MUHC Medical Grand Rounds Jan 15, 2019

Driving and Dementia – What Every Practicing Clinician Should Know

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  - Co-founder of CanDRIVE driving research group
  - Member of CCNA, DADIO driving research groups
  - Scientific Editorial Board, Canadian Medical Association
    Fitness-to-Drive guidelines
    - Co-author of chapter on Dementia

☐ Like you, a clinician struggling to do the best for patients despite limited resources and evidence
**GERIATRIC 5Ms®**

<table>
<thead>
<tr>
<th><strong>MIND</strong></th>
<th>Mentation, Dementia, Delirium, Depression</th>
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<td><strong>MOBILITY</strong></td>
<td>Impaired gait and balance, fall injury prevention</td>
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<td><strong>MEDICATIONS</strong></td>
<td>Polypharmacy, De-prescribing, Optimal prescribing, Adverse medication effects and medication burden</td>
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<td><strong>MULTI-COMPLEXITY</strong></td>
<td>Multi-morbidity, Complex bio-psycho-social situations</td>
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<td><strong>MATTERS MOST</strong></td>
<td>Each individual's own meaningful health outcome goals and care preferences.</td>
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## DISCLOSURE OF CONFLICT OF INTEREST

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<td>Membership on advisory boards or speakers’ bureaus</td>
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<td>Funded grants or clinical trials</td>
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<td>CIHR grant to perform systematic review in dementia and driving</td>
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<td>Patents on a drug, product or device</td>
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<td>All other investments or relationships that could be seen by a reasonable, well-informed participant as having the potential to influence the content of the educational activity</td>
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Thank you to the people who have influenced me the most

- **Michael Bonnycastle**
- Allen Huang

University of Ottawa Division of Geriatric Medicine *(sharing of slides)*
  - Anna Byszewski
  - Bill Dalziel
  - Malcolm Hing (now BC)

University of Ottawa Division of Physical Medicine and Rehab
  - Shawn Marshall (CanDRIVE)

Quebec MOT, CCMTA, CMA
  - Jamie Dow

Calgary
  - David Hogan

Kingston (Queen’s University) Cardiology
  - Chris Simpson

Toronto Geriatric Medicine
  - Gary Naglie

Toronto Geriatric Psychiatry
  - Mark Rapoport

BC Psychiatry
  - Ian Gillespie

Ireland (Trinity College)
  - Desmond O’Neil

US (Yale)
  - Richard Marottoli

US (Washington University)
  - David Carr
Objectives

- To understand the factors that affect fitness-to-drive in persons with dementia
- To review practical approaches to assessing fitness-to-drive in dementia
- If time permits – to discuss thorny scenarios as a group
QUESTIONS (we hope you can answer by the end)

- What number of ADL and IADLs lost due to cognition suggest moderate dementia and unfitness to drive?
  - ADLs ___
  - IADLs ___

- What is the best validated cut-off for TRAILS B?
  - Time in minutes
  - Number of errors
  (hint: the __ or ____ rule)
Estimated Numbers of Drivers with Dementia in Ontario

How important is Cognition in driving?

- It is estimated that there are > 100,000 persons with dementia driving in Canada!
- When one adds persons with delirium how high do you think the numbers would go (think of your patients with resolving delirium discharged from hospital)
- The numbers are growing rapidly
- Important for Emergency Departments, Trauma Units, Orthopedic services, General Internal Medicine Services etc.
A Major Public Health Concern

- When involved in a crash, seniors are over 4 times more likely to be seriously injured and hospitalized than are drivers 16-24 years of age.

- Treatment of injuries to seniors is more costly, recovery slower and less complete.

- Majority of crash-injured seniors were driving the vehicle.

