# Promising Approaches for Promoting Lifelong Community Mobility

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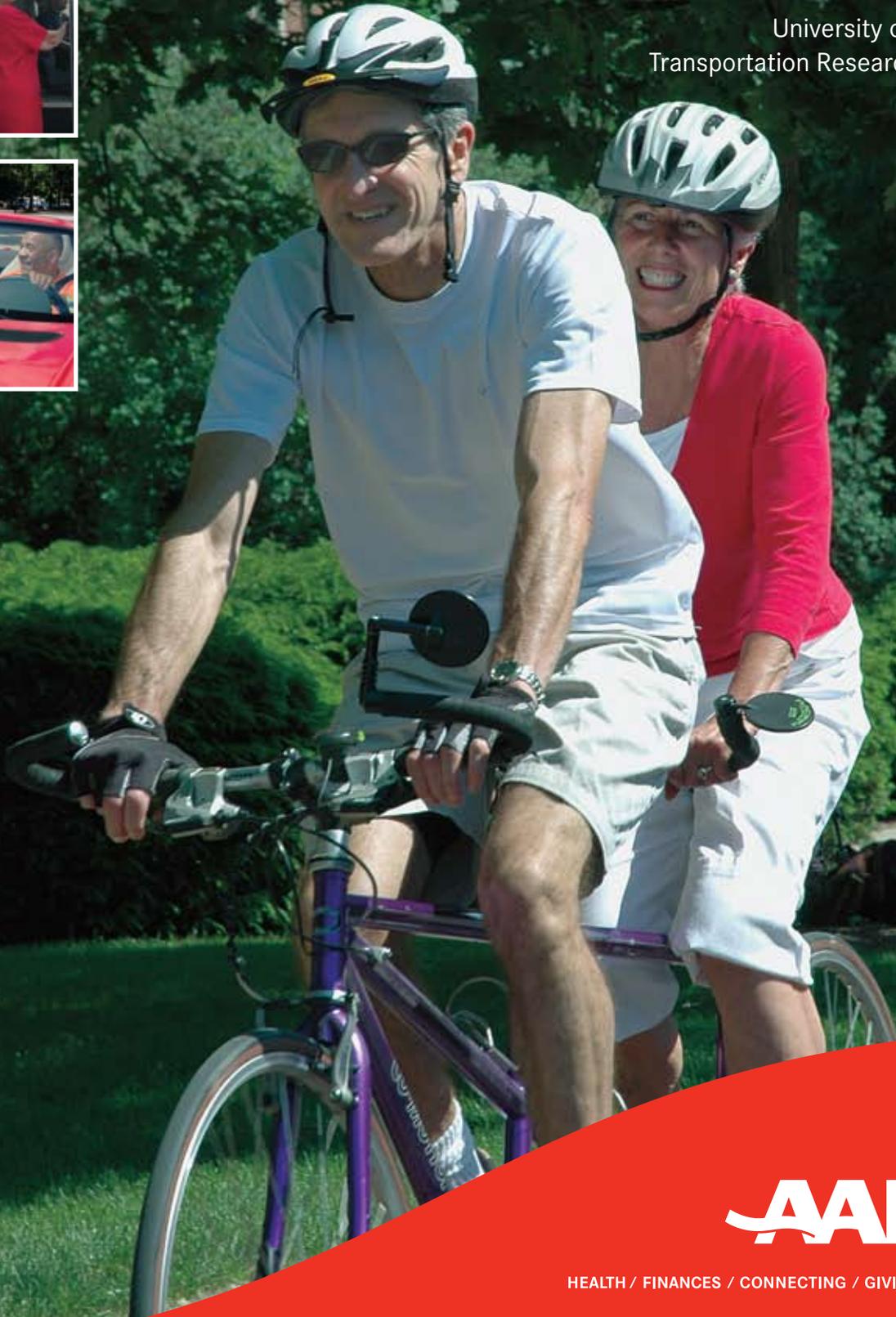
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Introduction

In 2003, we published *Promising Approaches for Enhancing Elderly Mobility*,[1] a guide highlighting programs and practices in a number of areas considered to hold promise for enhancing the safety and mobility of older adults. Development of the guide was based on extensive review of the literature and discussions with experts in aging-related fields, and was intended as a resource for community professionals interested in developing programs to enhance older adult mobility. We noted that while each community would have to tailor its efforts to fit its own unique character and that of its older adult population, much could be gained from learning about existing programs and practices.

Since publication of the guide, a number of new initiatives in the areas of older adult safety and mobility have been launched at the federal, state, and local levels. In addition, there is widespread agreement that safety and mobility go hand in hand. Thus, two complementary but interdependent goals have emerged with respect to older adult drivers: to help those who are able to drive safely continue to do so; and to identify and provide community mobility support to those who are no longer able to drive. The purpose of this guide, *Promising Approaches for Promoting Lifelong Community Mobility*, is to update and expand upon our earlier work, particularly with regard to the transition from driving to non-driving and the need for alternative transportation options for older adults who are no longer able to or choose not to drive.

The promising approaches in this guide are presented within the context of several areas that hold promise for promoting lifelong community mobility, including driver screening and assessment, driver education and training, roadway design, vehicle design and advanced technology, transitioning from driving to other transportation options, transportation coordination, and alternative transportation options. We recognize that no single area holds the key to achieving the safety and mobility goals for older adults. A sustained and broad-based effort on multiple fronts, involving collaboration among a diverse group of professionals, is needed. We hope that this guide will serve as a useful resource for anyone involved in working to meet this worthwhile challenge.

Why older adult safety and mobility continue to be important issues

There has been tremendous growth in the older adult population in the United States and elsewhere in the past few decades, and this trend is expected to continue. By 2030, one out of every five Americans will be over the age of 65, resulting in an older adult population of more than 70 million people. Although many people drive less as they get older, older adult drivers are more likely to be involved in a crash for every mile they drive than any other age group except the youngest drivers. While there is growing evidence that the older driver crash rate per mile driven may be biased upward due to the tendency of older drivers to drive shorter distances, older drivers are clearly at increased risk of death and serious injury, given a motor vehicle crash, due to age-related frailty. Thus, in explaining older

drivers' heightened casualty involvement per distance traveled, research suggests that physical frailty is a key factor for almost all older adults, a high level of urban driving is a key factor for many older adults, and reduced fitness to drive is a key factor for some older adults.[2]

Most Americans consider driving to be essential to their independence and quality of life. Probably in no other country is mobility so closely linked to the personal automobile, and this is just as true for older drivers as for young people starting out their driving careers. In part, this is due to the values and traditions that have shaped our country, and in part, to the absence of acceptable alternatives. Driving provides an opportunity for people to stay engaged civically and socially, and to participate in activities that enhance their well-being. Loss of driving privileges can lead to increased social isolation by preventing regular contact with friends and family, and has been associated not only with a loss of independence, mobility, and freedom but also with feelings of diminished self-worth, reductions in self-esteem, loss of identity, and depression.

As older adult drivers have come under increased scrutiny, it has become apparent that it is not age, per se, that leads to problems with driving. Rather, it is declines in driving-related abilities that often accompany aging or arise from medical conditions or the medications used to treat them that make driving more dangerous. Although these medical conditions can occur at any age, they are more likely to occur as one becomes older. At the same time, there are significant individual differences in the rate of decline and what functions are affected—each individual is unique. Thus, there is widespread agreement that traffic safety efforts should focus on helping older drivers maintain safe driving as long as they are able to do so, rather than on restricting all older drivers simply because of their age.

We know that driving is a complex task that requires visual, cognitive, and psycho motor abilities. As people age, they may experience declines in these

areas that compromise their ability to drive safely. The visual declines most likely to affect safe driving include reduced static and dynamic acuity, contrast sensitivity, sensitivity to changes in angular size and motion, pattern perception, visual attention, and visual search capability, as well as increased vulnerability to glare. Cognitive declines most likely to affect safe driving include a slowing of information processing leading to less efficient working memory, as well as declines in selective attention, divided attention, and attention switching. Psycho motor changes with adverse affects on driving include reduced limb strength, flexibility, sensitivity, range of motion, and head and neck mobility. Older adults are also more likely than younger people to suffer from certain medical conditions that impair functionlike stroke and dementia.

Many older adults are able to compensate for declining abilities and continue to drive safely. For example, they may stop driving at night, reduce their driving in unfamiliar areas, rely on a passenger to navigate or read road signs, or use less traveled

roads. For those who continue to drive, declines in abilities can have very real implications for driving. Older drivers are more likely than younger drivers to be involved in crashes at intersections, especially when making left turns across traffic, and on limited access highways when merging, exiting, and changing lanes. Common areas of difficulty for older drivers include yielding to oncoming traffic, responding to road signs or signals, searching and scanning the road environment, staying in the lane, positioning the car for turning, maintaining regular speeds or keeping up with the traffic flow, passing other cars, and stopping.

The research on older drivers makes it clear that the issue of older adult mobility requires our attention. What is less clear is how communities can best respond and take effective action to enhance older adult mobility. How can communities decide what programs and practices will work for them? What are the necessary steps for planning successful efforts and carrying them out? What are the barriers communities might encounter and how can they be overcome?

Planning for older adult safety and mobility

A broad array of planning efforts has been undertaken at the federal and state levels over the past several years to help communities plan for their older adult population's mobility needs.[3] At the heart of these efforts is the recognition that older adult mobility is a complex issue that requires a multifaceted and comprehensive approach. In 1997, the U.S. Department of Transportation (DOT) identified three policy objectives—safety, individual personal mobility, and facilitating the eventual transition to mobility alternatives—as part of its vision for the U.S. transportation system.[4] This vision was further outlined in the 2003 report, *Safe Mobility for a Maturing Society: Challenges and Opportunities*,[5] which identified strategies for improving the safety and mobility of older adults in seven key areas including safer easier-to-use roadways and walk-

ways, safer easier-to-use automobiles, improved systems for assessing competency of older drivers and pedestrians, better easier-to-use public transportation services, targeted state/local safe mobility action plans, better public information, and basic and social policy research.

The American Association of State Highway and Transportation Officers (AASHTO), with support from the National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), and Transportation Research Board (TRB), published its strategic plan in 1997, which included older adult drivers as one of 22 emphasis areas for reducing roadway fatalities.[6] As part of a series of guides to assist states in implementing the plan, the TRB report, *A Guide for Reducing Collisions Involving Older Drivers* (NCHRP Report 500),[7] laid out a comprehensive approach to reducing older driver crashes and injuries that included five broad objectives and 19 strategies. The objectives were to plan for an aging population, improve the roadway and driving environment to better accommodate older drivers' special needs, identify older drivers at increased risk of crashing and intervene, improve older adults' driving competency, and reduce the risk of injury and death to older drivers and passengers involved in crashes.

More recently, TRB highlighted older driver initiatives being undertaken by the federal, state, and local government, as well as national nongovernmental organizations, professional organizations, and other private-sector organizations in the report *Improving the Safety of Older Road Users: A Synthesis of Highway Practice* (NCHRP Synthesis 348).[8] The report represents a "snapshot" of programs and policies in place across the country to improve the safety and mobility of older road users, and focuses on five broad areas including planning for older road users, roadway engineering and traffic operations, driver licensing, public information and education, and enforcement and adjudication. The report is a valuable resource for information on promising programs and practices, as well as the

broad array of planning efforts occurring across the U.S. The report identifies six states with comprehensive plans for improving older road user safety and mobility including California, Florida, Iowa, Maryland, Michigan, and Oregon. An overview of state and local planning initiatives for these six and other states, including links to a number of older adult driver planning documents, is also provided.

AARP has increasingly become involved in transportation and mobility issues in recognition that most strategies to promote older adults' health and well-being and their ability to remain living with dignity in their homes and communities depend on transportation. AARP has sponsored a number of older adult mobility forums around the country to explore these issues, bringing together professionals from health, gerontology, and transportation, as well as older adult consumers and advocates. A recent forum conducted in Florida resulted in recommendations in four areas—emergency evacuation preparedness, community planning for older adults, safe driving for older adults, and transportation options.[9] Using an electronic voting process, participants identified several action ideas for each area. The efforts of AARP and the other organizations and agencies highlighted here underscore the growing importance of meeting the safety and mobility

needs of an aging population and the need for resources to assist in this challenge.

Organization of this guide and how to get the most from it

This updated guide identifies several areas in which promising approaches for promoting lifelong community mobility have been developed in the U.S. and elsewhere. These areas include driver screening and assessment, driver education and training, roadway design, vehicle design and advanced technology, transitioning from driving to other transportation options, transportation coordination, and alternative transportation options. For each area, the guide contains:

- An introductory section that provides general background information on the area and discusses how it contributes to promoting lifelong community mobility;

- A discussion of how the area can best promote lifelong community mobility, including important components of a promising approach;

- Descriptions of current programs and other initiatives in the area that appear to be especially promising; and

- A full listing of promising programs and other initiatives in the area, in alphabetical order, and summary information about each.

Choosing promising programs and other initiatives for promoting lifelong community mobility can be a challenging task—this is especially true when many of the programs and initiatives have not been formally evaluated. In cases where we lacked objective information about program effectiveness, we used our best judgment to identify promising programs and initiatives. To the extent possible, we based these judgments on whether the programs and initiatives incorporated the components we consider important to promoting lifelong community mobility. We highlighted some programs and initiatives that we felt stood out, particularly in terms of their scientific basis, comprehensiveness, or

timeliness. The promising programs and initiatives included in this guide are in various stages of development. Some are, in fact, still considered experimental but represent innovative approaches that have considerable potential for enhancing mobility. The list has changed from our original guide and will continue to change with new developments in aging-related research or as more programs undergo formal evaluation. Thus it represents a snapshot of efforts that we are aware of, based largely on information from published materials and discussions with experts in aging and transportation.

A second challenge in producing this guide had to do with determining which section to assign each promising program or other initiative. In many cases, programs or initiatives cut across two or more sections—yet to avoid duplication, each program or initiative appears in only one section. Again, we used our best judgment to choose the section to which the program or initiative seemed to be most closely tied. We recommend that as readers review the program/initiative summaries, they keep in mind that the programs/initiatives may be applicable to sections other than just the one in which they appear. This is particularly true for programs and initiatives in the education and training section and the transitioning from driving to other transportation options section. These sections overlap with one another and both contain programs that may have screening and assessment components.

We also made the decision to include all programs directed at older adults with dementia in the transitioning section given that even though many individuals with early stage dementia are still able to drive, eventually, as the disease progresses, all individuals with this diagnosis will have to stop driving.

Updating the original guide involved several steps. First, we contacted representatives from each of the programs or practices highlighted in the original guide to make sure that the programs/practices were still in place and that information was accurate. Several programs were dropped because they were no longer being funded or in use. Second, we developed a list of close to 100 new programs or initiatives based on the literature review and discussions with experts in the field. Of particular interest were programs and other initiatives in the areas of transitioning from driving to other transportation options and alternative transportation programs. Third, we reorganized the guide to better reflect current thinking in the areas of safety and mobility. The seven areas in the guide, while presented separately for ease of the reader, are clearly interdependent and mutually supporting, and should be viewed collectively as part of a comprehensive approach to enhancing older adult mobility.

Driver Screening and Assessment

Making informed decisions about driving fitness requires meaningful information about the changes in driving-related abilities drivers may experience and how these changes affect driving. Although many of these changes result from medical conditions that become more prevalent as we age, the effects of these conditions vary from individual to individual, and are complicated by the medications used to treat them. Thus, screening and assessment has increasingly focused on the functional declines that can affect driving rather than on the medical conditions that lead to these declines.

Screening and assessment can occur in a variety of settings and at various levels of complexity. Screening signifies the first step in identifying at-risk drivers and is intended to identify more obvious functional impairments. Screening may prompt and/or inform more in-depth assessment but it should not be used by itself to determine driving fitness. In-depth assessment to determine the level and cause for an observed impairment is needed to support decisions about whether someone should continue driving and under what conditions. Collectively, screening and assessment contribute to a comprehensive, multifaceted approach for identifying older drivers who may be at risk.

Licensing agencies

Licensing agencies have a unique opportunity to screen for fitness to drive because older drivers, like everyone else in the driving population, must go through a license renewal process. Driver's license renewal policies in the U.S. vary from state to state in terms of the length of the renewal cycle, requirements for accelerated renewal for older drivers, and other renewal provisions (see Table 1). Fourteen states require accelerated renewal for older drivers, and 17 states have other special renewal provisions including requirements for in-person renewal,

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

Table 1: Licensing Provisions for Older Drivers

State	Length of Renewal Cycle (Years)	Accelerated Renewal for Older Drivers	Other Renewal Provisions
Alabama	4	No	None
Alaska	5	No	No mail renewal for age 69 and older; no more than one mail renewal in a row for all ages; vision test required at renewal for all ages
Arizona	Until age 65	5 for age 65 and older	No mail renewal for age 70 and older; vision test verification required for age 65 and older mail renewal; vision test required every 12 yr. for all ages
Arkansas	4	No	Vision test required at renewal for all ages
California	5	No	No mail renewal for age 70 and older; no more than two successive mail renewals for all ages
Colorado	10	5 yr. for age 61 and older	No mail renewal for age 66 and older or electronic renewal for age 60 and older; no more than one mail/electronic renewal in a row for all ages
Connecticut	4 or 6	Age 65 and older may choose 2 or 6 yr.	Mail renewal for age 65 and older only if show hardship; vision test required at first renewal and then every other renewal for all ages
Delaware	5	No	None
District of Columbia	5	No	Physician certification of physical/mental driving competency, vision test, and possible reaction test required at renewal for age 70 and older; written and road tests
Florida	6 , 4–bad record	No	Vision test required at renewal for age 80 and older; no more than two successive mail/electronic renewals for all ages
Georgia	4	No	Vision test required at renewal for all ages; mail/electronic renewal every other renewal for all ages
Hawaii	6	2 yr. for age 72 and older	Vision test required at renewal for all ages
Idaho	4	4- or 8-yr. for age 21-62; 4-yr. for 63 and older	Vision test required at renewal for all ages

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

State	Length of Renewal Cycle (Years)	Accelerated Renewal for Older Drivers	Other Renewal Provisions
Montana	8 (4 by mail)	4 yr. for age 75 and older	Vision test required at renewal for all ages; Mail renewal for all ages only in areas with no driver license services–no more than one in a row
Nebraska	5	No	Vision test required at renewal for all ages
Nevada	4	No	Medical report required at mail renewal for age 70 and older; no more than two successive mail/electronic renewals for all ages; age alone not grounds for re-examination
New Hampshire	5	No	Road test required at renewal for age 75 and older
New Jersey	4	No	Vision test may be required at renewal for all ages
New Mexico	4 or 8	4 yr. if turn 75 in 2nd half of 8-yr. renewal cycle	Vision test may be required at renewal for all ages
New York	5	No	Vision test required at renewal for all ages
North Carolina	5	No	Parallel parking not required in road test for age 60 and older; vision test required at renewal for all ages
North Dakota	4	No	Certification of vision required at renewal for all ages
Ohio	4	No	Vision test required at renewal for all ages
Oklahoma	4	No	License fees reduced for age 62-64, waived for age 65 and older
Oregon	8	No	Vision screening required every 8 years for age 50 and older
Pennsylvania	4	Age 65 and older may choose 4 or 2 yr.	Vision test may be required at renewal for all ages

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

Adapted from Molnar, L.J. & Eby, D.W. (2005). "A Brief Look at Driver License Renewal Policies in the United States." *Public Policy & Aging Report*, 15(2), 1,13-17.

There are many forms that screening of older drivers in licensing agencies can take, including observation of drivers' appearance or demeanor when they first come to the counter, asking them questions about their health and medication use, reviewing their driving history, and conducting screening tests for visual, cognitive, or psycho motor deficits that may impair driving. Results of these initial screening activities are best used to determine whether more in-depth assessment of fitness to drive is necessary. Based on the final outcome of such assessment, the licensing agency has several choices—it can allow the person to keep his or her license, refuse to renew the license, or suspend, revoke, restrict the license (e.g., prohibit night driving, require vehicle adaptive equipment, restrict driving to specific times or distances from home), or shorten the renewal cycle. In making these choices, licensing agencies consider each individual's abilities and circumstances, and the options available for driving compensation or remediation, as well as rely on the advice of their state medical advisory board, if one is in place.

Physicians, occupational therapists, and other professionals

Physicians and other health professionals, family and friends, and even older drivers themselves can also play an important role in the screening and assessment process. Physicians are uniquely positioned to assess driving-related problems as part of more general medical treatment and care. To the extent that declines in abilities are identified early, opportunities for rehabilitation or remediation can be recommended and facilitated. And in the event that driving ability is too compromised, evidence suggests that many older drivers will stop driving voluntarily, if advised to do so by their personal physician. At the same time, many physicians report that they are uncomfortable with making fitness-to-drive decisions or lack the necessary information to do so. In such cases, patients can be referred to other clinicians, especially occupational therapists or certified driving rehabilitation specialists, for

more comprehensive evaluation, including both clinical and on-road driving assessments.

As described in the recently published *Occupational Therapy Practice Guidelines for Driving and Community Mobility for Older Adults*,[10] occupational therapists consider driving an occupation, and the overarching goal of occupational therapy for individuals is continued engagement in their occupation. Evaluation of driving by an occupational therapist generally includes an initial interview to obtain medical and driving history, a clinical assessment of visual, cognitive, and psycho motor abilities, and an on-road driving assessment. Once declines in functional abilities have been identified, occupational therapists can determine whether a return to driving is possible through training and rehabilitation, and what specific remedial activities should be undertaken.

Older adults and their families

Home-based self-screening can also be a useful tool, by providing cognitively capable older drivers with information about driving-related declines so that they can make informed decisions about driving, and by facilitating discussions between older drivers and their families about driving-related concerns.

Because self-screening can be done privately with the results remaining confidential, it may be less threatening than other types of screening and something older drivers would be willing to do earlier in the aging process and to repeat over time. Clearly, older drivers must be free of serious cognitive impairment and must be honest in their responses and willing to follow through on suggested courses of action for the process to be of real benefit. Thus, older adults with dementia, who lack insight into their impairments in driving-related abilities, are not good candidates for self-screening and may be resistant to other screening and assessment efforts.

How screening and assessment can best promote lifelong community mobility

Important components of a promising approach for screening and assessment are highlighted below:

- Strong legislation for accelerated or in-person license renewal;
- Greater reporting by physicians and other professionals where needed;
- Clear information for physicians on reporting requirements and procedures;
- Strong and active medical review boards;
- Clear and objective guidelines and adequate training;
- Valid, reliable, and efficient screening procedures; and
- Valid and reliable assessment procedures.

The ability of licensing agencies to screen and assess older drivers can be enhanced in several ways.[11] First, legislation can be encouraged in states that currently do not require accelerated or in-person renewal for older drivers so that there are more opportunities for direct contact between licensing agencies and older drivers. Survey results suggest that licensing examiners consider how an individual looks when he or she enters the licensing office

(e.g., inability to walk without assistance, excessive shaking or tremors, or obvious disorientation) to be the single most important measure of impairment.[12]

Second, appropriate referrals from physicians and others in the community (including other medical professionals, law enforcement, and family and friends) can be encouraged or required, particularly because they are of such importance in bringing at-risk drivers to the attention of licensing agencies. Physicians may be reluctant to report patients because of uncertainty about whether they represent a clear risk to public safety, or because of fears of legal ramifications or the potential to undermine the physician-patient relationship. Recommendations for improving the ability of physicians to identify potential problems and for making physician involvement more effective include having clear and publicized information available on the role of physicians; their legal responsibilities for reporting, who to report to, and what happens once a referral is made; what to look for that might signal problems with driving; and where to refer patients for further evaluation.[13]

Third, there is an opportunity for medical review boards to become more active in supporting licensing decisions regarding older drivers. Many states have relatively inactive medical review boards and some states lack them altogether. Making medical review boards more effective may require adding members with expertise in aging and garnering more state support. Strong medical review boards can play an important role not only in assisting licensing agencies directly, but also in helping to educate and train physicians and other health professionals.

Fourth, licensing agency examiners need guidelines that can help them decide when further evaluation is called for, who can provide it, and in the event that remediation is necessary, what options are available, as well as adequate training to implement the guidelines. Physicians and other clinicians can also

benefit from well-defined medical and legal guidelines relative to older drivers.

Finally, underlying the effectiveness of all screening and assessment efforts is the need for procedures that are valid and reliable, and particularly in the case of screening procedures, that require minimal additional time, space, and resources. Screening and assessment efforts need to focus on the age-related abilities that actually affect driving. Many changes occur to people as they age, but not all of them compromise people's ability to drive safely. While research efforts over the past several years have focused on identifying the functional abilities most important for safe driving, it has been a challenge to extend these findings to the development of evidence-based screening and assessment tools for determining fitness to drive.

Screening and assessment, as described here, represent a tiered approach to determining fitness to drive. For example, in the licensing agency setting, results of initial screening activities that suggest concerns with driving are best used to signal the need for more in-depth assessment of fitness to drive. Similarly, in the clinical setting, physicians can act on "red flags" that arise during medical examinations by following up with more formal assessment of driving-related abilities.

These distinctions suggest that, in thinking about the validity of a particular procedure or test, it is essential to consider how it is being used—that is, for screening or for assessment. As observed by a growing number of researchers, screening procedures being used to identify gross impairments and to decide if more in-depth testing is needed can have a certain amount of leeway in terms of predictive power. On the other hand, assessment procedures being used to decide if driving privileges should be ended need to have a high level of precision in classifying drivers as safe or unsafe (i.e., in failing drivers who are unsafe to drive and passing drivers who are safe to drive), given the adverse consequences that can be associated with not only having to give up driving but also allowing unsafe drivers to remain on the road. Many would argue that current assessment tests and batteries lack the level of precision needed to justify their use in licensing and clinical settings in determining fitness to drive.

Many consider the on-road assessment to be the "gold standard" for determining fitness to drive because it approximates real world driving, provides drivers with real-time sensory feedback, and provides driving evaluators with an opportunity to make clinical determinations about driving safety and determines the needs for and ability to use vehicle adaptations. At the same time, concerns have been raised about the lack of standardized procedures for scoring driving performance, insurance reimbursement for these relatively costly assessments, and trained specialists to administer them. The American Occupational Therapy Association has been addressing some of these concerns by working to increase the number of trained driving rehabilitation specialists and to raise awareness about the need for third-party reimbursement for voluntary driving assessment.

Because self-screening faces unique challenges, an additional set of important components of a promising approach is highlighted below for self-screening:

- Use of incentives to increase participation;
- Screening tools based on aging-related research;
- Screening tools that are easy to use and understand;
- Screening tools that provide comprehensive information with individualized feedback; and
- Targeted to cognitively capable older drivers.

Incentives such as automobile insurance discounts may be effective in getting older drivers to voluntarily participate in screening and follow-up remediation activities.

The effectiveness of self-screening can be enhanced in several ways. Like screening in general, self-screening tools must be based on what is known about age-related declines and how they affect driving. Tools must be easy to use and understand, and provide concrete information about what older drivers can do to compensate for, or overcome, declining abilities, where to go for further evaluation, and how to plan for continued mobility when driving is no longer possible. Feedback should be individualized—that is, it should be linked to the identified problems of individual users. Because self-screening is especially useful for early detection of problems, it must be targeted and made available to appropriate groups of older drivers who are cognitively capable of completing a self-screening tool and able to benefit from its feedback.

Self-screening can play an important role in helping older drivers maintain safe driving by educating them about their own ability levels and suggesting appropriate compensation strategies and follow-up evaluations. At the same time, none of the currently available self-screening tools have been evaluated to determine if users actually engage in the behaviors they report they are planning as a result of completing the self-screening process. Future research should follow older drivers who self-screen for some period of time to determine whether they actually change their driving-related behaviors, thereby reducing their risk of crash involvement. Another

topic of interest is whether and how self-screening tools facilitate discussions about driving problems between older drivers and their families.

Highlighted programs and other initiatives

One of the most promising approaches for screening by licensing agencies is based on research initiated in 1996, and recently published as part of the *Model Driver Screening and Evaluation Program*.[14] The program was intended to keep people driving safely longer, while protecting the public through early identification of functionally impaired drivers. At its core is a battery of functional tests that can be administered relatively quickly and inexpensively within licensing agencies to determine older drivers' functional status relative to vision, cognition, and physical movement. The battery, pilot tested over several years on more than 2,500 drivers, was found to yield scientifically valid predictions about the risk of driving impairment. Because the test battery was designed to detect gross impairments, the investigators cautioned that results should be used to determine whether further evaluation is needed, and not as the basis for licensing actions. The test battery is summarized in Table 2.

Intended as a comprehensive approach to enhancing older adult mobility, the program also includes components that focus on how older drivers can initially be identified for functional testing (e.g., internal pre-screening in licensing agencies, external referrals), as well as on education and outreach efforts, referrals for remediation, and counseling to help older people maintain their mobility, if they can no longer drive. Table 3 provides information about one pre-screening component of the program that involves visual inspection by licensing agency examiners to identify older drivers who might need to undergo further functional screening. A second pre-screening component of the program involves asking drivers about medical conditions or symptoms they may have had

Table 2: Functional Abilities to Measure in a Driver Screening Program

Functional Ability	Screening Test
Visual Acuity	Wall charts, Stand alone testing machines, computer based programs
Visual Contrast Sensitivity	Wall charts, Stand alone testing machines, Computer-based programs
Field of View	Ophthalmological perimetry evaluation, UFOV subtest 2, Scan Chart test
Working Memory	Delayed Recall test from the Mini-Mental Status Evaluation (MMSE)
Directed Visual Search	Trail-making test, Part B
Visual (Divided) Attention Processing Speed	Trail-making test, Part B and a PC-based version of the Trail-making test, Part B ("Dynamic Trails"), UFOV subtest 2
Visualization of Missing Information	Motor-Free Visual Perception Test (Visual Closure subtest)
Lower Limb Strength and Mobility	Rapid Pace Walk, Foot Tap tests
Upper Body Flexibility	Arm Reach test and Head-Neck Rotation test
Head-neck Range of Motion	Head-neck Rotation test

Adapted from Staplin, L. & Lococo, K.H. (2003) and Staplin, L., Lococo, K.H., Gish, K.W., & Decina, L.E. (2003b).

Table 3. Evaluating Functional Ability by Visual Inspection in a Licensing Agency

Functional Ability	Observations
Lower body strength, range of motion, mobility and coordination	Person is able to walk without assistance, no partial or full loss of a leg or foot, and no excessive shaking, tremors, weakness, rigidity, or paralysis.
Upper body strength, head and neck range of motion, hand mobility, and coordination	Person can turn both head and upper body and has full use of arms and hands, no partial or full loss of arm, no excessive shaking, tremors, weakness, rigidity, or paralysis.
Adequate hearing	With or without a hearing aid, person is able to hear the normal spoken voice during licensing process
Adequate vision	Person must pass a vision screening by the DMV or a vision specialist.
Cognitive skills	Person responds to instructions and questions without disorientation.
Maintain normal consciousness and bodily control	Person does not experience excessive shaking, tremors, weakness, rigidity, paralysis, or obvious disorientation.
Maintain normal social, mental, or emotional state	Person does not display an excessively hostile and/or disruptive, aggressive behavior, or acts out of control. No obvious disorientation.

Adapted from Staplin, L. & Lococo, K.H. (2003) and Staplin, L., Lococo, K.H., Gish, K.W., & Decina, L.E. (2003b).

in the past five years that could affect driving.

More recently, an initiative was undertaken to translate the set of manual procedures from the Model Driver Screening and Evaluation Program into a computerized battery of screening measures, with the intent of facilitating test administrator training, improving data quality, and promoting the standardization of test instructions, methods, scoring and feedback. High and low contrast visual acuity measures were also added. The resulting battery of measures—termed the Driving Health Inventory—was designed to allow rehabilitation professionals and others working in clinical settings, to screen for deficits in the full range of functional abilities that are likely to be of concern to a medical advisory board or clinician evaluating an individual's medical fitness to drive.[15] Results from the computer-based screening battery lead to conclusions of no impairment, mild impairment, or serious impairment.

