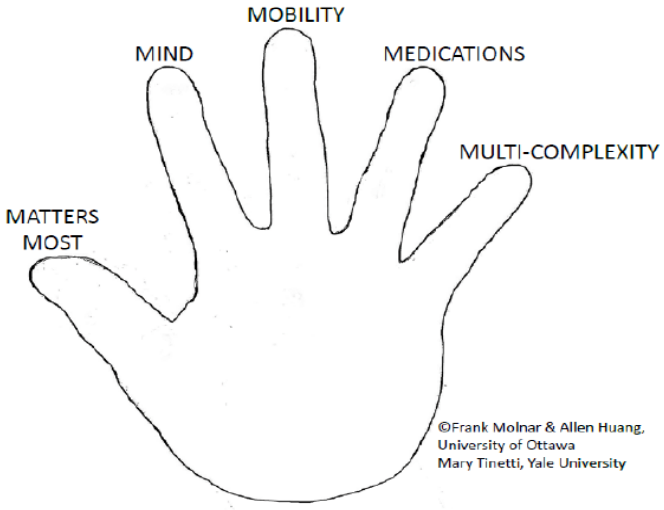
MUHC Medical Grand Rounds Jan 15, 2019

Driving and Dementia – What Every Practicing Clinician Should Know

- Dr. Frank Molnar (fmolnar@toh.ca)

- 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



Dr. Frank Molnar

Canadian Geriatrics Society, CME Journal

GERIATRIC 5Ms©	
MIND	Mentation, Dementia, Delirium, Depression
MOBILITY	Impaired gait and balance, fall injury prevention
MEDICATIONS	Polypharmacy,De- prescribing, Optimal prescribing, Adverse medication effects and medication burden
MULTI-COMPLEXITY	Multi-morbidity, Complex bio-psycho-social situations
MATTERS MOST	Each individual's own meaningful health outcome goals and care preferences.

DISCLOSURE OF CONFLICT OF INTEREST

Nature of relationship(s) (over previous 2-years)	Name of for-profit or not-for-profit organization(s)	Description of relationship(s)
Direct financial payments including receipt of honoraria	No	
Membership on advisory boards or speakers' bureaus	No	
Funded grants or clinical trials	??	CIHR grant to perform systematic review in dementia and driving
Patents on a drug, product or device	No	
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	No	

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

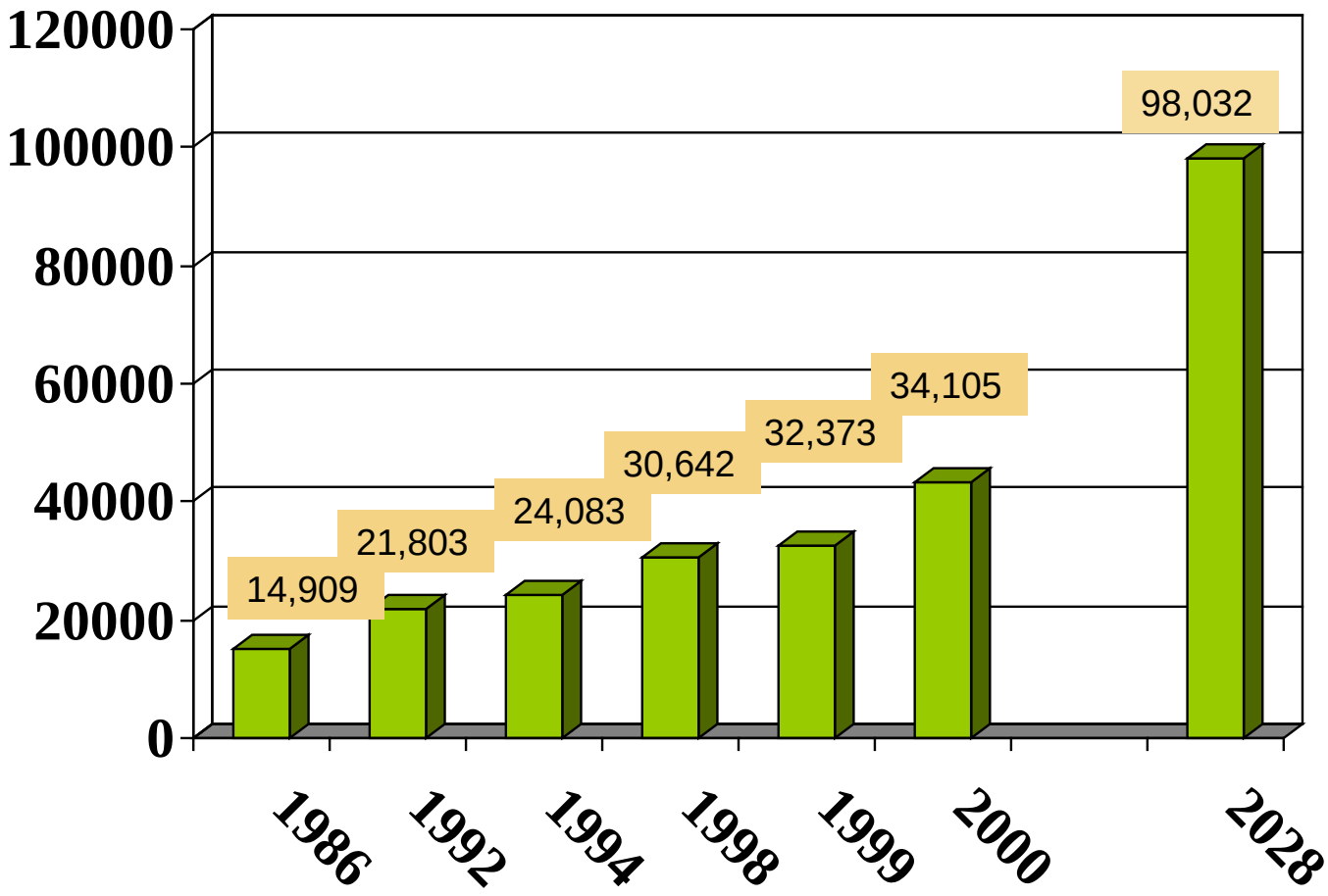
- To understand the factors that affect fitness-to-drive in persons with dementia
- To review practical approaches to assessing fitness-to-drive in dementia
- If time permits – to discuss thorny scenarios as a group

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[1]



[1] from Hopkins, et al., (2004)

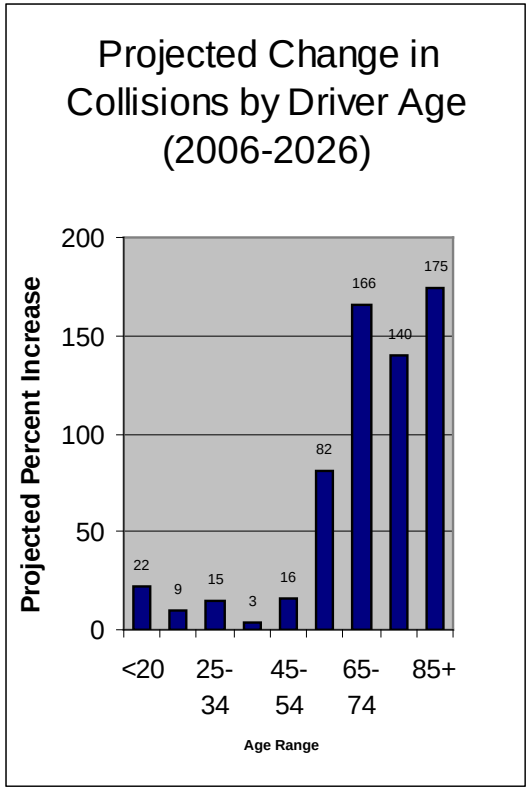
How important is Cognition in driving?

