston College Law Review.* 1997;38 B.C.L. Rev 1051.

18 United States Department of Health & Human Services, Office of Civil Rights. OCR Privacy Brief: Summary of the HIPAA Privacy Rule. Available at: http://www.hhs.gov/ocr/hipaa. Accessed May 15, 2003.

19 Messinger-Rapport B, Rader E. High risk on the highway: How to identify and treat the impaired older driver. *Geriatrics.* 2000;55:(10)32-45.

20 Tarasoff v. Regents of University of California, 13 Cal. 3d 177 [December 1974].

21 Equal Protection Clause of the Fourteenth Amendment to the United States Constitution.

22 Carr DB. The older adult driver. *American Family Physician.* 2000;61(1):141-148.

Chapter 8

State Licensing Requirements and Reporting Laws

Each state has its own licensing and license renewal criteria for drivers of private motor vehicles. In addition, certain states require physicians to report unsafe drivers or drivers with specific medical conditions to the driver licensing agency.

This chapter contains licensing agency contact information, license requirements and renewal criteria, reporting procedures, and Medical Advisory Board information listed by state. These materials are provided to physicians as a reference to aid them in discharging their legal responsibilities. The information in this chapter should not be construed as legal advice nor used to resolve legal problems. If legal advice is required, physicians should consult an attorney who is licensed to practice in their state.

Information for this chapter was primarily obtained from each state's driver licensing agency and reflects the most current information at the time of publication. Please note that this information is subject to change.

When information for this chapter was not available from an individual state's driver licensing agency, the following references were used:

Coley MJ and Coughlin JF. State driving regulations. Adapted from: National Academy on an Aging Society. *The Public Policy and Aging Report.* 2001;11(4).

Epilepsy Foundation. Driver information by state. Available at: http://www.efa.org/answerplace/drivelaw/searchform.cfm. Accessed January 10, 2003.

Insurance Institute for Highway Safety. US driver licensing renewal procedures for older drivers. Available at: http://www.hwysafety.org/safety_facts/state_laws/older_drivers.htm. Accessed May 12, 2003.

Massachusetts Medical Society. *Medical Perspectives on Impaired Driving.* 1st ed. Available at: www.massmed.org/pages/impaireddrivers.asp. Accessed May 12, 2003.

National Highway Traffic Safety Administration. State reporting practices. Available at: http://www.nhtsa.gov/people/injury/olddrive/FamilynFriends/state.htm. Accessed May 12, 2003.

Peli E and Peli D. *Driving with Confidence: A Practical Guide to Driving with Low Vision.* Singapore: World Scientific Publishing Co. Pte. Ltd.; 2002.

State and Provincial Licensing Systems: Comparative Data. Arlington, VA: American Association of Motor Vehicle Administrators; 1999.

Supplemental Technical Notes. In: Staplin L, Lococo K, Byington S, Harkey D. *Guidelines and Recommendations to Accommodate Older Drivers and Pedestrians.* Washington, DC: Federal Highway Administration; 2001.

Alabama

Driver licensing agency contact information	Alabama Department of Public Safety Driver License Division PO Box 1471 Montgomery, AL 36102-1471 www.dps.state.al.us	334 242-4239

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/60 in best eye with or without corrective lenses
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	110° both eyes
	Visual field testing device	Keystone view
Color vision requirement	For new and professional drivers only	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	No special requirements for age.	

Reporting Procedures

Physician/medical reporting	Physician reporting is encouraged.
Immunity	Available
Legal protection	Available
DMV follow-up	Driver notified in writing of referral. For diabetes, seizures, and convulsions, a form is sent to be completed by patient's doctor.
Other reporting	Will accept information from courts, police, other DMVs, family members, and anyone who completes and signs the appropriate forms.
Anonymity	Not anonymous or confidential. The client may request a copy of his/her medical records by completing the necessary forms, having them notarized, and paying the proper fee for copying these records.

Medical Advisory Board

Role of the MAB	The MAB assists the Director for Public Safety with the medical aspects of driver licensing. It consists of at least 18 members, with the chairman elected on an annual basis.
MAB contact information	The MAB assists the Medical Unit, which may be reached at 334 242-4239.

Alaska

Driver licensing agency contact information	Alaska Department of Motor Vehicles 3300 B Fairbanks Street Anchorage, AK 99503 www.state.ak.us/dmv	907 269-5551

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/100 needs report from eye specialist. License request determined by discretion.
	Are bioptic telescopes allowed?	Only under certain conditions (specifically recommended by physician) with regards to lighting conditions and number of miles to and from specific locations. Physicians must submit a letter stating "with the bioptic telescopes this patient can safely operate a motor vehicle without endangering the public under the following conditions: _____"
Visual fields	Minimum field requirement	None
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	Mail-in every other cycle
	Vision testing required at time of renewal?	Yes, at in-person renewal
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	No renewal by mail for drivers aged 69+.	

Reporting Procedures

Physician/medical reporting	None. However, a licensee should self-report medical conditions that cause loss of consciousness to the DMV.
Immunity	None
Legal protection	N/A
DMV follow-up	All medical information submitted to the DMV is reviewed by Department of Public Safety personnel.
Other reporting	Law enforcement officers, other DMVs, and family members may submit information.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	Alaska does not retain a medical advisory board.

Arizona

Driver licensing agency contact information	Arizona Department of Transportation Motor Vehicle Division PO Box 2100 Phoenix, AZ 85001-2100 www.dot.state.az.us/mvd/mvd.htm	800 251-5866

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/60 in best eye restricted to daytime only
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	70° E, 35° N
	Visual field testing device	Keystone view
Color vision requirement	For commercial drivers only	
Restricted licenses	Daylight-only licenses available	

License Renewal Procedures

Standard	Length of license validation	12 years
	Renewal options and conditions	N/A
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	If recommended by the Medical Review Program.
Age-based renewal procedures	At age 65, reduction of cycle to 5 years. No renewal by mail after age 70.	

Reporting Procedures

Physician/medical reporting	Yes (not specified)
Immunity	Available
Legal protection	Reporting immunity is granted.
DMV follow-up	The DMV follows physician recommendations.
Other reporting	Will accept information from courts, police, other DMVs, family members' and other sources.
Anonymity	Available

Medical Advisory Board

Role of the MAB	The Medical Review Program staff reviews reports to determine if a licensee requires a re-examination of driving skills, written testing, or medical/psychological evaluation.
MAB contact information	Arizona Department of Transportation Medical Review Program Mail Drop 818Z PO Box 2100 Phoenix, AZ 85001 623 925-5795 623 925 9323 fax

Arkansas

Driver licensing agency contact information	Arkansas Office of Motor Vehicles PO Box 3153 Little Rock, AR 72203 www.state.ar.us/dfa/odd/motor_vehicle.html	501 682-1631

Licensing Requirements

Visual acuity	Each/both eyes without correction	20/40
	Each/both eyes with correction	20/50
	If one eye blind—other without correction	20/40
	If one eye blind—other with correction	20/50
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/60 for restricted license
	Are bioptic telescopes allowed?	Yes, under certain circumstances: 20/50 through telescope, 20/50 through carrier, minimum field of vision 105˚
Visual fields	Minimum field requirement	105˚both eyes
	Visual field testing device	Optec screening machine
Color vision requirement	None	
Type of road test	Standardized	
Restricted licenses	Daylight only licenses available at physicians' recommendation (licensee must meet minimum visual requirements).	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person, by mail only if out of state
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physician reporting is encouraged.
Immunity	None
Legal protection	None
DMV follow-up	Medical information is reviewed by the director of Driver Control. An appointment is scheduled within 2 weeks of receipt. At that time, a medical form is given to the licensee for completion by a physician. If the medical exam is favorable, a road test is given.
Other reporting	Will accept information from courts, police, other DMVs, and family members.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	Arkansas does not have a medical advisory board. However, unsafe drivers may be referred to Driver Control at: Arkansas Driver Control Hearing Officer Room 1070 1910 West 7th Little Rock, AR 72203 501 682-1631

California

Driver licensing agency contact information	California Department of Motor Vehicles 2415 First Avenue, Mail Station C152 Sacramento, CA 95818-2698 www.dmv.ca.gov	916 657-6550

Licensing Requirements

Visual acuity	Each eye with correction	Screening standard: One eye 20/70 if other is 20/40. Failure to meet standard results in referral to vision specialist and possible road test.
	Both eyes with correction	20/40 (also a screening standard)
	If one eye blind—other with/without correction	20/40 (with road test given unless it is a stable, long-standing condition)
	Absolute visual acuity minimum	Better than 20/200, best corrected, in at least one eye. Cannot use bioptic telescopes to meet standard.
	Are bioptic telescopes allowed?	Yes, for daylight driving only.
Visual fields	Minimum field requirement	None
Color vision requirement	None	
Type of road test	The Driving Performance Evaluation (DPE) is administered for original licensing and for some experienced impaired drivers (eg, drivers with vision problems). For other experienced impaired drivers (eg, drivers with cognitive deficits), the Supplemental Driving Performance Evaluation (SDPE) is administered.	
Restricted licenses	A variety of restrictions are available—most commonly for corrective lens wearers.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person or (if applicant qualifies) mail renewal for no more than 2 license terms in sequence.
	Vision testing required at time of renewal?	Yes, at in-person renewal
	Written test required?	Yes, at in-person renewal
	Road test required?	Only if there is significant evidence of driving impairment.
Age-based renewal procedures	No renewal by mail at age 70 and older.	

Reporting Procedures

Physician/medical reporting	Physicians are required to report all patients diagnosed with 'disorders characterized by lapses of consciousness.' The law specifies that this definition includes Alzheimer's disease 'and those related disorders that are severe enough to be likely to impair a person's ability to operate a motor vehicle.' Physicians are not required to report unsafe drivers. However, they are authorized to report, given their good faith judgment that it is in the public's interest.
Immunity	Yes, if the condition is required to be reported. (A physician who has failed to report such a patient may be held liable for damages.) If the condition is not required to be reported, there is no immunity from liability.

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Legal protection	Only if the condition is required by law to be reported.
DMV follow-up	The medical information obtained from the physician is reviewed by DMV hearing officers within the Driver Safety Branch. The driver is reexamined; at the conclusion of the process, the DMV may take no action, impose restrictions, limit license term, order periodic reexaminations, or suspend or revoke the driver's license.
Other reporting	The DMV will accept information from the driver him or herself, courts, police, other DMVs, family members, and virtually any other source.
Anonymity	If so requested, the name of the reporter will not be divulged (unless a court order mandates disclosure).

Medical Advisory Board

Role of the MAB	The MAB gathers specialists for panels on special driving related topics (eg, vision). These panels develop policy recommendations for the DMV regarding drivers with a particular type of impairment. No recommendations are made regarding individuals as such.
MAB contact information	The MAB no longer meets as a group. For further information regarding the role of the MAB, contact: Post Licensing Policy California Department of Motor Vehicles 2415 First Avenue, Mail Station C163 Sacramento, CA 95818-2698 916 657-5691

Colorado

Driver licensing agency contact information	Colorado Department of Motor Vehicles Driver License Administration 1881 Pierce Street, Room 136 Lakewood, CO 80214 www.mv.state.co.us/mv.html	303 205-5646

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40*
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	No absolute minimum acuity. The DMV will license any individual whom a physician/optometrist feels is not a danger.
	Are bioptic telescopes allowed?	Yes
Visual fields	Minimum field requirement	None**
Color vision requirement	None**	
Restricted licenses	Available based on doctor's recommendations	

License Renewal Procedures

Standard	Length of license validation	10 years
	Renewal options and conditions	If eligible, mail-in every other cycle
	Vision testing required at time of renewal?	Yes, at in-person renewal
	Written test required?	Only if point accumulation results in suspension
	Road test required?	No, unless condition has developed since last renewal that warrants road test.
Age-based license procedures	At age 61, renewal period is reduced to every 5 years; no renewal by mail at age 66+.	

Reporting Procedures

Physician/medical reporting	Drivers should self-report medical conditions that may cause a lapse of consciousness, seizures, etc. Physicians are encouraged but not required to report patients who have a medical condition that may affect their ability to safely operate a motor vehicle.
Immunity	N/A
Legal protection	No civil or criminal action may be brought against a physician or optometrist licensed to practice in Colorado for providing a written medical or optometric opinion.
DMV follow-up	The driver is notified in writing of the referral and undergoes a re-examination. Medical clearance may be required from a physician, and restrictions may be added to the license.
Other reporting	Will accept information from courts, police, other DMVs, and family members.
Anonymity	Not anonymous or confidential

Medical Advisory Board

Role of the MAB	Colorado does not currently retain a medical advisory board.

* *Unless the customer is blind in one eye, individual eye acuity is not normally tested nor is there an individual eye minimum acuity requirement. The DMV is concerned with the acuity of both eyes together, unless the applicant is applying for a Commercial Driver's License.*

** *Based on discussions with ophthalmologists and optometrists, the DMV does not currently test peripheral vision or color vision as accommodations can be made for these deficiencies. However, testing is performed for phoria.*

Connecticut

Driver licensing agency contact information	Connecticut Department of Motor Vehicles 60 State Street Wethersfield, CT 06161-2510 www.dmvct.org	860 263-5700 *(within Hartford or outside CT)* 860 842-8222 *(elsewhere in CT)*

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70 in better eye for restricted license; some circumstances allow for restricted license at 20/200
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	100° monocular; 140° binocular
	Visual field testing device	Optec 1000
Color vision requirement	None (only for commercial drivers)	
Type of road test	The general on-the-road skills test is conducted by a DMV instructor or licensing agent. The test for a 'graduated license' is conducted by off-site staff who make an appointment with the applicant at his/her residence and conduct the test in a state-owned, dual control vehicle. Applicants with specific needs are trained/tested by a Handicapped Driver Training Unit certified driving instructor.	
Restricted license	Graduated license considerations include the applicant's health problem/condition, accident record, and driving history. Restrictions include: daylight only, corrective lenses required, no highway driving, automatic transmission only, external mirrors required, special controls or equipment, and hearing aid required.	

License Renewal Procedures

Standard	Length of license validation	6 years
	Renewal options and conditions	In-person at DMV full-service branch, mobile unit scheduled locations, satellite offices, license renewal centers, and authorized AAA offices.
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	Only for new applicants and for these applicants whose license has been expired for two or more years.
Age-based renewal procedures	Applicants age 65+ may renew for 2 years. Applicants age 65+ may renew by mail only upon submission of a written application showing hardship which shall include—but is not limited to—distance of applicant's residence from DMV renewal facility.	

Reporting Procedures

Physician/medical reporting	Sec 14-46 states that a "physician may report to the DMV in writing the name, age, and address of any person diagnosed by him to have any chronic health problem which in the physician's judgement will significantly affect the person's ability to safely operate a motor vehicle."
Immunity	No civil action may be brought against the commissioner, the department or any of its employees, the board or any if its members, or any physician for providing any reports, records, examinations, opinions or recommendations. Any person acting in good faith shall be immune from liability.
Legal protection	Only the laws regarding immunity apply.

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DMV follow-up	The driver is notified in writing of his/her referral to the MAB. If the MAB requires additional information for review in order to make a recommendation, the driver is requested to file the additional medical information.
Other reporting	State regulations require 'reliable information' to be on file for the DMV to initiate a medical review case. This includes a written, signed report from any person in the medical/law enforcement profession, or a third party report on the DMV affidavit which requires signing in the presence of a notary public.
Anonymity	All information on file in a medical review case is classified as 'confidential'. However, it is subject to release to the person or his/her representative upon written authorization from the person to release the data.

Medical Advisory Board

Role of the MAB	The MAB must be comprised of 8 specialties 1. General medicine or surgery 2. Internal medicine 3. Cardiovascular medicine 4. Neurology or neurological surgery 5. Ophthalmology 6. Orthopedic surgery 7. Psychiatry 8. Optometry The MAB advises the commissioner on health standards relating to safe operation of motor vehicles; recommends procedures and guidelines for licensing individuals with impaired health; assists in developing medically acceptable standardized report forms; recommends training courses for motor vehicle examiners on medical aspects of operator licensure; undertakes any programs/activities the commissioner may request relating to medical aspects of motor vehicle operator licensure; makes recommendations and offers advice on individual health problem cases; and establishes guidelines for dealing with such individual cases.
MAB contact information	Connecticut Department of Motor Vehicles Medical Review Division 60 State Street Wethersfield, CT 06161-2510 860 263-5223 860 263-5774 fax

Delaware

Driver licensing agency contact information	Delaware Division of Motor Vehicles PO Box 698 Dover, DE 19903 www.delaware.gov/yahoo/DMV	302 744-2500

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/50 for restricted license; beyond 20/50 driving privileges denied
	Are bioptic telescopes allowed?	Yes, on a case-by-case basis with daytime-only restrictions
Visual fields	Minimum field requirement	None
Color vision requirement	None	
Restricted licenses	Daytime-only licenses available	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person only
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians should report patients subject to "losses of consciousness due to disease of the central nervous system." Failure to do so is punishable by a fine of $5.00 to $50.00.
Immunity	Available
Legal protection	N/A
DMV follow up	The driver is notified in writing of the referral and his/her license is suspended until further examination.
Other reporting	The DMV will accept information from courts, other DMVs, police, and family members.
Anonymity	The DMV protects the identity of the reporter.

Medical Advisory Board

Role of the MAB	If the DMV receives conflicting or questionable medical reports, the reports are sent to the MAB. The MAB determines whether the individual is medically safe to operate a motor vehicle.
MAB contact information	Contact the MAB through Delaware Health and Social Services at: 1901 N. DuPont Highway Main Building New Castle, DE 19720 302 255-9040 302 744-4700 302 255-4429 fax dhssinfo@state.de.us

District of Columbia

Driver licensing agency contact information	District of Columbia Department of Motor Vehicles 301 C Street, NW Washington, DC 20001 www.dmv.washingtondc.gov	202 727-5000

Licensing Requirements

Visual acuity	Best eye with/without correction	20/40
	Other eye with/without correction	20/70
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40; 20/70 in better eye requires 140 E visual field for restricted license.
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	130° both eyes (may be approved by director at 110°)
	Visual field testing device	Confrontation or perimetry
Color vision requirement	For new drivers only	
Restricted licenses	Daytime-only licenses available (acuity must be 20/70 or greater and field of vision 140° or greater).	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	Drivers with a clear driver record and no medical requirements can now renew their license on-line
	Vision testing required at time of renewal?	Yes
	Written test required?	Yes; however, drivers are allowed a 6 month grace period
	Road test required?	Licensees with physicial disabilities may require a road test at the time of renewal. Also, senior citizens may be required to take the road test on an observational basis.
Age-based renewal procedures	At age 70, the licensee must submit a letter from his/her physician stating that the licensee is medically fit to drive based on vision and physical and mental capabilities.	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	None
Legal protection	None
DMV follow-up	N/A
Other reporting	Any concerned citizen may report.
Anonymity	Reporters are allowed to remain anonymous.

Medical Advisory Board

Role of the MAB	Washington, DC does not currently retain a medical advisory board.

Florida

Driver licensing agency contact information	Florida Department of Highway Safety and Motor Vehicles Neil Kirkman Building 2900 Apalachee Parkway Tallahassee, FL 32399-0500 www.hsmv.state.fl.us/html/dlnew.html	850 922-9000

Licensing Requirements

Visual acuity	Each/both eyes without correction	20/40; if 20/50 or less, applicant is referred to eye specialist for possible improvement
	Each/both eyes with correction	20/70; worse eye must be better than 20/200
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	130° horizontal
	Visual field testing device	None; Goldman by eye specialist if indicated
Color vision requiremnt	None	
Restricted licenses	Drivers may be licensed to drive with the following restrictions: corrective lenses, outside rearview mirror, business and/or employment purposes only, daylight driving, automatic transmission, power steering, directional signals, grip on steering wheel, hearing aid, seat cushion, hand control or pedal extension, left foot accelerator, probation interlock device, medical alert bracelet, educational purposes, graduated license restrictions, and other restrictions.	

License Renewal Procedures

Standard	Length of license validation	4-6 years, depending on driving history
	Renewal options and conditions	In-person every 3rd cycle
	Vision testing required at time of renewal?	At in-person renewal
	Written test required?	May be required based on driving history and/or observation of physical or mental impairments
	Road test required?	May be required based on observation of physical or mental impairments
Age-based renewal procedures	Effective January 2004, vision testing is required at each renewal for drivers over the age of 79.	

Reporting Procedures

Physician/medical reporting

Any physician, person or agency having knowledge of a licensed driver's or applicant's mental or physical disability to drive may report the person to the Department of Highway Safety and Motor Vehicles (DHSMV). Forms are available on the DHSMV Web site, as well as at local driver license offices. The Division of Driver Licenses' (DDL) Medical Review Section provides other forms as the situation requires.

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Immunity	N/A
Legal protection	The law provides that no report shall be used as evidence in any civil or criminal trial or in any court proceeding.
DMV follow-up	The DHSMV investigatigates, sanctions actions if needed, and notifies the driver in writing.
Other reporting	The law authorizes any person, physician, or agency to report.
Anonymity	Available

Medical Advisory Board

Role of the MAB	The MAB advises the DHSMV on medical criteria and vision standards and makes recommendations on mental and physical qualifications of individual drivers.
MAB contact information	Dr. Jack MacDonald, MAB Chairperson DHSMV/DDL/Driver Improvement Medical Section 2900 Apalachee Parkway Tallahassee, FL 32399-0570 850 488-8982 850 921-6147 fax

Georgia

Driver licensing agency contact information	Georgia Department of Motor Vehicle Safety PO Box 1456 Atlanta, GA 30371 www.dmvs.ga.gov	678 415-8400

Licensing Requirements

Visual acuity	Each eye with/without correction	20/60
	Both eyes with/without correction	20/60
	If one eye blind—other with/without correction	20/60
	Absolute visual acuity minimum	20/60 in either eye with or without corrective lenses.
	Are bioptic telescopes allowed?	Yes, with acuity of 20/60 through telescope and 20/60 through carrier lens. Biopic telescopes are also permitted for best acuity as low as 20/200, with restrictions.
Visual fields	Minimum field requirement	140° both eyes
	Visual field testing device	Juno vision machine
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians should report patients with diagnosed conditions hazardous to driving and/or any handicap which would render the individual incapable of safely operating a motor vehicle.
Immunity	None
Legal protection	None
DMV follow-up	Medical evaluation and retest
Other reporting	Will accept information from anyone with knowledge that the driver may be medically or mentally unfit to drive.
Anonymity	None

Medical Advisory Board

Role of the MAB	The Medical Advisory Board advises agency personnel on individual medical reports and assists the agency in the decision-making process.
MAB contact information	Georgia Department of Motor Vehicle Safety Medical Unit PO Box 80447 Conyers, GA, 30013

Hawaii

Driver licensing agency contact information	Honolulu Division of Motor Vehicles & Licensing Drivers License Branch 1199 Dillingham Boulevard, Bay A-101 Honolulu, HI 96817 www.co.honolulu.hi.us/csd	808 532-7730

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 for better eye
	Are bioptic telescopes allowed?	Not allowed to meet visual field requirements; however, permitted for use while driving
Visual fields	Minimum field requirement	70° one eye
	Visual field testing device	Eye testing machine or eye specialist certification
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	6 years
	Renewal options and conditions	In-person or by mail
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	Only if necessary
Age-based renewal procedures	Drivers aged 15-17 renew every 4 years; drivers aged 18-71 renew every 6 years. After age 72, drivers must renew every 2 years.	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	None
Legal protection	None
DMV follow-up	Driver notified in writing of referral.
Other reporting	Will accept information from courts, police, other DMVs, and family members.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	The MAB advises the DMV on medical issues regarding individual drivers. Actions are based on the recommendation of the majority.
MAB contact information	For general information, contact the Department of Transportation at 808 692-7656 For case specific information, contact the county of issue at: *Honolulu:* 808 532-7730 *Hawaii:* 808 961-2222 *Kauai:* 808 241-6550 *Maui:* 808 270-7363

Idaho

Driver licensing agency contact information	Idaho Transportation Department Division of Motor Vehicles, Driver Services PO Box 7129 Boise, ID 83707 www2.state.id.us/itd/dmv	208 334-8716

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/50-20/60 requires annual testing; 20/70 denied license
	Are bioptic telescopes allowed?	Yes, if acuity is 20/40 through lens, 20/60 through carrier
Visual fields	Minimum field requirement	None
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	Mail-in every other cycle
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	Only if requested by examiner, law enforcement agency, family member or DMV. An annual road test may be required to coincide with vision or medical re-testing requirements.
Age-based renewal procedures	After age 69, no renewal by mail.	

Reporting Procedures

Physician/medical reporting	Yes (not specified)
Immunity	None
Legal protection	A physician may not be sued for submitting required medical information to the department. Reports received by the Driver's License Advisory Board for the purpose of assisting the department in determining whether a person is qualified to be licensed may not be used as evidence in any civil or criminal trial.
DMV follow-up	License suspended upon referral.
Other reporting	Will accept information from family members, other DMVs, and law enforcement officers.
Anonymity	Not anonymous or confidential.