- Most (3 of 4) crashes involving older drivers are multiple vehicle crashes (e.g. merging into traffic, left hand turns across oncoming traffic).
Projections

Projected Increase in Casualty Crashes by Age (2006-2026)

Projected Change in Collisions by Driver Age (2006-2026)

Projected Increase in Casualty Crashes by Age (2006-2026)

Source: L’Écuyer et al. (2006). Transport Canada
BUT

- The diagnosis of dementia does *not* automatically mean *no driving*
  - some people with mild dementia can drive albeit for a limited period of time before they must hang up the keys

- The diagnosis of dementia *does mean*:
  - You must ask if the person is still driving
    - The Pandora’s Box Paradox – no protection from lawsuit if you claim you did not know the person was driving
  - You must assess and document driving safety and follow your provincial reporting requirements
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<th>Protection</th>
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<td>Yes – There can be no action unless physician acted maliciously or without reasonable grounds. Report is privileged.</td>
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Assessing Dementia and Driving

- **Start by asking older patients if they drive!**
  - Seems simple but most MDs do not ask (too busy, fear of opening Pandora’s box... Lack of awareness does not provide legal protection)

- Keep in mind that driving capacity depends on a **GLOBAL CLINICAL PICTURE:**
  - including cognition, function, physical abilities, medical conditions, behavior, driving record ....
  - Many patients will be more comfortable with the idea of driving cessation if the decision is made for physical reasons (e.g. loss of vision, syncope etc.)
CMA Determining Medical Fitness to Operate Motor Vehicles (9th edition)

- A voluntary Benefit of Membership provided by the CMA
  - i.e. CMA does not have to publish this guideline and if CMA members ceased to find this useful the guide could disappear
  - Authors of chapters do this work for free or for minimal fee (as do many editors). It is a relatively small investment that likely has huge positive impacts on public safety.
  - Thank you CMA!
CMA Determining Medical Fitness to Operate Motor Vehicles (9th edition)

Huge pool of expertise

- Scientific Editorial Board: Dr. Jamie Dow, Editor-in-Chief, Quebec Dr. Christopher Simpson, Kingston, Ontario Dr. Frank Molnar, Ottawa, Ontario Dr. Ian Gillespie, Victoria, British Columbia Contributing authors: Canadian Cardiovascular Society (Cardiovascular diseases) Canadian Medical Protective Association (Reporting, Appendix B) Canadian Ophthalmological Society (Vision) Dr. Dan Bergeron (Vision) Dr. Edward Brook (Aviation) Dr. François Cabana (Musculoskeletal disabilities) Dr. Bonnie Dobbs (Driving cessation) Dr. Jamie Dow (Introduction, Functional assessment, Anesthesia and surgery, Seatbelts and airbags, Motorcycles and off-road vehicles, Miscellaneous conditions) Dr. Hillel Finestone (Cerebrovascular diseases [including stroke]) Dr. Serge Gauthier (Nervous system) Dr. Charles George (Sleep disorders) Dr. Ian Gillespie (Alcohol, Drugs, Psychiatric illness, Traumatic brain injury) Dr. Roger Goldstein (Respiratory diseases) Dr. Raju Hajela (Alcohol, Drugs) Dr. George Lambros (Railway) Dr. Thomas Lindsay (Vascular diseases) Dr. Shawn Marshall (Traumatic brain injury) Dr. Frank Molnar (Aging, Dementia and mild cognitive impairment) Dr. Lorne Parnes (Auditory and vestibular disorders) Dr. Mark Rapoport (Dementia and mild cognitive impairment) Rebecca Taylor (Dementia and mild cognitive impairment) Dr. David Salisbury (Aviation) Dr. Sabin Shurraw (Renal diseases) Dr. Christopher Simpson (Cardiovascular diseases) Cindy Richardson (Endocrine and metabolic disorders) Dr. Marcello Tonelli (Renal diseases) Dr. Martin Veilleux (Nervous system) Dr. Vincent Woo (Endocrine and metabolic disorders) Contributors: Dr. Russell Barkley (Psychiatric illness) Dr. Laurence Jerome (Psychiatric illness) CMA staff: Jean Nelson, Senior Legal Counsel Joule staff and contractors: Kerri-Ann Mainville, Managing Editor; Nan Bai, Managing Editor; John Lee, General Counsel; Carolyn Brown, Copy Editor; Paul Robert, Manager, Brand & Creative Services; Lindsay Taylor, Production Management; Mireille Theriault, Senior Advisor, Marketing; Jennifer Pershick, Graphic Designer; Lee-Ann Hall, Graphic Designer; Yvonne Craig-Isfan, Graphic Designer; Tony Silvaroli, Operations and Technology; Paul Montforton, Operations and Technology; Deborah Scott-Douglas, VP, Product Management; Renée de Gannes-Marshall, Director, Clinical Products & Services Janice Cooney, Director, Physician Leadership & Engagement.

