

Addressing Driving with Older Adults: Investigating the Perspectives of Vision Care Providers

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16. Abstract	hoterson vision oping and driving there is a	doonth of reasonab investigating the
perspectives of vision care provide	ers (VCPs) regarding their role in their older n	atients' decisions about driving. This
study investigated VCPs' attitude	s about barriers to actions taken regarding a	and information used when assessing
the driving capabilities of their of	der adult patients. Additionally this study de	escribes the referral patterns of VCPs
when driving concerns are identi	fied as well as additional assessment resource	ces desired by VCPs. Methods: We
surveyed a stratified random same	ble of 500 VCPs (response rate 80.1%, n=404)	, identified using membership lists of
the Michigan Society of Eye Phys	icians and Surgeons and the Michigan Optome	etric Association, about their attitudes
and behaviors surrounding drivin	g evaluation. Linear regression analyses wer	re performed to identify associations
with responses. Results: Over 80%	6 of VCPs feel confident in their ability to dete	ermine whether vision is adequate for
safe driving. VCPs cite liability i	risk – both for reporting (24%) and not report	ing (44%) as a barrier to reporting
unsafe drivers. Two-thirds report	rt routinely inquiring about driving and 86%	consider counseling patients about
driving their responsibility. App	proximately 60% are concerned that reporting	ng patients negatively impacted the
doctor-patient relationship and 4	13% think reporting is a breach of doctor	-patient confidentiality. Significant
differences were found between	vCP cnaracteristics, particularly, provider typ	be, regarding attitudes and behaviors
around driving evaluation. Based	i on responses of offen or always, the visio	n tests that VCPs reported to be most
field (66%). VCPs less frequent	ly considered other medical conditions (49%),) and medications that might affect
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driving (33%). Inquiries by VCPs about night driving, reading signs, and glare were very common (\geq 87%), whereas questioning about other driving challenges (merging, making left turns, and backing up) and the patient's recent driving record were infrequent (<10%). VCP characteristics that increased the likelihood of seeking driving information included female gender, younger age, and general practice (vs. specialization). Regarding referral, 36% of VCPs report sometimes/often/always relating concerns about patients' driving to the primary care physician. Additional resources endorsed by VCPs as helpful/very helpful included driving assessment guidelines (81%), clinical screening instruments (70%), and a patient self-evaluation tool (60%). Conclusions: While VCPs view advising patients regarding safe driving as an important responsibility, addressing barriers, finding ways to increase communication between VCPs and other members of the healthcare team, and providing useful resources deserves

We have organized our final report into the following sections:

I. Initial Paper. This paper summarizes the major results from our research.

II. Additional details on Methodology

III. Additional Paper Under Development

IV. Formal presentations (attached)

1. APHA Conference, November 2, 2011. "Driving, Vision, and Older Adults: The Perspectives of Vision Care Providers". Washington, D.C.

2. The Eye and the Auto, September 12, 2011. "Assessing Driving in Older Adults: A Survey of Vision Care Providers in the State of Michigan". Detroit, MI.

3. MCASTL, May 3, 2011. "Driving, Vision, and Older Adults: The Perspectives of Vision Care Providers". Ann Arbor, MI.

4. ARVO, May 2, 2011. "Assessing Driving in Older Adults: Information Obtained by Vision Care Providers". Fort Lauderdale, FL.

1. INITIAL PAPER

Discussing Driving Concerns with Elderly Patients: Vision Care Providers' Attitudes and Behaviors Rebecca L. Leinberger, MPH¹, Nancy K. Janz, PhD¹, Leslie M. Niziol, MS², Brenda W. Gillespie, PhD³, David C. Musch, PhD, MPH^{2,4}

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Introduction

In the United States the number of drivers over age 65 will grow to roughly 40 million people by 2020, representing the fastest growing segment of the driving population.^{1,2} For many seniors, driving signifies the ability to stay active, be independent, and remain socially connected. There is a considerable body of literature describing the negative outcomes associated with driving cessation^{3,4} including decreased quality of life,⁵ increased depression and social isolation,⁶ and reduced access to healthcare services.^{7,8} However, motor vehicle injuries are a leading cause of injury-related deaths in adults 65 to 74 years old⁹ and the fatality rate for drivers 85 years and older is nine times higher than that for drivers 25 to 69 years old.² While there are multiple factors that threaten an individual's ability to drive safely, including cognitive impairment,^{10,11,12} stroke¹³ and physical disability,^{13,14} vision ranks among the most important, particularly when it comes to licensure.¹⁵⁻¹⁸ A substantial amount of literature exists describing the relationship between specific visual disorders and their impact on driving^{14,16,18-23} and yet despite the importance of vision in driver safety, little is known about the perspectives of vision care providers (VCPs) on inquiring about driving among their older adult patients.