Medical Advisory Board

Role of the MAB	The medical information submitted is initially reviewed by employees within the Driver Support Division who work specifically with medical cases. If there is a question whether to issue a license, the information is reviewed by the Driver's License Advisory Board, which is composed of a small group of representatives and the sheriff.
MAB contact information	Vicky Fisher DLR/Medical Unit Supervisor 208 334-8736 vfisher@itd.state.id.us

Illinois

Driver licensing agency contact information	Illinois Office of the Secretary of State Driver Services Department - Downstate 2701 S Dirksen Parkway Springfield, IL 62723 Driver Services Department - Metro 17 N State Street, Suite 1100 Chicago, IL 60602 www.sos.state.il.us/departments/drivers/drivers.html	 217 785-0963 312 814-2975

Licensing Requirements

Visual acuity	Both eyes without correction.....20/40 Both eyes with correction.....20/40 If one eye blind—other with/without correction.....20/40 Absolute visual acuity minimum .....20/40 in better eye for unrestricted license; 20/70 in better eye for daylight-only restrictions. Are bioptic telescopes allowed? .....Yes, if acuity is 20/100 in better eye and 20/40 through bioptic telescope.
Visual fields	Minimum field requirement .....105° one eye, 140° both eyes Visual field testing device.....Stereo Optical testing machine
Color vision requirement	None
Restricted licenses	Restrictions include daytime-only driving and two outside mirrors on the vehicle.

License Renewal Procedures

Standard	Length of license validation.....4 years Renewal options and conditions.....Mail-in every other cycle for drivers with clean records and no medical report Vision testing required at time of renewal?.....At in-person renewal Written test required?.....Every 8 years unless driver has a clean driving record Road test required?.....Only for applicants age 75+
Age-based renewal procedures	Drivers age 75+: no renewal by mail; vision test and on-road driving test required at each renewal. Drivers age 81-86: renewal every 2 years. Drivers age 87+: renewal every year.

Reporting Procedures

Physician/medical reporting	Physicians are encouraged to inform patients of their responsibility to notify the Secretary of State of any medical conditions that may cause a loss of consciousness or affect safe operation of a motor vehicle within 10 days of becoming aware of the condition.
Immunity	Yes
Legal protection	N/A (Illinois is not a mandatory reporting state.)
DMV follow-up	The driver is notified in writing of the referral and required to submit a medical report. Determination of further action is based on various scenarios.
Other reporting	Will accept information from courts, other DMVs, law enforcement agencies, members of the Illinois medical advisory board, National Driver Register (NDR), Problem Driver Pointer System, Secretary of State, management employees, Federal Motor Carrier Safety Administration, and driver rehabilitation specialists.
Anonymity	Available

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Medical Advisory Board

Role of the MAB	The MAB reviews each medical report and determines the status of the licensee's driving privileges. The decision of the MAB is implemented by the Secretary of State.
MAB contact information	Supervisor, Medical Review Unit Office of the Secretary of State Driver Services Department 2701 South Dirksen Parkway Springfield, IL 62723 217 785-3002

Indiana*

Driver licensing agency contact information	Indiana Bureau of Motor Vehicles Driver Services 100 N Senate Avenue, Rm N 405 Indianapolis, IN 46204 www.ai.org/bmv	317 233-6000 x2

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other without correction	20/50
	Absolute visual acuity minimum	20/40 in best eye: no restrictions; 20/50 one eye: outside rearview mirror required; 20/50 both eyes: glasses also required; 20/70 both eyes: outside rearview mirror and proof of normal visual fields required, daylight driving only.
	Are bioptic telescopes allowed?	Yes, for best acuity as low as 20/200 with some restrictions, if 20/40 can be achieved with telescope.
Visual fields	Minimum field requirement	70° one eye, 120° both eyes
	Visual field testing device	Not specified
Color vision requirement	Only for commercial and bioptic drivers	
Restricted licenses	Daytime only and required outside rearview mirror licenses available.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	Yes (acuity and peripheral fields)
	Written test required?	N/A
	Road test required?	Only for those with 14+ points or 3 convictions in 12 month period.
Age-based renewal procedures	At age 75, renewal cycle is reduced to 3 years.	

Reporting Procedures

Physician/medical reporting	None. However, there is a statute requiring that physicians and others who diagnose, treat or provide care for handicapped persons report the handicapping condition to the state Board of Health within 60 days.
Immunity	None
Legal protection	N/A
DMV follow-up	Driver notified in writing of referral.
Other reporting	Will accept information from courts, police, other DMVs, family members, and other sources.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	The MAB advises the Bureau of Motor Vehicles on medical issues regarding individual drivers. Actions are based on the recommendation of the majority and/or specialist.

**Information was not available from this state's licensing agency. The information above was gathered from the resources listed at the beginning of this chapter.*

Iowa

Driver licensing agency contact information	Iowa Motor Vehicle Division Park Fair Mall, 100 Euclid Avenue PO Box 9204 Des Moines, IA 50306-9204 www.dot.state.ia.us/mvd	800 532-1121 515 244-8725

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/50 for daylight driving only; 20/70 in better eye for daylight driving only up to 35 mph; 20/100 requires recommendation from a vision specialist; if worse, recommendation from the MAB is required; absolute minimum is 20/200.
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	140° both eyes Outside mirrors required if 70° T + 45° N one eye, 115° both eyes. If less than 95° both eyes and 60° T + 35° N one eye, MAB recommendation required.
	Visual field testing device	Keystone-Optic 100 Vision Tester
Color vision requirement	None	
Type of road test	Non-fixed course in general traffic	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person, extensions available if out of state for 6 months.
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	If physical or mental conditions are present.
Age-based renewal procedures	Persons under the age of 18 or aged 70 and older are issued 2-year licenses.	

Reporting Procedures

Physician/medical reporting	A physician may report to the motor vehicle division "the identity of a person who has been diagnosed as having a physical or mental condition which would render the person physically or mentally incompetent to operate a motor vehicle in a safe manner."
Immunity	Available
Legal protection	Under 321.186, "a physician or optometrist making a report shall be immune from any liability, civil or criminal, which might otherwise be incurred or imposed as a result of the report."
DMV follow-up	Driver notified in writing of referral. License suspended upon referral.
Other reporting	Will accept information from courts, other DMVs, police and family members.
Anonymity	Not anonymous or confidential.

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Medical Advisory Board

Role of the MAB	The MAB reviews medical/vision reports as requested and makes recommendations regarding the individual's capability to drive safely.
MAB contact information	The MAB may be contacted through the Iowa Medical Society at: Iowa Medical Society 1001 Grand Avenue West Des Moines, IA 50265-3502 515 223-1401

Kansas

Driver licensing agency contact information	Kansas Division of Motor Vehicles Docking State Office Building PO Box 2188 Topeka, Kansas 66601-2128 www.accesskansas.org/living/cars-transportation.html	785 296-3963 785 296-0691 fax

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/60 in better eye requires doctor's report; drivers with 20/60 or worse must demonstrate ability to operate a vehicle and maintain safe driving record for 3 years.
	Are bioptic telescopes allowed?	Yes, with eye doctor's report.
Visual fields	Minimum field requirement	110° with both eyes and 55° monocular
Color vision requirement	None	
Type of road test	Non-fixed course	
Restricted licenses	Up to 4 restrictions can be added at doctor's/examiner's discretion. These may include: corrective lenses required; daylight only; no interstate driving; no driving outside business area; driving within city limits only; mileage restrictions in increments of 5 miles up to 30 miles total; outside mirror required; mechanical aid required; automatic transmission required; prosthetic aid required; licensed driver in front seat required.	

License Renewal Procedures

Standard	Length of license validation	6 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	Yes
	Written test required?	Yes
	Road test required?	By examiner challenge, for visual acuity of 20/60 or worse, or at medical doctor's request.
Age-based renewal procedures	At age 65, renewal cycle is reduced to 4 years.	

Reporting Procedures

Physician/medical reporting	Statutes specify that physicians are not required to volunteer information to the division or to the medical advisory board concerning the mental or physical condition of any patient.
Legal protection	Patients must sign a form permitting the MD or OD to release information to the DMV. Persons so reporting in good faith are statutorily immunized from civil actions for damages caused by such reporting
DMV follow-up	Driver is notified in writing of referral.
Other reporting	Will accept information from courts, other DMVs, police, family members, and concerned citizens.
Anonymity	Letters of concern must be signed. Applicants may request a copy of the letter.

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Medical Advisory Board

Role of the MAB	The MAB assists the Director of Vehicles and Driver Review in interpreting conflicting information and formulating action based on the recommendation of specialists. It also helps determine the driving eligibility of complicated or borderline cases.
MAB contact information	Kansas Driver Review Medical Advisory Board 915 SW Harrison, Room 162 Topeka, KS 66626

Kentucky

Driver licensing agency contact information	Kentucky Division of Driver Licensing 501 High Street Frankfort, KY 40602 www.kytc.state.ky.us/drlic	502 564-6800

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/200 with corrective lenses
	Are bioptic telescopes allowed?	Yes, with acuity of 20/60 or better through telescope and 20/200 through carrier lens
Visual fields	Minimum field requirement	120° E and 80° N in the same eye
	Visual field testing device	N/A
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Yes (not specified)
Immunity	Yes
Legal protection	None
DMV follow-up	Driver is notified in writing of referral to medical advisory board.
Other reporting	Will accept information from courts, other DMVs, family members, and police.
Anonymity	None

Medical Advisory Board

Role of the MAB	The medical advisory board identifies drivers with physical or mental impairments that impede their ability to safely operate a motor vehicle.
MAB contact information	Lisa Bowling 502 564-6800 x2552 502 564-6145 fax

Louisiana

Driver licensing agency contact information	Louisiana Office of Motor Vehicles PO Box 64886 Baton Rouge, LA 70896 www.expresslane.org	877 368-5463

Licensing Requirements

Visual acuity

Both eyes without correction	20/40
Both eyes with correction	20/40
If one eye blind—other with/without correction	20/40
Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/50-20/70 in better eye for restricted license; 20/70-20/100 in better eye may qualify for a restricted license. If less than 20/100 in better eye, driver is referred to the medical advisory board.
Are bioptic telescopes allowed?	No

Visual fields Minimum field requirement ..... None

Color vision requirement None

Restricted licenses Restrictions include daytime driving only, weather restrictions, radius limitations, and no interstate driving.

License Renewal Procedures

Standard

Length of license validation	4 years
Renewal options and conditions	In-person or by mail every other cycle. Can also be renewed by internet and interactive voice response, unless license has been expired 6 months or more.
Vision testing required at time of renewal?	Yes
Written test required?	If license has been expired 1 year or more.
Road test required?	If license has been expired 2 years or more.

Age-based renewal procedures No renewal by mail for drivers over the age of 70.

Reporting Procedures

Physician/medical reporting There is no statutory provision requiring physicians to report patients. However, if a medical report is filed, it must address the medical concern for which it was required; contain the physician's signature, address, and phone number; and be dated within 60 days from the date received by the Department. The physician's opinion of the applicant's ability to safely operate a motor vehicle is desired but not required.

Immunity A physician who provides such information has statutory immunity from civil or criminal liability for damages arising out of an accident.

Legal protection Louisiana has statutory protection for good faith reporting of unsafe drivers.

DMV follow-up Driver is notified in writing of referral.

Other reporting Will accept information from DMV employees or agents in the performance of duties, law enforcement officers, health care providers, or family members.

Anonymity Not anonymous or confidential. However, an order from a court of competent jurisdiction is required before the identity of the reporter can be released.

Medical Advisory Board

Role of the MAB Medical reports requiring further attention are forwarded to the Data Prep Unit marked Attention: Conviction/Medical Unit. The conviction/medical unit evaluates these reports and may request an evaluation by the MAB. The MAB then recommends actions.

Maine

Driver licensing agency contact information	Maine Bureau of Motor Vehicles 29 State House Station 101 Hospital Street Augusta, ME 04333-0029 www.state.me.us/sos/bmv	207 624-9000

Licensing Requirements

Visual acuity	Best eye with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70 with restrictions
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	140° both eyes; 110° for restricted license.
	Visual field testing device	Titmus II or Stereo Optical vision screening equipment
Color vision requirement	None	
Restricted licenses	Restrictions include daytime driving only, radius limitations, and special equipment requirements.	

License Renewal Procedures

Standard	Length of license validation	6 years
	Vision testing required at time of renewal?	Vision tested at age 40, 52, 65, and every 4 years thereafter.
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	At age 65, the license renewal cycle is reduced to every 4 years.	

Reporting Procedures

Physician/medical reporting	Yes (not specified)
Immunity	N/A
Legal protection	A physician acting in good faith is immune from any damages as a result of the filing of a certificate of examination.
DMV follow-up	The DMV will require a medical evaluation form to be completed by a physician at periodic intervals.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not anonymous or confidential. The identity of the reporter may be revealed at an administrative hearing if requested.

Medical Advisory Board

Role of the MAB	The Medical Advisory Board reviews the medical information submitted whenever an individual contests an action of the Division of Driver Licenses. Reports received or made by the Board are confidential and may not be disclosed unless the individual gives written permission.
MAB contact information	Linda French, RN Medical Review Coordinator 207 624-9101

Maryland

Driver licensing agency contact information	Maryland Motor Vehicle Administration 6601 Ritchie Highway, NE Glen Burnie, MD 21062 www.mva.state.md.us	301 729-4550 or 800 950-1682

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70 in better eye for restricted license; 20/70-20/100 in better eye requires special permission from medical advisory board.
	Are bioptic telescopes allowed?	Yes, with visual acuity of 20/70 through telescope and 20/100 through carrier lens. Restrictions include daytime driving only and required outside mirrors.
Visual fields	Minimum field requirement	Continuous field of vision at least 140° for unrestricted license; 110° for restricted license.
	Visual field testing device	Stereo Optical Optec 1000 vision screener
Color vision requirement	Only for commercial drivers	
Restricted licenses	Restrictions include daytime driving only and required outside mirrors for low vision drivers.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	Yes (visual acuity and visual fields)
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	Medical report required for new drivers age 70 and older.	

Reporting Procedures

Physician/medical reporting	Maryland law provides for the discretionary reporting to the Motor Vehicle Administration of persons who have "disorders characterized by lapses of consciousness."
Immunity	N/A
Legal protection	A civil or criminal action may not be brought against any person who makes a report to the Medical Advisory Board and who does not violate any confidential or privileged relationship conferred by law.
DMV follow-up	Driver is notified in writing of referral. License is suspended and further examination is required.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Confidentiality available if requested by reporter.

Medical Advisory Board

Role of the MAB	The MAB advises the Motor Vehicle Administration on medical issues regarding individual drivers. Actions are based on the recommendation of the majority and/or specialist.
MAB contact information	Ms. Nancy Snowden 410 768-7513

Massachusetts

Driver licensing agency contact information	Massachusetts Registry of Motor Vehicles PO Box 199100 Boston, MA 02119-9100 www.state.ma.us/rmv	617 351-4500

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/50-20/70 in better eye for daylight only restriction.
	Are bioptic telescopes allowed?	Yes, if peripheral vision is at least 120° and acuity is corrected to 20/40 through the bioptic telescope and 20/100 through the carrier lens. The bioptic lens must meet certain requirements: it must be monocular, fixed focus, no greater than 3X magnification, and must be an 'integral part of the lens.'
Visual fields	Minimum field requirement	120°
	Visual field testing device	Optec 1000 vision testing machine
Color vision requirement	Drivers must be able to distinguish red, green, and amber.	
Restricted licenses	Daytime-only restrictions available.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person or via internet.
	Vision testing required at renewal?	Yes
	Written test required?	No; however, DMV reviews on a case-by-case basis and will administer a written test if indicated.
	Road test required?	No; however, DMV reviews on a case-by-case basis and will administer a road test if indicated.
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Massachusetts is a self-reporting state. It is the responsibility of the driver to report to the Registry of Motor Vehicles any medical condition that may impair driving ability. However, physicians are encouraged to report unfit drivers to the Registry of Motor Vehicles.
Immunity	N/A
Legal protection	The law does not provide any protection from liability, nor does it promise confidentiality due to the "Public Records" law which states simply that a driver is entitled to any information upon receipt of written approval.

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DMV follow-up

If the report comes from the general public or a family member, it must be in writing and signed. If the report is accepted, the driver is contacted by mail and asked to obtain medical clearance to certify that he/she is safe to drive. If the DMV does not receive a response within 30 days, a second request is mailed. If there is still no response, then the license is revoked.

If the report is from a law enforcement officer or physician, it is considered an 'immediate threat.' The driver is contacted by mail and requested to voluntarily surrender his/her license or submit medical clearance within 10 days. If there is no response, then the license is revoked.

Other reporting

Will accept information from courts, other DMVs, police, family members, and other sources.

Anonymity

None

Medical Advisory Board

Role of the MAB

The MAB provides guidance to the Registry of Motor Vehicles when there are medical issues relating to an applicant's eligibility for a learner's permit or driver's license, or when an individual's privilage to operate a motor vehicle has been—or is in danger of being—restricted, suspended, or revoked.

MAB contact information

Mary Strachan
Massachusetts Registry of Motor Vehicles
Medical Affairs Bureau
PO Box 199100
Boston, MA 02119-9100
617 351-9222
www.state.ma.us/rmv

Michigan

Driver licensing agency contact information	Michigan Department of State 7707 Rickle Road Lansing, MI 48918 www.michigan.gov/sos	517 322-1460

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40 to and including 20/50
	If one eye blind—other with/without correction	20/50
	Absolute visual acuity minimum	Minimum of 20/70 in better eye with daylight-only restriction; minimum of 20/60 if progressive abnormalities or disease of the eye exist.
	Are bioptic telescopes allowed?	Yes. A road test is required.
Visual fields	Minimum field requirement	110°-140° in both eyes; if less than 110° to/including 90°, there are additional conditions and requirements.
	Visual field testing device	Not specified
Color vision requirement	None	
Type of road test	Standardized course and requirements	
Restricted licenses	Restrictions are based on review of medical input and reexamination testing. Examples include radius limitations, daylight-only driving, and no expressway driving.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	Mail-in every other cycle, if free of convictions.
	Vision testing required at time of renewal?	Yes
	Written test required?	Yes
	Road test required?	Yes, if license has been expired more than 4 years.
Age-based renewal procedures	No	

Reporting Procedures

Physician/medical reporting	Physicians are encouraged to report unsafe drivers. They may do so by completing a "Request for Driver Evaluation" form (OC-88). This form can be downloaded from the Michigan Department of State Web site.
Immunity	None
Legal protection	None
DMV follow-up	The driver is notified in writing of the referral. The notification includes a notice of date, time, and location of driver reexamination as well as any medical statements to be completed by the driver's doctor.
Other reporting	The Department accepts referrals for reexamination from family, police, public officials, and others who have knowledge of a driver's inability to drive safely or health concerns that may affect his/her driving ability.
Anonymity	Reporting is not anonymous. However, the Department will release the name of the reporter only if he/she is a public official (eg, police, judge, state employee). The names of non-public official reporters will be released only under court order.

Medical Advisory Board

Role of the MAB	The MAB advises the Department of State on medical issues regarding individual drivers. Actions are based on the recommendation of specialists.
MAB contact information	For additional information, contact the Driver Assessment Office at 517 241-6840.

Minnesota

Driver licensing agency contact information	Minnesota Department of Public Safety Driver and Vehicle Services 445 Minnesota Street St. Paul, MN 55101 www.dps.state.mn.us/dvs	651 296-6911

Licensing Requirements

Visual acuity	Each eye with/without correction.....20/40 Both eyes with/without correction .....20/40 If one eye blind—other with/without correction.....20/40 Absolute visual acuity minimum .....20/70 in better eye with speed limitations; 20/80 referred to a driver evaluation unit; 20/100 denied license. Are bioptic telescopes allowed? .....No
Visual fields	Minimum field requirement .....105˚
Color vision requirement	None
Restricted licenses	Restrictions include: daytime driving only, area restrictions, speed restrictions, and no freeway driving.

License Renewal Procedures

Standard	Length of license validation .....4 years Renewal options and conditions.....In-person Vision testing required at time of renewal?.....Yes Written test required?.....Only if license has been expired for more than 1 year Road test required?.....Only if license has been expired for more than 5 years
Age-based renewal procedures	None

Reporting Procedures

Physician/medical reporting	Physician reporting is encouraged. Physicians may contact the Medical Unit in writing; no specific form is required.
Immunity	Yes
Legal protection	Not addressed in driver licensing laws.
DMV follow-up	Driver is notified in writing of referral. License is suspended upon referral and further examination is conducted.
Other reporting	Will accept information from courts, other DMVs, police, family members, or other sources.
Anonymity	Reporting cannot be done anonymously. However, the identity of the reporter will be held confidential unless the court subpoenas records.

Medical Advisory Board

Role of the MAB	The MAB advises the Department of Public Safety on medical isssues regarding individual drivers. Actions are based on the recommendation of the majority.
MAB contact information	The MAB can be contacted through the Medical Unit at: Minnesota Department of Public Safety Medical Unit 445 Minnesota Street, Suite 170 St. Paul, MN 55101-5170 651 296-2021

Mississippi*

Driver licensing agency contact information	Mississippi Department of Public Safety Driver Services 1900 E. Woodrow Wilson Jackson, MS 39216 www.dps.state.ms.us	601 987-1200

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	Absolute visual acuity minimum	20/70 with daytime-only restriction
	Are bioptic telescopes allowed?	Yes, with acuity of 20/50 or better through the telescope and 20/200 through the carrier lens. Also, visual field must be ≥105° and the telescope must have magnification no greater than 4X.
Visual fields	Minimum field requirement	140° both eyes; one eye T 70°, N 35° with 2 outside mirrors
	Visual field testing device	Not specified
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person; renewal via internet permitted every other cycle
	Vision testing required at time of renewal?	Yes
	Written test required?	N/A
	Road test required?	N/A
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	No
Legal protection	N/A
DMV follow-up	N/A
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	N/A
MAB contact information	N/A

**Information from this state's licensing agency was not available. The information above was gathered from the resources listed at the beginning of this chapter.*

Missouri

Driver licensing agency contact information	Missouri Department of Revenue Division of Motor Vehicle and Driver Licensing Room 470, Truman Office Building 301 West High Street Jefferson City, MO 65105 www.dor.state.mo.us	573 751-4600

Licensing Requirements

Visual acuity

Each eye with/without correction	20/40
Both eyes with/without correction	20/40
If one eye blind—other with/without correction	20/50
Absolute visual acuity minimum	20/160 with restrictions
Are bioptic telescopes allowed?	Not for meeting vision requirements; however, they can be used for skills tests and while driving.

Visual fields

Minimum field requirement	55° or better in each eye; 85° in one eye only with restrictions.
Visual field testing device	Objective/quantitative

Color vision requirement
None

Restricted licenses
As long as the client meets the vision requirements, Missouri has restrictions for equipment, speed, radius (location of driving), time of day and/or length of time driving, or any restriction a doctor or examiner recommends.

License Renewal Procedures

Standard

Length of license validation	6 years
Renewal options and conditions	In-person, or renewal by mail if out of state.
Vision testing required at time of renewal?	Yes
Written test required?	If license has been expired for more than 6 months (184 days). Also, if an individual is cited, after the review process a written test may be required.
Road test required?	If license has been expired for more than 6 months (184 days). Also, if an individual is cited, after the review process a road test may be required.

Age-based renewal procedures
At age 70, renewal cycle is reduced to 3 years.

Reporting Procedures

Physician/medical reporting
Reporting is not required. However, for any condition that could impair or limit a person's driving ability, physicians may complete and submit a statement (Form 1528, "Physician's Statement"). Form 1528 is available on the Missouri Department of Revenue Web site.

Immunity
Yes, an individual is immune from civil liability when a report is made in good faith.

Legal protection
Medical professionals will not be prevented from making a report because of their physician-patient relationship (302.291. Rsmo).

DMV follow-up
Depending on the information received, the DMV may request additional information; add restrictions; require a written exam, skills test, vision exam, or physical exam; or deny the privilege of driving.