Room for improvement in methodology - improving

- Authors often asked to update with brief timelines
- Not always based on comprehensive review
- Exception CIHR funded systematic review of Dementia and Traumatic Brain Injury
- Variable quality of chapters
- Despite the above remains an international
Conclusions of Consensus statements on dementia and driving

- Recognize limitations of data
  - those with moderate to severe dementia should not drive (CMA: **Moderate** = 1 ADL or 2 iADLs impaired due to cognition)
  - individual assessment for those with mild dementia
  - periodic follow-up is required (every 6 - 12 months)
  - “gold standard” is comprehensive on-road assessment
Expert / Consensus Guidelines

- Limitations of Guidelines
  - Based on expert opinion recommend tests such as MMSE, Clock Drawing, Trails B
  - Lack of operating instructions (i.e. guidance regarding how to interpret the results of the tests)
    - Do not provide guidance regarding HOW physicians are to apply such tests (e.g. how to respond to different scores, what cut-offs to use, which errors = automatic failure ...
DEMENTIA & DRIVING

- The diagnosis of dementia does not automatically mean no driving (some people with mild dementia can drive albeit for a limited period of time before they must hang up the keys)

- The diagnosis of dementia does mean:
  - You must ask if the person is still driving
  - You must assess and document driving safety and follow your provincial reporting requirements
  - If safe to drive, you must reassess fitness-to-drive every 6 - 12 months
  - You should start to counsel regarding eventual ‘driving retirement’ as early as possible to allow the patient to process, adjust and prepare
    - Anna Byszewski’s Driving and Dementia Toolkit for Patients and Caregivers
Molnar FJ, Simpson CS. Approach to assessing fitness to drive in patients with cardiac and cognitive issues. Canadian family Physician; 2010 ; 56(Nov): 1123-9

Clinical Review
Approach to assessing fitness to drive in patients with cardiac and cognitive conditions
Frank J. Molnar MD FRCPCFRCPS(Eng)  Christopher S. Simpson MD

Abstract
OBJECTIVE To help physicians become more comfortable assessing the fitness to drive of patients with complex cardiac and cognitive conditions.

QUALITY OF EVIDENCE The approach described is based on the authors' clinical practices, recommendations from the Third Canadian Conference on Diagnosis and Treatment of Dementia, and guidelines from the 2003 Canadian Cardiovascular Society Consensus Conference.

MAIN MESSAGE When assessing fitness to drive in patients with multiple, complex health problems, physicians should address conditions that might affect driving into acute intermittent (ie, not usually present on examination) and chronic persistent (ie, always present on examination) medical conditions. Physicians should address acute intermittent conditions first, to allow time for recovery from chronic persistent failures that might be reversible. Decisions regarding fitness to drive in acute intermittent disorders are based on probability of recurrence; decisions in chronic persistent disorders are based on functional assessment.

CONCLUSION Assessing fitness to drive is challenging at the best of times. When patients have multiple health problems, it is even more difficult. This article provides clinicians with systematic approaches to work through such complex cases.

Résumé
OBJECTIF Aider les médecins à s'orienter plus à leur égard pour évaluer la capacité de conduire des patients présentant des conditions cardiaques et cognitives combinées.

QUALITÉ DES PREUFS La méthode décrite est basée sur l'expérience clinique de l'auteur, sur les recommandations de la Troisième conférence canadienne de consensus sur le diagnostic et le traitement de la démence, et sur les directives de la Conférence canadienne de consensus 2003 de la Société canadienne de cardiologie.

