

CHAPTER 1

# **Safety and the Older Driver With Functional or Medical Impairments: An Overview**

# Safety and the Older Driver With Functional or Medical Impairments

## An Overview

*Mrs. Simon, a 67-year-old woman with type 2 diabetes mellitus and hypertension, mentions during a routine check-up that she almost hit a car while making a left-hand turn when driving two weeks ago. Although she was uninjured, she has been anxious about driving since that episode. Her daughter has called your office expressing concern about her mother's driving abilities. Mrs. Simons admits to feeling less confident when driving and wants to know if you think she should stop driving. What is your opinion?*

*Mr. Evans, a 72-year-old man with coronary artery disease and congestive heart failure, arrives for an office visit after fainting yesterday and reports complaints of "light-headedness" for the past two weeks. When feeling his pulse, you notice that his heartbeat is irregular. You perform a careful history and physical examination, and order some laboratory tests to help determine the cause of his atrial fibrillation. When you ask Mr. Evans to schedule a follow-up appointment for the next week, he tells you he cannot come at that time because he is about to embark on a two-day road trip to visit his daughter and newborn grandson. Would you address the driving issue and if so, how? What would you communicate to the patient?*

Patients like Mrs. Simon and Mr. Evans are becoming more common in physicians' practices. Buoyed by the large ranks of "baby boomers" and increased life expectancy, the U.S. older adult population is growing nearly twice as fast as the total population.<sup>1,2</sup> Within this cohort of older adults, an increasing proportion will be licensed to drive, and it is expected that these license-holders will drive more miles than older drivers do today.<sup>3</sup>

As the number of older drivers with medical conditions expands, 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 and the safety of society.

This guide is intended to help you answer the questions, "At what level of severity do medical conditions impair safe driving?" "What can I do to help my patient drive more safely?\*", and if necessary to help you counsel patients

about driving cessation and alternate means of transportation. Mobility counseling and discussing alternative modes of transportation need to take a more prominent role in the physician's office. To these ends, we have reviewed the scientific literature and collaborated with clinicians and experts in this field to produce the following 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), presented later in this chapter.
- A functional assessment battery, the Assessment of Driving Related Skills (ADReS). This can be found in Chapter 3.
- A reference table of medical conditions and medications that may affect driving, with specific recommendations for each, 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. Information

1. National Center for Statistics & Analysis. Traffic Safety Facts 2000: Older Population. DOT HS 809 328. Washington, DC: National Highway Traffic Safety Administration.
2. Population Projections of the United States by Age, Sex, Race, Hispanic, Origin, and Nativity: 1999 to 2100. Population Projections Program, Population Division, Census Bureau Internet release date: January 13, 2000. Revised date: February 14, 2000. Suitland, MD: U.S. Census Bureau.
3. Eberhard, J. Safe Mobility for Senior Citizens. International Association for Traffic and Safety Services Research. 20(1):29–37.

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

on patient reporting, with a state-by-state list of licensing criteria, license renewal criteria, reporting laws, and Department of Motor Vehicles (DMV) contact information, can be found in Chapters 7 and 8.

- Recommended Current Procedural Terminology (CPT®) codes for assessment and counseling procedures. These can be found in Appendix A.
- Handouts for your patients and their family members. These handouts, located in Appendix B, include a self-screening tool for driving safety, safe driving tips, driving alternatives, and a resource sheet for concerned family members. These handouts can be removed from the guide and photocopied for distribution to patients and their family members.

We understand that physicians may lack expertise in communicating with patients about driving, discussing the need for driving cessation (delivering bad news), and being aware of viable alternative transportation options to offer. Physicians also may be concerned about dealing with the patient's anger, or even losing contact with the patient. Driving is a sensitive subject, and the loss of driving privileges can be stressful. While these are reasonable concerns, there are ways to minimize the impact on the doctor-patient relationship when discussing driving. We provide sample approaches in subsequent chapters in the areas of driving assessment, rehabilitation, restriction, and cessation.

We want this information to be readily accessible to you and your office staff. You can locate this guide on the Internet at the AMA Web site ([www.ama-assn.org/go/olderdrivers](http://www.ama-assn.org/go/olderdrivers)). Additional printed copies may also be ordered through the Web site.