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Other reporting	Will accept information from courts, DMV clerks, peace officers, social workers, and family members within three degrees of consanguinity.
Anonymity	Available

Medical Advisory Board

Role of the MAB	The MAB evaluates each case on an individual basis. Action is based on the recommendation of the majority.
MAB contact information	Missouri Department of Review Attention: Medical Review PO Box 200 Jefferson City, MO 65105-0200. 573 751-2730

Montana

Driver licensing agency contact information	Montana Department of Justice Motor Vehicle Division Scott Hart Building, Second Floor 303 North Roberts PO Box 201430 Helena, MT 59620-1430 www.doj.state.mt.us	406 444-1773

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70 in better eye with restrictions on daylight and speed; 20/100 in better eye for a possible license with restrictions.
	Are bioptic telescopes allowed?	Yes, with acuity of 20/100 or better through carrier lens.
Visual fields	Minimum field requirement	Only for commercial drivers
	Visual field testing device	Optec 1000
Color vision requirement	Only for commercial drivers	
Type of road test	The road test includes a figure 8; 3 left and 3 right turns; 2 stop signs; driving through an intersection; and parallel parking.	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	8 years. If renewing by mail, a 4 year license is issued and the next renewal requires a personal appearance by the applicant.
	Vision testing required at time of renewal?	Yes
	Written test required?	At the discretion of the examiner if safe operation of the motor vehicle is in question.
	Road test required?	Same as written requirement.
Age-based renewal procedures	Between ages 68-74, all issued/renewed licenses expire on the client's 75th birthday. At age 75, renewal cycle is reduced to 4 years.	

Reporting Procedures

Physician/medical reporting	Physicians are encouraged to report.
Immunity	There is a statute granting physicians immunity from liability for reporting in good faith any patient whom the physician diagnoses as having a condition that will significantly impair the patient's ability to safely operate a motor vehicle.
Legal protection	N/A
DMV follow-up	N/A
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not anonymous or confidential. If requested, the state is required to disclose to the driver the name of the reporter.

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Medical Advisory Board

Role of the MAB	Montana does not retain a medical advisory board

Nebraska

Driver licensing agency contact information	Nebraska Department of Motor Vehicles Nebraska State Office Building 301 Centennial Mall South PO Box 94789 Lincoln, NE 68509-4789 www.dmv.state.ne.us	402 471-2281

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70, if the other eye is not blind. 17 restrictions are used, depending on vision in each eye.
	Are bioptic telescopes allowed?	Yes, with acuity of 20/70 or better through the telescope.
Visual fields	Minimum field requirement	140° both eyes. If less than 100°, then license denied.
	Visual field testing device	Not specified.
Color vision requirement	Only for commercial drivers.	
Type of road test	The road test includes elements such as emergency stops, right turns, and left turns.	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person. Individuals who are out of state during their renewal period may renew via mail.
	Vision testing required at time of renewal?	Yes
	Written test required?	Only if license has been expired over 1 year or license is suspended, revoked, or cancelled.
	Road test required?	Only if license has been expired over 1 year or license is suspended, revoked, or cancelled.
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Reporting is encouraged but not required.
Immunity	No
Legal protection	No
DMV follow-up	The driver is notified by certified mail that he/she must appear for retesting. The driver is also required to submit a vision and medical statement completed by his/her physician(s) within the past 90 days.
Other reporting	Will accept information from law enforcement officers and other concerned parties.
Anonymity	Not anonymous. However, the reporter's identity remains confidential unless the driver appeals the denial or cancellation of his/her license in District Court.

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Medical Advisory Board

Role of the MAB	The MAB advises the DMV concerning the physical and mental ability of an applicant or holder of an operator's license to operate a motor vehicle.
MAB contact information	Sara O'Rourke, Driver's License Administrator Nebraska Department of Motor Vehicles 301 Centennial Mall South PO Box 94789 Lincoln, NE 68509 Sorourke@notes.state.ne.us

Nevada

Driver licensing agency contact information	Nevada Department of Motor Vehicles 555 Wright Way Carson City, NV 89711 www.dmvnv.com	702 486-4368 (Las Vegas) 775 684-4368 (Reno/Sparks/ Carson City) 877 368-7828 (rural Nevada)

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/50 (if other eye is no worse than 20/60); daylight driving only.
	Are bioptic telescopes allowed?	Yes, with acuity of 20/40 through telescope and 20/120 through carrier lens, and 130 E visual field.
Visual fields	Minimum field requirement	Binocular 140° for unrestricted license; binocular 110°-140° for restricted license.
	Visual field testing device	Keystone testing equipment and Optec 1000 testing equipment
Color vision requirement	None	
Restricted licenses	Daytime-only license available.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	Mail-in every other cycle
	Vision testing required at time of renewal?	Yes
	Written test required?	No, unless license classification has changed.
	Road test required?	No, unless license classification has changed.
Age-based renewal procedures	At age 70, a vision test and medical report are required for mail-in renewal.	

Reporting Procedures

Physician/medical reporting	Physicians are required to report patients diagnosed with epilepsy, any seizure disorder, or any other disorder characterized by lapse of consciousness.
Immunity	Yes
Legal protection	Yes
DMV follow-up	The DMV notifies the driver by mail and may suspend his/her license.
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	Available

Medical Advisory Board

Role of the MAB	The MAB advises the DMV in the development of medical and health standards for licensure. It also advises the DMV on medical reports submitted regarding the mental or physical condition of individual applicants.
MAB contact information	Currently not applicable. The department has the authority to convene a medical advisory board, as stated in Nevada Administrative Code 483.380. However, due to budget constraints, Nevada does not have an advisory board at present.

New Hampshire

Driver licensing agency contact information	New Hampshire Department of Safety Division of Motor Vehicles James A. Hayes Building 10 Hazen Drive Concord, NH 03305-0002 www.state.nh.us/dmv	603 271-2251

Licensing Requirements

Visual acuity	Both eyes with/without correction .....20/40 One eye with/without correction .....20/30 Absolute visual acuity minimum .....20/70, restricted to daytime only Are bioptic telescopes allowed?.....Yes
Visual fields	Minimum field requirement .....None Visual field testing device .....Stereo Optical viewer
Color vision requirement	None
Restricted licenses	Daytime-only licenses available.

License Renewal Procedures

Standard	Length of license validation.....5 years Renewal options and conditions.....N/A Vision testing required at time of renewal?.....Yes Written test required?.....No Road test required?.....No
Age-based renewal procedures	At age 75, road test is required with renewal.

Reporting Procedures

Physician/medical reporting	Physicians are encouraged to report.
Immunity	N/A
Legal protection	Not available, as reporting is not a requirement.
DMV follow-up	Full re-examination and, in some cases, an administrative hearing.
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	Not anonymous or confidential.

Medical Advisory Board

Role of the MAB	New Hampshire does not retain a medical advisory board.

New Jersey

Driver licensing agency contact information	New Jersey Motor Vehicle Commission PO Box 160 Trenton, NJ 08666 www.state.nj.us/mvs	609 292-6500

Licensing Requirements

Visual acuity	Each eye with/without correction.....20/50 Both eyes with/without correction .....20/50 If one eye blind—other with/without correction.....20/50 Absolute visual acuity minimum .....20/50 Are bioptic telescopes allowed? .....Yes, with acuity of 20/50 through telescope
Visual fields	Minimum field requirement .....None
Color vision requirement	Color vision is tested in new drivers, but licenses are not denied based on poor color vision.
Type of road test	Standardized
Restricted licenses	Available

License Renewal Procedures

Standard	Length of license validation .....4 years Renewal options and conditions .....In-person (digitized photos will be implemented in 2003). Vision testing required at time of renewal?.....Periodically Written test required?.....If recommended by examiner. Road test required?.....If recommended by examiner.
Age-based renewal procedures	None

Reporting Procedures

Physician/medical reporting	Physicians are required to report patients who experience recurrent loss of consciousness.
Immunity	Yes
Legal protection	No
DMV follow-up	The driver is notified in writing of the referral. There is a scheduled suspension of the license, but the driver may request due process in an administrative court.
Other reporting	Will accept information from police, family, other DMVs, and courts. The letter must be signed.
Anonymity	Not available

Medical Advisory Board

Role of the MAB	The Motor Vehicle Commission supplies forms for each type of medical condition that may be a cause for concern. These forms must be completed by the driver's physician. Problem cases are referred to the MAB, which then makes licensing recommendations based on the information provided.
MAB contact information	New Jersey Motor Vehicle Commission Medical Division PO Box 173 Trenton, NJ 08666 609 292-4035

New Mexico

Driver licensing agency contact information	New Mexico Taxation and Revenue Department Motor Vehicle Division PO Box 1028 Joseph Montoya Building Santa Fe, NM 87504-1028 http://www.state.nm.us	888 683-4636

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/80 in better eye with restrictions.
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	120° external and 30° nasal field of one eye
	Visual field testing device	Not specified
Color vision requirement	None	
Restricted licenses	Available	

License Renewal Procedures

Standard	Length of license validation	4 or 8 years
	Vision testing required at time of renewal?	Yes
	Written test required?	May be required
	Road test required?	May be required
Age-based renewal procedures	Drivers may not apply for 8-year renewal if they will turn 75 during the last 4 years of the 8 year period. At age 75, the renewal interval decreases to 1 year.	

Reporting Procedures

Physician/medical reporting	Yes (not specified)
Immunity	Yes
Legal protection	Yes
DMV follow-up	Driver is informed by mail that his/her license will be cancelled in 30 days unless he/she submits a medical report stating that he/she is medically fit to drive. If a report is not submitted, the license will be cancelled.
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	Not anonymous or confidential.

Medical Advisory Board

Role of the MAB	The MAB reviews the periodic medical updates that are required for drivers with specific medical conditions (eg epilepsy, diabetes, certain heart conditions). The DMV learns of these conditions through questions asked on the application.
MAB contact information	New Mexico Taxation and Revenue Department Motor Vehicle Division Driver Services PO Box 1028 Joseph Montoya Building Santa Fe, NM 87504-1028 505 827-2241

New York

Driver licensing agency contact information	New York State Department of Motor Vehicles 6 Empire State Plaza Albany, NY 12228 www.nydmv.state.ny.us	212 645-5550 *(New York City metropolitan area)* 800 342-5368 *(area codes 516, 631, 845, 914)* 800 225-5368 *(all other area codes)* 518 473-5595 *(outside the state)*

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	For applicants with visual acuity less than 20/40 but not less than 20/70, Form MV-80L can be completed and submitted for licensing consideration.
	Are bioptic telescopes allowed?	Yes. Applicants with 20/80-20/100 best corrected acuity require minimum 140° E horizontal visual fields plus 20/40 acuity through bioptic telescope lens.
Visual fields	Minimum field requirement	140° E horizontal visual fields
	Visual field testing device	Not specified
Color vision requirement	None	
Restricted licenses	Restrictions include daytime driving only, limited radius from home, and annual renewal.	

License Renewal Procedures

Standard	Length of license validation	8 years
	Renewal options and conditions	In-person or mail-in.
	Vision testing required at time of renewal?	Yes. Clients must pass a vision test at the DMV office or submit Form MV-619.
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	No
Legal protection	N/A
DMV follow-up	If a physician reports a condition that can affect the driving skills of a patient, the DMV may suspend the driver's license until a physician provides certification that the condition has been treated or controlled and no longer affects driving skills. If the DMV receives a report from a source that is not a physician, the DMV considers each case individually.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources. Letters must be signed.

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Anonymity	Not anonymous. Also, if a person in a professional or official position (ie, physician) reports, the DMV will disclose the identity of the reporter; however, if the reporter does not fall under this category, the identity of the reporter is protected under the Freedom of Information Law.

Medical Advisory Board

Role of the MAB	The MAB advises the commissioner on medical criteria and vision standards for the licensing of drivers.
MAB contact information	New York State Department of Motor Vehicles Medical Review Unit Room 220 6 Empire State Plaza Albany, NY 12228-0220

North Carolina

Driver licensing agency contact information	North Carolina Department of Transportation Division of Motor Vehicles 1100 New Bern Avenue Raleigh, NC 27697 www.dmv.dot.state.nc.us	919 715-7000

Licensing Requirements

Visual acuity	Each/both eyes without correction .....20/40 Each/both eyes with correction .....20/50 If one eye blind—other with/without correction.....20/30 or better Absolute visual acuity minimum .....20/100; 20/70 if one eye is blind Are bioptic telescopes allowed? .....No. However, the applicant can initiate a medical appeal process if so desired.
Visual fields	Minimum field requirement .....60° in one eye Visual field testing device.....Keystone; Stereo Optec 1000
Color vision requirement	None
Road test	Standardized road test; certain tasks must be completed to pass.
Restricted licenses	Restrictions include daytime driving only, speed restrictions, and no interstate driving.

License Renewal Procedures

Standard	Length of license validation .....5 years Renewal options and conditions .....In-person Vision testing required at time of renewal?.....Yes Written test required?.....Yes Road test required?.....No
Age-based renewal procedures	Drivers age 60 and older are not required to parallel park on their road test.

Reporting Procedures

Physician/medical reporting	Physicians are encouraged to report unsafe drivers.
Immunity	North Carolina statutes protect the physician who reports an unsafe driver.
Legal protection	No
DMV follow-up	Driver is notified in writing of referral.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources. Letters must be signed.
Anonymity	Not anonymous or confidential. The driver may request a copy of his/her records.

Medical Advisory Board

Role of the MAB	The MAB reviews all medical information that is submitted to the DMV and determines what action should be taken. These actions can be appealed.
MAB contact information	North Carolina Division of Motor Vehicles Medical Review Unit 3112 Mail Service Center Raleigh, NC 27697 919 861-3809 Fax: 919 733-9569

North Dakota

Driver licensing agency contact information	North Dakota Department of Transportation Drivers License and Traffic Safety Division 608 East Boulevard Bismarck, ND 58505-0700 www.state.nd.us/dot	701 328-2600

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/80 in better eye if 20/100 in other eye
	Are bioptic telescopes allowed?	Yes, if client has 20/130 acuity through the carrier lens, 20/40 through the telescope, and full peripheral fields.
Visual fields	Minimum field requirement	105° with both eyes
	Visual field testing device	Optec 1000 vision tester
Color vision requirement	None	
Restricted licenses	Restrictions include daytime driving only (pending a sight-related road test) and area and distance restrictions.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians are permitted by law to report to the Drivers License and Traffic Safety Division in writing the name, date of birth, and address of any patient over the age of 14 whom they have reasonable cause to believe is incapable, due to physical or mental reason, of safely operating a motor vehicle.
Immunity	Physicians who in good faith make a report, give an opinion, make a recommendation, or participate in any proceeding pursuant to this law are immune from liability.
Legal protection	Available. North Dakota Century Code addresses medical advice provided by physicians.
DMV follow-up	Vision and/or medical reports may be required.
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	Not available.

Medical Advisory Board

Role of the MAB	The MAB participates in drafting administrative rules for licensing standards.
MAB contact information	Ileen Schwengler Drivers License and Traffic Safety Division 701 328-2070

Ohio

Driver licensing agency contact information	Ohio Department of Public Safety Bureau of Motor Vehicles PO Box 16520 Columbus, OH 43216-6520 www.state.oh.us/odps	614 752-7500

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/30
	Absolute visual acuity minimum	20/70 in better eye with restrictions.
	Are bioptic telescopes allowed?	Yes, if client has 20/70 acuity through telescope and 20/200 acuity through carrier lens.
Visual fields	Minimum field requirement	Each eye must have 70° temporal reading.
	Visual field testing device	Keystone Vision II
Color vision requirement	There is a requirement (not specified).	
Type of road test	Standardized course	
Restricted licenses	There are various restrictions, including daytime driving only for persons with vision in both eyes who have a visual acuity between 20/50 and 20/70; daytime driving only for persons with vision in one eye only who have a visual acuity between 20/40 and 20/60; right or left outside mirror required for persons who are blind in one eye but have 70° temporal and 45° nasal peripheral vision in the other eye. Persons with certain medical or physical conditions may be required to furnish periodic medical statements or take periodic driver's license examinations.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person. Clients may renew by mail only if they are out of state.
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Ohio will accept and act on information submitted by a physician regarding an unsafe driver. The physician must agree to be a source of information and allow the Bureau of Motor Vehicles to divulge this information to the driver.
Immunity	No
Legal protection	No
DMV follow-up	A letter is sent requiring the driver to submit a medical statement and/or take a driver's license examination. The driver is given 30 days to comply.
Other reporting	Will accept information from courts, law enforcement agencies, hospitals, rehabilitation facilities, family, and friends.
Anonymity	Not anonymous or confidential.

Medical Advisory Board

Role of the MAB	Ohio does not have a medical advisory board. The Bureau of Motor Vehicles contacts a medical consultant for assistance with difficult cases or for policy-making assistance.

Oklahoma

Driver licensing agency contact information	Oklahoma Department of Public Safety Driver License Services PO Box 11415 Oklahoma City, OK 73136-0415 www.dps.state.ok.us	405 425-2059

Licensing Requirements

Visual acuity	Each eye with/without correction	20/60
	Both eyes with/without correction	20/60
	If one eye blind—other with/without correction	20/50
	Absolute visual acuity minimum	20/100 in better eye with restrictions.
	Are bioptic telescopes allowed?	No. Laws do not allow for consideration of licensing or restrictions.
Visual fields	Minimum field requirement	70° in the horizontal meridian with both eyes together.
	Visual field testing device	Not specified.
Color vision requirement	None	
Type of road test	Non-fixed course.	
Restricted licenses	Restrictions are based on physician recommendations and can include daylight driving only, speed limitations, or local driving only.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians are permitted to report to the Department of Public Safety any patient whom they have reasonable cause to believe is incapable of safely operating a motor vehicle.
Immunity	Any physician reporting in good faith and without malicious intent shall have immunity from civil liability that might otherwise be incurred.
Legal protection	By statute the physician has full immunity.
DMV follow-up	The driver is notified in writing of the referral and required to appear for an interview at the Department. The Department also requires a current medical evaluation from a qualified practitioner.
Other reporting	Will accept information from any verifiable source with direct knowledge of the medical condition that would render a driver unsafe.
Anonymity	Not available.

Medical Advisory Board

Role of the MAB	The MAB advises the Department of Public Safety on medical issues regarding individual drivers. Actions are based on the recommendation of the majority and/or specialist.
MAB contact information	Oklahoma Department of Public Safety Executive Medical Secretary PO Box 11415 Oklahoma City, OK 73136-0415 Attn: Mike Bailey

Oregon

Driver licensing agency contact information	Oregon Department of Transportation Driver and Motor Vehicle Services 1905 Lana Avenue NE Salem, OR 97314 www.odot.state.or.us/dmv	503 945-5000

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/70 in better eye with restrictions.
	Are bioptic telescopes allowed?	Bioptic telescopic lenses are not permitted to meet acuity standards; however, they may be used while driving. The client must pass the vision test with the carrier lens only.
Visual fields	Minimum field requirement	110° in horizontal plane (one or both eyes).
	Visual field testing device	Both Keystone driver vision screening system & OPTEC vision screening instruments are used.
Color vision requirement	None	
Type of road test	Standardized course.	
Restricted licenses	Daytime driving only for visual acuity between 20/40 and 20/70.	

License Renewal Procedures

Standard	Length of license validation	8 years
	Renewal options and conditions	Mail-in every other cycle.
	Vision testing required at time of renewal?	Only after age 50.
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	After age 50, vision screening is required every 8 years.	

Reporting Procedures

Physician/medical reporting

Oregon is in the process of phasing in a statewide mandatory medical impairment-based reporting system. Physicians and health care providers meeting the definition of "primary care provider" are required to report persons presenting functional and/or cognitive impairments that are severe and cannot be corrected/controlled by surgery, medication, therapy, driving devices, or techniques. The state also has a voluntary reporting system that can be utilized by doctors, law enforcement officers, family, and friends who have concerns about an invividual's ability to safely operate a motor vehicle. Reports submitted under the voluntary system may be based on a medical condition or on unsafe driving behaviors exhibited by the individual.

Immunity

Under the mandatory reporting system, primary care providers are exempt from liability for reporting.

Legal protection

Under the mandatory reporting system, the law provides the primary care provider with legal protection for breaking the patient's confidentiality.

DMV follow-up

In most cases, the driving privileges of individuals reported under the mandatory system are immediately suspended. An individual may request the opportunity to demonstrate the ability to safely operate a motor vehicle via knowledge and driving tests. For cognitive impairments (and for specific functional impairments), a medical file and driving record are sent to the State Health Office for determination of whether the individual is safe to drive at the current point in time.

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Other reporting

Under the voluntary system, the DMVS will accept information from courts, other DMVs, law enforcement officers, physicians, family members, and other sources.

Anonymity

Reporting is not anonymous. Under the mandatory system, only the medical information being reported is confidential. Under the voluntary system, the DMVS will make every attempt to hold the reporter's name confidential if requested.

Medical Advisory Board

Role of the MAB

Oregon does not retain a medical advisory board. The State Health Office reviews medical cases and makes licensing decisions by reviewing an individual's medical condition and ability to drive.

MAB contact information

For more information regarding the review of medical cases, contact:
Oregon Driver and Motor Vehicle Services
Driver Programs Section
Attn: Melody Sheffield
1905 Lana Avenue NE
Salem, OR 97314
503 945-5520

Pennsylvania

Driver licensing agency contact information	Pennsylvania Department of Transportation Driver and Vehicle Services 1101 South Front Street Harrisburg, PA 17104-2516 www.dot.state.pa.us	800 932-4600 (within state) 717 391-6190 (out of state)

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; up to 20/100 binocular vision for a restricted license.
	Are bioptic telescopes allowed?	Not permitted for meeting acuity standards; however, they are permitted for driving. Must have acuity of 20/100 or better with carrier lens only.
Visual fields	Minimum field requirement	120° both eyes
	Visual field testing device	PENNDOT does not regulate the kind of testing device used.
Color vision requirement	None	
Type of road test	A standardized road test, similar to those used for the 1st time permit application drivers.	
Restricted licenses	Restrictions are related to vision and include daytime driving only, area restrictions, dual mirrors, and class restrictions.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	Internet, mail, in-person
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	Drivers aged 65+ renew every 2 years. Drivers aged 45+ are requested to submit a physical and vision exam report prior to renewing (through a random mailing of 1,650 per month).	

Reporting Procedures

Physician/medical reporting	"All physicians and other persons authorized to diagnose or treat disorders and disabilities defined by the Medical Advisory Board shall report to PENNDOT in writing the full name, DOB, and address of every person 15 years of age and older, diagnosed as having any specified disorder or disability within 10 days." Physicians must report neuromuscular conditions (eg, Parkinsons), neuropsychiatric conditions (eg, Alzheimer's dementia), cardiovascular, cerebrovascular, convulsive, and other conditions that may impair driving ability.
Immunity	"No civil or criminal action may be brought against any person or agency for providing the information required under this system."
Legal protection	Available
DMV follow-up	PENNDOT sends the appropriate correspondence to the driver asking him/her to submit the necessary forms and examination reports.

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Other reporting	Will accept information from courts, other DMVs, police, emergency personnel, family members, neighbors, and caregivers. Reports must be signed in order to confirm reporter facts.
Anonymity	Reporting is not anonymous, but the identity of the reporter will be protected.

Medical Advisory Board

Role of the MAB	The MAB advises PENNDOT and reviews regulations proposed by PENNDOT concerning physical and mental criteria (including vision standards) relating to the licensing of drivers. The MAB meets once every 2 years or as needed.

Rhode Island*

Driver licensing agency contact information	Rhode Island Division of Motor Vehicles 286 Main Street Pawtucket, RI 02860 www.dmv.state.ri.us	401 588-3020

Licensing Requirements

Visual acuity	Each eye with/without correction.....20/40 Both eyes with/without correction .....20/40 If one eye blind—other with/without correction.....20/40 Absolute visual acuity minimum .....20/40 in better eye Are bioptic telescopes allowed? .....Unknown. (However, bioptic telescopes are mentioned in regulations.)
Visual fields	Minimum field requirement .....Unknown
Color vision requirement	None
Restricted licenses	Not available

License Renewal Procedures

Standard	Length of license validation .....5 years Renewal options and conditions .....Unknown Vision testing required at time of renewal?.....Yes Written test required?.....No Road test required?.....No
Age-based renewal procedures	At age 70, the renewal cycle is reduced to 2 years.

Reporting Procedures

Physician/medical reporting	Any physician who diagnoses a physical or mental condition which, in the physician's judgement, will significantly impair the person's ability to safely operate a motor vehicle may voluntarily report the person's name and other information relevant to the condition to the medical advisory board within the Registry of Motor Vehicles.
Immunity	Any physician reporting in good faith and exercising due care shall have immunity from any liability, civil or criminal. No cause of action may be brought against any physician for not making a report.
Legal protection	N/A
DMV follow-up	Driver is notified in writing of referral.
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	The MAB advises the Division of Motor Vehicles on medical issues regarding individual drivers. Actions are based on the recommendation of the majority.