PRINCIPAL MESSAGE Lorsqu'il est évalué la capacité de conduire de patients présentant des problèmes de santé multiples et complexes, le médecin devrait distinguer, parmi les conditions médicales susceptibles d'affecter la conduite, celles qui sont intermittentes (c.-à-d., problematiques seulement lors de l'examen) et celles qui sont chroniques persistantes (c.-à-d., toujours présentes lors de l'examen). Il devrait d'abord évaluer les conditions intermittentes, puis les conditions persistantes, afin d'établir un plan de conduite adéquat. Pour les problèmes intermittents, la décision repose sur la probabilité de réapparition, pour les problèmes chroniques persistants, elle repose sur l'évaluation fonctionnelle.

CONCLUSION L'évaluation de la capacité de conduire est plus difficile que prévu. En présence de facteurs multiples, la difficulté est encore plus grande. Cet article fournit une approche systématique pour aborder ces cas particulièrement complexes.
1. Functional Impact of the Dementia

- Consider ADLs and IADLs as a hierarchy with Driving being at the top as the highest level IADL (the only one where fractions of a second can result in accidental death)
- According to CMA guidelines and Canadian Consensus Guidelines on Dementia, persons with dementia are **unsafe to drive** if:
  - Impairment of **2 or more IADL due to cognition** (IADL mnemonic = SHAFT):
    - Shopping,
    - Housework/Hobbies,
    - Accounting,
    - Food,
    - Telephone / Tools / Transportation
  - OR impairment of **1 or more personal ADLs due to cognition** (ADL mnemonic = DEATH):
    - Dressing,
    - Eating,
    - Ambulation,
    - Transfers,
    - Hygiene
2. Family Concerns - ask in a room *separate* from the patient:

- If family feels the patient is safe/unsafe (make sure family has recently been in the car with the person driving).

- *The granddaughter* question—Would you feel it was safe if a 5-year-old granddaughter was in the car alone with the person driving? (Often different response from family’s answer to previous question)

  - *Would you feel it was safe if your child or grandchild were walking in front of a car the patient was driving?*

- Generally if the family feels the person is unsafe to drive, they are unsafe. If the family feels the person is safe to drive, they *may still be unsafe* as family may be unaware or may be protecting the patient.
Ask Family Specific Questions - Signs of a Potential Problem

- Collisions and/or damage to the car
- Getting lost
- Near-misses with vehicles, pedestrians
- Confusing the gas and brake
- Traffic tickets
- Missing stop signs/lights; stopping for green light
- Deferring right of way
- Not observing during lane changes/merging
- Others honking/irritated with the driver
- Needing a co-pilot (cannot compensate for emergencies)
3. Physical Inability to Operate a Car (Often a “physical” reason is better accepted).

- musculoskeletal problems, weakness/multiple medical conditions affecting
  - neck turn,
  - use of steering wheel/pedals,
  - ability to move feet rapidly
  - ability to feel the gas / brake pedals,

- level of consciousness
  - cardiac/neurological problems (episodic “spells”).
Review all medical conditions that can impact on driving (would you get in a car with them based on these findings?)

- **Acute Intermittent**
  - Syncope
  - Seizure

- **Chronic / progressive** (when severe, poorly controlled or changing rapidly can impact on driving)
  - 3Ds: **Dementia** / Delirium / Depression
  - Diabetes
  - Vision and hearing
  - Cardiac disease
  - Stroke
  - Parkinson’s
  - Arthritis
  - Sleep apnea etc.
Look for changes in the following domains:

- **Physical**: weakness; slow / limited movement
- **Sensory**: vision loss; limited feeling in limbs
- **Emotional**: anxiety, panic reactions
- **Cognitive/Perceptual**: upcoming slides
Dementia and Driving Checklist

4. Visuospatial Issues - if major abnormalities, likely unsafe

- Tests
  - Intersecting pentagons/clock-drawing test on MMSE
  - Cube drawing / clock drawing on MOCA

- Significant problems including visual acuity, field of vision
Dementia and Driving Checklist

5. Drowsiness, slow reaction time, lack of focus

- Alcohol, benzodiazepines, narcotics, neuroleptics, sedatives, anticonvulsants
  - especially high doses or changing doses
- Anticholinergics—antiparkinsonian drugs, muscle relaxants, tricyclic antidepressants, antihistamine (OTC), antiemetics, antipruritics, antispasmodics, others (all delirium inducing medications)
Optimizing utility of Cognitive Tests

