Driving and Dementia in Older Adults: Implementation and Evaluation of a Continuing Education Project

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**Purpose:** We aimed to develop and evaluate a multimedia workshop curriculum to educate physicians and other healthcare professionals about (a) driving-related assessment in older adults with dementia, and (b) strategies to encourage driving retirement for impaired individuals.

**Design and Methods:** A curriculum developed by the Older Drivers Project of the American Medical Association was expanded for presentation by a multidisciplinary team. One pilot and seven test workshops were offered. A program evaluation method—testing knowledge, confidence, attitudes, and practice behaviors—was employed at four points in time: T1 (Time 1; pretest focusing on the previous 12 months), T2 (Time 2; same-day post-test), T3 (Time 3; post-test at 3 months), and T4 (Time 4; post-test at 12 months). **Results:** At T1, participants (N = 147) expressed high agreement that an assessment of driving ability is an important issue in clinical dementia care, but they reported low knowledge of assessment strategies, resources, and state reporting requirements. Modest gains in knowledge and confidence were demonstrated at both T3 (n = 93) and T4 (n = 63). In addition, the frequency of driving-related practice behaviors (i.e., incorporation of driving-related questions into clinical evaluation, chart documentation, reporting of impaired drivers) had increased significantly by T3 and T4. **Implications:** The results indicate that a focused workshop curriculum, with practical and immediate applications to care, can motivate measurable changes in clinical practice. Once they are informed, health professionals can address issues of driving ability in older patients with dementia and, with the support of available resources, encourage impaired individuals to retire from driving for the safety of everyone on the road.

**Key Words:** Alzheimer’s disease, Cessation, Dementia, Driving, Safety, Retirement

The automobile is a primary mode of transportation for older adults in the United States. The number of licensed drivers over the age of 65 is expected to double to more than 40 million in the next 15 to 20 years (National Highway Traffic Safety Administration, 2001). Unfortunately, many of these drivers will outlive...
their driving ability because of changes in their health and functional status (Dellinger, Sehgal, Sleet, & Barrett-Connor, 2001; Foley, Heimovitz, Guralnik, & Brock, 2002), because of dementia (Cottrell & Wild, 1999; Dubinsky, Stein, & Lyons, 2000; Perkinson et al., 2005), or both. This reality has implications for clinical and community care as well as for the transportation infrastructure on local, state, and national levels. How best to identify and assess those who may be unsafe to drive, to support continued driving when appropriate, to assist older drivers and their families in the retirement process, to provide reasonable alternate transportation options, and to prevent social isolation and depression following driving cessation are all issues of current debate (U.S. Department of Transportation, 2003).

Where dementia is concerned, driving retirement is an inevitable endpoint for which open, active communication and planning among patient, family, and health professionals are essential (Dobbs, Carr, & Morris, 2002). It has been estimated that 4% of current drivers aged 75 years or older have cognitive deficits consistent with dementia (Foley, Masaki, Ross, & White, 2000). Deficits associated with even mild dementia can be sufficient to impair driving ability (Hunt et al., 1997). In light of such information, the American Academy of Neurology (AAN) recommends that clinicians encourage individuals at the mild stage of dementia to stop driving for reasons of personal and public safety (Dubinsky et al., 2000). Other national organizations, such as the American Medical Association (AMA), call on clinicians to assist patients and families with driving-related decisions and, when necessary, provide counsel concerning driving retirement (AMA, 2003; Wang & Carr, 2004).

Despite such recommendations, many clinicians lack the training or knowledge of how to evaluate fitness to drive in older patients (Kelly, Warke, & Steele, 1999; King, Benbow, & Barret, 1992; Marshall & Gilbert, 1999); when to refer for performance-based, on-road evaluation (Valcour, Masaki, & Blanchette, 2002); and how to report to state authorities (Cable, Reisner, Gerges, & Thirumavalavan, 2000). A gap exists between evidence-based guidelines and clinical practice in this area. Focused, targeted education is one strategy to close this gap (Marottoli, 2000).

A recent educational intervention suggests that a continuing-education approach can improve the knowledge that clinicians have and motivate them to incorporate driving-related questions into their clinical dementia practices (Byszewski et al., 2003). Byszewski and colleagues developed the Driving & Dementia Toolkit, distributed it by mail, and evaluated it through pretesting and post-testing in a sample of community-based physicians. Three months after provision of the toolkit, increases were shown in knowledge, reported confidence, and the number of driving-related questions asked of patients and families.

