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The Driver With Dementia: A Survey of Physician Attitudes, Knowledge, and Practice

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Abstract

Background: One of the most difficult issues physicians must address when caring for persons with dementia is fitness to drive. The purpose of this project was to investigate the attitudes, knowledge, and practices of physicians toward drivers with dementia. **Methods:** A questionnaire that obtained perspectives about and experiences with drivers' with dementia was mailed to physicians from North Carolina and South Carolina. **Results:** The sample was comprised of 239 physicians who worked with persons with dementia. Respondents who were aware of the *Physician's Guide to Assessing and Counseling Older Drivers*, had a strong perceived role regarding driving, were older, and believed it was important to address driving were more likely to engage in driving discussions. **Conclusions:** Concerns associated with the driver with dementia have implications for not only patient care but also public safety. We recommend that all physicians be encouraged to address the issue and utilize existing educational materials.

Keywords

Alzheimer's disease, driving, aged, physician's role

Introduction

Physicians providing medical care for their patients with dementia face many challenges. One of the most complicated is the added responsibility of addressing fitness to drive. This paper will report findings of a study that investigated the attitudes, knowledge and practices of physicians regarding drivers with dementia.

Literature Review

Dementia, a syndrome that affects memory, judgment, and psychomotor abilities, is a major health problem facing over five million Americans.[1] Upward of 40% of persons with dementia continue to drive,[2] although research has demonstrated that compared to most of the general driving population, they are at increased risk of unsafe motor vehicle operation.[3-5] Not surprisingly, physicians are likely to become involved in driving discussions and decisions in their work with elderly clients with dementia and their families. In fact, most drivers, their families, and motor vehicle professionals expect physicians to provide support and assistance with driving decisions.[6,7]

The responsibilities and expectations of physicians with regard to the driver with dementia are varied. Some physicians, in addition to assessing cognitive status and reviewing medications during an office visit, will also obtain a history of their patients' driving habits and behaviors.[7,8] The results of the exam may indicate the need for further assessment of driving competency—a referral to a driving rehabilitation specialist or the state department of motor vehicles (DMV).[7,8] When necessary, the physician may facilitate the decision to stop driving. As a respected professional and authority figure, families report that collaboration with physicians can make discussions about driving cessation more palatable than addressing it on their own.[6] However, because of the emotional nature of the topic of driving, many physicians are reluctant to broach the participant with their patients.[9]

Driving skills predictably worsen for persons with dementia.[10] Reported problems include becoming lost in unfamiliar areas,[4,11] having decreased comprehension of traffic signs,[12] incorrect turning,[5] impaired signaling,[13] and lane deviation.[5] Crashes are infrequent although most studies have found that the risk increases for drivers with Alzheimer's Disease

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(AD).[14-17] In response to declining skills, family caregivers report compensatory strategies that include limiting driving to daytime and familiar areas and relying on co-pilots.[6]

While the driver with dementia is recognized as a cause for concern, legal requirements to address cognitively impaired drivers by State Departments of Motor Vehicles (DMV) are not uniform, and subject to interpretation, States such as California, Oregon, and Pennsylvania mandate physicians to report persons with cognitive impairment.[18] Currently, at least 30 other states (including District of Columbia) have some protocol in place that allows physicians, other health care providers, or families to voluntarily report cognitively impaired drivers.[18]

Not surprisingly, physicians are often called upon to render an opinion as to the driving fitness of their patients. Although the extent to which physicians are involved with driving decision-making is uncertain, research shows that many families want physicians to address driving with their relatives and, when necessary, assist with the decision to stop.[6,19] However, when a physician does formally make a recommendation to the state DMV, the issue of confidentiality and liability comes into play. Twenty-eight states in the United States have laws that provide for physician immunity for reporting medically unfit drivers.[20] Physicians face the possibility of being subjected to law suits from not only the patient who was referred to the DMV but also from the DMV itself if they practice in a state that has mandatory reporting laws for impaired drivers. The absence of legal protection may be a deterrent to physician participation in evaluating and reporting drivers.[20] To help physicians address driving issues with their patients, guidelines have been developed. For example, the American Medical Association (AMA)[21] and American Academy of Neurology[22] both provide suggestions for evaluation and counseling patients on driving. However, some of the recommendations, such as office-based assessments are not practical due to time constraints or the need for special training to administer.[20]

The growing number of older drivers with dementia places physicians at the center of a multifaceted problem. There is an increasing awareness both in the scientific literature and popular press that the older driver with dementia poses a problem that needs to be addressed, with the assumption often being that the physician is the person who should take the lead. The goal of this study was to better understand physicians' perspectives on addressing driving with their patients with dementia and their families. This exploratory investigation is an effort to better understand the physicians' roles and responsibilities as they relate to the driver with dementia.