Previous studies examining the role of health care providers in driving cessation have focused on family physicians. These studies have found that physicians are aware of the potential repercussions of both encouraging driving cessation and neglecting to report elderly drivers who are no longer fit to drive.^{15,24,25} Some family physicians reported they were unclear about their role in regulating patients' driving,¹⁵ and did not possess adequate knowledge regarding licensing policy or actions to be taken if a patient is deemed to be unsafe.^{24,26} Family care physicians reported that they would benefit from more education and resources about driving evaluation.^{24,24}

Vision related disorders are the primary causes of driving cessation¹⁵ making VCPs a critical member of the health care team in helping older adults transition from driver to non-driver status. A better understanding of VCPs' unique concerns, attitudes, and needs with regard to evaluating their older patients' visual function in relation to safe driving is needed. To address this need, we surveyed a large sample of VCPs [ophthalmologists (MDs) and optometrists (ODs)] in the State of Michigan. The specific aims of this study were to address the following questions:

- 1. What are the attitudes, behaviors, and barriers of VCPs on inquiring about driving and do they differ by provider or practice characteristics?
- 2. What are the referral patterns of VCPs?
- 3. What driving assessment resources would VCPs find most useful?

Methods

<u>Study Population</u>: A random sample of 500 VCPs consisting of 250 ODs and 250 MDs was selected from the 772 ODs and 372 MDs who had active practices in the State of Michigan and were members of either the Michigan Optometric Association (MOA) or the Michigan Society of Eye Physicians and Surgeons (MiSEPs). Both of these organizations endorsed the study and potential participants were identified via the membership rolls they provided. Participants were stratified by region to ensure a representative sample. Providers were ineligible to participate if they were retired, did not have patients over the age of 65 in their practice, or had moved out of state. VCPs selected and subsequently found to be ineligible to participate were replaced.

<u>Data Collection</u>: The study protocol was approved by the Institutional Review Board of the University of Michigan and adhered to the tenets of the Declaration of Helsinki. Participants were sent an initial mailing containing a cover letter introducing the study, a copy of the survey, a return envelope, and a \$20 cash incentive. A modified Dillman method was employed to encourage survey response.²⁷ Four weeks after the first mailing; non-responders were sent a second survey packet. Strategies were employed to personalize the mailings to encourage a higher response rate: cover letters addressed the VCP by name and were signed by the primary investigators and the project manager; each envelope was stamped "confidential"; and regular stamps were used instead of metered postage. Four weeks after sending the second mailing, non-responders with an email address were sent an email reminder and a link to an electronic version of the survey, to be used if

they preferred that option. Non-responders for whom an email was not available were called at their office. Office personnel were asked to remind the VCP to complete the survey as well as offer the option to receive the survey electronically.

<u>Measures:</u> The survey questionnaire was based on: (1) constructs of the Health Belief Model²⁸ (e.g., perceived barriers and cues to action), a widely used conceptual framework to explain health-related behaviors; (2) review of the literature on attitudes and practices of health care providers on evaluating driving status in older adults; (3) consultation with VCPs; and (4) a survey of family physicians' attitudes toward driving assessment (Jang et al., 2007). The draft survey was pilot tested with VCPs employed outside of Michigan (n=20) and with content and survey experts (n=5). Pilot participants were sent the survey and an evaluation form asking for specific feedback. The survey was modified based on their feedback. The final survey was grouped into eight sections as follows: (1) attitudes toward inquiring about driving; (2) situations prompting providers to ask about a patient's driving; (3) information providers consider when determining visual adequacy for safe driving; (4) barriers that hinder providers from asking or reporting about driving; (5) current approaches and actions; (6) helpful resources for driving evaluation; (7) driver's license requirements; and (8) personal and practice characteristics. The survey sections/items relevant to this paper are described below.

