ORIGINAL RESEARCH

Determining Fitness to Drive in Older Persons: A Survey of Medical and Surgical Specialists

Shawn Marshall, MD, MSc, FRCPC[1,2,3,4], Erin M. Demmings, MD, MEd[1], Andrew Woolnough, MSc[1,3], Danish Salim, BSc[1], Malcolm Man-Son-Hing, MD, MSc, FRCPC[1,2,4,5]

[1]CIHR Team on Older Person Driving (Candrive II); [2]Bruyère Research Institute, Bruyère Continuing Care; [3]The Ottawa Hospital Rehabilitation Centre; [4]Ottawa Hospital Research Institute; and [5]Geriatric Assessment Unit, Ottawa Hospital, Ottawa, ON

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ABSTRACT

Background

Many specialists encounter issues related to fitness to drive in their practices. We sought to determine the attitudes and practices of Canadian specialists regarding the assessment of medical fitness to drive in older persons.

Methods

We present data from a postal survey of 842 physicians certified in cardiology, endocrinology, geriatric medicine, neurology, neurosurgery, orthopaedic surgery, physical medicine and rehabilitation, or rheumatology regarding their attitudes and practices relating to the assessment of their patients' fitness to drive.

Results

Overall response rate was 55.1%. Except for rheumatologists (18%), most specialists reported that fitness to drive is an important issue in their practices (68%). Confidence in the ability to assess fitness to drive was low (33%), and the majority (73%) felt they would benefit from further education. There were significant differences ($p < .05$) in responses between physicians from different provinces, owing to reporting policies. More geriatricians than neurologists report drivers with mild Alzheimer disease to authorities regardless of reporting policy (mandatory 90.7% vs. 56.0%; non-mandatory 84.1% vs. 40.0%) ($p < .05$).

Conclusions

Canadian specialists accept the responsibility of determining their patients' fitness to drive but are not fully confident in their ability to do so. However, they are receptive to education to improve their skills in this area.

Key words: older drivers, medical fitness to drive, survey, physician's role

INTRODUCTION

For many older persons, driving an automobile is the preferred and often essentially the only means of transportation available.[1-4] The ability to drive allows the independent mobility needed to pursue social and recreational activities. The loss of driving privileges can have devastating psychosocial consequences leading to depression,[5-9] social isolation, and increased stress on family and friends.[1,4,10] However, motor vehicle crashes are the second most common means of traumatic injury in older persons.[11] Of any age group, apart from teenaged drivers, those over the age of 70 years have the highest rate of crashes per mile driven.[12]

Physicians often play a key role in evaluating older people's fitness to drive. In many North American jurisdictions, including California and 7 of the 10 Canadian provinces and 6 of the 50 American states,[13] it is mandatory for physicians (and other health professionals) to report to licensing authorities persons whom they deem medically unfit to drive. However, physicians report that they have little training in this area and are ill equipped to do so.[14-17] This situation has occurred despite the wide availability of publications from the American Medical Association[18] and Canadian Medical Association[19] that provide guidance on assessing medical fitness to drive.

Recent surveys have reported on the attitudes and practices of Canadian family physicians[17] and psychiatrists[20] towards the assessment of older people's medical fitness to drive. Among their main findings is that these physician groups often lacked confidence in their ability to assess fitness to drive. Another study surveyed physicians regarding dementia and driving safety, and less than 60% of physicians addressed driving issues with their patients. The factors associated with addressing driving issues were awareness of the American Medical Association guidelines and years in

practice (more experienced physicians had greater perceived accountability for driving safety).[21] Given that many other specialist physicians also encounter issues related to fitness to drive in their practices, we conducted a survey to determine the attitudes and practices of physicians from eight different medical and surgical specialties.

METHODS

The study protocol was approved by the Research Ethics Board of Bruyère Continuing Care, Ottawa, Canada. A national, cross-sectional mail survey was conducted in a random sample of Canadian medical specialists in whom driving issues were deemed relevant to their practice. The 10 specialty groups surveyed were cardiology, endocrinology, general surgery, geriatric medicine, internal medicine, neurology, neurosurgery, orthopaedic surgery, physical medicine and rehabilitation (physiatrists), and rheumatology. These specialties were chosen based on likelihood of needing to make decisions regarding medical fitness to drive compared to other specialties (e.g., dermatology, obstetrics and gynecology); ophthalmology was not included given the well-described vision standards for driving. A computer-generated random sample of 200 physicians from each group was identified from the 2004 Canadian Medical Directory.[22] To survey physicians in the disciplines of general internal medicine and general surgery, only those who were singly listed in the Canadian Medical Directory as general internists and general surgeons and were not listed as holding other subspecialty certifications were included. Fewer than 200 geriatricians were listed, and so all in this group were surveyed. Physicians who reported that their primary language is French or had practice addresses in paediatric hospitals were excluded.

Jang *et al*.[17] examined the attitudes and practices of family physicians regarding fitness-to-drive issues in older persons. Using their questionnaire as a template, we developed a questionnaire exploring the attitudes and practices of Canadian specialists towards determining their patients' fitness to drive (Appendix A). Additional questions of particular relevance to individual specialties were added (Appendix B). Therefore, individual surveys included a core set of questions asked of all respondents and a number of specialty-specific questions. Pilot testing of the survey was performed with one or two representatives from each of the 10 specialties, and the survey was revised based on their feedback.

The survey commenced by asking whether the physician was in active clinical practice. Those answering "no" were asked to return a blank survey and the identifying coded postcard. The survey contained five main sections: attitudes towards driving assessments and reporting; practices and activities pertaining to driving assessments; knowledge of jurisdictional driving policies and programs; the demographic and practice characteristics of respondents; and a comments section. A five-point Likert response scale was used for most questions (e.g., from "strongly agree" to "strongly disagree", and "always" to "never").