**Information from this state's licensing agency was not available. The information above was gathered from the resources listed at the beginning of this chapter.*

South Carolina

Driver licensing agency contact information	South Carolina Department of Public Safety Department of Motor Vehicles PO Box 1993 Blythewood, SC 29016 www.scdps.org	803 737-4000

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other without correction	20/40
	If one eye blind—other with correction	20/40; must have outside mirror.
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/70 in better eye if other eye is 20/200 or better; 20/40 in better eye if other eye is worse than 20/200.
	Are bioptic telescopes allowed?	Not permitted for meeting acuity standards; however, they are permitted for driving.
Visual fields	Minimum field requirement	If total angle <140°, the individual is referred to the MAB.
	Visual field testing device	Not specified.
Color vision requirement	None	
Restricted licenses	Restrictions include mandatory corrective lens, mandatory outside mirrors, daylight driving only, neighborhood driving only, and speed and time restrictions.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person. Renewal by mail is permitted if there have been no violations in the past 2 years, and no suspensions, revocations, or cancellations.
	Vision testing required at time of renewal?	Yes
	Written test required?	Only if the client has 5+ points on his/her record or if there appears to be a need.
	Road test required?	Only if there appears to be a need.
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	No
Legal protection	N/A
DMV follow-up	License is suspended upon referral and further examination is conducted.
Other reporting	Will accept information from courts, other DMVs, and police.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	The MAB determines the mental or physical fitness of license applicants through a medical evaluation process, and makes recommendations to the department's director or designee on the handling of impaired drivers.
MAB contact information	South Carolina Driver Improvement Office PO Box 1498 Columbia, SC 29216

South Dakota

Driver licensing agency contact information	South Dakota Department of Public Safety Office of Driver Licensing 118 West Capitol Avenue Pierre, SD 57501 www.state.sd.us/dcr/dl/sddriver.htm	800 952-3696 (within state) 605 773-6883 (out of state)

Licensing Requirements

Visual acuity	Each eye with/without correction	20/50
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/60 in better eye with restrictions.
	Are bioptic telescopes allowed?	Yes; driver must pass a skills test.
Visual fields	Minimum field requirement	None
Color vision requirement	None	
Type of road test	Standardized course.	
Restricted licenses	Restrictions include daylight driving only, mandatory outside rearview mirrors, mandatory corrective lenses, and driving limited to 50 mile radius from home or to the neighborhood.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person; renewal by mail for military and military dependents only.
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians may report unsafe drivers if they so choose by submitting a "Request Re-Evaluation" form. The form can be found on the Office of Driver Licensing Web site.
Immunity	No
DMV follow-up	An appointment is scheduled and the driver is notified to appear for an interview. A written test and road test may be required.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not available.

Medical Advisory Board

Role of the MAB	South Dakota does not have a medical advisory board. Medical information is reviewed by Department of Commerce & Regulation personnel. If the Department has good cause to believe that a licensed operator is not qualified to be licensed, it may upon written notice of at least 5 days require him or her to submit to an examination or interview. The Department shall take appropriate action, which may include suspending or revoking the license, permitting the individual to retain his/her license, or issuing a license subject to restrictions.

Tennessee

Driver licensing agency contact information	Tennessee Department of Safety Motor Vehicle Services 1150 Foster Avenue Nashville, TN 37249 www.state.tn.us/safety	615 741-3954

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye with/without correction for unrestricted license; minimum 20/60 in each/both eyes with restrictions.
	Are bioptic telescopes allowed?	Yes, provided that acuity is 20/200 in better eye through the carrier lens, 20/60 through the telescope, visual field is 150° or greater, and the telescope magnification is no greater than 4X.
Visual fields	Minimum field requirement	For professional drivers only.
	Visual field testing device	Stereo Optec
Color vision requirement	Only for commercial drivers.	
Type of road test	Standardized course with specific requirements.	
Restricted licenses	Restrictions include area limitations.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person; mail and internet renewal are permitted every other cycle.
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	Yes
Legal protection	No
DMV follow-up	Driver is notified in writing of referral.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not available

Medical Advisory Board

Role of the MAB	The MAB is composed of volunteer physicians, who review medical reports and make recommendations. Actions are based upon the recommendation of the majority.
MAB contact information	Contact the MAB through the Driver Improvement Office at 615 251-5193.

Texas

Driver licensing agency contact information	Texas Department of Public Safety Driver License Divison PO Box 4087 Austin, TX 78773-0001 www.txdps.state.tx.us	512 424-2967 or 512 424-2602

Licensing Requirements

Visual acuity	Each/both eyes without correction	20/40
	Each/both eyes with correction	20/50
	If one eye blind—other without correction	20/25 with eye specialist statement.
	If one eye blind—other with correction	20/50 with eye specialist statement.
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/70 in better eye with restrictions.
	Are bioptic telescopes allowed?	Yes, provided that the client has acuity of 20/40 through the telescope and passes the road test.
Visual fields	Minimum field requirement	None
Color vision requirement	There is a requirement for all new drivers (not specified).	
Type of road test	Standardized course	
Restricted licenses	Restrictions are based on medical advice and may include daytime driving only where the speed limit <45 mph and no expressway driving.	

License Renewal Procedures

Standard	Length of license validation	6 years
	Renewal options and conditions	In-person; if the client is eligible, renewal by internet, telephone, or mail is also available.
	Vision testing required at time of renewal?	At in-person renewal.
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Any physician licensed to practice medicine in the state of Texas may inform the Department of Public Safety. This release of information is an exception to the patient-physician privilege. There is no special reporting form; a letter from the physician will suffice.
Immunity	Yes
Legal protection	Yes
DMV follow-up	The driver is notified in writing of the referral and required to provide medical information from his/her personal physician.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not anonymous or confidential. However, an attempt is made to protect the identity of the reporter. If the client requests an administrative hearing, the identity of the reporter may be revealed at that time.

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Medical Advisory Board

Role of the MAB	The MAB advises the Department of Public Safety on medical issues regarding individual drivers. The Department bases its actions on the recommendation of the physician who reviews the case.
MAB contact information	Texas Department of Public Safety Medical Advisory Board PO Box 4087 Austin, TX 78773 512 424-2344

Utah

Driver licensing agency contact information	Utah Department of Public Safety Driver License Division PO Box 30560 Salt Lake City, UT 84130-0560 www.driverlicense.utah.gov	801 965-4437

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/100 in better eye with restrictions.
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	120° horizontal and 20° vertical for an unrestricted license; 90° horizontal with restrictions.
	Visual field testing device	Stereo Optical (DMV 2000)
Color vision requirement	None	
Restricted licenses	Restrictions include daytime driving only where the speed limit <45 mph and radius limitations.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-person; mail-in every other cycle if no suspensions, revocations, convictions, and not more than 4 violations.
	Vision testing required at time of renewal?	Only for clients aged 65 and older.
	Written test required?	No
	Road test required?	No, unless examiner feels the applicant's ability to drive is in question.
Age-based renewal procedures	Vision testing required at license renewal for clients aged 65 and older.	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	Any physician or person who becomes aware of a physical, mental or emotional impairment which appears to present an imminent threat to driving safety and reports this information to the Department of Public Safety in good faith shall have immunity from any damages claimed as a result of so doing.
Legal protection	No
DMV follow-up	Driver is notified in writing of referral. License is suspended upon referral.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not anonymous or confidential.

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Medical Advisory Board

Role of the MAB

The MAB advises the Director of the Driver License Division and recommends written guidelines and standards for determining the physical, mental, and emotional capabilities appropriate to various types of driving in an effort to minimize the conflict between the individual's desire to drive and the community's desire for safety.

MAB contact information

Dana H. Clarke
Chair, Executive Committee
Utah Medical Advisory Board
University of Utah Hospital
Research Park
615 Arapeen Drive, #100
Salt Lake City, Utah 84108

Kurt Stromberg
Program Coordinator, Utah Driver License Division
PO Box 30560
Salt Lake City, Utah 84130-0560
801 965-3819
801 965-4084 fax
Kstromberg@utah.gov

Vermont

Driver licensing agency contact information	Vermont Agency of Transportation Department of Motor Vehicles 120 State Street Montpelier, VT 05603-0001 www.aot.state.vt.us	802 828-2000

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye.
	Are bioptic telescopes allowed?	Yes, with a daytime driving only restriction and vehicle weight restriction (10,000 lbs.). Also, the client must pass a road test.
Visual fields	Minimum field requirement	Each eye 60°; 60° external and 60° nasal for one eye only.
	Visual field testing device	Not specified.
Color vision requirement	None	
Restricted licenses	There are restrictions for clients who wear glasses or contact lenses and for those who utilize biopic telescopes.	

License Renewal Procedures

Standard	Length of license validation	2-4 years
	Renewal options and conditions	By mail and in person.
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians may provide information to the DMV only with the permission of the patient.
Immunity	No
Legal protection	No
DMV follow-up	Driver is notified of the referral by mail.
Other reporting	Will accept information from courts, other DMVs, police, concerned citizens, or family members. The letter must be signed.
Anonymity	Not anonymous or confidential. However, the reporter's identity is held confidential until a hearing is requested by the client.

Medical Advisory Board

Role of the MAB	Vermont no longer retains a medical advisory board.

Virginia

Driver licensing agency contact information	Virginia Department of Motor Vehicles PO Box 27412 Richmond, VA 23269 www.dmv.state.va.us	866 368-5463

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/70 in better eye with daylight only restriction; 20/200 in better eye with other restrictions.
	Are bioptic telescopes allowed?	Yes, provided that acuity is 20/200 through carrier lens and 20/70 through telescope. A test is required.
Visual fields	Minimum field requirement	100° monocular and binocular; 70° monocular and binocular with daylight only restriction.
	Visual field testing device	Stereo Optical/Titmus 10 mm W @ 333 mm.
Color vision requirement	None	
Type of road test	A behind-the-wheel test is administered with the DMV examiner instructing and evaluating the person on specific driving maneuvers.	
Restricted licenses	Restrictions may be based on road test performance, medical conditions, violation of probation, or court convictions. The restrictions include mandatory corrective lenses, hand controls, radius limitations, daylight driving only, mandatory ignition interlock device, and driving only to and from work/school.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	Customers may use an alternative method of renewing their driver's license every other cycle unless their license has been suspended or revoked, they have 2 or more violations, there is a DMV medical review indicator on the license, or they fail the vision test. Alternative methods include mail-in, internet, touch-tone telephone, fax, and ExtraTeller.
	Vision testing required at time of renewal?	Yes
	Written test required?	If the customer has had 2 or more violations in the past 5 years.
	Road test required?	No
Age-based renewal procedures	None	

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Reporting Procedures

Physician/medical reporting	Physicians are not required to report unsafe drivers. However, for physicians who do report unsafe drivers, laws have been enacted to prohibit release of the physician's name as the source of the report.
Immunity	No
Legal protection	Va. Code ß 54.1-2966.1 states that if a physician reports a patient to the DMV, it shall not constitute a violation of the doctor-patient relationship unless the physician has acted with malice.
DMV follow-up	Drivers are notified in writing that the DMV has initiated a medical review and advised of the medical review requirements. Drivers are also advised of any restrictions or suspension imposed as a result of the review.
Other reporting	The DMV relies upon information from courts, other DMVs, law enforcement officers, physicians, and other medical professionals, relatives, and concerned citizens to help identify drivers who may be impaired.
Anonymity	Not anonymous. Virginia law provides confidentiality, but only for relatives and physicians.

Medical Advisory Board

Role of the MAB	The MAB enables the DMV to monitor drivers throughout the state who may have physical or mental problems. The MAB assists the Commissioner with the development of medical and health standards for use in the issuance of driver's licenses. The MAB helps the DMV avoid the issuance of licenses to persons suffering from any physical or mental disability or disease that will prevent their exercising reasonable and ordinary control over a motor vehicle while driving it on highways. The MAB reviews the more complex cases, including those referred for administrative hearings, and provides recommendations for medical review action.
MAB contact information	Ms. Jacquelin C. Branche, RN Virginia Department of Motor Vehicles Medical Review Services PO Box 27412 Richmond VA 23269 804 367-0531 804 367-1604 fax Dmvj3b@dmv.state.va.us

Washington

Driver licensing agency contact information	Washington Department of Licensing Driver Services 1125 Washington Street SE PO Box 9020 Olympia, WA 98507-9020 www.dol.wa.gov	360 902-3600

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/40 in better eye for unrestricted license; 20/70 in better eye with restrictions.
	Are bioptic telescopes allowed?	Yes; training and testing are required.
	Visual fields	110° in horizontal meridian, binocular and monocular.
	Visual field testing device	Optec 1000; Keystone Telebinocular; Keystone DVSII
Color vision requirement	There is a requirement for new and professional drivers (not specified).	
Type of road test	Standardized scoring using approved test routes at each licensing office.	
Restricted licenses	Restricted licenses may be issued depending on the circumstances. Corrective lenses may be required to meet the minimum acuity, and the client may be restricted to daytime driving only based on an eye care practitioner's report or after failing a night time driving test. If needed to compensate for visual or physical impairment, there may be equipment restrictions, route or distance restrictions, or geographic area limits.	

License Renewal Procedures

Standard	Length of license validation	5 years
	Renewal options and conditions	In-state renewals are in-person only. If out of state, the applicant can renew by mail once.
	Vision testing required at time of renewal?	Yes
	Written test required?	Only if warranted by results of vision, health, or medical screening.
	Road test required?	Only if warranted by results of vision, health, or medical screening.
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Permitted but not required.
Immunity	No
Legal protection	No
DMV follow-up	The DMV sends a letter to the driver with information detailing due process and action following any failure to respond.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other competent sources. If in doubt, the reporting party may be required to establish his/her firsthand knowledge and standing for making a report.
Anonymity	Not anonymous or confidential.

Medical Advisory Board

Role of the MAB	Washington does not retain a medical advisory board.

West Virginia

Driver licensing agency contact information	West Virginia Department of Transportation Division of Motor Vehicles Building 3, Room 113 1800 Kanawha Boulevard, East Charleston, WV 25317 www.wvdot.com	800 642-9066 (within state) 304 558-3900 (out of state)

Licensing Requirements

Visual acuity	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/60 in better eye; if less, the client must submit a report from an optometrist or ophthalmologist declaring the client's ability to drive safely.
	Are bioptic telescopes allowed?	No
Visual fields	Minimum field requirement	None
Color vision requirement	None	
Type of road test	Standard road skills exam.	
Restricted licenses	Not available	

License Renewal Procedures

Standard	Length of license validation	5 years. Under the "Drive for Five" program, all driver's licenses expire in the client's birth month at an age divisible by five (eg, 25, 30, 35, etc).
	Renewal options and conditions	In-person
	Vision testing required at time of renewal?	No
	Written test required?	No
	Road test required?	No
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians are permitted and encouraged to report.
Immunity	No
Legal protection	No
DMV follow-up	A medical report is sent to the driver, to be completed by his/her physician. If the driver fails to comply, then the driver's license is immediately revoked.
Other reporting	Will accept information from law enforcement officers and family members.
Anonymity	Not anonymous or confidential.

Medical Advisory Board

Role of the MAB	The MAB reviews medical cases and advises the Division on how the driver's medical condition might affect his/her ability to drive safely. If the MAB concludes that the driver is unsafe, it may recommend to the Commissioner of Motor Vehicles that the license be revoked. The Commissioner then makes the final licensing decision.
MAB contact information	Joetta Gore 304 558-0238

Wisconsin

Driver licensing agency contact information	Wisconsin Department of Transportation Bureau of Driver Services Hill Farms State Transportation Building 4802 Sheboygan Avenue PO Box 7910 Madison, WI 53707-7910 www.dot.wisconsin.gov	608 266-2353

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/100 in better eye with or without correction.
	Are bioptic telescopes allowed?	Not for meeting vision standards, but can be used in driving.
Visual fields	Minimum field requirement	70° in better eye for regular unrestricted license.
	Visual field testing device	Stereo Optical machine
Color vision requirement	Only for commercial drivers.	
Type of road test	A knowledge and sign test are administered prior to the road test. The limited area test is on a non-fixed course, but is otherwise standardized.	
Restricted licenses	Restrictions can be recommended by a physician or vision specialist or determined by the road test. Restrictions include daytime driving only, radius limitations, and/or freeway restrictions.	

License Renewal Procedures

Standard	Length of license validation	8 years
	Renewal options and conditions	In-person; by mail if client is out of state.
	Vision testing required at time of renewal?	Yes
	Written test required?	Determined by DOT, vision specialist, or physician.
	Road test required?	Determined by DOT, vision specialist, or physician.
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physicians are encouraged though not required to report. They can report by submitting form MV3141 ("Driver Condition or Behavior Report") or a letter on letterhead stationary. Form MV3141 is available on the DOT Web site.
Immunity	Yes
Legal protection	Yes
DMV follow-up	Driver is notified in writing of requirement(s). Depending on requirement(s), he/she is given 15, 30, or 60 days to comply. If driver does not comply within the time period given, the driver's license is cancelled. Driver is notified in writing of cancellation.
Other reporting	Will accept information from courts, other DMVs, police, family members, and other sources.
Anonymity	Not anonymous or confidential. (Wisconsin has an Open Records Law). However, individuals can submit "Pledge of Confidentiality" form MV3454 with form MV3141. Form MV3454 is available on the DOT Web site.

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Medical Advisory Board

Role of the MAB

The MAB advises the Bureau of Driver Services on medical issues regarding individual drivers. Wisconsin has 2 types of MAB:

1. By-Mail-Board: paper file is mailed to 3 physicians specialists (ie, neurologist, endocrinologist, ophthamalogist) for recommendations based on the client's medical condition(s).
2. In-Person Board: the client has an interview with 3 physicians (psychiatrist, neurologist, and internist).

Actions are based on the recommendation of the majority, the client's driving record, medical information provided by the client's physician and, if appropriate, driving examination results.

Wyoming

Driver licensing agency contact information	Wyoming Department of Transportation Driver Services 5300 Bishop Boulevard Cheyenne, WY 82009-3340 www.dot.state.wy.us	307 777-4800 or 307 777-4810

Licensing Requirements

Visual acuity	Each eye with/without correction	20/40
	Both eyes with/without correction	20/40
	If one eye blind—other with/without correction	20/40
	Absolute visual acuity minimum	20/100 in better eye with restrictions.
	Are bioptic telescopes allowed?	Yes, provided that acuity is 20/100 or better through both carrier lenses. There is a distance restriction for at least one year.
Visual fields	Minimum field requirement	120° binocular for new, renewal, and professional drivers.
	Visual field testing device	Keystone machine
Color vision requirement	None	
Restricted licenses	Restrictions include daytime driving only and weather and distance restrictions.	

License Renewal Procedures

Standard	Length of license validation	4 years
	Renewal options and conditions	In-person; mail-in every other cycle.
	Vision testing required at time of renewal?	Yes
	Written test required?	No
	Road test required?	Only if warranted by vision statement from physician or examiner.
Age-based renewal procedures	None	

Reporting Procedures

Physician/medical reporting	Physician reporting is encouraged, though not required.
Immunity	Physicians providing information concerning a patient's ability to drive safely are immune from liability for their opinions and recommendations.
Legal protection	N/A
DMV follow-up	If necessary, the DOT obtains additional information from the physician through completion of a Driver Medical Evaluation form.
Other reporting	Will accept information from courts, other DMVs, police, and family members.
Anonymity	N/A

Medical Advisory Board

Role of the MAB	Wyoming does not retain a medical advisory board.

Chapter 9

Medical Conditions and Medications That May Impair Driving

This chapter contains a reference list of medical conditions and medications that may impair driving skills, and consensus recommendations for each one. These recommendations apply only to drivers of private motor vehicles and should not be applied to commercial drivers.* Although many of the listed medical conditions are more prevalent in the older population, these recommendations apply to drivers of all ages.

The listed medical conditions were chosen for their relevance to clinical practice. Although the corresponding recommendations are based on scientific evidence whenever possible, please note that use of these recommendations has not been proven to reduce crash risk.** As such, these recommendations are provided to assist physicians in the decision-making process. They are not intended for use as formal practice guidelines, nor as a substitute for the physician's clinical judgment.

How to Use This Chapter

Physicians may consult this chapter if they have questions regarding specific medical conditions or medications. If a patient presents with a particular medical condition and related functional deficits (eg, deficits in vision, cognition, or motor function) that may affect his/her driving safety, the physician may base his/her interventions for driving safety on this chapter's recommendations. Many of the recommendations fall under one or more of the following categories:

- Treat the underlying medical condition to correct functional deficits and prevent further functional decline;
- If the functional deficit is due to an offending agent (eg, medication with impairing side effects), remove the offending agent or attenuate its effects, if possible;
- Advise the patient on risks to his/her driving safety, and recommend driving restrictions or driving cessation as needed;
- If further evaluation is required to determine whether the patient is safe to drive, refer the patient to a driver rehabilitation specialist (DRS) for a driver evaluation (including on-road assessment) whenever possible;
- If the patient's functional deficits are not medically correctable, refer the patient to a DRS whenever possible. The DRS may prescribe adaptive techniques and devices to compensate for these deficits, and train the patient in their use. (See Chapter 5 for further discussion of driver rehabilitation services.)

Physicians who receive telephone consults from patients should advise patients against driving—even to seek medical attention—if they report symptoms that are incompatible with safe driving (eg, visual changes, syncope or pre-syncope, vertigo, and severe pain). Such patients should be strongly urged to seek alternative forms of transportation, including cab rides, rides from family and friends, and medical transportation services.

In the inpatient setting, driving should be addressed prior to the patient's discharge whenever appropriate. Even for the patient whose symptoms clearly preclude driving, it should not be assumed that the patient is aware that he/she should not drive. The physician should counsel the patient regarding driving and discuss a future plan (eg, resumption of driving upon resolution of symptoms, driver rehabilitation upon stabilization of symptoms, permanent driving cessation, etc.).

Medical Conditions and Medications That May Impair Driving

* Commercial drivers have additional responsibilities regarding public safety, and their medical qualification is governed by federal and state regulations.

** Although scientific evidence links certain medical conditions and levels of functional impairment with crash risk, more research is needed to establish that driving restrictions based on these medical conditions and levels of functional impairment significantly reduce crash risk.

Section 1: Vision

1. Visual acuity
   a. Cataracts
   b. Diabetic retinopathy
   c. Keratoconus
   d. Macular degeneration
   e. Nystagmus
   f. Telescopic lens
2. Visual field
   a. Glaucoma
   b. Hemianopia/quadrantanopia
   c. Monocular vision
   d. Ptosis
   e. Retinitis pigmentosa
3. Contrast sensitivity
4. Defective color vision
5. Poor night vision

Vision is the primary sense utilized in driving, and is responsible for 95% of driving-related inputs.[1] Age- and disease-related changes of the eye and brain may affect visual acuity, visual fields, night vision, contrast sensitivity, and other aspects of vision. External obstruction of view (eg, blepharoptosis) should not be overlooked, as it may significantly limit visual fields.

Whenever possible, vision deficits should be managed and corrected. In some situations, patients with persistent vision deficits may reduce their impact on driving safety by restricting travel to low-risk areas and conditions, such as familiar surroundings, low speed areas, non-rush hour traffic, daytime, and good weather conditions.

Section 1: Vision

Visual acuity

Please note that visual acuity licensing requirements vary from state to state. (See Chapter 8 for a state-by-state reference list of licensing requirements.) Many states require far visual acuity of 20/40 for licensure; however, recent studies indicate that there may be no basis for this requirement.[2] State driver licensing agencies are urged to base their visual acuity requirements on the most current data, as appropriate.

Visual acuity may be measured with both eyes open or with best eye open, as the patient prefers. The patient should wear any corrective lenses usually worn for driving.

Patients with decreased far visual acuity may lessen its impact on driving safety by restricting driving to low-risk areas and conditions (eg, familiar surroundings, non-rush hour traffic, low speed areas, daytime, and good weather conditions).

For best-corrected far visual acuity less than 20/70, the physician should recommend an on-road assessment performed by a driver rehabilitation specialist (where it is permitted and available) to evaluate the patient's performance in the actual driving task.

For best-corrected far visual acuity less than 20/100, the physician should recommend that the patient not drive unless safe driving ability can be demonstrated in an on-road assessment, where permitted and available. (See also recommendations for Telescopic lenses.)

Cataracts

No restrictions if standards for visual acuity and visual fields are met, either with or without cataract removal.

Patients who require increased illumination or who experience difficulty with glare recovery should avoid driving at night and under low-light conditions, such as during storms.