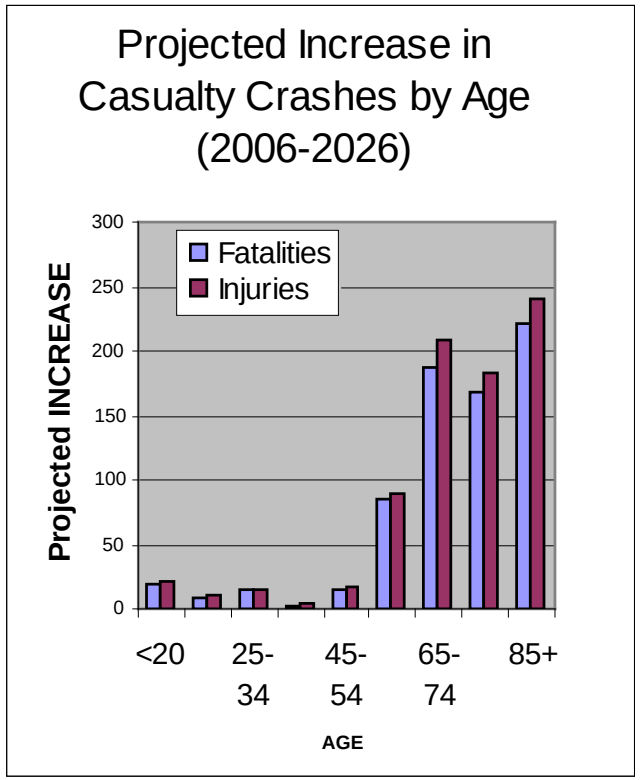
- It is estimated that there are > 100,000 **persons with dementia** driving in Canada!
- When one adds persons with delirium how high do you think the numbers would go (think of your patients with resolving delirium discharged from hospital)
- The numbers are growing rapidly
- Important for Emergency 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





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

Province	Obligation to Report	Protection
British Columbia	Mandatory	Yes – report is privileged. No right of action against physician for reporting
Alberta	**Discretion**	Yes – No liability for reporting.
Saskatchewan	Mandatory	Yes – Report is privileged. No right of action against physician for reporting.
Manitoba	Mandatory	Yes – Report is privileged. No right of action against physician for reporting.
Ontario	Mandatory	Yes – Report is privileged and not admissible. No action against physician for complying with reporting.
Quebec	**Discretion**	Yes – No action against physician for reporting.
New Brunswick	Mandatory	Yes - No action against physician for reporting.
Prince Edward Island	Mandatory	Yes - Report is privileged. No right of action against physician for reporting.
Nova Scotia	**Discretion**	Yes - No action against physician for reporting.
Newfoundland	Mandatory	Yes - Report is privileged and not admissible. No action against physician for complying with reporting.
Yukon Territory	Mandatory	Yes – No liability for reporting
North West Territory	Mandatory	Yes – There can be no action unless physician acted maliciously or without reasonable grounds. Report is privileged.

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)

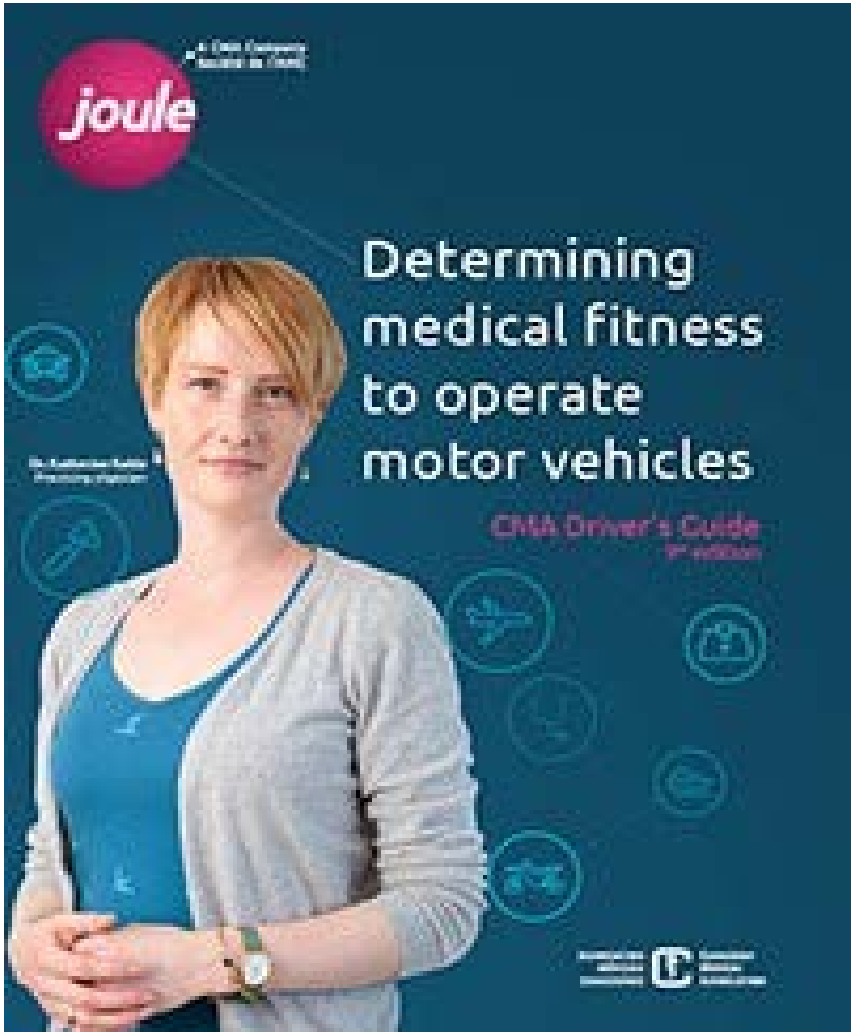
- Keep in mind that driving capacity depends on a **GLOBAL CLINICAL PICTURE**:

  - 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 Council 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 Monforton, Operations and Technology Deborah Scott-Douglas, VP, Product Management Renée de Gannes-Marshall, Director, Clinical Products & Services Janice Cooney, Director, Physician Leadership & Development

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 MSc MD CM Christopher S. Simpson MD

Physicians are often uncomfortable assessing fitness to drive; many have never been taught how to perform such an assessment. The physical examination was developed to detect the presence and severity of disease, not to assess functional skills, such as ability to drive. Telling patients that they are no longer fit to drive can be traumatic for patients, their families, and health care providers.[1] Furthermore, there is evidence that mandatory reporting of unfit drivers to regulatory bodies might adversely affect patient-physician relationships, potentially leading to unintended and unforeseen suboptimal outcomes.[2-9]

On the other side of the coin, reporting unsafe drivers is legally mandated in most Canadian jurisdictions,[10] and even where it is not, physicians can still be found liable if they fail to report a patient who is later determined to have caused harm to others as a result of medical impairment behind the wheel. Accurate assessment of fitness to drive, however, allows physicians to help patients avoid disabling injuries or death and to help patients and their families avoid the grief and legal repercussions associated with contributing to the injuries or deaths of other road users or bystanders.

To better prepare physicians to meet this important societal role, we present our clinical approach to assessing fitness to drive in the context of a fictitious case, which contains several common elements that might be encountered in everyday practice.

This article has been peer reviewed.
Cet article a fait l'objet d'une révision par des pairs.
Can Fam Physician 2010;56:1123-9

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 Consensus 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 divide 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 features 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 comorbidities, assessment becomes even more difficult. This article provides clinicians with systematic approaches to work through such complex cases.

Résumé

OBJECTIF Aider le médecin à se sentir plus à l'aise pour évaluer la capacité de conduire des patients présentant des conditions cardiaques et cognitives complexes.

QUALITÉ DES PREUVES La méthode décrite est fondée 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 évalue 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 aiguës intermittentes (c.-à-d. généralement absentes lors de l'examen) et celles qui sont chroniques persistantes (c.-à-d. toujours présentes lors de l'examen). Il devrait d'abord s'occuper des conditions aiguës intermittentes pour laisser le temps aux conditions chroniques persistantes potentiellement réversibles de guérir. Pour les problèmes aigus intermittents, la décision repose sur la probabilité de récurrence; pour les problèmes chroniques persistants, elle repose sur l'évaluation fonctionnelle.

CONCLUSION L'évaluation de la capacité de conduire est presque toujours difficile. En présence de facteurs multiples de morbidité, la difficulté est encore plus grande. Cet article suggère une approche systématique pour aborder ces cas particulièrement complexes.

Figure 2. Dementia and driving checklist for use by physicians and health care professionals*

Given the following findings, would you be willing to get into a car (or would you allow your children or grandchildren to get into a car) with your patient driving? (Note that it is not necessary to complete all items if it is obvious that the patient is unsafe to drive based on early items)

Problem

1. Functional impact of the dementia
According to CMA guidelines,* patients are unsafe to drive if they demonstrate the following:
- ☐ impairment of ≥1 IADL *due to cognition* (IADLs SHAFT mnemonic: *Shopping; Housework/Hobbies; Accounting* [banking, bills, taxes]; *Food preparation; Telephone / Tools/ Transportation* [driving])
- ☐ impairment of ≥1 personal ADLs *due to cognition* (ADLs DEATH mnemonic: *Dressing; Eating; Ambulation; Toileting/Transfers; Hygiene*)

2. Family concerns (to be asked away from the patient)
- ☐ Family members feel safe or unsafe in the car with the patient (and have recently been in the car with the patient)
- ☐ The child safety question: Would you feel it was safe if a 5-year-old child were alone in the car while the patient was driving? (Often a different response from family member's answer to previous question)
- ☐ Generally, if family members believe the patient is unsafe to drive, he or she usually is. If family members believe the patient is safe to drive, he or she *might still be unsafe to drive*, as family members might be unaware or might be protecting the patient

3. Physical inability to operate a car
- ☐ Medical or physical concerns, such as musculoskeletal problems, weakness, hindered neck turn, problems using steering wheel or pedals, cardiac or neurological problems, episodic cardiac or neurologic "spells," or other multiple medical conditions that inhibit the patient's ability to operate a vehicle

4. Visuospatial issues
- ☐ Substantial problems relating to visual acuity and field of vision, inability to draw intersecting pentagons, and substantially abnormal results of the clock-drawing or cube-drawing tests

5. Drowsiness, slow reaction time, and lack of focus
Review potentially contributory medical conditions (eg, sleep apnea, delirium, depression) or medications that might represent potentially reversible factors:
- ☐ alcohol, benzodiazepines, narcotics, antipsychotics, and sedatives
- ☐ anticholinergic medications (antiparkinsonian drugs, muscle relaxants, tricyclics, OTC antihistamines, antiemetics, antipsychotics, antispasmodics, etc)

6. Trail Making Test, parts A and B (available from www.cgs-sgc.ca)
- ☐ Trail Making A: Sample trail A, full trail A, and sample trail B should be performed *before* full trail B
- ☐ Trail Making B: *Safe* = ≤ 2 minutes and ≤ 2 errors (0 or 1 error)
  Unsure = 2 to 3 minutes or 2 errors (consider qualitative dynamic information regarding how the test was performed—slowness, hesitation, anxiety or panic attacks, impulsive or perseverative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc)
  Unsafe = ≥ 3 minutes or ≥ 3 errors (the longer the patient takes and the more errors they make, the more certain you can be that they are unsafe)

Conclusion

◯ **Safe** Review fitness to drive every 6 to 12 months. Ask family members to report any sudden changes in health status (eg, review signs of delirium)

◯ **Unsafe** Tell patient to stop driving and report to MOT. Offer to write letter to remind them they are not to drive. Keep documentation of report to MOT in chart

◯ **Unsure** Refer for further assessment

ADL—activity of daily living; CMA—Canadian Medical Association; IADL—instrumental activity of daily living; MOT—Ministry of Transportation; OTC—over the counter.
*This figure is a shortened version of the 10-minute office-based dementia and driving checklist for use by physicians and health care professionals,[11] based on clinical opinion and experience, not evidence.
Adapted from Molnar et al[11] with permission.