- Visuospatial
  - MMSE (Pentagons)
  - Clock Drawing

- Executive function
  - Trails A and B
  - Clock Drawing

1. Not going to get into MVPT, UFOV
2. Awaiting CanDRIVE results to determine if better cut-offs can be found for these as well as MOCA – What do I do?
Applying Trichotomization

- Given the results of the cognitive test, would you get in the car with the patient driving (or would you want a child to walk in front of a car they are driving)?
  - Yes
  - Uncertain
  - Absolutely not
The MMSE

- The MMSE can provide a rough framework for assessing driving safety. Unless you feel a low score is due to a language barrier, low education or sensory deficits, patients scoring under 20 are likely unsafe to drive.

- Higher scores are more difficult to interpret.
  - Trichotomization (obviously unsafe, uncertain safety, obviously safe) approach may be helpful
Clock Drawing Test

- A test of Executive Function and Visuospatial function

- Gestalt method: “The good, the bad or the ugly”
  - Once again Trichotomization (obviously unsafe, uncertain safety, obviously safe) approach may be helpful
Trails A
Trails B
Trails A + B

Trails A and B are tests of memory, visuospatial, attention and executive function. Any errors or scoring below the 10th percentile in the time taken raises concerns about driving safety.

Norms for Trails A and B by age (in seconds) and education

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*Trails A: performance decreases with age but is NOT affected by education

*Trails B: performance decreases with age AND with education

Although this test does help determine who should not be driving, passing Trails A+B does not necessarily mean that the patient is safe to drive

TN Tombaugh Arch clin neuropsychol 2004;19.pg 203-14

(Failure = error(s) or time <10th percentile)

- **Trail Making A:**
  - *Unsafe* = >2 minutes or 2 or more errors

- **Trail Making B (Trichotomization):**
  - *Safe* = <2 minutes and <2 errors (0 or 1 error)
  - *Unsafe* = >3 minutes or 3 or more errors (3 or 3 rule)
    - The longer the patient takes and the more errors they make, the more certain you can be that they are unsafe
Reaction Time

- If you notice slow reactions on routine clinical interaction (history, physical examination) the patient may already be too slow to drive and merits further dynamic (i.e. timed) testing. An area where you may find reversibility.

- Stroke(s), depression, Parkinson’s, Sleep Apnea, resolving delirium, medications, brain injury ...

- Look at Trails A and B

- May need on-road if Trails A and B do not answer the question
Other RED FLAGS

- Delusions
- Disinhibition
- Hallucinations
- Impulsiveness
- Agitation
- Anxiety
- Apathy
- Depression
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10 Minute Office Based Dementia and Driving Checklist

- Longer 10 item checklist
INITIAL CONTACT WITH DRIVER WITH DEMENTIA

Do the 10 minute Office Dementia and Driving Checklist - page 10

Clearly unsafe
- Inform the patient to stop driving (give patient/family written notification and document in chart) (page 17)
- Notify the Provincial Registrar, if required (page 10)
- Follow up regarding: (page 16)
  - Confirmation of driving cessation
  - Isolation
  - Depression
  - Use of alternative transportation

Driving risk is uncertain
- IF there are dementia-related issues other than driving which require assessment and treatment (or if patient truly cannot afford on-road test).
- Refer to local multidisciplinary dementia assessment site (could include occupational therapy or neuropsychology evaluation)
- If still unsure re: fitness to drive

Appears safe
- IF driving is the only dementia-related issue to assess.
- Refer to health professional led comprehensive driving evaluation-on/off road (see end of Toolkit)

Follow Up
- (every 6 – 12 months) (page 13)
A. STILL SAFE TO DRIVE – BUT NEEDS FOLLOW UP

Planning for driving retirement: discuss as early as possible

- That we probably all need to prepare for driving cessation at some point, especially when there is an element of early cognitive loss
- How much do you drive?
- How did you get here today?
- Can you tell me, in your own words, why driving is important to you?
- Have you ever considered stopping driving?
  - Yes- under which circumstances?
  - No – would you ever consider it given the diagnosis of dementia?
- What would it mean to you to stop driving?
- If you stopped driving, how would you get around?