Provider attitudes (8 items) and barriers (10 items) were assessed on a 5-point Likert scale from "strongly disagree" to "strongly agree". Attitude statements included how VCPs view their role (e.g., "Counseling patients whose vision may compromise safe driving is an important part of my job"), their confidence (e.g., "I am confident in my ability to determine if my patient's vision is sufficient for safe driving"), and usual behaviors (e.g., "I routinely inquire about my older patients' driving practices") regarding driving evaluation. Barriers to driving evaluation and reporting included items specific to the doctor-patient relationship (e.g., "Reporting patients who I consider unsafe drivers negatively impacts the doctor-patient relationship"), and barriers regarding the negative consequences to patients as a result of driving cessation (e.g., "I am reluctant to recommend that my patients stop driving given the subsequent loss of quality of life"). Liability issues for reporting/not reporting unsafe drivers were assessed (e.g., "I could be held liable for reporting a patient whom I consider to be an unsafe driver") as well as, health system barriers (e.g., "The limited time allotted for patient visits restricts my ability to ask about driving").

Referral practices were assessed by 4 items on a 5-point Likert scale from "strongly disagree" to "strongly agree" investigating how often VCPs reported patients whose vision seemed inadequate for safe driving to their primary care physician, a driving school, a driving rehabilitation specialist, and/or for a road test. The perceived helpfulness of provider (e.g., driving assessment guidelines created for vision care providers) and patient-directed (e.g., a self-evaluation driving tool for patients to use at home) driving evaluation resources was determined based on VCPs' responses across 8 items on a 5-point Likert scale from "not at all helpful" to "very helpful".

<u>Analysis:</u> Sample characteristics were summarized using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. Responses to survey items were summarized using frequencies and percentages for those reporting strongly disagree or disagree (combined response categories), neither disagree nor agree, or strongly agree or agree (combined response categories). Multivariable linear regression was used to identify significant predictors of responses to individual survey items using the 5-point response scale. Covariates investigated included type of VCP (MD-generalist, MD-specialist or OD), VCP characteristics (gender, age, years in practice), and practice characteristics (community size, number of patients, percent of patients aged 65 or older, number of VCPs, and access to social workers or psychologists). Model selection was performed using the method of best subsets. Specifically, for each number of covariates (1, 2, 3, ...), the 5 best models were selected based on the highest R-squared values. This approach allows for identification of the overall best model as well as evaluation of closely competing models. Factors that were significantly associated with 2 or more survey items are reported. SAS version 9.2 software (SAS Institute, Cary, NC) was used for all analyses.

Results

Among the 500 eligible VCPs identified, 404 (81%) completed the survey (ODs: n=206, 82%; MDs: n=196, 78%). Of the 500 participants initially mailed surveys, 20 were replaced when found to be ineligible (2 ODs and 18 MDs). Ineligible VCPs were retired (n=2), deceased (n=1), in an eye care practice without patients 65 years and older (n=7), had an incorrect address or moved out of state (n=9), or had a conflict of interest (n=1).

Table 1 displays the provider and practice characteristics of the VCPs. The majority were male (73%), and 55% were 50 years old or younger. The average number of years in practice was 17.8 (standard deviation 12.2). Ophthalmologists were categorized as either generalist (59.3%) or specialist (40.7%). In terms of practice setting, 11% identified themselves as in an academic practice, 49% in a group practice, 23% in a solo practice, and 17% in some combination of practice types. Over half (58.3%) of the VCPs were involved in practices that included over 3500 patients. In terms of the percent of older patients in their practice, 40% of VCPs reported that between 31-60% of their patients were over 65 years of age, while 27% reported that over 61% of their patients were over 65 years old.

In the State of Michigan (n=404)		
	Frequency	Percent % [*]
Provider Characteristics		
Gender		
Male	290	72.5
Female	110	27.5
Age Group (years)		
21-40	120	30.0
41-50	101	25.3
51-60	105	26.3
>60	74	18.5
Provider Type		
Optometrist (OD)	206	51.5
Ophthalmologist (MD)		
MDGeneralist	115	28.8
MDSpecialist	79	19.8
Practice Characteristics		
Practice Type		
Academic only	43	10.8
Group only	197	49.3
Solo only	91	22.8
Other/combination	69	17.3
Practice Size		
≤1500	39	10.2
1501-3500	121	31.5
>3500	224	58.3
Patients over 65 years old		
≤30%	129	32.7
31-60%	159	40.4
>61%	106	26.9
Community Size		
≤50,000	148	37.5
50,001-100,000	85	21.5
>100,000	162	41.0
Access to Social Worker and/or		
Psychologist		
Yes	216	54.4
No	181	45.6
Provider/Practice Characteristics	Mean (SD^{\dagger})	Range
Years in Practice	17.8 (12.2)	0-62
Total # of Providers in Practice	6.8 (11.2)	1-100