Dementia and Driving Checklist

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):
  - ***S****hopping*,
  - ***H***ousework/***H***obbies,
  - ***A***ccounting,
  - ***F***ood,
  - ***T***elephone / ***T***ools /***T***ransportation
- *OR* *i*mpairment of **1 or more personal ADLs** *due to cognition* (ADL mnemonic = DEATH:
  - ***D***ressing,
  - ***E***ating,
  - ***A***mbulation,
  - ***T***ransfers,
  - ***H***ygiene

Dementia and Driving Checklist

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)

Dementia and Driving Checklist

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

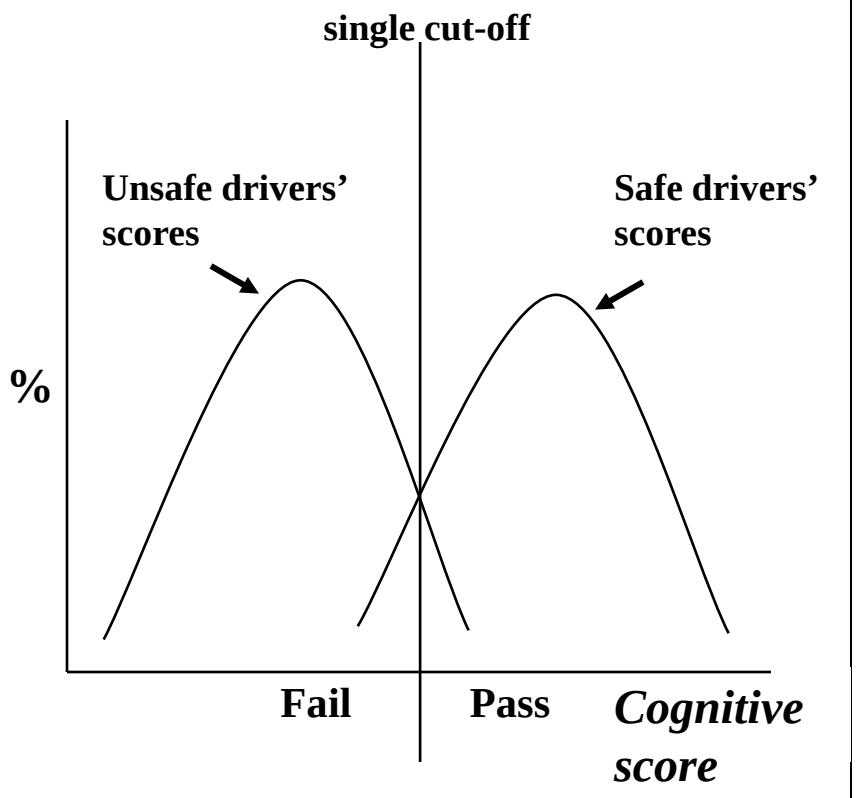
- Alcohol, benzodiazepines, narcotics, neuroleptics, sedatives, anticonvulsants
  - **especially high doses or changing doses**
- Anticholinergics—antiparkinsonian drugs, muscle relaxants, tricyclic antidepressants, antihistamine (OTC), antiemetics, antipruritics, antispasmodics, others (all delirium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

Optimizing utility of Cognitive Tests

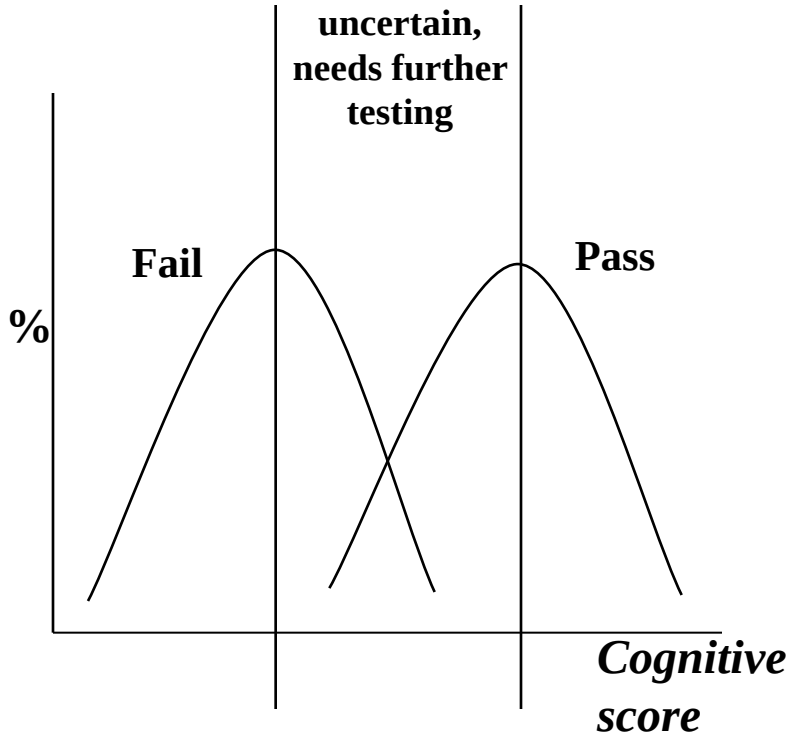
- Visuospatial
  - MMSE (Pentagons)
  - Clock Drawing
- Executive function
  - Trails A and B
  - Clock Drawing

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?**

Overlapping Cognitive Scores (Dichotomization)



Trichotomization



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

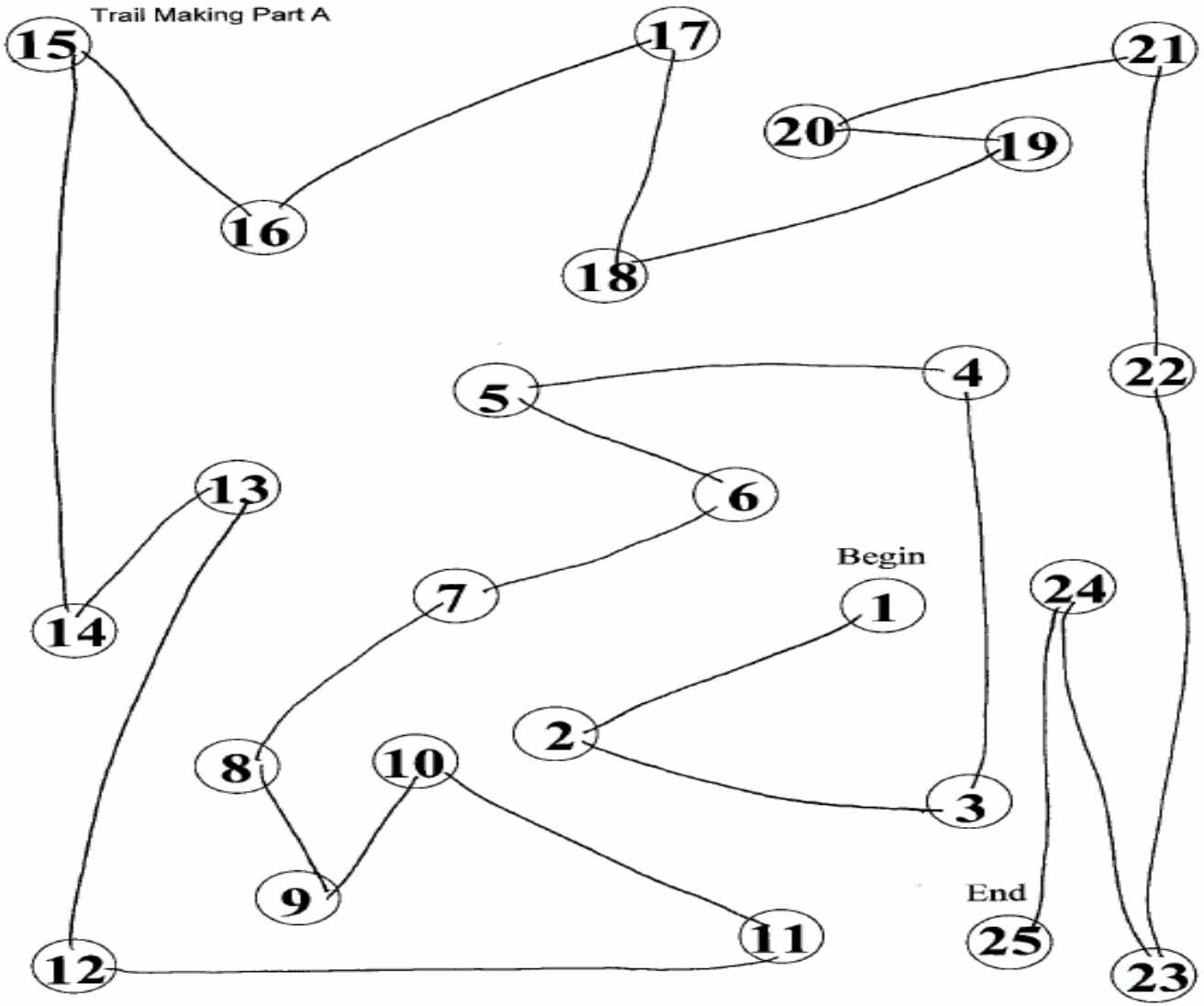
- The MMSE can provide a rough framework for assessing driving safety. Unless you feel a low score is due to a language barrier, low education or sensory deficits, patients scoring under 20 are likely unsafe to drive.
- Higher scores are more difficult to interpret.
  - Trichotomization (obviously unsafe,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