Ten days before the initial mail-out, a pre-notice postcard was sent to prospective respondents. Mail-out of the questionnaire commenced in May 2005, and to preserve anonymity a coded postcard to be mailed back separately from the completed anonymous questionnaire was included. This allowed the research team to identify responders but not their responses and target non-responders in follow-up mail-outs. Also included in the mail-out package was a cover letter on University of Ottawa letterhead hand signed by at least one colleague in the specialty of the prospective respondent and a stamped self-addressed return envelope. To maximize response rates, non-responders were sent second (October 2005) and, if needed, third (April 2006) questionnaire packages.[23,24]

The sample size of 200 physicians per specialty group was based on the number of available Canadian physicians to survey in order to have equal representation from each specialty. Geriatric medicine had only 196 physicians registered in 2004, and other specialties such as rheumatology and neurosurgery had 200 to 300 specialists registered. Response rates were calculated as a percentage based on specialty groups and total physicians.

SPSS version 19.0 (SPSS Inc. Chicago, Il) was used for descriptive statistics, as well as analysis of categorical data, which were analyzed using the weighted Pearson chi-square to compare differences between reporting provinces and specialties. Significance was determined at $p < .05$.

RESULTS

Response Rates

There were poor response rates for internal medicine (22%) and general surgery (28%) because many respondents stated that while they were certified as general internists or surgeons, their practices were primarily of a subspecialty nature. Given the unacceptably low response rates, these two groups were excluded from further analysis. The overall response rate for the remaining eight groups was 55.1% and varied from 47.4% (cardiologists) to 73.3% (physiatrists).

Respondent Demographics

Table 1 shows the characteristics of the respondents by medical specialty. There are some notable and anticipated gender differences across specialties (e.g., 57% of geriatricians and 3% of neurosurgeons were female). With the exception of Quebec, the response rate by province reflected provincial populations.

Attitudes

Table 2 shows the responses reported by specialty regarding attitudes towards assessment of fitness to drive. Most of the

TABLE 1.
Characteristics of respondents by specialty

	% of Respondents								
	Cardiology	*Endocrinology*	*Geriatric Medicine*	*Neurology*	*Neurosurgery*	*Orthopaedic Surgery*	*Physical Medicine and Rehabilitation*	*Rheumatology*	*Total Average*
Response rate, %	47.4	41.4	73.3	53.6	52.1	44.4	73.3	57.0	55.1
Female gender	*n* = 89	*n* = 79	*n* = 133	*n* = 104	*n* = 97	*n* = 81	*n* = 138	*n* = 105	*n* = 826
	10.1	40.5	57.1	22.1	3.1	7.4	33.3	48.6	29.77
Age group	*n* = 89	*n* = 79	*n* = 133	*n* = 103	*n* = 97	*n* = 80	*n* = 139	*n* = 104	*n* = 824
20–30	0.0	2.5	0.0	0.0	0.0	0.0	0.7	1.0	0.48
31–40	22.5	22.8	35.3	20.4	28.9	23.8	24.5	28.8	26.34
41–50	28.1	36.7	43.6	34.0	25.8	33.8	38.1	39.4	35.56
51–60	34.8	22.8	15.0	29.1	27.8	23.8	24.5	23.1	24.63
>60	14.6	15.2	6.0	16.5	17.5	18.8	12.2	7.7	12.98
Years in practice	*n* = 88	*n* = 78	*n* = 133	*n* = 101	*n* = 97	*n* = 78	*n* = 135	*n* = 104	*n* = 814
<10	25.0	34.6	54.1	31.7	40.2	37.2	37.0	41.3	38.56
11–20	37.5	35.9	28.6	31.7	27.8	21.8	40.0	36.5	32.80
21–30	31.8	17.9	14.3	23.8	22.7	28.2	14.8	20.2	20.89
31–40	4.5	7.7	3.0	11.9	8.2	12.8	5.9	1.9	6.62
>40	1.1	3.8	0.0	1.0	1.0	0.0	2.2	0.0	1.09
Province of practice	*n* = 87	*n* = 79	*n* = 131	*n* = 96	*n* = 97	*n* = 78	*n* = 132	*n* = 103	*n* = 803
British Columbia	12.6	11.4	16.8	19.8	15.5	14.1	15.9	11.7	14.95
Prairie province	14.9	12.7	14.5	22.9	23.7	19.2	22.0	13.6	18.06
Alberta	12.6	8.9	8.4	12.5	14.4	11.5	13.6	7.8	11.20
Saskatchewan	1.1	0.0	1.5	4.2	5.2	1.3	4.5	2.9	2.73
Manitoba	1.1	3.8	4.6	6.3	4.1	6.4	3.8	2.9	4.11
Ontario	54.0	53.2	41.2	44.8	35.1	47.4	47.0	53.4	46.58
Quebec	6.9	17.7	20.6	3.1	12.4	7.7	3.8	11.7	10.59
Atlantic province	11.5	5.1	6.9	9.4	13.4	11.5	11.4	8.7	9.72
New Brunswick	1.1	0.0	1.5	0.0	6.2	5.1	5.3	2.9	2.85
Newfoundland and Labrador	0.0	1.3	0.0	1.0	1.0	3.8	0.8	1.0	1.00
Nova Scotia	10.3	3.8	5.3	5.2	6.2	2.6	4.5	4.9	5.35
Prince Edward Island	0.0	0.0	0.0	3.1	0.0	0.0	0.8	0.0	0.50
Mandatory reporting province	70.1	69.9	65.6	79.2	67.0	78.2	78.8	74.8	72.7
Non-mandatory reporting province	29.9	30.3	34.4	20.8	33.0	23.1	22.0	25.2	27.3
Size of practice community	*n* = 89	*n* = 78	*n* = 131	*n* = 104	*n* = 97	*n* = 80	*n* = 136	*n* = 105	*n* = 820
<10,000	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.0	0.25
10,000–50,000	2.2	2.6	0.8	3.8	0.0	8.8	4.4	4.8	3.30
50,001–100,000	3.4	3.8	9.2	4.8	3.1	15.0	9.6	9.5	7.45
100,001–500,000	39.3	28.2	32.8	38.5	34.0	33.8	32.4	30.5	33.67
>500,000	55.1	64.1	57.3	52.9	62.9	42.5	53.7	54.3	55.39

