Why is Grandma Asking for Directions to the Local Store? Assessing Older Driver Cognition and Safety

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Moderator: Annette Larson, South Central and Southwest TZD Regional Coordinator
Objectives

Upon completion the participant will be able to:

• Name the stakeholders involved in assessing older drivers’ risk on the road.
• Describe and discuss the recommended assessment process.
• List medical-related components that may affect driving ability
• Identify various screens that may be used to assess the older adult to determine their cognitive and physical safety while driving
Problem

• How do we address the problem of reducing the number of older drivers who are lost and get into crashes due to losses in cognitive & physical function, so that grandmother does not end up lost?

• The NHTSA 5-year plan challenged health professionals, law enforcement and other stakeholders to collaborate and improve the safety of older drivers. This includes the education of stakeholders recognizing older drivers at risk.

• This risk assessment is a particular challenge with older drivers experiencing cognitive declines. This is in part because cognitive losses are more difficult to recognize than physical disabilities.

• Because cognitive losses are usually progressive, it is often difficult to determine the point at which it presents an unacceptable safety risk.
Cognitive Demands of Driving

- Many cognitive skills are needed for safety driving. They include but are not limited to:
  - Spatial memory - navigation
  - Attention/Information processing – Integrate multiple source of information in real time
  - Decision-making – Does situation warrant action?
  - Fast reaction time – Initiation of appropriate action quickly, following appropriate assessment of the situation

http://www.lifelongdriver.com/hazard-detection
Normal Age-Related Cognitive Change and Driving

• Some of the age-related cognitive changes include:
  • Slower executive functions, i.e. decision-making and reaction time
  • Changes in ability to maintain attention

• Impact on those changes on driving
  • Affects operations such as judging gaps at intersection and during lane changes
  • As a result most crashes in older adults occur at intersections, especially left hand turns

Most fatal crashes in older adults happen at intersections

Figure 7. Two-vehicle fatal CIRs by roadway junction type.
Normal Age-Related Cognitive Change and Driving (cont.)

• Useful Field of View (UFOV)
  • Ability to process the information that is visually perceived at any given time.
  • It is a measure of visual attention and information processing – so cognitive function-
  • UFOV worsens with advancing age
  • Worsening of UFOV are associated with increased crash risk
  • People with dementia have severe limitations in UFOV

Clinical Conditions Associated with Physical or Cognitive Limitations Affecting Driving

- List from NHTSA:
  - NHTSA link
  - Age-related low vision
  - Diabetes
  - Stroke
  - Parkinson’s
  - Alzheimer’s disease/dementia
  - Severe Arthritis.
  - Sleep apnea
Other Conditions Linked to Driving Risk

- Seizures
- Closed Head injuries (i.e. following falls)
- Depression
- Cardiac disease (CHF, dysrhythmia)
- Syncope/orthostatic hypotension
- Substance use/abuse
- Metabolic disturbances
- Side effects of medication
Neurocognitive Disorders/Dementia and Driving

• Neurocognitive disorders (NCD) affect brain and everyday functions

• Two main categories of NCD’s
  • Vascular – i.e. TIAs/mini-strokes)
  • Neurodegenerative (neurocognitive disorder)

• Some NCD’s evolve, some do not.

• There are many disease causing NCD i.e.
  • Fronto-temporal dementia (little memory loss)
  • Lewy-Body disease (includes Parkinson’s-like symptoms)
  • Alzheimer’s disease (memory losses appear early in the disease)

http://www.alz.org/braintour/healthy_vs_alzheimers.asp
Neurocognitive Disorders (NCD) and Driving (cont.)

- Mild Neurocognitive Disorder (mNCD) include:
  - Mild Cognitive Impairment often remains stable.
  - Driving is usually safe if Mild NCD
  - But mild NCD can also be the early stage of dementia (Major NCD), thus worsen.

- Major Neurocognitive Disorders (MNCD)
  - Can be due to Alzheimer’s or other conditions
  - Result in significant losses of brain function
  - Driving with Major NCD is not safe

http://www.nhtsa.gov/Driving-Safety/
Neurocognitive Disorder and Driving Risk

• In addition to crash risk, fatalities are linked to getting lost

• The challenge is to balance the risk of isolation following stopping driving too soon, with the risk to self and others resulting from driving too long

• The problem is that no single assessment of cognitive function is enough to predict whether a person is safe vs unsafe to drive

• A combination of assessments and tiered testing process is needed
Stakeholders in Assessment Process

• The most common entry points to the assessment process are at the top of this diagram (in blue).