Research Design and Methodology

Sample and Setting

The names of 938 family practitioners, geriatricians, internists, neurologists, ophthalmologists, psychiatrists, and physical medicine and rehabilitation physicians (PMR) licensed in South Carolina (n = 546) and North Carolina (n = 392) were randomly chosen from state licensure lists.

Procedure

The study was approved by the Institutional Review Board which considered it to be minimal risk and the requirement for written consent was waived. Using a modified Dillman[23] approach, physicians were first mailed an informational letter explaining the upcoming questionnaire. Two weeks later, they were sent a self-report questionnaire; a self-addressed, postage-paid envelope; and a cover letter, reiterating the purpose of the study and its voluntary nature. Approximately 3 weeks later, replacement surveys were sent to nonrespondents.

The 65-item questionnaire was designed to obtain physicians' perspectives about and experiences with drivers with dementia. Items were developed from previous research and focus groups conducted with drivers with dementia and their families regarding driving decision-making.[6] After preliminary construction, the questionnaire was reviewed by driving experts to test its validity and its design before the final survey was distributed.

The survey focused on physicians' clinical practices as well as their beliefs and knowledge about driving and dementia. The first item on the survey determined eligibility: "Do you work with older adults with dementia in your practice?" Those answering "no" were instructed to return the remainder of the survey unanswered. All other respondents were asked how many clients with dementia they had seen in the past 6 months and then instructed to continue to the first of 4 sections. Section I included 5 questions on the physicians' interactions with patients with regard to driving and section II asked 5 similar questions about the physicians' interactions with family members with regard to driving. Section III included 45 items on barriers to and level of difficulty with addressing driving situations; likelihood to address driving; knowledge about reporting requirements, familiarity with *AMA Physician's Guide to Assessing and Counseling Older Drivers*, driving behaviors, and crash rates for drivers with dementia; beliefs about professional responsibility for assisting with driving decisions; and educational needs regarding driving and dementia. Section IV included 8 questions on age, gender, ethnicity, medical specialty, years in practice, and driving referrals made in the past 6 months. The responses for most questions were on a 4-point ordinal scale (eg from "very likely" to "very unlikely" or "very responsible" to "not responsible").

Statistical Analysis

Descriptive statistics were used to characterize the demographic data and survey responses. The literature suggests that driving issues should be addressed with formal evaluation and/or discussions with drivers themselves or their family member.[6,24-27] Therefore, the following 3 questions were constructed to form the dependent variable. Respondents who had (1) referred a patient for a driving evaluation in the last 6 months, (2) answered that they were very likely to talk to patients, or (3) to their families about driving issues were grouped together to form a dependent variable measure of

"likelihood to address driving issues." Responses from the survey were grouped into several independent variables hypothesized to be related to likelihood to address driving issues:

- characteristics of physicians (eg, years in practice, specialty, and number of older patients with dementia treated),
- beliefs about physician roles regarding driving decisions and discussions,
- beliefs about nonphysician roles regarding driving decisions and discussions,
- perceived level of difficulty with discussing driving issues with patients and families,
- beliefs about driving rights and privileges,
- beliefs about barriers to evaluating driving fitness,
- disease progression,
- knowledge about dementia and driving (eg, reporting requirements, crash rates, and awareness of the *AMA Physician's Guide to Assessing and Counseling Older Drivers*, and
- perceived need for training and informational materials to better address driving situations.