One promising approach in the area of physician assessment is the *Physician's Guide to Assessing and Counseling Older Drivers*.[16] Based on review of the literature and expert opinion as of May 2003, it is intended to help physicians and other health professionals assess the ability of their older patients to drive safely. The guide provides information about specific red flags for medically impaired driving; a test battery called the Assessment of Driving-Related Skills (ADReS) to assess the key areas of function; how to interpret performance on the test battery through scoring cut-offs, as well as examples of interventions to help physicians manage and treat functional deficits identified; driving rehabilitation specialists and how they can be of help; how to counsel drivers who should no longer be driving; physician's legal and ethical responsibilities; state-by-state licensing requirements, licensing renewal procedures, reporting procedures, and contact information for each state's driver licensing agency and medical review board; and a reference list of medical conditions and medicines that may impair

driving skills and consensus recommendations for each regarding driving restrictions.

A recent pilot study of the inter-rater reliability of the ADReS component of the Physician's Guide found 82 percent agreement among a nurse, an occupational therapist, and a physician across visual, cognitive and motor scores, although the sample size was small.[17] Preliminary evaluation of the effectiveness of ADReS in identifying older drivers at increased risk of unsafe driving (based on comparisons with on-road driving assessment) indicated that it identified all of the individuals who failed the on-road assessment, but also targeted a considerable number of individuals for intervention who passed the on-road assessment.[18] The investigators concluded that revisions to ADReS may be necessary to increase its effectiveness as a screening tool for physicians.

One of the more promising approaches to self-screening is the *Driving Decisions Workbook*, a paper and pencil instrument developed by the University of Michigan Transportation Research Institute (UMTRI).[19] The workbook is designed to increase older drivers' self-awareness and general knowledge about driving-related declines in abilities, and to make recommendations about driving compensation and remediation strategies that could extend safe driving, as well as further evaluation that might be needed. Development of the self-screening instrument was based on review of the literature, focus groups with older drivers and the adult children of older drivers, and a panel of experts on older driver abilities and evaluation. Based on findings from these activities, a model of the influences on driving decisions was developed with three domains for screening potential problems with driving—health (medical conditions and medication use), driving abilities (vision, cognition, and psycho motor), and experiences, attitudes, and behavior.

Preliminary testing of the workbook indicated that it correlated with an on-road driving test, as well as several clinical tests of functional abilities, most of which are part of the test battery from the

Model Driver Screening and Evaluation Program. Older drivers considered the workbook to be useful and reported their intent to make changes in their driving or seek further evaluation as a result of completing it.

In follow-up work to the *Driving Decisions Workbook*, a Web-based self-screening instrument was developed by UMTRI, based on "health concerns" that affect driving—that is, the symptoms that people experience due to medical conditions, medications used to treat them, and the general aging process—rather than the medical conditions or medications themselves. The *SAFER Driving: Enhanced Driving Decisions Workbook*, is intended to simplify the self-screening process, based on the premise that while there are a myriad of medical conditions and medications, they produce a relatively small number of health concerns that vary in severity, and in turn, affect driving.[20] Preliminary testing of the instrument indicated that it correlated with a clinical evaluation and on-road assessment administered through an established driving assessment program at the University of Michigan managed by on occupational therapist, and that study participants reported planning to make changes in their driving or seek further evaluation.

Another home-based screening tool is the AAA Roadwise Review, a CD-Rom based tool adapted from the DrivingHealth Inventory. Certain procedures were modified but the battery of tests was not changed—thus, the personal screening tool addresses the same critical safe driving abilities as the clinical tool. Design of the tool was strongly influenced by input from 16 focus groups. The tool allows older adults to assess their safe driving abilities, and also helps them decide how to use the outcomes to keep driving safely by providing links to feedback tailored to individual performance on the measures. To date, no published evaluation results are available for AAA Roadwise Review, but AAA reports that users enjoy the program and state their intent to follow the recommendations provided.

While early self-screening results are encouraging, there is clearly a need for further research to evaluate the effects of self-screening on driver behavior. In particular, objective data are needed about the actual changes in behavior made by drivers as a result of self-screening (e.g., seeking out further assessment and evaluation, participating in driver education/training activities, and modifying and/or reducing actual driving), and ultimately whether self-screening leads to reductions in crash involvement.

Summaries of promising programs and other initiatives

Brief summaries of the highlighted programs and other initiatives in the area of screening and assessment, as well as other programs and other initiatives that appear to have promise for promoting lifelong community mobility, are presented in this section in alphabetical order by type of program.

Licensing Agencies

California's Three-Tier Driving-Centered Assessment System

Objective
To identify impaired older drivers in a licensing agency.

Description
This is a three-tiered assessment program that incorporates sensory, perceptual, psycho motor, and cognitive assessment tools. The first tier consists of brief and inexpensive screening tests to identify impaired license applicants whose driving is likely impaired. The second tier consists of longer and more elaborate tests to identify drivers who might do poorly on an actual road test. The third tier consists of an on-road test. If a driver passes the first tier, he or she only needs to pass a knowledge test to be relicensed. If a driver partially fails tier one and passes or partially fails tier two, the department delivers an educational intervention to help him or her compensate for limited abilities. If a driver completely fails tiers one or two, or partially fails tiers one and two, he or she must take the road test. Based on the results, a determination will be made as to whether or not the driver should be relicensed. Pilot testing funded by NHTSA.

Study information

In exploratory pilot testing, it was found that the tests used in each of the tiers were fairly successful in differentiating between drivers with age-related medical conditions and otherwise healthy older drivers. In addition, performance on the on-road test could be moderately predicted by results of some of the first and second tier tests. It was recommended that a larger validation study be undertaken. A follow-up study yielded similar results regarding the effectiveness of the assessment system. The most functionally limited drivers were found to have a relatively low crash risk. This is likely because most limited drivers are more aware of their deficiencies, and compensate by driving less, reducing their exposure to crash risk. Similarly, somewhat functional drivers had the highest crash risk. Additional pilot studies are recommended to be performed to evaluate the three-tier processes and outcomes.

Contact information

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California Department of Motor Vehicles
Research and Development Section
P.O. Box 932382
Sacramento, CA 94232-3820
Tel: 916-657-7032
Fax: 916-657-8589
Email: mjanke@dmv.ca.gov

Model Driver Screening & Evaluation Program

Objective

To screen for functional deficits of older drivers in a licensing agency setting, and develop a program that will keep people driving safely for as long as possible.

Description

The program involves a battery of functional tests that can be administered relatively quickly and inexpensively within licensing agencies to determine older drivers' functional status relative to vision, cognition, and physical movement. Intended as a comprehensive approach to enhancing older adult mobility, the program also includes components that focus on how older drivers can initially be identified for functional testing (e.g., internal pre-screening in licensing agencies, external referrals), as well as on education and outreach efforts, referrals for remediation, and counseling to help older people maintain their mobility if they can no longer drive. Pilot testing funded by NHTSA.

Study information

In pilot testing, trained staff administered and scored the test battery and obtained information on the driving habits of over 2,500 older drivers. Researchers used crash records one year prior to the screening, and two years following, to evaluate the relationship between the screening and involvement in any type of crash, at-fault plus unknown-fault crashes, and at-fault crashes only. Results suggested that fast and efficient functional capacity screening can lead to valid predictions about the risk of driving impairment, and a number of functional ability tests were deemed useful for possible future use in the licensing process. In a follow-up study currently underway, participants in the original pilot study were re-evaluated five years later on a modified version of the screening battery and are being monitored via telephone survey for the following three years. Previously determined risk factors will be examined longitudinally to determine how risk factors change over time.

Contact information

Office of Research and Traffic Records
National Highway Traffic Safety Administration
400 7th Street, SW, Room 6240
Washington, DC 20590
www.nhtsa.dot.gov/people/injury/olddrive/modeldriver/

Oregon's At-Risk Driver Program

Objective

To preserve the independence, dignity, and self-esteem that result from providing one's own mobility, so long as it is possible to do so without risk to oneself or to others.

Description

The program focuses on individuals reported to the Department of Motor Vehicles (DMV) in Oregon as exhibiting unsafe or dangerous driving behaviors and/or medical conditions or impairments that may affect safe driving. An "at-risk" individual may be required to re-establish driving eligibility by passing DMV tests (vision, knowledge, driving), submitting additional medical information and/or obtaining medical clearance. The program is not based on a report of age or medical diagnosis, but rather on a report of impairments that impact a person's ability to drive safely.

Study information

An investigation is underway of the mandatory reports submitted to the program from health care professionals on individuals designated as having impaired ability to drive. Researchers are seeking to determine who is submitting the reports, what driver characteristics are reported most often, what medical conditions and specific impairments are being

reported, and what DMV actions are taken. A full evaluation of the program has been proposed and funding is being sought. Researchers hope to determine if the program is effective in removing high-risk drivers from the road and if it has success-fully reduced crashes, saved lives, and created safer roads for the public.

Contact information

DMV Driver Programs
1905 Lana Avenue NE
Salem, OR 97314
Tel: 503-945-5223
Email: William.B.Merrill@odot.state.or.us

Physicians, Occupational Therapists, and Other Professionals

Utah Licensing Program to Restrict Drivers with Medical Conditions

Objective

To use a special licensing program to regulate drivers with medical conditions.

Description

The program identifies drivers whose functional abilities may be impaired by their medical conditions, assigns them a functional ability level, and regulates how and when they may legally drive (e.g., through area or time-of-day restrictions), based on their ability level.

Study information

Comparisons of crash rates were made between drivers licensed with and without medical conditions. Drivers in the medical conditions program generally had higher crash rates than com-parison groups, although the differences were relatively modest, and most of the subgroups of medical conditions associated with increased crash risk were at the least restricted functional ability levels.

Contact information

NHTSA
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590
www.nhtsa.gov
http://driverlicense.utah.gov/medicine/index.html

Assessing Fitness to Drive (2003 Edition)

Objective

To help health care professionals use uniform cri-teria when assessing a patient's fitness to drive.

Description

Information is provided about various mental and physical conditions, and habits that can affect driving safety. These materials for health care professionals have been accepted by all licensing authorities in Australia. Funded by Austroads—an association of Australian and New Zealand road transport and traffic authorities.

Study information

The National Transport Commission performed a review in 2005 to assess the impact of administrative changes introduced with the 2003 edition. Health professionals, health profes-sional organizations, consumer health organizations, transport organizations, unions and driver licensing authorities were also consulted regarding possible suggestions, improvements, and urgent issues to be addressed. The survey found widespread acceptance of the standards and general processes for assessing fitness to drive. Significant problems with the conditional licensing provisions were not found, although ongoing educa-tion is required to assist in application.

Contact information

Austroads
PO Box K659
Haymarket, NSW, 2000
Australia
Email: austroads@austroads.com.au
www.austroads.com.au/aftd/index.html

Assessment of the Older Adult Driver

Objective

To assist physicians in gathering patient information relating to driving ability.

Description

Included are recommendations on how to obtain information on patients' driving history, medication use, medical illnesses, and functional ability levels, including vision and attention; how to assess alcohol related problems, using the CAGE question-naire; what to do if a patient does not follow a physician's advice to stop driving; and where to refer patients for further informa-tion or rehabilitation.

Contact information

David B. Carr, M.D.

Division of Geriatrics & Gerontology
Washington University School of Medicine
4488 Forest Park Blvd.
St. Louis, MO 63108
Email: dcarr@im.wustl.edu

CanDRIVE (Canadian Driving Research Initiative for Vehicular Safety in the Elderly)

Objective

To extend the safe driving period for older drivers by developing a standardized clinical assessment tool.

Description

CanDRIVE is an interdisciplinary health related research program dedicated to improving the safety of older drivers. The group examines and evaluates the effectiveness of current retraining programs and the use of restricted licensing, and is focused on developing a clinical screening tool to identify unsafe older drivers. To develop this standardized screening tool, the group will first identify risk factors associated with unsafe driving. Studies that follow will identify and overcome barriers to putting the screening tool into practice, as well as examine the psychological and social issues that affect older drivers to guarantee the tools are accepted by the target audience. Finally, CanDRIVE hopes to create a nationwide network of researchers focused on extending the number of safe driving years for older people by acting as a hub of information and resources. Funded by the Canadian Institutes of Health Research (CIHR)—Institute of Aging.

Contact information

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University of Ottawa Institute on Health of the Elderly
Élisabeth Bruyère Health Centre
43 Bruyère Street
Ottawa (ON) K1N 5C8
Tel: 613-562-0050, ext.1345
www.candrive.ca

Community Assessment & Intervention Program

Objective

To help those who are experiencing age-related changes, a progressive disease, or an acute illness to continue driving safely.

Description

The administering hospital partners with various agencies to develop and enhance systems and to assess the current driving skills of older adults for alternative transportation. A comprehensive evaluation is conducted by a physical therapist, and participants receive information on how to continue driving safely. Information is also shared with the patient's referring physician or primary care provider.

Contact information

Flower Hospital
5200 Harroun Rd.
Slyvania, OH 43560
Tel: 419-824-1116
Email: leslie.vassar@promedica.org

Determining Medical Fitness to Drive: A Guide for Physicians (2006 Edition)

Objective

To assist physicians in identifying potential driving impairments and help them to impose "common sense restrictions" on driving.

Description

The guide provides a detailed review of various medical, mental, and emotional factors that could influence an individual's fitness to drive. Also provided are information and descriptions from the licensing authority regarding medical fitness to drive, contact information for reporting unfit drivers, locations of driver assessment centers, and diagnostic tools to assess driving ability. The updated 2006 edition includes advice for helping aging patients adjust to driving cessation, sections on assessing medical fitness for railway and aviation workers, and advice on legal issues associated with driver assessment. Funded by the Canadian Medical Association.

Contact information

Member Service Centre
Canadian Medical Association
1867 Alta Vista Drive
Ottawa ON K1G 3Y6
Tel: 1-888-855-2555 or 613-731-8610, ext. 2307
www.cma.ca/index.cfm/ci_id/18223/la_id/1.htm

Drive-Ability Program

Objective

To provide comprehensive clinical driving evaluations and recommendations based on a person's needs and abilities.

Description

The program offers individual evaluations by trained occupational therapists for people referred to the program by a physician. The clinical evaluation includes the following: medical and driving history, visual and perceptual assessment, physical abilities' evaluation, cognitive testing, and driving knowledge tests. Following the clinical evaluation, specific recommendations are provided regarding an on-road evaluation, vehicle adaptations, vehicle selection, and equipment recommendations. This service is generally self-pay except for those covered by no-fault or worker's compensation insurance.

Contact information

Paula Kartje
University of Michigan Health Systems
Drive-Ability Program
355 Briarwood Circle
Ann Arbor, MI 48108
Tel: 734-998-7911
Email: kartje@med.umich.edu

DriveABLE

Objective

To identify medically impaired drivers who are unsafe on the road.

Description

DriveABLE is a two-phase assessment program that is offered in 22 centers in Canada and 5 in the U.S. Patients are referred to the program by licensing agencies, physicians, insurance companies, and concerned friends and family members. The first phase involves an in-office assessment of mental and motor functions needed for driving, using computer-based tests. Participants identified as potential risks in the first phase are given an on-road driving assessment in the second phase. Scores from each phase are sent electronically to an evaluation center to ensure consistency among all assessment centers. Privately funded.

Study information

DriveABLE was developed based on research on the types and severity of driving errors that medically impaired drivers make and how these errors can be identified through road testing. Drivers with cognitive impairments were more likely than other drivers to commit errors in turning (too wide or too narrow) and to drive too close to lane markings or too slowly. There were no differences in speeding errors or failure to come to a complete stop.

Contact information

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Edmonton, Alberta, Canada T6G 2E1

Tel: 001 403 438 1507
Email: adobbs@cyber.psych.ualberta.com

DriveABLE
10050-112 Street, Suite 202
Edmonton, Alberta. Canada T5K 2J1
Tel: 780-433-1494
Fax: 780-433-1531
Email: info@driveable.com
www.driveable.com

Driver Evaluation & Training Program

Objective

To help drivers maintain independence while ensuring safety on the road.

Description

Drivers can schedule their own evaluations but are often referred to the program by insurance companies, physicians, and family members. The program has two components, a pre-driving screening and a behind-the-wheel evaluation. A licensed occupational therapist delivers the pre-driving screening, assessing the driver's functional ability, cognitive ability, vision, perception, and reaction time. After the screening is successfully completed, the behind-the-wheel evaluation takes place in a vehicle equipped with a variety of adaptive controls. The driver follows a fixed route, which can be altered to simulate the driver's habits and needs. If adaptive driving controls are determined to be necessary following the evaluation, training sessions are scheduled to instruct the driver on the proper use of adaptive equipment. The training program varies in length according to a person's needs, and training is completed when the driver can complete the behind-the-wheel evaluation successfully. At the completion of the evaluation and/or training, the therapist may submit recommendations to the Motor Vehicle Administration's Medical Advisory Board. The screening, evaluation, and training are all charged by the hour.

Contact information

Sinai Hospital of Baltimore
2401 W. Belvedere Avenue
Baltimore, MD 21215
Tel: 410-601-8823
www.lifebridgehealth.org/sinaihospital

Driver Rehab Program

Objective

To keep older adults and individuals with disabilities as independent as possible for as long as possible.

Description

Clients are self-referred to the program, or are referred from physicians, family members, insurance companies, and other agencies. Though each program is tailored to the client's individual needs, training generally includes three elements: a pre-driving assessment in the clinic, limited driving on hospital grounds in a hospital vehicle, and an on-the-road driving session. The pre-driving assessment evaluates the driver's medical history, driving history, visual skills, reaction time, physical ability, perception, attention, and memory, and the on-the-road portions further evaluate the driver's abilities. If a driver fails the evaluation, the results are reviewed and the client may be advised to stop driving all together. In this situation, the risks of continuing to drive are discussed, alternate transportation options are provided, and the driver and his or her family are provided with counseling to adjust to this change. If the therapist feels the driver's shortcomings could be balanced with training, lessons are given. If indicated, drivers are taught to use adaptive equipment and learn safe driving strategies. An instructor may accompany a driver to the state driving exam site so they can be tested in an adapted vehicle for license coding.

Contact information

Bryn Mawr Rehabilitation Hospital
414 Paoli Pike
Malvern, PA 19355
Tel: 610-251-5400 or 1-888-REHAB-41
Email: rehabinfo@mlhs.org

DriveWise

Objective

To evaluate individuals who may be unsafe to drive on the road and provide treatment based on a person's needs and abilities.

Description

DriveWise is a comprehensive evaluation of the driving performance of individuals who may have compromised driving skills due to impairments in motor, cognitive, perceptual and/or sensory abilities. An evaluation includes a clinical social work assessment and neuropsychological evaluation, in-clinic occupational therapy assessment, an on-the-road driving assessment with the occupational therapist and a driving instructor, and a patient/family feedback meeting with the clinical social worker. Treatment may follow testing, if necessary, and may include training in the use of adaptations for the car or compensatory technique training. Alternative transportation resources in the community are identified, when needed. If cessation of driving is recommended as a result of the evaluation, the emotional impact of this loss is explored and support is provided to the individual and family by the clinical social worker.

Contact information

Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215
Tel: 617-667-4074
www.bidmc.harvard.edu/display.
asp?node_id=1979

Eastern Virginia Medical School Older Driver Evaluation Program

Objective

To assist older drivers to continue driving safely as late in life as possible.

Description

Older drivers thought to be suffering from cognitive impairment are assessed using a driving simulator. Driving history, habits, medical history, and quality of life are also taken into consideration. Drivers can participate in the program voluntarily, but are generally referred from physicians, the Virginia DMV, or concerned friends and family members. The simulated driving experience consists of a 10-minute practice drive and a 30-minute drive based on the actual community which takes drivers through rural, suburban, and urban settings. Drivers encounter a variety of situations that test cognitive skills necessary for safe driving. Stressful situations that require quick judgment are presented, such as pedestrians standing in the road. Divided attention skills are also tested as drivers have to deal with a passenger talking or a cell phone call. Based on errors made during the simulation, they are placed into three categories: safe, unsafe, and restricted. Restrictions are based specifically on errors made during the simulations. Based on recommendations by the driving evaluators, the Virginia DMV restricts licenses accordingly.

Study information

Forty-five drivers who fell into the "restricted" category during the simulated driving experience are currently being assessed to evaluate the effectiveness of the error-specific driving restrictions. Participants return for follow-up evaluations every 6 months for 3 years. DMV records for each driver are also analyzed to determine if the driver had been driving safely in between simulator assessments. Two years into the study, it appears that drivers extend their driving time by at least 6 months with restrictions tailored to their needs.

Contact information

Barbara Freund
Eastern Virginia Medical School
825 Fairfax Ave.
Norfolk, VA 23507
Tel: 757-446-7321

Email: freundbm@evms.edu

Getting in Gear

Objective

To assess older drivers to identify declines in driving related abilities and other driving problems.

Description

Getting in Gear is an older adult driving assessment program serving clients referred through the court system. Clients generally appear in court for an infraction, ticket, or crash and the judge requires them to complete the Getting in Gear assessment and follow all recommendations. Its battery of screening tests include: simple tasks to assess physical and cognitive abilities (foot-tapping, head and neck rotation, arm raising, and memory recall); a computer test with a joystick to assess attention, perception, memory, vision, and reaction time; a useful field of view (UFOV) test that uses a computer to assess peripheral vision and the processing speed of visual information, and a 30-minute road test to assess merging, lane changing, safe driving distances, and ability to follow directions and execute turns. Participants are offered case management services including counseling, rehabilitation services, referrals, medical care, occupational therapy, and information on adaptive equipment use, as well as mobility management services, which help drivers assess whether to reduce or stop driving. After the assessment, the judge, the older adult, a family member, and the older adult's primary care physician all receive a copy of the assessment and recommendations.

Contact information

Susan Samson, Project Director
Getting in Gear
Area Agency on Aging
9887 4th Street North, Suite 100
St. Petersburg, FL 33702
Tel: 727-570-9696, ext. 234
Email: samsons@elderaffairs.org

How to Assess and Counsel the Older Driver

Objective

To provide health care professionals with information on how to assess driving risk, decide if further assessment or rehabilitation is needed, and offer advice on how to approach patients with this sensitive information.

Description

Recommendations are provided on information a physician should gather regarding a patient's driving history; physical, visual, and mental health; and driving abilities. Information about conditions that commonly affect driving is given, as well as the legal implications on reporting an at-risk older driver.

Contact information

The Cleveland Clinic, Main Campus
W.O. Walker Building
9500 Euclid Ave.
Cleveland, OH 44195
Tel: 216-445-7350
Fax: 216-444-9971
www.clevelandclinic.org
www.geri.com/geriatrics/data/articlestandard/geriatrics/502003/78791/article.pdf

Older Driver: Cues for Law Enforcement

Objective

To provide law enforcement officers with information to help them determine whether or not an older driver is capable of safely operating a motor vehicle.

Description

The pamphlet contains information on how police officers can use visual and verbal cues to determine motorists' fitness to drive, and includes specific questions that can be asked of older drivers. Also included are suggestions about how to offer assistance to older drivers when intervention is necessary. Funded by NHTSA.

Study information

The suggestions provided in the pamphlet were field tested by Florida State Troopers in Pinellas County.

Contact information

U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590
Tel: 202-366-4000 or 1-888-327-4236
www.nhtsa.gov

Older Driver Evaluation Program

Objective

To help older drivers maintain independence.

Description

The program uses physical, visual, and cognitive assessments along with a driving simulator and an on-the-road driving

assessment. After the evaluation, recommendations may be made, such as adaptive equipment, modification of medication, or physical or occupational therapy. County courts have adopted the program as an alternative to license removal. Judges can choose to send a driver to this program for evaluations and testing prior to recommencing driving. The program has also been extended to Toledo Hospital and Flower Outpatient Rehabilitation Services through a license agreement with the Ohio State University (OSU) Medical Center. Funded by OSU Medical Center, the Office of Geriatrics and Gerontology, and the Department of Internal Medicine.

Contact information

The OSU College of Medicine and Public Health
370 West 9th Avenue
Columbus, OH 43210
Tel: 614-293-3377
http://medicine.osu.edu/geriatrics/91.cfm

Physician's Guide to Assessing & Counseling Older Drivers

Objective

To assist physicians in evaluating their older patients' ability to safely operate a motor vehicle.

Description

The guide assists physicians' in planning for older driver safety and provides information on how to informally and formally assess an older driver. Formal assessment includes an array of cognitive and physiological screens, including Clock Drawing, the Assessment of Driving Related Skills (ADReS) Score Sheet and the Trail-Making Test, Part B. Based on the results of the assessments, information is provided on how to interpret the scores, and guidance on how a physician can intervene and help manage and treat the patient. It also outlines information a physician should know prior to referring patients to a driving rehabilitation specialist, how to counsel a patient, legal and ethical responsibilities of the physician, state licensing policies and reporting laws, and medical conditions that may affect driving. Funded by the U.S. Department of Transportation.

Contact information

Joanne Schwartzberg, Older Drivers Project
American Medical Association
515 N. State Street
Chicago, IL 60610
Tel: 312-464-4179
Email: joanne_schwartzberg@ama-assn.org
www.ama-assn.org

UAB Driving Assessment Clinic

Objective

To help older drivers to continue to drive safely.

Description

Older drivers can be referred by health care professionals, family members, or self-referred. Vision, useful field of view (UFOV), memory, and attention screening, as well as an on-road driving tests, are used to evaluate a person's ability to drive. Testing is completed by an occupational therapist who is also a certified driving rehabilitation specialist (CDRS). Results from the assessment are reported to the patient and the referring physician. The clinic also educates participants on alternative transportation options and "rules of the road." Funded by University of Alabama at Birmingham.

Study information

In prior testing, the UFOV test was able to predict, at a high level of sensitivity and specificity, which older drivers had a crash history. Older adults with a sizable limitation of their UFOV were six times more likely to have been involved in a crash in the past 5 years.

Contact information

University of Alabama at Birmingham
UAB Driving Assessment Clinic
Jennifer Elgin MS OTR/L CDRS
Tel: 205-325-8646 or 1-800-822-8816
Fax: 205-488-0708
Email: driving@eyes.uab.edu
www.eyes.uab.edu/driving

Self-Screening

AAA Roadwise Review

Objective

To provide older adults with a computer-based program that they can complete in the privacy of their own home to allow them to measure the eight abilities most correlated to crash risk.

Description

Developed by AAA and transportation safety researchers, AAA Roadwise Review allows older adults to measure such abilities as leg strength, head and neck flexibility, high-contrast visual acuity, low-contrast visual acuity, working memory, visualization of missing information, visual search, and visual information processing speed. The program identifies potential problem areas and suggests ways to correct them. Many visual, medical, and physical rehabilitation options are available that can add substantially to the safe driving years of normal aging individ-

uals. Just as an individual monitors their physical health, users of the tool can now measure changes in their driving health.

Contact information

Dannielle Sherrets
AAA National
607 14th St. NW, Suite 200
Washington, DC 20005
Tel: 202-942-2063
Email: dsherrets@national.aaa.com

Drivers 55 Plus: Check Your Own Performance

Objective

To increase self-awareness of driving abilities and educate drivers about driving compensation strategies through self-screening.

Description

This self-screening instrument contains 15 questions, along with instructions to compute and interpret a score and suggestions for improving driving performance. Development of the instrument was based on the results of research conducted for the AAA Foundation for Traffic Safety by researchers from the Safety Research and Education Project at Teacher's College, Columbia University. Funded by contributions from motor clubs associated with AAA and the Canadian Automobile Association, individual AAA club members, and AAA-affiliated insurance companies.

Contact information

AAA Foundation for Traffic Safety
607 14th Street, NW, Suite 201
Washington, DC 20005
Tel: 202-638-5944
Email: btefft@aaafoundation.org
www.aaafoundation.org

Driving Decisions Workbook

Objective

To increase older drivers' self-awareness and general knowledge about driving-related declines in abilities, and make recommendations about driving compensation and remediation strategies that could extend safe driving, as well as further evaluation that might be needed.

Description

Development of the self-screening instrument was based on a comprehensive review of the literature on older drivers, a series of focus groups with older drivers and the adult children of older drivers, and a panel of experts. The workbook is divided into five topic areas that influence safe driving behaviors—on-the-road, seeing, thinking, getting around, and health. Readers circle the answer that best describes their situation. Feedback (information and suggestions on dealing with a specific problem) is provided when appropriate. The end of the workbook contains a general question and answer section with additional information and resources. Funded by General Motors Corporation.

Study information

In preliminary testing, the workbook was found to correlate with an on-road driving test, as well as several functional tests, most of which are part of the test battery from the Model Driver Screening and Evaluation Program. Although additional testing is desired to determine what changes people actually make and what actions they pursue as a result of using the Driving Decisions Workbook, the early results suggest that it can reinforce what older drivers already know about age-related declines, help them discover changes in themselves they had not been aware of before, and lead to, at the very least, stated intentions to make changes in driving or to seek further evaluation.

Contact information

David W. Eby, PhD
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Transportation Research Institute
2901 Baxter Road
Ann Arbor, MI 48109-2150
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Email: eby@umich.edu
www.umtri.umich.edu
http://deepblue.lib.umich.edu/handle/2027.42/1321

Driving Safely While Aging Gracefully

Objective

To use self-screening to provide information on the physical changes associated with aging, as well as tips on coping so that older drivers can continue driving safely for as long as possible.

Description

The booklet, which can be accessed online, discusses changes in abilities related to vision, physical fitness, attention, and reaction time, and provides suggestions on what drivers can do if they are experiencing problems in any of these areas. Information is also provided on who to contact for help, and options for alternative transportation. Funded by the USAA Educational Foundation, AARP, and NHTSA.

Contact information

The USAA Educational Foundation
9800 Fredricksburg Road, D3E
San Antonio, TX 78288
Tel: 1-800-531-8159
www.usaaedfoundation.org

SAFER Driving: Enhanced Driving Decisions Workbook

Objective

To create a Web-based self-screening instrument to provide older drivers with individualized information to help them make better decisions about driving.

Description

SAFER (Self-Awareness and FEedback for Responsible) Driving is a Web-based self-screening instrument focused on health concerns—that is, the symptoms people experience due to medical conditions, medications used to treat them, and the general aging process—rather than the medical conditions or medications themselves. Based on review of the literature and input from an expert panel and focus groups, 27 health concerns related to vision, cognition, and psycho motor ability, and 15 critical driving skills were included in the instrument. The instrument provides personalized feedback to users about the health concerns and critical driving skills, as well as recommendations for safe driving practices and further evaluation. Funded by NHTSA.

Study information

In preliminary testing with 68 older adults, results from the self-screening were compared with results from a clinical evaluation and an on-road driving assessment administered through the University of Michigan Drive-Ability program. The self-screening instrument was found to correlate with both the clinical evaluation and on-road driving assessment. Feedback from participants indicated that the instrument made them more aware of changes that can affect driving and was useful as a reminder of things they already knew. Most participants reported that they would be likely to use it in the future or recommend it to others, and substantial numbers reported their intent to make changes in their driving or seek further evaluation as a result of completing the instrument.

Contact information

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Ann Arbor, MI 48109-2150

Tel: 734-763-2466
Email: eby@umich.edu
www.um-saferdriving.org

The Older and Wiser Driver

Objective

To help older drivers continue to drive safely by encouraging self-screening of driving skills and providing educational materials on how to compensate for the effects of aging.