• The arrows represent common next steps with white boxes explaining what it entails.

• We will first discuss the situation in which the community - gas station/retail, friends, neighbors, family - notices possible driving risk in an older person.
Community Stakeholders

• How do community members deal with persons with dementia who is lost?

• MNALzheimer’s Association *Dementia Friendly Community* tool kit to provide resources for community members and government services

http://www.actonalz.org/planning-emergency-response
Tools for Gas Station and Other Retail

• Using the example in our title: Possible tool for gas station attendant had an older driver looking lost and confused:

• Brochure from International Association of Chiefs of Police (IACP). IACP Brochure

• Should not send them off to drive if confused

• Possible actions: Call family or Law Enforcement if family can’t be located.

• Preventing agitation can make it more likely to remember significant other’s contact information.
Families as Stakeholders

- Research shows that family concern is highly predictive of failing on-road driving test.
- Newly developed tool first called *Fitness to Drive Measure* is well validated tool.
  - The FTDS is a web-based tool that can help families detect older drivers at risk.
  - Family of older drivers are asked to rate their difficulties with 54 driving skills.
  - The FTDS Measure can be accessed, for free online [http://fitnesstodrive.phhp.ufl.edu/](http://fitnesstodrive.phhp.ufl.edu/). Easy to use and well received by families.

- **Next steps for family if some concern but low risk**
  - Encourage older driver safety refresher courses.
  - Schedule visit with patient’s MD and accompany driver to bring up safety concern.

- **Next steps if high risk concern**
  - Encourage driver to limit/stop driving. Tools: *At the Crossroads*, *Alz org*.
  - Refer directly to DVS. Can be done anonymously [link](http://fitnesstodrive.phhp.ufl.edu/).
  - Schedule an assessment directly with CDRS [AOTA search Driving Rehab Specialist](http://fitnesstodrive.phhp.ufl.edu/).
First Responders: Law Enforcement and EMS

• First responders play a key role in the identification of older drivers at risk.

• Older drivers with cognitive impairment are more likely to drive erratically
  • Drive too slow or too fast
  • Do not stay centered in their lane
  • Problems merging
  • Fail to yield at intersections,
  • Get lost (gas station scenario)

• It is important to assess both cognitive and physical status

Decision Tree for the Evaluation Process for Safe Driving

- Family, Friends, Neighbors, Older Driver Observations. Self-Assessments. Warning Signs
  - Reports to DVS and/or MD. Takes safety classes

- Driver and Vehicle Services (DVS) Driver Improvement Specialist Initial screen vision screen, skills test
  - DVS License Examiner Road test
  - DVS Requires Assessment

- Medical Doctor Ophthalmologist/OD Neurologist
  - Assesses and addresses vision, cognition, motor and/or medical issues
  - OD Vision Statement MD statement Revocation or restriction

- Occupational Therapist Assessment of driving-related skills as part of IADL evaluation. Restoration of function or adaptation/compensation

- Certified Driving Rehab Specialist (CIRS) Comprehensive Driver Assessment Pre-driving assessment, simulator and/or on-road testing. Provides assistive devices and training to drivers

- Decision Tree (continued...
Case study

• Robert was pulled over by an officer for weaving and a rolling stop on a Thursday evening. The officer had followed Robert for a short time before pulling him over and also noted Robert’s speed had varied from 10 mph below the speed limit to 5 mph above the speed limit when driving through a commercial area (i.e. strip malls, several restaurants and moderate traffic).

• Robert was disoriented, was not able to state where he was traveling from but stated he was headed home

• What happens next?
First Responders: Identify Possible Medical Issues

- Substance use/abuse (see sobriety test)
- Diabetes: Low blood sugar
- Dizziness, heart attack
- Syncope (lost consciousness)
- Low oxygen levels/carbon monoxide
- Fever or hypothermia
- Stroke? FAST acute stroke sign
Look for Physical Issues that may Lead to Impaired Driving

• Can be observed during sobriety test
• Motor ability:
  • Standing up
  • Walking
• Vision
  • Reading
  • Distance
• Flexibility
  • Buckle/unbuckle seatbelt

Source: http://www.nhtsa.gov/Driving-Safety
Field Sobriety Testing

SFST SCORING SHEET
(CHECK ALL THAT APPLY)

**Horizontal Gaze Nystagmus**
- Are you wearing glasses or contacts?
- I’m going to check your eyes.
- Stand with your feet together, with your hands by your side.
- Follow the stimulus with your eyes, but do not move your head. Focus on the stimulus until I tell you stop.
- Hold stimulus approx. 12" to 15" in front of face.