Before you read the rest of the guide, you may wish to familiarize yourself with key facts about older drivers.

## Older drivers: Key facts

**Fact #1: The number of older adult drivers is growing rapidly and they are driving longer distances.**

Life expectancy is at an all-time high<sup>4</sup> and the older population is rapidly increasing. By the year 2030, the population of adults older than 65 will more than double to approximately 70 million, making up 20 percent of the total U.S. population.<sup>5</sup> In many States, including Florida and California, the population of those over age 65 may reach 20 percent in this decade. The fastest growing segment of the population is the 80-and-older group, which is anticipated to increase from about 3 million this year to 8 to 10 million over the next 30 years. We can anticipate many older drivers on the roadways over the next few decades, and your patients will likely be among them.

Census projections estimate that by the year 2020 there will be 53 million persons over age 65 and approximately 40 million (75%) of those will be licensed drivers.<sup>6</sup> The increase in the number of older drivers is due to many factors. In addition to the general aging of the population that is occurring in all developed countries, many more female drivers are driving into advanced age. This will likely increase with aging cohorts such as the baby boomers.

In addition, the United States has become a highly mobile society, and older adults are using automobiles for volunteer activities and gainful employment, social and recreational needs, and cross country travel. Recent studies suggest that older adults are driving

more frequently, while transportation surveys reveal an increasing number of miles driven per year for each successive aging cohort.

**Fact #2: Driving cessation is inevitable for many and can be associated with negative outcomes.**

Driving can be crucial for performing necessary chores and maintaining social connectedness, with the latter having strong correlates with mental and physical health.<sup>7</sup> Many older adults continue to work past retirement age or engage in volunteer work or other organized activities. In most cases, driving is the preferred means of transportation. In some rural or suburban areas, driving may be the 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, with great effects on their quality of life and self-esteem.<sup>8</sup>

In a survey of 2,422 adults 50 and older, 86 percent of survey participants reported that driving was their usual mode of transportation. Within this group, driving was the usual method of transportation for 85 percent of participants 75 to 79, 78 percent of participants 80 to 84, and 60 percent of participant's 85 and older.<sup>9</sup> This data also indicates that the probability of losing the ability to drive increases with advanced age. It is estimated that the average male will have 6 years without the functional ability to drive a car and the average female will have 10 years.<sup>10</sup> However, our society has not prepared the public for driving

4. Centers for Disease Control and Prevention. 2008. National Center for Health Statistics. Accessed on December 14, 2008 at; [www.cdc.gov/nchs/PRESSROOM/07newsreleases/lifeexpectancy.htm](http://www.cdc.gov/nchs/PRESSROOM/07newsreleases/lifeexpectancy.htm)

5. U.S. Census Bureau, Healthy Aging, 2008. Accessed on December 14, 2008 at; [www.cdc.gov/NCCDphp/publications/aag/aging.htm](http://www.cdc.gov/NCCDphp/publications/aag/aging.htm)

6. U.S. Census Bureau. Projection of total resident population by 5-year age groups and sex with special age categories; middle series, 2016–2020. Washington, DC: Population Projections Program, Population Division, U.S. Census Bureau; 2000.

7. Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. From social integration to health: Durkheim in the new millennium. *Soc Sci Med.* 51:843–857.

8. Stutts, J. C. Do older drivers with visual and cognitive impairments drive less? *J Am Geriatr Soc.* 46(7):854–861.

9. Ritter, A. S., Straight, A., & Evans, E. Understanding Senior Transportation: Report and Analysis of a Survey of Consumers Age 50+. American Association for Retired Persons, Policy and Strategy Group, Public Policy Institute, p. 10–11.

10. Foley, D. J., Heimovitz, H. K., Guralnik, J., & Brock, D. B. Driving life expectancy of persons aged 70 years and older in the United States. *Am J Public Health.* 92:1284–1289

cessation, and patients and physicians are often ill-prepared when that time comes.

