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Medical Review Case Reporting at MVC

Final Report
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16. Abstract

To deal with a problem of underreporting of high risk and/or unsafe drivers to its Driver Review Bureau, the Motor Vehicle Commission of New Jersey sought to understand the state of practice in other driver licensing agencies with regard to medical review procedures and particularly both internal and external referral processes. This research, through literature review and an in-depth phone interview of heads of driver safety units, medical review units or managerial personnel in seventeen driver licensing agencies in the United States identified a series of procedures that link to high referral rates. Typically, states with high referral rates tend to ask specific questions regarding health at the time of initial application for license and at renewal. They also trained their customer service or counter personnel in observational techniques to identify applicants with potential medical problems that could make them unsafe drivers, mandatory physician reporting of specific medical conditions was another strategy that led to higher referral rates. Interviewees stressed the importance of obtaining accurate information and good relationships with the medical and law enforcement communities. Another area for increasing referrals is better integration of accident reporting information and medical review units. Recommendations were made

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RESEARCH PROBLEM

Background

The Motor Vehicle Commission of New Jersey faces the problem of underreporting of high risk and/or unsafe drivers to its Driver Review Unit. In 2004, 4,102 drivers were reported to the MVC, which represents less than .07 percent of New Jersey's 6,353,962 licensed drivers. While there is no firm estimate of the extent of underreporting, Maryland, which has a smaller population than New Jersey, reported 13,000 referrals to its medical review board although half of these were alcohol/drug related.[1] The Driver Review Unit of MVC seeks a more effective way to encourage reporting of high risk drivers.

The reporting of high risk drivers has become a topic of interest in driver licensing agencies throughout the United States given the growing number of older drivers, their potential for being high risk and the role of medical review as a way to reduce motor vehicle accidents. Since the American Association of Motor Vehicle Association's comprehensive survey of all driver licensing agencies in the U.S. that details the various medical review procedures, the literature has advanced in the area of medical review and disabilities that may impair driving. [2,3,4]

The ultimate goal of this effort is to identify unsafe drivers and to remove their licenses before they have a crash that results in serious injury or death to themselves or others, while allowing as many drivers who are capable of safely handling a vehicle to continue driving. The first step in reaching this goal is to identify as many as possible of the many potentially medically at-risk drivers for re-examination by the Driver Review Unit.

Objectives and Approach:

The objective of the research described in this report is to determine how the New Jersey Motor Vehicle Commission (NJMVC) can increase the number of potentially at-risk drivers that are identified.

The steps to achieve this objective have been to:

- survey the literature related to medically at-risk drivers and in particular the means of identifying these drivers
- review the state of practice in state license jurisdictions
- identify those which seem to be proactive in identifying the medically at-risk,
- survey, in-depth, a selected set of state jurisdictions regarding their practices in obtaining referrals for the medically at-risk driver
- make recommendations to the NJMVC regarding best practices among the jurisdictions.

LITERATURE REVIEW

AAMVA Study

The American Association of Motor Vehicle Administrators (AAMVA) and National Highway Transportation Administration (NHTSA) collaborated in a comprehensive survey of Medical Review Boards and practices relating to the identification of medically at-risk drivers in each of fifty-one licensing jurisdictions in the United States.[1] Given the abundant literature that links medical conditions to driving, (for example, Dobbs' review of the literature from 1960-2000) the need for such a survey became apparent.[5]

The survey was composed of twenty-four questions many having a series of sub-questions. It queried the jurisdictions primarily about the presence of a Medical Advisory Board, and if present, its composition and function, about the role of physicians in reporting medically at-risk drivers, sources of referrals, conditions for drivers undergoing evaluation, training of personnel, availability of counseling for drivers with functional impairments, and questions about the workflow processes for medical review. For each state, the survey described the organization of the medical review program, techniques used for identifying drivers with medical conditions and functional impairments, procedures for identifying drivers who are referred for medical review (including medical guidelines for evaluations, license restrictions, periodic re-evaluations, and appeal procedures), and administrative issues such as training of personnel and tracking systems.

This report formed the basis of a two additional AAMVA and NHTSA studies. In a 2003 report, Staplin and Lococo present a model program for identifying the medically at-risk along with guidelines for administrators. [3] The 2005 report had representatives from each of the 51 jurisdictions assign weights to the various components of the medical review programs.[4] These weights were compiled to identify "recommended strategies" for medical review. In addition, eleven representatives from selected jurisdictions met with staff of the research firm conducting the survey to further discuss the outcomes. Lococo & Staplin report that substantial agreement, if not true consensus, was reached on a number of points. [4] Highlights of these points are:

- Medical advisory boards, staffed by physicians, are essential to the medical review process and determining fitness to drive. Several specific recommendations emerged regarding the functioning of the medical advisory boards and their organization.

- Functional ability profiles are useful for administrative personnel but do not replace case by case decisions made by physicians on the Medical Advisory Boards.

- Rules for medical review of drivers should be in state regulations rather than in statutes. This permits changes to be made quickly as new medical facts are available.

- Drivers should be required to appear in person for license renewal after a particular age and there should be shorter renewal cycles based on age.

- National functional and medical guidelines should be developed and adopted by the states. The American Medical Association in cooperation with NHTSA has developed a *Physician's Guide to Assessing and Counseling Older Drivers*.[6] The report suggests that this document form a basis for developing national guidelines.

- Continuing education should be provided to both physicians and to law enforcement officers for identifying at-risk drivers.

- Jurisdictions should consider functional screening at renewal for drivers past a specified age. Where time and budgets constrain such activities, functional screening should be considered for drivers referred for re-examination.

Identifying Medically at-risk Drivers

Studies that examine risk factors and safe driving have identified a variety of physical abilities and health conditions. [7] Typically included are vision (both acuity and peripheral), cognitive functions, motor functions, medications, and health history. In a 2006 presentation, Ball summarized the evidence for links between these conditions and safe driving. One process that links to driving ability is useful field of view. This process examines the driver's ability to simultaneously process information from central and peripheral visual fields similar to what occurs behind the wheel. Using the concept of useful field of view, Ball reported on a study which found that older drivers with a 40% or greater reduction in the useful field of view were 2.1 times more likely to have had a crash. [8]

Screening for adequate vision is uniformly done at the initial application. However regularly screening at renewal was reported by only twenty-seven of the fifty-one driver licensing agencies, Moreover, many of these agencies only screen for visual acuity when the research indicates acuity alone is poorly related to road safety. Owsley suggests that the standard for vision be changed to incorporate a test for visual field, contrast sensitivity or visual processing speed. [9]

Maryland's study of drivers over 55 found that those who failed cognitive assessments were greater crash risks than those who did not. [10] The pilot program revealed that functional capacity screening, which consists of four perceptual-cognitive tasks and two physical tasks, yields reliable indices which will predict the risk for impaired driving. The tasks used in screening were tests for working memory, directed visual search, divided

attention processing speed, visualization of missing information. The physical tasks tested lower limb strength and mobility and head-neck rotation.

Role of Physician's Knowledge

The trustworthiness of physician's knowledge regarding eligibility to drive is receiving increased attention. Two studies revealed weakness regarding physicians' awareness or medical restrictions for driving. [11,12] In a more direct examination of physicians' judgments regarding fitness to drive, Steir, Kitai, Wiener and Kahan asked family physicians to confirm the reports regarding medical status for driving of a sample of 100 driver license applicants. [13] Based on information submitted on the initial application, the rejection rate of the applicants was three percent. When asked for additional information or a new examination by their family physicians, the rejection rate increased to 17percent. The researchers believe the physicians were more attentive in the second examination. Moreover, simple diagnosis of medical conditions may be insufficient. At a 2006 AAMVA conference on the medically at-risk, Shawn Marshall, used case histories to examine the relationship between driver fitness and medical diagnosis.[14] The conclusions from this study indicated that since there is often adaptation to medical conditions, functional abilities as determined by on-road evaluations are more useful than medical diagnosis for a complex task like driving.

License renewal policies and safe mobility

Another area that has been explored in relation to driver crash risk is the policies that surround license renewal. In a study that looked at fatal crashes for drivers over seventy, Levy, Vernick and Howard found that states with mandatory screening for visual acuity at renewal had lower crash risks than states without such screening. [15] Adding a knowledge test further reduced crash risk but not significantly. Grabowski, Campbell and Morrisey further studied the relationship of renewal polices to fatal crashes and found that for drivers over 85. in-person renewal was related to a significant reduction in fatalities.[16] For drivers age 65-74, mandated vision tests were related to reduced fatalities. Road tests and the length of the renewal period had no relationship to reduced fatalities. However, a more recent study by Morrisey and Grabowski suggests that it is renewal in person that reduces fatalities for older drivers.[17] In contrast, vision tests, road tests, and length of renewal cycle were not related to fatality reduction.

As seen in Table 1 from the Insurance Information Institute website, twenty-eight states engage in vision testing for license renewal without any age related provisions, [18] Another six states have provisions for vision testing for license renewal beginning at a specified age. For example, Maine requires drivers to have their vision retested at the first renewal after age 40, then at renewal between the ages 52 and 57. Vision screening is done at every renewal after the age of 62. Five other states have

provisions for screening a percentage of drivers for renewal such as New Jersey, which screens 10 percent of renewal applicants.