**CHECK EYE TRACKING & PUPIL SIZE**
- Equal Tracking
- Equal Pupil Size

**CLUES:**
- Lack of Smooth Pursuit
  2 seconds out 2 seconds back
- Distinct Nystagmus
- Maximum Deviation
- Hold minimum of 4 seconds
- Onset of Nystagmus
  Prior to 45 Degrees
- Move at speed taking 4 seconds
- Vertical Nystagmus
  Hold approx. 4 seconds

**Total Score:** (Decision Point: 4; Max: 6)

**Walk and Turn:**
- Place your left foot on a line (real or imaginary) and put your right heel against the toe of the left foot.
- Place your arms by your sides.
- Maintain this position and do not do anything until I tell you to start.
- Do you understand?

**Walking Stage:**
- When I tell you to start, take nine heel-to-toe steps along the line, and nine heel-to-toe steps back down the line.
- On the ninth step, keep your front foot on the line & turn by taking several small steps with the other foot.
- Keep your arms by your side, count your steps out loud, and keep watching your feet.
- Once you begin to walk, do not stop until the test is completed.
- Do you understand?

**CLUES:**
- Can’t balance during instructions
- Starts too soon
- Stops while walking
- Misses heel to toe
- Slip off the line
- Uses arms to balance
- Turned improperly
- Wrong number of steps

**Total Score:** (Decision Point: 2; Max: 8)

**One Leg Stand:**
- **Instruction Stage:**
  - Stand with your feet together.
  - Keep your arms by your side.
  - Maintain that position until told to do otherwise.
  - Do you understand?

- **Balance & Counting Stage:**
  - When I tell you to start, raise one leg approximately 6 inches off the ground, foot pointed out.
  - Keep both legs straight, arms at your side.
  - Keep your eyes on the elevated foot.
  - While holding that position, count out loud (one thousand-one, one thousand-two) until told to stop.
  - This test will take approx. 30 seconds.
  - Do you understand?

**CLUES:**
- Sways
- Uses arms to balance
- Hops
- Puts foot down
- Cannot perform test (test stopped or not requested for suspect’s safety). Assign all 4 clues.

**Total Score:** (Decision Point: 2; Max: 4)

**Alternate Tests:**
- 50 pounds overweight OR over 65 years of age OR if injury is claimed

**Alphabet:**
- Result:
- **Finger Count:** 1,2,3,4; 4,3,2,1; each finger to thumb
  - Result:

**Rhomberg:** Close your eyes, tilt your head back, hands at your side, stop after 30 seconds
- Result:

**Hand Clap:** Count to 10; front and back of palm is one #
- Result:

**Nose Touch:** Close eyes; touch tip of nose with tip of index finger as instructed (call out “right” or “left”)
- Result:

**PBT Result:**
- Suspect is not intoxicated
- Suspect is intoxicated due to:
  - Alcohol
  - Drugs
  - Both
Field Sobriety Testing

**Horizontal Gaze Nystagmus**
- Are you wearing glasses or contacts?
- I’m going to check your eyes.
- Stand with your feet together, with your hands by your side.
- Follow the stimulus with your eyes, but do not move your head. Focus on the stimulus until I tell you stop.
- Hold stimulus approx. 12” to 15” in front of face.
- CHECK EQUAL TRACKING & PUPIL SIZE.
  - Equal Tracking
    - Yes
    - No
  - Equal Pupil Size
    - Yes
    - No

**CLUES:**
- Lack of Smooth Pursuit
  - 2 seconds out; 2 seconds back
- Distinct Nystagmus
  - @ Maximum Deviation
  - Hold minimum of 4 seconds
- Onset of Nystagmus
  - Prior to 45 Degrees
  - Move at speed taking 4 seconds
- Vertical Nystagmus
  - Yes
  - No

**TOTAL SCORE:** [ ] (Decision Point: 4; Max: 6)
**One Leg Stand:**

**Instruction Stage:**
-☐ Stand with your feet together.
-☐ Keep your arms by your side.
-☐ Maintain that position until told to do otherwise.
-☐ Do you understand?

