Driving & Dementia

Presented by:
Dr. Frank Molnar,
Division of Geriatric Medicine, University of Ottawa
CIHR CanDRIVE Team Member

A Partnership of the Alzheimer Knowledge Exchange and the Canadian Geriatrics Society

No Conflict of Interest

- No Pharmaceutical Industry support
- No Automotive Insurance Industry support

Completing this Module

- Work through the sections one at a time *(You can stop at any time and return to the section you were working on by visiting the menu page on the next screen and clicking on the section you would like to return to. You can also return to the Menu at any time by clicking the Menu button on the screen you are at.)*
- At the end of each section, you will be asked to take some time to reflect what you have just reviewed and how it applies to your own practice. Taking time to work through these questions will aid your learning and help you prepare to apply for credit for your work.
- When you have completed the module be sure to review your options for obtaining professional credits.

Completing this Module

- Many screens are accompanied by audio - be sure your speakers are turned on.
- You may wish to print a copy of the slides with accompanying notes to record your own notes and to serve as a future reference *(this file is available at www.akeresourcecentre.org/DrivingModule).*
- You will be asked to complete a case using the 10 Minute Checklist Worksheet and either a case from your practice or a provided case study *(Both of these can be found on the webpage above).*

Menu

Scope of the Issue

Assessment Guidelines

Assessing Fitness-to-Drive

Disclosing Your Findings

Reporting Unsafe Drivers & Ongoing Monitoring

Summary

Resources

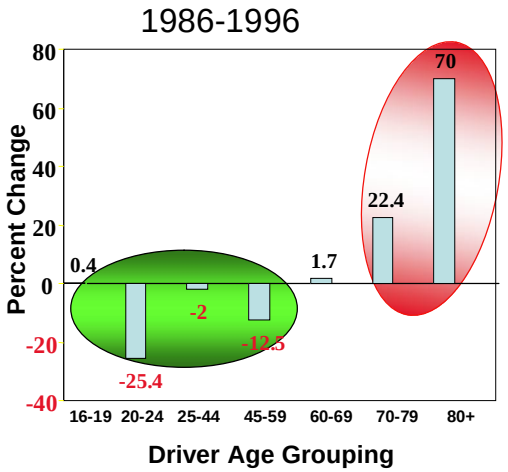
Options for Credit

Driving & Dementia: Scope of the Issue

Reflect on Your Current Practice

- Who is at driving risk and why?
- Why is this issue important for me?
- What is my current approach to screening patients?
- What questions or concerns do I have about driving and dementia as a physician?

The Aging Driving Population



***Data Source**: An Over view of Senior Driver Collision Risk, Safety Policy Branch Ministry of Transportation of Ontario, September 9, 1998.

• There will be more older drivers on the road (in absolute numbers and in percentage of all drivers).

• This graph indicates that between 1986 and 1996 the percentage of all drivers that were 70 years of age and older grew while the percentage of younger drivers decreased. This shift in the age of drivers continues.

The U-Shaped Curve Crashes/Km

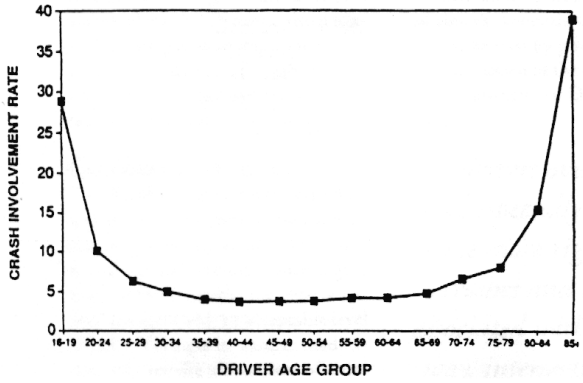


Figure 2. Rate of Motor vehicle crashes adjusted for miles driven according to driver's age. SOURCE: Cerrelli E. *Older Drivers: The Age Factor in Traffic Safety.* Washington, DC: US Department of Transportation, National Highway Traffic Safety Administration, 1989

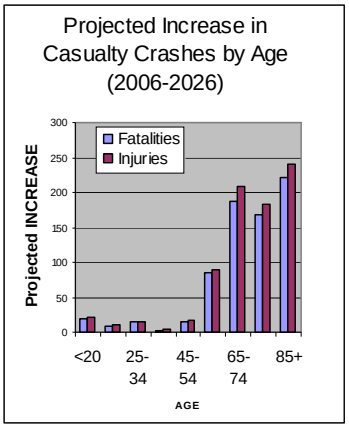
• Curve of car crashes per Km overstates the problem – the U shape would be less prominent (risk not as high for older persons who do not drive as much) if measure crashes per driver rather than per Km.

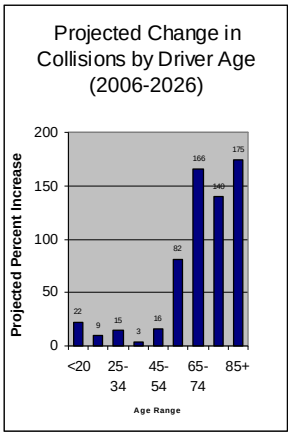
• **Most older drivers are safe** – crashes are primarily caused by older drivers who do not compensate for accumulating medical problems (a minority of older drivers).

• The U-shaped curve never reaches 0 risk. Everyone who drives is at some risk of crash. Society decides how much risk is acceptable.

• Young drivers crash for reasons that are best addressed by legislation and law enforcement (inexperience, risk taking behaviour – speed, substance abuse) while older drivers crash due to reasons that can be detected and addressed by physicians (e.g. cumulative effect of illnesses and medications on function).

Projections





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

• These graphs demonstrate that it is predicted that between 2006 and 2026 the percentage and absolute numbers of car crashes and crash related injuries and fatalities will increase primarily in the older age group. This has serious implications for resource use in Emergency Departments and acute care hospitals.

• We see such curves for many illnesses. The fundamental difference in this area is that crash risk impacts on the safety of the general public not just the person who is driving.

A Major Public Safety Concern

- Seniors are over 4 times more likely to be seriously injured in a crash and hospitalized than drivers16-24 years of age.
- Treatment of injuries to seniors is more costly, recovery slower, less complete. Often left with disabilities
- Majority of crash-injured seniors were driving the vehicle.
- Most (3 of 4) crashes involving older drivers are multiple vehicle crashes.

• You are not doing older patients any favours if you allow them to drive when they are unsafe. If involved in a crash they may lose years of independent life and may have to live with the guilt of injuring or killing others.

• This is a public safety issue. People have a right to live at risk but do not have a right to endanger others. This may affect the threshold of risk we as a society are willing to accept (if we err we should err on the side of public safety).

Driving Risk: Not Primarily Age

- Medical conditions and medications are primary causes of declines in older driver competence.
- **Severity** and/or **instability** of conditions +/- **high doses** and/or **changing doses** of medications may impact on FUNCTION.

• Primary cause of decline in driving ability as people age = medical conditions & medications

- Can make even the best of drivers unsafe to drive.
- Can affect drivers of any age: Increasingly likely as we age due to the **cumulative effect** of multiple diseases and medications on FUNCTION.

• Risk is not due to the presence of disease but the severity/instability of conditions & end-organ damage of chronic conditions (e.g. diabetic retinopathy & neuropathy).

• Medical Community has the first opportunity to identify these possibly impairing medical conditions and medications (even though we do not measure FUNCTION directly).

- We are an important component of the system to evaluate fitness to drive but the medical community cannot determine fitness to drive in all situations.