Studies of driving cessation have noted increased social isolation, decreased out-of-home activities,<sup>11</sup> and an increase in depressive symptoms.<sup>12</sup> These outcomes have been well documented and represent some of the negative consequences of driving cessation. It is important for health care providers to use the available resources and professionals who can assist with transportation to allow their patients to maintain independence. These issues will be discussed further in subsequent chapters.

**Fact #3: Many older drivers successfully self-regulate their driving behavior.**

As drivers age, they may begin to feel limited by slower reaction times, chronic health problems, and effects from medications. Although transportation surveys over the years document that the current cohort of older drivers is driving farther, in later life many reduce their mileage or stop driving altogether because they feel unsafe or lose confidence. In 1990, males over 70 drove on average 8,298 miles, compared with 16,784 miles for men 20 to 24; for women, the figures were 3,976 miles and 11,807 miles, respectively.<sup>13</sup> Older drivers are more likely to wear seat belts and are less likely to drive at night, speed, tailgate, consume alcohol prior to driving, and engage in other risky behaviors.<sup>14</sup>

Older drivers not only drive substantially less, but also tend to modify

when and how they drive. When they recognize loss of ability to see well after dark, many stop driving at night. There are data that suggest older women are more likely to self-regulate than men.<sup>15</sup> Others who understand the complex demands of left turns at uncontrolled intersections and their own diminished capacity forgo left-hand turns, and make a series of right turns instead. Self-regulating in response to impairments is simply a continuation of the strategy we all employ daily in navigating this dangerous environment—driving. Each of us, throughout life, is expected to use our best judgment and not operate a car when we are impaired, whether by fatigue, emotional distress, physical illness, or alcohol. Thus, self-awareness, knowledge of useful strategies, and encouragement to use them may be sufficient among cognitively intact older adults; however, this remains an important area for further study.

Older drivers may reduce their mileage by eliminating long highway trips. However, local roads often have more hazards in the form of signs, signals, traffic congestion, and confusing intersections. Decreasing mileage, then, may not always proportionately decrease safety risks.<sup>16</sup> In fact, the “low mileage” drivers (e.g., less than 3,000 miles per year) may actually be the group that is most “at-risk.”<sup>17</sup>

Despite all these self-regulating measures, motor vehicle crash rates per mile driven begin to increase at age 65.<sup>18</sup> On a case-by-case level, the risk of a crash depends on whether each individual driver’s decreased mileage and behavior

modifications are sufficient to counterbalance any decline in driving ability. In some cases, decline—in the form of peripheral vision loss, for example—may occur so insidiously that the driver is not aware of it until he/she experiences a crash. In fact, a recent study indicated that some older adults do not restrict their driving despite having significant visual deficits.<sup>19</sup> Reliance on driving as the sole available means of transportation can result in an unfortunate choice between poor options. 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, about 40 percent of the participants knew someone over age 65 who had problems with his/her driving but was still behind the wheel.<sup>20</sup> Clearly, some older drivers require outside assessment and interventions when it comes to driving safety.

**Fact #4: The crash rate for older drivers is in part related to physical and/or mental changes associated with aging and/or disease.<sup>21</sup>**

Compared with younger drivers whose car crashes are often due to inexperience or risky behaviors,<sup>22</sup> older driver crashes tend to be related to inattention or slowed speed of visual processing.<sup>23</sup> 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-

11. Marottoli, R. A., de Leon, C. F. M., & Glass, T. A., et al. Consequences of driving cessation: decreased out-of-home activity levels. *J Gerontol Series B Psychol Sci Soc Sci.* 55:S334–340.  
12. Ragland, D. R., Satariano, W. A., & MacLeod, K. E. Driving cessation and increased depressive symptoms. *J Gerontol Series A Bio Sci Med Sci.* 60:399–403.  
13. Evans, L. How safe were today’s older drivers when they were younger? *Am J Epidemiol.* 1993;137(7):769–775.  
14. Lyman, J. M., McGwin, G., & Sims, R.V. Factors related to driving difficulty and habits in older drivers. *Accid Anal Prev.* 33:413–421.