Table 1. Characteristics of a Sample of Vision Care Providers in the State of Michigan (n=404)

*Percentages were calculated on the non-missing sample

[†]SD=Standard Deviation

Attitudes and behaviors about driving evaluation are summarized in Table 2. Most VCPs agreed that they should ask about their older patients' problems with driving (87%), even if patients do not bring it up (73%). Most (86%) agreed that counseling about safe driving is an important part of their role; however, only 39% thought that they should report their patients who, based on their examination, are unsafe to drive, to a governmental agency like the Secretary of State. While 81% reported being confident in their ability to determine whether their patient's vision is adequate for safe driving, only 39% believed that VCPs are the most qualified professionals to identify unsafe drivers. In terms of actual behaviors, 64% responded that they routinely inquire about driving and, when intervention is needed, 58% indicated they are more likely to recommend modifications to driving than driving cessation.

Table 2. Vision Care Providers' (VCP) attitudes and behaviors about inquiring about driving with/reporting their older adult patients (N=404) Attitudes

Attitudes			
Role and Responsibility	Strongly disagree/ agree (%)	Neither disagree/ agree (%)	Strongly disagree/ agree (%)
VCPs should ask older patients' about driving	0.8	12.2	87.0
Unless pts. ask about driving, not VCP's obligation to inquire	73.3	20.2	6.5
Counseling patients about safe driving is important part of VCP's job	3.5	10.2	86.3
VCPs should report unsafe drivers to a designated gov't agency	22.8	38.6	38.6
How Qualified/Confident			
Confident in ability to determine if pt. vision is safe for driving	7.0	11.8	81.2
VCPs are most qualified professionals to identify unsafe drivers	23.0	38.3	38.8
Behaviors			
I routinely inquire about my older patients' driving practices	16.2	19.7	64.1
More likely to recommend pts. modify driving than stop	11.1	31.2	57.6

With regard to barriers to evaluating driving safety (Table 3), 57% were concerned that reporting patients to governmental agencies would negatively impact the doctor-patient relationship and 43% considered reporting unsafe drivers a breach of doctor-patient confidentiality. Approximately one quarter (24%) of VCPs believed that they could be held liable for reporting a patient whose vision they deemed inadequate for safe driving and this belief inhibited evaluation and/or reporting. Conversely, nearly half (44%) of VCPs reported that they could be held liable for NOT reporting an individual whose vision was inadequate for safe driving. Among health system barriers, only 25% of VCPs suggested that limited time in the office visit inhibited their ability to address their patients' driving and even fewer (11%) reported a lack of personnel as a barrier.

Table 3. Vision Care Providers' (VCP) barriers to inquiring about driving with/reporting their older patients (N=404) Barriers

Duritors			
Doctor-Patient Relationship	Strongly disagree/ agree (%)	Neither disagree/ agree (%)	Strongly disagree/ agree (%)
Reporting pts. to authorities impacts DrPt. relationship	16.8	26.0	57.2
Reluctant to mention pt. driving b/c dealing with family is difficult	64.2	26.6	9.2
Reporting pts. to the authorities is a breach of DrPt. confidentiality	25.2	31.7	43.1
Patient Consequences			
Reluctant to recommend stopping driving given loss in quality of life	45.1	20.7	34.2
Transportation alternatives in the community are limited	31.1	22.9	46.0
Liability			
Could be liable for reporting pts. considered unsafe drivers	39.2	36.7	24.2
Could be liable for NOT reporting pts. considered unsafe drivers	21.7	34.7	43.6
Operational/Health System			
Limited time for pt. visits restricts asking about driving	53.3	21.6	25.1
Limited office personnel hampers asking about driving	64.4	24.9	10.7

Table 4 displays the multivariable model findings from analyzing associations of provider and practice characteristics with their attitudes and barriers. The table includes all provider and practice characteristics where there were at least two statistically significant associations with reported attitudes and barriers. For brevity, below we focus on associations that had a regression slope of 0.3 or more, which represents approximately a one third point difference on a 5-point scale. For example, MD-specialists were about a half a point (0.53) on a 5-point Likert scale more likely than ODs to endorse the statement that reporting patients to authorities is a breach of doctor-patient confidentiality.