Table 1: State drivers license renewal laws including requirements for older drivers (Source: the Insurance Information Institute Website)

As of October 2006

	Require retest for renewals at all ages (1)				Age at which states require older drivers to pass tests					
State	Vision	Road	Know-ledge	Medical	Vision	Road	Know-ledge	Medical	Require doctors to report medical conditions (2)	Age limits on mail renewal
Delaware		(3)	(3)	(3)	(3)	(3)	(3)	(3)	X	
D.C.					70	75	75	70		
Oregon					50				X	
Iowa		(3)	(3)	(3)						
Mass.										
Utah		(3)	(3)	X	65				X	
Wisconsin		(3)		(3)						
New Mexico										
Indiana				(3)				(3)		
New York		(3)	(3)	(3)						
Tennessee	(12)									
Washington	(3)	(3)	(3)	X						
Illinois	(5)		X	(3)		75				
Oklahoma	(9)									
New Jersey	(9)								X	
Pennsylvania	(10)			(8)	45 (11)			45 (11)	X	
North Carolina	X	(3)	X	(3)						
Virginia	X		(3)		80					
N. Hampshire	X					75				
Wyoming	X	(3)	(3)							
Texas	X			(3)						
Ohio	X	(3)	(3)	(3)						
Rhode Island	X	(3)		(3)						
South Carolina	X	(3)	(3)	(3)	65					

South Dakota	X									
Nebraska	X	(3)	(3)							
North Dakota	X	(3)	(3)							
Missouri	X									
Florida	X	(3)	(3)		80					
Georgia	X			(3)					X	
Hawaii	X	(3)		(3)		(3)	(3)	(3)		
Colorado	X	(3)	(3)	X						66
California	X	(3)	X	(3)					X (4)	70
Alaska	X	(3)	X							69
Arizona	X	(3)			65					70
Arkansas	X									
Kansas	X	(3)	X							
Idaho	X	(3)		(3)						
Minnesota	X		X							
Montana	X	(3)								
Maryland	X	(3)	(3)		40			(3)		
Michigan	X	(3)	X	(3)						
Louisiana	X	(3)	X							70
Nevada	X (7)	(3)	(3)		65			70 (8)	X	
West Virginia									X	
Alabama										
Mississippi		(3)	(3)							
Maine					40, 62 (6)					
Kentucky		(3)		(3)						
Vermont										
Connecticut					65					65

(1) Periodic retests. Some states will waive vision retests for mail renewal or clean-record drivers.
(2) Physicians must report physical conditions that might impair driving skills.
(3) Retesting only for cause, e.g., after specific number of accidents or other points and infractions, for specific physical conditions; sometimes at examiner's discretion.
(4) Specifically requires doctors to report a diagnosis of dementia.
(5) 8-year vision re-examination.
(6) Vision tests are required at first renewal at age 40; at every second renewal after age 40; at every renewal after age 62.
(7) Except for in-state renewals by mail, unless applicant is over 70.
(8) Renewing by mail.
(9) 10 percent of all renewals are screened.
(10) 10 percent of drivers at or over 45 randomly chosen for medical and/or vision test.
(11) Random re-examination at specified age.
(12) Will retest at renewal for non-specified cause.

Source: U.S. Department of Transportation, Federal Highway Administration; AARP; American Automobile Association; American Association of Motor Vehicle Administrators; Insurance Institute for Highway Safety.

Restricted Licenses and Driving Fitness

In their description of a model evaluation program for identifying medically at-risk drivers, Staplin and Lococo note that many older drivers report restricting their driving to avoid nighttime, poor weather, poor visibility and peak traffic conditions. In other words, drivers who are aware of their functional capabilities restrict their driving to conditions that are a better match for their abilities. [3] Similar finding are reported for a sample of older drivers in Australia, although women restricted their driving more than men.[19]

However, not all drivers are good judges of their abilities. For this reason several states now offer restricted licenses to allow those with physical or cognitive limitations to continue to drive under limited conditions. These conditions include adaptive equipment, limitations on time of day, on geographic region, type of highway etc. It is uncertain, however, if these restrictions actually result in safer driving. Marshall, Spasoff, Nair, & Walraven analyzed a cohort of Saskatchewan drivers registered from 1992-1999. They divided the cohort into those with restricted licenses and those without. [20] Overall those with restricted licenses had higher crash rates than those without restrictions. Drivers with restricted licenses tended to be older, male and to live in rural areas. The researchers noted that this supported an evaluation of drivers in Utah where it had been previously found that those with restricted licenses had higher crash rates than those without. In the Saskatchewan study, the crash rate was lower for those with license restrictions than for overall male drivers and urban drivers. Those with restricted licenses had lower violation rates than those without. At-fault crash rates and traffic violations decreased after imposition of restrictions. The researchers estimate that license restrictions averted 816 crashes and 751 violations.

Educational interventions & remediation programs

Driver Licensing Agencies are expanding their goals beyond maintaining a safe driving environment to include that of safely keeping drivers on the road longer. To facilitate the latter goal, a number of remediation programs have been implemented to increase vehicle handling skills. Staplin and Lococo presented these in their description of the Model Evaluation Program.[3] Remediation recommendations range from occupational therapy to accommodate the driver who has reduced physical capacity due to functional loss to refresher driver education courses that provide older drivers with awareness of functional declines and tips for coping with these. Such programs are run by American Autombile Association (AAA) and American Association of Retired People (AARP).

A Model Driver Screening and Evaluation Program

As a result of the AAMVA survey and discussions with key personnel in driver licensing agencies in the US and Canada, Staplin and Lococo provided a model driver screening and evaluation program. [3] The program provides for the best of best practices and offers a framework for driver licensing agencies to organize their efforts for active management of medically at-risk drivers.

The key features of this model program include:

- A single unit in the driver licensing agency to "detect and intervene" with drivers who are medically at-risk. They suggest this unit should be the Medical Advisory Board or its equivalent.

- A review of license renewal requirements so that drivers come to the "in-person" attention of licensing agencies at regular and appropriate intervals.

- Exposing drivers to educational and counseling activities appropriate to their health status regardless of any screening outcomes.

- Priorities for keeping drivers on the road as long as they are safe. This will require detection, assessment and remediation and/or restriction as needed. Transportation options for those who can no longer drive are also needed.

- Education of the driving public about the issues in medically at-risk driving and collaboration with the medical community to secure their cooperation and participation in referrals and screening.

- Establishing an advisory committee to determine and review program objectives and procedures for identifying and intervening with medically at-risk drivers. This committee should be under the auspices of the driver licensing agency and should include key groups from government, law enforcement, public health and organizations that deal with aging.

Components of a Model Program

The Guidelines for Administrators for designing a screening program for the medically at-risk begins with the stated goals of "keeping people driving safely longer while protecting the public through early identification of functionally impaired drivers." [3] The model program has four components: "catchment and referral mechanisms, screening and assessment techniques, education and counseling activities, and restriction and remediation activities".

Referral mechanisms

The point of entry for a driver into the medical evaluation process, consists of internal referrals, which originate from within the driving licensing agency and external referrals, which are initiated outside the agency. Internal referrals can be triggered by:

- Direct observation by counter personnel during initial application or renewal.

- Responses to medical questions on the license application or renewal form.

- History of crashes and violations.
- Vision screening at application and renewal.

External referrals can be triggered by:

- Health care specialist reporting: Physicians, vision specialists, physical and occupational therapists, emergency rooms, hospital discharge plans.
- Law enforcement and courts: A frequent referral is from officers at accident scenes.
- Referrals from social service providers.
- Referrals from family and friends.

Screen and Assessment Techniques

Recommended screening activities include:

- Visions tests: acuity, contrast sensitivity, and visual field.
- Mental functioning: Working memory, directed visual search, divided attention processing speed, visualization of missing information.
- Physical abilities: Lower limb strength and mobility, Head-neck rotation.

The report advises that these tests should be used as action for further evaluation for drivers who do not pass.

Education and counseling activities

Education and counseling activities are designed as outreach to the public particularly in the area of self-assessment, driver counseling for those who need some assistance and finally resources and programs for those who have ceased driving.

Restriction and Remediation

Driving restrictions, whether self-imposed or agency imposed are aimed at keeping impaired drivers on the road safely if in a limited scope. Staplin and Lococo cite reports that older drivers who are aware of their limitations limit their driving to situations that are within their abilities. [3] The Model Program suggests restrictions that accommodate physical impairments (special controls and mirrors, daylight driving only, area restrictions, speed limit restrictions, and type of road restrictions). Remediation options suggested include visual, medical, and physical rehabilitation that can provide

additional years of safe driving to the individual. Examples include refresher classes for mature drivers which provide an awareness of age related functional declines and compensation techniques. Certified driver rehabilitation specialists can provide on-the-road training for drivers with medical conditions. This training assists drivers in gaining adaptive skills to compensate for disabilities.

Program Implementation

The Model Program noted that training of counter personnel to screen for "functional limitations is critical." [3] These personnel should have written documentation for the functional abilities they need to observe and as well as criteria for assessing each ability. As an example, Wisconsin's documentation is presented in Table 2. Additionally, as agencies move toward more screening increased personnel will be needed. These personnel will require extensive experience in customer service as well as being conscientious in administering the various assessment procedures. Training in test administration is essential.

Table 2: Determining Driver Functional Ability by Visual Inspection . [3]

Ability	Standard
Lower body strength, range of motion, mobility and coordination to use foot-operated vehicle controls.	Person is able to walk to a DMV service counter unaided physically by another person or significant support device (i.e., walker, wheel chair, breathing apparatus, or artificial limb). There is no loss (full or partial) of a leg or foot. No excessive shaking, tremor, weakness, rigidity, or paralysis.
Upper body strength, range of motion, mobility and coordination to use hand-operated vehicle controls and to turn the head and body to the left, right, and rear to observe for other traffic and pedestrians.	Person is able to turn the head and upper body to the left and right, and has full use of the arms and hands. There is no loss (full or partial) of an arm. There is no loss of a hand or finger which interferes with proper grasping. No excessive shaking, tremor, weakness, rigidity or paralysis.
To hear other traffic and vehicle-warning devices (i.e., horn or emergency siren).	Person is able to hear the normal spoken voice during the licensing process, with or without a hearing aid.
To see other traffic, road conditions, pedestrians, traffic signs, and signals.	Person is able to meet applicable vision requirements by passing a DMV vision screening or presenting evidence of similar testing by a vision specialist.
Cognitive skills (i.e., to think, understand, perceive, and remember).	Person exhibits cognitive skills. Responds to questions and instructions (i.e., is able to complete an application, knowledge test, or vision screening). No obvious disorientation.
To maintain normal consciousness and bodily control (i.e., ability to respond to stimuli).	Person exhibits normal consciousness and bodily control (i.e., no self-disclosed or obvious incident or segment of time involving altered consciousness. No loss of body control involving involuntary movements of the body characterized by muscle spasms or muscle rigidity, or loss of muscle tone or muscle movement). No obvious disorientation (i.e., responds to questions and instructions. Is able to complete an application, knowledge test, or vision screening).
To maintain a normal social, mental, or emotional state of mind.	Person does not exhibit an extremely hostile and/or disruptive, aggressive behavior, or being out of control. No obvious disorientation.