Although the study was interesting, it had a number of limitations. For example, the follow-up period was short (3 months) for measuring enduring practice change. Another limitation was the use of a mailed, self-study toolkit. When surveyed concerning participation in continuing-education programming, physicians and nurses alike shared a strong preference for live, didactic instruction over self-study materials (Goodyear-Smith, Whitehorn, & McCormick, 2003; Meuser Boise, & Morris, 2004; Reddy, Harris, Galle, & Seaquist, 2001). In addition, fitness to drive in aging and dementia is a complicated topic with broad implications for individual functioning and well-being, family interaction, health care delivery, legal and ethical concerns, transportation, and public safety, among others. Coverage of such topics will necessarily differ between self-study and live-instruction approaches, with possible advantages to the latter in the depth of coverage and the acceptability to professional trainees.

### A Continuing Education Intervention

In the current project, we addressed limitations of the self-study approach through the development of a focused, multimedia workshop curriculum, based on accepted science and expert opinion, containing realistic case-study material, inclusive of both basic knowledge and specific recommendations for practice, and targeted to address the needs of both physicians and other health professionals. A focus-group study of dementia and driving stakeholders provided background information on the attitudes and learning needs of different professional groups (see Perkinson et al., 2005).

We formed a multidisciplinary driving and dementia education team (hereafter referred to as the team) to develop a 2-hour workshop curriculum. The team started with a preexisting curriculum from the Older Drivers Project of the AMA (AMA, 2003; Wang & Carr, 2004) which they revised and expanded to focus on the following topics relevant to dementia: (a) balancing public safety versus individual autonomy; (b) dementia diagnosis, screening, and staging of impairment; (c) AMA approach to evaluating the driver with dementia; (d) role of the occupational therapist–driver rehabilitation specialist; (e) counseling the patient and family; (f) legal and ethical issues in driving assessment and retirement.

The team gathered information on state reporting procedures for impaired drivers, identified Internet-based resources, collected local and national referral sources, and created a set of presentation slides. They packaged this information, along with selected sections of the AMA’s Physician’s Guide to Counseling Older Drivers (AMA, 2003) and a full copy of At the Crossroads: A Guide to Alzheimer’s Disease, Dementia, and Driving (The Hartford, 2000; reprinted with permission), to create a single bound reference booklet for provision to workshop participants (view at http://alzheimer.wustl.edu). Workshop content was consistent with consensus guidelines and policy statements of the AMA (Wang & Carr, 2004), the AAN (Dubinsky et al., 2000), and the U.S. Department of Transportation (2003). The team designed the slide content to be supplemented in presentation by team...
members to demonstrate multidisciplinary expertise and interaction. Workshop participants received free copies of all print materials associated with the curriculum.

The team also developed a videotaped case example to highlight aspects of driving evaluation in a mildly demented individual. The 20-minute video traced the experiences of a 72-year-old woman and her caregiver husband over a 2-year period, beginning with an initial discussion of driving-related concerns, following with a formal driving evaluation from an occupational therapist, and finishing with a driving retirement plan (view at http://alzheimer.wustl.edu).

One important theme of the workshop was this: The assessment of driving fitness in aging individuals and those with dementia is still an emerging and evolving field. Although guidelines and tools are available to inform health professionals, there is no absolute right or wrong answer in many cases. A number of factors affect driving safety, only some of which can be predefined or controlled. Performance-based, on-road testing following in-office assessment can provide sound data to guide clinical decision making in a majority of cases. Performance-based testing is expensive, however, and not always available, particularly in rural areas. Given this reality, the AMA Older Drivers Project chose to focus on what a physician or other health professional can accomplish to assess driving fitness during the office visit alone.

With the advice of a large expert panel, the AMA's Older Drivers Project packaged a number of specific, in-office tests correlated with driving fitness as the Assessment of Driving Related Skills (ADReS) and included these in the Physician's Guide (AMA, 2003). Review and training in the administration of the ADReS Battery was an important component of the present workshop curriculum. The ADReS includes the administration of a test of visual praxis (Clock Drawing Test), a test of visual scanning and divided attention (Trail Making Test, Part B), a test of visual acuity (e.g., Snellen Chart), and a test of motor skills (rapid pace walk). We added a screening measure for dementia, the Short Blessed Test (Katzman et al., 1983), for our workshop curriculum. This in-office data, together with pertinent history and information from performance-based testing (if available), allow for reasoned decision making concerning driving fitness.