15. Kostyniuk, L. P., & Molnar, L. J. Self-regulatory driving practices among older adults: health, age and sex effects. *Accid Anal Prev.* 40: 1576–1580.  
16. Janke, M. K. Accidents, mileage, and the exaggeration of risk. *Accid Anal Prev.* 1991;23:183–188.  
17. Langford, J., Methorst, R., & Hakamies-Blomqvist, L. Older drivers do not have a high crash risk—a replication of low mileage bias. *Accid Anal Prev.* 38(3):574–578.  
18. Li, G., Braver, E. R., & Chen, L. H. Exploring the High Driver Death Rates per Vehicle-Mile of Travel in Older Drivers: Fragility versus Excessive Crash Involvement. Presented at the Insurance Institute for Highway Safety; August 2001.

19. Okonkwo, O. C., Crowe, M., Wadley, V. G., & Ball, K. Visual attention and self-regulation of driving among older adults. *Int Psychogeriatr.* 20:162–173.  
20. Persson, D. The elderly driver: deciding when to stop. *Gerontologist.* 1993;33(1):88–91.  
21. Preusser, D. F., Williams, A. F., Ferguson, S. A., Ullmer R. G., & Weinstein, H.B. Fatal crash risk for older drivers at intersections. *Accid Anal Prev.* 30(2):151–159.  
22. Williams, A. F., & Ferguson, S. A. Rationale for graduated licensing and the risks it should address. *Inj Prev.* 8:ii9–ii16.  
23. Eberhard, J. W. Safe Mobility for Senior Citizens. International Association for Traffic and Safety Sciences Research. 20(1):29–37.

hand turns are a particular problem for the older driver. At stop-sign-controlled intersections, older drivers may not know when to turn.<sup>24</sup>

These driving behaviors indicate that visual, cognitive, and/or motor factors may affect the ability to drive in older adults. Research has not yet determined what percentage of older adult crashes are due to driving errors that are also common among middle-aged drivers, what proportion are due to age-related changes in cognition (such as delayed reaction time), or how many could be attributed to age-related medical illnesses. However, it is believed that further improvements in traffic safety will likely result from improving driving performance or modifying driving behavior.<sup>25</sup> The identification and management of diseases has a potential to maintain or improve driving abilities and road safety.

**Fact #5: Physicians can influence their patients' decisions to modify or stop driving. They can also help their patients maintain safe driving skills.**

Although older drivers believe that they should be the ones to make the final decision about driving, they also agree that their physicians should advise them. In a series of focus groups conducted with older adults who had given up driving, all agreed that the physicians should talk to older adults about driving, if a need exists. As one panelist put it, "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 had limited influence on the participants, most agreed that if their physicians advised them to stop and their family concurred, they would certainly retire from driving.<sup>26</sup> This is consistent with a

recent focus group study with caregivers of demented drivers, who stated that physicians should be involved in this important decision-making process.<sup>27</sup>

Physicians assist their older patients to maintain safe mobility in two ways. They provide effective treatment and preventive health care, and they play a role in determining the ability of older adults to drive safely. Also, improved cardiovascular and bone health has the potential to reduce serious injuries and improve the rate of recovery in the event of a crash.

In many cases, physicians can keep their patients on the road longer by identifying and managing diseases, such as cataracts and arthritis, or by discontinuing sedating medications. Many physicians are aware of the literature on fall prevention, and that clinicians can reduce future risks of falls and fractures by addressing certain extrinsic (environmental) and intrinsic factors.<sup>28</sup> Driving abilities share many attributes that are necessary for successful ambulation, such as adequate visual, cognitive, and motor function. In fact, a history of falls has been associated with an increased risk of motor vehicle crash.<sup>29</sup>

Brief physician intervention on topics such as smoking and seat belt use has been shown to be effective. There is an assumption that doctors can and do make a difference by evaluating older individuals for medical fitness to drive. Furthermore, there is a crucial need to have this hypothesis studied systematically. To date, little organized effort in the medical community has been made to help older adults improve or maintain their driving skills. Research and clinical reviews on the assessment

of older drivers have focused on screening methods to identify unsafe drivers and restrict older drivers. Physicians are in a position to identify patients at risk for unsafe driving or self-imposed driving cessation due to functional impairments, and address and help manage these issues to keep their patients driving safely for as long as possible.