While each Driver Licensing Agency will have its own requirements, the Model Program envisions a plan for organizing the medical review process. The process begins with referral sources flowing to a Case Manager. Based on these sources, the Case Manager would, as needed, request information from the driver, the driver's physician or request the driver to undergo functional screening. With all information complied, the case manager would then forward the case to a medical advisory board for determination.

Research Question and Approach

The primary focus of this research is to examine the various practices regarding medical review in state licensing agencies and from this select the best practices. In this research, the criterion for best practices was determined by those states that had either: a reputation among other driver licensing agencies through publicized activities, high referral rates relative to their population of licensed drivers or who reported pro-active referral procedures in the AAMVA survey.

Our approach is that of survey research using telephone interviews with key personnel in the driver licensing agencies. The surveys, described in detail later in this report, consists of questions to elicit information about the sources of referrals, an evaluation of the sources, use of license restrictions, training of personnel, outreach activities, and organization of the medical review unit.

The responses to the questions were analyzed by looking at the frequency of responses to the various questions and with a content analysis of responses. From these responses, best practices regarding referrals to medical review were identified and recommendations proposed.

SURVEY OF MEDICAL REVIEW UNITS

The method used to determine how to increase referrals of at risk drivers was to interview the heads of the medical review units at 15 to 20 licensing agencies in the United States. The agencies were selected to represent the most pro-active states in medical review based on the literature (primarily the AAMVA Survey) and from general knowledge. This section describes the interview procedures and summarizes the interview responses.

Survey procedures

Selecting the Sample

The survey that was conducted for AAMVA and NHTSA included information about the medical review process and the sources of referrals for at-risk drivers. [1] This information was used as a start for selecting states for the current survey. The verbal responses to the questions in the AAMVA survey that were relevant to our study were numerically coded. Activities that would produce more referrals or in some other way indicated greater activity in the medical review process were given higher numbers. These numbers were simply summed, and the totals used as a measure of proactive efforts with higher numbers reflecting more activity. [21] Additionally, the descriptions of procedures of all of the states were reviewed to determine which states had unusual or innovative procedures or activities in identifying at-risk drivers. Table 3 is a brief summary of the activities of the 25 most active states plus the District of Columbia and is based on the AAMVA Survey.

In addition, states that were generally known as active in medical review were identified through (1) information gained at the AAMVA conference, “Challenging Myths and Opening Minds: Aging and the Medically At-Risk Driver“ held in Austin, Texas, in March 2006 and (2) from discussions with the staff of the New Jersey .

From the combination of methods above, twenty two states plus the District of Columbia were selected to be surveyed; the 23 jurisdictions were:

Connecticut
California
District of Columbia
Florida
Iowa
Kansas
Maine
Maryland
Massachusetts
Michigan
Missouri
New Hampshire

ina
Ohio
Oklahoma
Oregon
Pennsylvania
Texas
Utah
Virginia
Washington
Wisconsin

Table 3 States with Proactive Medical Referral Procedures

States	Referral Sources	Specialized Training
California	Mandatory physician reporting for lapse of consciousness Self report on application, counter personnel screen for several abilities Reports from typical sources (physicians, other health care professionals, police officers, courts, family, friends.)	DMV personnel receive specialized training in observing applicants for conditions that impair their ability to drive. Also train for licensing of older drivers.
Connecticut	DMV receives referrals from emergency room doctors and from occupational and physical therapists. DMV personnel at the main office (but not at branch offices) in how to observe applicants for impairments.	DMV personnel receive specialized training in how to observe applicants for conditions that impair their ability to drive.
Florida	The driving examiners are responsible for observing drivers for impairment. In 2003, started testing vision of all renewals that are 80 or older.	The licensing personnel have training in how to observe applicants for impairments.
Kansas	Self-reporting with a list of medical conditions. DMV personnel observation; typical sources (but not anonymous); involvement in fatal crash; accumulation of crashes; newspaper articles describing a crash sue to a blackout.	No special training but are advised to call medical review section if they have questions.
Maine	DMV personnel are trained to observe. Accept referrals from usual sources. Drivers who have 3 crashes in 3 years, who apply for handicapped parking privileges, or have let their license lapse for 5 or more years are re-examined. From 40 to 62 years of age, vision is test every other renewal. After 62, vision is tested at every renewal. After 65 years, drivers must renew every four years.	DMV personnel receive specialized training in how to observe applicants for conditions that could impair their ability to drive.
Maryland	Counter personnel observe for impairments that may affect driving. Self report on application Reports from typical sources	
Massachusetts	Need to self report medical conditions and medications Drivers who have caused a fatal crash and drivers who apply for handicapped parking privileges are candidates for re-evaluation. The DMV gas a formal agreement with the Commission for the Blind, where the Commission will report a legally blind person if they have valid driver license.	
Michigan	Self report on application Reports from typical sources Publish – “Driving for Life” (for older drivers and families)	6 months training for driver analysts, 1-2 days on medical evaluation. Also continuing ed.

Minnesota	Link to disability parking Self report on application - screen for diabetes Reports from typical sources.	
Nevada	Need a medical report if you are older than 70 and renewing by mail	
New Hampshire	Beginning a High Risk Driver evaluation program for medical impairments. May still be in development, started in 2001 At 75, drivers have to pass an on-road driving test to renew license.	
New York	Has a medical review unit with 9 staff that makes determinations to drive. The staff has 3 paid consultants who are neurologists, 4 driver improvement license examiners (one is a supervisor) and one clerk. Self report on application, Reports from typical sources.	
North Carolina	Med. Review Branch. Have 7 full time physicians, 2 nurses & 12 administrative staff. 3000 drivers are referred to medical review each month. Appeals go to medical review board which has 14 MDs. Self report on application, Reports from typical sources. Provide guidelines for recognizing signs of potential trouble Crash reports are reviewed by 3 DMV staff Publish North Carolina Physician's Guide to Driver Medical Evaluation. All medical information is stored and can be tracked.	Train personnel for observation of applicants. Examiners have 8 week training course (5 classroom, 3 otj)
Ohio	Has a medical unit with a supervisor and 8 staff trained to evaluate medical information and examination forms Self report on application Letter of good cause – see web site FAQ #25 This is a request to recertify. The letter writer is not anonymous. http://bmv.ohio.gov/driver_license/dl_faq.htm	
Oklahoma	Self-report on application of detailed questions on health conditions Reports from typical sources Link to handicapped parking requests	
Oregon	Has an Older Driver Advisory Committee but not a separate medical review unit. Have 20 transportation service representatives trained as Driver Improvement Counselors for medically at-risk drivers. Physicians and health care providers must report loss of consciousness problems that are or may become chronic. Working on reporting of other cognitive & functional impairments Self report on application Reports from typical sources Crash involvement which results in fatality	Driver improvement counselors trained to observe applicants for conditions that could impair driving.
Pennsylvania	All applicants for learner's permit must have physician complete a section on back of permit on medical	

	conditions and a physical exam. Screen for several medical conditions on application. Required physician reporting on a variety of conditions for people 15 and up. Reports from typical sources. Random vision and physical screening for drivers over 45	
Utah	Self-report on application and renewal to a highly detailed list of 13 categories of medical conditions. Answering yes to any question requires the need for a Functional Ability Evaluation Medical Report form to go to their physician who then profiles the level of functional ability according to guidelines. Utah is tracking over 173,000 drivers with medical conditions.	
Virginia	Medical Review services unit has 5 employees and a staff consultant who is a RN. Unit reviews 250-500 new cases each month. DMV employees trained for observation of symptoms that could impair driving ability Self report on application, form questions about medication, loss of consciousness and need for special equipment to drive. Reports from typical sources.	Medical consultant trains and works closely with staff.
Washington	Self report on application Reports from typical sources License service representatives are trained to observe for obvious impairments	Specialized training to observe for conditions that impair driving ability for all license service. Basic 4 hour training plus annual in service training. Continual training through supervisory review of re-examination reports.
Washington DC	Renewing drivers 70 and over must a physician's signature indicating that he has found the driver competent to drive and must take a reaction test. Drivers 75 and older must take a road test. (The last 2 requirements are enforced at the discretion of DMV personnel.) Anonymous reports are accepted. Referred drivers from all sources are told they were randomly selected.	
Wisconsin	Self report on application, licensing personnel discuss status of medical condition with customer Driver Licensing Manual provides guidelines for assessing customers on a number of physical abilities Reports from typical sources. Link to handicapped parking Have a Nurse Consultant who provides counseling Publish several brochures: How Medical Conditions Can Affect Your Driver License, Mature Drivers, and How to Report Medically Impaired Drivers.	Train personnel how to observe conditions that could impair driving ability. 8 weeks of classroom training plus otj (on –the-job training). Also train personnel regarding older drivers.

Developing the survey form

The survey questions were based on the review of literature, with particular emphasis on the AAMVA survey, and from discussions with the research sponsor at the New Jersey Motor Vehicle Commission. The interview questions focused on the sources that the licensing agency used for referrals, which were most productive, what problems they encountered, and what they saw as most important to identifying the at-risk drivers. In some cases the questions covered information reported in the AAMVA report, but several years had passed since that survey; therefore, the telephone interviews would confirm that the information was still correct. The questions are shown in Figure 1.

Conducting the survey

The head of the medical review unit (or head of the licensing agency in some cases) of each of the 23 jurisdictions was sent a letter explaining the purpose of the survey and asking them to participate. Shortly after, each state agency was contacted by telephone to set a time and date for the telephone call. Six of the 23 were not interviewed, typically because the researcher could not reach them by telephone or because they were not available at the time set for the interview. The six not included were: District of Columbia, Massachusetts, Missouri, New Hampshire, New York, and Oklahoma.

At the agreed upon time, one of the researchers called and conducted the interview. In several cases, the main contact or interviewee arranged to have additional staff members present and used speaker phones so that all could partake in the discussion. Also in some cases, one of the researchers contacted additional people at the licensing agency to follow up on information that the main contact could not provide. After each interview the researcher wrote a narrative of the information gathered based on their notes.

Summary of Survey Responses

Sources of Referrals

Table 4 shows the various types of sources from which the seventeen State licensing agencies receive referrals of potentially at-risk drivers for re-examination. All seventeen of the States use self-reporting at the time of application or renewal; referrals by physicians, either or both mandatory and voluntary reporting; referrals from law enforcement officers (police and frequently courts); and referrals from family, friends or concerned citizens. Most states receive referrals from other medical personnel and licensing personnel (either or both counter personnel or driving examiners). In many states, crash reports lead to referrals, most often if the police officer notes that the driver's physical, medical or mental condition was a contributing factor to the crash. Often, referrals after crashes are left to the officer's discretion, but in a few states referral is automatic.