Trail Making Part A
15
17
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22
13
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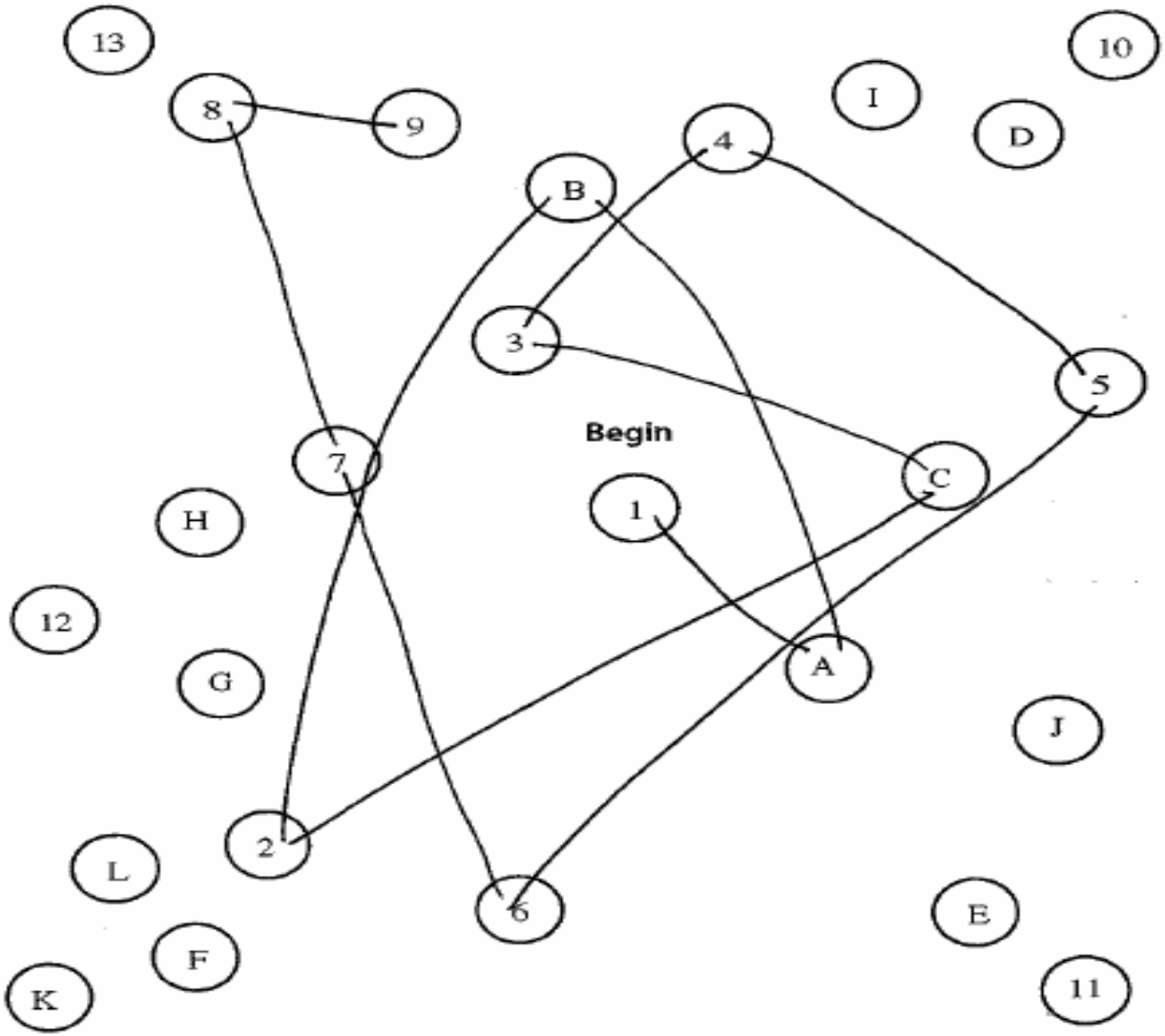
Begin
7
24
1
14
2
8
10
3
9
End
11
25
12
23

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

Age	Percentiles: 90th/50th/10th			
	90/50/10	Trails A*	Trails B ≤Grade 12	Trails B >Grade 12*
65-69	90 50 10	25 37 53	60 86 137	52 68 77
70-74	90 50 10	26 38 61	70 101 172	59 84 112
75-79	90 50 10	27 46 70	78 120 189	57 81 178
80-84	90 50 10	31 52 93	72 140 158	89 128 223
85+	90 50 10	36 54 120	79 143 319	70 121 240

***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)

6. Trail Making A and B (available at www.rgpeo.com).

- 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)
  - *Unsure* = 2–3 minutes or 2 errors (consider qualitative dynamic information regarding *how* the test was performed—slowness, hesitation, anxiety or panic attacks, impulsive or perseverative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc.)
  - *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
    - Reference: Roy M, Molnar FJ. **Systematic review of the evidence for Trails B cut-off scores in assessing fitness-to-drive.** Canadian Geriatrics Journal (cgjonline.ca) Sept 2013; 16(3); 1 - 23