Diabetic retinopathy	No restrictions if standards for visual acuity and visual fields are met.
Keratoconus	Patients with severe keratoconus correctable with hard contact lenses should drive only when the lenses are in place. If lenses cannot be tolerated, patients with severe keratoconus should not drive even if they meet standards for visual acuity, as their acuity dramatically declines outside their foveal vision, rendering their peripheral vision useless.
Macular degeneration	No restrictions if standards for visual acuity and visual fields are met. Patients who experience difficulty with glare recovery should avoid driving at night. Patients with the neovascular "wet" form of the disease may require frequent assessment due to the rapid progression of the disease.
Nystagmus	No restrictions if standards for visual acuity and visual fields are met.
Telescopic lens	A bioptic telescope is an optical telescope mounted on the lens of eyeglasses. During normal use, the wearer can view the environment through the regular lens. When extra magnification is needed, a slight downward tilt of the head brings the object of interest into the view of the telescope.[3] The specialist who prescribes a telescopic lens should ensure that the patient is properly trained in its use. It has not been established whether telescopes enhance the safety of low-vision drivers. As stated in the American Academy of Ophthalmology's Policy Statement, *Vision Requirements for Driving*: "More than half the states allow drivers to use bioptic telescopes mounted on glasses, through which they spot traffic lights and highway signs. It has not yet been demonstrated whether the estimated 2,500 bioptic drivers in the United States drive more safely with their telescopes than they would without them. The ability to drive safely using bioptic telescopes should be demonstrated in a road test in all cases."[2] Please note that licensing requirements regarding the use of bioptic telescopes vary from state to state. A road test should be administered only in those states that permit the use of bioptic telescopes in driving.
Visual field	While it is acknowledged that an adequate visual field is important for safe driving, there is no conclusive evidence to define what is meant by "adequate." As a result, visual field requirements vary between states, with many states requiring a visual field of 100 degrees or more along the horizontal plane, and other states having a lesser requirement or none at all.[3] (See Chapter 8 for a state-by-state reference list of visual field requirements.) If the primary care physician has any reason to suspect a visual field deficit (eg, through patient report, medical history, or confrontation testing), he/she should refer the patient to an ophthalmologist or optometrist for further evaluation. The primary care physician and specialist should be aware of their particular state's visual field requirements, if any, and adhere to them.

	For binocular visual field at or near the state minimum requirement or of questionable adequacy (as deemed by clinical judgement), a driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist is strongly recommended. Through driving rehabilitation, the patient may learn to compensate for decreased visual fields. In addition, the driver rehabilitation specialist may prescribe enlarged side and rear view mirrors as needed and train the patient in their use.
Glaucoma	No restrictions if standards for visual acuity and visual fields are met.
Hemianopia/quadrantanopia	The physician may choose to refer the patient to a driver rehabilitation specialist for assessment and rehabilitation. With or without rehabilitation, the patient should drive only if he/she demonstrates safe driving ability in an on-road assessment performed by a driver rehabilitation specialist. Please note that licensing requirements regarding hemianopia and quadrantanopia vary from state to state. A road test should be administered only in those states that do not prohibit individuals with hemianopia or quadrantanopia from driving.
Monocular vision	Patients with acquired monocularity may need time to adjust to the lack of depth perception and reduction in total visual field. This period of adjustment varies between individuals, but it is reasonable to recommend temporary driving cessation for several weeks. Following this period, there are no restrictions if standards for visual acuity and visual fields are met. Upon resumption of driving, patients should be advised to assess their comfort level by driving in familiar, traffic-free areas before advancing to heavy traffic.
Ptosis	Individuals with fixed ptosis may drive without restrictions if their eyelids do not obscure the visual axis of either eye, and they are able to meet standards for visual acuity and visual fields without holding their head in an extreme position.
Retinitis pigmentosa	No restrictions if standards for visual acuity and visual fields are met. Patients who require increased illumination or who experience difficulty adapting to changes in light should not drive at night or under low-light conditions, such as during storms.
Contrast sensitivity	Contrast sensitivity is a measure of an individual's ability to perceive visual stimuli that differ in contrast and spatial frequency. Contrast sensitivity tends to decline with age; accordingly, deficits in contrast sensitivity are much greater in older individuals compared to their younger counterparts.[4] Among older drivers, binocular measures of contrast sensitivity have been found to be a valid predictor of crash risk. However, there are presently no standardized cut-off points for contrast sensitivity and safe driving, and it is not routinely measured in eye exams. Due to its usefulness in predicting crash risk, it is strongly recommended that standardized contrast sensitivity scales be developed, validated, and utilized in the clinical and driver licensing settings.

Defective color vision	No restrictions if standards for visual acuity and visual fields are met. Deficits in color vision are common (especially in the male population) and usually mild. In an extensive review of the literature on color vision and driving, the majority of studies found no association between color vision deficits and increased crash rates.[5] Only 19 states require prospective drivers to undergo color vision screening, and most of these states require screening for commercial drivers only.[3] Despite reported difficulties with color vision discrimination while driving (eg, difficulty distinguishing the color of traffic signals, confusing traffic lights with street lights, and difficulty detecting brake lights), it is unlikely that color vision impairments represent a driving hazard.[4] With the standardization of traffic signal positions, color blind individuals are able to interpret traffic signals correctly because they can identify the traffic signal by its position. Physicians may wish to advise patients that the order of signals in the less commonly used horizontal placement is (from left to right) red, yellow, green.
Poor night vision	If the patient reports poor visibility at night, the physician should recommend optometric and/or ophthalmologic evaluation. If the evaluation does not reveal a treatable cause for poor night vision, the physician should recommend that the patient not drive at night or under other low-light conditions, such as during storms.

Section 2: Cardiovascular Diseases

1. Unstable coronary syndrome (unstable angina or myocardial infarction)
2. Cardiac conditions that may cause a sudden, unpredictable loss of consciousness
   a. Atrial flutter/fibrillation with bradycardia or rapid ventricular response
   b. Paroxysmal supraventricular tachycardia (PSVT), including Wolf-Parkinson-White (WPW) syndrome
   c. Prolonged, nonsustained ventricular tachycardia (VT)
   d. Sustained ventricular tachycardia (VT)
   e. Cardiac arrest
   f. High grade atrio-ventricular (AV) block
   g. Sick sinus syndrome/sinus bradycardia/sinus exit block/sinus arrest
3. Cardiac disease resulting from structural or functional abnormalities
   a. Congestive heart failure (CHF) with low output syndrome
   b. Hypertrophic obstructive cardiomyopathy
   c. Valvular disease (especially aortic stenosis)
4. Time-limited restrictions: cardiac procedures
   a. Percutaneous transluminal coronary angioplasty (PTCA)
   b. Pacemaker insertion or revision
   c. Cardiac surgery involving median sternotomy
      – Coronary artery bypass graft (CABG)
      – Valve repair or replacement
      – Heart transplant
5. Internal cardioverter defibrillator (ICD)

For the patient with known cardiac disease, the physician should strongly and repeatedly caution the patient to seek help immediately upon experiencing any symptoms—including prolonged chest discomfort, acute shortness of breath, syncope, and pre-syncope—that may indicate an unstable cardiac situation. Under no circumstances should the patient drive to seek help.

While hypertension is not included in this section, physicians should always be alert to any potential impairment in driving skills resulting from hypertensive end-organ damage or anti-hypertensive medications.

Section 2: Cardiovascular Diseases

Unstable coronary syndrome (unstable angina or myocardial infarction)	Patients should not drive if they experience symptoms at rest or at the wheel. Patients may resume driving when they have been stable and asymptomatic for one to four weeks, as determined by the cardiologist, following treatment of the underlying coronary disease. Driving may usually resume within one week after successful revascularization by percutaneous transluminal coronary angioplasty (PTCA) and by four weeks after coronary artery bypass grafting (CABG).[6] (See also recommendations for CABG.)
Cardiac conditions that may cause a sudden, unpredictable loss of consciousness	The main consideration in determining medical fitness to drive for patients with cardiac conditions is the risk of pre-syncope or syncope due to a brady- or tachyarrhythmia.[7] For the patient with a known arrhythmia, the physician should identify and treat the underlying cause of arrhythmia, if possible, and recommend temporary driving cessation until control of symptoms has been achieved.
Atrial flutter/fibrillation with bradycardia or rapid ventricular response	No further restrictions once control of heart rate and symptoms has been achieved.

Paroxysmal supraventricular tachycardia (PSVT), including Wolf-Parkinson-White (WPW) syndrome	No restrictions if the patient is asymptomatic during documented episodes. Patients with a history of symptomatic tachycardia may resume driving after they have been asymptomatic for six months on antiarrhythmic therapy. Patients who undergo radio frequency ablation may resume driving after six months if there is no recurrence of symptoms, or sooner if no pre-excitation or arrhythmias are induced at repeat electrophysiologic testing (EP).
Prolonged, nonsustained ventricular tachycardia (VT)	No restrictions if the patient is asymptomatic during documented episodes. Patients with symptomatic VT may resume driving after three months if they are on antiarrhythmic therapy—with or without an internal cardioverter defibrillator (ICD)—guided by invasive electrophysiologic (EP) testing, and VT is noninducible at repeat EP testing. They may resume driving after six months without arrhythmic events if they are on empiric antiarrhythmic therapy (with or without an ICD), or have an ICD alone without additional antiarrhythmic therapy.[8]
Sustained ventricular tachycardia (VT)	Patients may resume driving after three months if they are on antiarrhythmic therapy (with or without an ICD) guided by invasive electrophysiologic (EP) testing, and VT is noninducible at repeat EP testing. Patients may resume driving after six months without arrhythmic events if they are on empiric antiarrythmic therapy (with or without an ICD), or have an ICD alone without additional antiarrythmic therapy.[8] When long-distance or sustained high-speed travel is anticipated, patients should be encouraged to have an adult companion perform the driving. Patients should avoid the use of cruise-control.[8]
Cardiac arrest	Please refer to the recommendations for sustained ventricular tachycardia. If the patient experiences a seizure, please refer to the recommendations for seizure in Section 4. If clinically significant cognitive changes persist following the patient's physical recovery, cognitive testing is recommended before the patient is permitted to resume driving. In addition, driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist may be useful in assessing the patient's fitness to drive.
High grade atrio-ventricular (AV) block	For symptomatic block managed with pacemaker implantation, please see pacemaker recommendations. For symptomatic block corrected without a pacemaker (eg, by withdrawal of medications that caused the block), the patient may resume driving after he/she has been asymptomatic for four weeks and EKG documentation shows resolution of the block.

Sick sinus syndrome/sinus bradycardia/ sinus exit block/ sinus arrest	No restrictions if patient is asymptomatic. Regular medical follow-up is recommended to monitor progression. For symptomatic disease managed with pacemaker implantation, please see pacemaker recommendations. Physicians should be alert to clinically significant cognitive deficits due to chronic cerebral ischemia. Physicians may refer patients with significant cognitive changes to a driver rehabilitation specialist for a driver evaluation (including on-road assessment) to evaluate the patient's driving safety.
Cardiac disease resulting from structural or functional abnormalities	Two major considerations in determining medical fitness to drive are the risk of pre-syncope or syncope due to low cardiac output and the presence of cognitive deficits due to chronic cerebral ischemia. Patients who experience pre-syncope, syncope, extreme fatigue, or dyspnea at rest or at the wheel should cease driving. Cognitive testing is recommended to detect cognitive deficits that may impair the patient's driving ability. Physicians may refer patients with clinically significant cognitive changes to a driver rehabilitation specialist for an evaluation (including on-road assessment) to evaluate the patient's driving safety.
Congestive heart failure (CHF) with low output syndrome	Patients should not drive if they experience symptoms at rest or at the wheel. Physicians should reassess patients for driving fitness every six months to two years as needed, depending on clinical course and control of symptoms. Patients with Functional Class III CHF (marked limitation of activity but no symptoms at rest, working capacity 2 to 4 METS) should be reassessed at least every six months.
Hypertrophic obstructive cardiomyopathy	Patients who experience syncope or pre-syncope should not drive until they have been treated.
Valvular disease (especially aortic stenosis)	Patients who experience syncope or pre-syncope should not drive until the underlying disease is corrected.
Time-limited restrictions: cardiac procedures	Driving restrictions for the following cardiac procedures are based on the patient's recovery from the procedure itself and from the underlying disease for which the procedure was performed.
Percutaneous transluminal coronary angioplasty (PTCA)	The patient may resume driving 48 hours to one week after successful PTCA and/or stenting procedures, depending on the patient's baseline condition and course of recovery from the procedure and underlying coronary artery disease.[6, 9]
Pacemaker insertion or revision	The patient may resume driving after one week if: a. The patient no longer experiences pre-syncope or syncope; b. EKG shows normal sensing and capture; and c. Pacemaker performs within manufacturer's specifications.[9]

Cardiac surgery involving median sternotomy	Driving may usually resume four weeks following coronary artery bypass grafting (CABG) and/or valve replacement surgery, and within eight weeks following heart transplant, depending on resolution of cardiac symptoms and the patient's course of recovery. In the absence of surgical and post-surgical complications, the main limitation to driving is the risk of sternal disruption following median sternotomy. If clinically significant cognitive changes persist following the patient's physical recovery, cognitive testing is recommended before the patient is permitted to resume driving. In addition, driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist may be useful in assessing the patient's fitness to drive.
Internal cardioverter defibrillator	Please see the recommendations for nonsustained and sustained ventricular tachycardia.

Section 3: Cerebrovascular Diseases

1. Post intracranial surgery
2. Stroke
3. Subarachnoid hemorrhage
4. Syncope
5. Transient ischemic attacks (TIA)
6. Vascular malformation

Strokes and other insults to the cerebral vascular system may cause a wide variety of symptoms, including sensory deficits, motor deficits, and cognitive impairment. These symptoms range from mild to severe and may resolve almost immediately or persist for years. Because each patient is affected uniquely, the physician must take into account the individual patient's constellation of symptoms, severity of symptoms, course of recovery, and baseline function when making recommendations concerning driving.

Driving should always be addressed prior to the patient's discharge from the hospital or rehabilitation center. Patients with residual deficits who wish to resume driving should be referred to a driver rehabilitation specialist (DRS) whenever possible. Upon stabilization of symptoms, the DRS assesses the patient for fitness to drive through clinical and on-road evaluations. After assessment, the DRS may recommend adaptive techniques or adaptive devices (eg, wide-angle rear view mirror, spinner knob for the steering wheel, left foot accelerator) and provide training for their proper use. Even patients with mild deficits should undergo driver evaluation prior to resuming driving, if possible. Research indicates that a post-stroke determination of driving safety made on a medical basis alone may be inadequate.[10]

For the patient whose symptoms clearly preclude driving, it should not be assumed that the patient is aware that he/she should not drive. In such cases, the physician should counsel the patient on driving cessation.

Section 3: Cerebrovascular Diseases

Post intracranial surgery	The patient should not drive until stabilization or resolution of disease and surgery symptoms. See also stroke recommendations below.
Stroke	Patients with acute motor, sensory, or cognitive deficits should not drive. Depending on the severity of residual symptoms and the degree of recovery, this restriction may be permanent or temporary. Upon the patient's discharge from the hospital or rehabilitation center, the physician may recommend temporary driving cessation until further neurological recovery has occurred. Once neurological symptoms have stabilized, physicians should refer patients with residual sensory loss, cognitive impairment, visual field deficits, and/or motor deficits to a driver rehabilitation specialist, if available, for driver assessment and rehabilitation. The specialist may prescribe vehicle adaptive devices and train the patient in their use. Patients with neglect or inattention should be counseled not to drive until symptoms have resolved and safe driving ability has been demonstrated through assessment by a driver rehabilitation specialist. All patients with moderate to severe residual hemiparesis should undergo driver assessment before resumption of driving. Even if symptoms improve to the extent that they are mild or completely resolved, patients should still undergo driver assessment, as reaction time may continue to be affected.

	Patients with aphasia who demonstrate safe driving ability may fail in their efforts to renew their license due to difficulties with the written exam. In these cases, the physician should urge the licensing authority to make reasonable accommodations for the patient's language deficit. Patients with residual cognitive deficits should be assessed and managed as described under the dementia recommendations in Section 4. Periodic reevaluation of these patients is recommended, as some patients may recover sufficiently over time to permit safe driving.
Subarachnoid hemorrhage	Patients should not drive until symptoms have stabilized or resolved. Driving may resume following medical assessment and, if deemed necessary by the physician, driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist.
Syncope	Syncope may result from various cardiovascular and non-cardiovascular causes, and it is recurrent in up to 1/3 of cases. Cardiac arrhythmias are the most common cause of syncope.[11] (See Section 2 for causes of cardiac syncope.) Driving restrictions for neurally-mediated syncope should be based on the severity of the presenting event. No driving restrictions are necessary for infrequent syncope that occurs with warning and with clear precipitating causes. Patients with severe syncope may resume driving after adequate control of the arrhythmia has been documented and/or pacemaker follow-up criteria have been met (see Section 2).[12] For patients who continue to experience unpredictable symptoms after treatment with medications and pacemaker insertion, driving cessation is recommended.
Transient ischemic attacks (TIA)	Patients who have experienced a single TIA or recurrent TIAs should refrain from driving until they have undergone medical assessment and appropriate treatment.
Vascular malformation	Following the detection of a brain aneurysm or arterio-venous (AV) malformation, the patient should not drive until he/she has been assessed by a neurosurgeon. The patient may resume driving if the risk of a bleed is small, an embolization procedure has been successfully completed, and/or the patient is free of other medical contraindications to driving, such as uncontrolled seizures or significant perceptual or cognitive impairments.

Section 4: Neurologic Diseases

1. Brain tumor
2. Dementia
4. Migraine and other recurrent headache syndromes
4. Movement disorders
5. Multiple sclerosis
6. Paraplegia/quadriplegia
7. Parkinson's disease
8. Peripheral neuropathy
9. Seizure disorder
   a. Single unprovoked seizure
   b. Withdrawal or change of anti-convulsant drug therapy
10. Sleep disorders
    a. Narcolepsy
    b. Sleep apnea
11. Stroke
12. Tourette's syndrome
13. Traumatic brain injury
14. Vertigo

Dementia deserves a special emphasis in this section because it presents a significant challenge to driving safety. With progressive dementia, patients ultimately lose the ability to drive safely and the ability to be aware of this. Therefore, dementia patients may be more likely than drivers with visual or motor deficits (who tend to self-restrict their driving to accommodate their declining abilities) to drive even when it is highly unsafe for them to be on the road. It becomes the responsibility of family members and other caregivers to protect the safety of these patients by enforcing driving cessation.

While it is optimal to initiate discussions of driving safety with the patient and family members before driving becomes unsafe, dementia is too often undetected and undiagnosed until late in the course of the disease. Initially, family members and physicians may assume that the patient's decline in cognitive function is a part of the "normal" aging process. Physicians may also hesitate to screen for and diagnose dementia because they erroneously believe that it is futile—in other words, that nothing can be done to improve the patient's situation or slow the progression of the disease. In addition, physicians may be concerned about the amount of time required to effectively diagnose dementia and educate patients and their families.[13]

Despite these barriers, physicians are encouraged to be alert to the signs and symptoms of dementia and to pursue an early diagnosis. Early diagnosis is the first step to promoting the driving safety of dementia patients. The second step is intervention, which includes medications to slow the course of the disease, counseling to prepare the patient and family for eventual driving cessation, and serial assessment of the patient's driving abilities. When assessment shows that driving may pose a significant safety risk to the patient, driving cessation is a necessary third step. With early planning, patients and their families can make a more seamless transition from 'driving' to 'non-driving' status.

Section 4: Neurologic Diseases

Brain tumor

Driving recommendations should be based on the type of tumor; location; rate of growth; type of treatment; presence of seizures; and presence of cognitive or perceptual impairments. Due to the progressive nature of some tumors, the physician may need to evaluate the patient's fitness to drive serially.

See also the stroke recommendations in Section 3.

If the patient experiences seizure(s), see also the seizure recommendations in this section.

Dementia

The following recommendations are adapted from the Alzheimer's Association's *Position Statement on Driving*[14] and recommendations of the Canadian Consensus Conference on Dementia.[15]

- A diagnosis of dementia is not, on its own, a sufficient reason to withdraw driving privileges. A significant number of drivers with dementia are found to be competent to drive in the early stages of their illness.[16] Therefore, the determining factor in

withdrawing driving privileges should be the individual's driving ability. When the individual poses a serious risk to self or others, driving privileges must be withheld.

- Physicians should consider the risks associated with driving for all of their patients with dementia, and they are encouraged to address the issue of driving safety with these patients and their families. When appropriate, patients should be included in decisions about current or future driving restrictions and cessation; otherwise, physicians and families must decide in the best interests of the patient whose decision-making capacity is impaired.

- Physicians are recommended to perform a focused medical assessment that includes history of driving difficulty from a family member or caregiver and an evaluation of cognitive abilities, including memory, attention, judgement, and visuospatial abilities. Physicians should be aware that patients with progressive dementia require serial assessment, and they should familiarize themselves with their state reporting laws and procedures for dementia (if any). (See Chapter 8 for a state-by-state reference list of reporting laws.)

- If there is concern that an individual with dementia has impaired driving ability, and the individual would like to continue driving, a formal assessment of driving skills should be administered. One type of assessment is an on-road driving assessment performed by a driver rehabilitation specialist. Such an assessment should lead to specific recommendations, consistent with state laws and regulations, as to whether the individual is safe to drive.

- Physicians should encourage patients with progressive dementia to plan early for eventual cessation of driving privileges by developing alternative transportation options. The patient should be encouraged to coordinate these efforts with their family members and caregivers, and to seek assistance (as needed) from their local area agency on aging.

Migraine and other recurrent headache syndromes	Patients with recurrent severe headaches should be cautioned against driving when experiencing neurologic manifestations (eg, visual disturbances or dizziness), when distracted by pain, and while on any barbiturate, narcotic, or narcotic-like analgesic. (See Section 5 for further recommendations regarding narcotic analgesics.)
Movement disorders	If the physician elicits complaints of interference with driving tasks or is concerned that the patient's symptoms compromise his/her driving safety, referral to a driver rehabilitation specialist for a driver evaluation (including on-road assessment) is recommended.
Multiple sclerosis	Driving recommendations should be based on the types of symptoms and level of symptom involvement. Physicians should be alert to deficits that are subtle but have a strong potential to impair driving performance (eg, muscle weakness, sensory loss, fatigue, cognitive or perceptual deficits, symptoms of optic neuritis). A driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist may be useful in determining the patient's safety to drive. Serial evaluations may be required as the patient's symptoms evolve or progress.

Paraplegia/quadriplegia	Referral to a driver rehabilitation specialist is necessary if the patient wishes to resume driving or requires vehicle modifications to accommodate him/her as a passenger. The specialist can recommend an appropriate vehicle and prescribe adaptive devices (such as low-resistance power steering and hand controls) and train the patient in their use. In addition, the specialist can assist the patient with access to the vehicle, including opening and closing car doors, transfer to the car seat, and independent wheelchair stowage, through vehicle adaptations and training. Driving should be restricted until the patient demonstrates safe driving ability in the adapted vehicle.
Parkinson's disease	Patients with advanced Parkinson's disease may be at increased risk for motor vehicle crashes due to both motor and cognitive dysfunction.[17] Physicians should base their driving recommendations on the level of motor and cognitive symptom involvement, patient's response to treatment, and presence and extent of any medication side effects. (See Section 5 for specific recommendations on antiparkinsonian medications.) Serial physical and cognitive evaluations are recommended every six to twelve months due to the progressive nature of the disease. If the physician is concerned that dementia and/or motor impairments may affect the patient's driving skills, a driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist may be useful in determining the patient's fitness to drive. See also the dementia recommendations in this section.
Peripheral neuropathy	Lower extremity deficits in sensation and proprioception may be exceedingly dangerous for driving, as the driver may be unable to control the foot pedals or may confuse the accelerator with the brake pedal. If deficits in sensation and proprioception are identified, referral to a driver rehabilitation specialist is recommended. The specialist may prescribe vehicle adaptive devices (eg, hand controls in place of the foot pedals) and train the patient in their use.
Seizure disorder	The seizure disorder recommendation below is adapted from the *Consensus Statements on Driver Licensing in Epilepsy* crafted and agreed on by the American Academy of Neurology, American Epilepsy Society, and Epilepsy Foundation of America in March 1992.[18] Please note that these recommendations are subject to each particular state's licensing requirements and reporting laws. A patient with seizure disorder should not drive until he/she has been seizure-free for three months. This three-month interval may be lengthened or shortened based on the following favorable and unfavorable modifiers:

Favorable modifiers

- Patient experiences only simple partial seizures that do not interfere with consciousness and/or motor control
- Seizures have consistent and prolonged aura
- There is an established pattern of pure nocturnal seizures
- Seizures occurred during medically directed medication changes
- Seizures were secondary to acute metabolic or toxic states that are not likely to recur
- Seizures were caused by sleep deprivation
- Seizures were related to reversible acute illness

Unfavorable modifiers

- Noncompliance with medication or medical visits and/or lack of credibility
- Alcohol and/or drug abuse in the past three months
- Increased number of seizures in the past year
- Prior bad driving record
- Structural brain lesion
- Noncorrectable brain functional or metabolic condition
- Frequent seizures after seizure-free interval
- Prior crashes due to seizures in the past five years

Single unprovoked seizure

The patient should not drive until he/she has been seizure-free for three months. This time period may be shortened with physician approval.

Predictors of recurrent seizures that may preclude shortening of this time period include:

- The seizure was focal in origin
- Focal or neurologic deficits predated the seizure
- The seizure was associated with chronic diffuse brain dysfunction
- The patient has a family history positive for epilepsy
- Generalized spike waves or focal spikes are present on EEG recordings

Withdrawal or change of anticonvulsant therapy

The patient should temporarily cease driving during the time of medication withdrawal or change due to the risk of recurrent seizure and potential medication side effects that may impair driving ability.