Another theme of the workshop emphasized the progressive nature of dementing disorders and various decision points. The onset of Alzheimer’s disease is slow and gradual, and deficits can take months or years to progress. Individualized assessment is important to determine the mix of deficits and their severity for the individual driver. Staging of dementia-related impairment is critical. Individuals at the very mild end of the spectrum may drive safely for some period of time (Carr, Duchek, & Morris, 2000), whereas driving is typically precluded at the moderate to severe stages (Dubinsky et al., 2000). In our experience, the gray area for driving fitness is the transition from very mild to mild dementia. Figure 1 depicts a flowchart for decision making with regard to levels of impairment and recommendations from the workshop curriculum as presented in this project. This flowchart is based on both the published guidelines and the clinical experience of team members.

Finally, the workshop emphasized the following idea: It is important for physicians and other health professionals to work together with older drivers with dementia, and their families, from the point of initial assessment through the implementation of a workable alternate transportation plan. Our team included a physician, psychologist, social worker, and occupational therapist–certified driver rehabilitation specialist.

Implementation of the Workshop Series

With assistance from local Alzheimer’s Association chapters, the team sent program announcements to licensed health professionals within a 30- to 50-mile (48- to 80-km) radius of eight cities in Missouri. A local law enforcement official and a clinician known to the team were invited to co-sign the invitation letter, thereby providing local legitimacy to each offering. A police representative attended and provided helpful (and in one case compelling) introductory comments at four sessions. One pilot and seven test sessions were offered. Participants registered by mail, paid a modest registration fee (to limit no-shows), and received a certificate of attendance or 2 hours of continuing education credit. Each workshop was built around a meal at an attractive venue, and attendance was capped to ensure adequate interaction. The total time for each offering was 3 hours: 30 minutes for registration and meal service, 30 minutes for orientation and evaluative paperwork, and 2 hours for curriculum presentation.

Program Evaluation

Of 190 registered attendees at the seven test workshops, 179 completed and submitted at least one evaluation questionnaire. For inclusion in the evaluation sample, participants must have completed the pretest (Time 1) questionnaire and at least one other questionnaire. We obtained a final sample of 147 professionals (see Table 1). We had program evaluation questionnaires administered at four time points: T1 (pretest focusing on the previous 12 months), T2 (Time 2; same-day post-test), T3 (Time 3; post-test at 3 months), and T4 (Time 4; post-test at 12 months). Those interested in reviewing these questionnaires or using them for their own evaluation project may request a copy from the first author (T. Meuser).

We collected the following self-report data: (a) quality indicators, (b) attitudes, (c) confidence, (d) knowledge, and (e) behavioral indicators. Quality indicators consisted of, for example, information regarding the overall quality of the program (1 = poor to 5 = excellent). Attitudes are explained in Table 2 (see A1-3). We measured confidence with these questions: How confident are you in assessing driving-related behaviors and safety concerns with regard to dementia? Intervening to restrict or stop driving exposure in a demented patient?
Evaluate for the Presence of Dementia and Rate Severity

Rate Cognitive-Functional Impairment

Normal Functioning / No Dementia

Very Mild Impairment

Mild Impairment

Moderate Impairment

Severe Impairment

If dementia impairment is very mild to mild:

Individuals in this range may be able to operate a motor vehicle safely as evaluated through on-road testing. The transition from very mild to mild stages of dementia is a critical period for driving-related evaluation. The clinician should obtain a driving history from a reliable informant, such as a close family member, and administer ADReS Battery during the office visit.

If the driving history and ADReS findings suggest current “safe” driving:

Very Mild Dementia: The patient may continue to drive for now. Advise the patient and family that retirement from driving will be required eventually. Conduct a follow-up in-office evaluation (i.e., driving history & ADReS) in 6-12 months or sooner if a driving-related problem is reported.

Mild Dementia: Specialists disagree as to whether in-office assessment is sufficient at this stage or whether on-road testing from an Occupational Therapist, Driver Rehabilitation Specialist, or other specialist, is also necessary. The latter is preferable, but not always possible. If the patient passes in-office and on-road tests (if obtained), and shows reasonable insight into deficits, he or she may continue to drive for now. Educate the patient and family that advancing impairment will likely necessitate retirement from driving in 6-18 months. Recommend common-sense restrictions to reduce accident risk, such as avoiding bad weather, nighttime, and rush hour driving. Recommend that patient and family begin developing an alternate transportation plan. Conduct in-office testing and refer for a follow-up specialist evaluation in 6-12 months.