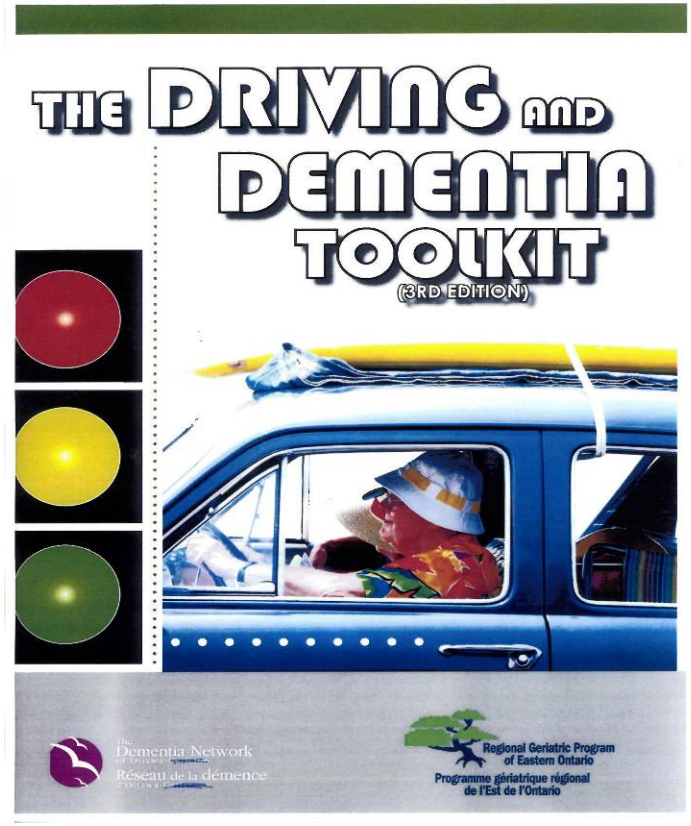
Reaction Time

- **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. <u>An area where you may find reversibility.</u>**
  - **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**

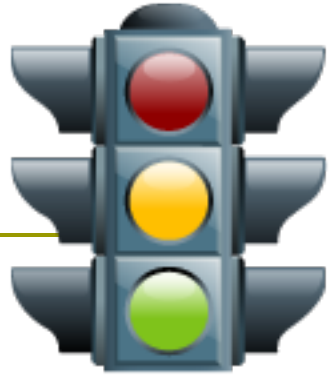
Other RED FLAGS

- Delusions
- Disinhibition
- Hallucinations
- Impulsiveness
- Agitation
- Anxiety
- Apathy
- Depression

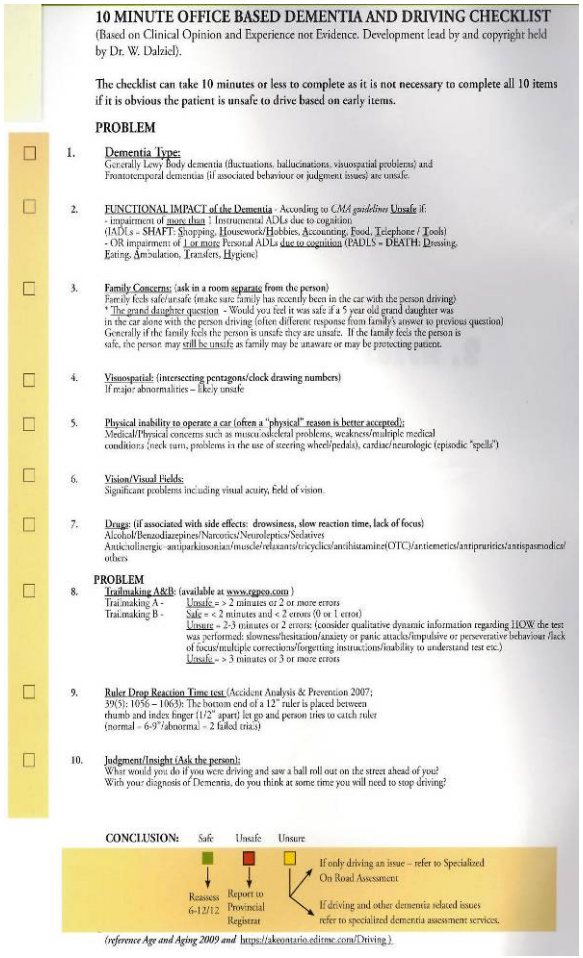
www.rgpeo.com → Health Care Practitioners → Resources→ Driving



CONTENT AREAS



10 Minute Office Based Dementia and Driving Checklist



10 MINUTE OFFICE BASED DEMENTIA AND DRIVING CHECKLIST

(Based on Clinical Opinion and Experience not Evidence. Development lead by and copyright held by Dr. W. Dalziel).

The checklist can take 10 minutes or less to complete as it is not necessary to complete all 10 items if it is obvious the patient is unsafe to drive based on early items.

PROBLEM

1. Dementia Type:
Generally Lewy Body dementia (fluctuations, hallucinations, visuospatial problems) and Frontotemporal dementias (if associated behaviour or judgment issues) are unsafe.

2. FUNCTIONAL IMPACT of the Dementia - According to *CMA guidelines* Unsafe if:
- impairment of more than 1 Instrumental ADLs due to cognition
(IADLs = SHAFT: Shopping, Housework/Hobbies, Accounting, Food, Telephone / Tools)
- OR impairment of 1 or more Personal ADLs due to cognition (PADLS = DEATH: Dressing, Eating, Ambulation, Transfers, Hygiene)

3. Family Concerns: (ask in a room separate from the person)
Family feels safe/unsafe (make sure family has recently been in the car with the person driving)
* The grand daughter question - "Would you feel it was safe if a 5 year old grand daughter was in the car alone with the person driving (often different response from family's answer to previous question)
Generally if the family feels the person is unsafe they are unsafe. If the family feels the person is safe, the person may still be unsafe as family may be unaware or may be protecting patient.