If there is significant risk of recurrent seizure during medication withdrawal or change, the patient should cease driving during this time and for at least three months thereafter.

If the patient experiences a seizure after medication withdrawal or change, he/she should not drive for one month after resuming a previously-effective medication regimen. Alternatively, the patient may resume driving after three months if he/she refuses to resume this medication regimen but is seizure-free during this time period.

Sleep Disorders	
Narcolepsy	The patient should cease driving upon diagnosis. The patient may resume driving upon treatment when he/she no longer suffers excessive daytime drowsiness or cataplexy. Physicians may consider using scoring tools such as the Epworth Sleepiness Scale[19] to assess the patient's level of daytime drowsiness.
Sleep apnea	See Section 11.
Stroke	See Section 3.
Tourette's syndrome	In evaluating the patient's fitness to drive, the physician should consider any comorbid disorders (including attention deficit hyperactivity disorder, learning disabilities, and anxiety disorder) in addition to the patient's motor tics. (For specific recommendations regarding these disorders, see Section 6). If the physician is concerned that the patient's symptoms compromise his/her driving safety, referral to a driver rehabilitation specialist for driver evaluation (including on-road assessment) is recommended. Physicians should be aware that certain medications used in the treatment of Tourette's syndrome have the potential to impair driving performance. (See Section 5 for more information on medication side effects.)
Traumatic brain injury	Patients should not drive until symptoms have stabilized or resolved. For patients whose symptoms resolve, driving may resume following medical assessment and, if deemed necessary by the physician, driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist. Patients with residual neurological or cognitive deficits should be assessed and managed as described under the dementia recommendations in this section. If the patient experiences seizure(s), see the seizure recommendations in this section.
Vertigo	Vertigo and the medications commonly used to treat vertigo have a significant potential to impair driving skills. For acute vertigo, the patient should cease driving until symptoms have fully resolved. Under no circumstances should the patient drive to seek medical attention. Patients with a chronic vertiginous disorder are strongly recommended to undergo driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist prior to resuming driving.

Section 5: Medications

1. Alcohol
2. Anticholinergics
3. Anticonvulsants
4. Antidepressants
   a. Bupropion
   b. Mirtazapine
   c. Monoamine oxidase (MAO) inhibitors
   d. Selective serotonin reuptake inhibitors (SSRI)
   e. Tricyclic antidepressants (TCA)
5. Antiemetics
6. Antihistamines
7. Antihypertensives
8. Antiparkinsonians
9. Antipsychotics
10. Benzodiazepenes and other sedatives/anxiolytics
11. Muscle relaxants
12. Narcotic analgesics
13. Nonsteroidal anti-inflammatory drugs (NSAID)
14. Stimulants

Many commonly used prescription and over-the-counter medications can impair driving performance. In general, any drug with a prominent central nervous system (CNS) effect has the potential to impair an individual's ability to operate a motor vehicle. The level of impairment varies from patient to patient, between different medications within the same therapeutic class, and in combination with other medications or alcohol.

Medication side effects that can affect driving performance include drowsiness, dizziness, blurred vision, unsteadiness, fainting, slowed reaction time, and extrapyramidal side effects. In many cases, these side effects are dose-dependent and attenuate with time.

Whenever possible, the physician should prescribe non-impairing medications. If the physician must prescribe or change the dosage of a medication that can potentially impair driving performance, he/she should counsel the patient regarding the side effects. He/she should also recommend that the patient take the first few doses in a safe environment to determine the presence and extent of any side effects, and that he/she temporarily cease driving as needed until the body has adjusted to the medication.

In addition to being alert to potential side effects, the patient should also understand that with certain medications, subjective effects do not always correlate with impairment.[20-23] Medications that cause drowsiness, euphoria, and/or anterograde amnesia may also diminish insight, and the patient may experience impairment without being aware of it. In the case of these medications, the concerned physician and patient may wish to consider formal psychomotor testing (up to and including driving simulation) or driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist, while off and on the medication to determine the extent of impairment.

When prescribing new medications, the physician should always consider the patient's existing regimen of prescription and non-prescription medications, including medications taken seasonally. Combinations of drugs may affect drug metabolism and excretion to produce additive or synergistic interactions. In fact, use of multiple psychoactive medications is a common cause of hospitalization for delirium among older adults.[24] Because individuals react differently to drug combinations, the degree of impairment caused by polypharmacy may vary from patient to patient. With polypharmacy's strong but unpredictable potential to produce impairment, physicians should add new medications at the lowest dosage possible, counsel the patient to be alert to any impairing side effects, and adjust the dosages of individual medications as needed to achieve therapeutic effects with a minimum of impairment.

Section 5: Medications

Alcohol

As little as one serving of alcohol (1.25 oz. 80 proof liquor, 12 oz. beer, 5 oz. wine) has the potential to impair driving performance in many individuals. In many cases, individuals may be impaired without being aware of it. Furthermore, alcohol can potentiate the central nervous system (CNS) effects of medications to produce profound and dangerous levels of impairment. *Physicians should always warn their patients against drinking and driving, and against combining alcohol with their CNS-active medications.*

For recommendations on alcohol abuse, see Section 6.

Anticholinergics

When a patient takes single or multiple medications with anticholinergic activity (including some antidepressants, antihistamines, antiemetics, antipsychotics, and antiparkinsonian drugs), the physician should be alert to the possibility of anticholinergic toxicity and adjust medication dosages accordingly.

Anticholinergic effects that can impair driving performance include blurred vision, sedation, confusion, ataxia, tremulousness, and myoclonic jerking. Patients should be counseled about these symptoms and should alert their physician immediately if these symptoms occur. Patients should also be advised that psychomotor and cognitive impairment may be present even in the absence of subjective symptoms.

Subtle deficits in attention, memory, and reasoning may occur with therapeutic dosages of anticholinergic drugs without signs of frank toxicity. These deficits have often been mistaken for symptoms of early dementia in elderly patients. Physicians are advised to be aware of this possibility.

Anticonvulsants

The patient should temporarily cease driving during the time of medication initiation, withdrawal, or dosage change due to the risk of recurrent seizure and potential medication side effects that may impair driving performance.

If there is significant risk of recurrent seizure during medication withdrawal or change, the patient should cease driving during this time and for at least three months thereafter. (See Section 4 for further recommendations.)

Note that many anticonvulsants (eg, valproic acid, carbamazepine, gabapentine, lamotrigine and topiramate) are also being used as mood stabilizers for treatment of bipolar disorder and as sedating agents for anxiety. These are typically an adjunct to antidepressants, antipsychotics and/or anxiolytics. By themselves, anticonvulsants may be mildly impairing, but the combined medication effects on psychomotor performance tend to be more severe. When coprescribing anticonvulsants and other psychoactive drugs, it is wise to start with low doses of each and gradually increase the dosage of each one *separately* to minimize side effects.

Antidepressants

Impairing side effects vary among the different classes of antidepressants, and even within certain classes of antidepressants. In general, antidepressants that possess antagonistic activity at cholinergic, alpha-1-adrenergic, and histaminergic receptors are the most impairing. Whenever possible, physicians should initiate antidepressant therapy with the least impairing medication possible.

Patients should be advised not to drive during the initial phase of antidepressant dosage adjustment(s) if they experience drowsiness, lightheadedness, or other side effects that may impair driving performance. Patients should also be advised that they may experience impairment in the absence of any subjective symptoms.

Bupropion

Side effects of bupropion (also known as Wellbutrin® and Zyban®) include anxiety, restlessness and insomnia (leading to daytime drowsiness). Patients should be counseled about these side effects and their potential to impair driving performance. Because bupropion may cause seizures at high doses, it should not be prescribed to patients with epilepsy, brain injuries, eating disorders, or other factors predisposing to seizure activity.

Mirtazapine	Mirtazapine (also known as Remeron®) is typically taken only at night due to its sedating effects. It has been shown to cause substantial impairment for many hours after dosing. Whenever possible, it should be avoided in patients who wish to continue driving.
Monoamine oxidase (MAO) inhibitors	Side effects of MAO inhibitors that may impair driving performance include blurred vision, overstimulation, insomnia (leading to daytime drowsiness), orthostatic hypotension (with transient cognitive deficits), and hypertensive crisis (presenting with severe headaches and/or mental status changes). The latter can be caused by failure to adhere to dietary and medication restrictions. Patients should be counseled about these side effects and their potential to impair driving performance.
Selective serotonin reuptake inhibitors (SSRI)	Common side effects of SSRIs that may impair driving performance include sleep changes (insomnia or sedation), headache, anxiety, and restlessness. While these side effects tend to be mild and well-tolerated, physicians should counsel patients to be alert to their potential to affect driving performance.
Tricyclic antidepressants (TCA)	Common side effects of TCAs that may impair driving performance include sedation, blurred vision, orthostatic hypotension, tremor, excitement, and heart palpitations. In studies involving healthy volunteers, the more sedating TCAs have been shown to impair psychomotor function, motor coordination, and open-road driving. Other studies appear to indicate an increased crash risk for drivers who take TCAs.[24] Whenever possible, TCAs should be avoided in patients who wish to continue driving. If non-impairing alternatives are not available, then the physician should advise patients of the potential side effects and recommend temporary driving cessation during the initial phase of medication initiation/dosage adjustment. Patients should also be advised that they may experience impairment even in the absence of subjective symptoms.
Antiemetics	Numerous classes of drugs—including anticholinergics, antihistamines, antipsychotics, cannabinoids, benzodiazepenes, 5HT antagonists, and glucocorticoids—are used for their antiemetic effect. Side effects of antiemetics that may impair driving performance include sedation, blurred vision, headache, confusion, and dystonias. Significant impairment may be present even in the absence of subjective symptoms. Patients should be counseled about side effects and their potential to impair driving performance, and should be advised that they may experience impairment even in the absence of subjective symptoms. For more detailed information, see also the recommendations for anticholinergics, antihistamines, antipsychotics, and benzodiazepenes.
Antihistamines	In many patients, the older antihistamines (such as diphenhydramine and chlorpheniramine) have pronounced central nervous system effects. In studies involving healthy volunteers, sedating antihistamines have been shown to impair psychomotor performance, simulated driving, and open-road driving.[24] Furthermore, subjects may experience impairment even in the absence of subjective symptoms of impairment.[23] In contrast, most nonsedating antihistamines do not produce these types of impairment after being taken in recommended doses.[24] However, even nonsedating antihistamines may cause impairments if taken in higher-than-recommended doses, and one of them—cetirizine—may be slightly impairing to certain patients in normal doses.

	Patients who take a sedating antihistamine should be advised not to drive while on the medication. If these patients wish to continue driving, they should be prescribed a nonsedating antihistamine.
Antihypertensives	With their hypotensive properties, common side effects of antihypertensives that may impair driving performance include lightheadedness, dizziness, and fatigue. In addition, antihypertensives with a prominent central nervous system effect, including beta-blockers and the sympatholytic drugs clonidine, guanfacine and methyldopa, may cause sedation, confusion, insomnia, and nervousness. Patients should be counseled about these side effects and their potential to impair driving performance. In addition, patients taking antihypertensives that may potentially cause electrolyte imbalance (ie, diuretics) should be counseled about the symptoms of electrolyte imbalance and their potential to impair driving performance.
Antiparkinsonians	Several medications and classes of medications including levodopa, antimuscarinics (anticholinergics), amantadine, and dopamine agonists may be used in the treatment of Parkinson's disease symptoms. Common side effects of antiparkinsonian drugs that may impair driving performance include excessive daytime sleepiness, lightheadedness, dizziness, blurred vision, and confusion. (See also the recommendations for anticholinergics.) Patients should be counseled about these side effects and advised not to drive if they experience side effects. Based on the extent of disease symptoms and medication side effects, the physician may also consider referring patients for formal psychomotor testing or for driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist.
Antipsychotics	Most—if not all—antipsychotic medications have a strong potential to impair driving performance through various central nervous system effects. Some of the original or "classic" antipsychotics are heavily sedating, and all produce extrapyramidal side effects (EPS). Although the modern or "atypical" drugs have a lower tendency to cause EPS, they, too, are sedating. Patients should be counseled about these side effects and advised not to drive if they experience side effects severe enough to impair driving performance. The physician should consider referring the patient for formal psychomotor testing or for driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist. If medication therapy is initiated while the patient is hospitalized, the impact of side effects on driving performance should be discussed prior to discharge.

Benzodiazepenes and other sedatives/anxiolytics	Studies have demonstrated impairments in vision, attention, motor coordination, and driving performance with benzodiazepene use. Evening doses of long-acting benzodiazepenes have been shown to markedly impair psychomotor function the following day, while comparable doses of short-acting compounds produce a lesser impairment.[24] In contrast, benzodiazepene-like hypnotics (such as zolpidem and zaleplon) have a more rapid rate of elimination. Studies of driving performance and psychomotor function have shown that five hours after taking zaleplon and nine hours after taking zolpidem at recommended doses, it is generally safe to drive again.[25-27] Patients should be prescribed evening doses of the shortest-acting hypnotics whenever possible. Patients who take longer-acting compounds or daytime doses of any hypnotic should be advised of the potential for impairment, even in the absence of subjective symptoms. These patients should also be advised to avoid driving, particularly during the initial phase of dosage adjustment(s).
Muscle relaxants	Most skeletal muscle relaxants (eg, carisoprodol and cyclobenzaprine) have significant central nervous system effects. Patients should be counseled about these side effects and advised not to drive during the initial phase of dosage adjustment(s) if they experience side effects severe enough to affect safe driving performance.
Nonsteroidal anti-inflammatory drugs (NSAID)	Isolated case reports of confusion following the use of the NSAIDs phenylbutazone and indomethacin suggest that they may rarely impair driving performance.[28] If the patient reports this side effect, the physician should consider adjusting the dosage or changing the medication.
Narcotic analgesics	Patients should be counseled about the impairing effects of narcotic analgesics (ie, opioids) and the potential for impairment even in the absence of subjective symptoms. They should also be advised not to drive while on these medications. In addition, many narcotic analgesics have a high potential for abuse. Accordingly, physicians should always be alert to signs of abuse. (For more information, see the recommendations for substance abuse in Section 6.)
Stimulants	Common side effects of traditional stimulants (such as amphetamines and methylphenidate) that may impair driving performance include euphoria, overconfidence, nervousness, irritability, anxiety, insomnia, headache, and rebound effects as the stimulant wears off. Patients should be counseled about these side effects and advised not to drive during the initial phase of dosage adjustment(s) if they experience side effects severe enough to impair driving performance. (The novel stimulant, modafinil, is not euphorogenic, nor does it appear to cause rebound effects. However, its safety for use when driving has not yet been demonstrated.) In addition, many stimulants have a high potential for abuse. Accordingly, physicians should always be alert to signs of abuse. (For more information, see the recommendations for substance abuse in Section 6.)

Section 6: Psychiatric Diseases

1. Affective disorders
   a. Depression
   b. Bipolar disorder
2. Anxiety disorders
3. Psychotic illness
   a. Acute episodes
   b. Chronic illness
4. Personality disorders
5. Substance abuse
6. Attention deficit disorder (ADD)/attention deficit hyperactivity disorder (ADHD)
7. Tourette's syndrome

Patients should not drive while they are in the acute phase of a psychiatric illness. In general, driving may resume once the condition is stable, although side effects from medications and compliance with the medication regimen may need to be taken into consideration. (For recommendations on medications and driving, see Section 5.)

Psychiatrists may wish to consult the American Psychiatric Association's *Position Statement on the Role of Psychiatrists in Assessing Driving Ability*.[29]

Section 6: Psychiatric Diseases

Affective disorders	Physicians should advise the patient not to drive during the acute phase of illness. Physicians should also be aware that certain medications used in the treatment of affective disorders have the potential to impair driving performance. (See Section 5 for more information on medication side effects.)
Depression	No restrictions if the condition is mild and stable. The physician should always specifically ask about suicidal ideation and cognitive and motor symptoms. Patients should not drive if they are actively suicidal or experiencing significant mental or physical slowness, agitation, and/or impaired concentration. Patients who seek care for these conditions should be counseled not to drive themselves to the clinic or hospital.
Bipolar disorder	No restrictions if the condition is stable. Patients should not drive if they are actively suicidal or in an acute phase of mania. Patients who seek care for these conditions should be counseled not to drive themselves to the clinic or hospital.
Anxiety disorders	Patients should not drive during acute episodes of anxiety. Otherwise, there are no restrictions if the condition is stable. Physicians should also be aware that certain medications used in the treatment of anxiety disorders have the potential to impair driving performance. (See Section 5 for more information on medication side effects.)
Psychotic illness	Physicians should advise the patient not to drive during the acute phase(s) of illness. Physicians should also be aware that medications used in the treatment of psychotic illness have the potential to impair driving performance. (See Section 5 for more information on medication side effects.)

Acute episodes	Patients should not drive during acute episodes of psychosis. Patients who seek care for acute psychosis should be counseled not to drive themselves to the clinic or hospital.
Chronic illness	No restrictions if the condition is stable and there are no other factors (eg, medication side effects) that can affect driving performance.
Personality disorders	No restrictions unless the patient has a history of driving violations and his/her psychiatric review is unfavorable. This includes—but is not limited to—uncontrolled erratic, violent, aggressive, or irresponsible behavior. Due to the high co-morbidity of substance abuse with personality disorders, physicians are urged to be alert to substance abuse in these patients and counsel them accordingly. (See recommendations for substance abuse below.)
Substance abuse	Driving while intoxicated is not only highly dangerous to the driver, passengers, and other road users, but it is also illegal. Drunk driving is the most common crime in the United States, and it is responsible for thousands of traffic deaths each year. Alcohol is not the only cause of intoxicated driving. Substances including, but not limited to, marijuana, cocaine, amphetamines (including amphetamine analogs), opiates, and benzodiazepenes may also impair driving skills. Physicians should always screen for alcohol and other drug abuse as part of the routine medical history. Questionnaires such as CAGE,[30] MAST,[31] TWEAK,[32] and AUDIT[33, 34] are useful in screening for alcohol abuse, and such questionnaires may be adapted to screen for other substance abuse. Physicians should follow up all positive screens with appropriate interventions, including brief interventions or referral to support groups, counseling, and substance abuse treatment centers. Physicians should strongly urge substance abusers to temporarily cease driving while they seek treatment, and to refrain from driving while under the influence of intoxicating substances. A nonjudgmental and supportive attitude and frequent follow-up may aid substance abusers in their efforts to achieve and maintain sobriety. Physicians should also familiarize themselves with any state laws holding them responsible for detaining intoxicated patients who have driven to the hospital or clinic until they are legally unimpaired.
Attention deficit disorder (ADD)/ attention deficit hyperactivity disorder (ADHD)	Adolescent drivers have a high rate of driving offenses, and adolescent drivers with attentional difficulties have even higher rates of crashes, traffic violations, and drinking and driving. Given these findings, physicians are advised to counsel adolescents with ADD/ADHD to take care when driving, and strongly caution them against drinking and driving.[35-37] In addition, physicians should be aware that a comorbid learning disability may interfere with the patient's ability to learn how to drive. For patients with a learning disability, referral to a driver rehabilitation specialist or driver education specialist for one-on-one instruction is highly recommended. For recommendations regarding the medications used to treat this disorder, see Section 5.
Tourette's syndrome	See Section 4.

Section 7: Metabolic Diseases

1. Diabetes mellitus
   a. Insulin dependent diabetes mellitus (IDDM)
   b. Non-insulin dependent diabetes mellitus (NIDDM)
2. Hypothyroidism
3. Hyperthyroidism

Individuals in the acute phase of a metabolic disorder (eg, diabetes, Cushing's disease, Addison's disease, hyperfunction of the adrenal medulla, and thyroid disorders) may experience signs and symptoms that are incompatible with safe driving. Physicians should advise these individuals to refrain from driving (including driving to seek medical attention) until the symptoms have abated.

Section 7: Metabolic Diseases

Diabetes mellitus

Insulin dependent diabetes mellitus (IDDM)

No restrictions if the patient demonstrates satisfactory control of his/her diabetes, recognizes the warning symptoms of hypoglycemia, and meets required visual standards.

Patients should be counseled not to drive during acute hypoglycemic and hyperglycemic episodes. In addition, patients are advised to keep candy or glucose tablets within reach in their car at all times, in the event of a hypoglycemic attack.

For recommendations on peripheral neuropathy, see Section 4.

Patients who experience recurrent hypoglycemic or hyperglycemic attacks should not drive until they have been free of significant hypoglycemic or hyperglycemic attacks for three months.

Non-insulin dependent diabetes mellitus (NIDDM)

If the patient's condition is managed by lifestyle changes and/or oral medications, there are no restrictions unless the patient develops related conditions (eg, diabetic retinopathy).

If the physician prescribes an oral medication that has a significant potential to cause hypoglycemia, he/she should counsel the patient as above.

Hypothyroidism

Patients who experience symptoms that may compromise safe driving (eg, cognitive impairment, drowsiness, and fatigue) should be counseled not to drive until their hypothyroidism has been satisfactorily treated. If residual cognitive deficits are apparent despite treatment, a driver evaluation (including on-road assessment) performed by a driver rehabilitation specialist may be useful in determining the patient's ability to drive safely.

Hyperthyroidism

Patients who experience symptoms that may compromise safe driving (eg, anxiety, tachycardia, and palpitations) should be counseled not to drive until their hyperthyroidism has been satisfactorily treated and symptoms have resolved.

Section 8: Musculoskeletal Disabilities

1. Arthritis
2. Foot abnormalities
3. Limitation of cervical movement
4. Limitation of thoracic and lumbar spine
5. Loss of extremities
6. Muscle disorders
7. Orthopedic procedures/surgeries
   a. Amputation
   b. Anterior cruciate ligament (ACL) reconstruction
   c. Limb fractures and treatment involving splints and casts
   d. Rotator cuff repair—open or arthroscopic
   e. Shoulder reconstruction
   f. Total hip replacement
   g. Total knee arthroplasty (TKA)

The pain, decrease in motor strength, and compromised range of motion associated with musculoskeletal disabilities can affect an individual's ability to drive safely. Physicians should encourage their patients with musculoskeletal disabilities to drive a vehicle with power steering and automatic transmission, if they do not already do so. Such vehicles require the least amount of motor ability for operation among all standard vehicles. If the physician is concerned that the patient's musculoskeletal disabilities impair his/her driving performance, referral to a driver rehabilitation specialist for a driver evaluation (including on-road assessment) is also recommended. In addition to assessing the patient's driving skills, the specialist can prescribe adaptive techniques and devices and train the patient in their use.

In some cases, rehabilitative therapies such as physical or occupational therapy and/or a consistent regimen of physical activity may help improve the patient's ability to drive and overall level of physical fitness.

Whenever possible, the use of narcotics, barbiturates, and muscle relaxants should be avoided in those patients with musculoskeletal disabilities who wish to continue driving. See Section 5 for recommendations regarding specific classes of medications.

Section 8: Musculoskeletal Disabilities

Arthritis	If symptoms of arthritis compromise the patient's driving safety, referral to a physical or occupational therapist for rehabilitative therapy and/or to a driver rehabilitation specialist for driver evaluation (including on-road assessment) is recommended. The specialist may prescribe vehicle adaptive devices and train the patient in their use. See below for specific recommendations regarding limitation of cervical movement and limitation of the thoracic or lumbar spine.
Foot abnormalities	Foot abnormalities (eg, bunions, hammer toes, long toe nails, and calluses) that affect the patient's dorsiflexion, plantar flexion and/or contact with vehicle foot pedals should be addressed and treated, if possible. The physician may also refer the patient to a driver rehabilitation specialist, who can prescribe vehicle adaptive devices and train the patient in their use.
Limitation of cervical movement	Some loss of head and neck movement is acceptable if the patient has sufficient combined rotation and peripheral vision to accomplish driving tasks (eg, turning, crossing intersections, parking, backing up) safely. The physician should ask if the patient's vehicle is equipped with right and left outside mirrors and encourage the patient to make use of them. The physician may also refer the patient to a physical or occupational therapist for rehabilitative therapy and/or to a driver rehabilitation specialist, who can prescribe wide-angle mirrors and train the patient in their use.