Description

Published by the AAA Foundation for Traffic Safety, this brochure and video provide older drivers with information on the changes that occur with age and their effects on the ability to drive. Issues of vision, cognition, fitness, medication, and driving cessation are discussed to help drivers recognize their limitations and suggestions are made about where drivers can get additional help.

Study information

A study by the Center on Aging at the University of Victoria attempted to determine the utility of an educational intervention that encourages self-screening and the acceptance and perceived usefulness of this program by older adults. Six 90-minute driving self-screening educational sessions using voluntary participants recruited through flyers were conducted. Participants completed two surveys regarding driving history, knowledge and attitudes, and driving self-screening. A final questionnaire was given to assess the usefulness and relevance of the educational session. The driving self-screening survey found that two-thirds of the participants were aware of factors that contribute to unsafe driving and were utilizing this knowledge. Participants reported the educational sessions to be valuable and indicated that they plan to make changes to their driving behaviors as a result of the information received from the session. The impact of these educational sessions on participants' subsequent behavior has not yet been assessed.

Contact information

Centre on Aging, University of Victoria
PO Box 1700
STN CSC, Victoria, BC
Canada V8W 2Y2
Tel: 250-721-6369
Fax: 250-721-6499
www.coag.uvic.ca

Education and Training

The aging process affects everyone in one way or another and most older adults will eventually be faced with questions about their ability to continue to drive safely. How they answer these questions, and whether they are even willing to consider them, depends to a great extent on the information available to them about functional declines in abilities that can affect driving, strategies for compensating for, or overcoming, these declines, and how to plan for a time when driving is no longer possible. Thus, the availability of sound education and training is essential for maintaining mobility among older adults.

While many older drivers do recognize their declining abilities and take steps to adjust their driving, others are unaware of the changes they are experiencing and the implications of these changes for safe driving. Thus, one focus of many education programs is simply to increase older drivers' awareness and knowledge about these issues. Other programs combine education with some type of training to help older drivers compensate for, or when possible, to overcome functional declines.

Such education and training programs are often part of the rehabilitation process for older drivers identified as functionally impaired by occupational therapists, by certified driving rehabilitation specialists, and by other professionals.

Educational and training resources vary widely in terms of purpose, format, content, and target audience (e.g., the older drivers themselves, family members, professionals working with older drivers, and the general public). Among the programs available to help older drivers overcome or compensate for functional declines are driver refresher courses and on-road driver training programs, fitness and other training programs, and programs that assess the "fit" between drivers and their vehicles (i.e., how they sit in the vehicle and how the vehicle is adjusted) and recommend improvements. There is also an industry that provides low technology adaptive equipment such as specialized mirrors that can be added to vehicles (after purchase) to help older adults drive better.

Driver refresher courses use classroom instruction to reinforce older drivers' existing driving skills and
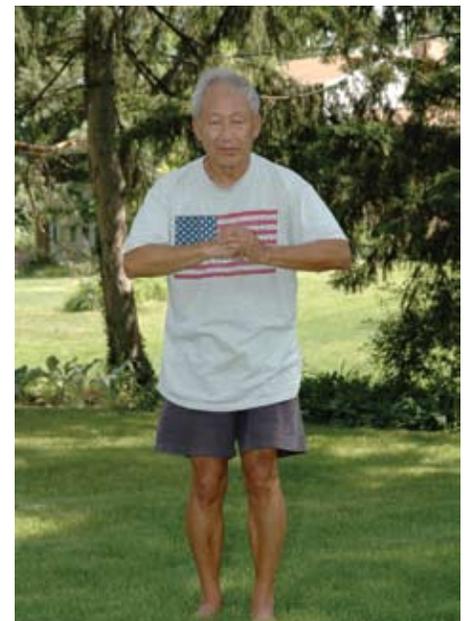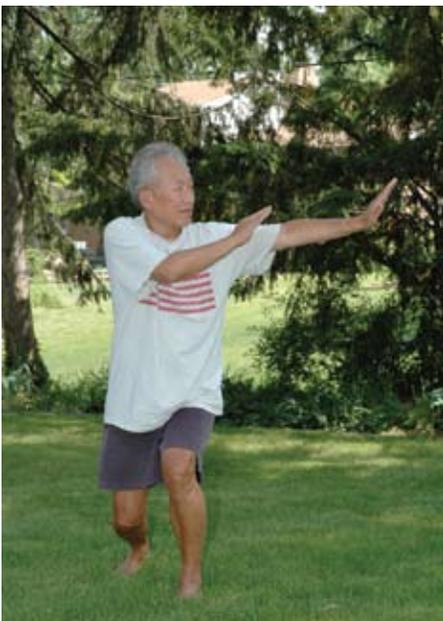
knowledge, and teach them about newer traffic laws and practices for defensive driving. National programs of this type include the Driver Safety Program course, sponsored by AARP, Safe Driving for Mature Operators, sponsored by AAA, and Coaching Mature Drivers, sponsored by the National Safety Council. On-road driver training programs for older drivers focus on enhancing driving skills by providing opportunities for behind-the-wheel practice. Programs of this type include the Driving School Association of the Americas, the Driver Skill Enhancement Program, and on-road add-ons to some of the AAA driving refresher courses.

While little is known about the impact of driver refresher courses and on-road driver training on actual crash risk, these programs show promise for increasing participants' knowledge of the rules of the road and changing driving habits (e.g., checking blind spots, increasing following distances, paying more attention when entering or exiting highways, and yielding right of way), based on self-reports from participants. However, studies are needed to objectively measure the driving performance of par-

ticipants and to assess the impact of these programs on actual crash risk.

Various types of fitness training programs seek to help older drivers overcome declines in psycho motor abilities that have been found to be amenable to remediation (e.g., shoulder flexibility and trunk rotation). Improving range of motion can help older drivers do a better job of scanning, backing up, and turning their head to see their blind spot, while they are driving. Results from a recent study on the effectiveness of a physical conditioning program (targeted to axial and extremity flexibility, coordination, and speed of movement) were quite encouraging. Participants tolerated the program well and maintained their driving performance (as measured through an on-road driving test), while a control group declined in performance. There have also been efforts to train older drivers to overcome some deficits in attention and information processing, although these are still under study (e.g., useful field of view).

Ensuring a good "fit" between drivers and their vehicles is important for comfortable and safe driving. There are programs available (such as CarFit developed jointly by AAA Auto Club, AARP, the American Occupational Therapy Association, and the American Society on Aging) to help older drivers determine how well their cars fit them and what they can do improve their fit. Some of the aspects of a safe fit that a trained professional might look for include being able to see clearly over the steering wheel, sit comfortably and safely in the seat, reach the gas and brake pedals easily, get in and out of the vehicle safely, turn to look over the shoulder when changing lanes, and sit comfortably, without knee, back, hip, neck, or shoulder stiffness or pain. It is also important that there be enough room between an individual's chest and the steering wheel, that the headrests are adjusted properly, and that seat belts are adjusted so that they are comfortable but still correctly positioned while driving.

Vehicle adaptations show promise for helping older drivers compensate for some functional declines that can lead to unsafe driving, such as reduced strength, flexibility, range of motion, and vision-related deficits. For example, vehicle adaptations may help older drivers or those with disabilities get in and out of the car, fasten and unfasten their seat belt, and exert control in operating the car (e.g., steer, accelerate, brake, use control levers). Common types of adaptive equipment include hand-controls, spinner knobs, signal switches, and spot mirrors. Table 4 identifies several categories of functional impairments and the adaptive equipment that may help compensate for them.

Table 4: Impairments, Problems, and Adaptive Equipment for Older Drivers

Impairment	Problems	Adaptive Equipment
Reduced peripheral vision	Difficulty backing up, looking for merging vehicles, and vehicles in adjacent lanes	Convex mirror on side view mirror
Shortening due to age resulting in lower sitting position in vehicle	View of the road obscured by steering wheel	Seat rise
Increased sensitivity to glare resulting in reduced contrast vision	Reduced ability to see road clearly and make out other vehicles, people, animals, and signage	Anti-glare windshield styling, windshield tinting, sun shield, contoured sun visor, visor clip-on extension
Difficulty assessing distances	Judging distance from the wheels to curb when parallel parking, judging distance when backing up	Curb feeler, sonar for backing up
Information overload	Finding radio controls confusing	Simpler radio with fewer options and easier controls
Reduced strength and flexibility in lower limbs resulting in poor extension and pressing with legs and feet	Difficulty pressing on foot pedals	Pedal extender
Limited range of motion in arms, arthritic hand, arms or legs that tire easily	Difficulty reaching/turning/holding steering wheel for long periods, difficulty opening and closing car door, difficulty inserting and turning key in ignition	Small diameter power steering wheel, hand grip or knob on standard steering wheel, large inside door handle, key extender
Reduced flexibility in torso or arms, arthritis in hands, large stature	Difficulty reaching, securing, releasing seat belt	Ribbon tied to end of belt, seat belt extender or extension strap
Arthritis in hands	Reduced dexterity using control knobs and buttons on dashboard	Easier-to-use control switches, touch pad switches
Reduced flexibility in head, neck, and trunk	Difficulty backing up, looking for merging vehicles and vehicles in adjacent lanes, less ability to rotate to look back when backing up	Convex mirror on side view mirror, clip-on rear view mirror
Decreased strength and flexibility in torso and legs	Difficulty turning and getting into and out of vehicle	Assist strap or assist handle
Reduced sensitivity to pressure and touch in foot	Foot may slip off pedals, especially when wet	Pedals with non-stick surface
Skin sensitivity, sensation of pressure on chest from seat belt, sensation of poor fit of seat belt around neck	Discomfort when wearing seat belt	Inflatable seat belt, soft cloth or fleece, pre-tensioner, seat belt adapter

Adapted from Van Ranst, E., Silverstein, N.M., & Gottlieb, A.S. (2005). "Promoting Safe Mobility among Elders by Increasing Awareness of Vehicle Modifications–Final Report". Boston, MA: Gerontology Institute, University of Massachusetts Boston.

How education and training can best promote lifelong community mobility

Important components of a promising approach for education and training are highlighted below:

- Program development/design based on age-related research

- Strong marketing approach to ensure public awareness of program and participation by older drivers

- Accessible to older people through broad array of settings

- Incorporation of basic learning principles into program design

Effective education and training efforts must build on what is known about functional declines, how they affect driving, and what can realistically be done to address the declines. In the case of declines that cannot be reversed, this may mean simply increasing knowledge and personal awareness so that older drivers can make informed decisions about how to recognize declines, and how to reduce or stop their driving if safe driving is no longer possible. In the case of declines that can be overcome, it may mean teaching older people to do new things or to do things in a different way (e.g., learning to do stretching and strengthening exercises). In many cases, the focus of training is not so much on individual declines but on general driving skills that need to be improved because of lack of knowledge about newer traffic laws or safe driving practices (e.g., stopping distances on wet versus dry pavement). In these cases, the goal of training is to provide the necessary information and practice opportunities to improve driving skills.

Regardless of the program's focus, older drivers must not only be made aware of the program but also believe that they can benefit from it. Because many older drivers are unwilling or unable to recognize deficits in driving-related abilities, self-screening is often a useful first step in getting people to take

action about their driving. The challenge, of course, for both self-screening efforts and education and training efforts, is to get people to participate, and that means that programs must be effectively marketed. One successful approach for doing this has been to apply the principles of consumer marketing to the promotion of health and safety behavior, a practice called social marketing. Components of a social marketing approach include situational analysis (getting to know the market), market segmentation and targeting, setting objectives, formulating a market strategy, implementing the program, program implementation, and monitoring and evaluation.

Programs must also be accessible to the older adult population they are trying to serve. One way of making programs accessible is to offer them through existing programs or organizations that are known to and are used by the older adult. Fitness training programs, for example, can be developed and delivered through existing community or senior centers, recreation centers, public health departments, housing authorities, and religious institutions.

Effective education and training efforts take into account what is known about how people learn, especially older adults. We know that for classroom learning, the physical environment is important—room size and seating arrangements should be responsive to potential vision and hearing deficits of participants. Legibility of written and visual mate-

rials is important. Other general learning principles, such as providing opportunities for interactive learning, learning both inside and outside the classroom, finding ways to make the learning as interesting and understandable as possible, and making participants feel like they have some control over their learning, also apply to older adults. Finally, important information should be presented in a variety of ways so that it can be retained by older drivers.
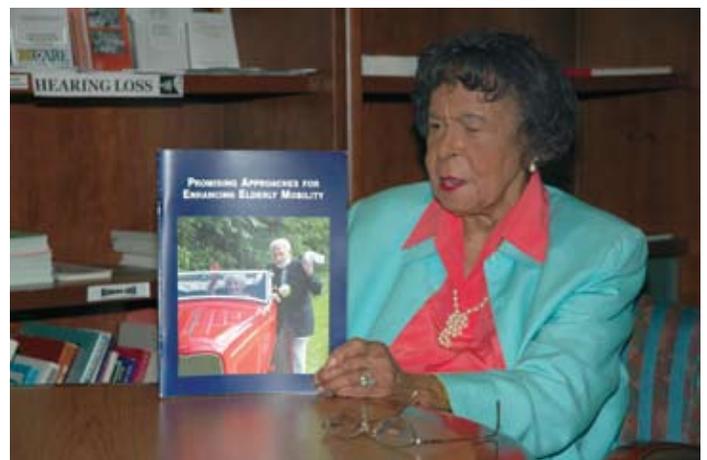
Vehicle adaptations represent a special case of education and training efforts because before making adaptations, older drivers need to be evaluated by an occupational therapist or certified driving rehabilitation specialist to ensure that they get the right equipment, have it installed properly, and receive training, when necessary, on how to use it. Therefore, some additional components of a promising approach apply.

Important components of a promising approach for promoting lifelong community mobility through vehicle adaptations are highlighted below:

- Appropriate choice of adaptive equipment
- Installation and monitoring for fit
- Training and practice opportunities
- Demonstrated safety effectiveness of equipment

Because each driver has unique needs and preferences, there is no one set of adaptive equipment that is right for everyone. Some older drivers, such as those with dementia, may not be appropriate candidates for using adaptive equipment because of their lack of insight into their functional impairments and their lack of capacity to learn new strategies and techniques. Therefore, the effective use of adaptive equipment requires selecting the right equipment, as well as installing it, checking it for fit, receiving training, when necessary, on how to use it, and having an opportunity to practice with it under low-risk conditions. Occupational therapists can be very helpful in making recommendations for adaptive equipment as part of their assessment of the

impact of functional impairments such as decreased shoulder range of motion due to arthritis, fracture, stroke, or Parkinson's disease. Older drivers not working with an occupational therapist may be able to get advice from a rehabilitation agency or hospital about who to contact to assist them in identifying and obtaining appropriate equipment, installing it, and providing the necessary training (e.g., a driving rehabilitation specialist).

A final component of a promising approach in this area is the demonstrated safety effectiveness of the equipment. Unfortunately, although vehicle adaptations are recommended for many drivers with functional impairments, there has been little research on the effectiveness of this equipment in improving safe driving. Studies are needed to evaluate the impact of various vehicle adaptations on actual driving performance and crash risk, and to examine the training practices for using the adaptations.

Descriptions of programs or other initiatives that appear to be especially promising

There is certainly no shortage of education and training efforts directed at older drivers. The most promising approaches to promoting lifelong community mobility have more to do with making older drivers aware of what is available, helping them find the best fit for their needs, and encouraging them to participate in existing programs, than with devising new programs. One example of this kind of approach is the creation of resource centers within communities to promote safe mobility choices. As described in NCHRP Report 500, older drivers and their families would be able to call a one-stop hotline to get guidance and assistance with all aspects of driving and transportation. Hotline personnel (sometimes referred to as personal mobility managers) would provide information and materials to help older people make informed decisions about continuing or stopping driving, and would be trained to make referrals for driving assessments, driver rehabilitation and training, vehicle adapta-

tions, alternative transportation options, and other needed services. Such a resource center could be housed within a department of motor vehicles or state office on aging at the state level, or a driver license office, area agency on aging, or older adult center at the local level. Variations of this model are being offered in a number of areas (e.g., New York State's Help Network initiative, which builds on their *When You Are Concerned* handbook). While this approach is still relatively new, it has received positive feedback where it has been implemented and represents a promising approach to helping older drivers actually make use of all the resources available for enhancing older adult mobility. However, just as individual education and training efforts must be marketed to older people, so too would a resource center intended to provide information about those efforts. Thus, for this approach to be successful, it will need to include a carefully thought-out marketing strategy.

In terms of older adults who may benefit from vehicle adaptations, there is not one set of equipment that is right for everyone. Each driver has unique needs and preferences that will determine which adaptive equipment is likely to enhance his or her safe driving. Thus, the most promising approach in this area in one that helps older drivers through the entire process required to make vehicle adapta-

tions, including assessment of the need for adaptive equipment (by a driving rehabilitation or other specialist), choice of the appropriate equipment, installation, training, practice, and ongoing monitoring to make sure it is working as intended.

For older drivers who are being treated by an occupational therapist or rehabilitation facility, there are typically resources to help them with this process. Other older drivers may be considering vehicle adaptations but do not know how to proceed. Both groups of drivers can benefit from publications that provide information about the steps that should be taken to make vehicle adaptations and identify resources for each part of the process. The website **infinitec.org** contains information (or links to other sites with information) on where to get a driving assessment and what to expect from it, what types of adaptive equipment are available, where to purchase adaptive equipment, and options for funding vehicle adaptations. The brochure "Adapting Motor Vehicles for People with Disabilities," published by NHTSA, focuses on assessing needs, choosing the right vehicle, choosing a qualified dealer to modify the vehicle, training, and maintaining the vehicle. There is also information about cost savings, licensing requirements, and organizations to contact for help. *The Disabled Driver's Mobility Guide*, published by AAA, contains information on choosing the right equipment and a listing of equipment dealers, along with model numbers and types of available equipment. Additional resources are listed, by state, for different types of assessment (e.g., arthritis/muscle fatigue, vision, hearing), driver training, adaptive equipment (e.g., foot and hand controls), and other services (e.g., licensing, enforcement).

Identification of individual education and training programs that show promise for promoting lifelong community mobility must take into account what each program is trying to accomplish. For example, some programs are intended to educate older drivers about rules of the road. Others provide training to improve general driving skills, and still

others provide training to improve actual visual, cognitive, or psycho motor abilities (e.g., fitness training, useful field of view). Because of the wide variety of programs and the different objectives they have, it would be difficult, and have limited utility, to pull out a few from all the promising programs and highlight them here. Thus, promising individual programs are summarized in the following section.

Summaries of promising programs and other initiatives

Brief summaries of programs and other initiatives in the area of education and training that appear promising for promoting lifelong community mobility are presented in this section in alphabetical order by type of program.

Driver Refresher Courses and On-Road Driver Training

AARP Driver Safety Program

Objective
To help drivers enhance existing skills and develop defensive driving techniques.

Description
A $10 fee is charged for a 2-day, 8-hour course, taught, promoted, and administered by volunteers. AARP members and non-members are eligible for the program. Among the topics discussed are the effects of medication and aging on driving ability, reaction time changes, left turns and other right-of-way situations, new traffic laws, crash avoidance strategies, self-screening, and alternative transportation. Successful completion may result in lower auto insurance rates. Funded by AARP.

Study information
Volunteer subjects from AARP in four states were randomly assigned to attend the session or to receive no training. Researchers examined driving practices, medical problems, traffic problems, violations, and crashes. The training was found to be effective in increasing subjects' general knowledge of safe driving, with subjects' knowledge retained throughout the 14-month evaluation period. There were no statistically significant differences in crash involvement between the trained and untrained group, although annual violation rates were significantly lower among the trained group. Only 21 percent of the 10,000 volunteers who agreed to participate in the training actually completed it and provided crash data. Although a similar

proportion of the control group provided follow-up crash data, by the end of the study, the remaining participants in the two groups no longer represented a random sample. A 2005 mail survey of 3,512 random graduates of the Driver Safety Program found that 91 percent had changed at least one driving behavior as a result of taking the course. The top five behaviors that graduates reported changing were: checking blind spots, following distance and space cushion, paying more attention when entering/exiting highways, and yielding right of way. These behaviors correspond with topics emphasized in the course. The study also found that 80 percent of graduates felt material learned in the course has helped prevent them from being involved in a traffic crash.

Contact information
AARP Driver Safety Program
601 E Street NW, Washington, DC 20049
Tel: 1-888-227-7669
www.aarp.org/drive or www.aarp.org/drive/online

Mature Driver Improvement Program

Objective
To educate drivers on the effects of medication, fatigue, alcohol, and visual/auditory impairments on driving performance, and to provide strategies for defensive driving.

Description
The course includes roughly 7 hours of classroom time scheduled in one or two sessions. There is a small fee for the course and for a department of motor vehicles (DMV) certificate to demonstrate completion of the program. Students may qualify for an insurance discount upon completion of the program. Funded by DMV Research and Development Section, California Department of Motor Vehicles.

Study information
Researchers compared 3-year prior and 6-month post driving records of a group of drivers who participated in the course with a demographically similar group of drivers who did not. In a 1995 study, researchers found that crash and violation rates of participants who took the classroom course, participants who took a home-study version of the course, and a control group, were not statistically different. However, for drivers with recent prior violations, both the home-study and classroom sessions seemed to be effective in reducing further violations.

Contact information
Department of Motor Vehicles,
Traffic Violator School Unit
Attn: Mature Driver Program
PO Box 825383, Mail Station N-229

Sacramento, CA 94232-5383
Tel: 916-229-3127
www.dmv.ca.gov/vehindustry/ol/mature_drvr.htm

Mature Driver Workshop

Objective

To help older drivers evaluate and improve their driving skills, and continue to drive for as long as they can safely do so.

Description

Topics discussed in the program include the effects of aging and medication on driving, physical limitations, risk management, defensive driving skills, current traffic laws, and crash prevention. Psychosocial evaluations are conducted to measure brake reaction time, depth perception, visual acuity, night glare recovery, and the cognitive field of view. Results are confidential and no records are kept, although instructors provide feedback on potential problems in driving behavior and offer suggestions for enhancing current driving skills. The program consists of two 4-hour classroom sessions held on consecutive days that include lunch. On the third day, students are present for about 45 minutes for an on-the-road evaluation with an instructor in the student's own vehicle, and the Useful Field of View cognitive evaluation. Instructors are generally peers trained by AAA. Beginning in 2007, the program will incorporate AAA's CarFit program into the workshop. Funding is provided through grants, corporate support, and the Traffic Improvement Association.

Study information

Comments from participants indicate that many of them have found the program useful, that the information provided influenced their driving, and that they would recommend the program to others. Students and teachers alike responded favorably to the 2005 revision of teaching materials, which allowed for much more personal interaction with the students.

Contact information

Traffic Improvement Association
2187 Orchard Lake Road, Suite 140
Sylvan Lake, MI 48320-1778
Tel: 248-334-4971
Fax: 248-334-2060
Email: joanr@tiami.org
www.tiami.org/maturedriver.asp

National Safety Council's Coaching the Mature Driver

Objective

To educate drivers about ways to adapt to technological changes in vehicles as well as about physical changes commonly associated with aging.

Description

This 2-day, 6-8 hour interactive course provides a review of basic driving techniques, and introduces skills that can help offset the effects of the aging process on driving performance. Instructors are certified by the National Safety Council. Funded by the National Safety Council.

Contact information

National Safety Council
1121 Spring Lake Drive, Itasca, IL 60143-3201
Tel: 630-285-1121
Fax: 630-285-1315
www.nsc.org

Safe Driving for Mature Operators

Objective

To meet the informational needs and interests of drivers over age 55 and to help extend their safe driving careers.

Description

The program delivers tips and techniques to help experienced drivers compensate for changing vision, reflexes and response time; understand how prescription medications may affect driving; and drive defensively in a variety of situations. Available for a nominal fee, the 8-hour course is delivered over 2 days. Instructors undergo an initial 40-hour certification program, and recertify every 36 months. Some AAA clubs also offer vision screening and/or on-road assessments and training. All results are confidential. Developed and funded by AAA.

Study information

This program was included in a study measuring the effectiveness of several countermeasures in improving the driving performance of older drivers. The program resulted in a 7.9 percent overall improvement in driver performance, as measured by on-road driver performance. However, the small sample size made it difficult to generalize the findings.

Contact information

AAA Traffic Safety Programs
Driver Training MS 33
1000 AAA Drive, Heathrow, FL 32746
Email: tsprograms@national.aaa.com
www.AAA.com

Super Seniors

Objective

To connect training and licensing so that older adults can continue to drive safely longer.

Description

This is a free, voluntary program that includes both assessment and educational components. Participants attend the Rules of the Road Course, which includes information on license renewal, a review of safe driving techniques and state traffic laws, and a practice written exam. Participants can also take an optional vision exam required to obtain or renew a license, as well as practice their driving skills through a driving simulation. A Secretary of State Mobile Driver Services Unit will be available for participants to renew their driver's licenses. Funded by Department of Motor Vehicles/Secretary of State.

Contact information

Illinois Secretary of State
213 State Capitol
Springfield, IL 62706
Tel: 1-800-252-8980
www.sos.state.il.us/home.html

Years Ahead–Road Safety for Seniors Program

Objective

To promote behaviors conducive to safe driving, encourage older drivers to take responsibility for the future of their driving, increase knowledge and awareness, and promote self-screening of driving abilities.

Description

Program development was based on a literature review of issues related to older drivers, discussion groups with both drivers and nondrivers, and consultation with experts in the area of older drivers. The program consists of a free 90-minute PowerPoint presentation, supported by non compulsory practical "Refresher" drives and a comprehensive handbook. Short videos feature similar older individuals experiencing driving problems. The presentation is delivered free of charge to organized groups of older people. Funded and presented by the Royal Automobile Club of Queensland.

Study information

An evaluation consisting of a retrospective and prospective survey found that individuals who attended the Years Ahead session exhibited a significant increase in their knowledge and awareness of road safety. It was also found to have a positive impact on participants' views and attitudes. Evaluations could not determine the extent to which the program affected actual driving behavior.

Contact information

Royal Automobile Club of Queensland
Driver Education Unit
Tel: (07) 3872 8925
Email: deu@racq.com.au
www.racv.com.au

Wiser Driver Program

Objective

To educate and provide assistance to older drivers regarding road safety and provide information about alternatives to driving.

Description

Initiated by the Hawthorn Community Education Project, Inc., the program represents a partnership between older adults, adult educators, and government and non government agencies. Topics include changes in traffic laws, building confidence, driving conditions, licensing, as well as the effects of aging and medical conditions on driving. Information is also provided about crashes, ensuring automobiles are safe for the road, pedestrian safety, and planning for the future. The 8-hour interactive course is held over a 4-week period with 10-15 older drivers taught by a trained facilitator, and workshop sessions feature a guest police officer. A variety of audio visual aids and books are used. Funded by the Hawthorn Community Education Project, Inc., local councils, and state traffic authority.

Study information

The project will be formally evaluated by the Australian Transport Safety Bureau. Researchers plan to conduct surveys before and after training to assess the impact of the course and its usefulness to older drivers. Informal feedback indicates that participants found the course to be a helpful and positive experience. Participants reported increased knowledge of road safety, as well as a willingness to adapt their driving habits. Evaluations are carried out by participants at the end of the each course.

Contact information

Hawthorn Community Information Centre
584A Glenferrie Road
Hawthorn 3122
Victoria, Australia
Tel: 61 3 9819 5758 or 61 3 9819 5771
Email: vickib@hcec.edu.au
www.hcec.edu.au

General Education

Countermeasures that Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices

Objective
To provide a basic reference to assist state highway safety offices in selecting effective, science-based traffic safety countermeasures for major highway safety problem areas.

Description
Developed by the Governors Highway Safety Association and NHTSA, this guide describes current initiatives in a variety of highway safety issues, including older driver safety. The guide is divided into sections by problem area. Each section describes the problem, lists specific countermeasures and summarizes their use, effectiveness, costs and implementation time, and provides references to the most important research summaries and individual studies. State agencies interested in these countermeasures are encouraged to contact references for further guidance. The section on older driver safety addresses countermeasures in the areas of communication and outreach, licensing and law enforcement, including formal classes, license screening and testing, and the roles of law enforcement. The guide is updated annually to address new problem issues as they arise, as well as include new innovative programs. Funded by NHTSA.

Contact information
Countermeasures That Work
NHTSA
Office of Research and Technology, NTI-130
400 7th Street, SW, Room 5119
Washington, DC 20590
Email: countermeasuresthatwork@nhtsa.dot.gov

DriveWell

Objective
To promote older driver safety and community mobility.

Description
DriveWell is a comprehensive program designed to promote community conversations that can lead to increased driver safety and more transportation choices for adults age 65 and older. It also encourages older drivers to change when and how they drive and prompts older adults to use alternative forms of transportation. The DriveWell Experts Bureau is the central component of the program. The Experts conduct information sessions about older driver wellness, safety, and mobility nationwide and work with community-based professionals who will deliver the driving fitness and safety programs to older adults, their families and other community stakeholders. DriveWell was developed by the American Society on Aging and funded by NHTSA.

Study information
In a pilot test of the DriveWell program, older adults were given questionnaires about how they planned to use the information they had just learned in the educational programs. A brief telephone survey was conducted 8 weeks after the participants had completed the program. It was found that DriveWell successfully influenced safe and healthy behaviors that positively affected the driving of older adults. In addition, participants reported significantly higher rates of participation in follow-on activities, such as getting eye exams, than they had predicted immediately following the programs.

Contact information
American Society on Aging
833 Market St., Suite 511, San Francisco, CA 94103
Tel: 415-974-9600
Fax: 415-974-0300
Email: drivewell@asaging.org

www.asaging.org/drivewell

GrandDriver

Objective

To help prepare drivers to maintain safe mobility in their later years.

Description

GrandDriver is an education and awareness campaign of the American Association of Motor Vehicle Administrators (AAMVA) to educate the public about the effects of aging on driving ability and to encourage drivers to make wise choices as they grow older. The GrandDriver website provides links to educational resources and services to help older adults and their families deal with driving issues. The website includes information about finding driver refresher courses, driver rehabilitation specialists, alternative means of transportation and resources for family members who are concerned about an older driver.

Contact information

AAMVA
4301 Wilson Blvd., Suite 400, Arlington, VA 22203
Tel: 703-522-4200
Email: granddriver@aamva.org
www.granddriver.info

How to Help an Older Driver

Objective

Provide older drivers and their friends and family with information about the impact of aging and medications on driving skills, and to offer suggestions and resources for further information.

Description

The 30-page booklet provides readers with details of how age and medications affect a person's driving skills, how to assess an older driver's skills both through self-screening and by observing various factors, how to help an older driver by ensuring he or she exercises and sees a physician regularly, and what features to look for in choosing a car. It also provides a list of driver refresher courses and offers suggestions for how to help older drivers cope and plan for driving cessation, and how to overcome the fear of losing independence. Finally, it provides contact information for every state department of motor vehicles and lists of useful websites for aging drivers. Funded by AAA Foundation for Traffic Safety.

Contact information

AAA Foundation for Traffic Safety
607 14th Street, NW, Suite 201
Washington, DC 20005
Email: btefft@aaafoundation.org
www.aaafoundation.org

Older Driver Law Enforcement Course

Objective

To educate law enforcement officers on the special needs of older drivers in their communities.

Description

Developed by NHTSA and law enforcement experts across the country, this 3.5 hour course is designed to be taught by law enforcement to law enforcement. Issues discussed include: reasons to care about aging drivers; understanding aging factors and how they can affect driving; how to communicate with older drivers; conducting the traffic stop, making referrals- especially to licensing agencies- and community outreach program to improve relations with older adults. The course includes a video, handouts, a simulated traffic stop, and group exercises.

Contact information

NHTSA
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590
www.nhtsa.gov

Project Safe R.O.A.D.s

Objective

Provide information that will help keep older drivers safe and to provide access to information on transportation options.