Bivariate analyses were performed to examine the unadjusted association of each independent variable, including demographic factors, with the dependent measure likelihood to address driving issues. Categorical measures were tested using chi-square analysis, and age was tested with 2-sample *t* test. All of the measures and demographic factors were then tested in a multiple logistic regression to examine the unique effects of these variables upon the likelihood of addressing driving issues. It was hypothesized that physicians would be more likely to address driving (positive association) if perceived as their role, had greater knowledge about dementia's impact on driving, when the patient was more impaired and/or exhibited declining driving skills, and if informational needs about the topic were provided, whereas the likelihood to address driving issues would decrease (negative associations) if seen as another professional's role, if the topic was perceived to be more difficult to address than others, and if barriers existed. Variable selection for the regression model was conducted by always including variables for age, race, and sex, and then retaining all other independent factors that were statistically significantly associated with likelihood to address driving issues with $P < .15$ (forward selection). This criterion was selected in order not to exclude any potentially important factors. Model calibration, or fit, was assessed by the Hosmer-Lemeshow statistic.[28] Values greater than 0.80 are considered excellent.[28] All analyses were conducted using SAS version 9.0.

Results

Sample Characteristics

Three-hundred fifty-one (39.4%) physicians completed and returned the questionnaire. Forty-eight surveys were returned with insufficient addresses. Two-hundred thirty-nine respondents (68.1%) indicated that they worked with older adults with dementia in their practice.

Table 1. Descriptive Characteristics of Sample (N = 239)[a]

Characteristic	Value
Age [mean ± SD, (range)]	46.7 ± 11.8, (28-82)
Male gender [no (%)]	71.4
Race [no (%)]	
White	183 (79.2)
Asian	20 (8.7)
African American	17 (7.4)
Hispanic	4 (1.7)
Other	4 (1.7)
American Indian	3 (1.3)
Specialty [no (%)]	
Family practice	81 (34.0)
Internal Medicine	73 (30.7)
Psychiatry	16 (6.7)
Geriatrics	15 (6.3)
Other	15 (6.3)
Ophthalmology	13 (5.5)
Neurology	8 (3.4)
PMR	3 (1.3)
Years in practice [mean ± SD, (range)]	18.0 (11.3), 0-50
Patients seen last 6 months [mean ± SD, (range)]	59.8 (144.6), 0-1300

Abbreviation: PMR: Physical medicine and rehabilitation physicians.
[a] Sample size varies because some respondents did not answer all questions.

These participants comprised the sample for this study. In general, most were male, white, experienced physicians. Family practitioners represented the largest specialty group (Table 1).

Factors Associated With Likelihood to Address Driving

Respondents were divided between those who addressed driving in their practices (n = 140, 58.6%) and that who did not (n = 99, 41.4%). The dependent variable was comprised of 140 physicians who had made a referral for a driving evaluation in the past 6 months, and 99 and 97 respondents, respectively, who indicated they were very likely to talk with a patient or family member about driving. Factors that may be associated with the decision to address driving were tested in bivariate analysis and the results shown in Table 2. The strongest predictors of the decision to address driving were the perceived role of the physician and years in practice. Among those who see the role of the physician as very important, 70.3% ($P < .001$) addressed the issue. If the respondents had more years in medical practice, they were more likely to address driving issues ($P < .001$). Knowledge regarding the legal requirement to report to the DMV was somewhat associated ($P = .082$). Physicians aware of the *AMA Physician's Guide to Assessing and Counseling Older Drivers* were significantly more likely to address the issue (77.8%, $P = .011$.) Other factors, including physician specialty, were generally not associated ($P > .10$) in unadjusted tests.

Table 2. Factors That May Affect Likelihood to Address Driving Issues

	Addressed Driving Issues n = 140 (58.6%)	Did Not Address Driving n = 99 (41.4%)	*P* Values
Experience of the MD			
Years in practice, mean	20.2	14.9	<0.001
Patients seen, mean	70.8	44.4	0.18
Role of the physician			
Very likely physician role	70.3%	29.7%	<0.001
Perception regarding other's role			
Very likely other's role	59.0%	41.0%	0.83
Difficulty in addressing			
Very much difficulty	55.6%	44.4%	0.46
Disease progression			
Very important	59.7%	40.3%	0.13
Beliefs regarding driving issues			
Rights vs privileges	59.1%	40.9%	0.74
Knowledge about driving issues			
Patient will self-regulate driving	59.3%	40.7%	0.67
Legal requirement to report to DMV	48.1%	51.9%	0.08
Aware of AMA Guidelines	77.8%	22.2%	0.011
Barriers to addressing			
Perceived many barriers	54.4%	45.6%	0.41
Desirability of information to address			
Very desirable	58.4%	41.6%	0.86

Abbreviations: AMA, American Medical Association; DMV, department of motor vehicles.