If dementia impairment is moderate to severe:

Almost all individuals in the moderate to severe stages of dementia lack the cognitive and functional ability to operate a motor vehicle safely. Recommend immediate retirement from driving. Work with patient and family members (and/or non-family caregivers) to develop and implement a plan for driving cessation and alternate transportation. Enlist the assistance and participation of others (e.g., health and social service professionals, law enforcement) to ensure active acceptance of the plan. If the patient continues to drive, report the individual to the State Department of Motor Vehicles for re-testing and possible license revocation.

If any findings suggest “unsafe” driving or if additional confirmation of safety is desired:

Refer the patient for a formal driving evaluation from a specialist. Ideally, this assessment should include both paper and pencil testing and on-road performance evaluation (or a driving simulator component). If a specialist evaluation is not feasible and tangible concerns exist, err on the side of caution and recommend retirement from driving.

PASS: If the patient passes, allow driving with recommended restrictions (if any). Monitor status and refer for a follow-up on-road evaluation in 6-12 months.

FAIL: If the patient fails the specialist evaluation, recommend immediate retirement from driving. Work with the patient and family to develop and implement an alternate transportation plan.

Note: The rating of cognitive-functional impairment is a clinical judgment. A number of staging methods are available. We used the Clinical Dementia Rating (Morris, 1993) in this project.

Figure 1. Decision Points by Dementia Stage Discussed With Workshop Participants
We used a Likert scale from 1 = not confident to 7 = extremely confident (summed for confidence score). Knowledge concerned driving and dementia issues as presented in the workshop. We tested 18-item, T1 and T2, and 6-item, T3 and T4, multiple-choice questionnaires during the first pilot workshop and revised them for use in the seven test sessions. Behavioral indicators are explained in Table 2 (see B1-5).

Results

As shown in Table 2, participants uniformly agreed that driving assessment in dementia is an important clinical practice issue. This was true across professional groups. Yet, when asked about personal knowledge on this topic and awareness of available resources, most participants reported low knowledge and awareness. In terms of clinical practice, the majority (72%) acknowledged discussing driving as a clinical concern with at least one patient during the prior 12 months, but only 33% and 38%, respectively, reported incorporating driving-related questions into their clinical assessment procedures or specifically documenting driving limitations in a patient chart. Nurses and occupational therapists reported more discussions of this issue in the past, but there were no group differences with regard to assessment and documentation. Only 11% of participants reported referring an older patient to the State Department or Division of Motor Vehicles (DMV) for reevaluation, whereas 24% acknowledged making a referral to an occupational therapist or other specialist driving evaluator. A combined indicator of these five behaviors (i.e., a sum of positive responses up to 5 points) yielded a mean score of 1.7 for the whole sample at baseline (see Table 3).

Summary indicators of knowledge, confidence, and practice behavior all showed significant improvement from baseline at both T3 and T4 (see Table 3). Data for individual behaviors are presented in Table 4. Significant changes were evident at both T3 and T4 for documentation, incorporation of questions, and referral to the DMV. Workshop participants who reported changes in practice at 3 months after training continued to report such changes at the 12-month mark. Few participants had been exposed to the At the Crossroads booklet—an excellent resource for both patient and professional education—prior to participation, but more than one third reported using it for patient or family education over the subsequent year.

Finally, the team administered Likert-scale quality indicators immediately after the workshop (T2). Workshop quality, comprehensiveness, and usefulness of handout materials were all rated as excellent (4.7+ of 5 points). Respondents expressed that all objectives were achieved and that the workshop was free of commercial bias.

There was significant overlap between T3 and T4 samples, such that 83% of T4 respondents also had responded at T3. Of the total sample of 147 individuals, 29% responded to T1 and T2 questionnaires only. Comparisons of these individuals with those that completed T3 or T4 (or both) questionnaires showed no differences in reported attitudes, behavioral indicators, or confidence levels at baseline. In addition, these groups gave a similar overall quality rating to the workshop at T2.