Limitation of thoracic or lumbar spine	Patients with marked deformity, who wear braces or body casts, or who have painfully restricted motion in their thoracic or lumbar regions should be referred to a driver rehabilitation specialist. The specialist can prescribe vehicle adaptive devices such as raised seats and wide-angle mirrors and train the patient in their use. The specialist can also prescribe safety belt adaptations as needed to improve the patient's safety and comfort, and ensure that the patient is seated at least ten inches from the vehicle air bags. Patients with acute spinal fractures, including compression fractures, should not drive until the fracture has been stabilized and painful symptoms cease to interfere with control of the motor vehicle. (For paraplegia and quadriplegia, see Section 4.)
Loss of extremities	For patients who have lost one or more extremities, referral to a driver rehabilitation specialist is highly recommended. These specialists can prescribe vehicle adaptive devices and/or adaptations to limb prostheses and train the patient in their use. Note that the use of artificial limbs on vehicle foot pedals is unsafe because there is no sensory feedback (ie, pressure and proprioception). For these patients, specialized hand controls in place of pedals are required. Driving should be restricted until the patient demonstrates safe driving ability with the use of adaptive devices.
Muscle disorders	If the physician is concerned that the patient's symptoms compromise his/her driving safety, referral to a driver rehabilitation specialist for driver evaluation (including on-road assessment) is recommended. If needed, the specialist may prescribe vehicle adaptive devices and train the patient in their use.
Orthopedic procedures/surgeries	Physicians should counsel patients who undergo surgery—both inpatient and outpatient—not to drive themselves home. In addition to deficits in range of motion, motor strength, proprioception, and reaction time from the surgical procedure itself, the patient's driving skills may be affected by anesthesia, analgesics, and pain. In helping the patient make decisions about temporary driving restrictions, it is useful for the physician to ask whether the patient's car has power steering and automatic transmission, and whether the patient normally uses one or two feet in operating the foot pedals. As patients resume driving, they should be advised to assess their comfort level in familiar, traffic-free areas before driving in heavy traffic.
Amputation	See the recommendations for loss of extremities.
Anterior cruciate ligament (ACL) reconstruction	The patient should not drive for four weeks following right ACL reconstruction. If the patient drives a vehicle with manual transmission, he/she should not drive for four weeks following right or left ACL reconstruction.[38]
Limb fractures and treatment involving splints and casts	No restrictions if the fracture or splint/cast do not interfere with driving tasks. If the fracture or splint/cast interfere with driving tasks, the patient may resume driving after the fracture heals or the splint/cast is removed, upon demonstration of the necessary strength and range of motion.

	Physicians should counsel patients to wear their safety belts properly (over the shoulder, rather than under the arm) whenever they are in a vehicle as a driver or passenger. The patient should sit in the vehicle seat that best accomodates this need.
Rotator cuff repair—open or arthroscopic	The patient should not drive for four to six weeks following rotator cuff repair. If the patient's vehicle does not have power steering, the waiting period may be much longer. Physicians should counsel patients to wear their safety belts properly (over the shoulder, rather than under the arm) whenever they are in a vehicle as a driver or passenger. The patient should sit in the vehicle seat that best accomodates this need.
Shoulder reconstruction	The patient should not drive for four to six weeks following shoulder reconstruction. If the patient's vehicle does not have power steering, the waiting period may be longer. Physicians should counsel patients to wear their safety belts properly (over the shoulder, rather than under the arm) whenever they are in a vehicle as a driver or passenger. The patient should sit in the vehicle seat that best accomodates this need.
Total hip replacement	The patient should not drive for at least four weeks following right total hip replacement. If the patient drives a vehicle with manual transmission, he/she should not drive for at least four weeks following right or left total hip replacement. Physicians should counsel patients to take special care when transferring into vehicles and positioning themselves in bucket seats and/or low vehicles, either of which may result in hip flexion greater than 90 degrees. Physicians should also advise patients that reaction time may not return to baseline until eight weeks after the surgery, and that they should exercise extra caution while driving during this time.[39]
Total knee arthroplasty (TKA)	The patient should not drive for three to four weeks following right TKA. If the patient drives a vehicle with manual transmission, he/she should not drive for three to four weeks following right or left TKA.[40] The physician should also counsel patients that reaction time may not return to baseline until eight weeks after the surgery, and that they should exercise extra caution while driving during this time.[41]

Section 9:
Peripheral Vascular Diseases

1. Aortic aneurysm
2. Deep vein thrombosis (DVT)
3. Peripheral arterial aneurysm

Section 9: Peripheral Vascular Diseases

Aortic aneurysm	No restrictions to driving unless other disqualifying conditions are present. Individuals whose aneurysm appears to be at the stage of imminent rupture based on size, location, and/or recent change should not drive until the aneurysm has been repaired, if possible.
Deep vein thrombosis (DVT)	Patients with acute DVT may resume driving when their international normalized ratio (INR) is therapeutic or risk of embolism is otherwise appropriately treated, and they can demonstrate adequate ankle dorsiflexion. The physician should advise individuals with a history of DVT to take frequent 'mobilization breaks' when driving long distances.
Peripheral arterial aneurysm	No restrictions unless other disqualifying conditions are present. Patients whose aneurysm appears to be at the stage of imminent rupture based on size, location, and/or recent change should not drive until the aneurysm has been repaired, if possible.

Section 10: Renal Disease

1. Chronic renal failure
2. Renal transplant

Section 10: Renal Disease

Chronic renal failure	No restrictions unless the patient experiences symptoms that are incompatible with safe driving (eg, cognitive impairment, impaired psychomotor function, seizures, or extreme fatigue from anemia). If the physician is concerned that the patient's symptoms compromise his/her driving safety, referral to a driver rehabilitation specialist for a driver evaluation (including on-road assessment) is recommended. Many patients who require hemodialysis can drive without restriction. However, management of renal failure requires that the patient be compliant with substantial nutrition and fluid restrictions, frequent medical evaluations, and regular hemodialysis treatments. Patients with a history of noncompliance should be advised against driving. Furthermore, certain medications used to treat the side effects of hemodialysis (eg, diphenhydramine for dialysis-associated pruritis), may be substantially impairing and dialysis itself may result in hypotension, confusion, or agitation in many patients. These effects may require that patients avoid driving in the immediate post-dialysis period.
Renal transplant	Patients may resume driving four weeks following successful transplant on the recommendation of the physician.

Section 11: Respiratory Diseases

1. Asthma
2. Chronic obstructive pulmonary disease (COPD)
3. Sleep apnea

Section 11: Respiratory Diseases

Asthma	No restrictions. Patients should be counseled not to drive during acute asthma attacks or while suffering transient side effects (if any) from their asthma medications.
Chronic obstructive pulmonary disease (COPD)	No restrictions if symptoms are well-controlled and the patient does not experience any significant side effects from the condition or medications. The patient should not drive if he/she suffers dyspnea at rest or at the wheel (even with the use of supplemental oxygen), excessive fatigue, or significant cognitive impairment. If the patient requires supplemental oxygen to maintain a hemoglobin saturation of 90% or greater, he/she should be counseled to use the oxygen at all times while driving. Due to the often tenuous oxygenation status of these patients, they should also be counseled to avoid driving when they have other respiratory symptoms that may indicate concomitant illness or exacerbation of COPD (eg, new cough, increased sputum production, change in sputum color, or fever). Because COPD is often progressive, periodic reevaluation for symptoms and oxygenation status is recommended. If the physician is concerned that the patient's symptoms compromise his/her driving safety, referral to a driver rehabilitation specialist for a driver evaluation (including on-road assessment) is recommended. The patient's oxygen saturation may be measured during the course of the on-road assessment to provide additional information for patient management.
Sleep apnea	The patient may resume driving when he/she no longer suffers excessive daytime drowsiness. Physicians may consider using scoring tools such as the Epworth Sleepiness Scale[19] to assess the patient's level of daytime drowsiness, or brief cognitive tests to assess the patient's level of attention.

Section 12: Effects of Anesthesia and Surgery

1. Abdominal, back, and chest surgery
2. Anesthesia
   a. General
   b. Local
   c. Epidural
   d. Spinal
3. Neurosurgery
4. Orthopedic surgery

Physicians should be alert to peri- and post-operative risk factors that may affect the patient's cognitive function post-surgery, placing the patient at risk for impaired driving. Risk factors include:

- Pre-existing cognitive impairment
- Duration of surgery
- Age (over 60 years)
- Altered mental status post-surgery
- The presence of multiple co-morbidities
- Emergency surgery

If the physician is concerned that residual visual, cognitive, or motor deficits following the surgery may impair the patient's driving performance, referral to a driver rehabilitation specialist for a driver evaluation (including on-road assessment) is highly recommended.

Physicians should counsel patients who undergo surgery—both inpatient and outpatient—not to drive themselves home following the procedure. Although they may feel capable of driving, their driving skills may be affected by pain, physical restrictions, anesthesia, and/or analgesics. (For specific recommendations regarding musculoskeletal restrictions and narcotic analgesics, please see Sections 8 and 5, respectively.) Physicians should also remind patients to wear their safety belts properly (over the shoulder, rather than under the arm) and position themselves at least 10 inches from the vehicle airbags whenever they are in a vehicle as a driver or passenger. The patient should sit in the vehicle seat that is most likely to accommodate these needs.

In counseling patients about their return to driving after a surgical procedure, it is useful for the physician to ask whether the patient's car has power steering and automatic transmission. Physicians can tailor their driving advice accordingly.

As patients resume driving, they should be counseled to assess their comfort level in familiar, traffic-free areas before driving in heavy traffic. If the patient feels uncomfortable driving in certain situations, he/she should avoid these situations until his/her confidence level has returned. A patient should never resume driving until he/she feels ready to do so.

Section 12: Effects of Anesthesia and Surgery

Abdominal, back and chest surgery	The patient may resume driving after demonstrating the necessary strength and range of motion for driving. See Section 2 for recommendations on surgeries involving median sternotomy. See Section 10 for recommendations on renal transplant.
Anesthesia	Because anesthetic agents and adjunctive compounds (such as benzodiazepenes) may be administered in combination, the patient should not resume driving until the motor and cognitive effects from all anesthetic agents have subsided.
General	Both the surgeon and anesthesiologist should advise patients against driving for at least 24 hours after a general anesthetic has been administered. Longer periods of driving cessation may be recommended depending on the procedure performed and the presence of complications.
Local	If the anesthetized region is necessary for driving tasks, the patient should not drive until he/she has recovered full strength and sensation (barring pain).
Epidural	The patient may resume driving after recovering full strength and sensation (barring pain) in the affected areas.

Spinal	The patient may resume driving after recovering full strength and sensation (barring pain) in the affected areas.
Neurosurgery	See recommendations for post intracranial surgery in Section 3.
Orthopedic surgery	See recommendations for orthopedic procedures/surgeries in Section 8.

Section 13:
Miscellaneous Conditions

1. Cancer
2. Hearing loss

Section 13: Miscellaneous Conditions

Cancer	Patients who experience significant motor weakness or cognitive impairments from the cancer itself, metastases, cachexia, anemia, radiation therapy, and/or chemotherapy should cease driving until their condition improves and stabilizes. Many medications prescribed to relieve the side effects of treatment (eg, antiemetics for treatment of nausea) may impair driving performance. Physicians should counsel their patients accordingly. (See Section 5 for recommendations on specific medications.)
Hearing loss	No restrictions. There are relatively few studies that have examined the relationship between hearing impairment and risk of motor vehicle crash. Of these studies, none have demonstrated a significant relationship between hearing impairment and risk of crash.[4]

References

1 Shinar D, Schieber F. Visual requirements for safety and mobility of older drivers. *Human Factors.* 1991;33(5):507-519.

2 American Academy of Ophthalmology. Policy statement: Vision requirements for driving. Approved by Board of Trustees, October 2001. Available at: http//www.aao.org/aao/member/policy/driving.cfm. Accessed January 9, 2003.

3 Peli E, Peli D. *Driving With Confidence: A Practical Guide to Driving with Low Vision.* Singapore: World Scientific Publishing Co. Pte. Ltd.; 2002:100-101.

4 Dobbs BM. *Medical Conditions and Driving: A Review of the Scientific Literature.* Washington, DC: National Highway Traffic Safety Administration; 2003.

5 Vingrys AJ, Cole BL. Are color vision standards justified in the transport industry? *Ophthalmic and Physiological Optics.* 1998;8(3):257-274.

6 Petch MC. European Society of Cardiology Task Force Report: Driving and heart disease. *European Heart Journal.* 1998;19(8):1165-1177.

7 Binns H, Camm J. Driving and arrhythmias. *British Medical Journal.* 2002;324:927-928.

8 Epstein AI, Miles WM, Benditt DG, et al. Personal and public safety issues related to arrhythmias that may affect consciousness: implications for regulation and physician recommendations. *Circulation.* 1996;94:1147-1166.

9 Canadian Cardiovascular Society Consensus Conference. Assessment of the cardiac patient for fitness to drive. *Canadian Journal of Cardiology.* 1992;8:406-412.

10 Wilson T, Smith T. Driving after stroke. *International Rehabilitation Medicine.* 1983;5(4):170-177.

11 Syncope. In: Beers MH, Berkow R (eds.). *The Merck Manual of Diagnosis and Therapy,* 17th ed. Merck and Co., Inc., 1999. Available at: http://www.merck.com/pubs/mmanual/ section16/chapter200/200b.htm Accessed January 9, 2003.

12 North American Society of Pacing and Electrophysiology/American Heart Association. Personal and public safety issues related to arrhythmias that may affect consciousness: Implications for regulation and physician recommendations (Part 3 of 4). September 1, 1996. Available at: http://naspe.org/naspe_in_action/position_statements/view/?id=8505. Accessed January 9, 2003.

13 Valcour VG, Masaki KH, Curb JD, Blanchette PL. The detection of dementia in the primary care setting. *Archives of Internal Medicine.* 2000;160:2964-2968.

14 Alzheimer's Association. Position statement: Driving. Adopted by the Alzheimer's Association Board of Directors, October 2001. Available at: http://www.alz.org/aboutus/positionstatements/overview.htm. Accessed January 9, 2003.

15 Patterson CJS, Gauthier S, Bergman H, et al. The recognition, assessment and management of denenting disorders: conclusions from the Canadian Consensus Conference on Dementia. *Canadian Medical Association Journal.* 1999;160(12suppl):S1-S15.

16 Carr DB, Duchek J, Morris JC. Characteristics of motor vehicle crashes with dementia of the Alzheimer type. *Journal of the American Geriatrics Society.* 2000;48(1):18-22.

17 Zesiewicz TA, Cimino CR, Malek AR, et al. Driving safety in Parkinson's disease. *Neurology.* 2002;59:1787-1788.

18 American Academy of Neurology, American Epilepsy Society, and Epilepsy Foundation of America. Consensus statements, sample statutory provisions, and model regulations regarding driver licensing and epilepsy. *Epilepsia.* 1994;35(3):696-705.

19 Johns MW. A new method for measuring daytime sleepiness: the Epworth Sleepiness Scale. *Sleep.* 1991;14:540-545.

20 Mattila M. Acute and subacute effects of diazepam on human performance: Comparison of plain tablet and controlled release capsule. *Pharmacology and Toxicology.* 1988;63(5):369-374.

21 Roache JD, Griffiths RR. Comparison of triazolam and pentobarbital: performance impairment, subjective effects and abuse liability. *Journal of Pharmacology and Experimental Therapeutics.* 1985;234(1):120-133.

22 Aranko K, Mattila MJ, Bordignon D. Psychomotor effects of alprazolam and diazepam during acute and subacute treatment, and during the follow-up phase. *Acta Pharmacologica et Toxicologica.* 1985;56(5):364-372.

23 Weiler JM, Bloomfield JR, Woodworth GG, et al. Effects of fexofenadine, diphenhydramine, and alcohol on driving performance: A randomized placebo-controlled trial in the Iowa driving simulator. *Annals of Internal Medicine.* 2000;132(5):354-363.

24 Ray WA, Purushottam BT, Shorr RI. Medications and the older driver. *Clinics in Geriatric Medicine.* 1993;9(2):413-438.

25 Vermeeren A, Danlou PE, O'Hanlon JF. Residual effects of zaleplon 10 and 20 mg on memory and actual driving performance following administration 5 and 2 hours before awakening. *British Journal of Clinical Pharmacology.* 1999;48:367-374.

26 Vermeeren A, Muntjewerff ND, van Boxtel M, et al. Residual effects of zaleplon and zopiclone versus the effects of alcohol on actual car driving performance [abstract]. *European Neuropsychopharmacology.* 2000;10(suppl 3):S394.

27 Volkerts ER, Verster JC, Heuckelem JHG, et al. The impact on car-driving performance of zaleplon and zolpiden administration during the night [abstract]. *European Neuropsychopharmacology*. 2000;10(suppl 3):S395.

28 Ray WA, Gurwitz J, Decker MD, Kennedy DL. Medications and the safety of the older driver: Is there a basis for concern? *Human Factors.* 1992;34(1):33-47.

29 American Psychiatric Association. Position statement on the role of psychiatrists in assessing driving ability. Approved by the Board of Trustees, December 1993. Available at: http://www.psych.org/pract_of_psych/driving_pstate.cfm. Accessed January 9, 2003.

30 Mayfield D, McLeod G, Hall P. The CAGE questionnaire: Validation of a new alcoholism instrument. *American Journal of Psychiatry.* 1974;131:1121-1123.

31 Selzer ML. The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry.* 1971;127:1653-1658.

32 Russell M, Martier SS, Sokol RJ, Jacobson S, Jacobson J, Bottoms S. Screening for pregnancy risk drinking: TWEAKING the tests. *Alcoholism: Clinical and Experimental Research.* 1991;15(2):638.

33 Babor TF, de la Fuente JR, Saunders JB, Grant M. AUDIT: The alcohol use disorders identification test: Guidelines for use in primary health care. Geneva, Switzerland: World Health Organization; 1992.

34 Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the alcohol use disorders screening test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. II. *Addiction.* 1993;88:791-804.

35 Nada-Raja S, Langley JD, McGee R, Williams SM, Begg DJ, Reeder AI. Inattentive and hyperactive behaviors and driving offenses in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry.* 1997;36(4):515-522.

36 Barkley RA, Guevremont DC, Anastopoulos AD, DuPaul GJ, Shelton TL. Driving-related risks and outcomes of attention deficit hyperactivity disorder in adolescents and young adults: A 3-5 year follow-up survey. *Pediatrics.* 1993;92:212-218.

37 Woodward LJ, Fergusson DM, Horwood LJ. Driving outcomes of young people with attentional difficulties in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2000;39(5):627-634.

38 Gotlin RS, Sherman AL, Sierra N, Kelly MA, Pappas Z, Scott WN. Measurement of brake response time after right anterior cruciate ligament reconstruction. *Archives of Physical Medicine and Rehabilitation.* 2000;81(2):201-204.

39 MacDonald W, Owen JW. The effect of total hip replacement on driving reactions. *Journal of Bone and Joint Surgery.* 70B(2):202-205, 1988.

40 Pierson JL, Ramsey J, Clayton RT, Stippich KT. TKA improves drivers' brake reaction time. *The American Academy of Orthopaedic Surgeons: Academy News.* February 7, 1999.

41 Spalding TJ, Kiss J, Kyberd P, Turner-Smith A, Simpson AH. Driver reaction times after total knee replacement. *Journal of Bone and Joint Surgery. British Volume.* 1994;76(5):754-756.

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 posible.

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,[1-3] 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[1]—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.[4]

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[5] and the useful field of view test[6]) 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[8]) 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,[9] 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.[7] 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.[10] 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.[11] In addition, prominent analog gauges may be easier to see and interpret than small digital devices.[12]

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[18])

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.[13] 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.[14]

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.[15] 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.[16] 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.[17]

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.[18] 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).[18] 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

1 Staplin L, Lococo K, Gish K, Decina L. *Model Driver Screening and Evaluation Program Final Technical Report, Volume 2: Maryland Pilot Older Driver Study.* Washington, DC: National Highway Traffic Safety Administration. In press.

2 Stutts JC, Stewart JR, Martell C. Cognitive test performance and crash risk in an older driver population. *Accident Analysis and Prevention.* 1998;30:337-346.

3 Tarawneh MS, McCoy PT, Bishu RR, Ballard JL. Factors associated with driving performance of older drivers. *Transportation Research Record.* 1993;1405:64-71.

4 Freund B, Gravenstein S, Ferris R. Evaluating driving performance of cognitively impaired and healthy older adults: A pilot study comparing on-road testing and driving simulation [letter to the editor]. *Journal of the American Geriatrics Society.* 2002;50:1309.

5 Owsley C, Stalvey BT, Wells J, Sloane ME, McGwin G. Visual risk factors for crash involvement in older drivers with cataract. *Archives of Ophthalmology.* 2001;119:881-887.

6 Owsley C, Ball K, McGwin G, et al. Visual processing impairment and risk of motor vehicle crash among older adults. *Journal of the American Medical Association.* 1998;279:1083-1088.

7 Janke MK, Eberhard JW. Assessing medically impaired older drivers in a licensing agency setting. *Accident Analysis and Prevention.* 1998;30:347-361.

8 Marshall SC and Van Walraven C. Restricted driver licensing for medical imparments: Does it work? *Canadian Medical Association Journal.* 2002;167:747-751.

9 Cable G, Reisner M, Gerges S, Thirumavalavan V. Knowledge, attitudes, and practices of geriatricians regarding patients with dementia who are potentially dangerous automobile drivers: A national survey. *Journal of the American Geriatrics Society.* 2000;48:14-17.

10 Raleigh R, Janke M. The role of the medical advisory board in DMVs: Protecting the safety of older adult drivers. *Maximizing Human Potential: Newsletter of the Network on Environments, Services and Technologies for Maximizing Independence.* 2001;9(2):4-5.

11 Schieber F. High-priority research and development needs for maintaining the safety and mobility of older drivers. *Experimental Aging Research.* 1994;20:35-43.

12 Koonce JM, Gold M, Moroze M. Comparison of novice and experienced pilots using analog and digital flight displays. *Aviation Space and Environmental Medicine.* 1986;57 (12 pt. 1):1181-1184.

13 Vehicle design. In: *Ageing and Transport: Mobility Needs and Safety Issues.* Paris, France: Organisation for Economic Co-Operation and Development; 2001:69-80.

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.

15 Iowa Safety Management System: Safe Mobility Decisions for Older Drivers Forum; June 19-20, 2002; Ames, IA. *The Forum Outlined.* Available at: http//www.iowasms.org/olderdrivers.htm. Accessed January 15, 2003.

16 Staplin L, Lococo K, Byington S, Harkey D. *Highway Design Handbook for Older Drivers and Pedestrians.* Washington, DC: Federal Highway Administration; 2001.

17 Infastructure. In: *Ageing and Transport: Mobility Needs and Safety Issues.* Paris, France: Organisation for Economic Co-Operation and Development; 2001:57-67.

18 Beverly Foundation. *Supplemental Transportation Programs for Seniors.* Washington, DC: AAA Foundation for Traffic Safety; 2001.

Appendix A

CPT® Codes

The following Current Procedural Terminology (CPT®) codes can be used for driver assessment and counseling, when applicable. These codes were taken from *Current Procedural Terminology (CPT®).* 4th ed., Professional ed. Chicago, IL: American Medical Association; 2003.

When selecting the appropriate CPT® codes for driver assessment and counseling, first determine the primary reason for your patient's office visit, as you would normally. The services described in this Guide will most often fall under Evaluation and Management (E/M) services. Next, select the appropriate E/M category/subcategory. If you choose to apply codes from the Preventive Medicine Services category, consult Table 1 for the appropriate codes. If any additional services are provided over and above the E/M services, codes from Table 2 may be additionally reported.

Table 1: Evaluation and Management—Preventive Medicine Services

If the primary reason for your patient's visit falls under the E/M category of Preventive Medicine Services, choose one of the following codes:

99386 40-64 years **99387** 65 years and older	**New Patient, Initial Comprehensive Preventive Medicine** Evaluation and management of an individual including an age and gender appropriate history, examination, counseling/anticipatory guidance/risk factor reduction interventions, and the ordering of appropriate immunizations(s), laboratory/diagnostic procedures. *These codes can be used for a complete Preventive Medicine history and physical exam for a new patient (or one who has not been seen in three or more years), which may include assessment and counseling on driver safety. If significant driver assessment and counseling take place during the office visit, Modifier-25 may be added to the codes above.*
99396 40-64 years **99397** 65 years and older	**Established Patient, Periodic Comprehensive Preventive Medicine** Reevaluation and management of an individual including an age and gender appropriate history, examination, counseling/anticipatory guidance/risk factor reduction interventions, and the ordering of appropriate immunization(s), laboratory/diagnostic procedures. *Codes from the Preventative Medicine Services 99386-99387 and 99396-99397 can only be reported once per year. If driver assessment and counseling take place during the office visit, Modifier-25 may be added to the codes above.*

Modifier-25 is appended to the office/outpatient service code to indicate that a significant, separately identifiable E/M service was provided by the same physician on the same day as the preventive medicine service.