Effects of Medical Conditions

Physical: weakness; slow / limited movement

Sensory: vision loss; limited feeling in limbs

Cognitive/Perceptual: slowed thinking; decreased attention

Emotional: anxiety, panic reactions, impulse control problems

• Any medical condition or medication that results in a change of physical, sensory, mental or emotional **FUNCTION** has the potential to compromise driving performance (picture patient behind the wheel if the following are present and consider how these functional changes will impact on the patient's ability to operated a motor vehicle safely);

Physical: weakness; slow / limited movement

–E.g. delirium, stroke, parkinsonism, arthritis

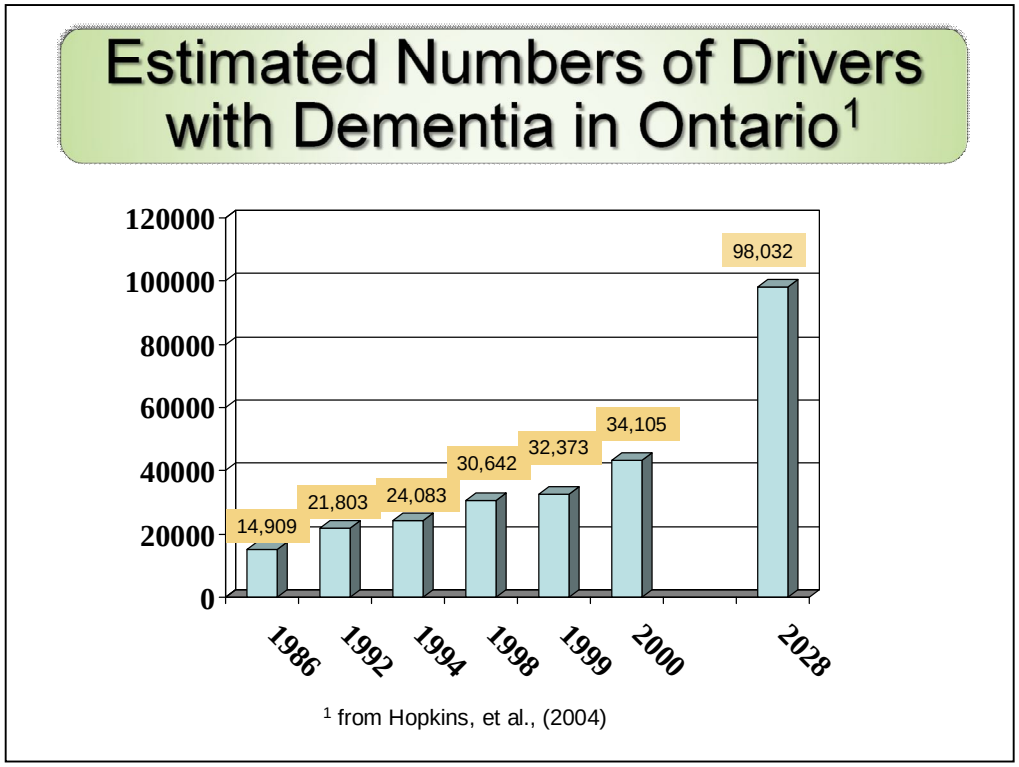
Sensory: vision loss; limited feeling in limbs

–E.g. Spinal stenosis, peripheral neuropathy

Cognitive/Perceptual: slowed thinking; decreased attention

–E.g. delirium, strokes, Parkinson's dementia, depression, other dementias

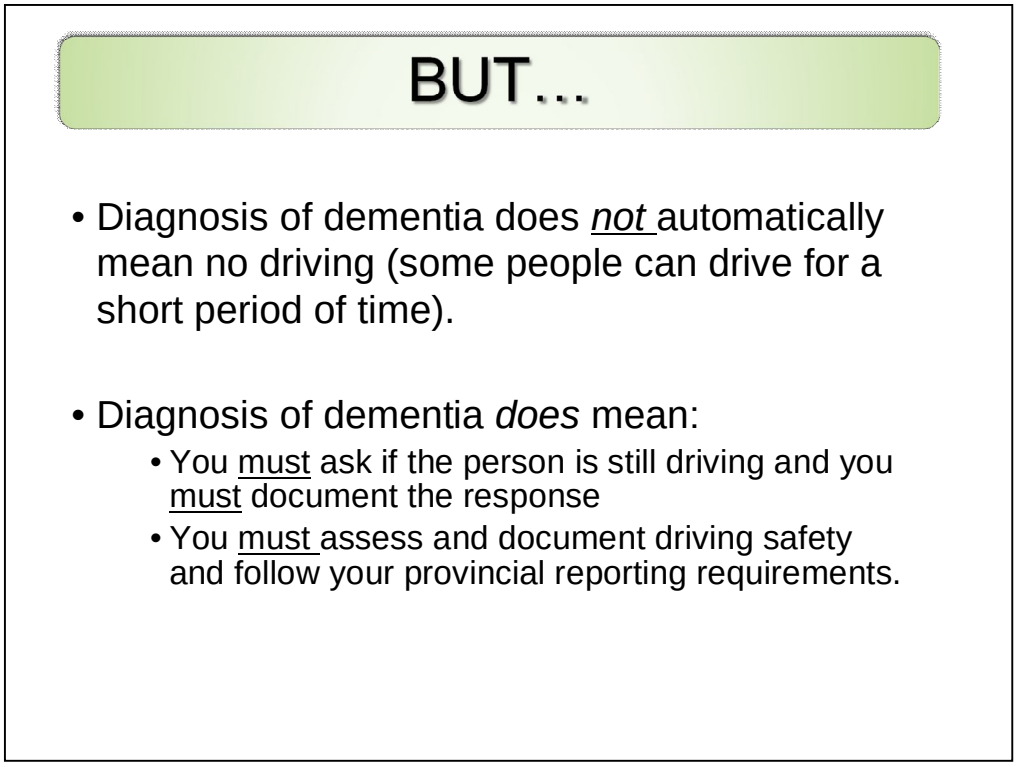
Emotional: anxiety, panic reactions, impulse control problems, depression, other psychiatric disorders.



•2.5% of the elderly are Drivers with Dementia (Hopkins 2004).

• In Canada there are 3,500,000 elderly, hence 87,500 Drivers with Dementia (Hopkins 2004).

•This is a modelling study based on 2004 data. As such it is based on many assumptions and the precise numbers may not be accurate. The scale and the trend are likely correct.



• 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).

•Patients with mild dementia have up to five times more motor vehicle crashes; they have a 50% chance of a crash within two years of diagnosis

•On average, patients with dementia drive for two to three years after the first symptom of dementia occurs

•The public are often shocked to find out that people with mild dementia can still drive. The public reaction is likely due to the fact that they cannot envision how a person with mild dementia would present – they picture persons with more advanced dementia.

- The diagnosis of dementia *does mean*:

•You must ask if the person is still driving and you must document the response

• Legal precedent has been set - MDs have been successfully sued even though they claimed they did not know their patient (who had injured others in a crash) was an active driver. Lack of knowledge of a patient's driving status is NOT legal protection

• You must assess and document driving safety and follow your provincial reporting requirements.

Reflection Questions

- What new insights do I have about the issue of driving and dementia?
- How does this apply to my practice?

Driving & Dementia: Assessment Guidelines

Reflect on Your Current Practice

- What steps am I taking from the point of suspecting at-risk driving until drawing a conclusion about driving fitness?

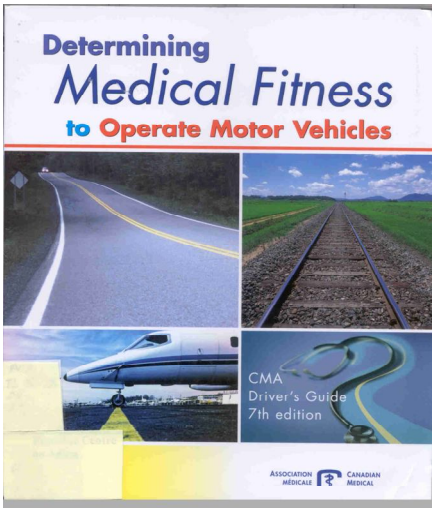
Consensus Statements

- Swedish (1997)
- Australian Geriatrics Society (2001)
- American Academy of Neurologists (2000)
- Canadian Medical Association guidelines
- U.S. AMA/ NHTSA Physician's guide to Assessing and Counseling Older Drivers

• A number of guidelines & consensus statements exist including CMA guidelines.

• They all have similar content.

www.drivinganddementia.org



• Can download the CMA guidelines from CMA website www.cma.ca/index.php?ci_id=18223&la_id=1 .