TABLE 2.
Attitudes of respondents toward assessing fitness to drive by specialty

	% of Respondents[a]								
	Cardiologists (n = 90)	*Endocrinologists* (n = 79)	*Geriatricians* (n = 137)	*Neurologists* (n = 104)	*Neurosurgeons* (n = 97)	*Orthopaedic Surgeons* (n = 84)	*Physiatrists* (n = 140)	*Rheumatologists* (n = 110)	*Total* (n = 841)
Assessing the fitness to drive of patients is an important issue in my practice	71.1	71.8	95.6	89.3	67.0	41.7	74.5	18.2	67.6
I am confident in my ability to evaluate the driving fitness of my patients	54.4	35.9	30.4	27.2	37.1	28.6	45.7	4.6	32.8
Physicians are the most qualified professionals to identify older persons who are unsafe to drive	41.6	32.1	11.8	20.2	29.9	35.7	27.9	24.6	26.8
A clinical screening instrument that helps identify drivers at increased risk for crashes would be useful to my practice	85.4	92.3	91.2	90.3	NA	NA	NA	84.5	88.8
I would benefit from further education about the evaluation of patients' fitness to drive	77.5	75.6	78.7	70.2	72.9	45.8	74.6	78.9	72.6
Physicians should be legally required to report unsafe drivers to the authorities	59.6	66.7	68.4	51.9	69.1	45.2	79.7	56.1	63.3
Physicians face a conflict of interest (patient confidentiality vs. public safety) when they are required to report their patients	66.7	78.2	64.7	62.5	54.6	69.9	59.0	77.1	65.9
Reporting patients whom I consider unsafe drivers negatively impacts on the physician–patient relationship	73.3	75.6	83.7	66.4	50.5	73.5	64.7	74.1	70.4
Revoking patient's licence often leads to negative consequences for the patient	82.2	83.3	74.3	79.8	73.2	65.1	72.7	78.0	75.8
Revoking patient's licence often leads to negative consequences for the patient's family	75.6	71.8	71.3	68.3	69.1	62.7	59.4	73.4	68.6
The provincial Department of Motor Vehicles evaluates potentially unsafe drivers in a timely fashion	4.4	10.3	11.0	17.3	7.2	3.6	10.1	4.6	8.8

[a]Percentage who strongly agreed or agreed.
NA = respondents were not asked that particular question.

medical specialists (68%) reported that fitness to drive is an important issue in their practice, except for rheumatologists (18%). Among the surgical specialties, assessment of fitness to drive is an important part of practice for most neurosurgeons (67%) but fewer orthopaedic surgeons (42%). Regardless of the perceived importance of assessing fitness to drive, confidence in the ability to do so was low (33%) across all specialties surveyed, with cardiologists (54%) having the most confidence in their abilities.

Most respondents (63%) across all specialties felt that physicians should legally be required to report unsafe drivers to authorities. However, less than half of respondents (27%) in all specialties did not feel that physicians are the most qualified discipline to do so, and most (73%) felt they would benefit from education in this area.

Most respondents across all specialties felt that assessing fitness to drive had negative consequences for patients (76%) and their families (69%), as well being detrimental

to the patient–physician relationship (70%). Most (66%) felt that physicians are in a conflict of interest situation (patient confidentiality versus public safety) when assessing fitness to drive. Few respondents (9%) felt that authorities evaluate unsafe drivers in a timely manner, and most (89%) felt that a clinical screening tool designed to assess fitness to drive in the office setting is needed.

Provinces With and Without Mandatory Reporting

Most physicians (87%) from mandatory reporting provinces were aware of the requirements for reporting unsafe drivers to licensing authorities. Overall, 73% of these physicians knew the proper steps to take to report unsafe drivers; rates were lower for orthopaedic surgeons (31%) and rheumatologists (35%). Only 26% clearly understand the procedures for evaluating unsafe older drivers at the provincial department of motor vehicles.

The respondents' practice patterns correlated well with their perceived importance of the issue to their practices (Table 3). Most respondents (86% mandatory and 82% non-mandatory) indicated that they believed their patients adhered to their driving recommendations; no differences were identified between specialists in mandatory reporting provinces versus those in non-mandatory reporting provinces. Significantly more physicians in mandatory reporting provinces than in non-mandatory reporting provinces report patients whom they consider unsafe to drive (67% vs. 41%) or whose ability to drive safely is questionable (63% vs. 49%) ($p < .05$). Geriatricians (93% mandatory and 86% non-mandatory) and neurologists (85% mandatory and 63% non-mandatory) had the highest rates of reporting patients in the latter category, while cardiologists (44% mandatory, 19% non-mandatory) had low rates of such reporting. More physicians from mandatory reporting provinces reported feeling unduly pressured by patients to reconsider the decision (65% mandatory vs. 53% non-mandatory; $p = .02$). Similar percentages were found regarding undue pressure by family members, but no significant differences were identified between province type. Overall, 6% to 57% of respondents reported that patients had left their practice over driving issues; this was reported by significantly more respondents from mandatory provinces (29%) than non-mandatory provinces (22%) ($p = .043$).

Specialty-specific Questions

Dementia

Geriatricians and neurologists generally believe (range 72–93%) that older persons should have their driving ability assessed more frequently than middle-aged persons (Table 4). A minority of geriatricians and neurologists felt that all persons with mild dementia are unsafe to drive; however, significantly more neurologists than geriatricians ($p < .05$) held this view. A significantly higher percentage of geriatricians than neurologists ($p < .05$) report drivers with mild to severe Alzheimer disease or vascular disease. More neurologists from mandatory reporting provinces than from non-mandatory reporting provinces indicated that they report drivers with moderate to severe Alzheimer disease or vascular disease (~ 86% vs. ~ 50–55%).

Lower Leg Arthroplasty

Most orthopaedic surgeons (> 61%) indicated that they discussed driving issues with patients after a right lower leg arthroplasty (Table 5). The rate for physiatrists was significantly lower (31%; $p < .05$). None of the orthopaedic surgeons from mandatory reporting provinces and 5.6% of those from non-mandatory reporting provinces indicated that they report these patients to the authorities.

Postoperative Issues

Most neurosurgeons (83–90%) felt that patients with postoperative pain should resume driving based on their own judgement (Table 5), whereas 59–65% of orthopaedic surgeons held this view. The majority of neurosurgeons (83–94%) indicated that they counsel patients experiencing postoperative confusion or delirium on driving, compared to 22–33% of orthopaedic surgeons ($p < .05$). There were no significant differences between specialists from mandatory and non-mandatory reporting provinces.