Physicians must abide by State reporting laws. While the final determination of an individual's ability to drive lies with the driver licensing authority, physicians can assist with this determination. Driver licensing regulations and reporting laws vary greatly by State. Some State laws are vague and open to interpretation; therefore, it is important for physicians to be aware of their responsibilities for reporting unsafe patients to the local driver licensing authority. Information on State laws is provided in Chapter 8.

Thus, physicians can play a more active role in preventing motor vehicle crashes by assessing their patients for medical fitness to drive, recommending safe driving practices, referring patients to driver rehabilitation specialists, advising or recommending driving restrictions, and referring patients to State authorities when appropriate.

24. Preusser, D. F., Williams, A. F., Ferguson, S. A., Ullmer, R. G., & Weinstein, H. B. Fatal crash risk for older drivers at intersections. *Accid Anal Prev.* 30(2):151–159.

25. Lee, J. D. Fifty years of driving safety research. *Hum Factors.* 50: 521–528.

26. Persson, D. The elderly driver: deciding when to stop. *Gerontologist.* 1993;33(1):88–91.

27. Perkinson, M., Berg-Weger, M., Carr, D., Meuser, T., Palmer, J., Buckles, V., Powlishta, K., Foley, D., & Morris, J. Driving and dementia of the Alzheimer type: beliefs and cessation strategies among stakeholders. *Gerontologist.* 45(5):676–685.

28. Tinetti, M. E. Preventing falls in elderly persons. *N Engl J Med.* 348(1):42–49.

29. Margolis, K. L., Kerani, R. P., McGovern, P., et al. Risk factors for motor vehicle crashes in older women. *J Gerontol Series A Bio Sci Med Sci.* 57:M186–M191.



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

- **Screen** for red flags such as medical illnesses and medications that may impair driving safety;
- **Ask** about new-onset impaired driving behaviors (see Am I a Safe Driver and How to Help the Older Driver in the appendices);
- **Assess** driving-related functional skills in those patients who are at increased risk for unsafe driving; for the functional assessment battery, Assessment of Driver Related Skills (ADReS), see Chapter 3;
- **Treat** any underlying causes of functional decline;
- **Refer** patients who require a driving evaluation and/or adaptive training to a driver rehabilitation specialist;
- **Counsel** patients on safe driving behavior, driving restrictions, driving cessation, and/or alternate transportation options as needed; and
- **Follow-up** with patients who should adjust their driving to determine if they have made changes, and evaluate those who stop driving for signs of depression and social isolation.

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

In the following chapters, we will guide you through the PPODS and provide the tools you need to perform it. Before we begin, you may wish to review the AMA's policy on impaired drivers (see

Figure 1.2). This policy can be applied to older drivers with medical conditions that impair their driving skills and threaten their personal driving safety.

**Fact #6: Traffic safety for older drivers is a growing public health issue.**

Older drivers are the safest drivers as an age group when using the absolute number of crashes per 100 licensed drivers per year.<sup>30</sup> However, the crash rate per miles driven reveals an increase at about age 65 to 70 in comparison to middle-aged drivers.<sup>31</sup> In 2000, 37,409 Americans died in motor vehicle crashes.<sup>32</sup> Of this number, 6,643 were 65 and older.<sup>33</sup> Accidental injuries are the seventh leading cause of death among older people and motor vehicle crashes are not an uncommon cause.<sup>34</sup> As the number of older drivers continues to grow, drivers 65 and older are expected to account for 16 percent of all crashes and 25 percent of all fatal crashes.<sup>35</sup>

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.<sup>36</sup> Compared to other driv-

ers, older drivers have a higher fatality rate per mile driven than any other age group except drivers under 25.<sup>37</sup> 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.<sup>38</sup> 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.<sup>39</sup> There is a disproportionately higher rate of poor outcomes in older drivers, due in part to chest and head injuries.<sup>40</sup> Older adult pedestrians are also more likely to be fatally injured at crosswalks.<sup>41</sup>