• Similar documents on some provincial ministry of transportation website (SAAQ).

Conclusions of Consensus Statements

- Those with moderate to severe dementia should not drive.
- Individual assessment required for those with mild dementia.
- Periodic follow-up is then required (every 6 - 12 months).
- “Gold standard” is comprehensive on-road assessment.

•Statements recognize limitations of data.

•Recommendations are vague and sometimes difficult to apply to individual patients.

•CMA guidelines: Moderate dementia = 1 ADL or 2 IADLs impaired due to cognition.

•Think of IADLs and ADLs as a hierarchy with driving at the top (it is the first to go). Driving is a super IADL. If you make errors or take too long with other IADLs nothing bad happens. Driving is unforgiving – if you make errors or take too long to react you can cause serious harm to yourself or others.

•If a patient has trouble with any other lower level IADL then fitness to drive should be assessed.

• IADLs - SHAFT: ***S****hopping,* ***H****ousework/****H****obbies,* ***A****ccounting,* ***F****ood,* ***T****elephone / **T**ools*

• ADLs - DEATH: ***D****ressing,* ***E****ating,* ***A****mbulation,* ***T****ransfers,* ***H****ygiene,* major changes in hygiene

Limitations of Guidelines

- Based on expert opinion recommend tests such as MMSE, Clock Drawing, Trails B
- Lack of operating instructions
  - No guidance on HOW physicians should apply such tests (e.g. how to respond to different scores, what cut-offs to use, what findings represent, fatal errors = automatic failure)

• Based on expert opinion guidelines & consensus statements recommend tests such as MMSE, Clock Drawing, Trails B. These are good tests to begin with.

• Lack of operating instructions:

• Systematic review conducted (Clinical Utility of Office-Based Cognitive Predictors of Fitness to Drive in Persons with Dementia: A Systematic Review. Molnar, Marshall, Man-Son-Hing et al., JAGS 2006; 54:1809–1824 Can be found at http://www.akeresourcecentre.org/DrivingModule).

• Showed that as performance on tests worsens so does driving performance. This should be self-evident. The researchers did not appreciate that MDs cannot just give probabilities, we must make decisions and therefore require cut-off scores. We dichotomize or trichotomize.

• No cognitive tests that could potentially be used in an office-setting had cut-off scores validated in persons with dementia!

• This does not mean tests cannot be useful. If a patient performs very poorly on a test {e.g. MMSE score of 19 or less) this may answer the question regarding fitness-to-drive.

Reflection Questions

- How does my current practice compare to the general guidelines reviewed?
- What changes will I make in assessing driving fitness based on this information?

Driving & Dementia: Assessing Fitness-to-Drive

Reflect on Your Current Practice

- What tools do I use to assess driving fitness?
- What are the advantages and disadvantages of each of these?

Realistic Expectations

- No screening or assessment protocol will ever predict 100% of risk of Motor Vehicle Crash (MVC) because such tests or protocols:
  - Only test stable intrinsic features
  - Cannot predict extrinsic factors.
    - Full complexity cannot be addressed with time & resources available in front-line clinical settings.
- Therefore objective is *to improve* not to perfect the assessment of fitness to drive.

• The physical examination was developed to ***detect the presence and possibly the severity of disease***. It is ***not*** a functional assessment. Consequently we can, at best, only extrapolate from the physical examination to estimate function behind the wheel. This will be easier for more severe / advanced disease.

• It is impossible to predict all crashes because screens and assessment protocols:

- Only test stable intrinsic features (stable functional ability)
  - May miss new or fluctuating illness (delirium, Parkinson's, Lewy Body).
- Cannot predict extrinsic factors (e.g. weather, other drivers, road conditions, car).

• This may represent a legal argument if a case is brought to court and the court has unrealistic expectations of physicians' ability to predict fitness-to-drive.

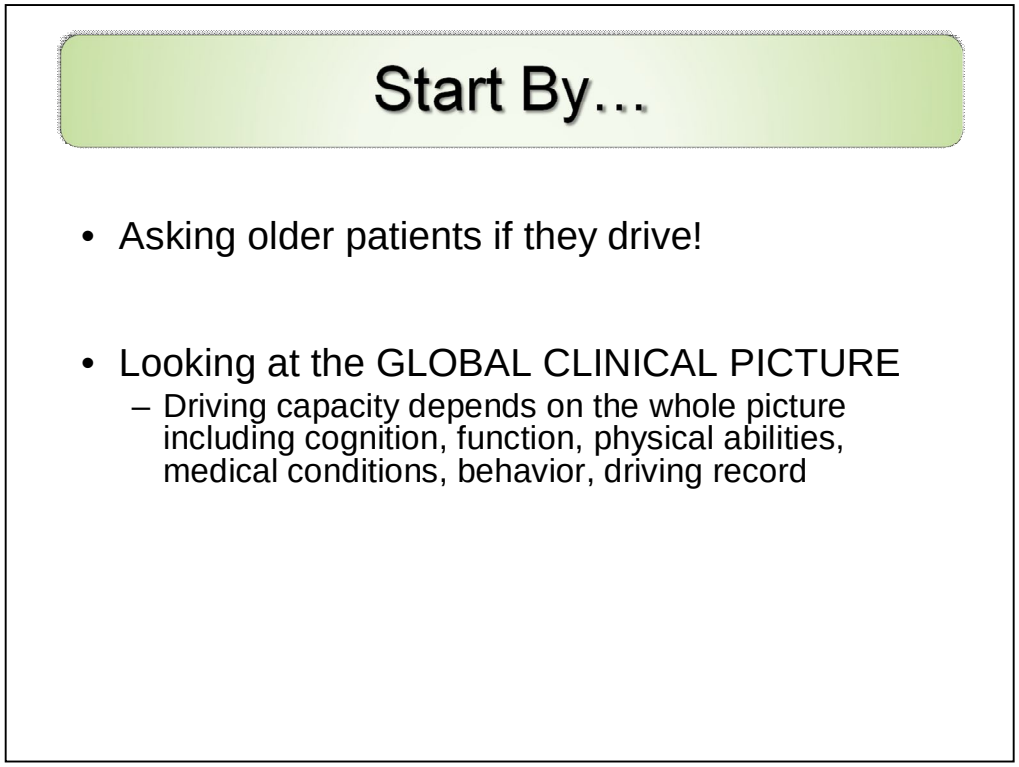
Levels of Assessment

- MD
- Occupational Therapy / Neuropsychology
- On-road testing

1. MD
    - For most obvious impairment.
    - Physical examination measures presence and severity of disease but does not directly measure function.

2. Occupational Therapy / Neuropsychology
    - For more subtle presentations where there is suspicion but determination cannot be made at MD level.

3. On-road testing
    - For presentations that are too subtle / borderline for Occupational therapy / Neuropsychology or where such services are not available.



•Start by asking older patients if they drive!

•Seems simple but most MDs do not ask (too busy, fear of opening Pandora's box... Recall that lack of awareness of patients' driving status does not provide legal protection)

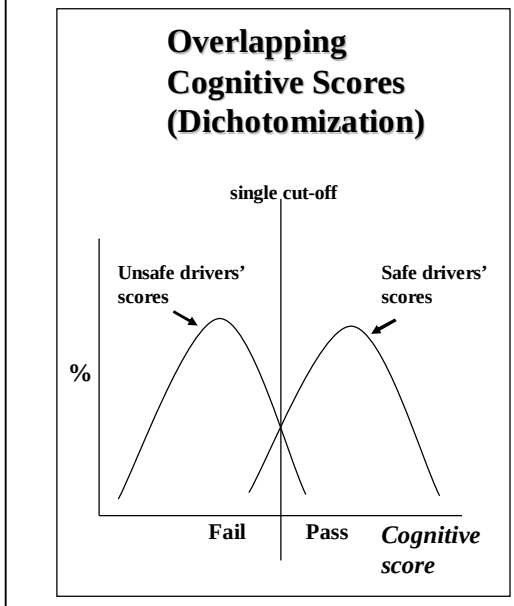
•Learn the reporting rules in your province / jurisdiction. Even if you are not required to report you could face a civil lawsuit from victims of a crash