Description

Project Safe R.O.A.D.s (safe and responsible options for aging drivers) maintains a website with information on driver safety for older adults, caregivers and human service professionals. The project also provides exercise locations at community sites that focus on strength and balance training to help keep older driver agile and mobile, and information on transportation options for older adults living in Onondaga County when they can no longer drive themselves.

Study information

The Onondaga County Department of Aging and Youth received grant funding from NHTSA, who partnered with the American Society on Aging and the Academy for Educational Development, to initiate a project involving research on older driver habits in Onondaga County, New York. A survey of over 600 drivers age 65 and older found that older drivers equate driving with independence, oppose mandatory testing for driver licensing, are willing to take driver classes to enhance driving skills, and want a variety of transportation options to be available even though they prefer the private automobile. These findings along with a research grant from the National Association

of Area Agencies on Aging, in partnership with NHTSA, allowed the project to expand to its current state.

Contact information

Onondaga County
Department for Aging & Youth
John H. Mulroy Civic Center, 13th Floor
421 Montgomery Street, Syracuse, NY 13202
Tel: 315-435-2362
Fax: 315-435-3129
www.ongov.net/Aging_and_Youth/SafeRoads

Road Map to Driving Wellness

Objective

To provide a balanced picture of the functional challenges that face many older adults and an array of ways in which older adults can take action to enhance their driving safety and remain mobile and connected to their communities.

Description

This is a Web-based educational module created for professionals in the field of aging, but is available for anyone interested in driving wellness and older adults for free to download and/or print. The module was developed through a cooperative agreement between the American Society on Aging and the Centers for Disease Control and Prevention and features Exercise for Life!, a physical activity program for keeping the keys longer, as well as other driving wellness programs. Highlighting the importance of discussions before a driving crisis arises, the module encourages older adults, their loved ones and the entire community to openly discuss driving issues and begin planning desirable options. The program also provides information and guidance about creating driving wellness programs for older adults, including background information on the issues, organizing and implementing successful, and program evaluation. This module seeks to provide a balanced picture of the functional challenges that face many older adults. More importantly, it describes an array of ways in which most older adults can take action to enhance their driving safety and remain mobile and connected to their communities. The module also points to the ways, means and challenges that some communities have devised for those older adults who have reduced or retired from driving.

Contact information

American Society on Aging
833 Market St., Suite 511, San Francisco, CA 94103
Tel: 1-800-537-9728 or 415-974-9600
Fax: 415-974-0300
Email: livewell@asaging.org
www.asaging.org/CDC/module4/home.cfm

When You Are Concerned: A Handbook for Families, Friends, and Caregivers Worried About the Safety of an Aging Driver (and Help Network)

Objective

To provide information about issues and resources regarding older drivers to friends, family members, and caregivers.

Description

The handbook, available online, is organized into eight chapters. The chapters include an overview of concerns faced by family and friends regarding an older driver, how and where to find help, interventions, keeping an older driver driving safely, how to prepare for future driving cessation how to help the former driver cope with driving cessation, and alternative transportation options. Based on this handbook, the Help Network initiative was developed as a one-stop hotline to assist older drivers and their families obtain information on driving safety. Calls are directed to the Department of Senior Services, the lead agency. Help Network member agencies take referrals from the lead agency and work directly with families where necessary. Each member shares the network services directory and can also cross-refer families to other services.

Contact information

New York State Office for the Aging
2 Empire State Plaza, Albany, NY 12223-1251
Tel: 1-800-342-9871 or 518-474-5731
Fax: 518-486-2225
Email: nysofa@ofa.state.ny.us
www.aging.state.ny.us/caring/concerned

Fitness and Other Training

A Randomized Trial of a Physical Conditioning Program to Enhance the Driving Performance of Older Persons

Objective

To determine whether a multi-component physical conditioning program could improve driving performance among older drivers.

Description

Results are reported from a study of drivers age 70 and older with increased driving risk due to physical impairments. Current driving performance was assessed in an on-the-road evaluation before participants were randomly assigned to either the intervention or control group. Those in the control group received general information on safety issues facing older adults today; participants in the intervention group received this information in addition to 12 weekly visits by a physical therapist who guided them through a graduated exercise program. The program focused on physical abilities known to be associated with driving (axial/extremity conditioning, upper extremity coordination/dexterity and hand strength, and gait and foot abnormalities). Results indicated that the intervention group maintained their driving performance, while controls declined. The program was safe, could be performed in 15 minutes a day or less, and could be done at home. Further research is needed to determine the clinical relevance of the intervention program.

Contact information

Richard A. Marottoli, M.D., MPH
Geriatrics, 240
VA Connecticut
950 Campbell Ave, West Haven, CT 06516
Email: Richard.marottoli@ynhh.org

CarFit

Objective

To provide information to older adults to ensure that their vehicle fits them properly.

Description

Created by the American Society on Aging and developed in collaboration with AAA, AARP, and the American Occupational Therapy Association, CarFit is an educational program that uses a 12-point checklist to help older drivers determine how well they fit in their vehicles. Steering wheel height, seats, mirrors, head restraints, and many other elements of the vehicle are examined to see whether they should be adjusted to accommodate the physical changes associated with aging, and thereby improve driving safety and comfort. All of these elements can be reviewed in a 15-minute comprehensive check provided by trained personnel at a CarFit event.

Contact information

Dannielle Sherrets
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Washington, DC 20005
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Susan Hardenburgh
AARP
Tel: 202-434-6008
Email: shardenburgh@aarp.org

Elin Schold Davis
American Occupational Therapy Association
Tel: 952-942-8859
Email: escholddavis@aota.org

Expanding the Useful Field of View (UFOV)

Objective

To improve the UFOV through training. The UFOV is defined as the visual area in which information can be acquired within one eye fixation.

Description

Training is provided on the detection of briefly presented targets under varying attentional demands to increase the amount of information that can be processed in a given amount of time. Training takes place over a 10-day period or until some criterion level of performance is achieved. Evaluation of the assessment and training products has been funded primarily by the National Institute on Aging.

Study information

Twenty-four subjects in three different age groups (22–33, 40–49, and 60–75 years) participated in training to improve UFOV. Researchers investigated four factors that influence the field of view. Follow-up evaluations over a period of 6 months were conducted to assess the longevity of the improved visual performance. The size of the UFOV varies by age, and typically diminishes with age; however, findings indicated that some of the shrinkage can be reversed with a small amount of practice. The effects of training were found to persist over time (at least 6 months).

Contact information

Karlene Ball, Ph.D.
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University of Alabama at Birmingham
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Birmingham, AL 35294-2100
Tel: 205-975-2296
Fax: 205-975-2295
Email: kball@uab.edu

www.visualawareness.com (For UFOV Products)

Flexibility Fitness Training Package for Improving Older Driver Performance

Objective

To provide older drivers with tips to improve flexibility as it relates to driving.

Description

A brochure identifies exercises and stretches to improve neck, shoulder, trunk, back, and overall body flexibility. Written directions are accompanied by graphics demonstrating the stretching exercises. Funded by AAA Foundation for Traffic Safety. Based on research indicating that higher levels of fitness among older drivers are associated with better driving performance.

Contact information

AAA Foundation for Traffic Safety
607 14th Street NW, Suite 201
Washington, DC 20005
Email: btefft@aaafoundation.org
www.aaafoundation.org

Vehicle Adaptations

Adapting Motor Vehicles for People with Disabilities

Objective

To educate drivers about the process of getting a motor vehicle adapted.

Description

The brochure provides information about the process that individuals should go through when in need of adaptive technology, including evaluating needs, identifying the right vehicle for those needs, finding a qualified dealer to modify the vehicle, getting trained, and maintaining the vehicle. Information is provided about programs/agencies that will assist with costs, how to find a qualified evaluator and dealer, and how to obtain training to use the new equipment. A resource list is also provided. A new version specifically prepared for older drivers, who do not necessarily see themselves as disabled, is currently being created. Funded by NHTSA.

Contact information

National Highway Traffic Safety Administration
Tel: 1-888-327-4236   TDD: 1-800-424-9153
Email: Use webmaster on website
www.nhtsa.dot.gov

Keep Moving Longer: Features for Safe Driving

Objective

To promote safe mobility among older adults by increasing awareness of vehicle modifications.

Description

This 22-minute video demonstrates 13 vehicle modifications that may alleviate challenges with driving commonly experienced by aging motorists. Examples of modifications include: a visor extender, seat belt adjuster, pedal extenders, and a ceiling handle grip. The selected features are fairly simple to understand and use, and they are priced such that most drivers can afford them.

Study information

A study was done to determine whether viewing the video would increase awareness of and motivation to use the features demonstrated in the video. A convenience sample of 157 drivers age 70 and older completed pre- and post-tests to assess their awareness of the features shown in the video, and to collect information about their driving histories, concerns with driving, and self-imposed driving restrictions. Results indicated that viewing the video and being part of a discussion session afterwards served the intended purpose of increasing older adults' awareness of vehicle modifications that could enhance safety and comfort. Eleven percent of participants interviewed in a follow-up telephone survey had purchased features since viewing the video.

Contact information

University of Massachusetts Boston
Gerontology Institute
100 Morrissey Blvd.
Boston, MA 02125
Tel: 617-287-7300
Fax: 617-287-7080
Email: gerontology@umb.edu
www.geront.umb.edu

Infinitec—Assistive Technology

Objective

To advance independence and promote inclusive opportunities for people with disabilities through technology.

Description

The website provides information about assistive technology to individuals with disabilities. Assistive technology includes any type of device that accomplishes a task for someone who cannot achieve it naturally. Among the resources is information about adaptive driving. The importance of getting a professional driving assessment is stressed, tips for choosing a vehicle are given, and information is provided about available vehicle modifications. Modifications include automatic transmissions, power steering, stability management systems, siren detectors, bioptics for improved vision, steering devices, raised roof or dropped floors, pedal extenders, seats, and seat belts. Funding assistance options for vehicle modifications are also mentioned. Infinitec, Inc., is a joint effort of the United Cerebral Palsy Association of Greater Chicago and the United Cerebral Palsy Association, Inc., Washington DC.

Contact information

Infinitec Southwest Assistive Technology Center
7550 West 183rd Street
Tinley Park, Illinois 60477
Tel: 708-444-8460
www.infinitec.org/live/driving/drivingintro.htm

National Mobility Equipment Dealers Association

Objective

To increase independence for people with disabilities by unifying and improving the mobility equipment industry.

Description

The association establishes national guidelines, provides resources, ensures overall quality through a quality assurance program, and offers training opportunities.
Guidelines on recommended practices for equipment modification and installation are updated on a yearly basis. Members are required to follow these guidelines as well as NHTSA's safety standards. Funded by membership dues.

Contact information

NMEDA Headquarters
3327 W. Bearss Avenue
Tampa, Florida 33618
Tel: 1-800-833-0427 or 813-264-2697
Fax: 813-962-8970
Email: nmeda@aol.com

Vehicle Design and Advanced Technology

Both basic vehicle design features and advanced technology such as intelligent transportation system (ITS) technology have the potential to increase the safety and mobility of older drivers by helping them compensate for functional declines. Vehicle design features are intended to help drivers avoid crashes or improve crashworthiness in the event of a crash. Some design features currently available in vehicles or being considered by auto manufactures are highlighted below.

Crash avoidance features:

- Headlamps and mirrors that produce less glare

- Easier-to-read controls

- Headlamps that automatically turn on and off as needed

- Larger character size on labels and gauges

- Labels that contrast better with background colors

- Reduced glare from the instrument panel

- Better display contrasts

- Head-up displays that enable drivers to see information through the windshield, so that locating the in-vehicle display does not require refocusing

- Daytime running lights to improve visibility to other vehicles

- Easier-to-reach controls that require less attention to locate and operate

- More comfortable seats that reduce fatigue

Crashworthiness features:

- Seat belts that are easier to put on and take off, and more comfortable to wear

- Seat belts and airbags that adapt to characteristics of the vehicle and driver (e.g., speed of the vehicle, driving seating height, driver weight and age)

- Seat designs that offer improved protection to the neck in rear impact, such as special seat structure that deforms to limit neck motion at low-speed rear impacts

- Inflatable head restraints that limit rearward head motion

- Donor bags in the torso portion of the seat back that use the rearward motion of the torso to compress and transmit gas into a recipient bag in the head restraint

- Side airbags to help protect the head, thorax, and pelvis

ITS combine advances in wireless communication technologies, automotive electronics, computing, and global positioning systems. Current and near-term technologies include systems that help drivers navigate (e.g., global-positioning-system-based route guidance), systems that help drivers see (e.g., infrared vision enhancement systems), systems that help drivers maintain attention on the roadway (e.g., distraction management systems), and systems that help drivers avoid crashes (e.g., lane-departure warning systems, collision avoidance systems). These systems vary widely in how they deliver information to the driver and the degree to which they take over control of the vehicle.

Other technologies include systems that assist drivers in the event of a crash by signaling for help and showing the vehicle's location. Features may also include automatically activating the emergency flashers, unlocking the doors when a crash occurs, using airbag deployment as a prompt for sending a distress signal from the vehicle's cell phone to a central location, or using an automatic system to summon a tow truck.

Most ITS technology would appear to be beneficial to older drivers. Until recently, however, little of this technology was developed to take into account the unique needs and preferences of older drivers. And while the U.S. DOT has supported a number of projects to develop design guidelines for various ITS applications, most of the guidelines published from these efforts have focused on the general population and do not specifically address older drivers.

How vehicle design and advanced technology can best promote lifelong community mobility

Important components of promising approaches for vehicle design and advanced technology are highlighted below:

- Consumer awareness of "senior friendly" vehicle design features

- Affordable advanced technology applications

- Technology that is easy to use and understandable

- Technology that enhances rather than detracts from safety

- Opportunities for training

General considerations for older drivers thinking about buying a new car are receiving increasing attention. Some are highlighted here:

- Bright colored cars, especially white ones, may be easier for other drivers to see.

- Front and side impact airbags provide increased protection.

- Firm adjustable seats help with a proper fit and can provide increased visibility and comfort.

- Adjustable seat belts are more comfortable.

- Sheepskin or padded "sleeves" for the shoulder belt may improve comfort and prevent chafing.

- Belt-adjusting clips or straps that squeeze the lap and shoulder belts together over the driver's stomach are not recommended as they can position the lap belt too high, over the abdomen rather than across the pelvis, leading to increased injuries in a crash.

- A steering wheel that adjusts at both the front and at the back allows the driver to find a safe, comfortable position.

- Adjustable brake and gas pedals provide for a safer more comfortable seating position further away from airbag.

- Large windows and small pillar posts provide better visibility by minimizing blind spots.

- Controls that are easy to read in any light, reach, and operate help prevent distractions while driving.

- Large, glare-proof or self-darkening (light sensitive) mirrors reduce glare while maintaining visibility.

- Wide-angle rear view mirrors and convex side mirrors can help with stiffness in the neck or problems with peripheral vision, but distort distances and require practice to use safely.

- Remote keyless entry provides quick and safe access to the vehicle; power windows and locks help prevent distracted driving; non-tinted windshields make visibility easier.

Successful ITS applications, particularly for older drivers, need to be affordable, relatively easy to use, and work to enhance safe driving rather than produce additional driver distractions that may actually increase crash risk. One way to promote affordability is to develop systems that are flexible enough to benefit drivers of all ages, yet are still able to help older drivers compensate for diminished abilities. This general idea—that what works for the older adult will also benefit other drivers—is the basis of many successful approaches in the areas outlined in this guide. However, in the area of ITS, the impacts on driver safety and mobility, especially for older drivers, are still not well understood. Early research suggests that older drivers appear to have more trouble learning to use some ITS applications like in-vehicle navigation systems than younger drivers and find them less functional. And while older drivers compensate to some degree for the increases in attention demanded by the systems, they still seem to make more safety-related errors than younger drivers.

To achieve widespread use of ITS by older drivers, future ITS applications will need to be carefully designed to ensure that safety is enhanced rather than reduced. In addition, effective training will need to be available to help older drivers learn how to use the systems and to overcome any fears they may have about the technology. This training should take into account how older adults learn and recognize the declines in abilities that they may be experiencing, such as decreased visual acuity or slowed information processing. The research should also determine the proper venue for training to take place.

Descriptions of programs and other initiatives that appear to be especially promising

The development of ITS is still in the early stages. And while there are considerable efforts underway to develop general guidelines for ITS, few of the published results have focused specifically on the needs of older drivers. It is worthwhile to examine some of the guidelines that have been developed for ITS that explicitly take older drivers into account. Clearly, the most promising systems for enhancing the mobility of older drivers will likely be those that are designed in strict accordance with what is known about the aging process and its effects on driving and use of technology. As part of a project by the University of Calgary, Caird and his colleagues compiled guidelines related either to older drivers or to vision enhancement systems from numerous international and U.S. sources. These guidelines present a snapshot of the more promising thinking about ITS design. Clearly, as work continues in this area, guidelines will be refined and further developed. While true state-of-the-art ITS guidelines for older drivers may lag somewhat behind actual system development, they can still be useful as technologies evolve and systems undergo change. General design principles include:

- Designs must accommodate a large distribution of users—especially older drivers—and a range of ambient lighting conditions that minimize workload.

- Higher levels of task difficulty that affect the division of attention, working memory, or manual control are more likely to affect older drivers than younger drivers.

- ITS applications that produce divided attention between tasks, redirect attention for prolonged periods (multiple looks and looking), or create extreme oscillations in mental workload (overload or underload) are likely to endanger drivers using these applications.

- The fit of ITS applications such as vision enhancement systems to older drivers must consider the behavioral adaptations that have been made by drivers (e.g., not driving at night).

Summaries of promising programs and other initiatives

Brief summaries of the highlighted programs and other initiatives in the area of vehicle adaptations and advanced technology, as well as other programs and other initiatives that appear promising for promoting lifelong community mobility are presented in this section in alphabetical order.

A Design Guideline and Evaluation Framework to Determine the Relative Safety of In-Vehicle Intelligent Transportation Systems for Older Drivers

Objective
To develop design guidelines and a framework for evaluating the safety of ITS applications for older drivers.

Description
A review of infrared and ultraviolet vision enhancement systems is provided along with guidelines related both to older drivers and vision enhancement systems, which have the potential to assist drivers to see at night. These guidelines were compiled for the Transportation Development Centre by the University of Calgary in Canada from various international and domestic sources.

Study information
A number of topics were reviewed that contribute to understanding older drivers, including transportation ergonomics, driver fatalities and injuries, visual and attentional limitations, compensatory behavior, and technology usage. Guidelines that stressed the importance of considering the needs of older drivers were developed to be used in all ITS design. These guidelines and evaluation framework will assist designers, ergonomists, manufacturers, and researchers who wish to determine the relative safety of ITS products.

Contact information
Transportation Development Centre (TDC)
800 Rene Levesque Blvd. West, Suite 600
Montreal, Quebec H3B 1X9
Email: tdccdt@tc.gc.ca

Human Factors Design Guidelines for Advanced Traveler Information Systems (ATIS) and Commercial Vehicle Operations (CVO)

Objective
Provide design guidelines for advanced traveler information systems (ATIS).

Description
The handbook summarizes human engineering data, guidelines, and principles for use by creative designers, engineer and human factors practioners during the ATIS design process. These summaries take the form of design guidelines for 75 distinct ATIS design parameters, and are intended to be concise,

unambiguous, traceable to specific references, and highlight implications for driver performance. Where appropriate, design guidelines specifically aimed at older drivers are included. Funded by Federal Highway Administration and U.S. DOT.

Contact information

Office of Safety Research & Development
Federal Highway Administration
6300 Georgetown Pike
McLean, VA 22101
Email: joe.moyer@fhwa.dot.gov
www.fhwa.dot.gov

Roadway Design

Given the types of problems older drivers have on the road, it is clear that roadway design can play a key role in enhancing safe driving among older adults, whether in terms of designing new roads or redesigning existing ones. For example, intersections are especially dangerous for older drivers. Yet, it is possible to reduce the crash risk of older drivers at intersections through changes in roadway design related to protected left-turn signals, stop signs, signal timing, roundabouts, and walk signs. Similarly, well-maintained roadway markings (e.g., painted edge-lines, raised pavement makers, post-mounted markings) can enhance safety by providing visual cues to drivers to help them stay in their lane. Some aspects of freeway driving can be problematic for older drivers—for example, merging on entrance and exit ramps, and driving through construction zones—and may be made easier by changes in roadway design. Collectively, improvements in roadway design can serve to make the roadway more forgiving not only to older drivers, but also to the general population of drivers on the road. In addition, design improvements at intersections can benefit older pedestrians who are considerably more likely to be killed by automobiles than younger pedestrians.

The existing road system in the U.S. was largely built using design standards that did not specifically take into account the needs of an aging population of drivers. Given the tremendous growth in the older population, and the fact that older adults today are more likely to use the road system (by taking more trips and driving more miles) than earlier cohorts, there are clear benefits to identifying and implementing roadway design enhancements that are responsive to age-related changes in the driving population.

How roadway design can best promote lifelong community mobility

Important components of a promising approach for promoting lifelong community mobility for older adults through roadway design are highlighted below:

- Design guidelines responsive to needs of older drivers;

- Uniform guidelines across jurisdictions;

- Adequate training and resources for effective implementation;

- Demonstrated safety and cost effectiveness; and

- Efforts in place to educate older adults about roadway improvements.

The first component of a promising approach in this area is the development of design guidelines that are responsive to the needs of older drivers. That is, design standards must take into account the specific driving-related declines that can occur with aging and how these declines impact the ability of older drivers to negotiate the roadway. For example, we know that information processing is slowed for many older drivers, making it more difficult for them to read signs clustered together at an intersection. Improvements in sign placement and design can help older drivers respond more quickly to make important driving decisions, such as when to brake and then to execute those decisions.

The second component of a promising approach is a uniform set of standards that can guide the design of new roads and redesign of existing roads across states and local communities. This is important not only so that drivers find consistency in the designed roadway environment regardless of where they are traveling, but also so that valuable resources are not wasted by having to start from the beginning each time design solutions are needed. To this end, FHWA began an initiative several years ago that resulted in the 1998 publication of the *Older Driver Highway Design Handbook*, which included recommendations for geometrics, signing, and pavement markings in four major areas of roadway design—intersections, interchanges, roadway curvature and passing zones, and construction/work zones. Feedback from workshops conducted across the U.S. with state and local design and traffic engineers responsible for day-to-day design decisions led to the development and publication of an updated handbook, the *Highway Design Handbook for Older Drivers and Pedestrians*, in 2001 and a condensed companion document with just the recommendations and implementation guidelines. Design guidelines for older pedestrians were recently addressed in the study Pedestrian Signal Safety for Older Persons. Study conclusions take into account the slower walking speed of older adults relative to other age groups, and support calls by others to reduce the pedestrian walking speed used for determining overall pedestrian signal timing in the Manual on Uniform Traffic Control Devices from 4.0 feet per second to 3.5 feet per second or less depending on specific pedestrian characteristics and intersection features.

To be effective in promoting safety, design standards must be effectively implemented. This third component of a promising approach requires roadway designers and traffic engineers, at both the state and local levels, to be aware of available standards and understand when and how standards should be implemented, as well as to have sufficient resources for actual implementation. To facilitate the training of transportation planners, engineers, and other practitioners, FHWA offers a one-day training workshop, and recently published *Travel Better, Travel Longer: A Pocket Guide to Improving Traffic Control and Mobility for Our Older Population* to assist transportation professionals in making decisions about the use of traffic control devices. Design elements in the pocket guide relate to recommendations in the handbook and are organized around three main topics: intersections and interchanges; curves; and temporary traffic control zones.

Having the resources necessary to implement design recommendations appears to be a considerable challenge. Results from a survey of state DOTs reported in NCHRP Synthesis 348 indicated that a lack of resources was the number one barrier to implementing the recommendations from the handbook (cited by three-fourths of survey respondents). The lack of education and training at both the state DOT and local levels were also frequently mentioned as barriers.

The issue of limited resources, particularly at the state and local levels, underscores the need for demonstrated safety and cost-effectiveness of roadway design enhancements—the fourth component of a promising approach. The handbook is built on the premise that wholesale changes to the entire roadway infrastructure would be cost-prohibitive and, therefore, tailors its recommendations to new construction, reconstruction of existing facilities, regularly-scheduled maintenance activities, and "spot treatments" where there are crashes or other demonstrated safety problems, or where a proactive approach to prevent further problems is desired. Nevertheless, individual recommendations still need to be evaluated to determine whether they are cost-effective and are having the intended impacts on safety. To this end, the FHWA is currently funding demonstration projects in three states to implement and evaluate some of the recommended design elements in the handbook. Finally, there must be a sound plan in place to educate older adults about the improvements in roadway design so they can advantage of these improvements.

Descriptions of programs and other initiatives that appear especially promising

The *2001 Highway Design Handbook for Older Drivers and Pedestrians*.represents an especially promising tool for promoting lifelong community mobility. As the authors note in the handbook, it "provides practical guidance to engineers to accommodate the needs and functional limitations of an aging population of road users. The recommendations provide guidance that is firmly grounded in an understanding of older driver's and pedestrian's needs and capabilities, and can significantly enhance the safety and ease of use of the highway system for older drivers and for the driving population as a whole." The authors point out that recommendations do not constitute a new standard of required practice—but instead are intended to supplement existing standards and guidelines in the areas of highway geometry, operations, and traffic control devices. Guidelines are identified for five general types of sites, each having one or more specific roadway features with associated design elements. These include at grade intersections (chosen because they are older drivers' most serious crash problem area); interchanges (chosen because of problems with merging/weaving and changing lanes); roadway curvature and passing zones (chosen because of problems from increased steering demands and potential for unexpected events); construction/work zones (chosen because of problems from increased steering demands and potential for unexpected events); and highway-rail grade crossings.

The handbook contains several features that increase its potential effectiveness for enhancing older adult mobility. Each design recommendation is based on what is known about age-related declines in driving and extensive background material on the rationale and supporting evidence for each recommendation. There is also a section intended to help designers and engineers decide

when to implement the recommendations. A three-part process is presented that includes problem identification, identification of handbook applications, and implementation decision, with worksheets provided for each step.

Reproducing the more than 100 specific design elements recommended in the handbook is beyond the scope of this guide and of limited usefulness to general readers. However, it is useful to think about the broader strategies that have likely helped to shape some of the specific design elements. The 2004 NCHRP Report 500 highlighted promising strategies to improve the roadway/driving environment to better accommodate the special needs of older drivers and characterized each strategy as proven (P; those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective) or tried (T; those strategies that have been implemented in a number of locations that may even be accepted as standards or standard approaches, but lack valid evaluations). These strategies are summarized here:

- Provide advance warning signs to inform drivers of existing or potentially hazardous conditions on or adjacent to the road (T);

- Provide advance guide signs and street name signs to give older drivers additional time to make necessary lane changes and route selection decisions, and reduce or avoid excessive or sudden braking (T);

- Increase size and letter height of roadway signs to better accommodate reduced visual acuity of older drivers (T);

- Provide longer clearance intervals at signalized intersections to accommodate slower perception-reaction times of older drivers (T);

- Provide more protected left-turn signal phases at high-volume intersections to avoid difficulties older drivers have with determining acceptable gaps, and maneuvering through traffic streams when there is no protective phase, and understanding the rules under which permitted left turns are made (P);

- Provide offset left-turn lanes at intersections to reduce potential for crashes between vehicles turning left from a major road and through vehicles on the opposing road because of blocked views (T);

- Improve lighting at intersections, horizontal curves, and railroad grade crossings to help older drivers compensate for reduced visual acuity and provide additional preview distance and more time to prepare for planned actions (T)

- Improve roadway delineation so older drivers have better visual cues to recognize pavement markings along the roadways as well as raised channelization at intersections to enable them to maintain their lane and safely negotiate through an intersection (T);

- Replace painted channelization with raised channelization to give drivers better indication of the proper use of travel lanes at intersections, by providing better contrast and help drivers

detect downstream geometric features such as pavement width transitions, channelized turning lanes, and island and median features (P);

- Reduce intersection skew angle to lessen amount of head and neck rotation required of older drivers and provide a wider field of view for the driver to recognize conflicts and select appropriate gaps (by meeting a 90 degree angle or be skewed as little as possible; (T); and

- Improve traffic control at work zones to improve driver expectancy by providing adequate notice to drivers describing the condition ahead, the location, and the required response (T).

The report also describes for each strategy, the rationale, target audience, available information on expected effectiveness, keys to success, potential difficulties in implementation, appropriate measures of success, organizational and policy considerations, training and personnel needs, legislative considerations, expected time frames for implementation, and costs.

Concurrent with federal efforts to improve roadway design have been more localized efforts focusing on a limited number of roadway features. As mentioned earlier, demonstration projects are underway in three states—Arizona, Massachusetts, and Washington—to evaluate the effectiveness of

selected recommendations from the handbook. Results are not yet available. FHWA has also funded work in Florida to evaluate the effects of handbook recommendations for intersection design on the driving performance of young and older drivers, using both on-road driving evaluations and a driving simulator. Results show promise but must be replicated and expanded. Another noteworthy project is the AAA Michigan Road Improvement Demonstration Program, initiated in 1996 to reduce the frequency and severity of crashes at high-risk urban intersections. Although it focused on all drivers, it targeted a roadway feature—intersections—that is particularly problematic for older drivers and therefore has the potential to provide increased benefits for older drivers. Partnerships of private and public sector representatives were set up in two urban areas of Michigan (Detroit and Grand Rapids) to plan and implement low-cost safety improvements to traffic signals, pavement markings, and signs (e.g., creating left-turn lanes and left-turn signals, increasing the diameter of traffic signal lenses, increasing traffic flow by improving light timing). AAA has reported preliminary reductions in crashes of 26 percent.

A number of other more general state practices for improving roadways for older drivers are delineated in NCHRP Synthesis 348. The report also includes survey results from 24 states relative to modifications they have made to their guidelines or standards for each of 13 engineering treatments to better accommodate the needs and capabilities of older road users. Thus, it is instructive to review the report for more detailed descriptions of promising approaches at the state and local levels.

Summaries of promising programs and other initiatives

Brief summaries of the highlighted programs and other initiatives in the area of roadway design, as well as other programs and other initiatives that appear promising for promoting lifelong community mobility are presented in this section in alphabetical order.

AAA Road Improvement Demonstration Program (RIPD)

Objective

To improve traffic safety by focusing on urban signal controlled intersections.

Description

RIPD represents a partnership among public and government agencies/organizations, as well as the cities of Detroit and Grand Rapids. AAA has developed a toolkit that assists communities to work with transportation engineers to make low-cost improvements (e.g., increasing the lens size of traffic signals, changing signal timing, incorporating left-turn only lanes, adding pedestrian signal displays and overhead traffic signals, and improving placement of traffic signals) at nearly 400 high-crash signalized intersections in Michigan and in Madison and Milwaukee, Wisconsin.

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Florida's Safe Mobility for Life Program

Objective

To develop a roadway designed for older drivers.

Description

Based on FHWA's *Design Handbook for Older Drivers and Pedestrians*, short-term and long-term roadway improvements were identified and implemented in order to increase visibility, provide advance notification to assist in decision making, and also to improve pedestrian features. Short-term improvements implemented throughout Florida included reflective pavement markers (most effective), larger lettering on overhead street signs, wider pavement markings that clearly define the travel path, street signs in place prior to the intersection, improved pedestrian crossings, more clearly defined travel paths, and temporary reflective pavement markers in work zones. Long-term improvements included increased sign visibility, advance notice of signage, supplemental pavement markings, and improved intersection techniques. In recent years, the program has been revised to include a comprehensive approach that addresses not only the roadways but also the driver and the community. Funded by Florida DOT.