4. Visuospatial: (intersecting pentagons/clock drawing numbers)
If major abnormalities – likely unsafe

5. Physical inability to operate a car (often a "physical" reason is better accepted):
Medical/Physical concerns such as musculoskeletal problems, weakness/multiple medical conditions (neck turn, problems in the use of steering wheel/pedals), cardiac/neurologic (episodic "spells")

6. Vision/Visual Fields:
Significant problems including visual acuity, field of vision.

7. Drugs: (if associated with side effects: drowsiness, slow reaction time, lack of focus)
Alcohol/Benzodiazepines/Narcotics/Neuroleptics/Sedatives
Anticholinergic- antiparkinsonian/muscle relaxants/tricyclics/ancihistamine(OTC)/antiemetics/antipruritics/antispasmodics/ others

PROBLEM

8. Trailmaking A&B: (available at www.rgpoa.com)
Trailmaking A - Unsafe = > 2 minutes or 2 or more errors
Trailmaking B - Safe = < 2 minutes and < 2 errors (0 or 1 error)
Unsure = 2-3 minutes or 2 errors: (consider qualitative dynamic information regarding HOW the test was performed: slowness/hesitation/anxiety or panic attacks/impulsive or perseverative behaviour /lack of focus/multiple corrections/forgetting instructions/inability to understand test etc.)
Unsafe = > 3 minutes or 3 or more errors

9. Ruler Drop Reaction Time test (Accident Analysis & Prevention 2007; 39(5): 1056 – 1065): The bottom end of a 12" ruler is placed between thumb and index finger (1/2" apart) let go and person tries to catch ruler (normal = 6-9"/abnormal = 2 failed trials)

10. Judgment/Insight (Ask the person):
What would you do if you were driving and saw a ball roll out on the street ahead of you?
With your diagnosis of Dementia, do you think at some time you will need to stop driving?

CONCLUSION: Safe Unsafe Unsure

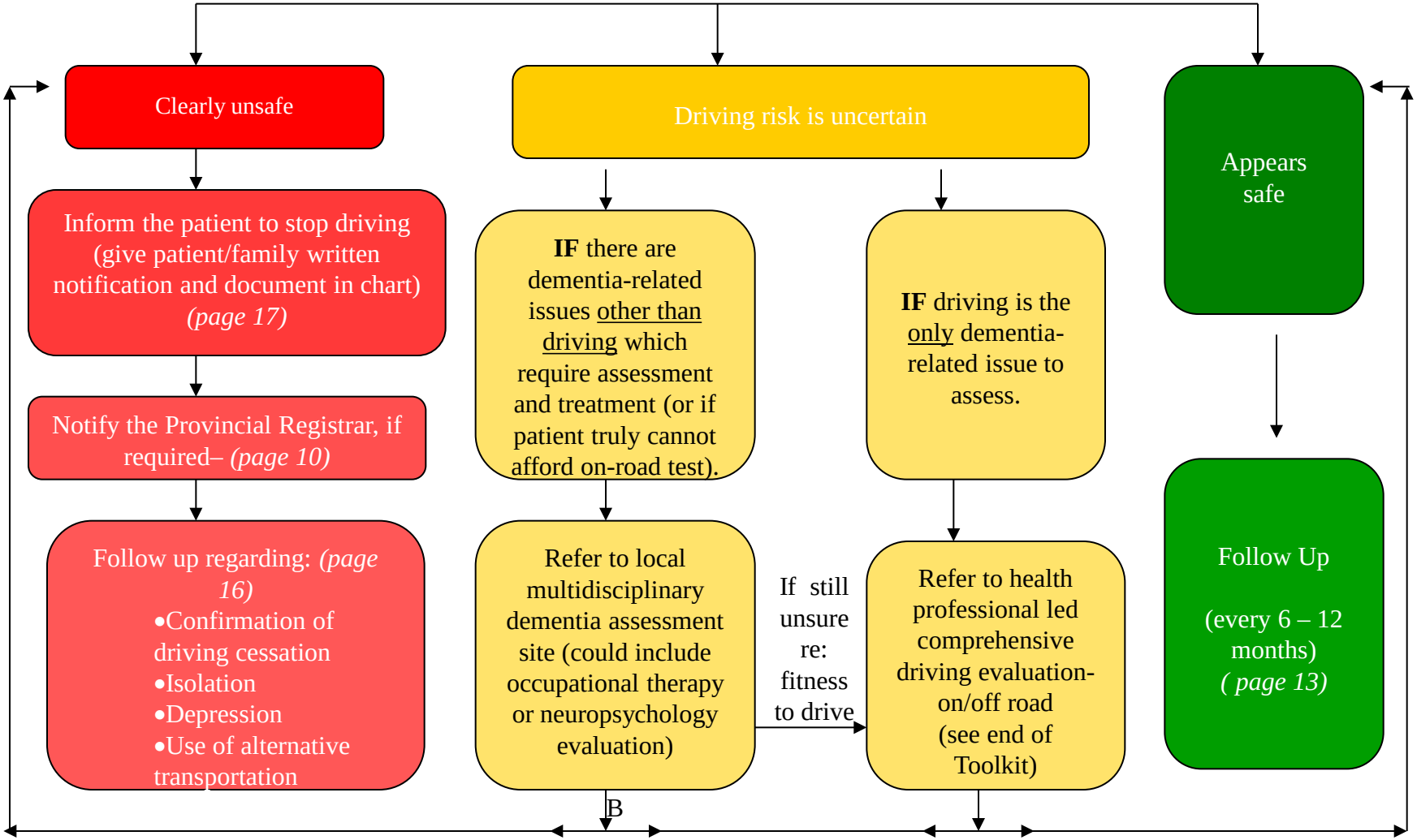
Reassess 6-12/12 — Report to Provincial Registrar — If only driving an issue – refer to Specialized On Road Assessment; If driving and other dementia related issues refer to specialized dementia assessment services.

(reference Age and Aging 2009 and https://takeontario.editme.com/Driving)

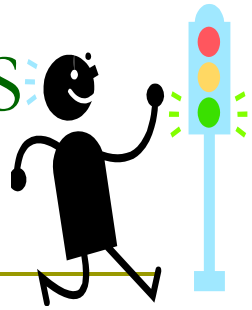
- Longer 10 item checklist

INITIAL CONTACT WITH DRIVER WITH DEMENTIA

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



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.

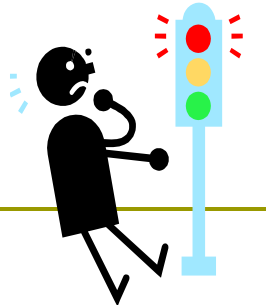
UNCERTAIN RISK

- **IF there are dementia-related issues <u>other than driving</u> 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 <u>only</u> 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