DISCUSSION

In many jurisdictions, physicians, including those in medical and surgical specialties, are legally obligated to report patients under their care whom they deem medically unfit to drive. We found that most specialists accept this responsibility but do not feel confident is doing so and would benefit from further education regarding the evaluation of medical fitness to drive. As would be expected, there was a strong correlation between the perceived importance of assessing medical fitness to drive and the survey responses. For example, rheumatologists reported that driving assessment was not an important part of their practice, and they had the least confidence in their ability to assess fitness to drive. This study shows that there is a gap between the perceived responsibilities of Canadian specialist physicians in the assessment of their patients' fitness to drive and the confidence and expertise to do so.

Our results are consistent with those of similar studies performed in other Canadian physician groups. Thirty percent of family physicians[17] and 26% of psychiatrists[20] reported being confident in their ability to assess their patients' fitness to drive, compared with 33% of specialists in our study. Similarly, 27% of family physicians[17] and 27% of our respondents felt that physicians are the most qualified group to assess fitness to drive. In our study, the specialty with the highest confidence rating (54%) was cardiology. This is likely due to publications by the Canadian Cardiovascular Society[25] and distribution of a rigorously derived, explicit set of driving guidelines for patients with cardiovascular disease. It also

TABLE 3.
Practices of respondents regarding assessing fitness to drive by specialty

	Province Type	*% of Respondents*[a]									
		Cardiologists	*Endocrinologists*	*Geriatricians*	*Neurologists*	*Neurosurgeons*	*Orthopaedic Surgeons*	*Physiatrists*	*Rheumatologists*	*Total*	
	Mandatory Reporting	n = *61*	n = *55*	n = *86*	n = *76*	n = *65*	n = *61*	n = *104*	n = *77*	n = *585*	
	Non-mandatory Reporting	n = *26*	n = *24*	n = *45*	n = *20*	n = *32*	n = *18*	n = *29*	n = *26*	n = *220*	p v*alue*
I use the CMA handbook when assessing my patients' fitness to drive	Mandatory	37.7	40.0	58.1	56.0	47.7	11.7	66.3	13.2	43.5	>0.05
	Non-mandatory	38.5	37.5	43.2	75.0	41.9	11.1	48.3	3.8	38.1	
Patients whom I deem are unsafe are adherent to my recommendations	Mandatory	95.1	78.2	96.5	95.9	95.3	69.5	89.2	60.8	85.6	>0.05
	Non-mandatory	88.0	65.2	97.7	100.0	90.3	55.6	82.1	61.5	82.3	
I report patients when I am uncertain of their ability to drive safely	Mandatory	44.3	67.3	93.0	85.1	53.8	15.0	81.6	36.4	62.5	0.002
	Non-mandatory	19.2	37.5	86.4	63.2	41.9	16.7	62.1	30.8	49.1	
I report patients who are unsafe and who refuse to stop	Mandatory	78.7	83.6	97.7	93.3	75.4	33.9	91.3	47.4	76.9	0.004
	Non-mandatory	46.2	70.8	100.0	100.0	61.3	16.7	79.3	26.9	66.6	
I report patients who are unsafe and who agree to stop	Mandatory	68.9	72.7	88.4	78.7	66.2	20.0	79.6	43.4	66.5	<0.001
	Non-mandatory	11.5	29.2	84.1	40.0	35.5	16.7	48.3	23.1	41.0	
I counsel patients whom I report about alternative modes of transportation	Mandatory	47.5	65.5	94.2	65.3	38.5	25.0	82.5	31.2	59.1	>0.05
	Non-mandatory	64.0	58.3	97.7	85.0	48.4	17.6	72.4	26.9	62.8	
I have felt unduly pressured by patients to reconsider my decision	Mandatory	72.1	69.1	86.0	85.3	45.3	30.0	71.2	45.5	64.5	0.02
	Non-mandatory	61.5	66.7	63.6	75.0	45.2	5.6	55.2	38.5	53.2	
I have felt unduly pressured by family members to reconsider my decision	Mandatory	55.7	56.4	72.1	66.7	30.8	25.0	47.1	37.7	49.7	>0.05
	Non-mandatory	50.0	41.7	61.4	60.0	32.3	0.0	48.3	23.1	42.2	
Patients whom I have reported have left my practice	Mandatory	24.6	42.6	57.0	43.2	6.3	10.0	23.8	21.1	29.3	0.043
	Non-mandatory	19.2	25.0	36.4	30.0	6.5	0.0	24.1	23.1	22.0	
I am aware of patients with relevant conditions	Mandatory	65.6	89.1	95.3	98.7	87.7	65.0	93.1	68.8	84.2	>0.05
	Non-mandatory	84.6	87.5	95.5	100.0	87.1	33.3	71.4	76.9	82.0	
I refer patients for a road test when I am unsure of their ability to drive safely	Mandatory	6.6	14.5	96.5	85.5	NA	NA	92.3	20.8	59.3	>0.05
	Non-mandatory	3.8	29.2	95.5	90.0	NA	NA	86.2	42.3	47.7	

[a]Percentage who responded always, often, or sometimes.
NA = respondents were not asked that particular question.