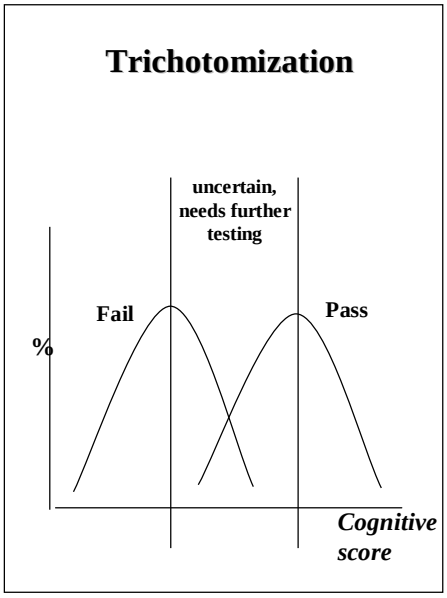
•Keep in mind that driving capacity depends on a GLOBAL CLINICAL PICTURE:

• Including cognition, function, physical abilities, medical conditions, behavior, driving record

• Patients are often more accepting of loss of driving privileges if this is due to physical limitations. If the patient cannot drive due to physical limitations, it is still prudent to document their fitness to drive from a cognitive perspective.

Interpreting Test Results





• In order to maximize the utility of screens (given overlapping distributions of test scores for safe and unsafe drivers) it is best to trichotomize test scores into: 1) clearly safe; 2) uncertain – needs more testing and 3) clearly unsafe (JAGS 2006; 54:1809–1824 - Can be found at http://www.akeresourcecentre.org/DrivingModule).

Applying Trichotomization

- Given the results of the cognitive test would you get in the car with the patient driving (or would you let a loved one drive with them)?
- Apply this approach to the most commonly recommended tests (MMSE, Clock Drawing Test, trails A & B)

• One way to apply Trichotomization is to ask yourself the following question:

"Given the results of the cognitive test would you get in the car with the patient driving (or would you let a loved one drive with them)?"

- Yes
- Uncertain – needs more testing
- Absolutely not

MMSE Score

- Provides a rough framework for assessing driving safety.
- Patients scoring under 20 are likely unsafe to drive.
- Higher scores are more difficult to interpret.

- The MMSE (adjusted for age and education) can provide a rough guide to driving safety; MMSE < 20 means no driving (for those with ≥ grade 9 education).
- Higher scores are more difficult to interpret.
    - There is no single perfect cut-off score.
    - Trichotomization (obviously unsafe, uncertain safety, obviously safe) approach may be helpful.

MMSE Findings

- Look at where they lost points. The following are important for driving:
  - Visuospatial – Pentagons
  - Concentration – serial 7s or DLROW
  - Major memory - year, month
- Look at how they performed
  - slowness, hesitation, anxiety or panic attacks, impulsive or perseverative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc.

• Based on the performance would you get in a car with the patient (or would you put a loved on in the car)?

• Beyond using the MMSE, experienced clinicians have developed a 10 step experience-based approach to assessing fitness-to-drive. This approach will be described next.

A Systematic Approach

- *The 10-Minute Office-Based Dementia and Driving Checklist*
  - Based on clinical acumen (experience and opinion)
  - Available at www.akeresourcecentre.org/DrivingPhys

Approach is detailed in the Geriatrics and Aging article titled “Practical Experience-Based Approaches to Assessing Fitness to Drive in Dementia,” available on the AKE website at www.akeresourcecentre.org/DrivingModule.

10-Minute Office-Based Dementia and Driving Checklist

1. Dementia Type
2. Functional Impact of Dementia
3. Family Concerns
4. Visuospatial Issues
5. Physical Limitations
6. Vision/Visual Fields
7. Delirium Inducing Drugs
8. Trail Making A and B
9. Ruler Drop Reaction Time
10. Judgement/Insight

10-Minute Office-Based Dementia and Driving Checklist

1. **Dementia Type**

- Generally unsafe - impact on executive function:
  - – Lewy Body dementia
    - fluctuations, hallucinations, visuospatial problems
  - – Frontotemporal dementias
    - if associated with behaviour (decreased impulse control vs. apathy) or judgment issues

10-Minute Office-Based Dementia and Driving Checklist

2. Functional Impact of Dementia

- ADLs and IADLs as a hierarchy (Driving at top).
- Persons with dementia are ***unsafe to drive*** if:
  - Impairment of 2 or more IADLs *due to cognition*
  - **OR** Impairment of 1 or more personal ADLs *due to cognition.*

• 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).

• Loss of any single lower level IADL should at least trigger an assessment of fitness to drive.

• CMA guidelines (www.cma.ca/index.cfm/ci_id/18223/la_id/1.htm Chapter 7.33)

•and Canadian Consensus Guidelines on Dementia (www.cccdtd.ca/pdfs/Final_Recommendations_CCCDTD_2007.pdf page 18) state that persons with dementia are unsafe to drive if 2 or more IADLs or 1 or more ADLs are impaired due to cognition (must be changes from patient's baseline function).

• IADLs - SHAFT: ***S****hopping,* ***H****ousework/****H****obbies,* ***A****ccounting,* ***F****ood,* ***T****elephone / **T**ools*

• ADLs - DEATH: ***D****ressing,* ***E****ating,* ***A****mbulation,* ***T****ransfers,* ***H****ygiene,* major changes in hygiene

10-Minute Office-Based Dementia and Driving Checklist

3. Family Concerns - ask in a room *separate* from the patient:

- Does the family feel the patient is safe/unsafe?
- Have they recently been in the car while patient was driving?
- The granddaughter question.
  - 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*.

• Ask if the family feels the patient is safe/unsafe to drive (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).

• 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.

  • In one study, 50% of the persons with dementia whose spouses felt they were safe to drive, failed an on-road test.

Family Concerns

- Absolute contraindications (must stop driving)
  - Near-misses with vehicles, pedestrians
  - Confusing the gas and brake
  - Missing stop signs/lights; stopping for green light
  - Not observing during lane changes/ merging
- Relative contraindications
  - Collisions and/or damage to the car
  - Getting lost
  - Traffic tickets
  - Deferring right of way inappropriately
  - Others honking/irritated with the driver (change from baseline)
  - Needing a co-pilot

- Absolute contraindications (must stop driving)
  - –Near-misses with vehicles, pedestrians
  - –Confusing the gas and brake
  - –Missing stop signs/lights; stopping for green light
  - –Not observing during lane changes/ merging.

- Relative contraindication
  - –Collisions and/or damage to the car
  - –Getting lost
  - –Traffic tickets
  - –Deferring right of way inappropriately
  - –Others honking/irritated with the driver (change from baseline)
  - –Needing a co-pilot
    - Can help find locations but cannot compensate for emergencies as a co-pilot cannot see a dangerous situation, formulate a plan, communicate the plan and have the driver comply with the plan fast enough to avoid an accident.

10-Minute Office-Based Dementia and Driving Checklist

4. Visuospatial Issues

- Likely unsafe if have major abnormalities on:
  - Intersecting pentagons on MMSE
  - Clock-drawing test
  - Cube drawing on MOCA

• Driving is a dynamic visuospatioal task. Paper and pencil tests are lower level stable visuospatial tasks.

• Any patient with significant visuospatial problems on paper and pencil test are likely unsafe. Tests include intersecting pentagons, clock-drawing, Trails A and B, and specialized tests done by Occupational Therapists and Neuropsychologists.

Clock Drawing Test

- Executive Function and Visuospatial function
- Gestalt method: “The good, the bad or the ugly” (Trichotomization)
- Look at how they performed
  - slowness, hesitation, anxiety or panic attacks, impulsive or perseverative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc.

• The Clock Drawing tests Executive Function and Visuospatial function

  • There are > 12 formal scoring methods none of which are widely used by clinicians.

• Most clinicians use the Gestalt method: “The good, the bad or the ugly. Once again Trichotomization (obviously unsafe, uncertain safety, obviously safe) approach may be helpful.

•Look at how they performed - slowness, hesitation, anxiety or panic attacks, impulsive or perseverative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc.