There may be several reasons for this excess in fatalities. First, some older drivers are considerably more fragile. For example, the increased incidence of osteoporosis, which can lead to fractures, and/or atherosclerosis of the aorta which can predispose individuals to rupture with chest trauma from an airbag or steering wheel. Fragility begins to increase at age 60 to 64 and increases steadily with advancing age.<sup>42</sup> A recent study noted that chronic conditions are determinants of mortality and even minor injury.<sup>43</sup> As noted above, older drivers are also overrepresented in

(Continues on page 7)

30. CDC. (1997). Behavioral Risk Factor Surveillance System Survey Data. Atlanta: Centers for Disease Control and Prevention

31. Ball, K., Owsley, C., Stalvey, B., Roenker, D. L., & Sloane, M. E. Driving avoidance and functional impairment in older drivers. *Accid Anal Prev.* 30:313–322.

32. NHTSA. FARS. Web-Based Encyclopedia. [www.fars.nhtsa.dot.gov](http://www.fars.nhtsa.dot.gov).

33. Insurance Institute for Highway Safety. (2001). Fatality Facts: Elderly (as of October 2001). (Fatality Facts contains an analysis of data from U.S. Department of Transportation Fatality Analysis Reporting System.) Arlington, VA: Insurance Institute for Highway Safety.

34. Staats, D. O. Preventing injury in older adults. *Geriatrics.* 63:12–17.

35. Eberhard, J. Older drivers up close: they aren't dangerous. *Insurance Institute for Highway Safety Status Report* (Special Issue: Older Drivers). 36(8):1–2.

36. CDC. (1999). 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, Centers for Disease Control and Prevention. Data source: National Center for Health Statistics Vital Statistics System. Atlanta: Centers for Disease Control and Prevention.

37. NHTSA. Driver fatality rates, 1975-1999. Washington, DC: National Highway Traffic Safety Administration.

38. NHTSA. National Center for Statistics & Analysis. Traffic Safety Facts 2000: Older Population. DOT HS 809 328. Washington, DC: National Highway Traffic Safety Administration.

39. Evans, L. Risks older drivers face themselves and threats they pose to other road users. *Int J Epidemiol.* 29:315–322.

40. Bauza, G., Lamorte, W. W., Burke, P., & Hirsch, E. F. High mortality in elderly drivers is associated with distinct injury patterns: analysis of 187,869 drivers. *J Trauma Inj Infect Crit Care.* 64:304–310.

41. FHWA. (2007). Pedestrian Safety Guide and Countermeasures. PEDSAFE. 2007. Washington, DC: Federal Highway Administration. [www.walkinginfo.org/pedsafe/crashstats.cfm](http://www.walkinginfo.org/pedsafe/crashstats.cfm). Accessed November 21, 2007.

42. Li, G., Braver, E., & Chen, L-H. Fragility versus excessive crash involvement as determinants of high death rates per vehicle mile of travel for older drivers. *Accid Anal Prev.* 35, 227–235.

43. Camiloni, L., Farchi, S., Giorgi Rossi, P., Chini, F., et al. Mortality in elderly injured patients: the role of comorbidities. *Int J Inj Control Safety Prom.* 15:25–31.