**Balance & Counting Stage:**
-☐ When I tell you to start, raise one leg approximately 6 inches off the ground, foot pointed out.
-☐ Keep both legs straight, arms at your side.
-☐ Keep your eyes on the elevated foot.
-☐ While holding that position, count out loud (one thousand-one, one thousand-two) until told to stop. This test will take approx. 30 seconds.
-☐ Do you understand?

**CLUES**
-☐ Sways
-☐ Uses arms to balance
-☐ Hops
-☐ Puts foot down

☐ Cannot perform test (test stopped or not requested for suspect’s safety); Assign all 4 clues.

**TOTAL SCORE:** [ ] (Decision Point: 2; Max: 4)
Field Sobriety Testing

**Walk and Turn:**

**Instruction Stage:**
- [ ] Place your left foot on a line, (real or imaginary) and put your right heel against the toe of the left foot.
- [ ] Place your arms by your sides.
- [ ] Maintain this position and do not do anything until I tell you to start.
- [ ] Do you understand?

**Walking Stage:**
- [ ] When I tell you to start, take nine heel-to-toe steps along a line, and nine heel-to-toe steps back down the line.
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- [ ] Once you begin to walk, do not stop until the test is completed.
- [ ] Do you understand?

**CLUES**
- [ ] Can’t balance during instructions
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- [ ] Stops while walking
- [ ] Misses heel to toe
- [ ] Steps off the line
- [ ] Uses arms to balance
- [ ] Turned improperly
- [ ] Wrong number of steps
- [ ] Cannot perform test (test stopped or not requested for suspect’s safety). Assign all 8 clues.

**TOTAL SCORE:** [ ] (Decision Point: 2; Max: 8)
Field Sobriety Testing

Alternate Tests:
50 pounds overweight OR over 65 years of age OR if injury is claimed

Alphabet:
Result: ____________________________

Finger Count: 1, 2, 3, 4; 4, 3, 2, 1; each finger to thumb
Result: ____________________________

Rhomberg: Close your eyes, tilt your head back, hands at your side, stop after 30 seconds
Result: ____________________________

Hand Clap: Count to 10; front and back of palm is one #
Result: ____________________________

Nose Touch: Close eyes; touch tip of nose with tip of index finger as instructed (call out “right” or “left”)
Result: ____________________________

PBT Result: ________________________ ☐ Refused PBT

☐ Suspect is not intoxicated
☐ Suspect is intoxicated due to:
  ☐ Alcohol  ☐ Drugs  ☐ Both
Was there a cognitive reason for impaired driving?

DOSCI TOOL

- The Driver Orientation Screen for Cognitive Impairment (DOSCI) is an easy screen for cognition that can be used at the roadside.
- 5 or more wrong means the driver is unsafe and should get alternative ride and be reported as priority.
- Tool was developed and validated in California in the context of and educational curriculum for state troopers.
- Validation study article Link
DOSCI Tool (cont.)

- Scoring for referral to DMV

<table>
<thead>
<tr>
<th>Scoring Criteria</th>
<th>Action</th>
</tr>
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<tbody>
<tr>
<td>5 or more incorrect</td>
<td>PRIORITY RE-EXAM</td>
</tr>
<tr>
<td></td>
<td>Unsafe to drive; refer to department procedures for alternative transportation and vehicle removal</td>
</tr>
<tr>
<td>3-4 incorrect</td>
<td>REGULAR or PRIORITY RE-EXAM</td>
</tr>
<tr>
<td></td>
<td>Potentially unsafe to drive; consider totality of circumstances</td>
</tr>
<tr>
<td>0-2 incorrect</td>
<td>NO REFERRAL or REGULAR RE-EXAM</td>
</tr>
<tr>
<td></td>
<td>Based on totality of circumstances</td>
</tr>
</tbody>
</table>
Next Steps for Law Enforcement

- **Citation**: Important to ticket older drivers if driving violations. It helps families and older drivers see red flag.
- **Report to DMV** for further assessment if score of 3 or more on DOSCI tool
- **Write down observations** of problem behavior and results of screen (i.e. score and level of risk on DOSCI tool)
- **Call family or friend** to pick up driver
- **Call EMS**: If likely presence of medical condition or family cannot be reached