TABLE 4.
Attitudes and practices of geriatricians and neurologists regarding assessing fitness to drive in patients with cognitive difficulties/dementia

	% of Respondents[a]						
	Geriatricians			*Neurologists*			
	Mandatory Reporting (n = 86)	*Non-mandatory Reporting (n = 45)*	p *value*	*Mandatory Reporting (n = 76)*	*Non-mandatory Reporting (n = 20)*	p *value*	p *value*[b]
Physicians should assess the driving ability of their older drivers more frequently than their middle-aged drivers	86.9	93.3	>0.05	72.0	75.0	>0.05	>0.05
All persons with mild dementia are unsafe to drive	9.3	11.1	>0.05	12.3	36.8	<0.05	<0.001
For every mile driven, older drivers are at significantly higher risk of crashing than middle-aged drivers	77.6	84.4	>0.05	58.7	55.0	>0.05	>0.05
Overall, patients with dementia who drive with a "co-pilot" are safer than those who do not	24.7	29.5	>0.05	44.7	30.0	>0.05	>0.05
I report patients with active driver's licences to the provincial Department of Motor Vehicles who have:							
Mild cognitive impairment	42.2	24.4	>0.05	28.0	30.0	>0.05	>0.05
Mild Alzheimer disease	90.7	84.1	>0.05	56.0	40.0	>0.05	<0.001
Mild vascular dementia	90.6	88.9	>0.05	54.7	40.0	>0.05	<0.001
Moderate Alzheimer disease	97.7	97.8	>0.05	85.3	50.0	<0.05	<0.001
Moderate vascular disease	97.7	97.8	>0.05	86.7	50.0	<0.05	<0.001
Severe Alzheimer disease	95.3	93.3	>0.05	85.3	55.0	<0.05	0.001
Severe vascular dementia	95.6	95.6	>0.05	86.7	55.0	<0.05	0.001

[a]Percentage who strongly agreed or agreed for attitudes, and who responded always, often, or sometimes for practices.
[b]Difference between all geriatricians and all neurologists.

likely relates to the context of reporting—cardiologists focus on the likelihood of acute incapacitation from a cardiac event for which risk must be determined, whereas other specialists may tend to focus on chronic conditions, such as cognition impairment or hemiparesis, that may functionally impair driving and that could potentially be evaluated through direct observation of ability. Seventy percent of our respondents felt that reporting patients to authorities negatively affects the patient–physician relationship. This is in keeping with rates for Canadian family physicians (78%[17]) and psychiatrists (67%[20]). Overall, 73% of our respondents, 88% of Canadian family physicians,[17] and 83% of Canadian psychiatrists[20] reported that they would benefit from further education on assessing medical fitness to drive, as did 80% of Scandinavian physicians.[26] Therefore, it is likely that the issues faced by physicians regarding the assessment of fitness to drive exist, not only across specialty and practice but also internationally.

A high percentage of specialists (87%) from provinces with mandatory reporting requirements were aware of this responsibility. In contrast, 9–30% of respondents in provinces with discretionary requirements incorrectly stated that the reporting of unsafe drivers was mandatory in their jurisdiction. Similar results were found in a survey of American geriatricians;[27] a much higher percentage of those practising in California (where reporting of patients with moderate to severe Alzheimer disease is mandatory) were aware of the reporting requirements, compared with those practising in states with discretionary reporting. It remains controversial whether the legal requirement of mandatory reporting of unsafe drivers helps or hinders their safety.[28] Mandatory reporting has the potential to facilitate the removal of unsafe drivers from the road, but also creates a disincentive for physicians to pursue driving assessments,[17] possibly owing to factors such as not having flexibility to interpret driving assessment results and wishing to act in the fairest manner for their patient.

In our study, there was a correlation between the frequency/importance of evaluating patients with diseases that

TABLE 5.
Attitudes and practices of orthopaedic surgeons and physiatrists when assessing fitness to drive in patients with a recent lower leg arthroplasty, and attitudes and practices of orthopaedic surgeons and neurosurgeons when assessing fitness to drive immediately after surgery

	% of Respondents[a]								
	Orthopaedic Surgeons		*Physiatrists*		*Neurosurgeons*		*Orthopaedic Surgeons*		
	Mandatory (n = 61)	*Non-mandatory (n = 18)*	*Mandatory (n = 104)*	*Non-mandatory (n = 29)*	*Mandatory (n = 65)*	*Non-mandatory (n = 32)*	*Mandatory (n = 61)*	*Non-mandatory (n = 18)*	p *value*
Following a right total hip arthroplasty, I discuss the issue of driving with patients	73.3	66.7	33.0	24.1					<0.001[b]
Following a right total knee arthroplasty, I discuss the issue of driving with patients	73.3	61.1	30.8	24.1					<0.001[b]
I report patients with right hip arthroplasty to the provincial Department of Motor Vehicles	0.0	5.6	7.8	6.9					>0.05[b]
I report patients with right knee arthroplasty to the provincial Department of Motor Vehicles	0.0	5.6	6.8	6.9					>0.05[b]
My recommendations concerning driving are different if the total hip or knee arthroplasty is on the left side versus the right side	50.0	58.8	32.4	31.0					<0.05[b]
I counsel patients experiencing postoperative pain on the issues of driving					52.3	67.7	67.8	72.2	0.087[c]
Patients with postoperative pain should resume driving based on their own judgement					82.8	90.3	65.0	58.8	0.005[c]
I counsel patients experiencing postoperative confusion/delirium on the issues of driving					82.8	93.5	33.3	22.2	<0.001[c]

[a]Percentage who strongly agreed or agreed for attitudes, and who responded always, often, or sometimes for practices.
[b]Difference between orthopaedic surgeons and physiatrists.
[c]Difference between neurosurgeons and orthopaedic surgeons.

impair cognition/consciousness and the perceived importance of assessing fitness to drive within one's practice. Almost all geriatricians and neurologists (who routinely evaluate disorders such as dementia and seizures) reported that assessing fitness to drive is an important aspect of their practice, whereas few rheumatologists (who are much more likely to manage conditions that physically, rather than cognitively, affect driving ability) did so. Between these two extremes were endocrinologists and cardiologists, who encounter conditions that sporadically affect consciousness (e.g., cardiac arrhythmias and hypoglycaemia) more frequently than rheumatologists, but not as frequently as neurologists and geriatricians. The correlation held true among the surgical specialties, with more neurosurgeons than orthopaedic surgeons assigning importance to the evaluation of fitness to drive. It appears that specialists are more attuned to the cognitive factors, rather than the physical factors, that are important for driving. This approach may make clinical sense, as physician intervention is probably more often required with drivers who have cognitive problems because these patients often lack insight into their deficits and cannot self-regulate their driving exposure as easily as those with physical limitations. However, from a Canadian medicolegal perspective, this may be a misperception, as there is precedence for physicians' being found legally liable for failing to report patients with physical contraindications (e.g., severe cervical spondylopathy[29,30]) to driving.