Figure 1: Medical Review Telephone Interview Form

Introduction of self and reminder of purpose of phone call.

Referrals

1. I am going to read a list of sources of referrals of drivers for re-examination. For each, please tell me if you receive referrals from the source.

Self report on application
Mandatory physician reporting
Voluntary physician reporting
Hospitals and emergency rooms
Occupational and physical therapists
EMT and other medical persons
Police
Courts
Crash reports
Driving history
Family, friends, and other citizens
Social service agencies
Applications for disabled parking privileges
Observation by DMV personnel

Do you receive referrals from any other sources?

2. About how many referrals does the medical review unit receive per month?

3. Which referral sources are the most productive?

4. Which referral source is the most reliable? (That is, the referred drivers are most likely to be determined as unsafe?)

5. If referrals come in from counter personnel and driving evaluators, do they have written guidelines for observing customers?

6. Do you use driving records (either tickets or crashes) to identify at-risk drivers?

7. Do you allow renewal by mail?

Continue on next page

Figure 1 Continued: Medical Review Telephone Interview Form

Restrictions

8. Could you please list the license restrictions that can be applied to a license?

Training

9. What types of training is provided to your counter and driving exam personnel?

10. Is the training program formal?
    a. If yes, is there a set curriculum for the training?
    b. How long is the training program?

11. Do you do any on the job training?

Outreach

For states with <u>mandatory reporting</u> (otherwise skip to 15)
12. How are physicians informed of the mandatory reporting requirement and to whom to report?

13. Do you have any indication of the level of physician knowledge of reporting responsibilities?

14. Do physicians use a form your agency provides to report drivers medical conditions? (If so, could you send us a copy?)

<u>For all states</u>
15. Are there any efforts to encourage physicians to voluntarily report?

16. Are the police given any information on what behavior or characteristics should be reported to the medical review unit?

17. Do you have any outreach efforts to groups such as law enforcement groups, emergency medical technicians (EMT), Occupational Therapy (OT), or other health care professionals?

Continue on next page

Figure 1 Continued: Medical Review Telephone Interview Form

Management and organization

18. Do you use any type of system for tracking at risk drivers? If so, please describe it

19. How many employees are involved in medical review?

Summary

20. What is the most important step or procedure in identifying drivers that should be evaluated?

21. What are the biggest problems with identifying medically at-risk drivers?

22. Are there any issues we've overlooked?

Thank you for your time and information.

Table 4 Sources of Referrals

	Self report on application	Physicians	Occupational or physical therapist	Other medical personnel	Law enforcement (police and/or courts	Based on crash report	Driving record	From disabled parking application	Family, friend, or concerned citizen	Other - see note
California	1	**L**		1	**L**	1			1	
Connecticut	1	1		1	**L**	1		b	1	c
Florida	1*	**L**			1	1	1		**L**	
Iowa	**L**	1	1		1				1	
Kansas	1*	1	1	1	1		1		**L**	d
Maine	**L**	1	1	1	1	a		**L**	1	e, f
Maryland	**L***	1	1	1	**L**	1			1	
Michigan	1	1	1		**L**	1	1		1	
North Carolina	**L***	1	1	1	1	a			1	
Ohio	L	1	1	1	1	1			**L**	g
Oregon	1	1	1	1	1	1			1	
Pennsylvania	1	**L**	1	1	1	1			1	h
Texas	**L***	1	1	1	1	1			1	
Utah	1	1	1	1	1		1		1	
Virginia	1	1	1	1	**L**	1		1	1	i
Washington	**L**	1	1	1	1		1		1	
Wisconsin	1	1	1	1	**L**	1		1	1	

Notes for Table:
L Indicates category is the largest or one of the largest source of referrals for the state.
* Indicates that the questions were asked orally by the counter person.
a. North Caroline uses a system where if certain fields of the crash report are filled in, the driver is automatically referred for re-examination: Maine plans to implement a similar system.
b. For legally blind specifically.
c. Drivers may renew at AAA office, which refers drivers deemed potentially at-risk.
d. Public information; for example, newspaper articles.
e. Driver education courses and driving schools.
f. Applications from licensed drivers from other states asks abut driving restrictions in state or origin; if the driver had any previous restrictions, he/she may be re-examined.
g. Social service agencies on occasion.
h. Random sample within age groups.
i. Department of Blind and Visually Impaired.

Self Reporting During Application Process

Self reporting during the application and renewal process differs among states, both in the nature of the questions on the application/renewal form and the extent that the counter personnel probes for more information. In several states, the counter person is

not responsible for ensuring that the information is complete or correct; in other states, they are responsible for asking follow-up questions either about the person's response to questions on the application or to their own observations of the applicant's condition (e.g., the applicant needs crutches or oxygen, or the applicant is confused).

Self reporting is most frequently done by checking boxes or answering questions on the application/renewal form; however, in a few cases the licensing person at the counter asks the question orally. The questions asked vary from very simple:

Do you have any mental or physical disabilities which would affect your driving?

To relatively complex and comprehensive questions asking about many specific conditions. Utah, for example asks:

Do you have, or have you had, any of the following in the last five years?

This question is followed by 12 conditions, each of which is followed by more detailed information.

The questions asked by some states require the applicant to make a judgment, that is, to say if they have a condition that *affects their driving*. Other self-reporting questions ask only if they have a specific condition (omitting whether it affects their driving). A third approach is to ask the applicant to check or not check a box that is followed by a statement that certifies they have no condition that affects their driving. For example, the Washington State application has a statement: "I have not had a loss of consciousness or control in the last six months." A Washington State representative commented that applicants frequently misinterpret the statement and check it incorrectly, and that they are in the process of changing the form to correct this problem.

In 12 of the states interviewed, if the applicant answers "yes" to one of the questions, they are given a form to take to their physician, with the requirement that the form be returned within a specified number of days, typically 30 days. In four other states, the applicant is first referred to the unit responsible for medical reviews. In two states (Iowa and North Carolina), a person who is observed to have a condition that might affect their ability to drive safely may be required to take a road test.

Pennsylvania has a different approach. All applicants for learner's permits must have a physical exam and have their physician fill out a form. Additionally, first time applicants must answer self-reporting questions on the application. However, there are no questions of the renewal application.

In at least two of the 17 states, the representative interviewed questioned the honesty of the applicants in answering these questions. In another state , the representative said that people were generally honest the first time they answered the questions, but if they were subjected to review as a result of their answer, they did not answer honestly at the next renewal.

Observation by licensing personnel

In about half the states, observation and referral are clearly a part of the counter person's responsibilities; in the others, the counter person is an incidental source of referrals. In several states, the counter person was responsible for probing for more information if the applicant had answered yes to a self-reporting question or if they (the counter person) observed a condition (e.g., use of a cane or wheelchair or confusion) that indicated the applicant's driving might be affected. There appears to be a division between states that use licensing personnel as the eyes for the medical review process and those states where there is a separation in responsibility between the medical review unit and application processing. In two states, the representatives commented that the licensing personnel had too many things to do without also observing for medical conditions or that efficient processing of as many applicants as possible was their priority.

Examples of states that actively use licensing personnel to identify drivers who may be at-risk include Iowa, Texas, and Washington. In Iowa, licensing personnel who notice a physical condition that might affect driving can pull the applicant from the line for a re-exam. The manual includes guidelines on traits to observe, and the examiners and heads of stations (but not the counter personnel) receive formal training, which includes observation of medical conditions. The counter personnel receive some on-the-job training in observation. They are expected to politely probe about any conditions that they observe or come up from the self-report questions that may indicate an at-risk driver. One interviewee commented that our socialization makes it hard for most people to ask questions about observed physical or cognitive conditions.

In Texas, the counter personnel review the applicants' answers to the self-report questions, and probe for additional information. The *Driver License Examiner's Manual* includes guidance on observation. Additionally, all counter and road testing personnel receive in-service training every two years; the training includes two hours on medical review, including role playing. They also receive on-the-job training; a lead person observes them interviewing an applicant and then critiques and offers suggestions to improve their technique.

Washington State also expects their counter personnel to observe conditions that indicate at-risk drivers. Their manual includes a section on what to observe, and the personnel receive some, mostly on-the-job, training in observing. The representative who was interviewed commented that they would like to do more; also, they believe that counter personnel are the most important factor because they have direct exposure to the applicants.

Referrals by Physicians

Only three of the 17 states in the study (California, Oregon, and Pennsylvania) require that physicians report patients to the licensing agency under some specified

condition(s). California has a specific list of conditions that physicians are required to report; Oregon requires reporting of losses of consciousness and other conditions that affect the driver's ability to drive safely; and Pennsylvania requires reporting of any condition that affects safe driving. These three states all indicate that many or most of the referrals they receive are from physicians. All three states also accept voluntary reports from physicians for other conditions than required by law.

Some interviewees from states that do not have laws mandating physicians to report or laws that hold the physician immune said that many physicians believe that reporting their patient to the licensing agency would be a breach of patient confidentiality. In some of these cases, the physicians encourage their patients to self report themselves to the licensing agency, rather than submitting a report directly.

The three states with mandatory reporting and one other state (Florida) indicated that physicians or medical providers in general (e.g., emergency room personnel, chiropractors, physical therapists) were the largest or among the largest sources of referrals.

Many states provide forms for physicians to report patients who are or may be at-risk drivers; most will accept referrals either on the form or on the physician's letterhead. Some of them also provide extensive information for physicians on the effect of medical conditions on driving. Utah has some of the most detailed information. Connecticut, Florida, Maine, Michigan, Oregon, Utah, Virginia and Wisconsin have forms on-line for physicians to use to report patients with medical conditions that may affect their driving ability. The forms vary from simple to detailed. They also vary in whether they require the physician to judge how the condition affects their patients driving ability. As an example of a simple form, Florida has a one page "Medical Reporting Form," which has boxes to check for nine conditions plus "other" and a box for comments. The conditions include medical, cognitive, psychiatric, and addiction handicaps. There are no questions relating to driving ability on the form. Some examples ranging from simple to complex follow.