Table 4. Multivariable models of provider and practice characteristics with attitudes and barriers to inquiring about driving/reporting among Vision Care Providers (VCP) (N=404)

Regression Outcomes [†]		Provider Characteristics			Practice Characteristics		Interpretation	
Attitudes, Behaviors, and Barriers Survey Items	Overall Mean (standard deviation)	MD specialist (vs. OD) [‡]	MD generalist (vs. OD)	Female (vs. Male)	Yrs in Practice (10 year increments) [§]	Access to SW/Psyc [∥]	#VCPs in Practice (10 prov [*]) ^{§#}	Subgroup most likely to endorse item
Unless pts. ask about driving, not VCP's responsibility to inquire	2.19 (0.78)	0.27 (0.10)	0.17 (0.09)	-0.22 (0.09)				MD, Male
Counseling pts. about safe driving is important part of VCP's job	4.19 (0.78)	-0.36** (0.10)						OD
VCPs should report unsafe drivers to a designated gov't agency	3.22 (0.99)	-0.41 (0.13)	-0.41** (0.11)					OD
Confident in ability to determine if pt. vision is safe for driving	4.08 (0.89)	-0.61** (0.11)	-0.21 (0.10)					OD
VCPs most qualified professionals to identify unsafe drivers	3.23 (1.00)					-0.23 (0.10)		No Access to Referral
More likely to recommend pts. modify driving than stop	3.52 (0.80)	-0.46** (0.11)		-0.28 (0.09)				OD, Male
Reporting pts. to authorities impacts Dr Pt. relationship	3.50 (1.00)					-0.25 (0.10)	0.12 (0.05)	No Access to Referral, More Providers
Reluctant to mention pt. driving b/c dealing with family is difficult	2.36 (0.79)	-0.25 (0.10)				-0.26 (0.08)		OD, No Access to Referral
Reporting pts. to authorities is a breach of DrPt. confidentiality	3.26 (1.05)	0.53** (0.14)	0.24 (0.12)					MD
Reluctant to recommend pts. stop driving given loss in quality of life	2.85 (1.04)	-0.32 (0.14)						OD
Transportation alternatives in the community are limited	3.21 (1.13)	0.33 (0.17)	0.28 (0.14)	0.38 (0.13)				MD, Female
Could be liable for reporting pts. considered unsafe drivers	2.82 (0.98)			0.38 ** (0.11)				Female
Could be liable for NOT reporting pts. considered unsafe drivers	3.25 (0.97)	-0.34 (0.13)			-0.11 (0.04)			OD, Fewer Years in Practice
Limited time for pt. visits restricts asking about driving	2.64 (1.03)				-0.09 (0.04)		0.12 (0.05)	Fewer Years in Practice, More Providers

years or old, and community size); items significant at the p<0.001 level are indicated with an asterisk (**) [†]Table entries are regression slopes (standard errors) ^{*}MD=Ophthalmologist, OD=Optometrist [§]Approximately 1 standard deviation [¶]Access to Social Workers and/or Psychologists via referral [#]Number of providers increase by 10

Other significant findings include that, compared to ODs, MD-specialists were significantly *more* likely to endorse that the lack of transportation alternatives in their community was a barrier to reporting. Compared to ODs, MD-specialists were significantly *less* likely to: view counseling patients about safe driving as an important part of their job; endorse that VCPs should report unsafe drivers to a government agency; feel confident in their ability to determine if a patient's vision is safe for driving; recommend to their patients that they modify rather than stop driving all together; view the loss in quality of life as a result of giving up driving as a barrier; and endorse that they could be liable for NOT reporting patients whom they considered unsafe drivers. When ODs were compared with MD-generalists we found that MD-generalists were *less* likely than ODs to endorse that VCPs should report unsafe drivers to a governmental organization.

Female VCPs, compared to males, were more concerned about liability when reporting unsafe drivers and were more likely to see the lack of transportation alternatives as a barrier to driving evaluation. In terms of practice characteristics, while no differences exceeded the 0.3 threshold, there were a number of statistically significant differences which are displayed in Table 4.