99401 Approximately 15 minutes **99402** Approximately 30 minutes **99403** Approximately 45 minutes **99404** Approximately 60 minutes	**Counseling and/or Risk Factor Reduction Intervention** Preventive medicine counseling and risk factor reduction interventions provided as a separate encounter will vary with age and should address such issues as family problems, diet and exercise, substance abuse, sexual practices, injury prevention, dental health, and diagnostic and laboratory test results available at the time of the encounter. (These codes are not to be used to report counseling and risk factor reduction interventions provided to patients with symptoms or established illness.) These are time-based codes, to be reported based upon the amount of time spent counseling the patient. *Driver safety or driving retirement counseling fall under the category of injury prevention. Please note that for driving retirement counseling, a copy of the follow-up letter to your patient can be included in the patient's chart as additional documentation. A sample letter can be found in Chapter 6.*

Table 2: Additional Codes

The codes below can be used for administration of ADReS (see Chapter 3). If you complete the entire assessment, you can include codes 99420, 95831 and either 99172 or 99173. The ADReS Score Sheet can serve as the report.

99420	**Administration and Interpretation of Health Risk Assessment Instrument**
95831	**Muscle and Range of Motion Testing** Muscle testing, manual (separate procedure)with report; extremity (excluding hand) or trunk.
99172	**Visual Function Screening** Automated or semi-automated bilateral quantitative determination of visual acuity, ocular alignment, color vision by pseudoisochromatic plates, and field of vision (may include all or some screening of the determination(s) for contrast sensitivity, vision under glare).
99173	**Screening Test of Visual Acuity, quantitative, bilateral** The screening used must employ graduated visual acuity stimuli that allow a quantitative estimate of visual acuity (eg, Snellen chart).

Appendix B

Patient and Caregiver Educational Materials

Patient, Family and Caregiver Resource Sheets

The materials in Appendix B are handouts for patients, their family members and caregivers. We encourage physicians to make copies of these handouts and use them when discussing driving issues.

These handouts were designed to be user-friendly and simple to read. All patient education materials were written at or below a 6th grade reading level, and all family and caregiver materials were written at a 7th grade reading level.

Listed below are additional resources and references for the materials in this Appendix:

At the Crossroads—A Guide to Alzheimer's Disease, Dementia and Driving. Hartford, CT: The Hartford; 2000.

Creating Mobility Choices: The Older Driver Skill Assessment and Resource Guide. Washington, DC: American Association of Retired Persons; 1998.

Drivers 55 Plus: Check Your Own Performance. Washington, DC: AAA Foundation for Traffic Safety; 1994.

Driving Safely as You Get Older: A Personal Guide. Harrisburg, PA: Pennsylvania Department of Transportaion; 1999.

Driving Safely While Aging Gracefully. Washington, DC: USAA Educational Foundation; 1999.

Family Conversations that Help Parents Stay Independent. Washington, DC: American Association of Retired Persons; 2001.

How to Help an Older Driver: A Guide for Planning Safe Transportation. Washington, DC: AAA Foundation for Traffic Safety; 2000.

LePore PR. *When You Are Concerned—A handbook for families, friends and caregivers worried about the safety of an aging driver.* Albany, NY: New York State Office for the Aging; 2000.

Older drivers on the go: Making decisions they can live with. *UMTRI Research Review*. 2001;32:1-5.

Family and Friends Concerned About an Older Driver. Washington, DC: National Highway Traffic Safety Administration; 2001.

Am I a Safe Driver?

Check the box if the statement applies to you.

- o I get lost while driving.
- o My friends and family members say they are worried about my driving.
- o Other cars seem to appear out of nowhere.
- o I have trouble seeing signs in time to respond to them.
- o Other drivers drive too fast.
- o Other drivers often honk at me.
- o Driving stresses me out.
- o After driving, I feel tired.
- o I have had more "near misses" lately.
- o Busy intersections bother me.
- o Left-hand turns make me nervous.
- o The glare from oncoming headlights bothers me.
- o My medication makes me dizzy or drowsy.
- o I have trouble turning the steering wheel.
- o I have trouble pushing down on the gas pedal or brakes.
- o I have trouble looking over my shoulder when I back up.
- o I have been stopped by the police for my driving recently.
- o People will no longer accept rides from me.
- o I don't like to drive at night.
- o I have more trouble parking lately.

If you have checked any of the boxes, your safety may be at risk when you drive. Talk to your doctor about ways to improve your safety when you drive.

Successful Aging Tips

Tip #1: Take care of your health.

Visit your doctor regularly. Ask about tests and immunizations that are right for your age group.

Eat a healthy diet. Your diet should be low in fat and high in fiber.

- Eat plenty of vegetables, fruits, beans and whole grains.
- Eat low fat proteins in the form of lean red meat, poultry and fish.
- Get enough calcium by drinking low fat milk and eating low fat yogurt and cheese.
- Eat a variety of foods to get enough vitamins and minerals in your diet.
- Drink lots of water.

Exercise to stay fit. Be active every day at your own level of comfort.

- Walk, dance, or swim to improve your endurance.
- Work out with weights to increase your strength.
- Stretch to maintain your flexibility.

Don't drink too much alcohol. People over the age of 65 should try not to have more than one drink per day. (A drink is one glass of wine, one bottle of beer, or one shot of liquor.) And remember: never drink alcohol with your medicines!

Don't use tobacco in any form. This means cigarettes, cigars, pipes, chew or snuff. If you need help quitting, talk to your doctor.

Tip #2: Keep yourself safe.

Make your home a safe place.

- Keep your home, walkways and stairways well-lit and uncluttered.
- Keep a fire extinguisher and smoke detectors in your home. Make sure the batteries in your smoke detectors work.
- Adjust the thermostat on your hot water tank so that you don't burn yourself with hot water.

Prevent falls.

- Make sure all throw rugs have non-slip backs so they don't throw you!
- Slip-proof your bathtub with a rubber mat.

Stay safe in the car.

- Wear your safety belt—and wear it correctly. (It should go over your shoulder and across your lap.)
- Never drink and drive!
- Don't drive when you are angry, upset, sleepy or ill.
- If you have concerns about your driving safety, talk to your doctor.

(over)

Tip #3: Take care of your emotional health.

Keep in touch with family and friends. It's important to maintain your social life!

Exercise your mind. Keep your mind active by reading books, doing crossword puzzles, and taking classes.

Stay involved. Join community activities or volunteer projects. Somebody needs what you can offer!

Keep a positive attitude!

- Focus on the good things in your life, and don't dwell on the bad.
- Do the things that make you happy.
- If you've been feeling sad lately or no longer enjoy the things you used to, ask your doctor for help.

Tip #4: Plan for your future.

Keep track of your money. Even if someone else is helping you manage your bank accounts and investments, stay informed.

Know your own health. This is important for receiving good medical care.

- Know what medical conditions you have.
- Know the names of your medicines and how to take them.
- Make a list of your medical conditions, medicines, drug allergies (if any), and the names of your doctors. Keep this list in your wallet.

Make your health care wishes known to your family and doctors.

- Consider filling out an advance directives form. This form lets you state your health care choices or name someone to make these choices for you.
- Give your family and doctors a copy. This way, they have a written record of your choices in case you are unable to tell them yourself.
- If you need help with your advance directives, talk to your doctor.

Create a transportation plan. If you don't drive, know how to get around.

- Ask family and friends if they would be willing to give you a ride.
- Find out about buses, trains, and shuttles in your area.
- If you need help finding a ride, contact your local Area Agency on Aging.

Tips for Safe Driving

Tip #1: Drive with care.

Always—

- Plan your trips ahead of time. Decide what time to leave and which roads to take. Try to avoid heavy traffic, poor weather and high-speed areas.
- Wear your safety belt—and wear it correctly. (It should go over your shoulder and across your lap.)
- Drive at the speed limit. It's unsafe to drive too fast or too slow.
- Be alert! Pay attention to traffic at all times.
- Keep enough distance between you and the car in front of you.
- Be extra careful at intersections. Use your turn signals and remember to look around you for people and other cars.
- Check your blind spot when changing lanes or backing up.
- Be extra careful at train tracks. Remember to look both ways for trains.
- When you take a new medicine, ask your doctor or pharmacist about side effects. Many medicines may affect your driving even when you feel fine. If your medicine makes you dizzy or drowsy, talk to your doctor to find out ways to take your medicine so it doesn't affect your driving.

Never—

- Never drink and drive.
- Never drive when you feel angry or tired. If you start to feel tired, stop your car somewhere safe. Take a break until you feel more alert.
- Never eat, drink or use a cell phone while driving.

If—

- If you don't see well in the dark, try not to drive at night or during storms.
- If you have trouble making left turns at an intersection, make three right turns instead of one left turn.
- If you can, avoid driving in bad weather, such as during rain, sleet or snow.

Tip #2: Take care of your car.

- Make sure you have plenty of gas in your car.
- Have your car tuned up regularly.
- Keep your windshields and mirrors clean.
- Keep a cloth in your car for cleaning windows.
- Replace your windshield wiper blades when they become worn out.
- Consider using Rain-X® or a similar product to keep your windows clear.
- If you are shopping for a new car, look for a car with power steering and automatic transmission.

(over)

Tip #3: Know where you can find a ride.

How do you get around when your car is in the shop? If you don't know the answer to this question, it's time for you to put together a "transportation plan."

A transportation plan is a list of all the ways that you can get around. Use this list when your car is in the shop or when you don't feel safe driving. Your transportation plan might include:

- Rides from friends and family
- Taxi
- Bus or train
- Senior shuttle

If you need help creating a transportation plan, your doctor can get you started.

Tip #4: Take a driver safety class.

To learn how to drive more safely, try taking a class. In a driver safety class, the instructor teaches you skills that you can use when you are driving. To find a class near you, call one of the following programs:

AARP 55 ALIVE Driver Safety Program
1 888 227-7669

AAA Safe Driving for Mature Operators Program
Call your local AAA club to find a class near you.

National Safety Council Defensive Driving Course
1 800 621-7619

Driving School Association of the Americas, Inc.
1 800 270-3722

These classes usually last several hours. They don't cost much—some are even free. As an added bonus, you might receive a discount on your auto insurance after taking one of these classes. Talk to your insurance company to see if it offers a discount.

How to Help the Older Driver

As experienced drivers grow older, changes in their vision, attention and physical abilities may cause them to drive less safely than they used to. Sometimes these changes happen so slowly that the drivers are not even aware that their driving safety is at risk.

If you have questions about a loved one's driving safety, here's what you can do to help him or her stay safe AND mobile.

Is your loved one a safe driver?

If you have the chance, go for a ride with your loved one. Look for the following warning signs in his or her driving:

- Forgets to buckle up
- Does not obey stop signs or traffic lights
- Fails to yield the right of way
- Drives too slowly or too quickly
- Often gets lost, even on familiar routes
- Stops at a green light or at the wrong time
- Doesn't seem to notice other cars, walkers, or bike riders on the road
- Doesn't stay in his or her lane
- Is honked at or passed often
- Reacts slowly to driving situations
- Makes poor driving decisions

Other signs of unsafe driving include:

- Recent near misses or fender benders
- Recent tickets for moving violations
- Comments from passengers about close calls, near misses, or the driver not seeing other vehicles
- Recent increase in the car insurance premium

Riding with or following this person every once in a while is one way to keep track of his or her driving. Another way is to talk to this person's spouse or friends.

If you are concerned about your loved one's driving, what can you do?

Talk to your loved one. Say that you are concerned about his or her driving safety. Does he or she share your concern?

- Don't bring up your concerns in the car. It's dangerous to distract the driver! Wait until you have his or her full attention.
- Explain why you are concerned. Give specific reasons—for example, recent fender benders, getting lost, or running stop signs.
- Realize that your loved one may become upset or defensive. After all, driving is important for independence and self-esteem.
- If your loved one doesn't want to talk about driving at this time, bring it up again later. Your continued concern and support may help him or her feel more comfortable with this topic.
- Be a good listener. Take your loved one's concerns seriously.

(over)

Help make plans for transportation. When your loved one is ready to talk about his or her driving safety, you can work together to create plans for future safety.

- Make a formal agreement about driving. In this agreement, your loved one chooses a person to tell him or her when it is no longer safe to drive. This person then agrees to help your loved one make the transition to driving retirement. You can find a sample agreement in *At the Crossroads: A Guide to Alzheimer's Disease, Dementia & Driving.* Order a free copy by writing to: At the Crossroads Booklet, The Hartford, 200 Executive Boulevard, Southington, CT 06489.

- Help create a transportation plan (see the next column). Your loved one may rely less on driving if he or she has other ways to get around.

Encourage a visit to the doctor. The doctor can check your loved one's medical history, list of medicines, and current health to see if any of these may be affecting his or her driving safety. The doctor can also provide treatment to help improve driving safety.

Encourage your loved one to take a driving test. A driver rehabilitation specialist (DRS) can assess your loved one's driving safety through an office exam and driving test. The DRS can also teach special techniques or suggest special equipment to help him or her drive more safely. (To find a DRS in your area, ask your doctor for a referral or contact the Association for Driver Rehabilitation Specialists (ADED). Contact information for ADED is listed on the following page.) If a DRS is not available in your area, contact a local driving school or your state's Department of Motor Vehicles to see if they can do a driving test.

How to help when your loved one retires from driving.

At some point, your loved one may need to stop driving for his or her own safety and the safety of others on the road. You and your loved one may come to this decision yourselves, or at the recommendation of the doctor, driver rehabilitation specialist, driving instructor, or Department of Motor Vehicles. When someone close to you retires from driving, there are several things you can do to make this easier for him or her:

Create a transportation plan. It's often easier for people to give up driving if they have other ways to get around. Help your loved one create a list of "tried-and-true" ride options. This list can include:

- The names and phone numbers of friends and relatives who are willing to give rides, with the days and times they are available.

- The phone number of a local cab company.

- Which bus or train to take to get to a specific place. Try riding with your loved one the first time to help him or her feel more comfortable.

- The phone number for a shuttle service. Call the community center and regional transit authority to see if they offer a door-to-door shuttle service for older passengers.

- The names and phone numbers of volunteer drivers. Call the community center, church, or synagogue to see if they have a volunteer driver program.

- If you need help finding other ride options, contact the Area Agency on Aging. (The contact information is on the next page.)

If your loved one can't go shopping, help him or her shop from home. Arrange for medicines and groceries to be delivered. Explore on-line ordering or subscribe to catalogs and "go shopping" at home. See which services make house calls—local hairdressers or barbers may be able to stop by for a home visit.

Encourage social activities. Visits with friends, time spent at the senior center, and volunteer work are important for one's health and well-being. When creating a transportation plan, don't forget to include rides to social activities. It's especially important for your loved one to maintain social ties and keep spirits high during this time of adjustment.

Be there for your loved one. Let your loved one know that he or she has your support. Offer help willingly and be a good listener. This is an emotionally difficult time, and it's important to show that you care.

Where can I get more help?

Contact the following organizations if you need more help assessing your loved one's driving safety or creating a transpotation plan.

American Automobile Association (AAA) Foundation for Traffic Safety
1 800 993-7222
www.aaafoundation.org
Call the toll-free number or visit the Web site to order free booklets on how to help an older driver.

American Association of Retired Persons (AARP)
55 ALIVE Driver Safety Program
1 888 227-7669
www.aarp.org/drive
Visit the Web site to find safe driving tips, information on aging and driving, and details about the 55 ALIVE Driver Safety Program—a classroom course for drivers age 50 and older. In this course, participants review driving skills and learn tips to help them drive more safely. Call the toll-free number or visit the Web site above to find a class in your loved one's area.

Area Agency on Aging (AAA)
Eldercare Locator: 1 800 677-1116
www.aoa.gov
The local Area Agency on Aging can connect your loved one to services in the area, including ride programs, Meals-on-Wheels, home health services, and more. Call the Eldercare Locator or visit the Web site above to find the phone number for your loved one's local Area Agency on Aging.

Association for Driver Rehabilitation Specialists (ADED)
1 800 290-2344
www.driver-ed.org or *www.aded.net*
Call the toll-free number or visit the Web site to find a driver rehabilitation specialist in your loved one's area.

Easter Seals
1 312 726-7200
Easter Seals' *Caregiver Transportation Toolkit* includes a video, booklet, and list of helpful products and resources for family caregivers and volunteer drivers. To order the toolkit, call the number above or write to: Easter Seals National Headquarters, 230 Monroe Street, Suite 1800, Chicago, IL 60606.

National Association of Private Geriatric Care Managers (NAPGCM)
1 520 881-8008
www.caremanager.org
A geriatric care manager can help older persons and their families arrange long-term care, including transportation services. Call the phone number or visit the Web site above to find a geriatric care manager in your loved one's area.

National Association of Social Workers (NASW)
www.socialworkers.org
A social worker can counsel your loved one, assess social and emotional needs, and assist in locating and coordinating transportation and community services. To find a qualified clinical social worker in your loved one's area, search the NASW Register of Clinical Social Workers. (To access this directory on the Web site, click on 'Resources' at the top of the page.)

Getting By Without Driving

Who doesn't drive?

If you don't drive, you're in good company. Many people stop driving because of the hassle and expense of auto insurance, car maintenance, and gasoline. Other people stop driving because they feel unsafe on the road. Some people never learned how to drive in the first place!

Although most Americans use their cars to get around, many people get by just fine without one. In this sheet, we suggest ways to get by without driving.

Where can you find a ride?

Here are some ways to get a ride. See which ones work best for you.

- Ask a friend or relative for a ride. Offer to pay for the gasoline.
- Take public transportation. Can a train or bus take you where you need to go? Call your regional transit authority and ask for directions.
- Take a taxi cab. To cut down on costs, try sharing a cab with friends. Also, find out if your community offers discounted fares for seniors.
- Ride a Senior Transit Shuttle. Call your community center or local Area Agency on Aging (AAA) to see if your neighborhood has a shuttle service. (Contact information for the AAA is on the next page.)
- Ask about volunteer drivers. Call your community center, church or synagogue to see if they have a volunteer driver program.
- Ride a Medi-car. If you need a ride to your doctor's office, call your local Area Agency on Aging to see if a Medi-car can take you there. (Contact information for the AAA is on the next page.)

If you can't go out to get something, have it come to you.

Many stores will deliver their products straight to your door.

- Have your groceries delivered. Many stores deliver for free or for a low fee. You can also ask your family, friends or volunteers from your local community center, church or synagogue, if they can pick up your groceries for you.
- Order your medicines by mail. Not only is this more convenient—it's often less expensive, too. Order only from pharmacies that you know and trust.
- Have your meals delivered to you. Many restaurants will deliver meals for free or for a low fee. Also, you may be eligible for Meals-on-Wheels, a program that delivers hot meals at a low cost. Call your local Area Agency on Aging for more information about Meals-on-Wheels. (Contact information for the AAA is on the next page.)
- Shop from catalogs. You can buy almost everything you need from catalogs: clothing, pet food, toiletries, gifts, and more! Many catalogs are now also available on the Internet.

(over)

Where can you find more information about services in your area?

The following agencies can provide you with information to get you started:

Area Agency on Aging (AAA)
Eldercare Locator
1 800 677-1116
Call this toll-free number and ask for the phone number of your local Area Agency on Aging (AAA). Your local AAA can tell you more about ride options, Meals-on-Wheels, and senior recreation centers in your area.

National Institute on Aging (NIA)
Resource Directory for Older People
1 800 222-2225
Call this toll-free number and ask the National Institute on Aging (NIA) to send you their Resource Directory for Older People. This 111 page directory lists organizations that provide services for older people.

Put it all together.

Fill out the table below with names and phone numbers of services in your area. Keep this information handy by placing it next to your phone or posting it on your refrigerator.

Service	Phone Number	Cost

Appendix C

Continuing Medical Education Questionnaire and Evaluation

Physician's Guide to Assessing and Counseling Older Drivers

CME Questionnaire

The *Physician's Guide to Assessing and Counseling Older Drivers* contains the correct answers to the following questions. Circle your answer to each question.

1. Compared to drivers age 25 to 69, older drivers experience—

a. A higher fatality rate in motor vehicle crashes

b. A higher fatality rate per vehicle mile driven

c. A higher crash rate per vehicle mile driven

d. All of the above

2. The majority of older Americans do not rely on driving as their primary form of transportation.

a. True b. False

3. Compared to younger drivers, older drivers are more likely to wear seatbelts and are less likely to drive at night, speed, tailgate, and consume alcohol prior to driving.

a. True b. False

4. Medications that have the potential to impair driving ability include—

a. Anticonvulsants

b. Antidepressants

c. Antihypertensives

d. a and b only

e. All of the above

5. Aspects of vision that are important for safe driving include—

a. Visual acuity

b. Visual fields

c. Contrast sensitivity

d. a and b only

e. All of the above

6. Match the cognitive skill to the appropriate driving situation:

___ Memory — a. Applying the brake at a green light because a child runs into the path of your vehicle.

___ Visuospatial skills — b. Listening to the traffic report on the radio while keeping an eye on the road.

___ Divided attention — c. Recalling that a particular street is a one-way street.

___ Executive skills — d. Determining the distance from your car to the stop sign.

7. Research has demonstrated that drivers with 20/70 visual acuity have a significantly greater crash risk than drivers with 20/40 visual acuity.

a. True b. False

8. All of the following are important for viewing the driving environment EXCEPT—

a. Visual acuity

b. Visual fields

c. Memory

d. Neck rotation

9. A Driver Rehabilitation Specialist (DRS) can—

a. Revoke a client's driver's license for poor performance on a clinical exam

b. Evaluate a client's driving skills through an on-road assessment

c. Assess the client's vehicle and recommend adaptive equipment to enhance the client's comfort and driving safety

d. b and c only

e. All of the above

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10. Driving cessation has been associated with an increase in depressive symptoms in the elderly.

a. True b. False

11. Which of the following is NOT recommended as an initial technique to help your patients retire from driving?

a. With the patient's permission, involve family members and caregivers.

b. Explain to the patient why you have recommended that he/she retire from driving.

c. Provide your patient with information on alternatives to driving.

d. Tell the patient's relatives to hide the car keys.

12. 'Physicians are required to report patients with dementia to their state Department of Motor Vehicles' is an example of—

a. A mandatory medical reporting law

b. A physician reporting law

c. Physician liability

d. None of the above

13. Physician-patient privilege can be used to prevent physicians from abiding by their state's physician reporting laws.

a. True b. False

14. All states protect the identity of the individual who reports an 'unsafe' driver to the DMV.

a. True b. False

15. Key functions that are important for safe driving include—

a. Vision d. a and b only

b. Cognition e. All of the above

c. Motor function

Please print and include all information requested.

Name and title _____

Address _____

City _____ State_____ Zip _____

Phone ( ) _____ Fax ( ) _____

E-mail _____

Medical specialty _____

Please mail the completed form to:

Division of Continuing Physician Professional Development
American Medical Association
515 N. State Street
Chicago, IL 60610

Evaluation Form

Please complete this evaluation by circling your response and writing comments in the spaces provided.

Overall Impression

1. This guide is a useful and effective physician education tool.

Strongly agree Agree Undecided Disagree Strongly disagree

2. This guide has raised my awareness of older driver safety as a public health issue.

Strongly agree Agree Undecided Disagree Strongly disagree

3. I have a better understanding of the medical conditions and medications that may impair my patients' ability to drive safely.

Strongly agree Agree Undecided Disagree Strongly disagree

4. I will probably use at least one of the guide's tools in my clinical practice.

Strongly agree Agree Undecided Disagree Strongly disagree

5. I have a better understanding of driver rehabilitation options and alternatives to driving.

Strongly agree Agree Undecided Disagree Strongly disagree

6. I have a better understanding of my state's reporting requirements regarding patients who may not be safe to operate a motor vehicle.

Strongly agree Agree Undecided Disagree Strongly disagree

Please rank the usefulness of the following guide materials by circling a number on a scale of 1 to 5.

7. Physician's Plan for Older Drivers' Safety (PPODS)	*Very useful*	1	2	3	4	5	*Not useful at all*
8. Red Flags for Medically Impaired Driving	*Very useful*	1	2	3	4	5	*Not useful at all*
9. Assessment of Driving-Related Skills (ADReS)	*Very useful*	1	2	3	4	5	*Not useful at all*
10. State Licensing Requirements and Reporting Laws (Chapter 8)	*Very useful*	1	2	3	4	5	*Not useful at all*
11. Medical Conditions and Medications That May Impair Driving (Chapter 9)	*Very useful*	1	2	3	4	5	*Not useful at all*
12. Patient education materials (Appendix)	*Very useful*	1	2	3	4	5	*Not useful at all*

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If you have any additional comments, please write them in the space below.

_____

_____

_____

_____

_____

Please print the requested information.

Name and title _____

Address _____

City _____ State _____ Zip _____

Phone ( ) _____ Fax ( ) _____

E-mail _____

Medical specialty _____

Please fax/mail the completed form to:

Catherine Kosinski
American Medical Association
515 N. State Street
Chicago, IL 60610
312 464-5842 fax

Index

American Medical Association
Physicians dedicated to the health of America

515 North State Street
Chicago, Illinois 60610

People Saving People
www.nhtsa.dot.gov

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National Highway Traffic Safety Administration

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