Discussion

This project demonstrates that a 2-hour multimedia curriculum, offered in workshop format by a multidisciplinary team, can provide physicians and other health professionals with necessary knowledge, tools, and strategies to enhance dementia care with respect to driving. In addition to high satisfaction with the curriculum, offered in workshop format by a multidisciplinary team, can provide physicians and other health professionals with necessary knowledge, tools, and strategies to enhance dementia care with respect to driving. In addition to high satisfaction with the curriculum and supporting materials, participants reported making changes in practice that were significantly different from baseline a full 12 months later. For example, half of participants reported incorporating driving questions into patient assessment and documenting driving issues in patient charts. Whereas at baseline only 10% had referred an impaired driver to the DMV under the state’s reporting procedure, 27% reported having done so 1 year later. At each location, the team asked participants about state reporting laws for impaired drivers, and the majority were unaware of pertinent procedures. Few acknowledged knowing, for example, that Missouri’s reporting law, active since 1998, grants civil immunity from prosecution when reporting is in good faith. The exchange of this information alone was a substantive benefit of this project.

As is true for many educational intervention projects, this effort had some limitations. Only 63% and 43% of participants, respectively, returned T3 and T4 questionnaires, which indicates a possible response bias.
questionnaires. These subsets of respondents may have been more invested in the training, thus biasing our follow-up data in a positive direction. We found no differences between these respondents and those that completed only T1 or T2 questionnaires on primary variables. There was a trend toward the T3 and T4 respondents being more familiar at baseline with available handout literature on driving and aging, suggesting a possible bias. Another limitation was our lack of a control or comparison group. Finally, our data are all based on self-reports. In recognition of this, we are currently negotiating with Missouri DMV officials to obtain access to reporting records from counties in which training was offered and compare this information with that from similar counties where training was not offered.

Since the inception of Missouri’s voluntary reporting law for medically impaired drivers, only 28% of approximately 7,100 total reports have come from health professionals. Instead, the majority come from law enforcement and license office staff (B. Schuyler, Administrator, Drivers License Bureau, Missouri Department of Revenue, personal communication, 9/05). A significant proportional change in reporting over time as a function of group affiliation would provide quantitative evidence in support of our self-report data in this study.

The implementation of this workshop series was a model for successful collaboration to address local learning needs. The combination of an important topic for learning and extending the prior work of a well-respected national organization (AMA) with location-specific marketing, an attractive venue, and sound partnerships from the local Alzheimer’s Associ-

<table>
<thead>
<tr>
<th>Questionnaire Items</th>
<th>Combined Sample</th>
<th>P</th>
<th>N/PA</th>
<th>OT/PT</th>
<th>SW/P</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1: I view driving and dementia assessment as a ____ clinical practice issue (5 = very important)</td>
<td>4.2 (1.2)</td>
<td>4.2 (1.3)</td>
<td>4.7 (1)</td>
<td>4.3 (1.2)</td>
<td>4.1 (1.1)</td>
<td>ns</td>
</tr>
<tr>
<td>A2: I am ____ concerning driving and dementia assessment (5 = very knowledgeable)</td>
<td>2.2 (0.9)</td>
<td>2.8 (.7)</td>
<td>2.4 (0.9)</td>
<td>2.1 (1)</td>
<td>2.0 (0.9)</td>
<td>P &gt; OT/PT, SW/P*</td>
</tr>
<tr>
<td>A3: I am ____ concerning available resources for driving and dementia assessment and intervention (5 = very aware)</td>
<td>1.9 (1)</td>
<td>1.9 (0.8)</td>
<td>1.7 (0.7)</td>
<td>2.0 (1.2)</td>
<td>1.8 (0.8)</td>
<td>ns</td>
</tr>
<tr>
<td>B1: Discussed driving as a clinical concern with any older patient in past 12 months? (% yes)</td>
<td>72</td>
<td>69</td>
<td>94</td>
<td>78</td>
<td>55</td>
<td>N/PA &gt; SW/P*</td>
</tr>
<tr>
<td>B2: Incorporated driving-related assessment questions into your clinical assessment in the past 12 months? (% yes)</td>
<td>33</td>
<td>38</td>
<td>50</td>
<td>31</td>
<td>27</td>
<td>OT/PT &gt; SW/P*</td>
</tr>
<tr>
<td>B3: Specifically documented driving abilities or limitations in a patient’s chart in the past 12 months? (% yes)</td>
<td>38</td>
<td>46</td>
<td>56</td>
<td>31</td>
<td>38</td>
<td>ns</td>
</tr>
<tr>
<td>B4: Referred an older driver to the Missouri DMV for reevaluation in the past 12 months? (% yes)</td>
<td>11</td>
<td>13</td>
<td>9</td>
<td>6</td>
<td>17</td>
<td>ns</td>
</tr>
<tr>
<td>B5: Referred older patient for other formal (e.g., OT-based) driving assessment in the past 12 months? (% yes)</td>
<td>24</td>
<td>27</td>
<td>6</td>
<td>31</td>
<td>21</td>
<td>OT/PT &gt; N/PA*</td>
</tr>
<tr>
<td>Have you ever used <em>At the Crossroads: A Guide to Alzheimer’s Disease, Dementia and Driving</em> booklet for patient education? (% yes)</td>
<td>7</td>
<td>8</td>
<td>0</td>
<td>7</td>
<td>11</td>
<td>ns</td>
</tr>
</tbody>
</table>