Source: http://www.nhtsa.gov/Driving-Safety
Other tools and Resources for Law Enforcement

• IACP quick screen
  http://www.theiacp.org/portals/0/pdfs/AlzheimersVisorCard.pdf

• IACP 10 warning sign a driver may have Alzheimer's

• Short training video for law enforcement to recognize impaired driving due to Alzheimer’s or other dementias
  http://www.theiacp.org/Alzheimer-Training-Video

• NHTSA short video on medical conditions for Law enforcement
  https://www.youtube.com/watch?v=s0N9S4GC7nI
Law enforcement calls you to assess an older driver found at side of road, or you noted poor driving, or you realize that a patient is going to drive home them self and you have concerns about safety. Do you have tools to assess the situation? Remember – you are screening NOT diagnosing!
You have several options......

keep in mind, you are screening to see if it is safe to let the person get behind the wheel right now. If they can pass the skills, it is most likely OK to let them drive, if they are having trouble, they need further evaluation by experts!
Plan for Older Drivers’ Safety (PODS)

**Step 1: Screening and Observation**
- Medical condition of concern?
- Symptoms on review of systems?
- Current/former driver? Wants to drive?
- Driving incidents or changes in the past 5 years?
- Older adult/caregiver concerns?

**At Risk: Positive Risk Factors Identified**
Step 2: Use Clinical Assessment of Driving Related Skills (CADReS) to Identify Impairments and Seek Remediation

- **General:**
  - Driving History, IADLs Questionnaire, Medication Change
- **Vision:**
  - Fields, Acuity, Contrast
- **Cognitive:**
  - MoCA, Trails B, Clock Drawing, Maze
- **Motor/Sensory:**
  - Range of Motion, Proprioception, Get Up and Go, Rapid Pace Walk

**Not At Risk: Minimal to No Positive Risk Factors Identified**
Discuss transportation plans and health maintenance

**Step 3: Analysis of Screen and CADReS**

From 3rd edition of
Clinician’s Guide to Assessing and Counseling Older Drivers
Published by AGS and NHTSA Jan, 2016
Step One: Rule out medical conditions that may lead to issues when driving

- Cognitive conditions
- Cardiovascular
- Diabetes
- Depression
- Functional conditions
- Physical limitations
- Seizures
- Sleep disorders
- Vision problems

* NHTSA’s list
Other Symptoms.....

- General ~ fatigue, weakness, dizziness
- HEENT ~ vision changes, headache, vertigo
- Respiratory ~ Short of Breath, us of Oxygen
- Cardiac ~ chest pain, palpitations, loss of consciousness, increased swelling in legs, rhythm problems, lightheadedness
- Musculoskeletal ~ pain, weakness, joint stiffness, decreased range of motion
- Neurologic ~ stroke, seizure, tremor, paralysis, numbness, tingling, weakness
- Psychiatric ~ anxiety, mania, psychosomatic
Careful observation is important step in screening. Emergency room clinicians should observe the older adult and be alert to:

• Sensory issues such as impaired vision, hearing or decreased sensation in the extremities
• Inattention or loss of insight regarding personal care (e.g., poor hygiene and grooming)
• Difficulty with way finding (e.g., getting to or out of the office, or going to restroom)
• Impaired attention, memory, language expression, or comprehension
• Get input from caregivers on: Difficulties or lack of insight related to managing medical encounters, such as missed appointments, repeated phone calls for the same issues, or appearing on the wrong day.
Plan for Older Drivers’ Safety (PODS)

Step 1: Screening and Observation
- Medical condition of concern?
- Symptoms on review of systems?
- Current/former driver? Wants to drive?
- Driving incidents or changes in the past 5 years?
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Step 2: Use Clinical Assessment of Driving Related Skills (CADReS) to Identify Impairments and Seek Remediation

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- Driving History, IADLs Questionnaire
- Medication Change

Vision:
- Fields, Acuity, Contrast

Cognitive:
- MoCA, Trails B, Clock Drawing, Maze

Motor/Sensory:
- Range of Motion, Proprioception, Get Up and Go, Rapid Pace Walk

Assess driving related skills based on current condition finding safe ride home if unsafe and a referral for follow-up and reassessment!
Medications the person is taking may cause sedation or impaired cognition affecting driving safety

- Anticholinergics
- Anticonvulsants
- Antidepressants
- Antiemetics
- Antihistamines
- Antiparkinson
- Antipsychotic
- Benzodiazepines
- Muscle relaxants
- Narcotic analgesics

These medications may be new for the patient who is not aware of effects!
Enter your medications below

Begin typing the name of a medication that you are currently taking below and then select it from the list. Once you have entered all your medications, both prescribed and over-the-counter, click "View Results."