  • Would you get in a car the person is driving (or would you put a loved one in the car) given this performance?

10-Minute Office-Based Dementia and Driving Checklist

5. Physical Inability to Operate a Car

- 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
- Review medical conditions that when severe, poorly controlled or changing rapidly can impact driving

• Does the patient have the physical ability to operate a car?

  • Decide if car can be modified to compensate for first 2 (neck turn & use of steering wheel/pedals) and if person can learn to use modified car. This may be unlikely in dementia.

• Often a “physical” reason for recommending driving cessation is better accepted than a cognitive reason and can help preserve the patient-MD relationship.

• If dementia is present, it is still prudent to bolster the case for driving cessation by documenting cognitive reasons why the patient cannot drive.

Relatively Stable Illnesses

- Dementia
- Depression
- Diabetes (end organ damage – neuropathy, retinopathy)
- Vision
- Stroke
- Arthritis

• Can adapt car for stroke and arthritis but persons with dementia may have difficulty learning how to operate the modified car. The approach of modifying the car may represent false hope.

Fluctuating Illnesses

- Delirium
- Cognitive effects of Sleep apnea (often need on-road test)
- Parkinson's (often need on-road)
- Diabetes (hyper / hypoglycemic episodes)
- Cardiac disease (syncope, unstable angina)
- Seizures

• Easy to miss as patients may fluctuate into their most functional state when seeing the MD and may deteriorate when out of the MD's office. Therefore, it is useful to ask family and caregivers about fluctuation (in a room separate from the patient).

• Some of these illnesses are potentially reversible.

10-Minute Office-Based Dementia and Driving Checklist

6. Vision/Visual Fields

- Significant problems including:
  - Visual acuity
  - Field of vision

• If necessary (e.g. mild or borderline findings), arrange to have these verified by an optometrist or opthalmologist and indicate reason for referral is fitness-to-drive.

10-Minute Office-Based Dementia and Driving Checklist

7. Delirium inducing Drugs (causing drowsiness, slow reaction time, lack of focus)

- Alcohol, benzodiazepines, narcotics, neuroleptics, sedatives, anticonvulsants (e.g.Dilantin levels > 60)
- Anticholinergics, antiparkinsonian drugs, muscle relaxants (flexiril, dantrolene), tricyclic antidepressants, antihistamine (over the counter), antiemetics, antipruritics, antispasmodics, urinary drugs (Oxybutinin a.k.a. Ditropan) and others

• Especially high doses (above ability to acclimatize) or changing doses (need time to acclimatize).

• Total anticholinergic load is a concept used in research. We do not yet have clinically usable tools to measure Total Anticholinergic Load, but it is useful to be aware of the concept.

Drugs with Anticholinergic Effects

- Antidepressants
- Antipsychotics
- Antihistamines/ Antipruritics
- Antiparkinsonian
- Antispasmotics
- Antiemetics

Miscellaneous

Flexeril

Lomotil

Rythmodan

Tagamet

Digoxin

Lasix

- The medications in the miscellaneous category have been shown to have anticholinergic properties by radioimmunoassay but are less anticholinergic than the other medications listed. However, they may add to **total anticholinergic load**.

10-Minute Office-Based Dementia and Driving Checklist

8. Trails A & B

- 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
  - *Unsafe* = >3 minutes or 3 or more errors
    - Longer patient takes, more errors they make, the more certain that they are unsafe

• Given that driving is a super IADL Executive function is a very important area to assess with respect to driving safety. Trails A and Trails B (especially Trails B) are probably the best pen-and-paper tests used by MDs to correlate with driving safety. Naming animals in 1 minute is another good test of executive function.

• Trails A & B also test memory, visuospatial function and attention and is one of the few dynamic / timed tests that MDs use.

• Proper sequence is Practice Trails A – Full Trails A – Practice Trails B – Full Trails B.

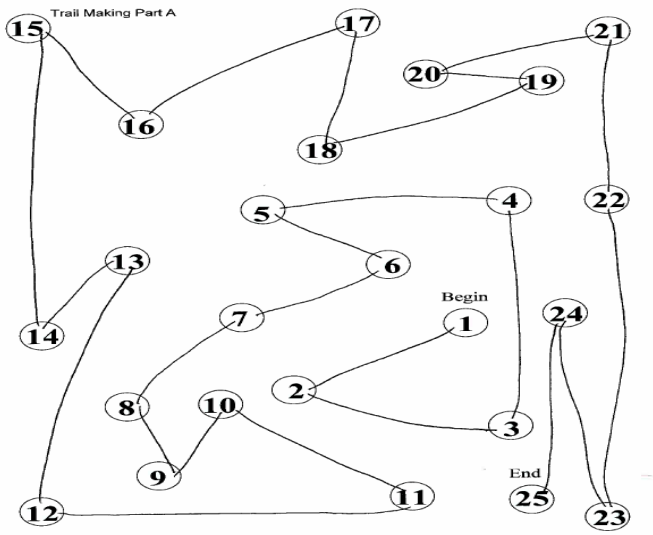
• If unsure of Trails B results (i.e. 2 -3 min. or 2 errors) consider qualitative dynamic information regarding *how* the test was performed—slowness, hesitation, anxiety or panic attacks, impulsive or perseverative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc. Would you get in the car (or would you put a loved one in a car) the patient is driving given this performance?

• Age adjusted Trails A & B norms for driving safety do NOT make sense – patients do not get more time to stop a car because they are older.

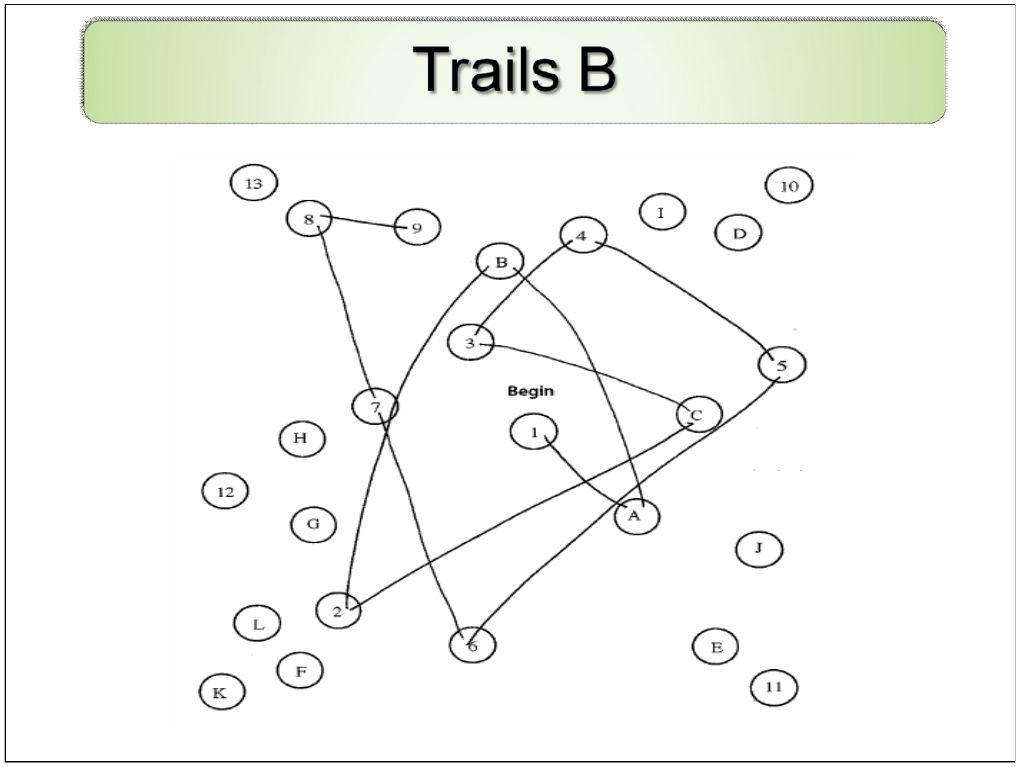
• Helps determine who should NOT be driving, but passing does not necessarily mean safe to drive.