Table 3. Factors Associated With Likelihood to Address Driving Issues (Adjusted Odds Ratios)[a,b]

Variable	OR (95% CI)	*P* Value
Age	1.052 (1.020, 1.085)	.0013
Race, black	0.968 (0.760, 1.232)	.7890
Gender, female	0.827 (0.401, 1.706)	.6076
Role of the physician	4.974 (2.494, 9.919)	<.0001
Disease progression	6.168 (0.848,44.892)	.0726
Knowledge, self-regulation	1.738 (0.858, 3.520)	.1249
Knowledge, DMV	0.498 (0.238, 1.041)	.0637
Knowledge, AMA Guide	2.529 (1.005, 6.362)	.0488

Abbreviations: AMA, American Medical Association; CI, confidence interval; DMV, department of motor vehicles; OR, odds ratio.
[a] Hosmer-Lemeshow goodness of fit: $\chi^2 = 5.39$, $P = .72$.
[b] C-index: 0.723.

Regression Modeling

The logistic regression model had very good discrimination (c-index = 0.768) and fit (Hosmer-Lemeshow $\chi^2 = 9.54$, $P = .29$). Several factors were independently associated with the likelihood to address driving in adjusted analyses (see Table 3). Older physicians were more likely to address driving than younger physicians, OR (95% CI): 1.05 (1.02, 1.08), that is, about a 5% increase for each year, or 50% increased likelihood for a physician aged 50 years than one aged 40 years. Gender and race were not independently predictive factors. Physicians were especially more likely to address if they had a strong perceived role, 4.9 times more likely. Physicians were also more likely to address driving as the disease progresses, OR (95% CI): 6.2 (0.85, 44.9), if they were aware that drivers with dementia often self-regulate, OR (95% CI): 1.73 (0.86, 3.5), and if they were aware of the *AMA Physician's Guide to Assessing and Counseling Older Drivers*, OR (95% CI): 2.5 (1.0, 6.4). Finally, respondents who knew they were not legally required to report to the DMV tended to be less likely to do so.

Discussion

As leaders in health care, physicians play an important role in driving decision-making and are often expected to advise patients and their families on driving safety. Using a sample of physicians from a variety of specialties, this study investigated physicians' knowledge, beliefs, and practices regarding driving and dementia. We found that respondents who were aware of the *AMA Physician's Guide to Assessing and Counseling Older Drivers*, had a strong perceived role regarding driving, were older, and believed it was important to address driving as the disease progressed were more likely to initiate driving discussions. Physicians who knew that the state they practiced in did not mandate reporting were less likely to approach the topic of driving.

Physicians familiar with the *AMA Physician's Guide to Assessing and Counseling Older Drivers* were significantly more likely to address driving with patients and their families than those unaware of it. The AMA Guidelines, which specifically target physicians, not only provide information on state regulations regarding older drivers but also suggestions for ways to assess fitness to drive and to follow-up once the evaluation has been completed. In addition, the guidelines make recommendations for counseling older drivers who can no longer safely operate a motor vehicle. Greater knowledge about driving-related issues may enhance physicians' confidence, competence, and comfort levels for addressing this challenging topic with patients and their families. In fact, over three quarters of those who did not address driving were unfamiliar with the AMA Guidelines, suggesting that physicians need to be made more aware of this important resource.

Respondents who agreed that physicians should have a strong role in assisting patients and their families deal with driving issues were significantly more likely to address the topic. Believing that they have a professional responsibility for driving decision-making is an important prerequisite to starting a discussion about driving. Our results highlight that physicians have different perceptions regarding their role in driving discussions and consequently behave differently when faced with the issue.

Older physicians were more likely to address driving-related issues than their younger-aged peers. The knowledge and skills accumulated through years of practice may empower older respondents to tackle this difficult topic. Furthermore, older physicians may be somewhat "hardened" to the issue, having had it raised in the past, thus making them more confident in

their ability to address it. Finally, it is possible that more mature respondents are familiar with this issue from personal experience with their own aging parents and grandparents.