WHAT IS ROADWISE RX?

BEGIN TYPING THE NAME OF A MEDICATION OR HERBAL SUPPLEMENT... NEED HELP ?

DRUG NAME GENERIC NAME

View Results »

Have questions about Roadwise Rx? Email roadwisex@aaafoundation.org

For over 60 years, the AAA Foundation for Traffic Safety has conducted research to support education that advances safety and wellbeing for all road users.

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1. **Visual fields:** Shade in any areas of deficit.

2. **Visual acuity:** ________________ OU  OS  OD

   Was the patient wearing corrective lenses?
   If yes, please specify:
   __________________________________________
Mini Cog Test (3-min valid screen for cognitive status)

1. Three word registration
   Listen carefully, I am going to say three words that you will need to say to me now & remember. (Pick one list below.)

   **Version 1**
   - banana
   - sunrise
   - chair

   **Version 2**
   - leader
   - season
   - table

   **Version 3**
   - village
   - kitchen
   - baby

   **Version 4**
   - river
   - nation
   - finger

   **Version 5**
   - captain
   - garden
   - picture

   **Version 6**
   - daughter
   - heaven
   - mountain

2. Clock drawing
   Draw a clock, put in all the Numbers where they go
   Set hands to 10 to 11

3. Three word recall
   Ask the person to recall and tell you the three words from before.

   Word version list _____ person’s answers
   _______ _______ _______
MoCA is a 10-15 min cognitive screen. Can help predict driving risk in people with diagnosis of cognitive impairment.

A score on the MoCA of 18 or less should raise concerns about driving safety.

**Clock drawing test:** Please check ‘yes’ or ‘no’ to the following criteria.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>All 12 hours are placed in correct numeric order, starting with 12 at the top</td>
<td></td>
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<tr>
<td>Only the numbers 1-12 are included (no duplicates, omissions, or foreign marks)</td>
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<tr>
<td>The numbers are drawn inside the clock circle</td>
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<td></td>
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<tr>
<td>The numbers are spaced equally or nearly equally from each other</td>
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<td></td>
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<tr>
<td>The numbers are spaced equally or nearly equally from the edge of the circle</td>
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<td></td>
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<tr>
<td>One clock hand correctly points to two o'clock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The other hand correctly points to eleven o'clock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are only two clock hands</td>
<td></td>
<td></td>
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</tbody>
</table>
Trail-Making Test, Part B: ___________ seconds

There is an app for that!
Maze

A TEST FOR DRIVERS

MAZE TASK

PRINT THIS IMAGE AND TRY THE TEST
Assess Physical Ability

Get up and Go:
Rise from chair, walk 10 feet, turn around, walk back, turn & sit

Rapid pace walk: ____________ seconds
Was this performed with a walker or cane? If yes, please specify:
______________________________________________________________

Source: http://www.nhtsa.gov/Driving-Safety
Range of motion:
Specify ‘Within Normal Limits’ or ‘Not WNL.’
If not WNL, describe.

<table>
<thead>
<tr>
<th></th>
<th>Right</th>
<th>Left</th>
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<tbody>
<tr>
<td>Neck rotation</td>
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<tr>
<td>Finger curl</td>
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<tr>
<td>Shoulder and elbow flexion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ankle plantar flexion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ankle dorsiflexion</td>
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</tr>
</tbody>
</table>

Source: http://www.nhtsa.gov/Driving-Safety
**Motor strength:**
Provide a score on a scale of 0-5.

<table>
<thead>
<tr>
<th></th>
<th>Right</th>
<th>Left</th>
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<tbody>
<tr>
<td>Shoulder adduction</td>
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<tr>
<td>Shoulder flexion</td>
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<tr>
<td>Wrist flexion</td>
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<tr>
<td>Wrist extension</td>
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<tr>
<td>Hand grip</td>
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<tr>
<td>Hip flexion</td>
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<tr>
<td>Hip extension</td>
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<td></td>
</tr>
<tr>
<td>Ankle dorsiflexion</td>
<td></td>
<td></td>
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<tr>
<td>Ankle plantar flexion</td>
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</tbody>
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Source: http://www.nhtsa.gov/Driving-Safe
Options if the patient does not do well during screening.