Oregon has a one-page form for Mandatory reporting by physicians, with definitions on the back. The form includes a blank space to write, "the underlying medical condition or diagnosis"; boxes to be checked for several functional (e.g., strength, flexibility) and cognitive (e.g., attention, impulsive) impairments; boxes to indicate whether the condition is acute, transient, chronic, or progressive; and a place to write how the patient is affected by the impairment(s) including any test results and medications.

Utah's "Functional Ability Evaluation Medical Report" has a table for the physician to complete. The table lists 11 conditions along the top and eight levels vertically; the levels vary from "no history" [of the specific condition] to "NO DRIVING." There is also a place for the physician to check recommended restrictions to the license; e.g., maximum speed or daylight only.

Michigan has a more complex, six-page form with separate sections on four different categories of conditions (neurological, other medical disorders, drugs and alcohol, and psychological), and a final required page of general questions, including recommendations concerning driving, re-examination, and license restrictions.

Connecticut has a general "examination to determine physical condition of driver" form (two pages plus two pages of instructions) and separate forms for seven different conditions, including hearing, cardiology, diabetes, eye care, orthopedic, psychiatric, and substance abuse. The forms ask the physician to make a judgment about the person's ability to operate a vehicle safely.

Most of the states accept referrals from other medical personnel (e.g., emergency room personnel) and/or occupational and physical therapist. No state listed these as major sources.

Referrals by Law Enforcement Officers

All 17 states accept referrals from law enforcement officers (typically from police officers and sometimes from courts). Twelve of the 17 indicated that law enforcement was the largest or among the largest source of referrals. Police typically report drivers in two situations: one, after they have stopped a driver due to erratic driving or other reason, and they observe the driver to be confused or have other physical conditions that appear to affect their driving or two, the cause of a crash appears to be related to a medical condition. One licensing agency mentioned that they occasionally get referrals of drivers who claimed a non-existent medical condition to avoid responsibility for the crash (e.g., they claimed that they blacked out); when the driver realizes they may lose their license, they often retract the claim. A few states indicated that the police sometimes refer people who should not be referred, for example, due specifically to their age. One state found referrals from law enforcement the least reliable. However, three states said referrals from law enforcement were the most reliable. Ohio requires that a supervisor sign the report to ensure that the officer is reporting an appropriate condition.

Driving Records and Crash Reports

The licensing agencies of several states receive copies of crash reports if a medical condition was indicated as a contributing cause. (The police officer may also refer a driver for re-examination based on his observations at a crash site; this is independent of the agency's policy with respect to the crash report.) In North Carolina, if certain boxes are checked on the crash report it results in an automatic referral for re-examination to the licensing agency.

Additionally, some states have policies of examining drivers who have a certain number of either or both violations or crashes on their driving record. None of the licensing agencies indicated that these practices were a major source of referrals by themselves;

in many cases these referrals were considered part of the referrals from law enforcement.

Family, friends, and concerned citizens

All 17 states accept referrals from the public. Opinions on the importance and reliability of family, friends, and concerned citizens varied. Florida and Kansas said that this category was a major source of referrals and Pennsylvania said that the number of referrals from family and friends is growing. Kansas found referrals from family and friends among the most reliable.

Other states receive relatively few referrals from family, friends and concerned citizens. An interviewee commented that families see reporting a driver to the licensing agency as a last resort. The Texas representative found referrals from concerned citizens were the least reliable; in most cases an investigation ends in the driver's favor. They also commented that family members who report a driver are typically satisfied if a restriction is placed on the license. There was also concern expressed about the potential of family members or others to maliciously report a driver as a matter of spite. Michigan mentioned that referring a person as an unsafe driver had been used as a weapon in divorce cases. To counteract the possible use of malicious referrals, most of the 17 states do not allow anonymous referrals, and Connecticut requires a notarized affidavit for referrals from the public. Also, most states do not automatically re-exam a driver based on a referral from the public. Some interview the driver first; Washington asks them to get a physician's certificate.

Several of the 17 states have material on their web site explaining to the public how to report unsafe drivers. Often it is accompanied with information on the affect of aging or medical conditions on the ability to drive safely, and sometimes by a form to be used when referring a driver to the licensing agency.

Disabled Parking Applications

Maine, Virginia, and Wisconsin receive automatic referrals from the unit that reviews applications for disabled parking placards. Maine indicated that this was one of the two largest sources for referrals. In Virginia, the Medical Review unit that re-exams drivers is also the unit that reviews the disabled parking permits. In Wisconsin, the application for the disabled sticker must be signed by a physician, and there is a box for the physician to check if the disability might interfere with the applicants ability to drive safely.

Iowa has a specific policy to not use applications for disabled parking because it was felt that to do so would discourage applications. Washington has a state law prohibiting using the information from the disabled parking applications for this purpose. Some interviewees felt that using the disabled parking applications would violate the American with Disabilities Act.

Other sources

Some states receive referrals from social service agencies. The States of Connecticut, Ohio and Virginia require the state departments that provide services to the blind to report to the driver licensing agency anyone who is legally blind or (in Virginia's case) applies for their services. Connecticut receives referrals from driving schools. Kansas uses information from news articles that mention the drivers' medical, physical, or cognitive condition as a factor in a crash.

The most unusual source was random selection of renewal applicants for re-examination. In Pennsylvania, 1645 drivers are selected randomly by computer from categories based on age and zip code of people who will need to renew within the next six months. The age categories start at 45 to 49 years and increase in five-year increments to 75. Fifty drivers are chosen from each of the six age categories up to (but not including) the 75 and older. The remaining drivers are selected from the 75 and older category. Many of the drivers in the oldest category voluntarily surrender their license when they are contacted rather than go through the re-examination.

Vision Screening

Another way that drivers get referred to the Medical Review Unit is through failure to pass the vision screening requirements. This would particularly be the case for some degenerative eye condition which needed to be tracked. Table 5 presents vision screening requirements and driver license renewal cycle in the 17 states which were part of the survey. The information for this table came from several sources including the interviews. Other sources were the AAMVA survey, the Insurance Information Institute, Model Driver Screening and Evaluation Program, the Insurance Institute for Highway Safety and websites for driver license agencies of the states in the survey.

States included in our sample almost uniformly (except for California) require both peripheral and acuity screening at the initial screening. Seven (Kansas, Wisconsin, Washington, Florida, Iowa, Ohio, and North Carolina) states in our sample employ vision screening with every renewal. Six states stipulate vision testing for in-person renewal which must be done every other cycle for Connecticut, Michigan, Texas, Utah and Virginia and every third cycle for California. (Connecticut has not yet implemented the requirement.) Four more (Maine, Maryland, Oregon, and Utah) begin screening with every renewal past a particular age. Another three require screening at systematic intervals such as every 10 years or every other renewal. Pennsylvania did not require vision screening with renewal but it is a part of the random screening program. (Utah has two requirements and thus gets mentioned twice.)

What emerges from the review of vision screening policy is that those states with proactive medical review processes also have more aggressive vision screening. This is reflected in use of more stringent requirements of both acuity and peripheral screening and in the requirement to pass vision tests for renewal at least at systematic intervals.

License renewal cycles varied from four years to eight years. Only three states had shorter renewal cycles for their older drivers. These were Kansas, Maine, and North Carolina.

Table 5: Vision Screening Procedures and License Renewal Cycles

States	Vision Screening	Vision Screening Renewal Requirements	License Renewal Cycle
California	Acuity	Screening for renewal if in-person application. Age 70 and over cannot renew by mail	5 yr. Renew in person every 3rd cycle
Connecticut	Acuity & Peripheral	Screening for every other renewal by law in 2003. Not yet in effect.	6 yr. or 2 yr option for drivers 65 and older
Florida	Acuity & Peripheral	Screening at time of renewal	6 yr. with clean record, 4 year otherwise
Iowa	Acuity & Peripheral	Screening at time of renewal	5 yr., 2 yr. for drivers 70 and older
Kansas	Acuity & Peripheral	Screening at time of renewal	6 yr. 4 yrs for 65 and older
Maine	Acuity & Peripheral	Screening at renewal after age 40. The next screening is at renewal between the ages 52 and 57. Vision screening is done at every renewal after the age of 62.	6 yr. 4 yr for drivers 65 and older
Maryland	Acuity & Peripheral	Screening at time renewal for age 40 and older	4 yr.
Michigan	Acuity & Peripheral	Screening at time of renewal if in-person. Can mail renewal every other cycle.	4 yr.
North Carolina	Acuity & Peripheral	Screening at time of renewal	8 yr. 5 yr for drivers 54 and older
Ohio	Acuity & Peripheral	Screening at time of renewal	4 yr.
Oregon	Acuity & Peripheral	Screen with renewal after age 50	8 yr.
Pennsylvania	Acuity & Peripheral	Initial application and at random screening	4 yr.
Texas	Acuity & Peripheral	Screening at time of renewal, if not renewing by mail or online.	6 yr. Renew in person every other cycle
Utah	Acuity & Peripheral	Screening at time of renewal, if not renewing by mail or online. Vision screening is done at every renewal from age 65	5 yr. Renew in person every other cycle
Virginia	Acuity & Peripheral	Screening at time of renewal, if not renewing by mail or online.	5 yr. Renew in person every other cycle
Washington	Acuity & Peripheral	Acuity screening only at time of renewal	5 yr.
Wisconsin	Acuity & Peripheral	Screening at time of renewal	8 yr.

Summary on Sources

Table 6 shows the sources that were identified in the interviews as the most productive (that is, the largest proportion of referrals came from that source) and most reliable (that is, the referrals most often identifies drivers who were determined to be at-risk driver after the re-examination process). No one source dominated for either productivity or reliability. Seven of the 17 states reported that self-reporting or observation during the renewal process was the largest source for referrals for re-examinations. Not surprisingly, the states that hold the licensing personnel responsible and/or providing training or guidance for observation were those that reported this as the largest source for referrals. Six states reported that law enforcement (typically police) was the largest source, and four states (including the three states with mandatory reporting by physicians) mentioned physicians or other health providers.