Contact information

Florida Department of Transportation
State Traffic Engineering & Operations Office
605 Suwannee Street, M.S. 36
Tallahassee, FL 32399-0450
Tel: 850-410-5414
Email: gail.holley@dot.state.fl.us
**www.dot.state.fl.us/trafficoperations/operations/
elderrduser.htm**

Highway Design Handbook for Older Drivers and Pedestrians

Objective

To provide highway design professionals with guidelines to use that accommodate the needs of older drivers.

Description

The revised guidelines are based on research, technical developments, and feedback from state, county, and municipal engineers who reviewed and implemented recommendations from the previous handbook. A technology transfer component was included to make practitioners aware of the guidelines and assist them in applying recommendations. Both printed and electronic materials accompany the guidelines and help to facilitate practitioner workshops. All guidelines focus on changes with modest financial implications and the potential for future cost savings. FHWA also offers one-day training workshops, designed primarily for highway and traffic engineers, to review the contents of the handbook. Funded by FHWA.

Contact information

Office of Safety R&D
FHWA, 6300 Georgetown Pike
McLean, VA 22101-2296
Email: thomas.granda@dot.gov
safety.fhwa.dot.gov/older_driver/index.htm

Older Driver Pilot Program

Objective

To develop and pilot test highway safety improvements that will benefit the mobility and safety of older drivers.

Description

Roadway improvements to pavement markings, street name signs, and traffic signals were implemented through eight projects in Arizona, Nevada, and Florida. Funded by FHWA, Federal Aid Hazard Elimination, and state funds.

Study information

A survey of drivers' reactions to the improvements, as well as pre-post comparisons of crashes, was used to assess the effectiveness of the improvements. The time period following the changes was generally too brief and the sample sizes too small to reach definitive conclusions, although reductions in crashes were found for all drivers, not just older drivers. Survey respondents for one of the projects reported that raised pavement markers, overhead street sign names, and wider pavement markings provided the most assistance to drivers.

Contact information

FHWA, 400 7th Street, SW
Washington, DC 20590

Reducing Older Driver Injuries at Intersections Using More Accommodating Roundabout Design Practices

Objective

To identify elements of roundabout design and operations that were problematic for older drivers and develop recommendations and guidelines for countermeasures with the potential to improve the comfort, confidence, and safety of older adults in using roundabouts.

Description

A series of focus groups consisting of drivers over age 65 were held to determine potential design elements at roundabouts, such as highway geometrics, traffic signs, and pavement markings that might be problematic for older drivers. Following the identification of these elements, structured interviews, using participants in the same age group, were conducted to evaluate potential countermeasures that could be implemented to improve the comfort, confidence, and safety of older drivers using roundabouts. Results showed that design elements improving the path guidance of older drivers are critical for designing roundabouts. Recommendations about potential countermeasures related to advance warning signs, guide signs, yield treatment, directional signs, and exit treatment are also presented. Funded by the Centers for Disease Control and Prevention and a National Institutes of Health Research Grant.

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Roundabouts: An Informational Guide

Objective

To act as a source of comprehensive information regarding all types of roundabouts for a variety of audiences.

Description

The guide defines roundabouts and reviews general characteristics, as well as the geometric design for each type of roundabout, traffic design and landscaping, system and traffic signal considerations, costs, education and public involvement, and policy considerations. It also provides a planning guide to determine location selection and feasibility, analyze the operational factors, and assess safety implications. Funded by FHWA.

Contact information

FHWA
Turner-Fairbank Highway Research Center
6300 Georgetown Pike, HSR 20, Room T301
McLean, VA 22101
Email: joe.bared@dot.gov
www.fhwa.dot.gov

The Impact of Roadway Intersection Design on Driving Performance of Young & Senior Adults

Objective

To test the effectiveness of the FHWA guidelines for intersection design.

Description

Study results are presented that examined selected roadway design features. The FHWA proposed guidelines for highway design to increase the safe driving ability of older drivers. These guidelines included assessments and recommendations applicable to four categories of roadway design features; those appropriate for intersections, interchanges, roadway curvature/passing zones, and construction work zones. Certain roadway intersection characteristics may be more problematic for older drivers, increasing the risk of driving errors and crashes. This study looked at roadway intersection features in an urbanized area because this is where crashes are most prevalent. Funded by the FHWA.

Study information

Kinematics measures and behavioral data collected during on-road driving evaluations were used to quantify the effects of improved versus unimproved intersections to determine if the improved intersections were safer (vehicle stability and driver confidence) for both older and younger drivers. The study found drivers made fewer errors at two of the improved intersections, and across all maneuvers, older drivers appeared to make fewer errors on the improved intersections.

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The Impact of Roadway Intersection Design on Simulated Driving Performance of Young and Senior Adults

Objective

To investigate the effects of implementing FHWA guidelines on the driving performance of older and younger drivers using a driving simulator.

Description

Particular characteristics of roadway intersections, such as making tight turns, driving at appropriate speeds, and merging into traffic, may be more challenging for older than for younger drivers. Improved intersections have enhanced roadway features intended to create a safer driving experience. The improvements include: extended receiving lane, right turn with channelization and an acceleration lane, left-turn offset, and separate lane signals with protected left-turn phase. Funded by the FHWA.

Study information

Four intersection pairs (improved versus unimproved) were replicated in a driving simulator. Thirty-nine subjects, 19 young and 20 older adults, participated in the study. Driving performance was examined using kinematic data and behavioral data. The study found that both young and older drivers may benefit from roadways with safety features recommended by the FHWA guidelines, as indicated by the increased lateral control of the vehicle when negotiating these intersections.

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Transitioning from Driving to Other Transportation Options

Despite individual differences in the effects of aging on functional abilities, most older adults will eventually be faced with difficult decisions about whether they will need to reduce or stop driving, and if they do, how they can maintain community mobility and well-being. One major study of older drivers in the U.S. concluded that each year, more than 600,000 adults age 70 and older stop driving and become dependent on others to meet their transportation needs. More specifically, the investigators found that after driving cessation, men will have about 6 years of transportation dependency compared with about 10 years of dependency for women.

Many of the reasons given by older adults for stopping driving related to health and medical problems, especially vision. However, the process of driving cessation is clearly a complex one and other factors such as the availability of personal and environmental resources also come into play. Driving cessation has been described as a spontaneous, gradual process, with many older drivers becoming increasingly more vulnerable to difficulties in traffic, limiting their driving under certain conditions, and driving progressively less than before. At the same time, there is considerable variation in how older drivers respond to driving-related problems, what steps they take to continue driving safely, and how well they adapt if they are forced to stop driving. For example, many drivers with functional declines restrict their driving to circumstances under which they feel safest, but others do not appear to practice appropriate driving self-regulation. Similarly, while there is evidence that stopping driving is associated with increased depressive symptoms over time, many older drivers are able to successfully transition from driving, making the adaptations necessary to maintain their community mobility and well-being.

Issues surrounding driving reduction and cessation are especially challenging in regard to individuals with dementia, some of whom continue to drive after a physician has recommended driving cessation. Unlike older adults who have had a stroke or suffer from arthritis, or whose vision has declined, drivers with dementia are not good candidates for retraining or vehicle adaptations. And they often lack the insight and judgment to make appropriate decisions relative to the process of transitioning from driving.

Unfortunately, there has been limited research relative to older adults in general on how the driving cessation process affects well-being and what role driving restrictions play in the process, as well as what factors might lessen the adverse outcomes that can result from stopping driving. There is clearly a need to better understand the process of driving cessation among older adults and to identify factors that allow older drivers to successfully manage the transition from driving to other transportation options.

How transitioning from driving to other transportation options can best promote lifelong community mobility

Important components of a promising approach for transitioning from driving are highlighted below:

- Program development/design based on age-related research and broader research on life transitions;

- Early intervention and planning to help manage the transition;

- Involvement from a broad spectrum of professionals and family;

- Recognition that transitioning from driving to other transportation options is a process and an individualized one at that; and

- Availability of alternative transportation options so older adults have something to which they can transition.

Effective efforts to help older adults transition from driving need to take into account what is known about the driving reduction and cessation process, as well as what is known about successful transitioning in other areas of life. For example, general research on stress and coping suggests that coping with stressful events can be influenced not only by the nature of the stressor, but also by the coping resources on which individuals draw, such as social support, a sense of optimism, and financial resources. There is also evidence that certain coping strategies may have potential for helping older adults mitigate depression and positively adjust to age-related losses and declines.

Planning for driving cessation needs to occur early, before a health or other crisis occurs that requires immediate intervention without time to think carefully about possible courses of action. Yet few people plan for a time when they will no longer be able to drive. Given that many individuals move toward driving cessation over a process that takes

years—there is often sufficient time for older adults, their families, and the professionals treating them to discuss and prepare for the transition to other transportation options. An interdisciplinary approach involving a physician, social worker, and occupational therapist may be useful in helping adults and their families plan for this transition, especially when they are called in early rather than during a time of crisis.

Nevertheless, the transition from driving can be a difficult and emotional time for older drivers, their families, and support networks. Recognizing that this is a process rather than a single event, and that there are individual differences in how older adults experience this process, will lead to more effective strategies to ease the shift to other transportation options. At the same time, there must be alternative transportation options available in the community that can meet the needs of individuals who are no longer able to drive.

Descriptions of programs and other initiatives that appear to be especially promising

The promising approaches outlined in this guide are intended to help older drivers at one or more points along a continuum that is anchored by safe independent driving at one end and dependence on alternative transportation options at the other end.

The process of transitioning from driving cuts across many points along this continuum. Thus, many of the promising approaches described in other sections of the guide will enable older adults to be better positioned to make the eventual transition from driving to non-driving. For example, effective screening and assessment efforts combined with education and training can ensure not only that drivers do not extend driving beyond the time it is safe to do so, but also that they do not stop driving prematurely. And having in place an effective transportation coordination system and alternative transportation options is important so that when drivers do stop driving, they are still able to get around and maintain their mobility.

One additional initiative that holds promise for helping older adults transition from driving has to do with how we can make our communities more livable. The issue of how livable our communities will be for us, as we grow older, is an important one and yet people rarely think about it until it has become clear that their needs are no longer being met. Now that our society is aging, the role of the physical and social environments in promoting independence and strengthening civic and social ties has become increasingly recognized.

A livable community has been defined as one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate personal independence and the engagement of residents in civic and social life. One of the most important aspects of a livable community is the high level of engagement of its residents, ranging from participation in social activities and relationships, to volunteering, to civic participation in community planning, and the political process. Such engagement is a vital part of successful aging and transportation is the means by which people not only connect to the goods and services, but also stay engaged.

As part of the initiative to promote livable communities, two broad recommendations have been made in the area of transportation and mobility: 1) communities should facilitate driving by older adults by improving the travel environment, supporting driver education, and promoting safe driving throughout the lifespan; and 2) communities should take positive steps to enhance mobility options, including public transportation, walking and bicycling, and specialized transportation for individuals with varied functional capabilities and preferences.

Summaries of promising programs and other initiatives

Brief summaries of the highlighted programs and other initiatives related to transitioning from driving to other transportation options, as well as other programs and other initiatives that appear promising for promoting lifelong community mobility are presented in this section in alphabetical order.

AARP Mobility Toolkit

Objective

To provide step-by-step guides to promote mobility choices for older adults in local communities.

Description

This toolkit provides a number of resources for state AARP offices and their partners interested in increasing mobility options for older adults. The toolkit contains three components: a Mobility Forum planning guide, a presenter's guide and DVD about Riding the Bus, and a Pedestrian Safety Action Guide for building walkable communities. The Mobility Forum guide is based on several previous successful efforts to improve older

adult mobility and includes information to help planners determine participants, plan an agenda, and publicize the event. Provided on the DVD are a series of printable resources, such as sample checklists, media advisories, agendas, and evaluation reports. The Riding the Bus presenter's guide is designed for a 60 minute presentation using an 11 minute DVD used to facilitate discussion. The program is intended to improve the image of riding the bus and encourage older adults to use the bus to remain connected to their communities. In addition to the DVD, talking points, checklists, participant travel worksheets and evaluation reports are also provided to assist the presenter. The third component, the Pedestrian Safety Action Guide, provides a way to enhance walking options for older adults and is based mainly on lessons learned from a successful initiative in Hawaii. Funded by AARP.

Contact information
AARP Outreach & Service
601 E Street, NW
Washington, DC 20049
Tel: 202-434-3919
www.aarp.org

After the Keys Are Gone

Objective
To provide support to those dealing with dementia and driving cessation issues.

Description
This reality-based DVD presents the experiences of four sets of individuals and families living with driving cessation. It includes tailored messages for primary health care professionals, individuals and families living with dementia, and organizations interested in developing specialized support groups to address driving cessation issues.

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At the Crossroads: A Guide to Alzheimer's Disease, Dementia, and Driving

Objective
To help individuals and caregivers determine when it is time to stop driving.

Description
This guide provides practical tools for every stage of the process of driving cessation, from monitoring behavior to limiting and ultimately stopping driving. The information is based on the experiences of family caregivers and people with dementia, as well as suggestions from experts in medicine, gerontology and transportation. The guide includes a worksheet for caregivers to note dates and incidences of good and bad driving practices, and also an informal agreement worksheet signed by the person with dementia that designates a caregiver to take necessary steps to ensure safe driving for the future. The guide, found online or in hardcopy, is available in both English and Spanish. Developed by The Hartford Financial Services Group, Inc., in collaboration with the MIT Age Lab and Connecticut Community Care, Inc.

Study information
Forty-five caregivers and nine individuals with dementia participated in in-depth, semi-structured interviews to learn how families perceive and manage driving and transportation issues when a person has dementia. To be eligible for the study, participants needed to have a probable diagnosis of Alzheimer's Disease or related disorder. In most cases, the person with dementia was either still driving or had stopped driving within the last two years. Funded by a grant from The Hartford Financial Services Group, Inc.

Contact information
The Hartford
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Southington, CT 06489
www.thehartford.com/alzheimers

Difficult Conversations: Communicating with Your Patients

Objective
To provide assistance to health care professionals dealing with dementia patients and fitness to drive issues.

Description
This DVD is a sociodrama series of seven story segments. It follows the patient from a routine family physician visit, to diag-

nosis of dementia, to dealing with the "fitness to drive" decision. There is heavy emphasis on communication strategies to assist the physician and other health care professionals in dealing with these difficult conversations.

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Driving and Dementia Toolkit

Objective

To provide resources for physicians looking after older adults with cognitive loss and who are driving.

Description

This toolkit, an initiative of the Champlain Dementia Network, was developed based on feedback by primary care physicians who deal with dementia and driving. Information is provided on dementia and driving, including a Physician Fact sheet, Frequently Asked Questions, strategies for screening (The Safe Drive Checklist), and a list of questions that can assist in assessing driving concerns. An algorithm is provided about the necessary steps how to address this issue, as well as a list of resources and assessment sites and forms. These include a copy of a Sample Statement that can be given to a patient/caregiver as a reminder describing the physician's concerns. It also includes what to do if a patient resists recommendations to stop driving, including what strategies to discuss with caregivers.

Study information

This toolkit has been formally evaluated and results are published. Physicians reported knowledge and confidence in dealing with dementia and driving. The toolkit is also available in French and toolkits can be developed based on this format, for other geographic areas.

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Driving Cessation Support Groups

Objective

To assist individuals and their caregivers in coping with the loss of driving privileges.

Description

Support groups allow older adults and their caregivers to discuss issues related to driving cessation and how to cope with this event. Support groups are currently implemented in the community on an ongoing basis and are funded by The New Horizons for Seniors Program.

Study information

A total of 74 individuals with dementia and their caregivers participated in focus groups that were either specialized driving cessation support groups or regular support groups. It was found that specialized support groups focusing on driving issues are particularly effective for early stage dementia individuals and their caregivers in dealing with issues related to driving cessation. Compared to the regular support group, individuals with dementia attending the specialized support groups showed significant improvements in depression, decreases in behavioral disturbances, and an increase in quality of life ratings. Manuals that will allow other organizations to implement the support groups will be made available.

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Driving for Life: A Guide for Older Drivers and their Families

Objective

To address concerns older motorists face when it comes to driving.

Description

A short brochure developed by the Michigan Department of State, Driving for Life provides information about the department's role in licensing drivers, suggestions to help older drivers maintain driving skills, and tips about finding alternative transportation. It encourages self-awareness and personal self-assessment of an individual's fitness to drive, but also explains

the process of referring an unsafe driver to the department. The driving reexamination process is clarified and resources are given regarding available alternate transportation options in Michigan.

Contact information

Michigan Department of State
Lansing, MI 48198
Tel: 517-241-6880
**www.michigan.gov/documents/
Older_Driver2_38985_7.pdf**

Erie County Help Network

Objective

To assist families, caregivers, and other community members to successfully identify and address situations related to an at-risk older driver.

Description

The Erie County Help Network is a collaborative effort of over 30 agencies and organizations with experts in the areas in the areas of health, driving, law enforcement, and aging. The network works to assist caregivers by addressing challenges families face when dealing with an at-risk older driver. Information is provided about the physical and mental changes older drivers face, how to identify and report an at-risk driver, and available area services such as driver evaluation programs and alternative transportation options. A suggested flowchart assists caregivers through the process of addressing driving concerns with an older loved one, and a number of suggestions are given for help when talking with an at-risk driver as well as instructions to temporarily disable a vehicle if necessary. The Help Network also works to identify and remove barriers to accessing services, and advocates for public policy change.

Contact information

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www.erie.gov/driving

Florida Senior Safety Resource Center–Orlando

Objective

To help older drivers assess and improve their driving skills, and talk about the transition to not driving.

Description

The FSSRC-Orlando offers three services to the community: education and outreach, driver skill assessment, and mobility counseling. The Resource Center's staff is available to speak to older adult groups and professionals about issues relating to older drivers. The Center also offers two different levels of driver skills assessment. Both levels screen and evaluate the older driver for issues that can impact an individual's ability to drive and identifies any areas that require remediation. Mobility counseling is offered to the client and his/her family members. Mobility counseling consists of transportation alternative planning and talking about the decision to retire from driving.

Contact information

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Getting Around: Alternatives for Seniors Who No Longer Drive

Objective

To help older adults make the transition from driving by building a transportation support and information network and launching a multi-media public education campaign.

Description

The Getting Around project, piloted in eight Southern California sites, aims to address the special needs of older adults who no longer drive by providing counseling and assistance with alternative transportation options. Older adults and caregivers dealing with driving cessation issues can call an 800 number, which connects them with their local Getting Around site. Trained volunteers provide support, counseling, or resource referrals either on the phone or in person. Older adults in need can also be referred by law enforcement officials, the DMV, and other community organizations. The program was marketed

locally through a number of outlets including senior centers, flyers at health fairs, transportation programs, websites, and newspaper articles. To educate the public and spark national discussion of driving cessation issues, a documentary video was produced, distributed, and has been played on local PBS stations. The comprehensive video discusses the issue from the perspective of older drivers, their families and friends, physicians, licensing officials, and the public. A website has also been developed to provide resources to all interested in the transition from driving. Funding provided by the AAA Foundation for Traffic Safety.

Study Description

A survey mailed to every client that received service from December 2005 to December 2006 yielded very positive reviews of the program. Clients indicated that their needs were met, they were satisfied with the abilities of the volunteers, and they felt they received information that would help them with alternative transportation options in their area. Respondents also stated that volunteer availability was a problem, as volunteers were not present at agencies every day. Overall, the needs of clients appeared to have been met by the program.

Contact information

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Washington, DC 20005
Tel: 202-638-5944
www.getting-around.org

League of American Bicyclists

Objective

To promote bicycling for fun, fitness and transportation and work through advocacy and education for a bicycle-friendly America.

Description

Since 1880, the League of American Bicyclists has advocated to make communities more bicycle-friendly. The League has nearly 330,000 members and organizes a national Bike Month and Bike Summit each year. The Bicycle Friendly Community Program offers awards to communities that it considers most open to bicyclers, and encourages community members to evaluate their own surroundings and actively work to make their local environment more conducive to bicycling. Communities are judged on five categories known as the Five Es: Engineering, Education, Encouragement, Enforcement, and Evaluation and Planning. A community must demonstrate achievements in all categories to be considered for an award. Information on how to promote bicycle use in the community, as well as the benefits of investing in bike lanes, trails, and routes, are available for everyone on their website. The League also promotes safe

bicycling and has recently launched a Share the Road campaign, which advocates for bicyclists rights on the road.

Contact information

League of American Bicyclists
1612 K Street, NW, Suite 800
Washington, DC 20006
Tel: 202-822-1333
Email: bikeleague@bikeleague.org
www.bikeleague.org

Livable Communities: An Evaluation Guide

Objective

To empower groups of older volunteers to better understand their communities and work to improve them.

Description

The guide offers a series of community self-assessment surveys that are intended to help groups identify issues of concern in their communities, and it provides contacts to whom volunteers can express those concerns. General information about the reasons why a group may want to conduct a community survey is provided, and advice is given on how to carry out a survey. The guide is divided into sections according to issue areas identified by older adults as important, including transportation, walkability, safety and security, shopping, housing, health services, recreation and cultural activities, and a caring community. Each section offers a description of livability as it relates to that issue area, a survey to guide a new look at a community, and a set of follow-up steps to address those issues.

Study information

As a part of the updating process of the 2000 guide, and to gain awareness of current perceptions of livability and community issues, focus groups were held with older residents and caregivers in 13 cities in five areas of the country, in rural, urban, and suburban areas. Participants were diverse in income, race, and ethnicity. An interactive website was also developed. Participants were asked how they defined their community and to make a list of elements they felt characterized an older adult-friendly community. The issues raised in these focus groups became the basis of this guide, as the elements of livability.

Contact information

AARP Public Policy Institute
601 E Street NW
Washington, DC 20049
Tel: 202-434-3840
Email: ppi@aarp.org

PROMISING APPROACHES TO PROMOTING LIFELONG COMMUNITY MOBILITY

http://assets.aarp.org/rgcenter/il/d18311_communities.pdf

Louis and Anne Green Memory & Wellness Center

Objective
To offer a comprehensive array of innovative services and therapeutic programs specific to the needs of individuals with memory problems and their families.

Description
The Louis and Anne Green Memory and Wellness Center at Florida Atlantic University is a Florida Senior Safety Resource Center. It offers comprehensive driving evaluations, mobility counseling, and community education regarding older adult driving issues. The driving evaluations consist of both in-office and on-road assessments. The in-office evaluation includes tests of vision, cognition, and physical skills. Mobility counseling includes a review of the assessment results, recommendations regarding the advisability of driving cessation, and referrals to driving alternatives when needed.

Contact information
Memory and Wellness Center
Florida Atlantic University
777 Glades Road, Bldg. AZ-79
Boca Raton, FL 33432
Tel: 561-297-0502
Fax: 561-297-0505
Email: memorylane@fau.edu
www.fau.edu/memorywellnesscenter/index.html

North County Lifeline, Inc.

Objective
To enhance the positive quality of individual, family, and community life by providing services that are consistently available, accessible, and responsive to the needs of the individuals, families, and groups seeking assistance.

Description
With offices in both Vista and Oceanside, California, North County Lifeline provides a number of services to the community of North San Diego County. One program targets a travel-training program to the older adult population to encourage older adults to use public transit by teaching (one-on-one or through groups) and showing older adults how to use the system. Services are available in English, Spanish, or American Sign Language. North County Lifeline, Inc. also helped to develop the STRIDE (Specialized Transportation Referral and Information for the Disabled and Elderly) website database of transportation information in San Diego County. The site is a distribution center for other public transportation providers and a referral service for older adults to learn about transit services in the area.

Study information
This program was recognized in the 2004 GAO report Transportation-Disadvantaged Seniors (GAO-04-971) as a local service provider or practice that can enhance transportation-disadvantaged older adult's mobility.

Contact information
North County Lifeline, Inc.
200 Michigan Avenue
Vista, CA 92084
Tel: 760-726-4900
www.nclifeline.org and www.stridesd.org

Out and About: A Transportation and Mobility Guide for Older Adults in Howard County

Objective
To help older adults maintain mobility as late in life as possible.

Description
Developed by the Howard County Commission on Aging and the Office on Aging, the guide is designed to provide older adults and their caregivers with information on available transportation-related resources in their community. The guide includes a self-screening questionnaire for older drivers to help identify areas that may be of concern or need improvement. A number of driver assessment and education programs are described, and a partial list of qualified driver rehabilitation specialists in the area is provided in an appendix. Advice on buying the correct vehicle and information about driver aids and adaptive equipment is given, and issues related to medication use and driving are pointed out. Tips for dealing with an aging driver are directed toward caregivers, as well as warning signs of drivers with dementia. Finally, the guide discusses transitioning from driving and encourages readers to plan ahead for the day they can no longer drive. Descriptions and Contact information for alternate transportation options in and around Howard County, including public transit, walking, and specialized transportation services, are also included.

Contact information
Howard County Commission on Aging
6751 Columbia Gateway Drive

Columbia, MD 21046
Tel: 410-313-6410
www.co.ho.md.us/OA/coa.htm

Stepping Out–Mature Adults: Be Healthy, Walk Safely

Objective

To promote safe walking as a way of maintaining health and independence.

Description

This booklet provides information on how to maintain safety while walking, whether for exercise or for transportation. The health benefits of walking are discussed, as well as tips to get started and ways to incorporate walking into everyday life. Readers are directed to their physician for guidance on developing an individual walking program. Suggestions for staying safe at intersections, in parking lots, in non-sidewalk areas, and in bad weather are also provided, and special safety issues related to older adults, such as hearing and vision loss and a reduction in flexibility, are mentioned. Additional resources, including who to contact if there are no safe places to walk, are listed. Funded by NHTSA.

Contact information

National Highway Traffic Safety Association
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590
www.nhtsa.dot.gov/people/injury/olddrive/
booklet.html

Transportation Solutions for Caregivers

Objective

To provide helpful resources for family caregivers and volunteer drivers of older adults with cognitive and/or physical impairments.

Description

Targeted to family members, volunteer drivers, and social service and transportation service providers, this comprehensive toolkit provides extensive material and resources that can be utilized to address aging drivers. The program offers a video, informational booklet, and a list of helpful products and resources for caregivers. Recommendations are given as to the best ways to communicate and cooperate with aging loved ones during this often difficult transition. Materials are also provided to support and enhance new and existing volunteer transportation programs and to address and support aspects

of Adult Day Services transportation programs. A customizable electronic template, developed in collaboration with the Beverly Foundation, allows community members to identify transportation options available to older adults and develop a user-friendly brochure to distribute to caregivers and older adults. Funded by the Administration on Aging's National Family Caregiver Support Program.

Contact information

Easter Seals
230 West Monroe Street, Suite 1800
Chicago, IL 60606
Tel: 312-726-6200
Fax: 312-726-1494
www.easterseals.com/transportation

We Need to Talk...Family Conversations with Older Drivers

Objective

To offer families practical information to help them advise their family members about whether it is time to limit or stop driving.

Description

This guide offers families a multistep approach to crafting candid, effective discussions about older driver safety, from positive conversation starters to advice on which family member should broach the topic. It lists the warning signs to watch for, such as riding the brake and hitting curbs, and gives strategies for identifying alternative transportation options, testing opportunities, and recommendations on what to do if a parent has dementia or a high-risk driver refuses to stop driving. Developed by The Hartford Financial Services Group, Inc., in collaboration with the MIT Age Lab.

Study information

The findings are based on a 2-year study of drivers' attitudes and driving habits. Drivers were considered to be people who were licensed to drive and had driven at least once in the previous 12 months. The study included a nationally representative survey of 3,824 licensed drivers aged 50 and older, in addition to focus groups with older adults who have modified their driving, and interviews with family caregivers of persons with dementia. The Hartford was the recipient of the 2005 American Society on Aging Business and Aging Award for this guide.

Contact information

The Hartford
Family Conversations with Older Drivers
200 Executive Blvd.
Southington, CT 06489
www.thehartford.com/talkwitholderdrivers

Transportation Coordination

Most communities are faced with limited resources and must make difficult choices about how much and what types of transportation they can provide. Coordination of transportation, through partnerships among organizations, provides a means to better manage these limited resources. By reducing duplication and inefficiency, coordination can improve transportation services and lead to enhanced mobility for older adults and the broader community. The benefits of coordination include: increased sources of funding that can be used to expand and extend services, increased service efficiency, increased customer satisfaction, enhanced community mobility, and increased quality of life for older adults and others.

A number of federal initiatives over the past several years have increased the ability of states and communities to coordinate transportation services for older adults and those with disabilities. In 1990, the Americans with Disabilities Act (ADA) was enacted to protect the civil rights of people with disabilities and ensures them access to employment, public transportation, public accommodations, and telecommunications. Since passage of the ADA, a wide range of federal initiatives including legislation, grant opportunities, and other programs have been undertaken to further increase mobility for older adults and people with disabilities.

In 2003, a memorandum of understanding was signed between the U.S. Administration on Aging (AoA) and the FTA to assist their respective networks in the coordination of transportation services for older adults and to facilitate access to these services. The specific aims of the memorandum are to: increase awareness of the transportation needs of older adults and the importance of developing strategies to address these needs; establish baseline data on older driver transportation services; develop and implement a joint plan to provide ongoing technical

assistance and training to state and local organizations to promote promising practices for coordination; work collaboratively with stakeholders at the federal, state, and local level to identify barriers and solutions to accessing transportation services; and work together to better coordinate the provision of funding opportunities to foster coordination of transportation services and the development of innovative service delivery models.

In 2004, The Federal Interagency Coordinating Council on Access and Mobility (CCAM) was established through Executive Order 13330 entitled "Human Service Transportation Coordination" to coordinate 64 federal programs providing transportation funding for older Americans, people with disabilities, and individuals with low income. Comprised of 11 Federal departments and agencies (U.S. Departments of Transportation, Health and Human Services, Labor, Education, Agriculture, Housing and Urban Affairs, Interior, Veterans Affairs, Social Security, the Attorney General's Office, and the National Council on Disabilities), CCAM is responsible for seeking ways to reduce transportation service duplication, increase efficient transportation service delivery, and expand transportation access for older Americans, people with disabilities, and individuals with low income.

with disabilities, older adults, and individuals with lower income; standardize cost allocation processes; and document successful strategies in coordinating human service transportation at the federal, state, and local governments.

The Safe, Accountable, Flexible, and Efficient Transportation Equity Act—A Legacy for Users Public Law (SAFETEA-LU), was enacted in August of 2005 to reduce barriers to transportation and provide services beyond ADA requirements. It supports federal transit programs and establishes an upper limit on the amount of funds that can be made available. In 2006, the Older American Act was amended (Title IV Activities for Health, Independence, and Longevity) to incorporate provisions aimed at improving transportation by including planning for baby boomers, assessing technology-based models, improving support for family caregivers, and building awareness of cognitive impairments such as dementia. Table 5 provides a summary of the key federal funding sources for transportation services.