• A sample of these can be accessed at:
http://www.healthcare.uiowa.edu/igec/tools/cognitive/trailMaking.pdf.

Trails A



- Trails A tests visuospatial function and executive function.
- Instructions:
  - •Connect the numbers 1, 2, 3, 4, etc. in order until none are left.
- Trails A performance decreases with age but is NOT affected by education.
  - • If you do not agree (i.e. if you think education is a factor) first ask the patient to count verbally or write down numbers from 1 to 25.



- Trails B is a more difficult test than Trails A because it also tests divided attention (to alternate numbers and letters).

- Most experts feel Trails B is a useful specialized test to add when assessing **driving safety** (as it is the best pen and paper test used by MDs for correlation with on-road driving performance—still only mild to moderate correlation).

- Instructions:

  •Go back and forth between numbers and letters: 1 to A, then A to 2, then 2 to B, etc.

- Typically, patients fail Trails B by making errors (perseverating with numbers or letters rather than alternating) or by quitting, although some will fail time norms.

- Trails B performance decreases with age AND education.

  •If you feel language or education may impact on the test, first see if the patient can count to 13 verbally and then see if they can recite or write down the alphabet from A to I.

10-Minute Office-Based Dementia and Driving Checklist

9. Ruler Drop Reaction Time Test (*Accident Analysis and Prevention* 2007;39:1056–63.)

- The bottom end of a 12 inch (30-cm) ruler is placed between thumb and index finger (1/2 inch (1 cm) apart) → let go without warning and person tries to catch ruler (normal = 6-9 inches (15–22 cm)
- Abnormal result = 2 failed trials out of 3 trials.

•No validated norms / cut-offs, currently under study.

• Slow reactions suggest another disorder in addition to or instead of Alzheimer's (depression, delirium, strokes, parkinsonism, hypotension with cerebral hypoperfusion, etc.).

Reaction Time

- Slow reactions on routine clinical interaction (history, physical examination) may mean patient is already too slow to drive or at least needs further dynamic (i.e. timed) testing.
  - Causes include Stroke(s), delirium, depression, Parkinson's, Sleep Apnea
  - Look at Trails A and B if not certain if patient has cognitive slowing
  - May need on-road if Trails A and B do not answer the question

• Decide if this slowness is permanent or potentially reversible (e.g. delirium, depression).

• It is sometimes difficult to know when a patient crosses the threshold and is too slow to drive. OT, neuropsychology and on-road testing are often required to answer this question - the difficulty in applying these criteria is why we left it to the end of the assessment approach.

10-Minute Office-Based Dementia and Driving Checklist

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?
  - What would you do if you saw a fire in a house?
  - What would you do if driving and the light just turned yellow?

- Judgment should be tested by asking patient response to several situations. Some examples are:
  - What would you do if you were driving and saw a ball roll out on the street ahead of you?
  - What would you do if you saw a fire in a house?
  - What would you do if driving and the light just turned yellow?

Other Red Flags

- Hallucinations (should not drive)
- Delusions
- Disinhibition
- Impulsiveness
- Agitation
- Anxiety
- Apathy
- Depression

• For many of these symptoms, the impact on driving safety is dependent on the severity of the symptom.

Trying it out…

- Review the sample case http://www.akeresourcecentre.org/DrivingModule and use the 10-Minute Office-Based Dementia and Driving Checklist to determine your findings.

OR

- Select a current case in your practice (patient with dementia or suspected dementia that may be at risk with respect to driving ability). Alternatively, if a suitable current patient does not exist select a previous patient with ample documented history.

Reflection Questions

- How was the assessment process used for this case similar to and different from my regular practice?
- What was my comfort level with using the tools/tests involved?
- What more do I want or need to know about assessing driving fitness in patients with dementia? How could I obtain this information?

Driving & Dementia: Disclosing Your Findings

Patient Perspective

- Driving is a means of independence.
- Others may rely on the person driving.
- Identity can be tied to owning and driving a car.
- Dementia may impact insight and the person's ability to understand why there is a need to stop driving.

Disclosure – Unfit to Drive

1. Preparatory Meeting with Family
   - Set ground rules
   - Put family in a supportive role
   - Address family's continued doubts about findings
2. Meet with Patient and Family
   - Set ground rules
   - Give patient a positive role
   - Address patient's continued doubts

1. Preparatory Meeting with Family
   - Set ground rules (explain concerns, describe findings, explain laws around reporting requirements, describe goal of prevention, explain family responsibilities re: risk).
   - Put family in a supportive role (explain importance of emotionally supporting the patient and finding alternate transportation modes).
   - Address family's continued doubts about findings(explain tests used and show results).
2. Meet with Patient and Family
   - Set ground rules (Physician not family to disclose, avoid perception of collusion between family and physician).
   - Give patient a positive role (acknowledge discontinuation of driving to prevent accidents as a responsible step, explain clinical findings require the physician to report – it is the law, acknowledge that it is normal to be unhappy, highlight positives – maintenance of a car more expensive than taxis/bus fare, have taken care of family now it's time for them to help patient – chance to pay them back).
   - Address patient's continued doubts (remain firm but don't argue, explain legal liability for patient and family).

- For more on Disclosing a finding of unfit to drive see the Geriatrics & Aging article available here: http://www.geriatricsandaging.ca/fmi/xsl/article.xsl?-lay=Article&-recid=2003&-find=-find or www.akeresourcecentre.org/DrivingPhys.

Disclosure – Unfit to Drive

- Give written notification
  - Persons with dementia may forget that you told them they should stop driving.
  - Families need a document to show them to reinforce the message
  - Can write a note on a prescription or can provide a more formal letter

•If angry the patient may tear up the note.
  • Give families several copies and keep one for your chart.

Sample Notification About Driving Safety

Name: _____
Date: _____
Address: _____

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 raising concerns about driving safety include:

_____
_____
_____
_____

As your doctor, I have a legal responsibility to report potentially unsafe drivers to the Ministry of Transport. 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

• If a physical problem was found that would cause driving impairment, use this as the reason in your letter rather than or in addition to dementia.

• 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.).

Medico-Legal Dilemma

- 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?

Possible Response:

• Contact provincial college and CMPA for advice. Write down the specific advice along with the name of the person providing it and date.

• At the very least you should consider sending your ministry of transportation a note indicating the patient threatened to sue if you filed a full report.

Medico-Legal Dilemma

- A patient is in your office who is clearly unfit to drive home. MMSE 10/30. 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?
  - Take keys?
  - Call family?
  - Call police?

Possible Response:

• Contact family and ask them to come immediately. Ask them to drive the patient home and to attempt to disable car or remove patient's access to car if they are an imminent risk to public safety.

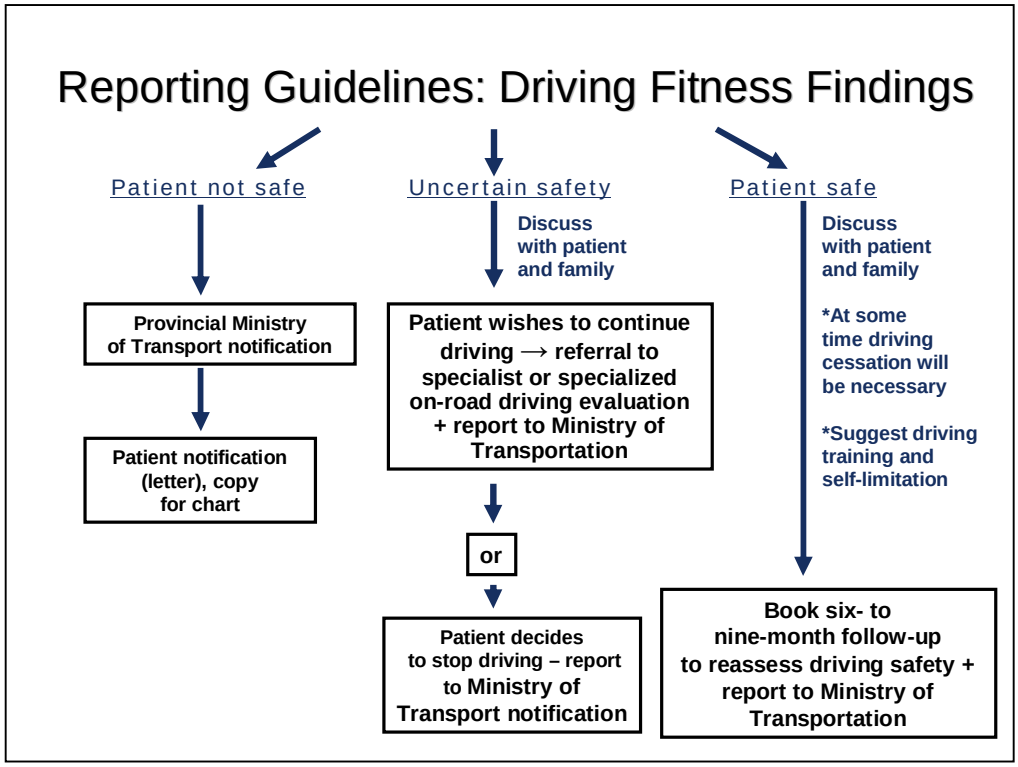
• If this fails, call police. If they refuse to act then ask the officer for their name and badge number so you can document it in your chart – insist on this information.