Seven states identified physician reports as being most reliable, and three identified law enforcement reports as most reliable. Seven states either did not identify any source as being reliable or not reliable or said that the sources were equally reliable. Comments on why sources were reliable were equally divergent. Some pointed out that the physicians were familiar with their patients over a longer time; others said that the police saw them while they were actually driving; others stated that the licensing personnel (either counter or examining) saw them face to face; and at least one pointed out that family members saw them on a daily basis. Several states commented that malicious reports by family or concerned citizens was an issue, while other said that there were few malicious reports. However, most states do some checking before acting on reports from the public.

Table 6: Size and Reliability of Different Types of Referral Sources

State	Largest Sources of Referrals	Most Reliable Sources*
CA	Law enforcement and mandatory physicians reports	No one source identified as more or less reliable; all are investigated
CT	Law enforcement	
FL	Physicians with family second	
IA	Observation by licensing personnel	
KA	Family	Medical personnel and family
ME	Self reporting during renewal and disabled parking applications	Physicians
MD	Observation by licensing personnel and police	
MI	Law enforcement	
NC	Observation by licensing personnel	Physicians
OH	Law enforcement and self-reporting	Law enforcement
OR	Mandatory physician reporting	Physicians
PA	Mandatory physician reporting	
TX	Self reporting	Interview follow up to self report or observation and physicians
UT		Law enforcement
VA	Law enforcement	Law enforcement (concerned citizens are least reliable)
WA	Observation by licensing personnel	Physicians
WI	Law enforcement	Physicians

* Some states did not identify any source as being reliable or not reliable; a few indicated that all sources were equally reliable and that all were investigated.

Rate of Referrals

Table 7 shows the rate of referrals per licensed drivers for the 17 states interviewed. New Jersey was included in the list to show their relative position. Because medical conditions are correlated with age, the rates were calculated both for all drivers and for drivers over 65. The states are listed in the order of highest referral rate per licensed driver. These figures should not be given too much reliance because the number of referrals reported during the interviews were not consistently defined. For example, some include DUI, others do not. Also some states keep records on the number of referrals; in other states, the person interviewed provided a best estimate. However, the study team did look for indications that some states are more effective at identifying potentially at-risk drivers for re-examination. No pattern was observed between the rates and the number of types of referral sources. We looked more closely at what the top five states were doing that might explain their apparent high rate of referrals.

Table 7: Rates of Referral
(In order of highest rate per million licensed drivers)

	Licensed Drivers			Drivers referred to Medical Review		
STATE	Over 65	Total	Percent over 65	Annual	Rate per million licensed driver	Rate per million license driver over 65
Maine	146,451	932,455	15.7%	49,320	52,893	336,768
Florida	2,468,455	12,905,812	19.1%	102,000	7,903	41,321
Kansas	307,762	1,987,251	15.5%	14,000	7,045	45,490
Washington	583,422	4,407,269	13.2%	25,200	5,718	43,193
Maryland	463,105	3,552,187	13.0%	12,500	3,519	26,992
Pennsylvania	1,451,662	8,369,575	17.3%	27,996	3,345	19,285
California	2,693,836	22,657,288	11.9%	72,000	3,178	26,728
North Carolina	797,657	6,014,782	13.3%	12,000	1,995	15,044
Iowa	340,428	1,977,909	17.2%	3,336	1,687	9,799
Virginia	650,488	5,045,857	12.9%	8,400	1,665	12,913
Wisconsin	565,193	3,765,644	15.0%	6,000	1,593	10,616
Connecticut	464,439	2,659,918	17.5%	3,996	1,502	8,604
Ohio	1,210,205	7,656,362	15.8%	7,068	923	5,840
New Jersey	865,217	5,728,975	15.1%	4,020	702	4,646
Michigan	1,034,762	7,065,438	14.6%	4,500	637	4,349
Texas	1,680,898	13,498,071	12.5%	8,433	625	5,017
Oregon	386,484	2,589,764	14.9%	1,562	603	4,042
Utah	171,116	1,548,456	11.1%	360	232	2,104

Source of licensed drivers: FHWA, 2006 (http://www.fhwa.dot.gov/policy/ohim/hs04/index.htm)

Maine has the highest rate of referrals per licensed driver by a large margin; the largest numbers of referrals come from self reporting and from the applications for disabled parking. The question on the renewal application is “Have you developed any of the following medical conditions or have any changes occurred in your present medical condition since your last renewal. If yes, please check which conditions below: Epilepsy/Seizures, Limb Amputation, Blackouts/Loss of Consciousness, Heart Trouble, Diabetes, Stroke/Shock, Parkinson’s Disease, Mental/emotional, Paralysis, Other Disability.” The question has two significant characteristics: It does not ask the driver to judge whether the condition affects their driving ability; instead it simply asks if the person has the condition. Second, it lists specific conditions. These characteristics prevent a driver from omitting pertinent information in good conscience.

In addition, Maine receives referrals from some unusual sources, such as from driving schools. Also, the application for a Maine license for a licensed driver from another state has a place to indicate any restrictions that the previous state has placed on the applicant’s driving privileges. The high referral rate is probably due to the use a wide variety of sources and the nature of the question on the renewal application.

Florida is the state with the second highest rate of referral. An important reason is the higher percentage of older drivers in Florida, which would lead to a higher percentage of drivers who suffer from medical, visual, or cognitive conditions that might make them at risk. The medical unit receives the most referrals from law enforcement officials and from the family of the driver. The licensing agency is within the Florida Department of Highway Safety and Motor Vehicles, suggesting a closer connection between the State Police and Driver Licensing. Florida uses both crash reports and driving records as sources. More than half of the referrals from law enforcement are a result of crash reports. The large number of referrals from family members may be partially the result of the high percentage of older drivers in Florida. Also, Florida is very active in providing resources and information for older drivers through their Grand Driver Program (see http://www.floridagranddriver.com/). This may result in a greater awareness of the need and procedures for reporting drivers.

Kansas, which has a referral rate only a little lower than Florida's, receives the largest percentage of their referrals from family and friends. They also use a variety of other sources, including driving record and a large number of crashes over a short period. Another factor is that Kansas is one of five states in which the questions that are used for self-reporting are asked by the counter person, rather then being on the application. Three (Florida, Kansas, and Maryland) of the five states that use the counter person to vocally ask the questions are among the five states with the highest referral rates. Responding to a person, rather than checking a box or writing a short phrase, may incline people to be more honest. Another possible explanation for the high referral rate might be that Kansas is a small, mostly rural state; people might have a greater feeling of community and therefore be more likely to report at-risk drivers.

Washington State has the fourth highest rate of referrals. Their largest source is their License Service Representatives, that is, their licensing staff, who are instructed to observe applicants. There is a section in their manual on what to look for when observing applicants; currently they receive a little on-the-job training in observation, but no formal training in that aspect of their job.

Maryland has the fifth highest referral rate. They attribute the largest sources to the medical personnel (including occupational therapists, psychologists, and nurses as well as doctors) and to the police. They do informal outreach to both groups. The head of the Maryland Medical Advisory Board gives lectures to physicians and to police on what to look for and how to report drivers for re-examination. Maryland also participates in an AMA program to train doctors to recognize medically at-risk drivers. Additionally, as noted above, the counter personnel orally ask the "self-report" questions. Although the counter personnel do not receive specialized training in observation, some driving examiners are given training in recognizing conditions that relate to functional capacity. They also give tests to some drivers that measure perceptual, motor and memory skills. Maryland has been in the forefront of trying to develop tests that will reliably identify at-risk drivers.

Training of Licensing Personnel

Training of the licensing personnel to observe applicants for conditions that relate to their ability to drive safely varies from none to a day and a half. The most extensive is done by Wisconsin; as part of a six week course for new recruits, a nurse consultant spends one and a half days instructing them on medical conditions that the licensing personnel should look for. The same nurse consultant also provides in-service refresher training at 150 field stations in rotation, getting to each about once per year.

North Carolina also has a six week program for new recruits, which includes a section on what to observe and when to report drivers to the medical unit. Maryland provides training in dealing with older drivers to road examiners (but not counter personnel); the training includes recognizing conditions relating to functional capacity. Texas has in-service training for licensing personnel, which includes two hours on medical review and incorporates role playing. They also use on-the-job training, which has a lead person observe how the counter personnel deals with applicants and offers suggestions. Utah currently has little training, although they are considering expanding it. Instead they rely on extensive written material on the conditions to observe, which was developed by their medical advisory board. Florida's initial training for their Driver License Examiners includes instruction on conditions to observe regarding disabilities such as problems in walking and coordination, strength, and answering questions. Examiners are trained to observe whether the applicant has some one assisting them with the application process.

Outreach for referrals

Several states provide information on medical conditions that affect driving and/or forms for reporting at-risk drivers. Some of the states post the information and/or forms on their web site. This may be simple information to drivers or the public on the effect of aging and/or medical conditions on driving.

Most of the states do little formal outreach to the police or physicians; many do informal outreach, such as providing speakers when requested. Pennsylvania is planning a formal program as a result of recent research on physicians' awareness of the mandatory reporting requirement. The research found that while 93 percent of the physicians knew about the law requiring them to report patients with conditions that could affect their ability to drive safely, only 26 percent knew how to report. The planned outreach program includes putting a downloadable form on the licensing agency's web page, a mailing to medical associations and to the State's list of licensed physicians, and inserts in physician license renewal letters. They expect a doubling in the number of referrals from doctors. They are considering developing a similar outreach program for the police.

Oregon has extensive material on their web-site aimed both at ordinary citizens and at physicians on conditions that affect safe driving and on how to report a driver. Oregon enacted a law mandating reporting by physicians in 2003. At the time of enactment,

they did a mailing to all physicians in the state. They have found that the number of referrals from physicians per year has dropped over the three years since that mailing.

Utah did a similar mass mailing of their guidelines on functional guidelines for physicians at the time it was developed, which was many years ago. Maine has also developed a 31 page book for physicians on the relation of functional ability to driving competence; the book includes explanations of the reporting and re-examination procedures, the law providing immunity to physicians for reporting, and the form for reporting. Wisconsin mans booths at meetings of police associations. Maryland uses their medical advisory board to provide lectures to both physicians and police.

Virginia mails letters to physicians whenever there is a change in the law. However, the representative who was interviewed commented that physicians receive too much literature, making written material ineffective. They are also revising their report form to ask for more information on different types of impairments.