To implement the Executive Order, CCAM launched United We Ride, an interagency initiative to coordinate human service transportation across all levels of government and the private and nonprofit sectors. The specific aims of United We Ride are to: develop an education plan for coordinated human service transportation to enhance customer access at the local level; simplify access to transportation services and enhance customer service through the development of a comprehensive and coordinated transportation system; reduce restrictive and duplicative laws, regulations, and programs related to human service transportation at the federal level; ensure comprehensive planning for the coordination of human service transportation for individuals

Table 5: Key Federal Funding Sources for Transportation Services

Agency	Program/Target Population	Services Provided
Department of Education Office of Special Education & Rehabilitative Services	Independent Living Services for those age 55+ with significant vision impairment	Referral, assistance, & training in the use of public transportation (for program related and general trips)
Department of Health and Human Services Administration for Children and Families Administration on Aging Centers for Medicare and Medicaid Services Health Resources and Services Administration	Community Services Block Grant Programs for low-income individuals Social Services Block Grants Grants for Supportive Services and Senior Centers (Title III-B) for those age 60+ Program for American Indian, Alaskan Native, & Native Hawaiian Elders (Title VI) Medicaid for low income persons (including seniors; eligibility determined by states) Rural Health Care Services Outreach Program for medically underserved (including seniors)	Taxicab vouchers, bus tokens (for general trips) Any transportation related use (for medical/social services) Contract for service with existing transportation provider, or directly purchase vehicles (such as vans; for program/medical services and general trips) Purchase and operation of vehicles (such as vans; for program/medical services and general trips) Reimbursement for services with existing transportation providers (e.g., transit passes; for Medicaid medical services) Transit passes, purchases, vehicles (such as vans; for health care services)
Department of Labor Employment & Training Administration	Senior Community Service Employment Program	Reimbursement for mileage (for employment opportunities)
Department of Transportation Federal Transit Administration	Capital and Training Assistance Program for Over-the-Road Bus Accessibility for persons with disabilities (including seniors) Capital Assistance Program for Elderly Persons and Persons with Disabilities (Section 5310) Capital Investment Grants (Sections 5309) for general public (some projects target seniors and persons with disabilities) Job Access and Reverse Commute for low-income persons and seniors Non-urbanized Area Formula Program (Section 5311) for general public in rural areas (including seniors) Urbanized Area Formula Program (Section 5307) for general public in urban areas (including seniors)	Assistance in purchasing lift equipment and providing driver training (for general trips) Assistance in purchasing vehicles, contract for services with existing transportation providers (for general trips) Assistance for bus and bus-related capital projects (for general trips) Expansion of existing public transportation or initiation of new service (for employment-related services) Capital and operating assistance for public transportation (for general trips) Capital assistance, and some operating assistance, for public transportation (for general trips)
Department of Veterans Affairs Veterans Health Administration	Veterans Medical Care Benefits for persons with disabilities or low income (including seniors)	Mileage reimbursement or contract for service with existing transportation providers (for health care services)

Adapted from: GAO. (2003). Transportation-Disadvantaged Populations: Some Coordination Efforts Among Programs

Providing Transportation Services, but Obstacles Persist, GAO-03-697. Washington, DC: GAO.

While much of the funding for transportation services originates at the federal level, local communities know best their own unique needs and must take the initiative in reaching out to state and federal agencies. One opportunity for increasing coordination at the local and regional levels is through participation in a Metropolitan Planning Agency (MPO). As described by the Association of Metropolitan Planning Agencies, a MPO is a transportation policy-making and planning body with representatives of local, state, and federal government transportation authorities. Each urbanized area in the U.S. with 50,000 or more residents is required to have a MPO to ensure that federal spending on transportation occurs through a comprehensive, cooperative, and continuing (3-C) process. There are currently 385 MPOs in the U.S. A MPO has the authority of federal law, is a representative group of local stakeholders, leads the transportation planning process for the metropolitan area, is the region's policy-making organization responsible for prioritizing transportation initiatives for funding, and carries out the metropolitan transportation planning process in cooperation with the state DOT and transit operators.

How coordination can best promote lifelong community mobility

Important components of a promising approach for coordination are highlighted below:

- Establishment of broad-based coalitions and partnerships;
- Coordinated planning by partners;
- Leveraging of funding from a variety of sources;
- Careful attention to the specific objectives and regulations of federal transportation programs;
- Integration of new technologies; and
- Effective use of volunteers.

Broad-based coalitions and partnerships are needed that include leadership from the state DOT or some other agency, a high level of top-down support from key stakeholders and participation from a wide array of stakeholders from both private and public sectors. Coordinated planning is essential (e.g., through the creation of transportation plans, development of shared databases, and conducting needs assessments). Funding sources for coordinated transportation services can come from a variety of sources (e.g., Older Americans Act funds from the Administration on Aging, the localities served and local property tax revenues, Medicaid funds for transporting Medicaid eligible clients, Section 5311 rural public transportation funds, contracts with local human service agencies). However, much of it originates with federal programs aimed at the unique needs of individual population groups, so it is important to pay close attention to the specific objectives and regulations of these programs.

One of the key challenges to coordination is ensuring its sustainability over time. It helps to have a broad base of support and a flexible system that can respond to a loss of funding by shifting focus from one population group to another, restructuring its operation as needed. Other strategies for building sustainability include the establishment of a legal or institutional framework for coordination such as a formal county ordinance, or the creation of an office specifically focused on coordinating transportation.

Building trust among coordination partners can also be a challenge. Trust can be facilitated by maintaining ongoing communication (e.g., through regular meetings, formalized information dissemination, and workshops or summits), identifying potential stakeholders and involving them from the start; tailoring services and programs to the particular needs of the partner organization or communities, and doing adequate research and collecting data to share with partners to identify transportation needs. Partners also need to understand that coordination is not without its challenges and that achieving it may be more expensive, difficult, and time-consuming than initially expected.

Descriptions of programs and other initiatives that appear to be especially promising

A newly launched initiative that shows promise for fostering transportation cooperation is the National Center on Senior Transportation (NCST), administered by Easter Seals, Inc., in partnership with the National Association of Area Agencies on Aging in cooperation with FTA. The mission of the NCST is to increase transportation options for older adults and enhance their ability to live more independently within their communities throughout the U.S. Specific aims of the center include: greater cooperation between the aging community and transportation industry to increase transportation services; increased transportation options in community living and long-term care arrangements; enhanced capability of human service providers to help older adults and/or caregivers use appropriate transportation options; increased knowledge of community transportation alternatives among older adults; increased opportunities for older adults to participate in local and state, public and private transportation planning processes. To accomplish these outcomes, the center provides: technical assistance to communities, older adults, transportation and professional agencies and organizations, government, and individuals; products and training programs to increase older adult mobility options; a toll-free telephone line, website, visual exhibit, newsletters, and other communication tools; and communication strategies to increase the profile of older adult transportation.

The United We Ride initiative, described earlier in this section, holds promise for strengthening coordination among the multitude of existing federal transportation programs.

A more local practice that can foster coordination and collaboration among community transportation services is the use of mobility management. A small but growing number of local transportation agencies have become mobility managers—that is, they go beyond the traditional mission of transit by brokering, facilitating, encouraging, coordinating, and managing both traditional and nontraditional (e.g., volunteer and community-based) services to expand the array of alternative transportation options available to the community. Some do this directly, some work in collaboration with other organizations, and some rely extensively on contracting. Regardless of the approach used, effective mobility management requires viewing the alternative transportation system as a whole. Thus, while the focus of mobility management is on the entire community and not just on the older adult population, older people can derive much benefit from a more coordinated transportation system. One noteworthy mobility manager is the Tri-County Metropolitan Transportation District of Oregon (Tri-Met) which created a nonprofit agency with about 30 vans and station wagons that it assigns to a network of 25 private, nonprofit providers including the American Red Cross, Metropolitan Family Services, and Volunteers of America.

Summaries of promising programs and other initiatives

Brief summaries of the highlighted programs and other initiatives in the area of transportation coordination, as well as other programs and other initiatives that appear promising for promoting lifelong community mobility, are presented in this section in alphabetical order.

Council on Aging & Human Services Transportation (COAST)

Objective

To provide safe and affordable transportation services.

Description

COAST is a nonprofit, public benefit, social service agency located in Colfax, Washington. It provides a wide range of transportation services in a large rural region in eight counties and two states. Its direct services range from regular weekly and biweekly routes linking small communities with area service centers, demand response, and volunteer escort services.

Many transportation vehicles are wheelchair-lift equipped and meet the requirements of the Americans with Disabilities Act. All COAST vehicle operators have been trained in passenger assistance techniques. Eighteen different transportation programs provide or assist with trips. Funded by Aging & Long Term Care of Eastern Washington, DSHS Health Recover Service Administration, private charters and contracts, Colfax & Community Fund, Idaho Region II Area Agency on Aging, Department of Health and Welfare, fares, private charters and contracts, childcare agencies, and private donations.

Study information
The Administration on Aging identified COAST as one of the most coordinated transportation services in the U.S. COAST's coordination activities have both been highly successful and somewhat unique in coordinating a broad range of services, and have been able to utilize a wide range of funding sources for the program.

Contact information
Council on Aging & Human Services
PO Box 107
Colfax, WA 99111
Tel: 1-800-873-9996 or 509-397-2935
Fax: 509-397-9229
Email: coast@stjohncable.com
www.coa-hs.org/coast.htm

Kent County Health Care Transportation Resource Directory

Objective
To assist individuals in accessing transportation information and services provided by transit agencies or community programs.

Description
With a cooperative effort of the Kent County Task Force on Health Care for People of Color and the Kent County Emergency Needs Task Force Transportation Subcommittee, the directory was created to inform residents of available transportation agencies. It provides organizational names, addresses, phone numbers, fax numbers, email, and website addresses and is arranged both alphabetically and by category for ease of use.

Contact information
Kent County Health Department
700 Fuller N.E.
Grand Rapids, MI 49503
Tel: 616-336-3030
**www.accesskent.com/Health/HealthDepartment/
     Publications/pdfs/Trans_Res_Dir.pdf**

National Center on Senior Transportation

Objective
To increase transportation options for older adults and enhance their ability to live more independently within their communities throughout the United States.

Description
The center aims to be the nation's primary resource for state and local communities seeking an array of technical assistance, information products about best practices, and training opportunities that address the transportation needs of older adults. It also aims to increase cooperation between the aging community and transportation industry to increase the availability of more comprehensive, accessible, safe and coordinated transportation services. The center is administered by Easter Seals Inc., in partnership with the National Association of Area Agencies on Aging in cooperation with the Federal Transit Administration.

Contact information
Michi McNeace, Director
1425 K Street, NW, Suite 200
Washington, DC 20005
Tel: 202-347-3066 or
          toll-free 1-866-528-NCST (6278)
Fax: 202-737-7914
Email: mmcneace@easterseals.com

Northwest Michigan Transportation Alliance (NMTA)

Objective
To provide non-emergency medical transportation across a multi-county area.

Description
Centered in Traverse City, NMTA is a collaboration of over 20 human service agencies, nonprofits, and local businesses in three counties in Michigan. The organizations involved created the alliance when they recognized they were filling the same transportation needs. By combining their volunteers and their resources, NMTA is able to provide services to a much larger population. The alliance offers rides to non-emergency medical appointments to clients who make reservations at least one week in advance. Volunteers pick up clients at their homes, drive them to medical appointments, take them to the pharmacy to fill prescriptions if necessary, and return them home. NMTA also offers a ride share program, and is beginning to focus on improving transportation options to employment.

Contact information

Bay Area Transportation Authority
3233 Cass Road
Traverse City, MI 49684
Tel: 231-941-2324
Email: geers@bata.net
www.bata.net/ridebata_health.htm

Seniors Benefit from Transportation Coordination Partnerships—A Toolbox

Objective

To inspire and guide transportation practices in other communities as they try to improve the quality and cost-effectiveness of their transportation services, and thus to improve the quality of the lives of their older adults and other residents.

Description

Developed by the U.S. Department of Health and Human Services Administration on Aging, this Transportation Toolkit provides a number of resources for improving older adult transportation services on a community-wide basis. An in-depth review of 14 case studies details the successes of community-based action that resulted in expanded services for older adults. Readers interested in starting the process in their own communities can use a PowerPoint presentation provided in the Toolkit to get the word out to fellow community members. The Community Transportation Template allows communities to develop a personalized transportation directory, which identifies options available to the average community member. The template also provides a framework from which to inventory and assess existing transportation options, gaps, and needs. A 52 page Door-Through-Door Guide explains the importance of door-through-door programs, provides case studies of successful programs, and directs communities on how to develop and sustain a flourishing door-through-door service.

Contact information

National Center on Senior Transportation
1425 K Street, NW, Suite 200
Washington, DC 20005
Tel: 202-347-3066
www.seniortransportation.net

Transportation Planning Capacity Building (TPCB) Program

Objective

To support effective transportation planning in states, cities and regions, rural and small communities, and tribal areas.

Description

The TPCB Program is a joint effort of FHWA and FTA directed to members of policy boards and executive committees; technical staff who participate in statewide, metropolitan, and local planning processes; officials and staff in non-metropolitan areas; and tribal government officials and staff. The program provides information, training, and technical assistance to these officials and acts as a clearinghouse for information and contacts within the transportation planning community. A number of training programs are offered on demand on a variety of topics. The Peer Program encourages the exchange of innovative ideas by bringing leaders nationwide together to share experiences and promote good practices, allowing successful ideas to spread rapidly. All resources are tailored to the size of the interested party, whether it be statewide planning, metropolitan areas, small and rural communities, or tribal areas.

Contact information

U.S. Department of Transportation
See website for Regional Contact Information
www.planning.dot.gov

Transportation Reimbursement & Information Project (TRIP)

Objective

To help people find and pay for volunteers to drive and escort them to various locations and provide free information on the availability of public transportation in the county.

Description

The program represents a partnership between nonprofit and government sectors. Through HelpLink, TRIP's toll-free helpline, specialists discuss transportation needs with callers, make referrals to providers who can assist them, send out brochures, route schedules, and refer people to the Americans With Disabilities Act certification process of transit agencies. A committee evaluates each applicant for the program in order to determine eligibility. TRIP reimburses its clients for mileage, and clients in turn reimburse their volunteer drivers. Staff includes part-time employees and volunteers. Funded by tax support, SunLine Transit Agency, Riverside County Office on Aging, and charitable contributions.

Study information

In a survey of program participants, many reported that TRIP has improved their life and allows them to meet their travel needs. The Beverly Foundation found the program to be available, affordable, acceptable, accessible, and adaptable to older adults and has recognized it as an award-winning program.

Contact information

Richard Smith
6296 Rivercrest Drive, Suite K
Riverside, CA 92507-1769
Tel: 951-867-3800
Fax: 951-867-3830
Email: executivedirector@livingpartners.org
www.livingpartnership.org/transportation.htm

United We Ride

Objective

To meet the transportation needs of all individuals through transportation coordination.

Description

United We Ride is an initiative of the Federal Interagency Coordinating Council on Access and Mobility (CCAM). The CCAM was developed under an Executive Order to reduce duplication, enhance efficiencies, and simplify access to transportation services for older adults, people with disabilities, and individuals with lower incomes. This includes the development of policies that break down barriers for coordinating services at the local level. United We Ride (UWR) also provides support to states and their localities as they develop coordinated transportation programs. The vision of the initiative is ONE CALL, so that citizens have easier access to a "family of transportation services" (e.g., bus, taxi, paratransit, volunteer) regardless of the funding source, the provider, the destination, or the rider. UWR provides technical assistance and training that will help communities become more accessible. UWR Ambassadors travel around the nation assisting communities to develop and implement coordinated human service transportation plans, and also try to increase public awareness of transportation issues. Useful practices are also identified and placed into a database, making it simple to share information about the most successful initiatives in terms of increased efficiency, simplified access, and reduced duplication.

Contact Information

Tel: 1-800-527-8279
Email: unitedweride@dot.gov
www.unitedweride.gov

Alternative Transportation Options

While many older drivers are able to compensate for declines in functional abilities and continue to drive safely for some time, others stop driving, often suddenly, because of health conditions, medical problems, involvement in a crash, or recognition that they are no longer safe drivers. Currently, about one in five adults age 65 and older do not drive, with those least likely to drive being the oldest old (age 85 and older), women, nonwhites, the poor, and individuals with disabilities. Older adults who are no longer able or choose not to drive must still be able to meet their transportation needs to retain their mobility and hence quality of life. This can be especially challenging given the increasing trend for people to "age in place." By staying in their own homes (particularly in rural and suburban areas), they may have fewer transportation resources available to them than if they sought out more transportation-friendly retirement areas.

Unfortunately, few people plan for the time when they will no longer be able to drive. When the time comes, they often rely on friends and relatives to drive them. And while older adults, like others, generally prefer to get around by private automobile, they also may become increasingly uncomfortable asking family and friends for rides. Among the alternative transportation options for older adults are traditional public transit (e.g., buses, light rail, trains, and subways), paratransit (demand response services including ADA transit services), specialized transit services (e.g., those operated by health and human service providers), supplemental transportation programs (e.g., operated by private sector transit services, community groups, and volunteer groups), and other alternatives such as walking or bicycling.

The extent to which these options are available varies from community to community. There is also considerable variation among the various services in terms of how aware people are of the services, how difficult the services are to use, and how much they cost.

Public transportation, the most traditional form of alternative transportation, accounts for about 3 percent of trips by older persons, with about 12 percent of older adults overall reporting that they have used it within the past year. Older residents living in highly urbanized areas, however, are much more likely to use public transportation (e.g., 18 percent of center city residents of metropolitan statistical areas reported daily or almost daily use in a recent national survey). At the same time, public transportation is not available for much of the population—over a third of American households do not have public bus service within two miles of their homes, and in rural areas, over three-quarters of the population lack these services. When public transportation is available, there are often barriers to its use. To some extent, this is because many of the same deficits in abilities that are problematic for driving also discourage the use of public bus services. In particular, older adults may have difficulty walking to the bus stop, waiting for the bus to arrive, climbing aboard, standing if no seats are available, and knowing when to get off at their stop. Other reasons reported for not using public transportation include safety concerns, lack of knowledge regarding use, and inconvenience.

Efforts have been undertaken in many communities to improve traditional transit services including the provision of low-floor buses, the expansion of hours of operation, and the provision of more user-friendly travel information and training for transit users and providers. Alternative transportation options have also emerged that seek to overcome some of the barriers to traditional transit. Paratransit or shared ride services, for example, often offer door-to-door service, but may not be available when needed or may require scheduling well in advance. Volunteer ride programs may be more affordable and acceptable than public transportation, but also tend to have restricted hours and requirements for advanced scheduling.
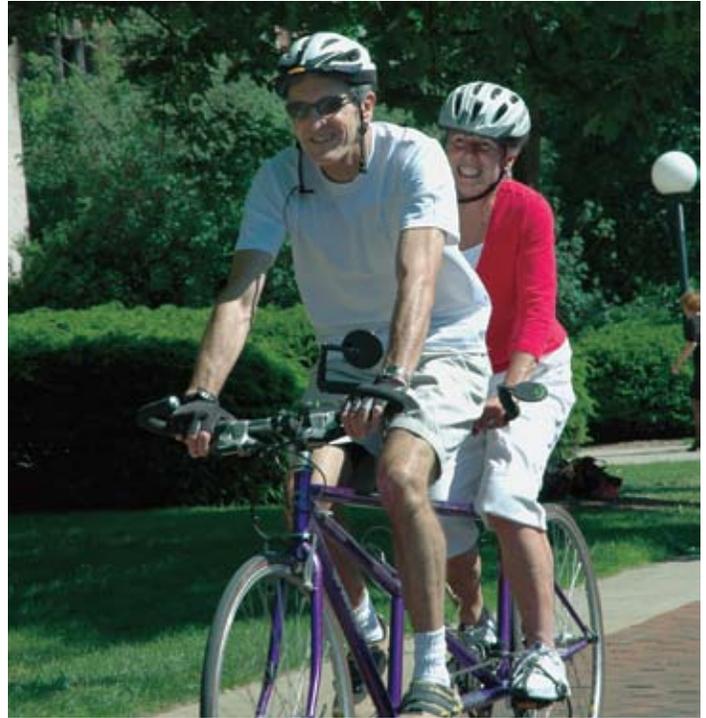
For older adults who are relatively physically fit, walking or bicycling may be viable means of getting around. However, little has been done in the U.S. to address the need for a safe infrastructure that includes sidewalks, road crossings, and traffic signals for pedestrians, and bicycle lanes and road crossings for bicyclists. Without attention to these infrastructure issues, walking and bicycling will continue to hold risk for the older adult population, given their growing numbers in the population and their susceptibility to injury.

Older adults living in rural areas face special transportation challenges because of the limited public

and paratransit services available, and the long distances they must often travel to reach health and social services or participate in social and other enrichment activities. In addition, older adults living in rural areas may be more vulnerable and isolated than their urban or suburban counterparts—they are more likely to be older (age 85 and older), poorer, and in worse health than those in urban and suburban areas.

How alternative transportation can best promote lifelong community mobility

Important components of a promising approach for alternative transportation options are highlighted below:

- Availability
- Accessibility
- Acceptability
- Adaptability
- Affordability
- Family of service approach

One widely used measure of the effectiveness of a transportation service is the extent to which it is available, accessible, acceptable, adaptable, and affordable. First and foremost, transportation must be available, and this means not just that it exists but that it is in operation when people need it. Accessibility has to do with whether people can get to and physically use the service. For public transportation buses, for example, this means being able to get to the bus stop, having a safe and comfortable place to wait for the bus, being able to enter and exit the bus, and having the necessary information to plan and complete a bus trip. Acceptability has to do with how well the service meets the personal standards of users relative to such things as cleanliness of the vehicle, safety of the waiting area, if there is

one, and politeness of the driver. Adaptability has to do with whether the service is flexible enough to be responsive to the special needs of individual users, such as accommodating a person in a wheelchair or someone needing to make multiple stops on the same trip. Affordability has to do with whether the costs are within reach of users and if there are options for reducing out-of-pocket costs through such things as discounts, vouchers, or coupons.

Improving the availability, accessibility, acceptability, adaptability, and affordability of alternative transportation services can go a long way toward enhancing the mobility of older adults. In the case of public transportation, for example, this might mean expanding hours of service, improving schedule reliability, making it easier for older drivers to enter and exit the bus by reducing physical barriers such as steps, having more seats reserved for older riders, and calling out the name of stops. Public transit agencies can also provide better information for trip planning and trip taking, using advanced technologies to generate real time arrival and departure information. In addition, they can partner with other community agencies to better serve the specialized needs of older adults.

Focusing on individual transportation services to make sure they are responsive to the needs of older adults is an important part of promoting community mobility. At the same time, the needs and preferences of older adults are quite diverse and successful efforts to enhance mobility will require a wide range of services and systems. Communities that support such a full range of public and private transportation options, commonly called a "family of services" approach to transportation, have the best chance of meeting the mobility needs of their community members, including older adults.

Specific recommendations for improving the availability, accessibility, acceptability, adaptability, and affordability of alternative transportation services were recently highlighted in the report, "Transportation Innovations for Seniors," developed

in partnership by the Beverly Foundation and the Community Transportation Association of America (CTAA). They include:

- Availability: make vehicles visible so people will see them; extend services to areas not previously served; focus service provision and marketing efforts in areas where older adults tend to congregate (e.g., senior centers, churches); provide transportation for life enrichment activities, as well as, basic needs.

- Acceptability: improve image of transit options (e.g., by linking with affinity transit services run by interfaith groups, volunteer groups, senior centers, or churches); involve older adults in planning, solicit their opinions, and take their preferences into account in providing and adapting services; establish principles for treatment of older adult passengers; ensure that communication and marketing efforts are personalized and dignify older adults; ensure the safety of stops and equipment .

- Accessibility: provide training for drivers and staff to ensure they are respectful of and sensitive to older adult passengers; allow time for passengers to enter and exit the vehicle and consider flexible waiting rules for older adult passengers; use vehicles that are easily accessible by older adults.

- Adaptability: provide flexible scheduling and destination choice; provide low or no cost options; broaden planning perspective to include idea of mobility rather than transportation; use vehicles that can be adapted to accommodate older adult preferences .

- Provision of diverse transportation services;

- Continued funding from public resources with increasing development of private resources both personal and charitable;

- Routine planning for the cost of transportation, integrated with the practice of planning for other expenses later in life;

- Consumer comparison shopping for older adult transit services in the same way consumers comparison shop for a personal automobile;

- Reliance on volunteers as an integral part of the transportation services;

- Sustainable transportation responsive to consumer preference;

- Use of marketing to ensure that service characteristics and payment choices fit with consumer preferences and lifestyles; and

- Information system technology use to solve both resource and logistic problems.

An area of growing interest is the use of volunteer drivers to expand transportation options for older adults. One benefit of volunteer-driver programs is that they allow older adults to maintain their mobility without sacrificing their autonomy. However, an important barrier to the widespread adoption of such programs is the availability and affordability of liability insurance for drivers. Several strategies for maximizing the potential of volunteer-driver programs were recently identified by delegates to the 2005 White House Conference on Aging, in support of the resolution to "ensure older Americans have transportation options to retain their mobility and independence," ranked as the third priority only behind long-term care and Medicare. Among the strategies were the following:

- Develop and fund policies that cover volunteer drivers for door-to-door and door-through-door transportation services, by local and state governments working with insurance companies;

- Mandate insurance liability for volunteer drivers (no fault) to encourage volunteer programs;

- Promote community-based volunteer transportation options and protect volunteer drivers from unreasonable insurance premiums; and

- Fund development of volunteer based transportation for older adults including liability protection for volunteers.

Descriptions of programs and other initiatives that appear to be especially promising

One promising alternative transportation option falls within the general category of supplemental transportation programs (STPs). STPs are community-based transportation programs organized to meet the specialized mobility needs of older adults through trip chaining, transportation escorts, door-through-door service, and other means of personal support. They are intended to complement or supplement existing transportation services. The Beverly Foundation (a private foundation that coined the term STP) conducts an annual survey to identify, index, and describe STPs, and has collected information on over 400 such programs since 2000. These programs vary considerably in terms of where they are located, how they are organized, ridership, trip purpose, use of escorts, type of vehicle, rider fees, drivers, and funding. Summaries of individual STPs recognized by the Beverly Foundation for their availability, accessibility, acceptability, adaptability, and/or affordability are included in the program listing at the end of this section.

Another promising approach to promoting life-long community mobility is characterized by the Independent Transportation Network (ITN), a shared cost program that uses paid and volunteer drivers in private automobiles to provide door-through-door services (including help with carrying packages and other items) to adults age 65 and older and adults with visual impairment. ITN is membership based—users pay nominal dues, pay for their rides through personal transportation accounts (at roughly 50 percent of the cost), and, accrue transportation credits in a variety of ways.

Summaries of promising programs and other initiatives

Brief summaries of the highlighted programs and other initiatives in the area of alternative transportation, as well as other programs and other initiatives that appear promising for promoting lifelong community mobility are presented in this section in alphabetical order.

ACCESS Transportation System

Objective
To provide transportation services.

Description
The program provides paratransit, shared-ride, or door-through-door transportation countywide. Human service agencies in the county use ACCESS who provides rides through contracts with for-profit and nonprofit carriers. Services are provided 7 days a week from 6:00 a.m.-12 midnight. Funded by local funds.

Study information
ACCESS was a winner of the 2005 United We Ride Leadership Award, which recognizes programs that successfully meet the needs of older adults, disabled persons, and/or those with lower incomes.

Contact information
ACCESS Transportation Systems
650 Smithfield Street
Centre City Tower, Suite 440
Pittsburgh, PA 15222
Tel: 412-562-5353
Fax: 412-391-0594
www.portauthority.org/PAAC/CustomerInfo/ACCESS/tabid/121/Default.aspx

Altoona Metro Transportation

Objective
To provide public transportation services that meet the needs of the community.

Description
AMTRAN provides fixed route service in the greater Altoona area. Buses are lift-equipped and some buses "kneel" for easier access. Older adults age 65 and older ride free on all bus routes all day Saturday, as well as Monday through Friday, 8:00 AM to 4:30 PM and after 5:30 PM. A driver sensitivity training program is offered. Older adults are targeted in marketing strategies to encourage ridership, and older adult volunteers promote and teach other older adults how to use the services thorough a "bus buddy" program. Funded through state lottery programs.

Study information
This program was recognized in the 2004 GAO for Transportation-Disadvantaged Seniors as a local service pro-

vider or practice that can enhance transportation-disadvantaged older adults' mobility.

Contact information

AMTRAN
3301 Fifth Avenue
Altoona, PA 16602
Tel: 814-944-4074
www.amtran.org

Antelope Valley Transit Authority (AVTA)

Objective

To provide affordable and accessible alternative transportation options.

Description

AVTA offers a shared-ride program in both urban and rural areas. It provides curb-to-curb service for older adults and individuals with disabilities. In rural areas, service is available to everyone Monday through Friday. Advance notice of 1–3 days is required for trips, but same-day service is available. They also provide group discounts. AVTA provides a shuttle that is available on Tuesdays for transportation to certain medical facilities in the Los Angeles area, and allows free passage for adults age 65 and older on local transit service, weekdays from 9:00 a.m.-5:00 p.m. and all day long on weekends. Funded by federal and local grants and state funding.

Contact information

AVTA
1031 West Avenue L-12
Lancaster, CA 93534
Tel: 661-945-9445
Email: pholland@avta.com
www.avta.com

Area IV Agency on Aging Transportation Program

Objective

To provide a broad range of transportation services for older adults and disabled adults.

Description

Both volunteer and paid drivers provide transportation throughout urban and rural areas. Through contractual agreements, the program uses service providers to provide curb-to-curb, door-to-door, door-through-door, and escorted rides Monday through Friday and on weekends (using a taxi service and volunteers from the Retired Seniors Volunteer Program). Riders must make reservations at least 48 hours before the ride

is needed. The program also provides older adult volunteer companions for homebound older adults through a Senior Companions Program. Funded by Idaho DOT, Idaho Senior Service Act, and The College of Southern Idaho.

Study information

A case study by the Beverly Foundation found that the greatest strength of the program was its ability to provide a wide range of transportation. The Foundation has recognized it as an award-winning program.

Contact information

College of Southern Idaho
PO Box 1238,
Twin Falls, ID 83303-1238
Tel: 208-736-2122
Fax: 208-736-2126

Arlington Agency on Aging Transportation Options

Objective

To provide a broad range of transportation services for older adults and disabled adults.

Description

Both volunteer and paid drivers provide transportation throughout this highly urbanized area. A number of these programs are funded by the agency, while others are provided via other agencies. Through contractual agreements, the programs use service providers to provide door-to-door, door-through-door, and escorted rides. Funded by the Older American Act, State and county funds, fares and contributions.

Study information

The agency conducted small-scale surveys of the transportation programs and results show that older adults are pleased with the services, noting their timeliness and effectiveness. Ninety-eight percent of survey respondents indicated great satisfaction with the services. A case study by the Administration on Aging showed the agency's coordination activities have been successful in working together, planning for community needs, and moving people efficiently.

Contact information

Arlington Agency on Aging
3033 Wilson Blvd., Suite 700B
Arlington, VA 22201
Tel: 703-228-1700
Fax: 703-228-1148
Email: arlaaa@arlingtonva.us
www.arlingtonva.us

Butler County Transit (Busy Wheels)

Objective

To help older individuals live independently and remain an active and vital part of the community.

Description

A service of Butler County Senior Services, Busy Wheels is a demand-response transportation option. Volunteer drivers transport older adults to medical appointments, grocery stores, pharmacies, older adult centers, or to run other errands. Services are available Monday through Friday from 8:30 AM to 3:00 PM. Butler County Senior Services also offers a Handi Van, which provides transportation to community members of all ages with disabilities. Funded by donations, and county, state, and federal funds.

Study information

This program was recognized in the 2004 GAO for Transportation-Disadvantaged Seniors as a local service provider or practice that can enhance transportation-disadvantaged older adult's mobility.

Contact information

Butler County Senior Services
592 D Street
David City, NE 68632
Tel: 402-367-6131
www.lincoln.ne.gov/city/mayor/aging/butler.htm

Cadillac/Wexford Transit Authority (CWTA)

Objective

To provide safe, reliable, efficient, and diversified transportation options.

Description

The Cadillac/Wextford Transit Authority is a demand-response transit system for Wexford County. In addition to its door-to-door service, CWTA provides transportation to area human service agencies and offers a "Healthway Express." This lift-equipped bus provides non-emergency medical-related transportation to residents. Older adult volunteers ride along to help the passengers use the bus system and answer any questions they might have, and may be compensated with free bus passes. Riders also have the option of creating a personal profile of their medical concerns with the transit system, so that transit staff can respond appropriately in an emergency medical situation. Additionally, CWTA provides transportation for cancer patients and their families traveling to the Bierdman Cancer Treatment Center in Traverse City. Services are available Monday through Friday from 6:00 AM to 5:30 PM. Local older adults pay $1 one way for city fares; out-of-county riders are charged $1.50. In 2006, older adults and passengers with disabilities accounted for 76 percent of ridership. Funded locally through public transportation millages.