Because of the progressive nature of most dementias, driving skills predictably worsen. Drivers are more apt to experience problems behind-the-wheel as deficits become more pronounced. Not surprisingly, physicians, independently or at the urgings of family, assume greater involvement in driving decision-making as the patient's dementia progresses and driving skills deteriorate.

There was a trend that physicians who knew that their state did not mandate reporting of unsafe drivers with dementia were less likely to address driving with patients and their families. Questions about liability may contribute to this behavior. A physician who has concerns that being proactive about their patient may lead to litigation on the part of the driver may choose to take a less-active approach toward the driving issue. However, physicians practicing in a state with mandatory reporting laws may come under scrutiny from the DMV if they have not reported an impaired driver and that driver is subsequently involved in a crash. For example, California law states that physicians may be held liable if they do not report cognitively impaired patients who are subsequently involved in a motor vehicle accident.[29] Facing even the possibility of litigation from their patient, an insurance company, or the DMV, physicians may feel that they are in an impossible position. In addition, physicians may fear that patients will become defensive, alienated, or angry should questions about their driving be raised and negatively affect their professional relationship. Some may contend that continuing the physician-patient relationship is more important than potentially jeopardizing it by addressing this difficult topic. Finally, the added responsibility of having a discussion about driving takes time and raises concerns about reimbursement. Under the coordination of care and counseling billing code,[30]over 50% of the patient's visit must be devoted to a driving discussion in order for the physician to receive reimbursement. Time spent on the telephone or even in person with families, if the patient is not present, is not reimbursed.

Recommendations

Our findings suggest that outreach efforts to inform and educate physicians to driving and dementia issues are needed. While our participants were only queried about their awareness of the *AMA Physician's Guide to Assessing and Counseling Older Drivers*, other resources and approaches can address this complicated and broad topic.

Continuing medical education (CME) related to driving and dementia is recommended. It is important for many physicians to have some understanding of the influence dementia has on driving skills, warning signs of unsafe driving, where to refer patients for evaluation, state reporting laws, and community resources, although the depth and breadth of knowledge depends on the setting of their practice. Continuing medical education offerings can range from large professional meetings, review courses, journals, grand rounds, computed-based training, and teleconferences to individual training.[31] Such venues can provide a rich source of information, covering the latest research on driving risk, assessment, and its effects on quality of life. Furthermore, CME activities that use a variety of instructional methods and give repeated exposure to a topic have been shown to be the most effective for knowledge retention and skills application.[32] A multimedia CME project that focused exclusively on older drivers with dementia was developed by Meuser and colleagues.[33] In a 2-hour workshop format, participants (physicians and other licensed health care professionals) were provided information about driving assessment and strategies to encourage driving cessation. An evaluation of the workshop found participants to have improved knowledge, increased confidence, and made changes in practice behaviors around driving. Web-based trainings could also provide providers with easy access and flexibility to learning more about the topic and opportunities to connect through chats and discussion boards.

In addition to the AMA, other groups have also provided guidelines. Examples include the *Canadian Medical Association's Driver's Guide: Determining Medical Fitness to Operate Motor Vehicles*[34] and the American Academy of Neurology[22] recently updated guidelines. Because of the general nature of these guidelines, physicians are recommended to contact directly their state's licensing authority regarding laws, policies, and reporting requirements. Other sources of information that could be useful to both the physician and their patients include *At the Crossroads: Family Conversations about Alzheimer's Disease, Dementia & Driving*;[35] *We Need to Talk: Family Conversations with Older Drivers*;[36] *You and Your Car: A Guide to Driving Wellness*;[37] *Your Road Ahead: A Guide to Comprehensive Driving Evaluations*;[38] and *Driving Safely While Aging* Gracefully.[39]

Conclusion

The choice between preserving the privilege of an individual to drive and public safety is very challenging. Our study demonstrates that physicians who familiarize themselves with available guidelines and driving information, are older, and believe that they play a strong role in driving discussions are more likely to accept responsibility for addressing the issue of driving, thus providing a critical service to the patient, families, and the state. Their unique position of being a trusted figure of respect and authority enhances the likelihood that their driving recommendations will be considered. Therefore, we recommend a concerted effort to reach out to all physicians who treat patients with dementia in order to provide them with the tools to address this important issue.

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