How to reach potential reporters was also discussed at the 2006 AAMVA conference on "Aging and the Medically At-Risk Driver." Although it is not from the interviews it is pertinent to this topic. A representative from the California Highway Patrol discussing how to reach traffic police, emphasized both motivating and informing the police about medical conditions. [(22)] California is developing a five-module training program for traffic police, covering: why care; interaction with older drivers; conducting traffic stop with older drivers; making referrals; and enforcement vs. community relations. California is also modifying the form for police referrals to list observable conditions that can be checked off by the police officer.

Most important step

One of the questions asked during the interviews was: "What is the most important step or procedure in identifying drivers that should be evaluated?" Most responses fell into one of two categories: getting good information and observation by licensing personnel. For information, the respondents frequently emphasized the need for complete information from the reporting sources (generally physicians or police officers). This might be interpreted as the need for well designed referral forms that include places to record the information that is most important to the medical review personnel. Respondents listing observation by licensing personnel generally emphasized the ability of the licensing personnel to see the applicant in person and to ask questions to get more information. As one person commented, good observations require good training of the counter personnel and road examiners in observing. Other "most important steps" included: mandatory physician reporting, educating physicians as to conditions to be reported and motivating them to report at-risk drivers, the need for counter personnel to be persistent but polite in probing for information, the value of experience in interpreting crash reports, and getting good cooperation from police and law officers.

Biggest problem

Another question in the interviews was: "What are the biggest problems with identifying medically at-risk drivers?" The responses were more varied. One problem that was brought up several times was honesty or the forth-rightness of applicants about their mental or physical conditions. The problem was sometimes attributed to the self-interest of the applicant wishing to retain their license. One respondent attributed dishonesty to applicants thinking that a self-reported condition would result in an automatic suspension, and two others said that cognitive deficiencies prevented the drivers from realizing their condition.

A similar problem of physicians not reporting patients with conditions affecting their driving was mentioned by several states. This was variously attributed to feeling sorry for the patient, fear of losing a patient, or simply forgetting that the patients' condition might affect their driving capability.

There were several problems that were specific to the laws or institutions of the particular state. For example, Maine mentioned a large backlog of cases, which were attributed to the number of referrals from applications for disabled parking. Two states mentioned a lack of a law mandating reporting by physicians.

Organization

Table 8 is a brief overview of organization of medical review within the licensing agency of the 17 states. A few states do not have a separate unit for medical review; for example, in Iowa, all employees of the Driver Services Office have some responsibilities in the review of medically at-risk drivers. Other states combine medical review with related functions, such as DUI or applications for disabled parking permits.

The table also shows the number of persons involved in the medical review process. While there is a correlation between staff size and state size as measured by the number of licensed drivers, it is not a very strong relationship. For example, Texas, which is the second largest state in the sample, only has four people responsible for medical review. California has the largest staff of people responsible for medical review, but the staff size is much greater proportionally than the number of licensed drivers. Although California is by far the largest state in number of drivers, the large staff size seems to also relate to fact that the operation is spread over 12 field offices and the Driver Safety unit is also responsible for DUI, rather than simply the number of drivers in the state.

Three of the licensing agencies are within Departments of Public Safety (that is, state police departments). It would be logical that there would be good coordination between law enforcement and medical review in these states, and in fact, both Ohio and Utah mention law enforcement as being the most reliable source, and Ohio also says that law enforcement is the largest source.

Table 8: Organizational Characteristics of Medical Review Units

State	Medical unit name	Top agency	Number of employees	Comment
California	Driver Safety	Department of Motor Vehicles	202	Driver Safety Unit has 12 branch offices
Connecticut	Medical Review	Department of Motor Vehicles	6	
Florida	Medical Review	Highway Safety and Motor Vehicles	16	MAB consults for unit
Iowa	Office of Driver Service (see comments)	Department of Transportation		There is no separate unit for medical review; all employees of the Driver Service Office are involved in medical review at some level.
Kansas	Medical Review	Department of Review	6	Head of unit has additional responsibilities
Maine	Medical Review	Department of State	5	
Maryland	Driver Wellness	Motor Vehicle Administration	19	Driver Wellness and MAB report to Office of Driver & Vehicle Policy & Programs; Driver Wellness has 3 managers; 1 deals specifically with case review
Michigan	Driver Assessment Division	Department of State	62	Routine road tests are handled by private agencies.
North Carolina	Medical review Branch	Department of Transportation	17	5 of the 17 employees are physicians. There is also an MAB that hears appeals; the MAB is in the Dept. of Health & Human Services.

Table continued on next page

Table 8: continued

State	Medical unit name	Top agency	Number of employees	Comment
Ohio	Medical Services	Department of Public Safety	12 (number of employees doing med. reviews)	Bureau of Motor Vehicles has internal & external divisions. Medical services is in the internal division; Renewals & testing is in the external division.
Oregon	Driver Control	Department of Transportation	20 driver improvement counselors	Driver improvement counselors are trained to observe for impaired conditions
Pennsylvania	Medical Review Department	Department of Transportation	13	
Texas	Driver Improvement Bureau	Department of Public Safety	3 plus 2 part time people assigned to MAB	The State Police is the primary unit in the Dept. of Public Safety.
Utah	Driver Licensing	Department of Public Safety	9 plus one for CDL	The medical section is not a separate unit.
Virginia	Driver Monitoring Division	Department of Motor Vehicles	11; 8 review cases	Driver Monitoring is also responsible for disabled placard applications.
Washington	Driver Responsibility	Department of Licensing	3 full time plus 2 part time	Separate unit from Driver Examining
Wisconsin	Medical Review Unit	Department of Transportation	7	

In some states, the division of the licensing agency responsible for processing and testing for applications and renewals is in a separate division of the licensing agency from the medical review unit; these states appear to depend less on their counter or testing personnel for referrals. (Note that this observation was not tested during the interviews.)

Tracking

Sixteen of the 17 states interviewed track at-risk drivers who are required to have periodic reviews; Wisconsin is the one exception. The periodic reviews are typically

required for progressive or degenerative conditions, for example, dementia. The need for a periodic review is usually based on the recommendation of either the driver's physician or a Medical Advisory Board. Utah tracks a surprising number of drivers, about 170,000 (about 10% of the total number of licensed drivers. None of the states stated that they track drivers that were cleared after re-examination.

Restrictions

All 17 states have the option of restricting the driver license of a medically impaired driver rather than suspending the license. Restrictions that are used (other than corrective lenses or hearing aids) include:

- Vehicle Based
  - Automatic transmission
  - Automatic turn signals
  - Power steering
  - Adaptive vehicle equipment

- Time based
  - Daylight driving only
  - Certain hours only
  - Certain days of week

- Geographic based
  - Within a specified radius of home
  - Specific roads
  - Not in specified city
  - Within specified city or village
  - Between residence and work
  - On specific route

- Type of driving or other
  - Speed restrictions
  - No freeway or interstate driving
  - Specific trip purpose (e.g., trips to and from work)
  - Number of passengers

The number of types of restrictions (other than corrective lenses and hearing aids) used by a state varied from one (Florida only listed day light hours) to twelve for Wisconsin. Kansas commented that they would only place up to four restrictions on a license. The source of restrictions varied: the restrictions were recommended by the driver's physician, the Medical Advisory Board, or by staff of the medical review unit. The Oregon representative commented that they used relatively few restrictions, which meant that the outcome of their reviews tended to be "all or nothing;" that is, most medically at-risk drivers tend to either end up with all driving rights or none. Another

interviewee commented that having the option of applying a restriction in lieu of removing the license encouraged more people to refer potentially unsafe drivers.

IDENTIFICATION OF THE BEST PRACTICES

Content analysis of the interviews of the ten states with the highest referrals rates relative to licensed drivers revealed four practices that the study team deemed to be exemplary. These are: the number of questions asked related to health at the time of application and renewal, observation of applicants by counter personnel, training of counter personnel and other personnel involved in medical review and outreach efforts to the medical and law enforcement communities.

Questions asked of applicants at the time of renewal

Six of the ten states with high referral rates asked at least three questions at the time of application and renewal pertaining to health conditions. The state that asks the most questions (21) is Maryland. Maine asks about eight conditions, North Carolina asks about six, California asks about 5 conditions and Florida and Virginia each ask about three. While one of the concerns is getting forthright responses to questions, it appears that simply asking more detailed questions about health will elicit more information. Table 9 lists the most frequently asked questions about health conditions at the time of application.

Table 9: Medical Conditions Queried at the Time of Application and Renewal.

STATE	Loss of Consciousness/ Epilepsy/ Seizures	Diabetes	Cardiac Disorder	Mental Illness	Stroke	Parkinson's Disease	Other
California	√			√			
Florida	√	√	√	√	√	√	√ A
Maine	√	√	√	√	√	√	√ B
Maryland	√	√	√		√		√ C
North Carolina	√	√	√	√	√	√	√ D
Utah	√						√ E

Notes for Table:
A Limb Amputation, Paralysis, Other Disability
B Cerebral Dystrophy, Schizophrenic Disorder, Congenital Eye Disease, Loss of Limb(s), Dementia, Severe Anxiety Disorder, Traumatic Brain Injury, Multiple Sclerosis, Manic Depression.
C High Blood Pressure, any medication taken
D High Blood Pressure, Pulmonary, Neurologic, Learning and Memory, Musculoskeletal/ Chronic Debilities, Alertness or Sleep Disorder, Hearing and Balance, any medications taken
E Any Physical or Mental Condition for which Medication taken, Physical Condition for which Special Equipments used

Observation of applicants at the time of renewal

Several states in our survey commented on the use of their counter personnel or the first contact person as source of referral information. These personnel are in an ideal situation of observe the behavior of the applicants and notice any condition or behavior that warrants follow-up with some medical review. Behaviors that trigger questions about medical review would include use of some appliance to assist with walking, being assisted to the counter by a companion, showing cognitive confusion in response to questions, showing aberrant behavior in general, showing muscular weakness. When such conditions were observed, the states had varying policies for proceeding with medical review. In some states, a supervisor would be called in while in other states a form would be forwarded to the medical review unit for follow-up.