With regard to the issue of whether to promote the independence of individuals versus stressing public safety, geriatricians and neurologists tend to err on the side of public safety: about one-third would recommend licence removal from patients with mild cognitive impairment (a syndrome in which functional dependency has not yet occurred and that leads to dementia at a rate of 10–15% per year[30]). However, no study has shown that such patients have higher than expected crash rates, and clinical practice guidelines do not recommend that they have their driving ability assessed.[31,32]

Limitations

The response rates in our study were variable for the different specialty groups; however, they were greater than 50% for all groups analyzed. As would be expected, the response rates were higher for the specialties that deemed assessment of medical fitness to drive of higher importance to their practices; however, the overall response rate was equal to or better than that in similar surveys.[17,20] The fact that the survey was conducted in English and the predominant language in Quebec is French likely accounts for the lower response rate from that province. Since the study design assured anonymity, we could not determine whether responders were different in any important way from non-responders. However, in a similar survey,[17] the demographic characteristics of the total sample surveyed was similar to those of responders. We were unable to perform chart reviews of responders' actual practices; therefore, there may have been differences between how physicians responded to the survey and their actual practices. Finally, since physicians whose primary language is French were not surveyed, the results cannot be generalized to them.

CONCLUSION

While accepting the responsibility of determining fitness to drive in their patients, Canadian specialist physicians are not confident in their ability to do so and are receptive to educational programs that would improve their skills in this area. Medical education groups and transportation officials should take advantage of this opportunity.

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CONFLICT OF INTEREST DISCLOSURES

The authors declare that no conflicts of interest exist.

APPENDICES

Appendix A: Physicians' Attitudes Toward Driving Assessments

Appendix B: Frequency of Practices/Activities Pertaining to Driving Assessments

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Correspondence to: Dr. Shawn Marshall, MD, MSc, FRCPC, The Ottawa Hospital Rehabilitation Centre, 505 Smyth Rd., Ottawa, ON K1H 8M2 Canada
E-mail: smarshall@ottawahospital.on.ca

APPENDIX A

Part A

The following questions ask about your attitudes towards driving assessments.
Please circle your response:

		Strongly Agree	Agree	Neither Agree / Disagree	Disagree	Strongly Disagree	No Opinion
1.	Assessing the fitness to drive of patients is an important issue in my practice.	1	2	3	4	5	6
2.	I am confident in my ability to evaluate the driving fitness of my patients.	1	2	3	4	5	6
3.	Physicians are the most qualified professionals to identify older persons who are unsafe to drive.	1	2	3	4	5	6
4.	The government adequately remunerates me for assessing my patients' fitness to drive.	1	2	3	4	5	6
5.	A clinical screening instrument that helps identify drivers at increased risk for crashes would be useful.	1	2	3	4	5	6
6.	I would benefit from further education about the evaluation of patients' fitness to drive.	1	2	3	4	5	6
	Note: In the questions below, "to report" means to report to the Provincial Department of Motor Vehicles.	**Strongly Agree**	**Agree**	**Neither Agree / Disagree**	**Disagree**	**Strongly Disagree**	**No Opinion**
7.	Physicians should be legally required to report unsafe drivers to the authorities.	1	2	3	4	5	6
8.	Physicians face a conflict of interest (patient confidentiality vs. public safety) when they are required to report their patients.	1	2	3	4	5	6
9.	Reporting patients whom I consider unsafe drivers negatively impacts on the physician-patient relationship.	1	2	3	4	5	6
10.	Revoking a patient's licence often leads to negative consequences for the patient.	1	2	3	4	5	6
11.	Revoking a patient's licence often leads to negative consequences for the patient's family.	1	2	3	4	5	6
12.	The availability of restricted licensing (i.e. ability to drive only under certain conditions) makes/would make* me more likely to report unsafe drivers. (*Restricted licensing exists in only some provinces.)	1	2	3	4	5	6
13.	The Provincial Department of Motor Vehicles evaluates potentially unsafe drivers in a timely fashion.	1	2	3	4	5	6

Part B

The following questions ask about the frequency of your ***practices/activities*** pertaining to driving assessments and reporting. ***Please circle your response:***

		Always	Often	Sometimes	Rarely	Never	Not Applicable
1.	I am aware of whether my patients with relevant conditions (e.g. visual impairments) are active drivers.	1	2	3	4	5	6
2.	I am aware of whether my patients with cognitive impairment are active drivers.	1	2	3	4	5	6
3.	I use the Canadian Medical Association handbook Determining Medical Fitness to Drive – A Guide for Physicians when assessing my patients' fitness to drive. (Note: If you are not aware of this handbook, please circle "Not Applicable".)	1	2	3	4	5	6
4.	Patients that I deem to be unsafe drivers are adherent to my recommendation to stop driving.	1	2	3	4	5	6
5.	I refer patients for an on-road test when I am uncertain of the patients' ability to drive safely.	1	2	3	4	5	6
	Note: In the questions below, "to report" means to report to the Provincial Department of Motor Vehicles.	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**	**Not Applicable**
6.	I report patients when I am uncertain of the patients' ability to drive safely.	1	2	3	4	5	6
7.	I report patients who are unsafe drivers and who refuse to stop driving.	1	2	3	4	5	6
8.	I report patients who are unsafe drivers even if they agree to stop driving.	1	2	3	4	5	6
9.	I counsel patients who I report about alternative modes of transportation.	1	2	3	4	5	6
10.	I have felt unduly pressured by patients to reconsider my decision to report them.	1	2	3	4	5	6
11.	I have felt unduly pressured by family members to reconsider my decision to report their relative.	1	2	3	4	5	6
12.	Patients who I have reported have left my practice.	1	2	3	4	5	6

Part C

The following questions ask about driving policies and programs in your province.
Please check the appropriate box:

	Yes	No	Don't Know
In my province, it is mandatory for physicians to report medically unsafe drivers to the licensing authorities.	❒	❒	❒
I know the steps to take to report patients who I feel are unsafe to drive.	❒	❒	❒
Legislation in my province regarding reporting unsafe drivers to the Provincial Department of Motor Vehicles protects me from being sued by patients I report.	❒	❒	❒
The Provincial Department of Motor Vehicles' procedures for evaluating potentially unsafe drivers are clear to me.	❒	❒	❒
Restricted licensing (i.e. ability to drive only under restricted conditions) is available in my province.	❒	❒	❒
Centres that carry out road tests, other than the Provincial Department of Motor Vehicles, are available in my community.	❒	❒	❒

Part D

The following questions ask about you and your practice.