• Report the incident to your ministry of transportation immediately (via physician hotline if available).

Reflection Questions

- How would I respond to the cases shared?
- What new insights do I have about disclosing driving fitness findings to patients?
- What changes will I make to the way I share these results?

Driving & Dementia: Reporting Unsafe Drivers & Ongoing Monitoring


Reporting Guidelines: Driving Fitness Findings
Patient not safe
Uncertain safety
Patient safe
Discuss with patient and family
Discuss with patient and family
*At some time driving cessation will be necessary
*Suggest driving training and self-limitation
Provincial Ministry of Transport notification
Patient notification (letter), copy for chart
Patient wishes to continue driving → referral to specialist or specialized on-road driving evaluation + report to Ministry of Transportation
or
Patient decides to stop driving – report to Ministry of Transport notification
Book six- to nine-month follow-up to reassess driving safety + report to Ministry of Transportation

Reporting Requirements by Province

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.

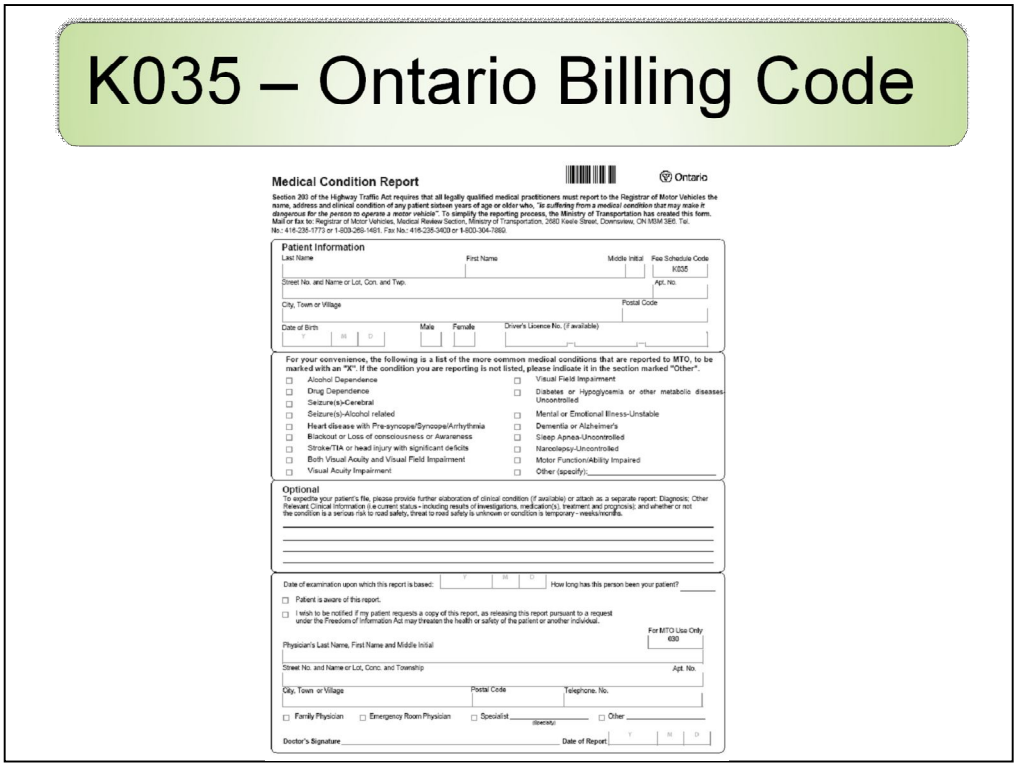
• See Canadian Council of Motor Transportation Administrators www.ccmta.ca.

• See CMA reporting requirements (including Nunuvut) on Page 13 of the CMA document found at: http://www.cma.ca/multimedia/CMA/Content_Images/Inside_cma/WhatWePublish/Drivers_Guide/Section03_e.pdf.

Reporting Requirements by Province

Province	Obligation to Report	Protection
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 right of 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.

K035 – Ontario Billing Code



Medical Condition Report

Ontario

Section 203 of the Highway Traffic Act requires that all legally qualified medical practitioners must report to the Registrar of Motor Vehicles the name, address and clinical condition of any patient sixteen years of age or older who, *"is suffering from a medical condition that may make it dangerous for the person to operate a motor vehicle"*. To simplify the reporting process, the Ministry of Transportation has created this form. Mail or fax to: Registrar of Motor Vehicles, Medical Review Section, Ministry of Transportation, 2680 Keele Street, Downsview, ON M3M 3E6. Tel. No.: 416-235-1773 or 1-800-268-1461. Fax No.: 416-235-3403 or 1-800-304-7860.

Patient Information

Last Name | First Name | Middle Initial | Fee Schedule Code K035

Street No. and Name or Lot, Con. and Twp. | Apt. No.

City, Town or Village | Postal Code

Date of Birth Y M D | Male | Female | Driver's Licence No. (if available)

For your convenience, the following is a list of the more common medical conditions that are reported to MTO, to be marked with an "X". If the condition you are reporting is not listed, please indicate it in the section marked "Other".

- Alcohol Dependence
- Drug Dependence
- Seizure(s)-Cerebral
- Seizure(s)-Alcohol related
- Heart disease with Pre-syncope/Syncope/Arrhythmia
- Blackout or Loss of consciousness or Awareness
- Stroke/TIA or head injury with significant deficits
- Both Visual Acuity and Visual Field Impairment
- Visual Acuity Impairment
- Visual Field Impairment
- Diabetes or Hypoglycemia or other metabolic diseases-Uncontrolled
- Mental or Emotional Illness-Unstable
- Dementia or Alzheimer's
- Sleep Apnea-Uncontrolled
- Narcolepsy-Uncontrolled
- Motor Function/Ability Impaired
- Other (specify):

Optional

To expedite your patient's file, please provide further elaboration of clinical condition (if available) or attach as a separate report: Diagnosis; Other Relevant Clinical Information (i.e current status - indicating results of investigations, medication(s), treatment and prognosis); and whether or not the condition is a serious risk to road safety, threat to road safety is unknown or condition is temporary - weeks/months.

Date of examination upon which this report is based: Y M D | How long has this person been your patient?

- Patient is aware of this report.
- I wish to be notified if my patient requests a copy of this report, as releasing this report pursuant to a request under the Freedom of Information Act may threaten the health or safety of the patient or another individual.

For MTO Use Only 630

Physician's Last Name, First Name and Middle Initial

Street No. and Name or Lot, Conc. and Township | Apt. No.

City, Town or Village | Postal Code | Telephone. No.

- Family Physician
- Emergency Room Physician
- Specialist (specify)
- Other

Doctor's Signature | Date of Report Y M D

- In some provinces, such as Ontario, physicians can bill for sending a medical condition report in to the ministry of transportation.
- This form can be found at http://www.mto.gov.on.ca/english/dandv/driver/medical-review/physicians.shtml .