Training of personnel

High referral states which reported training for observing applicants include: Florida, Maryland, North Carolina, and Virginia. Wisconsin does train its counter personnel and is a proactive state regarding referrals. It did not fall into the top ten for referrals. Florida uses their Driver License Examiner in multiple roles. This person is the first point of contact in the agency and is the frontline in contact with the public. The job responsibilities include determining eligibility for driver licenses from obtaining information at the time of application to performing driving skills testing. These individuals receive an initial two week training program that includes observational skills regarding disabilities. Driver License Examiners are trained to spot problems in walking and coordination, strength, and answering questions as well as noting whether the applicant has some one assisting them with the application process. In North Carolina, Driver License Examiners are also the first point of contact with the public. Like Florida, they are responsible for obtaining information from applicants, checking documents and administering the road test. Driver License Examiners get 6 weeks initial training on policy and practices. As part of this training they are instructed on the Guideline for Physicians for Driver Medical Evaluation and indicators for what to observe to issue a medical report form. Another topic North Carolina has developed is medical sensitivity training with older drivers. In Maryland, the counter personnel do not have formal training on observation skills, but some of the driver evaluators do get additional training to recognize conditions relating to functional capacity to drive. Virginia and Wisconsin both train their counter personnel in observational skills.

Outreach to the Medical Community and to Law Enforcement

Since most of the states with high referral rates indicated that their most productive external sources of referrals were from the medical community and law enforcement, on-going contact with these groups is important to integrating changing needs and policies. The medical review contacts frequently considered outreach to both physician and law enforcement important to facilitate getting the critical information needed to proceed with medical review and to facilitate getting forms properly filled out. Several states reported contacts with state medical societies and with law enforcement groups

such as sheriff's associations and police chiefs' associations. However, none of these contacts are formalized and occur on ad hoc basis. One state reported that they use the Medical Advisory Board as a basis for contact to the medical community. In Maryland, the head of the Medical Advisory Board is also the head of Driver Safety Research which is a line reporting position to the head of Driver Vehicle Polices and Programs, the unit responsible for medical review. This facilitates outreach to physicians.

Other practices

North Carolina's Medical Review Unit reviews a high volume of accident reports. The North Carolina accident reporting system permits the Medical Review Unit to be automatically notified about accidents when the officer on the scene fills in particular fields.

Use of Driving Restrictions

States with high rates of referrals also reported frequent use of a variety of driving restrictions to keep their drivers on the road safely. The companion piece to scrutinizing the limitations medical condition might place on drivers is to configure a way for medically at-risk drivers to stay behind the wheel safely with a set of restrictions tailored to the drivers' needs. Such restrictions include geographic restrictions, time of day restrictions, and restrictions on types of roads and highways that could be used. These crafted restrictions permit drivers who present some medical risk to safely continue to drive to needed locations as long as they stay within the prescribed driving conditions. The use of restrictions will allow many marginally at-risk drivers to continue driving but still limit the risk. Also the knowledge of the possibility of limited driving privileges rather than total removal encourages people to refer drivers that they might otherwise not refer out of concern for the impact of driving suspension on their quality of life.

Vision Testing

A review of the vision testing in states with high rates of referrals, showed that they test both acuity and peripheral vision. Moreover, they retest vision for license renewals, if not at every renewal then on some regularly scheduled cycle. Given the large role vision plays in driving and the links between vision testing and lower accident rates, investing in systematic vision testing seems to be a valuable way to catch medically at-risk drivers. [23]

RECOMMENDATIONS

Based on the literature review and the survey results, the following recommendations are offered

License Application

Several states with higher referral rates asked several questions pertaining to the health on the driver's license application form and on the renewal form. New Jersey currently asks one questions pertaining to consciousness. We recommend increasing the number of questions asked to at least three.

The three of the most frequent questions asked regarding health conditions are:

- Loss of Consciousness/Epilepsy/Seizures
- Diabetes
- Cardiac Conditions

At least two states asked about medications the applicant was taking.

The most productive phasing of questions on applications simply asks if the applicant has any of the medical conditions rather than asking if they have any conditions that could interfere with driving ability. That is the question should be phrased so that the applicant does not have to make a judgment about the affect of the disorder.

Training of personnel regarding observation of applicants at the time of renewal

Based on the experience of states with high referral rates, we recommend that DMV add a training unit for its customer service personnel regarding observation of applicants. This unit should provide a behavioral profile indicating conditions that need to be noted and actions that the counter personnel will need to take regarding the observation. Wisconsin's program in this area might serve as a model. A less involved investment would have personnel from the Driver Review Unit provide an annual presentation to counter personnel. The presentation would focus on behavior and characteristics to observe as indicators of medical risk in initial and renewal applicants for licenses.

Outreach to the Medical Community and to Law Enforcement

Borrowing from the Model Driver Screening and Evaluation Program Guidelines for Motor Vehicle Administrators, we are recommending that an advisory committee be established under the aegis of the NJMVC with representatives from agencies representing law enforcement, health, and aging. This committee would become the nexus for keeping each agency abreast of new and relevant information, changes in policy and legislation, and any other pertinent information. It also becomes the starting point for increasing awareness among

the constituents of each of the agencies. Finally, formalizing the interactions at committee level permits contacts to go on even as personnel change so that outreach and interactions do not depend on informal and personal relationships.

Use expanded driving restrictions

As driver licensing agencies change to meet the needs of the population, agencies have looked to expand their core mission of "promoting motor vehicle safety and to protect the public from unsafe drivers. Agencies are looking to keep people driving safely longer to provide mobility for these citizens and to maintain a good quality of life. One of the ways driver licensing agencies have promoted this goal is to use licensing restrictions for those who are medically at-risk. We recommend NJMVC consider adding some of the more popular ones such as:

- Geographic restrictions
- Time of day restrictions,
- Types of road and highway restrictions

Integration of Accident Reporting System with Reporting to Driver Safety Unit

We recommend the NJMVC explore the implementation of the system that is used in North Carolina which integrates vehicle accident reporting with the driver safety unit and medical review. North Carolina's use of such a system provides the medical review unit with timely information about drivers who are involved in accidents and show indices of behavior that would warrant medical review. Given the rate of accidents on New Jersey's densely traveled roads, such an exploration seems warranted.

Vision Testing

Adding a test of peripheral vision to the acuity test both at initial application and for renewal would capture drivers with potentially degraded visual skills. As New Jersey's population continues to age, we can expect more drivers on the road with visual problems and degenerative visual disorders. Enhanced vision testing would catch more of these drivers.

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Websites for States in the Survey and Available Online Forms:

STATE	WEBSITES	FORMS FOR FAMILY	FORMS FOR PHYSICIANS	CALLS ITSELF
Massachusetts	http://www.mass.gov/rmv	No form given, but info at: http://www.mass.gov/rmv/medical/reporting.htm	Not given	Massachusetts Registry of Motor Vehicles
Maryland	http://mva.state.md.us	Not given	Not given	Maryland Motor Vehicle Administration
Michigan	http://www.michigan.gov/	http://www.michigan.gov/documents/OC-88_16727_7.PDF	http://www.michigan.gov/documents/DI-4P_16784_7.PDF	Michigan Department of State: Driver Assessment and Appeal Division
Wisconsin	http://www.dot.wisconsin.gov	http://www.dot.wisconsin.gov/drivers/forms/mv3141.pdf	Not given, but info available at http://www.dot.wisconsin.gov/drivers/drivers/aging/impaired.htm	Wisconsin Department of Transportation
California	http://www.dmv.ca.gov	http://www.dmv.ca.gov/forms/ds/ds699.pdf	http://www.dmv.ca.gov/forms/ds/ds326.pdf	Department f Mtor Vehicles
Pennsylvania	http://www.dot3.state.pa.us/	Not given	Not given	PA Department of Transportation Bureau of Driver

				Licensing
Virginia	http://www.dmv.virginia.gov/	http://www.dmv.virginia.gov/webdoc/pdf/med3.pdf	http://www.dmv.virginia.gov/webdoc/pdf/med3.pdf same	Virginia Department of Motor Vehicles
Florida	http://www.hsmv.state.fl.us	http://www.hsmv.state.fl.us//forms/72190.html	http://www.hsmv.state.fl.us//forms/72190.html same	Department of Highway Safety and Motor Vehicles
Kansas	http://www.ksrevenue.org/dmv.htm			Kansas Department of revenue
Iowa	http://www.dot.state.ia.us/mvd/ods/index.htm	Not given	Not given	Iowa Department of Transportation
DC	http://dmv.dc.gov	Not given	http://dmv.dc.gov/info/forms/medical_eye_pdf.shtm	Department of Motor Vehicles
North Carolina	http://www.ncdot.org/dmv	Not given	Not given	NCDOT Division of Motor Vehicles
Ohio	http://bmv.ohio.gov	No form given but info at http://bmv.ohio.gov/driver_license/dl_faq.htm	No form given but info at http://bmv.ohio.gov/driver_license/dl_faq.htm	Ohio Bureau of Motor Vehicles
Maine	http://www.maine.gov/	Not given	http://www.maine.gov/sos/bmv/forms/CR24.doc	Dept. of the Secretary of the State: Bureau of Motor Vehicle

Missouri	http://www.dor.mo.gov/mvdl	http://www.dor.mo.gov/mvdl/drivers/forms/4319.pdf	http://www.dor.mo.gov/mvdl/drivers/forms/1528.pdf	MISSOURI DEPARTMENT OF REVENUE DRIVER LICENSE BUREAU,
New Hampshire	http://www.nh.gov/safety/divisions/dmv/index.html	Not given	Not given	New Hampshire department of Safety Division of Motor Vehicles
Okalahoma	http://www.dps.state.ok.us	Not given	Not given	Oklahoma Department of Public Safety: Driver Improvement Division
Oregon	http://www.odot.state.or.us	http://www.odot.state.or.us/forms/dmv/6066.pdf	http://www.odot.state.or.us/forms/dmv/7230.pdf	DEPARTMENT OF TRANSPORTATION DRIVER AND MOTOR VEHICLE SERVICES
Utah	http://driverlicense.utah.gov/	Not given	http://driverlicense.utah.gov/medical/pdf/mform.pdf	Department of Public Safety: Driver License Division

Washington	http://www.dol.wa.gov/driverslicense/	Nothing given	Nothing given	Washington State Department of licensing
Connecticut	http://www.ct.gov/dmv/	Nothing given	http://www.ct.gov/dmv/LIB/dmv/20/29/P-40.pdf	State of Connecticut Department of Motor Vehicles
Texas	http://www.txdps.state.tx.us	Not given	Not given	Texas Department of Public Safety