**Figure 1.1 Physician's Plan for Older Drivers' Safety (PPODS)**

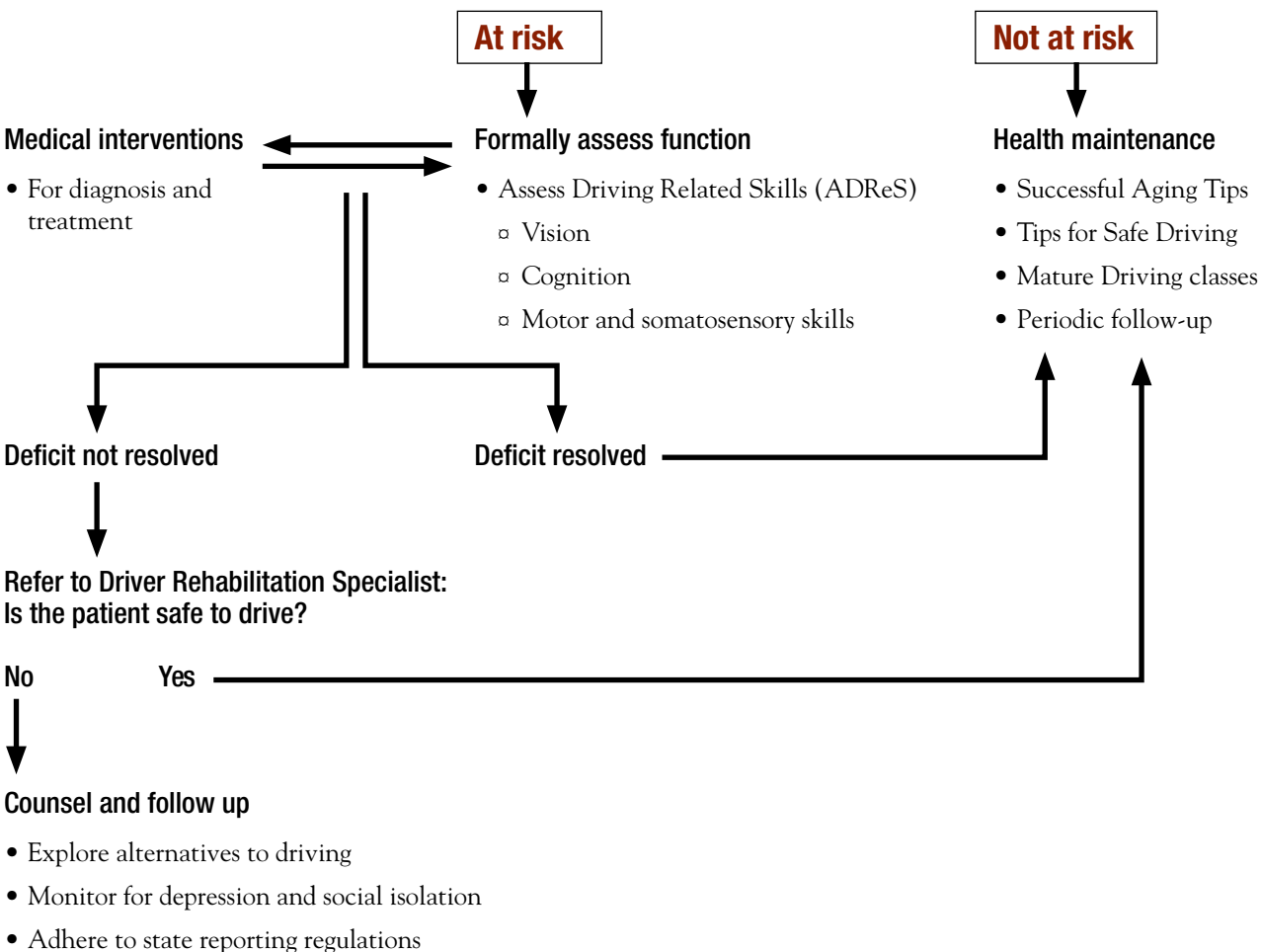
**Is the patient at increased risk for unsafe driving?**

**Perform initial screen—**

- Observe the patient
- Be alert to red flags
  - Medical conditions
  - Medications and polypharmacy
  - Review of systems
  - Patient's or family member's concern/ impaired driving behaviors

**If screen is positive—**

- Ask health risk assessment/social history questions
- Discuss alternatives to driving early in the process
- Gather additional information



left-hand-turn collisions, which cause more injury than more injury than rear-end collisions.<sup>44</sup> Finally, preliminary data from a Missouri study of medically impaired drivers who were in crashes indicate that the average age of the vehicle was more than 10 years and the cars often did not have air bags (personal communication, Tom Meuser, University of St. Louis-Missouri). If this latter observation is a contributing factor, improvement should occur as future cohorts of aging drivers purchase newer vehicles with improved crashworthiness.

## Figure 1.2

### AMA ethical opinion

#### E-2.24 Impaired drivers and their physicians

The purpose of this policy 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 (e.g., 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 judgment 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. (III, IV, VII) Issued June 2000 based on the report "Impaired Drivers and Their Physicians," adopted December 1999.

44. IIHS. (2003). *Fatality Facts: Older People as of November 2002*. Arlington, Va: Insurance Institute for Highway Safety.