1. What is your sex? ❒ Male ❒ Female

2. In what age group do you belong? ❒ 20-30 ❒ 31-40 ❒ 41-50 ❒ 51-60 ❒ > 60

3. How many years have you been in practice (after completing postgraduate training)? _____ years

4. What is the province of your practice? _____

5. What is the size of the community in which your practice is located?
❒ <10,000 ❒ 10,000-50,000 ❒ 50,001-100,000 ❒ 100,001-500,000 ❒ >500,000

6. What is your primary type of practice? ***(Please check <u>all</u> that apply)***
❒ academic ❒ community ❒ other, specify_____

7. How many patients did you see last year where fitness to drive was an issue?
❒ 0 ❒ 1-10 ❒ 11-20 ❒ 21-30 ❒ 31-40 ❒ 41-50
❒ 51-60 ❒ 61-70 ❒ 71-80 ❒ 81-90 ❒ 91-100 ❒ >100

8. How many patients did you report to the Provincial Department of Motor Vehicles in the last year?
❒ 0 ❒ 1-5 ❒ 6-10 ❒ 11-20 ❒ 21-50 ❒ ≥50

9. How much time do you typically spend in assessing a patient's fitness to drive?
❒ <10 min. ❒ 10-20 min. ❒ 21-30 min. ❒ >30 min. ❒ Not Applicable

10. How often do <u>you</u> drive a motor vehicle?
❒ Never ❒ <1x/wk ❒ 1-2x/wk ❒ 3-6x/wk. ❒ Daily

APPENDIX B

Questions unique to Neurologists/Geriatricians

From Part A of Appendix A

		Strongly Agree	Agree	Neither Agree / Disagree	Disagree	Strongly Disagree	No Opinion
2.	Physicians should assess the driving ability of their older drivers more frequently than their middle-aged drivers.	1	2	3	4	5	6
3.	All persons with mild dementia are unsafe to drive.	1	2	3	4	5	6
4.	For every mile driven, older drivers are at significantly higher risk of crashing than middle-aged drivers.	1	2	3	4	5	6
5.	For every mile driven, older drivers are at significantly higher risk of crashing than teenaged drivers.	1	2	3	4	5	6
18.	The CMA recommendations for the evaluation of driving in persons with dementia are clinically useful.	1	2	3	4	5	6
19.	Overall, patients with dementia who drive with a "co-pilot" are safer than those who do not.	1	2	3	4	5	6
20.	I have seen the use of cholinesterase inhibitors (e.g. donepezil) improve driving performance of patients with Alzheimer's.	1	2	3	4	5	6
21.	Driving-related issues cause serious conflict between me and the patient/family.	1	2	3	4	5	6
22.	Restricted licensing is a reasonable option for patients with dementia.	1	2	3	4	5	6
23.	Driver retraining is a reasonable option for patients with dementia.	1	2	3	4	5	6
24.	Reassessment of older persons with mild dementia who are still driving should include an on-road test.	1	2	3	4	5	6
25.	How frequently should older persons with mild dementia who are still driving have their fitness to drive reassessed?	**3 months**	**6 months**	**1 Year**	**2 Years**	**Never**	**No Opinion**

From Part B of Appendix A

		Always	Often	Sometimes	Rarely	Never	Not Applicable
13.	I report patients with active driver's licenses to the Provincial Department of Motor Vehicles who have:						
	a) mild cognitive impairment (MCI)	1	2	3	4	5	6
	b) mild Alzheimer Disease	1	2	3	4	5	6
	c) mild vascular dementia	1	2	3	4	5	6
	d) moderate Alzheimer Disease	1	2	3	4	5	6
	e) moderate vascular dementia	1	2	3	4	5	6
	f) severe Alzheimer Disease	1	2	3	4	5	6
	g) severe vascular dementia	1	2	3	4	5	6
14.	I use the Clinical Dementia Rating (CDR) scale in practice.	1	2	3	4	5	6
15.	Restricted licensing is a reasonable option for many stroke patients with motor deficits.	1	2	3	4	5	6
16.	Driver retraining is a reasonable option for many stroke patients with motor deficits.	1	2	3	4	5	6
17.	I report stroke patients with motor deficits to the Provincial Department of Motor Vehicles.	1	2	3	4	5	6

Questions unique to Endocrinologists

From Part A of Appendix A

		Always	Often	Sometimes	Rarely	Never	Not Applicable
14.	The **Canadian Diabetic Association** recommendations for the evaluation of driving in persons with diabetes are clinically useful.	1	2	3	4	5	6
15.	The **Canadian Medical Association** recommendations for the evaluation of driving in persons with diabetes are clinically useful.	1	2	3	4	5	6
16.	Restricted licensing is a reasonable option for patients with diabetic complications.	1	2	3	4	5	6
17.	Driver retraining is a reasonable option for patients with diabetic complications.	1	2	3	4	5	6

From Part B of Appendix A

13.	I report diabetic patients to the Provincial Department of Motor Vehicles who have:	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**	**Not Applicable**
	a) hypoglycemic episodes	1	2	3	4	5	6
	b) peripheral neuropathy	1	2	3	4	5	6
	c) cardiac conditions	1	2	3	4	5	6
	d) peripheral vascular disease	1	2	3	4	5	6
	e) vascular dementia	1	2	3	4	5	6
	f) retinopathy	1	2	3	4	5	6

Questions unique to Cardiologists

From Part A of Appendix A

		Always	**Often**	**Sometimes**	**Rarely**	**Never**	**Not Applicable**
14.	The **Canadian Cardiovascular Society** recommendations for the evaluation of driving in persons with CV disease are clinically useful.	1	2	3	4	5	6
15.	The **Canadian Medical Association** recommendations for the evaluation of driving in persons with CV are clinically useful.	1	2	3	4	5	6
16.	Restricted licensing is a reasonable option for patients with cardiac conditions.	1	2	3	4	5	6
17.	Driver retraining is a reasonable option for patients with cardiac conditions.	1	2	3	4	5	6