Findings regarding VCP referral patterns are displayed in Figure 1. Just over one-third (36%) of VCPs reported sometimes/often/always relating concerns about their patients' driving to the primary care physician, with MDs more often relaying concerns than ODs. When driving concerns are identified, VCPs are more likely to refer patients for a road test (33%) or to a driving rehabilitation specialist (28%) than to a driving school (9%). MDs tended to be more likely to make such referrals than ODs; however, the percent of VCPS using any of these referral patterns are low.





T = Total; OD = Optometrist; MD = Ophthalmologist

Figure 2 summarizes in rank order the resources that VCPs perceived would be helpful/very helpful with evaluating driving ability. For provider-focused resources, 81% of VCPs thought having driving evaluation guidelines would be helpful, followed by a clinical screening instrument (70%) and an educational in-service about how to evaluate driving ability (59%). Endorsement of patient-focused resources included written literature about safe driving (73%), a self-evaluation tool to use at home (60%), a website containing driving information (54%), and a toll free number with access to information on safe driving (50%).





Discussion

The increasing number of older drivers makes age-related driving difficulties an important public health issue. We surveyed VCPs' attitudes toward, barriers to, and resources desired for evaluating and advising their patients about driving safety, as well as their referral patterns when driving concerns are identified. Overall, the majority report routinely inquiring about driving with their older patients and most VCPs endorse advising on safe driving as their responsibility. This finding is consistent with a previous study of family physicians' attitudes which found that over 75% considered conducting driving evaluations an important component of their practice.²⁵ However, physicians often assume their role in driving assessment reluctantly, noting that they feel powerless to enforce their recommendations about driving.²⁴

Despite acknowledging the importance of advising on driving, we found many VCPs reported concerns about the impact of reporting unsafe drivers to governmental agencies. VCPs cited liability risk as a barrier to reporting unsafe drivers – both for reporting (24%) and not reporting (44%) such drivers. Other researchers have found that physicians worry about the liability issues around reporting drivers deemed to be unsafe.²⁴ While some states have mandatory reporting requirements,²⁹ Michigan physicians are encouraged but not required to report unsafe drivers.¹⁵ In Michigan, the Secretary of State only releases the name of the reporter if the individual is a public official (e.g., police officer); unofficial names are only released under court order.¹⁵ Whether Michigan's reporting policies impact providers' reporting behaviors is unclear. Some confusion surrounding liability issues may stem from the fact that laws governing reporting and legal protections extended to providers vary considerably from state to state. In addition, physicians may have concerns about violating federal privacy laws.^{15,30}

In accordance with other studies, we found providers are concerned about potentially deleterious effects of reporting on the doctor-patient relationship and possible violations of doctor-patient confidentiality.^{24-26,31} Despite these concerns, most physicians believe the risks posed to the patient, passenger and public by failing to report outweighs the negative consequences.^{25,31} Only about a third of VCPs were reluctant to recommend stopping driving given the potential for loss in their patient's quality of life. Among other barriers assessed, structural and operational issues such as time constraints and limited personnel were not frequently endorsed as hindrances to advising on safety of driving.

We are not aware of other studies that examined differences in discussing safe driving with patients by provider and practice characteristics. More differences were found by provider type than by practice characteristics. The greatest numbers of statistically significant differences were found between ODs vs. MD-specialists, followed by OD vs. MD-generalist and gender of provider. The largest magnitude of differences occurred between provider types and related to attitudes and barriers about breaching doctor-patient confidentiality by reporting unsafe drivers to a governmental agency, and confidence in determining whether a patient's vision is safe for driving. The scope of this study does not allow us to decipher why these differences exist. One explanation may be that ODs devote more time in patient visits to the impact of general vision on daily activities such as driving, thereby increasing their confidence to distinguish unsafe drivers. MD specialists may be more focused on evaluating the impact of treatment regimens on specific visual disorders (e.g., glaucoma). Further quantitative and qualitative studies are needed to better understand provider differences in attitudes and behaviors around driving evaluation and counseling.

Having access to a team of health professionals, including VCPs, geriatricians, and counselors, would increase the likelihood that older adults would receive appropriate counseling to remain safe drivers and that unsafe drivers would be correctly identified. However, we found that VCPs do not often relate their concerns to the primary physician. Even fewer VCPs endorsed using other referral opportunities such as sending patients to driving rehabilitation specialists or driving schools.