Notes: Items B1–B5 were summed (1 point = yes, 0 = no) to form a composite behavioral change score. The comparison was with a univariate generalized linear model with post hoc Bonferroni or nonparametric Mann–Whitney test (*p < .05; **p < .01). P = physician; N/PA = nurse or physician assistant; OT/PT = occupational or physical therapist; SW/P = social worker or psychologist; SD = standard deviation. For the combined sample, N = 147; P, n = 26 (18%); N/PA, n = 17 (12%); OT/PT, n = 61 (41%); SW/P, n = 43 (29%).
Table 3. Statistical Properties of Combined Summary Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-item knowledge at T1</td>
<td>144</td>
<td>12.5</td>
<td>2.1</td>
</tr>
<tr>
<td>18-item knowledge at T2</td>
<td>136</td>
<td>14.3**</td>
<td>1.8</td>
</tr>
<tr>
<td>6-item knowledge at T1</td>
<td>144</td>
<td>4.3</td>
<td>1.1</td>
</tr>
<tr>
<td>6-item knowledge at T2</td>
<td>136</td>
<td>4.8**</td>
<td>1.1</td>
</tr>
<tr>
<td>5-item behavioral indicator at T1</td>
<td>147</td>
<td>1.7</td>
<td>1.5</td>
</tr>
<tr>
<td>5-item behavioral indicator at T2</td>
<td>147</td>
<td>2.3**</td>
<td>1.7</td>
</tr>
<tr>
<td>5-item behavioral indicator at T4</td>
<td>63</td>
<td>6.4**</td>
<td>1.9</td>
</tr>
<tr>
<td>2-item driving assessment–</td>
<td>122</td>
<td>4.3</td>
<td>1.7</td>
</tr>
<tr>
<td>2-item driving assessment–</td>
<td>93</td>
<td>6.9**</td>
<td>1.7</td>
</tr>
<tr>
<td>2-item driving assessment–</td>
<td>63</td>
<td>6.4**</td>
<td>1.9</td>
</tr>
<tr>
<td>5-item behavioral indicator at T4</td>
<td>63</td>
<td>6.4**</td>
<td>1.9</td>
</tr>
<tr>
<td>6-item knowledge at T4</td>
<td>63</td>
<td>4.9*</td>
<td>1.0</td>
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<tr>
<td>6-item knowledge at T4</td>
<td>136</td>
<td>14.3**</td>
<td>1.8</td>
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<tr>
<td>6-item knowledge at T3</td>
<td>93</td>
<td>4.8**</td>
<td>0.96</td>
</tr>
<tr>
<td>6-item knowledge at T4</td>
<td>63</td>
<td>4.9*</td>
<td>1.0</td>
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<td>147</td>
<td>1.7</td>
<td>1.5</td>
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<tr>
<td>5-item behavioral indicator at T2</td>
<td>147</td>
<td>2.3**</td>
<td>1.7</td>
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<tr>
<td>5-item behavioral indicator at T4</td>
<td>58</td>
<td>2.4**</td>
<td>1.8</td>
</tr>
<tr>
<td>5-item behavioral indicator at T4</td>
<td>58</td>
<td>2.4**</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Notes: T1, T2, T3, T4 = Time 1, 2, 3, and 4, respectively. Paired samples T tests compared T2–T4 scores with T1 baseline scores (\(p < .05; \quad **p < .01\)). The full 18-item knowledge test correlated 0.73** and 0.75** with its 6-item short form at T1 and T2, respectively.