- Know that limitations may be situational (due to stress) and could improve later
- Call family or friend for ride
- Share concern with family & patient
- Report to primary MD
- Report to Driver & Vehicle services. Not mandatory in MN but recommended
- Suggest Certified Driving Rehab Specialist evaluation

- Remind patient – not a final diagnosis, but a current safety issue
MD, OD, Neurologist

• Medical professionals involved in testing older drivers following referral from many sources:
  • DVS, as related to licensing
  • Concerned family members
  • Drivers themselves following recommendation from, community member and friends

• MD may do assessments or refer to Specialist and/or OT/CDRS for testing.
• MD alone communicates with DVS for licensing renewal recommendations

Decision Tree for the Evaluation Process for Safe Driving

Common Entry Points

- Law Enforcement, EMS, ER Sees Unsafe driving, Accident, Confusion
- OD Vision Screen
- DVS Requires Assessment
- Medical Doctor (MD) Neurologist
  - Assesses and addresses vision, cognition, motor and/or medical issues
- DVS License Examiner
  - Road test
- Occupational Therapist
  - Assessment of driving-related skills as part of IADL evaluation.
  - Restoration of function or adaptation/compensation
- Certified Driving Rehab Specialist (CDRS)
  - Comprehensive Driver Assessment
  - Pre-driving assessment, simulator and/or on-road testing.
  - Provides assistive devices and training to drivers

Medical Doctor (MD) may do assessments or refer to Specialist and/or OT/CDRS for testing.
MD alone communicates with DVS for licensing renewal recommendations.
Interaction MD and Driving Rehabilitation Specialists

• See Jennifer Fisher’s presentation
DVS and Assessment

- DVS has Legal Authority to restrict or remove license if driver deemed unfit to drive
- Assesses driver following referral or at license renewal time
- Use vision screen, knowledge test and/or behind the wheel test
- May refer to MD for further assessment
- States vary in how DVS assesses cognition and what they do when cognitive issues are identified.
DVS and Cognitive Screening

• Some DVS use computerized cognitive screens (i.e.) UFOV, DriveAble [link] Clock-drawing [link], Trails B [link] but not Minnesota. Knowledge test used for all ages.

• In-person renewal used in Minnesota may be informal way to assess cognition. Research shows that in person renewal is linked to decreased crash risk.

• In some countries and some US states, MD and other health professionals are mandatory reporters: Can be held liable in case of accident if it was caused by an unfit driver they did not report to the DVS. Not in Minnesota.

• Research shows that those laws have mixed effectiveness in reducing crash rates. Concern is that it tends to make people stop before they need to stop.

• Cognitive screens do predict on-road performance and crash risk, but they are best predictors if used in combination, during multi-tiered assessment process.
Example of DVS 3-Tiered System of Assessing Older Drivers at Risk

• Since no single cognitive test can predict driving risk, some states have implemented a multi-tiered assessment process. For example in California:

• Tier 1 is brief and consists to four easy to administer tools:
  • DMV’s current Snellen test of visual acuity.
  • Chart-based test of contrast sensitivity.
  • Brief cognitive screen (recalling social security number).
  • Structured observations for physical limitations.

• If pass Tier 1: Do the computerized DVS road knowledge test in Tier 2.

• If fail Tier 1: Do computerized test of processing speed (UFOV) and computerized road knowledge test

• If pass Tier 1 but fail road knowledge test, also do UFOV test.

• Complete source: Link
Discussion

• Some possible issues to raise during discussion:
  • Do, and should EMS report unsafe drivers to DVS?
  • Are there HIPPA issues if they do so? Is there a way to report without violating HIPPA?
  • Right now, family members can report problem driver anonymously to DVS. Should concerned neighbors and medical personnel also have anonymity?
  • Right now, only MD communicate directly with DMV to recommend license restriction or revocation. Should CDRS be able to communicate directly with DVS based on their behind the wheel assessment? Should liability laws be implemented to facilitate this reporting?
  • Should formal cognitive assessments be part of the process at the DVS?
  • Should a multi-tiered system be instated in MN, similar to a California model?