Many VCPs expressed interest in having access to additional driving resources. The literature on driving evaluation stresses the need for practical, easy to administer, clinically valid assessment tools.^{24,32,33} Researchers have developed,³⁴ validated,^{35,36} and advocated for¹⁶ the useful field of view test which considers visual processing speed with divided attention components^{16,34} rather than, or in addition to, tests that focus on visual acuity. A standardized set of procedures, including an accurate assessment tool, focused on a planned transition from driver to non-driver status would benefit clinicians and patients. While some screening tools and driving assessment resources exist, (e.g. the AMA Physician's Guide to Assessing and Counseling Older Drivers), studies have found that a large number of physicians are unaware of them.^{25,38} Physicians have expressed concern that assessment tools are inadequate and may not translate well to real life driving situations.^{25,37} In this study, the resource that VCPs endorsed would be the most helpful was driving assessment guidelines created for VCPs. Whether VCPs were unaware of available resources or simply dissatisfied with them was not determined. The desire for additional resources has been echoed in studies of family physicians who reported they would benefit from more education on how to evaluate driving ability, and access to standardized and accurate screening tools that could reliably determine fitness-to-drive.^{24,25,37} Such tools could also ameliorate the concerns that many physicians have regarding liability issues.^{24,37}

Future research is needed to determine why VCPs are not using existing driving assessment resources. If VCPs are aware of available resources but do not find them helpful, more research could focus on developing and evaluating new provider and patient resources for driving assessment. In addition, more research is needed to investigate why communication between providers regarding concerns about a patient's driving appears to be infrequent, and to consider additional models of communication that include provider teams as well as patient and family members. The findings from this study do not represent what patients perceive as the role of their VCPs. Further research could focus on the concordance between patients' and providers' perspectives on how providers can be helpful in addressing unsafe drivers.

The strengths of this study include a large, representative sample of VCPs (MDs and ODs) across a state with urban and rural settings, as well as a high survey response rate. Limitations include the restriction of our sample to one state, and the generalizability of findings restricted to VCPs who are members of their respective MI statewide professional organizations.

In summary, while VCPs consider driving evaluation an important part of their job, they express uncertainties and concerns about their role in driving evaluation and intervention. There is a need for better communications strategies between VCPs caring for older adults and other health care professionals, as well as between VCPs and patients who need to transition to less risky driving exposure or to non-driver status. Existing resources need to be more widely disseminated, and new driving assessment resources developed and evaluated.

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II. ADDITIONAL METHODOLOGICAL DETAILS

PILOT

The pilot phase of the project was launched on November 3rd. The pilot phase involved two important efforts: (1) pilot testing the survey with VCPs outside of the State of Michigan as well as (2) obtaining feedback from content experts. The vision care pilot participants, ophthalmologists and optometrists (N=20), were identified using a snowball strategy wherein colleagues outside of the state of Michigan were asked to both participate in the pilot as well as recommend two to three of their colleagues who might also be willing to participate. All participants were sent the survey, a self-addressed stamped envelope, the cover letter, and an evaluation form asking participants to reflect on various aspects of the survey content. Their feedback was combined into one document with their answers collated and their comments included after each question. Five content specialists were also asked to provide critical, candid feedback on the substance, format, and order of the survey. The content specialists include researchers from M-CASTL, other UM faculty, and the Canadian researcher Dr. Naglie, who has conducted an investigation into driving cessation and physician's perspectives on reporting and assessment.

SURVEY PROTOCOL/FORMAT

We investigated several options regarding the optimal method to distribute the survey (mail vs. web vs. a choice of mail or web). The first step was examining the empirical literature on response rates using the various survey methods. Next we consulted with an ISR colleague, Dr. Mick Couper. Dr. Couper has had considerable experience with web and mail surveys and strongly advised we do not offer the choice of web or mail as the first option. He provided references to support the premise that offering a choice at the onset actually lowers the response rate. A strategy that has been shown to be effective, however, is to first offer one format and then to follow-up with an alternative format with non-responders. Several studies conducted with physicians comparing response rates between mailed and web-based surveys found that mailed surveys yielded slightly higher response rates. Based on our review of the literature and our conversation with Dr. Couper, we decided to send potential participants a mailed survey. We offered an online version of the survey using the survey platform Qualtrics to non-responders.