Few differences were evident between professional groups with regard to attitudes and behavior at baseline (T1). Nurses reported discussing driving concerns with patients more often than nonphysician counter-

Table 4. Behavioral Indicators: Percentage of Positive “Yes” Endorsements (T1–T4)

<table>
<thead>
<tr>
<th>Items</th>
<th>Yes at T1: 12 Months Prior (%)</th>
<th>Yes at T3: 3 Months Since (%)</th>
<th>Yes at T4: 12 Months Since (%)</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussed driving as clinical concern?</td>
<td>72</td>
<td>75</td>
<td>74</td>
<td>ns</td>
</tr>
<tr>
<td>Documented driving information in chart?</td>
<td>40</td>
<td>48</td>
<td>51</td>
<td>T3 &gt; T1*</td>
</tr>
<tr>
<td>Incorporated driving questions?</td>
<td>35</td>
<td>66</td>
<td>66</td>
<td>T4 &gt; T1**</td>
</tr>
<tr>
<td>Referred to state DMV for retesting?</td>
<td>10</td>
<td>23</td>
<td>27</td>
<td>T3 &gt; T1**</td>
</tr>
<tr>
<td>Referred for other driving evaluation?</td>
<td>27</td>
<td>23</td>
<td>41</td>
<td>T4 &gt; T1**</td>
</tr>
<tr>
<td>Used At the Crossroads booklet?</td>
<td>7</td>
<td>42</td>
<td>37</td>
<td>T3 &gt; T1*</td>
</tr>
</tbody>
</table>

Notes: T1, T2, T3, T4 = Times 1, 2, 3, and 4, respectively. T1, n = 147; T3, n = 93; T4, n = 63. Nonparametric comparisons are with the Wilcoxon Signed Ranks Test (\(p < .05; \quad **p < .01\)).

Participants agreed that driving is an important clinical issue, but they reported low knowledge and awareness of assessment procedures, available resources, and legal requirements. In other words, the workshop objectives were viewed as pertinent to clinical practice and an important area for new learning. In each location, participants stayed after the presentation to speak with individual presenters, share personal experiences, and discuss local needs. A number of occupational therapist participants, for example, inquired about the process to become a Certified Driver Rehabilitation Specialist or how to set up driving evaluation programs in their areas. Physicians were particularly interested in how to use the state’s voluntary reporting law to initiate reevaluation and possible license revocation.

Few differences were evident between professional groups with regard to attitudes and behavior at baseline (T1). Nurses reported discussing driving concerns with patients more often than nonphysician counter-part professionals (occupational or physical therapists) reported making more referrals for specialist evaluation than nurses did. Although these differences are interesting, it is unclear if they have meaning outside of this sample. Sample-size constraints may have limited our ability to find many differences between groups.

Our findings compare favorably with evaluative results from the Byszewski group’s (2003) toolkit intervention on driving and dementia. We found similar improvements in knowledge, confidence, and behavior. An important difference is that our data extend much further in time, indicating positive effects from learning a full 12 months after intervention. Our participants enjoyed more exposure to driving-related information (slides, resource booklet, videotaped case material) and also had the ability to discuss individual questions with the presenters. These are distinct advantages over the toolkit approach. Toolkits have an advantage with regard to accessibility and dissemination to many more professionals. A comparison of both educational approaches would be an interesting area for further research.

In summary, our experience in this project and evaluative findings suggest a number of implications for education and practice in the area of driving and dementia:

1. Well-designed and implemented multidisciplinary educational interventions can change how health professionals provide care to older adults with dementia with regard to driving.
2. Interest in driving assessment and counseling cuts across professional groups, and all may have roles to play in the assessment, counseling, or retirement process.
3. Along with family members, physicians may carry primary responsibility for care in this area (see Perkinson et al., 2005), but other professionals play important supporting roles: nursing professionals in recognizing problems and serving as important conduits for communication; rehabilitation professionals as specialist evaluators of sensory-cognitive-functional performance with regard to driving fitness; and social service...
professionals as family counselors and coordinators of alternate transportation strategies.

4. It is not just health professionals who can benefit from education on driving. Representatives of law enforcement, the clergy, social service agencies, and others were interested in our workshops as well. Law enforcement agencies, social service organizations, churches, and religious organizations may be worthy targets for education in this area. There are more stakeholders in this issue than just health professionals, family members, and patients.

5. Knowledge of local resources and state reporting rules was quite low in our sample. On an anecdotal level, many participants reported confusion about reporting procedures, fear of being prosecuted for breach of confidentiality, fear of harming the provider–patient relationship, and other concerns. These are important topics for both education and research in the future.

References


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