From Part B of Appendix A

13.	I report CV patients to the Provincial Department of Motor Vehicles who have:	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**	**Not Applicable**
	a) symptomatic bradyarrhythmias	1	2	3	4	5	6
	b) symptomatic tachyarrhythmias	1	2	3	4	5	6
	c) symptomatic valvular disease	1	2	3	4	5	6
	d) peripheral vascular disease	1	2	3	4	5	6
	e) vascular dementia	1	2	3	4	5	6
	f) recurrent angina	1	2	3	4	5	6

Questions unique to Physiatrists

From Part A of Appendix A

		Always	Often	Sometimes	Rarely	Never	Not Applicable
13.	Restricted licensing is a reasonable option for **stroke** patients.	1	2	3	4	5	6
14.	Driver retraining is a reasonable option for **stroke** patients.	1	2	3	4	5	6

13.	Following a right total **hip** arthroplasty, I discuss the issue of driving with patients.	1	2	3	4	5	6
14.	Following a right total **knee** arthroplasty, I discuss the issue of driving with patients.	1	2	3	4	5	6
15.	I report patients with right **hip** arthroplasty to the Provincial Department of Motor Vehicles.	1	2	3	4	5	6
16.	I report patients with right **knee** arthroplasty to the Provincial Department of Motor Vehicles.	1	2	3	4	5	6
17.	My recommendations concerning driving are different if the total hip or knee arthroplasty is on the left side versus the right side.	1	2	3	4	5	6
18.	How soon should patients be allowed to drive following a right total hip or knee arthroplasty?	**Immediately**	**2 weeks**	**4-6 weeks**	**7-8 weeks**	**>8 weeks**	**No Opinion**

Questions unique to Rheumatologists

From Part A of Appendix A

		Always	Often	Sometimes	Rarely	Never	Not Applicable
14.	Restricted licensing is a reasonable option for patients with osteoarthritis of the lower extremities.	1	2	3	4	5	6
15.	Driver retraining is a reasonable option for patients with osteoarthritis of the lower extremities.	1	2	3	4	5	6
16.	Occupational therapy assessment may provide useful aids that enhance driving ability	1	2	3	4	5	6

From Part B of Appendix A

13.	I discuss the issue of driving with patients with osteoarthritis of the right **hip**.	1	2	3	4	5
14.	I discuss the issue of driving with patients with osteoarthritis of the right **knee**.	1	2	3	4	5
15.	I report patients with osteoarthritis of the right **hip** to the Department of Motor Vehicles.	1	2	3	4	5
16.	I report patients with osteoarthritis of the right **knee** to the Department of Motor Vehicles.	1	2	3	4	5
17.	My recommendations concerning driving are different if the osteoarthritis of the lower extremities is more prominent on the left side versus the right side.	1	2	3	4	5
18.	Do you routinely counsel patient with other rheumatological conditions about driving?	Yes	No			
19.	If yes, please name the conditions:	1.				
		2.				
		3.				
		4.				

Questions unique to Neurosurgeons

From Part A of Appendix A

		Always	**Often**	**Sometimes**	**Rarely**	**Never**	**Not Applicable**
13.	Counselling patients experiencing post-operative **pain** on driving issues is an important part of my practice.	1	2	3	4	5	6
14.	Counselling patients experiencing post-operative **cognitive deficits** on driving issues is an important part of my practice.	1	2	3	4	5	6

From Part B of Appendix A

11.	I counsel patients experiencing post-operative **pain** on the issues of driving.	1	2	3	4	5	6
12.	Patients experiencing post-operative **pain** ask about driving?	1	2	3	4	5	6
13.	Patients with post-op pain should resume driving based on their own judgement?	1	2	3	4	5	6
14.	Patients raise the issue of seatbelt use.	1	2	3	4	5	6
15.	I raise the issue of driving in patients with recent cranial surgery.	1	2	3	4	5	6
16.	I counsel patients experiencing post-operative **confusion/delirium** on the issues of driving.	1	2	3	4	5	6
17.	Patients taking post-operative pain medications (e.g. narcotics) ask about their effect on driving.	1	2	3	4	5	6

Questions unique to Orthopedic Surgeons

From Part A of Appendix A

		Always	Often	Sometimes	Rarely	Never	Not Applicable
13.	Counselling patients experiencing post-operative **pain** on driving issues is an important part of my practice.	1	2	3	4	5	6
14.	Counselling patients experiencing post-operative **cognitive deficits** on driving issues is an important part of my practice.	1	2	3	4	5	6

From Part B of Appendix A

11.	I counsel patients experiencing post-operative pain on the issues of driving.	1	2	3	4	5	6
12.	Patients experiencing post-operative **pain** ask about driving?	1	2	3	4	5	6
13.	Patients with post-op **pain** should resume driving based on their own judgement?	1	2	3	4	5	6
14.	Patients raise the issue of seatbelt use.	1	2	3	4	5	6
15.	I counsel patients experiencing post-operative **confusion/delirium** on the issues of driving.	1	2	3	4	5	6
16.	Patients taking post-operative pain medications (e.g. narcotics) ask about their effect on driving.	1	2	3	4	5	6
17.	Following a right total **hip** arthroplasty, I discuss the issue of driving with patients.	1	2	3	4	5	6
18.	Following a right total **knee** arthroplasty, I discuss the issue of driving with patients.	1	2	3	4	5	6
19.	I report patients with right **hip** arthroplasty to the Provincial Department of Motor Vehicles.	1	2	3	4	5	6
20.	I report patients with right **knee** arthroplasty to the Provincial Department of Motor Vehicles.	1	2	3	4	5	6
21.	My recommendations concerning driving are different if the total hip or knee arthroplasty is on the left side versus the right side.	1	2	3	4	5	6
22.	How soon should patients be allowed to drive following a right total hip or knee arthroplasty?	**Immediately**	**2 weeks**	**4-6 weeks**	**7-8 weeks**	**>8 weeks**	**No Opinion**