DATA COLLECTION

The following strategies were employed to personalize the mailings in an effort to encourage a higher response rate: participants received a \$20 incentive; all cover letters addressed the vision care provider by name; all cover letters in the initial mailing were hand-signed by the primary investigators and the follow-up letters were hand signed by the project manager; each envelope was stamped "confidential"; and regular stamps were used as opposed to metered postage. Four weeks after sending the second mailing non-responders, for whom an email address was available, were sent an email reminder and a link to an electronic version of the survey, to be used if they preferred an online option. For non-responders for whom an email was not available, a phone contact was made to their office. Office personnel were asked to remind the vision care provider to complete the survey as well as offer the option to receive the survey electronically.

Paper 2. Assessing Driving in Older Adults: A Survey of Vision Care Providers in the State of Michigan

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Objectives: To describe the information vision care providers (VCPs) use to assess driving capabilities of their elderly patients, attitudes and perceived barriers regarding this assessment, referral patterns when driving concerns are identified, and assessment resources VCPs would find helpful.

Methods: We developed a survey of VCPs' approaches, attitudes, barriers, and desired resources regarding assessment of driving capabilities among their elderly patients. The survey was informed by a conceptual model of health behavior, prior studies, advice from content experts, and pre-testing. Membership lists of the Michigan Society of Eye Physicians and Surgeons and the Michigan Optometric Association were used to identify a stratified random sample of 500 VCPs. Regression analyses were performed to identify associations with responses.

Results: Table 1 displays the characteristics of our same and figure 1 presents the age distribution of the sample by provider type.

Table 1. VCP Characteristics

Characteristic	Optometrists	Ophthalmologists
	n (%)	n (%)
Туре		
General/Comprehensive	181 (88.3)	115 (59.3)
Subspecialty	24 (11.7)	79 (40.7)
Size of Community		
≤100,000	152 (74.9)	80 (41.9)
>100,000	51 (25.1)	111 (58.1)
No. of Patients		
≤1500	28 (14.0)	11 (6.0)
1501-3500	70 (35.0)	50 (27.3)
>3500	102 (51.0)	122 (66.7)
% of Patients 65+		
≤30%	118 (59.0)	10 (5.2)
31-60%	77 (38.5)	82 (42.5)
>60%	5 (2.5)	101 (52.3)





We achieved a response rate of 81% (n=404). The majority of VCPs (64%) report they routinely inquire about driving, and most (73%) consider asking patients about driving as one of their responsibilities. Based on responses of "often" or "always", the vision tests used most frequently to assess driving capabilities included visual acuity (99%), peripheral vision (82%), and visual field (66%) (Figure 2).



Figure 2. Vision Tests Considered When Determining Driving Fitness

VCPs less frequently considered other medical conditions (49%) and medications that might affect driving (33%). Figure 3 displays the percentage of VCPs inquiring never, rarely, sometimes, often or always about specific driving conditions that may impact safe driving. Inquiries about night driving, reading signs, and glare were very common (\geq 87%), whereas questioning about challenging driving situations (e.g., merging and backing up) and the patient's recent driving record were very infrequent (<8%).

Figure 3. Inquiring About Specific Driving Conditions



Except for asking about wearing corrective lenses while driving (71% often/always), VCPs usually did not inquire about other external conditions or resources [e.g., availability of a "co-pilot" (18%), alternative transportation (23%)], or driving exposure (20%). VCP characteristics that significantly increased the likelihood of seeking driving information (table 2) included more years in practice and having a general practice (vs. specialization).

Question	Mean Score	# Yrs Practice (per 10 Yrs)	Gender (Male vs Female)	Specialist (vs Generalist)	% Pts 65+ Yrs (>60% vs ≤60%)	VCP Type (OD vs MD)
Night Driving	4.3			-0.24 (0.07)		
Heavy traffic	2.9	0.13 (0.04)				
Bad Weather	3.5				0.24 (0.11)	
Reading Signs	4.1		-0.22 (0.08)	-0.22 (0.09)	0.26 (0.10)	0.27 (0.09)
Glare	4.2			-0.37 (0.09)		
Highway Driving	3.1	0.11 (0.04)				
Cars on Left/Right	2.9					-0.26 (0.09)

Table 2. VCP Characteristics that Increase the Liklihood of Seeking Driving Information

Reading Gauges	3.2		-0.31 (0.11)	0.58 (0.10)
Left Turns	2.1	0.10 (0.04)		
Merging	2.1	0.11 (0.04)		
Backing Up	2.1	0.12 (0.04)		

Conclusions: Key data that would enable VCPs to better assess their elderly patients' problems with driving and to more effectively advise them on adjustments that may be necessary are often not obtained.