- How to prepare patients to eventually stop driving
  - Our patients tell us that being told they need to stop driving is worse than being told they have cancer
  - Consider the tips on page 12 and 16
  - You may want to integrate into your own practice a script such as this:
    - Mr. T, I know driving is very important to you. Based on the results of your tests, I am concerned that in the future you will likely need to stop driving. To protect your safety and the safety of others, you need to consider the future need to retire from driving...I am sorry...

- Follow up:
  - Pre-schedule a follow-up appointment in 6 – 12 months (timing as per MD judgement).
    Ask family to notify you if the patient deteriorates before this appointment.
  - If the patient refuses to return for follow-up, notify the provincial registrar that follow-up is required.
UNCERTAIN RISK

- IF there are dementia-related issues other than driving which require assessment and treatment (or if patient truly cannot afford on-road test)
  - Refer to local multidisciplinary dementia assessment site
  - could include occupational therapy or neuropsychology evaluation
  - (see inserts at back of the Toolkit).

- IF driving is the only dementia-related issue to assess
  - Refer to health professional led comprehensive driving evaluation-on/off road
  - (see inserts at back of the Toolkit)

Additional Points:
- Local multidisciplinary dementia assessment sites
  - information enclosed at the back of the folder
  - or contact the local Ministry of transportation office or Alzheimer Society

- Health Professional led comprehensive Driving Evaluation sites (on/off road)
  - information enclosed at the back of the folder or contact the Provincial Registrar

- Document the discussion with the patient/caregiver in the patient chart
- Document plan of action and how you will follow up on these issues
UNSAFE TO DRIVE

DISCLOSURE MEETING:
When your patient is unfit to drive: 4 steps to driving cessation

1. Meet with family first.
   - Help them assume a positive and supportive role.
   - Explain concretely and empathically your concern for the safety of the patient and others.
   - Clearly outline your findings that the patient is not fit to drive, and explain that the law requires you to report the patient to the authorities.

2. Meet with the patient.
   - Having the family present can be helpful, but ask them to assume a supportive role.
   - Give the patient a positive role by recognizing that he or she has been a responsible driver.
   - Acknowledge that it is normal to be unhappy upon learning that one’s driving privileges are being revoked.
   - Sometimes it helps to give the patient a prescription in their name that says, “Do not drive.” Families who receive a copy may find this very helpful, too, for reminding the patient later about what you said.
   - If your patient argues with your position, remain firm and do not argue.

3. Talk about transportation options.
   - Family members could share driving responsibilities.
   - Taxi rides can cost less than maintaining (including insurance, registration etc) a car if the patient drives <4,000 miles per year.

4. If your patient refuses to comply,
   - meet with the family again and encourage them to remove the patient’s opportunity to drive
   - confiscate the keys, disable the car, or remove the car altogether
   - Provide a written statement to the patient and family

(ref. Rappaport and Molnar)
Date:
Name:
Address:

Dear Mr (Mrs):

I realize that this is a difficult recommendation for you, but based on the results of tests performed, I am recommending you do not drive.

You have undergone assessment for memory/cognitive problems. It has been found by comprehensive assessment that you have __________________________ dementia. The severity is ________________.

Even with mild dementia, compared to people your age, you have an 8 times risk of a car accident in the next year. Even with mild dementia, the risk of a serious car accident is 50% within 2 years of diagnosis.

Additional factors in your health assessment that raise concerns about driving safety include:

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

As your doctor, I have a legal responsibility to report potentially unsafe drivers to the Provincial Registrar. Even with a previous safe driving record, your risk of a car accident is too great to continue driving. Your safety and the safety of others are too important.