SAMPLE - WRITTEN STATEMENT TO THE PATIENT

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

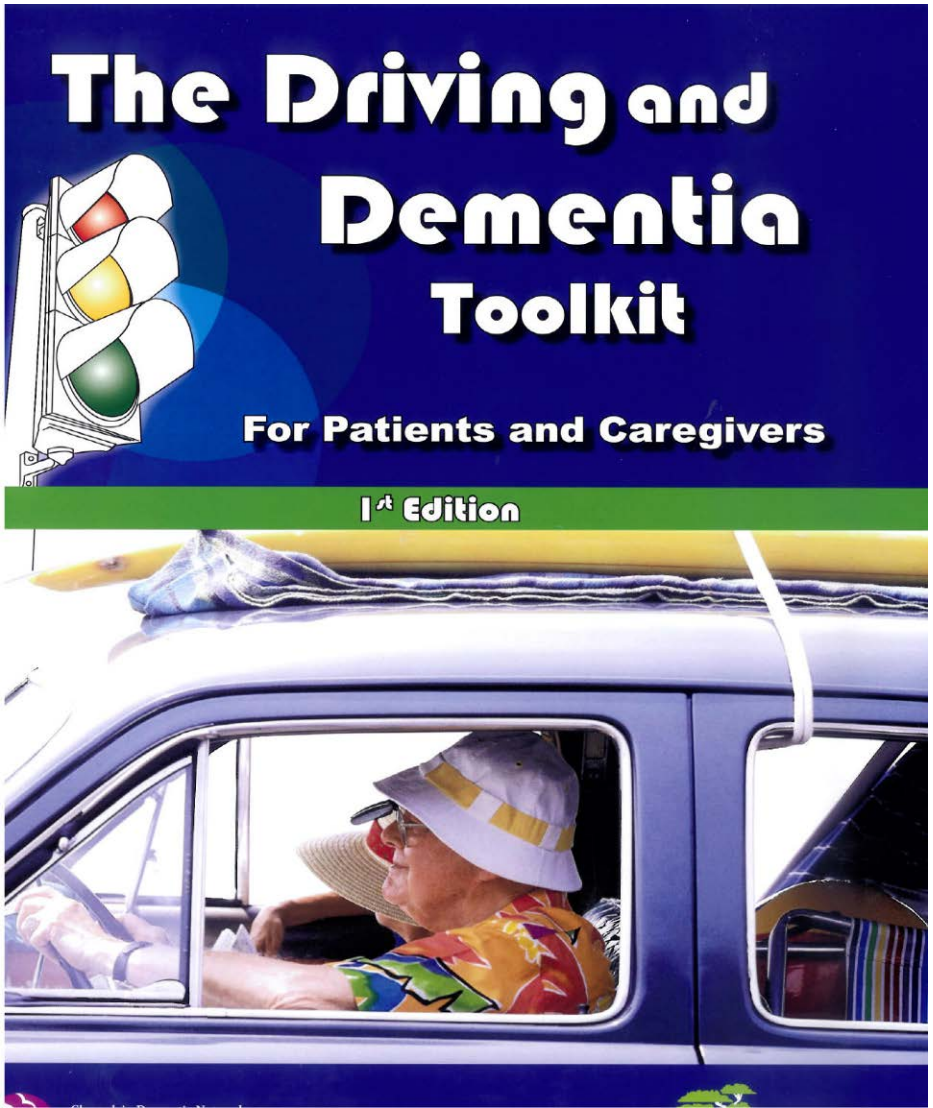
- Weblinks to relevant sites
- Alzheimer Society information
- Para Transpo brochure
- Taxi Coupon program
- List of transportation alternatives
- Volunteer drivers contact list

Think about creating a local version!

If you are interested in doing so please contact Dr. Anna Byszewski

(abyszewski@toh.ca)

www.rgpeo.com → Health Care Practitioners → Resources→ Driving



www.geriatricsjournal.ca

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!?**

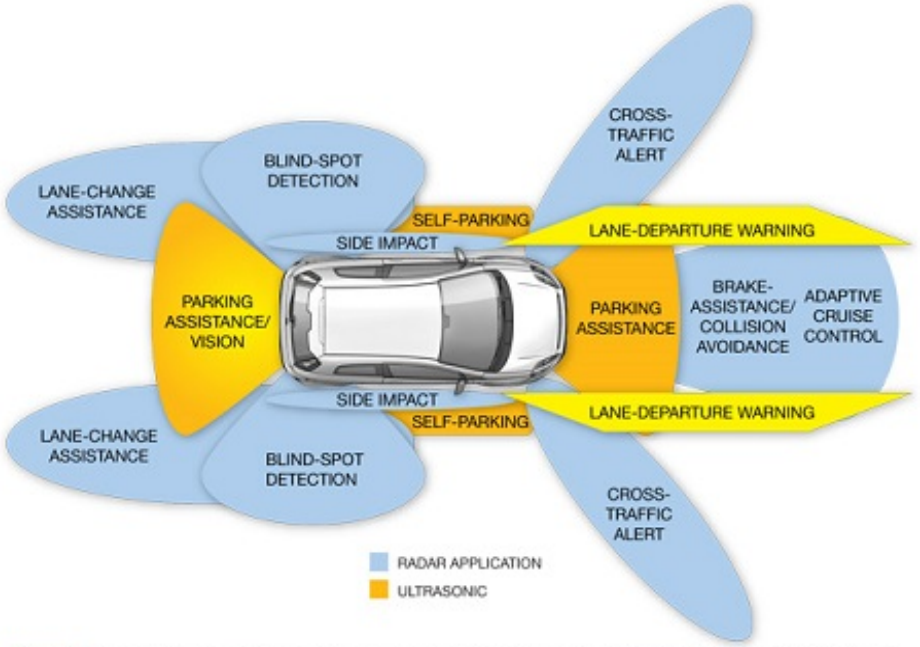


Figure 2 Several driver-assistance systems are currently using radar technology to provide blind-spot detection, parking assistance, collision avoidance, and other driver aids (courtesy Analog Devices).

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.

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.

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 complainst and civic lawsuits

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

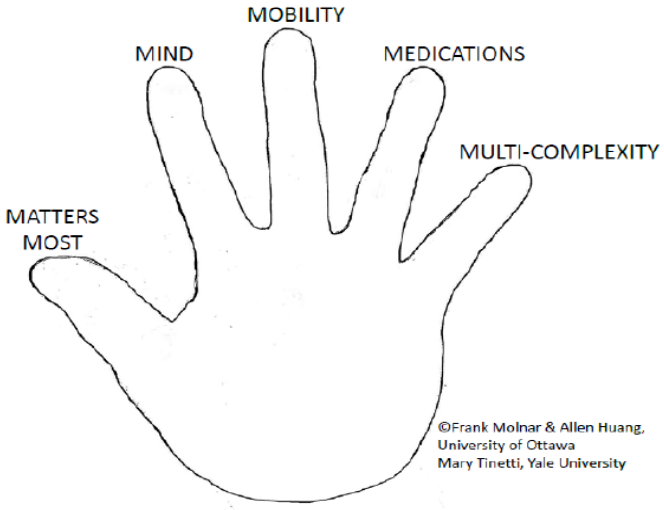
3. In dementia, driving safety must be reassessed every 6 to 12 months.

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)



Dr. Frank Molnar

Canadian Geriatrics Society, CME Journal

GERIATRIC 5Ms©	
MIND	**M**entation, Dementia, Delirium, Depression
MOBILITY	Impaired gait and balance, fall injury prevention
MEDICATIONS	Polypharmacy,De- prescribing, Optimal prescribing, Adverse medication effects and medication burden
MULTI-COMPLEXITY	**M**ulti-morbidity, Complex bio-psycho-social situations
MATTERS MOST	Each individual's own meaningful health outcome goals and care preferences.

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