How to Report

- Mild dementia (no concerns re: driving)
  - "Patient has mild dementia with MMSE ___, Trails B ___. I have not noted any evidence to suggest they are not fit to drive but feel they should be re-evaluated every __ months."
    - Re-evaluation - 6 or 12 months based on clinical judgement
    - Warn family to notify you of significant cognitive change or signs of delirium.
    - Definitely Report to your ministry of transportation if risk that patient will not return for follow-up.
- Advise the patient to start planning for eventual driving cessation.

How to Report

- Moderate to severe dementia
  - "Patient is not safe to drive due to the following findings: _____"
- How much information can we disclose?
  - If potentially litigious then only include the findings of the testing (not opinion about driving safety).
  - If patient tells you that you cannot report them then write: "patient will not provide consent to forward my findings" or "patient threatened lawsuit if I reported my findings"

Fitness to Drive Unclear: Further Assessment Required

- Notify jurisdictional authorities as per provincial reporting requirements
  - "Fitness to drive unclear – more testing needed"

  OR
  - "Deficits may be temporary (e.g. delirium) – requires follow-up"
- Can suggest the type and timing of follow-up needed.

• Some patients may slip through the cracks and not go for testing if you do not report them. Some ministries of transportation cannot receive the results of an on-road unless an MD has first reported the need for an on-road and a file has been opened at the ministry of transportation.

Specialized Driving Assessment

- Cognitive tests (Neuropsychologist, OT)
  - can assess the more obviously impaired
- Driving Simulator Evaluation
  - Not fully acceptable for determining fitness to drive
  - Provides insight to the evaluator for on-road assessment
- On-Road Assessment (OT / Driving Instructor)
  - Present Gold Standard
  - Not the same as a Ministry on road in Ontario
  - $50 - $800 depending on province (paid by patient)

• Cognitive tests (Neuropsychologist, OT)

  • Do not refer to specialty dementia clinics if the only issue is driving (inadequate resources).

• Driving Simulator Evaluation

  • Not standardized – many types of simulators and testing protocols).

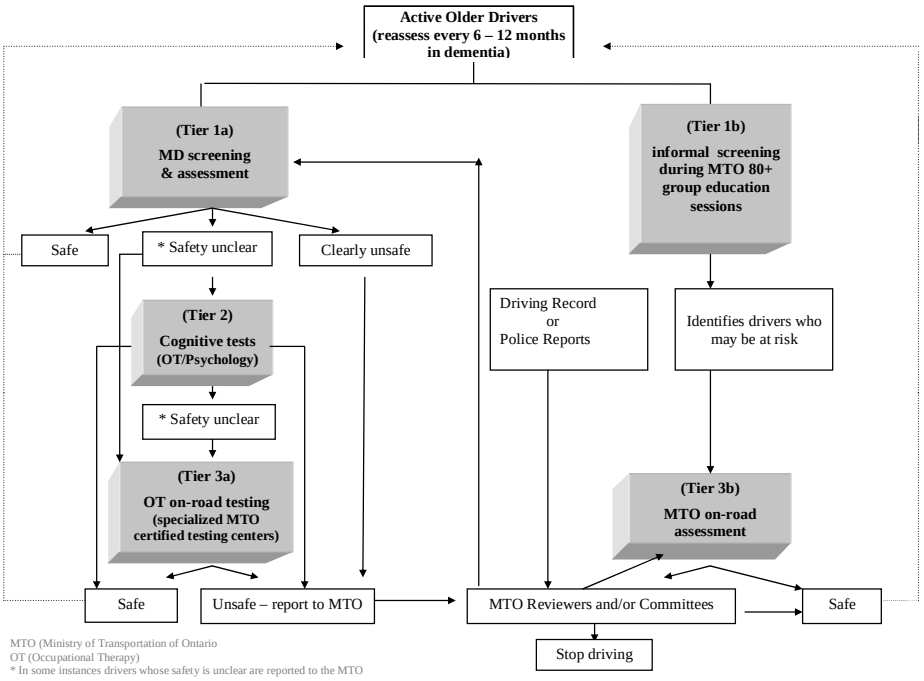
• On-Road Assessment (OT / Driving Instructor)

  • Ministry on road (in Ontario) is much easier to pass and may miss cognitive problems.

  • Warn patient that need to repeat on road assessment, every 6 months (and have to pay each time - $ 50 - $800 depending on province).

  • See http://www.drivetest.ca/ for a list of driver testing locations.

Figure 1: Three-Tier Model of Driving Assessment in Ontario



• This represents an example of how MDs fit into a complex interactive system of assessment of fitness to drive. We are not alone in the task of assessing fitness to drive.

Reflection Questions

- What are the specific requirements for reporting unsafe drivers for my province?
- What is the process/what are the steps for reporting in my province?
- How do my current reporting practices compare to the requirements and guidelines in my province?
- What are the reasons, if any, for differences between my practice and reporting requirements?

Reflection Questions

- If there are barriers to following the reporting requirements and guidelines, what are they and how might they be overcome?
- How is my current practice for ongoing monitoring of driving fitness similar too and different from that described?
- What changes to my practice for monitoring driving fitness will I make?

Summary

Key Points

- If dementia is diagnosed, driving must be asked about, formally assessed, and documented.
- Physicians can perform a comprehensive driving safety clinical evaluation in a short period of time (particularly if they already know the patient).
- If you are unsure of safety, refer to specialized assessment or specialized on-road testing.
- In dementia, driving safety must be reassessed every 6 to 12 months if patient is found safe to drive on initial assessment.

Final Reflection

- Decide on a plan going forward for patient care in those who are at risk drivers due to dementia:
  - What will I continue to do?
  - What will I do differently?
  - How will I incorporate any changes?
  - What difference do I think these changes will make in patient care?
  - What are the challenges/barriers to implementing these changes and how could these be overcome?
  - What more do I need to know and how will I find out?

Resources

•Alzheimer Knowledge Exchange (www.akeresourcecentre.org/DrivingPhys)

• Canadian Geriatrics Society (www.canadiangeriatrics.com/ssl/membrapple.asp)

–Become a member to increase your opportunities to learn more about dementia care issues.

•Geriatrics and Aging (www.geriatricsandaging.ca)

•CMA: Determining Medical Fitness to Drive: A Guide for Physicians. Canadian Medical Association Driver's Guide 7th edition (www.cma.ca/index.cfm/ci_id/18223/la_id/1.htm)

•Driving and Dementia Tool Kit for Family Physicians, Dementia Network of Ottawa-Carleton (www.rgpeo.com) or (www.CanDRIVE.ca)

•US Physicians' guide to Assessing an Counseling Older drivers (http://www.nhtsa.dot.gov/people/injury/olddrive/OlderDriversBook/pages/Introduction.html)

•To learn about ongoing research see (www.CanDRIVE.ca)

Also see:

• Canadian Council of Motor Transportation Administrators (CCMTA) www.ccmta.ca, (p. 66 & 67).

• Canadian Consensus Conference on Dementia www.cccdtd.ca.

Options for Credit

Your Options

- College of Family Physicians of Canada
  - MainPro-2, Linking Learning to Practice
- Royal College of Physicians and Surgeons of Canada
  - Maintenance of Certification, Personal Practice Review

CFPC, Linking Learning to Practice

- Receive **2 Mainpro-C credits** (plus 2 bonus Mainpro-M1 credits) for each form you complete and return to the College http://www.cfpc.ca/local/files/CME/Mainpro/generic.pdf
- Step 5 is completed 2 months after the learning (Mark your calendar!)

Documentation Required:

• Completed “Linking Learning to Practice Form” (available at http://www.cfpc.ca/localfiles/CME/Mainpro/generic.pdf

Submit to:

•CFPC by mail

2630 Skymark Ave., Mississauga, ON L4W 5A4

Or by fax (905-629-0893)

Royal College, Maintenance of Certification

- Section 5 (p.8-8) http://rcpsc.medical.org/opa/moc-program/infoguide_e.pdf

Documentation Requirements:

• Date of completion

• Summary of the findings

• Documented learning outcome(s) for practice.

Submit to:

• The Royal College by using MAINPORT (www.mainport.org) by January 31 of the following year.