__________________________________________ M.D.  __________________________ Witness
RESOURCES/REMOVABLE SECTION
Local resources

- Weblinks to relevant sites
- Alzheimer Society information
- Para Transpo brochure
- Taxi Coupon program
- List of transportation alternatives
- Volunteer drivers contact list

Think about creating a local version!
If you are interested in doing so please contact Dr. Anna Byszewski
( abyszewski@toh.ca )
The Driving and Dementia Toolkit
For Patients and Caregivers
1st Edition
Canadian Geriatrics Society Journal of CME

Canadian Geriatrics Society Journal of CME publishes concise, clinically practical papers that are subject to peer review. This Journal is wholly controlled by the CGS, with our only purpose being to satisfy the educational needs of our members.

If you would like to suggest a topic for future articles, please submit this form.

May 1, 2014
CME Journal - Vol. 4, Issue 1, 2014

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- Editorial
  - Barry Goldlist, MD, FRCP, FACP, AGSF
- Benefits of Exercise in the Elderly
  - Marisa Wan, MD, Roger Y. Wong, MD, FRCP, FACP
- Medicine at 40,000 Feet: Implications for Older Adults
The Future – rapidly changing human-machine interface

- Artificial Intelligence integrated into cars **may worsen or mitigate some of the risks** our patients face when driving so will need to be incorporated into future guidelines (guidelines will have to keep up with technology)

- Perhaps may even detect problems with drivers’ skills!?
We are not there yet – but safe autonomous driving vehicles are coming and will result in a complete reboot of all/most fitness-to-drive research that preceded. All/most research will need to be redone and all guidelines will need to adapt.

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**2016**

- The first ever death in an autonomous car happened in May this year, the US road safety administration revealed yesterday. A man was killed after his Tesla, operating in Autopilot mode, hit an articulated truck.

- Joshua Brown was driving along a Florida highway in a Tesla Model S that had been switched to Autopilot mode, when a truck joined the road from a cross street. Unable to distinguish the white truck against the brightly lit sky, the self-driving system failed to apply the brakes.

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**2018**

- March 23, 2018, a Tesla SUV with driverless technology on autopilot mode crashed into a road divider in Mountain View, Calif., killing its driver, Apple engineer Walter Huang. Huang had earlier complained to a Tesla dealership about how the vehicle in Autopilot mode veered towards the same barrier on multiple occasions,
Key Learning Points

1. If dementia is diagnosed, driving must be asked about, formally assessed, documented and relevant findings must be reported to the Ministry of Transportation.
   - even if reporting is discretionary you can still face college complaint and civic lawsuits

2. If you are unsure of safety, refer to specialized assessment or specialized on-road testing.

3. In dementia, driving safety must be reassessed every 6 to 12 months.
QUESTIONS
(look for a pattern in the answers)

- What number of ADL and IADLs lost due to cognition suggest moderate dementia and unfitness to drive?
  - ADLs 1
  - IADLs 2

- What is the best validated cut-off for TRAILS B?
  - Time in minutes 3
  - Number of errors 3
  (hint: the __ or ____ rule)
**GERIATRIC 5Ms®**

<table>
<thead>
<tr>
<th><strong>MIND</strong></th>
<th>Mentation, Dementia, Delirium, Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOBILITY</strong></td>
<td>Impaired gait and balance, fall injury prevention</td>
</tr>
<tr>
<td><strong>MEDICATIONS</strong></td>
<td>Polypharmacy, De-prescribing, Optimal prescribing, Adverse medication effects and medication burden</td>
</tr>
<tr>
<td><strong>MULTI-COMPLEXITY</strong></td>
<td>Multi-morbidity, Complex bio-psycho-social situations</td>
</tr>
<tr>
<td><strong>MATTERS MOST</strong></td>
<td>Each individual's own meaningful health outcome goals and care preferences.</td>
</tr>
</tbody>
</table>
Risky Scenarios
Clinical Scenario

- You have found a patient unfit to drive and have informed them and their family. The patient says you are not permitted to send their medical information to the Ministry of Transportation or they will sue you and call the college.
  - What do you do?
Clinical Scenario

- A patient is in your office who is clearly unfit to drive home. MMSE 6/30. You tell them they should not drive home but they refuse to comply. You feel they are an imminent threat to public safety.
  - What do you do?
Your Thorny Clinical Scenarios

- What driving related situations create challenges (headaches) for you in clinical practice?
- The whole audience represents the experts