Contact information

Mr. Vance Edwards, Manager
1202 North Mitchell
Cadillac, MI 49601
Tel: 231-775-9411
Fax: 231-775-9420
Email: cwta@michweb.net

Campbell–Stone North Apartments

Objective

To provide safe and reliable transportation to apartment residents.

Description

Transportation is provided to all residents 7 days a week, daytime and evenings. Curb-to-curb, fixed route, door-to-door, and door-through-door services are provided. Transportation is provided to grocery stores, shopping centers, banks, and medical appointments. Staff work with area churches and synagogues to arrange transportation for weekly services, special events, and holiday celebrations. The community relies on the financial support of individual donors, private foundations, and benevolent businesses to help cover the costs associated with the transportation services.

Study information

The program has been recognized as an award-winning program and received the 2003 STAR Award from the Beverly Foundation.

Contact information

Cliff Pepper, Executive Director
Campbell-Stone North Apartments
350 Carpenter Drive, NE
Atlanta, GA 30328
Tel: 404-256-2612
Fax: 404-843-3426
Email: CPepper@campbellstone.org
www.campbellstone.org

Capital Metropolitan Transportation Authority

Objective

To provide affordable and accessible transportation.

Description

The program uses lift-equipped vehicles to provide transportation as well as assistance with boarding the buses. Older adults age 65 and older ride free of charge. Funding provided by sales tax and federal funds.

Contact information

Nancy Crowther
2910 E. Fifth
Austin, TX 78702
Tel: 512-389-7583
Email: nancy.crowther@capmetro.org
www.capmetro.org

Chemchung County Department of Aging and Long Term Care

Objective

To provide an assortment of services to older adults in Chemchung County, New York.

Description

Services are limited to Chemung County residents who no longer drive, do not own cars, do not have others who can drive them and are unable to pay for their own transportation. Demand-response and escort services are available for trip to medical appointments, congregate meal sites, older adult centers, public agencies, and some recreational events. This service is coordinated with County Transit, Medicaid, and other transportation providers in the community. Service is available 24 hours a day, 7 days a week. Donations are encouraged and welcomed.

Contact information

Chemung County Department of Aging & Long Term Care
425 Pennsylvania Avenue
PO Box 588
Elmira, NY 14902-0588
Tel: 607-737-5520
Fax: 607-737-5521
Email: ofa@co.chemung.ny.us

Choice Ride

Objective

To help older adults remain independent by providing door-to-door transportation.

Description

For a prepaid fee, older adults receive rides in a personal vehicle with a driver. Participants receive credit on their auto insurance policies if they agree to use their own vehicles only in an emergency. Rides are available 24 hours per day, 7 days per week by the Mears Transportation Group, and can be scheduled up to 1 day in advance. Riders can try out the program on a trial basis. Three pricing plans are available for riders. Funded by USAA Insurance Company.

Study information

Following 2 years of development, the program was field tested during an 18-month period in Orlando, Florida, and began on July 1998.

Contact information

USAA Insurance Company
9800 Fredericksburg Road
San Antonio, TX 78288
Tel: 1-800-535-8695

Community Health Representative, Muscogee (Creek) Nation

Objective

To provide a variety of health services within the American Indian and Alaska Native community.

Description

The program provides door-to-door and door-through-door transportation services, as well as escorts for medical visits on weekdays during the daytime. Because many clients require the use of an interpreter, almost half of all community health representative staff can speak the Muscogee language fluently or can understand it well enough to act as client advocates. Trips are scheduled at least 2 days in advance and there are no fees for utilizing this service. Funded by Indian Health Services.

Study information

This program received the 2003 STAR Award from the Beverly Foundation.

Contact information

Cyndi Gilks, Manager
Community Health Representative
Muscogee (Creek) Nation
700 N. Mission
Okmulgee, OK 74447
Tel: 918-756-1941

Dakota Area Resources and Transportation for Seniors (DARTS)

Objective

To provide high-quality services that support the full participation of older adults in community life.

Description

DARTS provides door-through-door transportation to older adults, ADA-certified riders, and others on wheelchair accessible buses based on reservations up to 4 days in advance. The central dispatch office takes appointments for local rides and makes arrangements with local transit, neighboring Metro Mobility networks, and other transportation providers in the region. Funded by the Metropolitan Council, Older Americans Acts, contracts with county agencies, and rider fares.

Study information

Results of the 2003 New Rider Survey indicate that first-time riders were very pleased with DARTS services; 96.8 percent describe their first time experience using DARTS as very positive and 98.4 percent would recommend DARTS to others. DARTS also received the 2005 United We Ride National Leadership Award for coordination of social service transportation. A case study by the Administration on Aging found that DARTS coordination activities have been particularly successful in progress through working together, planning to community needs, and putting customers first.

Contact information

DARTS
1645 Marthaler Lane
West St. Paul, MN 55118
Tel: 651-455-1339
Fax: 651-234-2280
Email: info@darts1.org
www.darts1.org

East Central Illinois Area Agency on Aging Transportation Service Providers

Objective

To provide an array of transportation options for older adults.

Description

The agency has a network of transportation providers that work independently and together to coordinate services for older adults in the region. The transportation program comprises urban mass transit, rural mass transit, and transportation offered by local social service agencies. Services include fixed-routes, as well as, subscriber door-through-door transportation.

Funded by the Federal Transit Administration via the Illinois DOT; Medicaid; Social Service Block Grant Title XX; Older American Act; local, county, municipal, and township funds; and fares and local contributions.

Study information

Results from a survey by the Administration on Aging's Performance Outcomes Measurement Project indicated that 97 percent of riders rated the services as very good or excellent, and 99 percent would recommend transportation services to friends. The Administration on Aging concluded that this agency's coordination activities have been particularly successful in progress through working together, planning for community needs, and adapting funding.

Contact information

East Central Illinois Area Agency on Aging
1003 Maple Hill Road
Bloomington, IL 61704-9327
Tel: 1-800-888-4456
Email: aginginfo@eciaaa.org
www.eciaaa.org

Elder Services of Merrimack Valley

Objective

To provide as many choices as possible for older adults whose desire is to maintain a safe and independent lifestyle in their own homes and communities.

Description

Elder Services provides a multitude of services for older adults and their caregivers in 23 cities and towns in the Merrimack Valley. Among these services is a medical advocacy program that uses local volunteers to assist elders with medical transportation and advocacy. Donations are accepted from older adults and are used to reimburse volunteers for mileage. In addition to its many community programs, Elder Services coordinates in-home services such as housekeeping, and housing services.

Study information

Elder Services was awarded the Non-for-Profit Business of the Year in 2004 by the Haverhill Chamber of Commerce. The program was also recognized in the 2004 GAO for Transportation-Disadvantaged Seniors as a local service provider or practice that can enhance transportation-disadvantaged older adults' mobility.

Contact information

360 Merrimack Street
Building 5
Lawrence, MA 01843
Tel: 978-683-7747 or 1-800-892-0890

Email: rdistefano@emsv.org
www.emsv.org

Faith in Action Caregivers–West Austin

Objective

To offer a wide range of services so that older adults can maintain their independence and improve their quality of life.

Description

A member of Faith in Action Caregivers, a collaboration of volunteer caregiver programs in the greater Austin, Texas metropolitan area, volunteer drivers for the West Austin branch are recruited from sponsoring congregations, local universities, and the community at large. Partnerships are also developed with organizations: The Junior League of Austin, Retired Senior Volunteer Program (RSVP). Once trained, volunteer drivers use their personal vehicles to provide transportation for essential needs (medical appointments, grocery shopping) and to destinations that enhance quality of life (beauty shop, senior center). Registered clients call in requests to program office and staff/volunteers match available volunteers to fill requests. Funded by grants, sponsoring congregations, fundraising, and contributions.

Study information

The Beverly Foundation identified the program's unique feature to be its service agreement with the Junior League to provide volunteers, and has recognized it as an award-winning program. Faith in Action Caregivers (then known as Partners in Caregiving) won the 2004 STAR Award from the Beverly Foundation.

Contact information

Jean Barrett Teel
2601 Exposition Boulevard
Austin, TX 78703
Tel: 512-472-6339
Fax: 512-472-7158
Email: wacaregivers@juno.com
www.main.org/wacaregivers
wwww.faithinactioncaregivers.org

The Friendship Center

Objective

To enrich the lives of older adults residing in Montgomery County, Texas.

Description

The Friendship Center maintains a fleet of 29 wheelchair accessible vans and buses to transport older adults and the disabled throughout Montgomery County. Transportation is provided for the purposes of medical and business appointments, shopping, field trips, and to senior centers for meals and activities. Forty-eight hours advance notice is requested. There are no fees required, but a donation is requested to assist with operational costs. Funding assistance is provided through grants from the Houston-Galveston Area Council on Aging, The Montgomery County United Way, Montgomery County Commissioner's Court and Community Development, The Town Center Improvement District, and The Texas DOT.

Contact information

The Friendship Center
1202 Callahan Avenue, Conroe, TX 77301
Tel: 936-756-5828

Gadabout Transportation Services, Inc.

Objective

To provide door-to-door transportation services to older adults and disabled adults in both urban and rural areas.

Description

Gadabout is a nonprofit organization with a Board of Directors responsible for policy guidance and oversight. Both paid and volunteer drivers provide transportation using buses during weekday, daytime hours. Typically, rides are scheduled 24 hours in advance and riders are charged a flat rate fee. Gadabout collaborates with the Social Services Department to provide escorts for riders. Drivers are screened and trained. Funded by State and Federal funds (grants through the Federal Urban Mass Transit Act), tax revenue, and rider fees.

Study information

In a case study performed by the Beverly Foundation, Gadabout was found to be acceptable to riders, accessible due to the specially equipped vehicles, and adaptable because it provides escorted transportation when needed.

Contact information

Judith E. Willis
Gadabout Transportation Services, Inc.
737 Willow Avenue
Ithaca, NY 14850
Tel: 607-273-1878
Fax: 607-277-9551
Email: willisjudy@netscape.com

Gold Country Telecare, Inc.

Objective

To provide transportation to older adults and persons with disabilities so that they can remain independent and continue participating in the community.

Description

The nonprofit program has six staffed divisions with paid employees and volunteers. Telecare has established service relationships with various older adult residential and medical facilities. They provide door-to-door service seven days a week, but riders must make a reservation 24 hours in advance. The Area IV Agency on Aging assists low-income older adults with vouchers. Volunteer drivers receive mileage reimbursements. Initial funding provided by a sponsoring church and private donations, and current funding provided by county funds, special events, grants (California DOT, Area IV Agency on Aging, and the United Way), and fund raising.

Study information

The Nevada County Transportation Commission is currently conducting a performance audit. Results will be available later in 2007.

Contact information

Susan Healy-Harman
Gold Country Telecare, Inc.
PO Box 2161
Grass Valley, CA 95945
Tel: 530-272-1710
Email: shealy-telecare@sbcglobal.net
www.goldcountrytelecare.org

Independent Transportation Network® (ITN) Also known as ITNPortland™

Objective

To provide on-demand, door-through-door transportation.

Description

ITNAmerica® is the national, nonprofit organization that supports the replication of the economically sustainable Independent Transportation Network® model for older adult transportation. Developed to replicate the comfort and convenience of private automobile ownership, ITN rides can be scheduled 7 days a week, 24 hours a day, either in advance (earning a discount) or on-demand, and paid for through prepaid accounts. Riders must become members of ITN® and live within the ITN® service area. A small annual membership fee provides access to a bimonthly newsletter and a gift certificate on the member's birthday. The program uses volunteer drivers who use their own vehicles to transport riders (and receive mileage reimbursement), as well as paid drivers, who use one of the program's vehicles. ITNAmerica™ has developed GIS software, ITNRides™ that also includes payment and billing functions, as well as member, volunteer and community outreach management. ITNAmerica is funded by grants, fees from affiliates, and corporate support; ITNPortland is funded entirely through fares from riders, membership fees, donations, and local business participation.

Study information

In a case study by the Beverly Foundation, ITN services were found to be available, affordable, acceptable, accessible, and adaptable. ITN's founder has been charged with developing a model suitable for replication elsewhere.

Contact information

Rus Willette
ITNPortland
90 Bridge Street
Westbrook, ME 04092
Tel: 207-854-0505
Fax: 207-854-1026

Katherine Freund
ITNAmerica
90 Bridge Street
Westbrook, ME 04092
Tel: 207-857-9001
Fax: 207-857-9199
Email: Kathy.freund@ITNAmerica.org
www.itnamerica.org

Jefferson County Service Organization

Objective

To provide demand response transportation service throughout the county.

Description

This program, the only alternative transportation option for residents in this area, includes paid staff members and volunteers. Each community in which it operates has its own drivers and an individual who schedules rides. Rides can be scheduled for the same day on weekdays and by appointment on weekends. There is a flat fare for recreational trips, and donations are accepted for professional, medical, and shopping trips. Drivers typically stay with passengers until they are ready to return home, and often assist the riders. Funded by Kansas DOT, rider fees/donations, United Way, property taxes, and Area Agency on Aging.

Study information

The Beverly Foundation found that the drivers set this program apart from many others because they provide hands-on assistance to riders, and has recognized it as an award-winning program.

Contact information

Lynn Luck
Jefferson County Service Organization
610 Delaware Street
Oskaloosa, KS 66066
Tel: 785-863-2637
Fax: 785-863-3460

Lac du Flambeau Senior and Disabilities Services

Objective

To provide a one-stop resource senior center with on-site and outreach services.

Description

The program provides door-to-door services 7 days a week. The program provides transportation to medical appointments, personal outings, shopping, and for personal activities. The fleet includes a minivan with companion seat access, a bus with a lift, and a van for ambulatory services. Reservations can be made the same day and there are no fees charged for riding. Funded through grants and the tribe.

Study information

This program received the 2003 STAR Award from the Beverly Foundation.

Contact information

Tanya Meyer, Director
Lac du Flambeau Senior & Disabilities Services
PO Box 67
Lac du Flambeau, WI 54538
Tel: 715-588-9621
Fax: 715-588-3677

Lauderhill Transportation Program

Objective

To provide demand-response, door-to-door transportation for older adults.

Description

Lauderhill, in association with the Social Services Department, operates a fleet of vehicles able to provide transportation to large groups or individuals. Most trips are scheduled on weekdays, with some weekend and evening hours. The program includes both full- and part-time employees and volunteers. Riders are encouraged to purchase Trip Passes, good for 10 one-way rides. Vehicles funded by Urban Mass Para Transit Authority and additional funding provided by city funds.

Study information

The Beverly Foundation found the program to be available, affordable, acceptable, accessible, and adaptable to older adults and has recognized it as an award-winning program.

Contact information

P.A.L.S. OFFICE
1900 NW 55 Avenue
Lauderhill, FL 33313
Tel: 954-572-2933

Malheur County Special Transportation System

Objective

To provide transportation services to older adults and people with disabilities in a large bi-state rural area.

Description

This system provides demand-response, curb-to-curb service for older adults and people with disabilities. The system provides transportation for the majority of the social service agencies in the region, and acts as the central dispatcher for all public transportation in the area. The dial-a-ride service is available from 8:00 a.m.-5:00 p.m. Monday through Friday, with the exception of holidays. Trip reservations should be made 3 days ahead, but last minute rides are scheduled if there are drivers available. Funded by the Older Americans Act, Oregon Special Transportation Formula funds from cigarette taxes, Oregon DOT Special Transportation Fund Discretionary Grants, Oregon Department of Human Services, Oregon Medical Assistance Program, Idaho Medicaid Program, and fares. Idaho Department of Health and Welfare and Idaho Medicaid fund transportation they provide in Idaho.

Study information

A case study conducted by the Administration on Aging showed this system to be successful in progress through working together, putting customers first, and moving people efficiently.

Contact information

Sherri Massongill, Executive Director
Malheur Council on Aging & Community Services
842 SE First Avenue
PO Box 937, Ontario, OR 97914-0937
Tel: 541-889-7651
Fax: 541-889-4940
Email: mcoa@srvinet.com

Medical Motor Service (MMS)

Objective

To improve the quality of life for people with specialized transportation needs.

Description

MMS provides direct transportation services, brokered trips, and vehicle maintenance services. Medical Motor Service also transports older adult citizens to medical adult day care programs and social day care programs throughout the community. The transportation is provided for both ambulatory persons and those who use wheelchairs and the fees are based upon income. MMS provides an average of 435,000 trips a year to over 8,500 area residents who are disabled and/or unable to use traditional transit services. Drivers must meet DOT commercial driver's license requirements and attend quarterly safety meetings, and newsletters are published biannually to alert the community of changes or new services. Costs vary according to the purpose of the trip and may be covered by Medicaid or insurance.

Study information

A case study conducted by the Administration on Aging found MMS to be successful in adapting funding, progress through working together, putting customers first, and moving people efficiently.

Contact information

William McDonald, Director
Medical Motor Service
1 Mustard Street, Suite 200
Rochester, NY 14609
Tel: 585-654-7030
Fax: 585-654-5798
Email: w_mcdonald@medicalmotors.org
www.medicalmotors.org

Neighbor Ride

Objective

To provide transportation to older adults in Howard County, Maryland.

Description

This service is intended to supplement public and private transportation services in Howard County. Passengers are transported curb-to-curb by trained volunteer drivers in their personal vehicles. For a modest fee, passengers may utilize the rides for their personal needs, health care appointments, social visits, business engagements, personal care appointments, attendance at community events, religious services and other day-to-day activities. Trips can be scheduled online or by phone and should be made at least 3 days in advance.

Contact information

Neighbor Ride, Inc.,
8808 Centre Park Drive, Suite 108
Columbia, MD 21045
Tel: 410-884-RIDE
Email: information@neigborride.org
www.neighborride.org

Onondaga County Department for Aging and Youth

Objective

To plan, develop and coordinate programs and services for county residents age 60 and older.

Description

Transportation services are provided to older adult residents by a number of agencies throughout the county. The department provides curb-to-curb, door-to-door, demand-response, fixed-route, and escort services to senior centers for nutrition and socialization, medical appointments, and grocery stores. Days and hours of service are dependent upon the agency providing service.

Contact information

Onondaga County Department for Aging & Youth
John H. Mulroy Civic Center, 13th Floor
421 Montgomery Street
Syracuse, NY 13202
Tel: 315-435-2362
Fax: 315-435-3129
www.ongov.net/Aging_and_Youth/home.html

Partners In Care

Objective

To assist in tasks that help older adults remain independent in their own homes.

Description

Partners In Care uses a service-exchange concept as the foundation for its network of support for older adults. The objective is to build the community by engaging people to help each other with tasks involved in everyday living. The transportation portion of the program provides door-through-door, arm-in-arm, on-demand services. Transportation is provided by individual volunteer members of Partners In Care using their own vehicles. There are two full-time staff for transportation services and nearly 400 members who provide trips for others. Riders are asked to schedule trips 3 to 5 days in advance; volunteer matchmakers assign drivers to the riders, looking for matches that will generate good social interaction. Rides are provided in

a personalized arm-to-arm manner. The driver picks up an individual at their front door, helps them into the car, drives to the facility, helps navigate through the labyrinth of a medical center if necessary, waits with them, then takes them safely back home again. Often the volunteer driver will stop for groceries, to pick up prescriptions, or to enjoy a social lunch. Funded by in-house fundraising, Anne Arundel Department of Aging, foundation grants, and private donations.

Study information

A case study by the Administration on Aging found that Partners In Care's coordination activities were successful in putting customers first and planning for community needs.

Contact information

Partners In Care
348 Ritchie Highway
Severna Park, MD 21146
Tel: 1-800-227-5500
Email: partners@partnersincare.org
www.partnersincare.org

PasRide

Objective

To design and implement a transportation service model that would provide rides to older adults and complement existing transportation services and to create an adaptable process model that could be implemented in communities throughout the country.

Description

The PasRide model is a "senior friendly," consumer-driven, "volunteer friends" approach to transportation. PasRide provides a low cost, low maintenance approach to providing senior friendly transportation. It was designed to augment, not replace existing transportation services and provides a model of an STP that other communities across the country can easily adapt. The key elements of PasRide are a sponsor, partners, riders, volunteer drivers, documentation, and reimbursement.

Study information

An 18-month pilot project was conducted in Pasadena, California. During the pilot, a total of 32 riders were registered, 25 of which were regular participants. All, except two, were female and ranged in age from the mid-60's to 96. Collectively, they had 26 volunteer drivers that ranged in age from 32 to 83. A total of 2,238 rides were provided, representing 9,280 miles of travel. Rides were most frequently provided to doctors' offices (18.9 percent of trips) or church (17.4 percent). The average distance per trip was 4.6 miles and the average cost per trip, including reimbursement, insurance and staffing, was $6.40.

Contact information

Beverly Foundation
566 El Dorado Street, Suite 100
Pasadena, CA 91101
Tel: 626-792-2292
Fax: 626-792-6117
www.beverlyfoundation.org

Phoenix Valley Metro

Objective

To address transportation needs in Phoenix, Arizona.

Description

The Phoenix Valley Metro offers an array of transportation options, including fixed-route bus systems for the greater Phoenix area, special commuter buses transport users to and from downtown on weekdays, vanpool services, and an online carpool matching system. The Valley Metro Central Station was recently built to be a one-stop shop for all public transportation needs. Here, customers can purchase tickets, find information on paratransit services and reduced fares, have picture IDs taken, and get the Valley Metro bus route and schedule information. Central Station also has public restrooms, play areas for children, trees, and evaporation-cooled waiting areas. To address the specific needs of older adults, the Peer Transportation program works with older adults to help them become more comfortable with available public transportation options. In addition, the Phoenix Dial-a-Ride also provides shared-ride transportation to older adults age 65 and older and persons with disabilities. Reservations must be made in advance, and fares vary depending on the trip.

Contact information

Valley Metro/RPTA
302 N. 1st Avenue, Suite 700
Phoenix, AZ 85003
Tel: 602-262-7433
Email: csr@valleymetro.org
www.valleymetro.org

Prairie Hills Transit

Objective

To support and promote public and specialized transportation in its service area.

Description

Paid and volunteer drivers provide transportation for older adults and the general public Monday through Saturday. Door-to-door and door-through-door services are provided to passengers with physical limitations and dementia. Rides should be scheduled 24 hours in advance, and medical appointments, nutrition access, shopping, banking and other essential personal errands can be accommodated. Primarily funded from state DOT funds, aging services money, Title 19 non-emergency medical transportation through Medicaid, funds from the city and county fare box revenues, and from donations and fundraising activities.

Study information

A case study by the Beverly Foundation and CTAA identified this program as being innovative in the way it provides transportation that serves older adults. The case study was developed from on-site visits, extensive interviews with staff, and published materials.

Contact information

Barb Cline, Executive Director
Prairie Hills Transit
430 Oriole Drive
Spearfish, SD 57783
Tel: 605-642-6613
Fax: 605-642-6421
www.prairiehillstransit.org

Project Dana

Objective

To provide support services for frail and vulnerable older adults and individuals with disabilities.

Description

Project Dana is an interfaith volunteer caregivers program that provides transportation to older adults and individuals with disabilities. Volunteers are assigned to service transportation on a one-to-one basis, allowing lasting relationships to develop. Door-to-door and door-through-door services are provided, and escorts can be provided as needed. There are no fees for transportation, but donations can be made. Services are available 24 hours a day, 7 days a week. Reservations must be made at least 2 days in advance. Project Dana also serves as a referral and linkage agency and works closely with more than 125 community and service agencies to ensure a continuum of services to older adults. Funded by CDBG Tamura and Ifuku Foundation, HHA, Honpa Hongwanji Grant, rider donations, and the Moiliili Hongwanji Mission.

Study information

Project Dana received the 2002 STAR Award from the Beverly Foundation.

Contact information

Project Dana
902 University Avenue
Honolulu, HI 96826
Tel: 808-945-3736
Fax: 808-945-0007
Email: rojdana@pixi.com
www.moiliilihongwanji.org

Rapid Transit Program (RTP)

Objective

To provide low-cost transportation to the elderly, social service agency clients, the economically disadvantaged and persons with disabilities throughout Cumberland County, Maine.

Description

With a fleet of 36 lift-equipped buses and vans, 39 agency certified drivers and a volunteer program that involves more than 50 drivers, RTP serves over 4,500 people countywide each year, providing more than a 1,000 rides a day to people who need to get to medical appointments, grocery shopping, work and other important places. RTP runs 34 different routes across Cumberland County 7 days a week, doing door-to-door rider pickups and drop-offs. Riders may set up a ride not later than 5:00 PM the day before the ride is needed.

Contact information

Jon B. McNulty, Executive Director
Regional Transportation Program
127 St. John Street
Portland, ME 04102
Tel: 1-800-244-0704
Fax: 207-828-8899
Email: jmcnulty@rtprides.org
www.rtprides.org

Rensselaer County Department for the Aging

Objective

To facilitate getting older adults out of the house and into the community.

Description

Door-to-door transportation is provided to older adults for medical appointments, social and recreational activities, and religious events. The service uses a mixed fleet of maxi-vans, passenger vans, minivans, and passenger cars which are all easily accessible for older adults. Service is available during daytime and evening hours, seven days a week, and reservations can be made the same day. There is a suggested contribution of $4 per trip for medical purposes and 25 cents each way for other rides, however, those who cannot afford the fare travel for free. Funded by Rensselaer County, the New York State Office for the Aging, and the Older Americans Act of 1965.

Study information

This program was the recipient of the Beverly Foundation's 2002 STAR Award for excellence in providing older adult transportation.

Contact information

Rensselaer County
1600 7th Avenue
Troy, NY 12180
Tel: 518-270-2732
Fax: 518-270-2737
www.rensco.com/departments_aging.asp

Ride Connection, Inc.

Objective

To provide assistance to older adults and individuals with disabilities who do not have alternative transportation.

Description

Created in response to a community needs assessment, the program has a Board of Directors with fundraising and transportation expertise, and employs both full- and part-time employees, as well as volunteers. It has formed service relationships with various providers and riders are referred to the closest provider when they call to request a ride. Aside from rural county travel, riders are not charged a fee, however, donations are accepted. Funded by Oregon DOT, Public Transit Division, Tri-Met, community foundations, and personal donations.

Study information

The Beverly Foundation found the program to be available, affordable, acceptable, accessible, and adaptable to the elderly and has recognized it as an award-winning program.

Contact information

3030 SW Moody, Suite 230
Portland, OR 97201
Tel: 503-528-1720
Email: ride@rideconnection.org
www.rideconnection.org/index.html

The Ride–Ann Arbor Transit Authority

Objective

To enable all residents of the greater Ann Arbor-Ypsilanti area in Michigan to reach their destination at a reasonable cost by using efficient, environmentally sound transportation alternatives.

Description

The Ride provides both fixed-route and demand-response transportation for the Ann Arbor area and offers a number of programs directed at older adults. Older adults age 60-64 can travel for a reduced fare of $.50 and those aged 65 and older ride for $.25. Monthly passes can also be purchased for unlimited rides. The Ride offers a "Senior Ride Grocery Trip" service which provides group trips to five local grocery stores from ten area senior citizen housing complexes. Older adult riders can also take a shared-taxi trip anywhere within the city limits for a reduced fare. The older adult "Out & About" program is a free travel training program that sends a staff member to teach prospective riders how to use the bus system. This "travel trainer" educates both individuals and groups on how to reach their desired destinations and attempts to ease fears about the public transportation system. A local advisory committee holds public monthly meetings to discuss issues related to older adults and persons with disabilities.

Study information

A survey of fixed-route riders in 2006 found riders were highly satisfied with services and information provided by the transit system.

Contact information

Ann Arbor Transit Authority
2700 S. Industrial Highway
Ann Arbor, MI 48104
Tel: 734-996-0400
www.theride.org

RIDES Mass Transit District

Objective

To provide accessible transportation to all residents in a manner that promotes independence, self-sufficiency, and economic opportunity.

Description

RIDES offers brokerage for nine counties, fixed-route services, demand-response and deviated fixed-route services, demand-response paratransit and River Taxi service. RIDES provides service on deviated fixed-routes in several local towns and demand-response trips that are reserved 24 hours in advance. These zoned deviated routes work through quadrants of a community every 15 minutes of the hour picking up riders at their homes, and incorporating stops at the major shopping centers and a series of stop shelters. Drivers are trained to assist passengers with disabilities and provide door-to-door service where necessary. The RIDES fleet is primarily made up of paratransit vehicles and provides nearly 250,000 passenger trips a year. RIDES has contracts with more than 50 social service agencies in the area and clients of those agencies make up approximately 70 percent of the riders. Fares vary, however, older adults who are clients of social service agencies in contractual agreements with RIDES may receive free ride passes issued by their agencies. Service hours are from 6:00 a.m. to 6:00 p.m. Monday through Friday. Funded by FTA, state sales tax, local matches from counties, cities, and nonprofit agencies, revenues from for-profit agencies, and rider fares.

Study information

In 2005, RIDES won the United We Ride Leadership Award for its service excellence and coordination efforts. A case study by the Administration on Aging found the RIDES was very successful in the areas of progress through working together, planning for community needs, putting customers first, adapting funding, and moving people efficiently.

Contact information

Bill Jung, CEO
RIDES Mass Transit District
1200 W. Poplar Street
Harrisburg, IL 62946
Tel: 618-253-8761
Email: ceo@ridesmtd.com
www.ridesmtd.com

Senior Resources Agency

Objective

To provide information and services to the aging population, their families and care providers.

Description

Provides fixed-route, demand-response, and escort services for trips to nutrition sites, shopping, senior centers, medical/health care, libraries, and beauty salons. The transportation program operates Monday through Friday from 8:00 a.m. to 5:00 p.m. and requires a reservation 24 hours in advance.

Contact information

Senior Resources Agency on Aging
4 Broadway, 3rd Floor
Norwich, CT 06360
Tel: 860-887-3561
Fax: 860-886-4736
Email: seniorinfo@seniorresourcesec.org
www.seniorresourcesec.org

Seniors' Resource Center

Objective

To provide centralized and coordinated service, information, education and leadership helping to assist older adults in maximizing their independence and personal dignity.

Description

The Seniors' Resource Center's Transportation Services provide rides to older adults and persons of all ages with disabilities in both mountain and city areas of the community. Vehicles are wheelchair accessible and drivers provide door-to-door, demand-response service. Riders call to make reservations for services in advance. Fees vary depending on the trip, but financial assistance is available for low-income and disabled riders. Using a grant from the Susan G. Komen Breast Cancer Foundation, SRC provides free transportation to medical appointments and continuous follow-up care (such as counseling) for uninsured or underinsured breast cancer patients age 40 and older. Funding from local, state, and federal allocations; and contributions from foundations, corporations and businesses, civic groups, clients, and friends.

Study information

In 2002 the program received the Colorado Association of Transit Agencies Mid-Transit Award in recognition of its leadership in creating a transportation program that is a model for other agencies and in expanding transportation services to additional communities.

Contact information

Seniors' Resource Center

3227 Chase Street

Denver, CO 80212

Tel: 303-238-8151

www.srcaging.org

Senior Services Transportation Program

Objective

To provide transportation options to preserve dignity, maximize independence, and provide access to the full range of activities that contribute to quality of life.

Description

This transportation program provides personalized, escorted, free transportation throughout King County, Washington. The Volunteer Transportation program includes over 350 volunteers that use their own vehicles to drive older adults to medical and other essential appointments. There is no charge for volunteer transportation services. Senior Services also provides Senior Shuttles, a service to give older adults an opportunity to socialize with other older adults and stay active within their communities. Senior Shuttles transports older adults to hot meal programs, medical appointments, senior centers, grocery stores, and other local destinations. There is no charge for rides, but donations are welcome.

Contact information

Cindy Zwart, Manager

2208 2nd Avenue

Seattle, WA 98121

Tel: 206-448-5740 Volunteer Transportation

Tel: 206-727-6262 Senior Shuttles

Email: CindyZ@seniorservices.org

www.seniorservices.org

Senior Transportation and Rides (STAR) Program

Objective

To provide transportation to older adults age 62 and older for medical purposes.

Description

Individual volunteers use their own vehicles to drive older adults to and from their appointments at hospitals, doctors' offices and other medical facilities. Reservations should be made at least 3 days in advance. There is no specific cost for the transportation, but contributions for services provided are welcome. This program is funded in part by the U.S. Department of Housing and Urban Development, the city of O'Fallon, and the Beverly Foundation.

Study information

This program was the recipient of the Beverly Foundation's STAR Award for Excellence in 2005.

Contact information

O'Fallon Senior Center

106 N. Main

O'Fallon, MO 63366

Tel: 636-978-3306

Shepherd's Center Escort Transportation

Objective

To provide transportation options to older adults.

Description

Volunteers provide escorted rides in their own vehicles and stay with clients to provide assistance. Rides are free, but donations are accepted. An Escort Transportation Committee oversees the program. Service relationships have been established with various agencies and medical facilities. Rides must be scheduled more than 2 days in advance and typically occur during daylight hours, Monday through Thursday. A different person coordinates the scheduling each week by matching drivers with riders. The volunteer drivers contact riders to confirm arrangements. Funded by rider donations/contributions and a local church.

Contact information

Susan VanderLugt

1833 S. Burdick Street

Kalamazoo, MI 49001

Tel: 269-383-1122

Email: shepctrkal@sbcglobal.net

Shepherd's Center of the Northland

Objective

To promote the physical, mental, and social well-being of older adults and assist them in maintaining their dignity, continued productivity, and independence.

Description

The not-for-profit program provides door-to-door transportation for older adults and people with disabilities to medical appointments, pharmacies, financial institutions, and grocery stores. Reservations must be made 2 days in advance, and service is available during daytime hours on weekdays. Trips are free of charge, but donations are welcome.

Study information

This program was the recipient of the Beverly Foundation's 2002 STAR Award for excellence in providing older adult transportation.

Contact information

Rebecca Gordon, Executive Director
Shepherd's Center of the Northland
4805 NE Antioch Road, Suite 9
Kansas City, MO 64119
Tel: 816-452-4536
Fax: 816-452-5326
Email: rgordscn@kc.rr.com
www.geocities.com/shepherdnorth

South Carolina Appalachian Council of Governments Area Agency on Aging

Objective

To broker and contract for transportation in a six-county region.

Description

The agency brokers demand-response and subscription trips provided by public transit authorities, other providers, and volunteers 24 hours a day, 7 days a week. Door-to-door and escort services are provided as needed. The agency has a priority in providing medical-related transportation with 35 percent of the funding resources going to this area. Funded by the Older Americans Act, Medicaid, local governments, and FTA.

Study information

A case study conducted by the Administration on Aging found coordination activities have been successful in a wide range of areas, including surveying and planning for community transportation needs, utilizing a variety of funding sources, moving people efficiently, and including public organizations, faith-based organizations, and nonprofits in the transportation system.

Contact information

Michael Stogner
South Carolina Appalachian Council of Governments
30 Century Circle
PO 6668
Greenville, SC 29606
Tel: 864-242-9733
Fax: 864-242-6957
Email: stogner@scacog.org or info@scacog.org
www.scacog.org

Southwestern Connecticut Agency on Aging (SWCAA)

Objective

To provide leadership and resources to meet the needs of the rapidly growing older adult population and to maintain and improve the quality of life and independence of older adults.

Description

SWCAA provides door-to-door, demand-response, and escort service for purposes of shopping, banking, medical appointments for older adults or individuals with disabilities who need special accommodations and are unable to use other available means of transportation. SWCAA is a funding source for federal and state dollars for older adults in the 14 town region of southwestern Connecticut.

Contact information

Southwestern Connecticut Agency on Aging
10 Middle Street
Bridgeport, CT 06604
Tel: 202-333-9288 or 1-800-994-9422
Fax: 203-696-3866
Email: swcaa@swcaa.org
www.swcaa.org

St. Johns County Council on Aging Transportation Program

Objective

To offer services that enable older adult residents of St. Johns County to live independently and with dignity while remaining contributing members of the community.

Description

This program provides portal-to-portal non-emergency medical transportation services to ambulatory and wheelchair-bound clients within the St. Johns County area Monday through Friday. Transportation services include trips to and from medical appointments, shopping, senior centers, and sheltered workshops. Reservations must be made at least 24 hours before a scheduled appointment and can be made up to 1 week in advance. Funded by Medicaid, county funding, FTA, an Intelligent Transportation Services grant, Florida WAGES program through Jacksonville Transit Authority, Department of Children and Families, Administration on Aging Title III, fares, and contributions.

Study information

A case study by the Administration on Aging showed this program's coordination efforts to be successful in putting customers first, progress through working together, and planning for community needs.

Contact information

Cathy Brown, Executive Director
St. Johns County Council on Aging
180 Marine Street
St. Augustine, FL 32084
Tel: 904-823-4810
Fax: 904-823-4805
Email: coa@aug.com
www.stjohnscoa.com

Treasure Valley Transit

Objective

To provide human service and public transportation programs.

Description

Developed by a coalition of human service providers who pooled their resources to develop better transportation services, Treasure Valley Transit has two fixed-routes, demand-response, and contract services. Demand-response services provide for older adults in need of transportation to medical appointments, and will take clients into Boise for specialized visits. Treasure Valley Transit also works with local senior centers to provide transportation services. Funding from a variety of local and federal sources.

Study information

This program was recognized in the 2004 GAO for Transportation-Disadvantaged Seniors as a local service provider or practice that can enhance transportation-disadvantaged older adult's mobility.

Contact information

909 3rd Street S
Nampa, ID 83651
Tel: 208-463-9111
Email: peggy@treasurevalleytransit.com
www.treasurevalleytransit.com

Tri-Met and Volunteer Transportation, Inc. (VTI)

Objective

To provide safe and reliable transportation services.

Description

Tri-Met partners with human services agencies in the area and provides fixed-rail, fixed-route, paratransit, and demand-response service 7 days a week using wheelchair accessible vehicles. The paratransit services are provided to ADA-certified passengers with 24-hour advance notice. Tri-Met has also created a nonprofit agency called Volunteer Transportation, Inc. (VTI), in order to be eligible for special education funding. VTI has vehicles that provide transportation to private, nonprofit organizations and agencies, ensuring that the vehicles are used efficiently and effectively through vehicle loans among the agencies or vehicle sharing. VTI provides transportation for individuals who do not qualify for ADA and do not have fixed-route service available. Drivers are able to use their own cars and are provided training through VTI. Funded by payroll related taxes, passenger revenue, cigarette tax, interest, and other sources.

Contact information

4012 SE 17th Avenue
Portland, OR 97202
Tel: 503-962-2100
www.trimet.org/index.shtml

VINE Faith in Action Senior Transportation Program

Objective

To provide transportation to people over the age of 60 living in Blue Earth and Nicollet counties.

Description

Trained and insured volunteer drivers provide transportation to medical appointments, grocery stores, and social and congregational events. Riders may request a volunteer escort to both drive and accompany them to doctor's appointments and on shopping trips. Requests for local rides must be made 24 hours in advance. Transportation to out-of-town medical appointments can also be accommodated, and may require more advance notice. The program is supported through donations from riders and their family members and the Blue Earth County Human Services.

Study information

This program was the recipient of the Beverly Foundation's STAR Award for Excellence in 2005.

Contact information

VINE Faith in Action
1618 Third Avenue
Mankato, MN 56001
Tel: 507-387-1666
Fax: 507-387-5775
Email: vine@vinevolunteers.com
www.vinevolunteers.com

Yates Dial-A-Ride

Objective

To provide transportation in rural areas of Michigan.

Description

Yates Dial-A-Ride provides public, demand-responsive transportation in Lake County, a rural area of Michigan. Services are also extended to three adjacent townships. Yates Dial-A-Ride also contracts with area human service agencies, including the Senior Center, to provide transportation for residents with disabilities. Transportation services are provided Monday-Friday from 6:30 a.m.-6:00 p.m. and Saturday from 8:30 a.m.-4:00 p.m.

Contact information

Ms. Vedra Gant, Director
1987 E US 10
PO Box 147, Idlewild, MI 49642
Tel: 231-745-7322
Fax: 231-745-2070
Email: **yatesdart@carrwblue.net**

York County Community Action Corporation Transportation Program (YCCAC)

Objective

To promote self-sufficiency by providing York County, Maine residents with a means to get to services and resources that otherwise would not be accessible.

Description

A variety of transportation options are provided to older adults, individuals with disabilities, and the general public. The program provides scheduled bus transportation for shopping and medical appointments to York County residents on a weekly basis, and door-to-door services for those whose needs cannot be met by the bus program due to route or scheduling conflicts. Reduced rates or free service are available to eligible individuals.

Study information

A case study by the Beverly Foundation and CTAA identified this program as being innovative in the way it provides transportation that serves older adults. The case study was developed from on-site visits, extensive interviews with staff, and published materials.

Contact information

Connie Garber, Transportation Director
Transportation Program
York County Community Action Corporation
6 Spruce Street
PO Box 72
Sanford, ME 04073
Tel: 207-324-5762
Fax: 207-490-5027
www.yccac.org

Wesley Community Services

Objective

To provide a range of services to Cincinnati, Ohio's older adult population.

Description

Door-to-door transportation for medical appointments is available 6 days a week from early morning hours to early evening, if necessary. On Sundays, transportation is provided to a local church. Riders must make a reservation 24 hours in advance, but some same-day trips are made if a vehicle is available. Fees for transportation vary. Annually, the program serves nearly 700 riders and in 2003 provided over 20,000 trips. Funding comes from rider fees and tax revenue.

Study information

The program was the recipient of the 2003 STAR Award from the Beverly Foundation.

Contact information

Michael Hodges
Manager of Nutrition and Medical Transportation
Wesley Community Services
3333 Glenmore Avenue, Cincinnati, OH 45230
Tel: 513-661-2777
Fax: 513-389-3092
www.wesleycs.org

Western Connecticut Area Agency on Aging (WCAAA)

Objective

To develop, manage, and provide comprehensive services for older adults, caregivers, and individuals with disabilities to enable them to maintain their independence and quality of life.

Description

WCAAA provides a variety of services to older adults age 60 and older and adults with disabilities. It provides escort, fixed-route, and demand-response transportation to grocery stores, medical appointments, nursing homes for spousal visits, congregate meal sites, senior centers, hospitals, and provider agencies. Transportation is provided only within the town in which the service provider operates.

Contact information

Western Connecticut Area Agency on Aging
84 Progress Lane
Waterbury, CT 06705
Tel: 203-757-5449 or 1-800-994-9422
Fax: 203-757-4081
Email: info@wcaa.org
www.wcaaa.org

Westchester County Department of Senior Programs & Services

Objective

To identify and prioritize the needs of older adults in Westchester, to create comprehensive and coordinated plans for meeting those needs.

Description

This department offers services to adults age 60 years and older in Westchester County. It provides curb-to-curb paratransit primarily for medical appointments, escort service to medical appointments, shared rides, buses for group activities, transportation to nutrition centers, work, health screenings, shopping, and senior centers. The department also includes an Older Driver Family Assistance program to help families and caregivers deal with the issue of driving cessation by providing them with individualized advice.

Contact information

Department of Senior Programs & Services (DSPS)
9 South First Avenue, 10th Floor
Mount Vernon, NY 10550-3414
Tel: 914-813-6300
Fax: 914-813-6399
Email: jsw1@westchestergov.com
www.westchestergov.com/aging

Web Resources

AAA Foundation for Traffic Safety:
www.seniordrivers.org/home
Offers information to older drivers and communities on ways to improve and enhance driving skills, alternative transportation options, recent research related to older adult transportation, and links to national transportation organizations.

AARP: www.aarp.org/drive
Provides a wide range of unique benefits, special products, and services for members age 50 and over while advocating for social change that will lead to enhancing the quality of life for aging people everywhere.

Administration on Aging: www.aoa.gov
Provides a comprehensive overview of a wide variety of issues related to aging, including guides for transportation coordination, developing a community transportation, and door-through-door service. Showcases promising practices, new research, and state and local plans.

American Occupational Therapy Association:
www.aota.org/olderdriver
Provides information for occupational therapists to increase their awareness of older mobility issues. Older drivers, and caregivers can also find valuable resources, and access AOTA's searchable database of driving programs.

American Public Transportation Association:
www.apta.com
Promotes public transportation programs and initiatives across the United States, and works to ensure that public transportation is available and accessible for all Americans in communities across the country.

American Society on Aging: www.asaging.com
Provides resources, publications and educational opportunities geared to enhance the knowledge and skills of people working with older adults and the aging.

Association of Metropolitan Planning Organizations:
www.ampo.org
Serves the needs and interests of metropolitan planning organizations nationwide by providing technical assistance, training, conferences and workshops, a forum for transportation policy development, and various other resources.

Association for Driving Rehabilitation Specialists:
http://driver-ed.org
Provides a guide for older drivers and their caregivers to access driver rehabilitation specialists, as well as information for professionals working in driver education/training and vehicle modifications.

Association of Programs for Rural Independent Living (APRIL): www.april-rural.org
National grassroots, nonprofit membership organization consisting of centers for independent living, their satellites and branch offices, statewide independent living councils, other organizations and individuals concerned with the independent living issues of people living in rural America.

Beverly Foundation: www.beverlyfoundation.org
Provides a number of research and technical assistance resources to enhance mobility and transportation options for older persons. Also showcases current programs and award winners of the STAR award for excellence.

Community Transportation Association of America (CTAA): www.ctaa.org
Offers many transportation related resources, including federal and legislative updates, magazine, current programs and articles, research information, and other materials that advocate the improvement of mobility for all people.

DisabilityInfo.gov: www.disabilityinfo.gov
The federal government's one-stop website for information of interest to people with disabilities, their families, employers, service providers, and many others.

Easter Seals Project Action:
http://projectaction.easterseals.com
Provides a variety of information on older adults and individuals with disabilities, including current research and available funding, upcoming training opportunities, various toolkits to assist community transportation programs, and free downloadable materials. The National Accessible Travelers' Database can also be found here.

Eldercare: www.eldercare.gov
A service of the U.S. Health and Human Services Department, this site links older Americans and their caregivers with state and local area agencies on aging that can assist them with their needs by identifying trustworthy local providers.

Elder Safety: www.eldersafety.org/
Provides information, training, and resources to help community members improve the safe mobility of older adults in their communities, including a search engine for locating local occupational therapists.

Gerontological Society of America: www.geron.org/
Provides researchers, educators, practitioners, and policy makers with opportunities to understand, advance, integrate, and use basic and applied research on aging to improve the quality of life as one ages.

Institute of Transportation Engineers (ITE): www.ite.org
An international educational and scientific association of transportation professionals, ITE works to meet mobility needs by facilitating the application of technology and scientific principles to research, planning, functional design, implementation, operation, policy development and management for any mode of transportation.

National Association of Area Agencies on Aging (n4a): www.n4a.org
The umbrella organization for the 655 area agencies on aging (AAAs) and more than 230 Title VI Native American aging programs in the U.S. n4a advocates on behalf of local agencies to insure that needed resources and support services are available to older Americans.

National Center for Injury Prevention and Control (NCIPC): http://0-www.cdc.gov.mill1.sjlibrary.org/ncipc
A member of the U.S. Centers for Disease Control and Prevention (CDC), the NCIPC works with federal agencies, state and local organizations and health departments, and research institutions to promote national programs to reduce injury, disability, death, and cost associated with injuries.

National Center on Senior Transportation: www.seniortransportation.net
Administered by Easter Seals, Inc., in partnership with the National Association of Area Agencies on Aging, the National Center on Senior Transportation works to increase transportation options for older adults and enhance their ability to live more independently within their communities by developing, collecting, and distributing resources for use by communities, transportation and human service providers, governments, and older adults and their caregivers.

National Institute on Aging (NIA): www.nia.nih.gov/
One of the Institutes and Centers of the National Institutes of Health (NIH), the NIA works to understand the nature of aging and to extend the healthy, active years of life through aging research, training, health information dissemination, and other programs.

National Mobility Equipment Dealers Association: www.nmeda.org
Provides advocacy resources to support providing safe, reliable vehicles and modifications that enhance accessibility for people with special needs.

National Rural Transit Assistance Program (RTAP): www.nationalrtap.org
Funded by the Federal Transit Administration, the RTAP develops training and technical assistance products and services geared towards improving rural and small urban transportation programs.

National Transit Institute (NTI): http://ntionline.com
Provides training, education, and clearinghouse services in support of public transportation and quality of life in the United States.

Transportation Research Board (TRB): www.trb.org
A division of the National Research Council, TRB serves as an independent advisor to the federal government and others on scientific and technical questions of national importance related to transportation, and promotes innovation and progress in transportation through research.

National Cooperative Highway Research Program (NCHRP): www.trb.org/crp/about/divd.asp
Administered by TRB and sponsored by the member departments, the NCHRP was created as a means to conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance nationwide.

United States Department of Transportation (DOT): www.dot.gov
Established by an act of Congress in 1966, the U.S. DOT is divided into ten agencies that keep the traveling public safe and secure, promote mobility, and build a transportation system that contributes to the nation's economic growth.

Federal Highway Administration (FHWA): www.fhwa.dot.gov
Works to create the best transportation system in the world through proactive leadership, innovation, and excellence in service.

Federal Transit Administration (FTA): www.fta.dot.gov
Administers federal funding to support a variety of locally planned, constructed, and operated public transportation systems throughout the United States.

National Highway Traffic Safety Administration (NHTSA): www.nhtsa.dot.gov
Uses education, research, safety standards, and enforcement activity to save lives, prevent injuries, and reduce economic costs due to road traffic crashes.

United We Ride: www.unitedweride.gov
Provides support for agencies that are developing human service delivery systems. Resources related to enhancing mobility for people with special needs are offered, including federal updates, a database of useful practices, and technical assistance and training opportunities.

Endnotes

1. See Molnar, L.J., Eby, D.W., & Miller, L.L. (2003). *Promising Approaches for Enhancing Elderly Mobility*. Ann Arbor, MI: University of Michigan Transportation Research Institute. Available at http://deepblue.lib.umich.edu/handle/2027.42/1536.

2. See Langford, J. & Oxley, J. (2006). Using the safe system approach to keep older drivers safely mobile. *IATSS Research*, 30(2),97-109 for fuller discussion.

3. Many of these efforts were in response to findings from the 1988 TRB Special Report 218 *Transportation in an Aging Society*. Proceedings from a 1999 conference to update the special report were made available in 2004 in the publication *Transportation in an Aging Society: A Decade of Experience*.

4. See U.S. Department of Transportation. (1997). *Improving Transportation for a Maturing Society*. (Report DOT-P10-07-01). Washington, DC: Office of the Assistant Secretary for Transportation Policy.

5. See U.S. Department of Transportation. (2003). *Safe Mobility for a Maturing Society: Challenges and Opportunities*. Washington, DC: U.S. Department of Transportation.

6. See AASHTO. (1997). *AASHTO Strategic Highway Safety Plan*. Available at http://safety.transportation.org.

7. See Potts, I., Stutts, J., Pfefer, R., Neuman, T.R., Slack, K.L., Hardy, K.K. (2004). *NCHRP Report 500: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan. Volume 9: Guide for Reducing Collisions Involving Older Drivers*. Washington, DC: Transportation Research Board for full detail on strategies including descriptions and information on target audience, expected effectiveness, organizational and institutional considerations, issues affecting implementation time frame, anticipated costs, training and personnel needs, and legislative and other needs.

8. See Stutts, J.C. (2005). *Improving the Safety of Older Road Users: A Synthesis of Highway Practice*. Washington, DC: TRB.

9. The 2006 report *AARP Senior Mobility Forum, Independence and Senior Mobility: Getting There* outlines the ideas for action resulting from the forum and also stands as an example of what the forums are trying to accomplish.

10. See Stav, W.B., Hunt, L.A., & Arbesman, M. (2006). *Occupational Therapy Practice Guidelines for Driving and Community Mobility for Older Adults*. Bethesda, MD: American Occupational Therapy Association for fuller detail on the occupational therapy process and acceptable practice.

11. Strategies for identifying older drivers at increased crash risk are discussed more fully in Potts, I., Stutts, J., Pfefer, R., Neuman, T.R., Slack, K.L., Hardy, K.K. (2004).

12. N*CHRP Report 500: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan. Volume 9: Guide for Reducing Collisions Involving Older Drivers*. Washington, DC: Transportation Research Board.

13. See Cobb, R.W. & Coughlin, J.F. (1997). Regulating older drivers: How are the states coping? Journal of Aging and Social Policy, 9(4) for fuller detail on survey results.

14. For a fuller discussion of how the physicians' role in assessment can be strengthened, see Marottoli, R.A. (2000). The physician's role in the assessment of older drivers. *American Family Physician*. 61(1): 39-42.

15. See Staplin, L., Lococo, K.H., Gish, K.W., & Decina, L.E. (2003a). *Model Driver Screening and Evaluation Program, Final Technical Report, Volume I: Project Summary and Model Program Recommendations.* (Report No. DOT HS 809 582). Washington, DC: U.S. Department of Transportation; Staplin, L., Lococo, K.H., Gish, K.W., & Decina, L.E. (2003b). *Model Driver Screening and Evaluation Program, Final Technical Report, Volume II: Maryland Pilot Older Driver Study.* (Report No. DOT HS 809 583). Washington, DC: U.S. Department of Transportation; Staplin, L. & Lococo, K.H. (2003). *Model Driver Screening and Evaluation Program, Final Technical Report, Volume III, Guidelines for Motor Vehicle Administrators.* (Report No. DOT HS 809 581). Washington, DC: U.S. Department of Transportation.

16. See Staplin, L. & Dinh-Zarr, B. (2006). Promoting rehabilitation of safe driving abilities through computer-based clinical and personal screening techniques. *Topics in Geriatric Rehabilitation*, 22(2), 129-138 for fuller detail.

17. See American Medical Association. (2003). *Physicians Guide to Assessing and Counseling Older Drivers.* Washington, DC: U.S. Department of Transportation for fuller detail.

18. See Posse, C., McCarthy, D.P., & Mann, W.C. (2006). A pilot study of interrater reliability of the assessment of driving-related skills older driving screening tool. Topics in Geriatric Rehabilitation, 22(2), 113-120.

19. See McCarthy, D.P. & Mann, W.C. (2006). Sensitivity and specificity of the assessment of driving-related skills older driving screening tool. *Topics in Geriatric Rehabilitation*, 22(2), 139-152.

20. See Eby, D.W., Molnar, L.J., Shope, J.T., Vivoda, J.M., & Fordyce, T.A. (2003). Improving older driver knowledge and awareness through self-assessment: The Driving Decisions Workbook, *Journal of Safety Research*, 34, 371-381; Eby, D.W., Shope, J.T., Molnar, L.J., Vivoda, J.M., & Fordyce, T.A. (2000). *Improvement of Older Driver Safety Through Self-Evaluation: The Development of a Self-Evaluation Instrument.* (Report No. UMTRI-2000-04). Ann Arbor, MI: University of Michigan Transportation Research Institute.

21. See Eby, D.W., Molnar, L.J., Kartje, P., St. Louis, R., Parow, J.E., Vivoda, J.M., & Neumeyer, A. (under review). *Older Adult Driver Safety: Development and Validation of a Self-Screening Instrument Based on Health Concerns.* (Volume I: Technical Report). Ann Arbor, MI: The University of Michigan Transportation Research Institute.

22. See Marottoli, R.A., Allore, H., Araujo, K.L.B., Iannone, L.P., Acampora, D., Gottschalk, M., Charpentier, P., Kasi, S., & Peduzzi, P. (2007). A randomized trial of a physical conditioning program to enhance the driving performance of older persons. *Journal of General Internal Medicine*, 22(5): 590-597.

23. See Milton, K. (2004). Impact of public information on safe transportation of older people. *Transportation in an Aging Society: A Decade of Experience.* Washington, DC: TRB, pp 259-272 for a fuller discussion of social marketing.

24. See Potts, I., Stutts, J., Pfefer, R., Neuman, T.R., Slack, K.L., Hardy, K.K. (2004). *NCHRP Report 500: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan. Volume 9: Guide for Reducing Collisions Involving Older Drivers.* Washington, DC: Transportation Research Board.

25. See www.erie.gov/depts/seniorservices/older_driver/information_members.aspx?id=11 for more information on the Help Network Helpline.

26. Available at www.nhtsa.dot.gov or by calling the Department of Transportation Auto Safety Hotline at 888-327-4236

27. To obtain a copy, contact AAA Traffic Safety at 1000 AAA Drive, Heathrow, FL 32746-5063.

28. See Pike, J. (2004). Reducing Injuries and fatalities to older drivers: Vehicle concepts. *In Transportation in an Aging Society: A Decade of Experience.* Washington, DC: TRB, pp 213-226 for fuller detail.

29. For full details on ITS applications and guidelines, see Caird, J. (2004). In-vehicle intelligent transportation systems: safety and mobility of older drivers. In *Transportation in an Aging Society: A Decade of Experience*. Washington, DC: TRB, pp 236-255; and Caird, J.K., Chung, J.S., Wilcox, S., & Dewar, R.E. (1998). *A Design Guideline and Evaluation Framework to Determine the Relative Safety of In-Vehicle Intelligent Transportation Systems for Older Drivers*. TP 13349E. Montreal, Quebec, CA: Transport Development Centre, Transport Canada.

30. For further information on designing highways for older drivers, see Staplin, L. Lococo, K., Byington, S. & Harkey, D. (2001a). *Highway Design Handbook for Older Drivers and Pedestrians*. (Report No. FHWA-RD-01-051). Washington, DC: U.S. Department of Transportation; Staplin, L. Lococo, K., Byington, S. & Harkey, D. (2001b). *Guidelines and Recommendations to Accommodate Older drivers and Pedestrians*. (Report No. FHWA-RD-01-051). Washington, DC: U.S. Department of Transportation; and Staplin, L. (2004). Highway enhancements to improve safety and mobility of older road users: practical applications. In *Conference Proceedings 27, Transportation in an Aging Society: A Decade of Experience*. Washington, DC: TRB, National Safety Council, pp. 155-166.

31. See Stollof, E.R., McGee, H., & Eccles, K. (2007). *Pedestrian Signal Safety for Older Persons*. Washington, DC: AAA Foundation for Traffic Safety.

32. Further detail on design elements can be found in Federal Highway Administration. (2003). *Travel Better, Travel Longer: A Pocket Guide to Improve Traffic Control and Mobility for Our Older Population*. Washington, DC: U.S. Department of Transportation.

33. See Classen, S., Shechtman, O., Stephens, B., Davis, E., Justiss, M., Bendixen, R., Belchior, P., Sandhu, M., Posse, C., McCarthy, D., & Mann, W. (2007). The Impact of Intersection Design on Driving Performance of Young and Senior Adults. *Traffic Injury Prevention*, 8:69-77; and Shechtman, O., Classen, S., Stephens, B., Bendixen, R., Belchior, P., Sandhu, M., McCarthy, D., Mann, W., & Davis, E. (2007). The Impact of Intersection Design on Simulated Driving Performance of Young and Senior Adults. *Traffic Injury Prevention*, 8:78-86 for fuller detail.

34. See Zein, S. & Mairs, A. (2002). AAA Michigan Road Improvement Demonstration Program Evaluation. British Columbia: G.D. Hamilton Associates for fuller detail.

35. See Foley, D.J., Heimovitz, H.K., Guralnik, J.M., & Brock, D.B. (2002). Driving expectancy of persons aged 70 years and older in the United States. *Research and Practice*, 92(8), 1284-1289 for fuller detail.

36. See Kochera, A. & Straight, A. (2005c). Beyond 50.50. *A Report to the Nation on Livable Communities: Creating Environments for Successful Aging*. Washington, DC: AARP for a full report on livable communites.

37. The United We Ride website can be found at www.unitedweride.gov.

38. A listing of MPOs and fuller detail about them can be found at www.ampo.org.

39. For fuller detail on strategies for strengthening transportation coordination, see NCRP. (2007). *Seniors Benefit from Transportation Coordination Partnerships: A Toolbox*. Washington, DC: NCST; Potts et al. (2004). NCHRP Report 500. Washington, DC: TRB; and TransSystems Corporation, Center for Urban Transportation Research, Institute for Transportation Research and Education, and Planners Collaborative. (2004). *TCRP Report 105. Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged*. Washington, DC: TRB.

40. Mobility management, as used here, should not be confused with the concept of a personal mobility manager—someone who serves a one-stop resource for individual older drivers (e.g., through a telephone hotline) to provide information on all aspects of maintaining mobility—described in the section on transitioning from driving to other transportation options.

41. See www.trimet.org/index.shtml for further information on mobility management and Murray, G., Koffman, D., Chambers, C., & Webb, P. (1997). *Strategies to Assist Local Transportation Agencies in Becoming Mobility Managers*. (TCRP Report No. 21). http://gulliver.trb.org/publications/tcrp/tcrp_rpt_21-a.pdf for additional information on mobility managers

42. See Suen, S. L. & Sen, L. (2004). Mobility options for seniors. In *Transportation in an Aging Society: A Decade of Experience*. Washington, DC: TRB, pp 97-113 for fuller discussion of mobility options.

43. This measure was originally developed by the Beverly Foundation; see The Beverly Foundation. (2001). *Supplemental Transportation Programs for Seniors*. Pasadena, CA: Beverly Foundation for additional detail on its use in assessing program effectiveness.

44. Strategies for improving alternative transportation can be found in Burkhardt, J.E., McGavock, A.T., & Nelson, C.A.(2002). *Improving Public Transit Options for Older Persons, Volume 1: Handbook*. [Electronic Version] (Report No. 82). Washington, DC: Transportation Research Board.

45. See NCRP. (2007). *Seniors Benefit from Transportation Coordination Partnerships: A Toolbox*. Washington, DC: NCST for fuller detail on community strategies for meeting the transportation needs of older adults.

46. See Kerschner, H. & Hardin, J. (2006). *Transportation Innovations for Seniors: A Report from Rural America*. A Partnership Project of the Beverly Foundation and the Community Transportation Association of America. Pasadena, CA: The Beverly Foundation.

47. See Freund, K. (2004). Surviving without driving: Policy options for safe and sustainable senior mobility. In *Transportation in an Aging Society: A Decade of Experience*. Washington, DC: TRB, pp 114-121 for fuller detail.

48. See Winter Park Health Foundation. (2006). *Florida's Volunteers: The Driving Force for Senior Mobility*. Winter Park, FL: Winter Park Health Foundation. Available at www.unitedweride. gov/Volunteer_Drivers_for_Senior_Transportation_12-2006.pdf. Accessed July 27, 2007 for a fuller discussion of volunteer drivers and the barriers to their use.

49. See 2005 White House Conference on Aging (December 11-14, 2005). *Report to the President and the Congress: The Booming Dynamics of Aging. From Awareness to Action*. Available at http://www.whcoa.gov/press/05_Report_1.pdf. Accessed July 28, 2007.

50. See The Beverly Foundation. (2004). *Supplemental Transportation Programs for Seniors: A Report on STPs in America*. Pasadena, CA: The Beverly Foundation for fuller detail.

51. See www.itnamerica.org for more information about ITN.

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