University of South Florida
GERIATRIC WORKFORCE ENHANCEMENT PROGRAM (GWEP)
Learn@Lunch Geriatric Education Series
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Making Life Better®
DRIVING EVALUATIONS: THE FORGOTTEN ADL

Lori Grismore, OTR/L, Occupational Therapist
USF Health Byrd Alzheimer’s Center and Research Institute
To identify the diagnoses and clinical symptoms that may warrant a referral for a driving evaluation.

Identify Florida anonymous reporting law and how it can be useful in clinical practice.

Understand 2-3 possible recommendations as outcome of driving evaluation.
What is ADL? – Activity of Daily Living
Occupational Therapy schools – not previously taught
Skilled Nursing Facilities?
Rehabilitation Hospitals?
Home health therapists?
There are 30 million + people age 70 and older living in the United States.
In early 2011, the first “Baby Boomers” turned 65.
10,000 baby boomers will turn 65 each day, for 17 years.
Motor Vehicle Injuries are the leading cause of injury-related deaths among 65-74 year olds and the second leading cause among 75-84 year olds. (AMA, 2010)

By the year 2050, estimated to be 1 mil over age of 100 years.
In 2012, 5,560 people over the age of 65 died, and 214,000 were injured in motor vehicle crashes. (NHTSA’s Safety in Numbers)
In 2012, there were 35 million licensed older drivers (age 65+).
Fatal crash rates increase at age 75 and then notably after age 80.
NHTSA released in December 2013 “Traffic Safety for Older People – 5Year Plan”

Any type of Dementia
- Parkinson’s Disease
- Mild Cognitive Impairment
- CVA – perceptual/visual deficits, neglect, decreased cognition
- MSA, HD- chorea, lack of coordination
- Multiple Sclerosis
- Post Anesthesia Delirium
- Total Hip or Total Knee Replacement Surgery
- Diabetes/Peripheral Neuropathy
- Visual Impairments – macular degeneration, cataracts, glaucoma
- Severe Arthritis – back pain, pain syndromes, opioid use
- Age related changes
- Amputation
- TBI
It is a physician’s ethical responsibility to report patients to the state’s motor vehicle administration when physician believes that the patient is a threat to road safety. From the American Medical Association’s Council on Ethical and Judicial Affairs, December 1999

The AMA created the Physician’s Guide to Assessing and Counseling Older Drivers.

- Includes brief office based assessment for medical fitness to drive.
- Medical conditions and medications that may affect driving
- Recommendations for rehab options
- Discussion of legal and ethical issues
- www.ama-assn.org
- It is important to interview caregiver without the patient present as you will receive more information.
According to AOTA, Occupational Therapists have an ethical and professional obligation to address driving when delivering occupational therapy services. (Principle 1E, Occupational Therapy Code of Ethics and Ethics Standards:2010, AOTA 2010a)

A Client's safety is a professional concern.

Even generalist level OT’s are qualified to screen for and make a referral to a DRS when necessary.
**MEDICATIONS THAT MAY IMPAIR DRIVING ABILITY**

- **Anticholinergics** – Benadryl, Dramamine, Unisom, Spiriva, Detrol
- **Anticonvulsants** – Tegretol, Gabapentin, Lyrica
- **Narcotic analgesics** – morphine, demerol
- **Antiemetics** – Remeron, Zofran
- **Some antidepressants** – Bupropion, MOA inhibitors, SSRIs, Tricyclic antidepressants
- **Antipsychotics**
- **Cough medicines**
- **Decongestants**
- **Muscle relaxants**
- **Stimulants**
WARNING SIGNS

- Getting lost in familiar places.
- Scrapes or dents on car, garage or mailbox.
- Accidents or Tickets
- Using a co-pilot
- Driving too slow or too fast.
- Avoids making left turns.
- Unable to recognize/comprehend road signs and traffic signals.
- Gets agitated or angry easily while driving.
- Slow reaction times/close calls.
- Difficulty with correct stopping distance at intersections.
- Difficulty with general mobility, getting into and out of a car.
SKILLS CRITICAL FOR DRIVING

- Steering
- Accelerating
- Braking
- Speed Control
- Passing
- Maintaining Lane Position
- Changing Lanes
- Turning
- Following
- Stopping
- Yielding
- Backing up
- Parking
- Curves
- Signaling
“I have never had an accident!”
“I have been driving for 50 years!”
“My wife tells me when to turn and stop.”
“I may not know how to do these tests but I can drive just fine!”
“I didn’t see that stop sign!”
“I would rather die than lose my independence!”
“I think someone scanned my purse and turned me in.”
“I don’t pay attention to the road signs I just try to stay in my lane.”
“I don’t drive very often.”
Where do we get our training?

The Association for Driver Rehabilitation Specialists – ADED  [www.aded.net](http://www.aded.net) – non profit organization dedicated to promoting safe and independent mobility for the aging and disabled.

ADED holds an annual conference usually in August.

American Occupational Therapy Association – recently developed specialty certification, training, publications

Often an Occupational Therapist but could also be someone in the field of Driver Education, PT

Professionals with extra training and education in the field of driver rehabilitation. Still an emerging field for OT’s.
Driving Assessments

- What do we need to assess?
  - Driving Habits Interview
  - Physical Performance
  - Cognition
  - Vision
  - Knowledge of road signs and rules
  - Performance behind the wheel

- How often do we assess clients?
- How long does it take?
- Who pays for it? Medicare?
- Where can I find a DRS in my area?
Where do the referrals come from?

- Physicians - Neurologists, Internal Med/Primary Care, Psychiatrists, Psychologists, Stroke Clinic, Neuropsychologists
- Caregivers and loved ones
- Self referral – post accident, license suspension
- Medical Review Board – if someone reports them to the state as a potentially unsafe driver and/or if their license has been suspended from an incident or accident.
- Case Managers from WC
Physical Examination

- Active ROM in cervical neck, trunk rotation, upper body and lower body.
- Muscle strength testing, grip strength testing
- Coordination and dexterity testing for upper and lower extremities
- Trunk control and trunk mobility
- Reaction time testing
- Timed Up and Go Test
- Sensory and proprioception testing
How Physical Impairments Affect Driving

- Neck and trunk stiffness – difficulty to turn and see mirror blind spots
- Upper extremity stiffness and weakness – difficulty to control steering wheel, use correct hand positioning.
- Lower extremity weakness and stiffness – difficulty to push pedals, maintain position
- Slowed or decreased coordination in feet, decreased reaction time – slow to transition from gas pedal to brake pedal, slow to turn or swerve if needed
- Numbness or decreased proprioception can lead to difficulty with use of pedals for acceleration and braking.
Cognitive Examination May Include:

- Trails A&B
- DRS, DRS – 2
- Useful Field of View – 3 subtests
- MVPT – visual closure subtest
- Knowledge of Road Signs
Trails A is a test of attention and visual scanning. Target for completion is 60 seconds or less.

Trails B is a test of attention switching. Target for completion is 120 seconds or less.

Useful Field of View (UFOV) has 3 subtests

- Subtest 1 is speed of processing expressed in milliseconds
- Subtest 2 is divided attention – the ability to notice and pay attention to more than one item at a time
- Subtest 3 is selective attention – the ability to notice more than one item and also to ignore distraction at the same time

- Crash Risk Rating – scores of 1-5 with higher scores indicating a greater crash risk.
Dementia Rating Scale, DRS – 2

- Standardized Test for dementia
- Subtests include: attention, initiation/perseveration, memory, conceptualization and construction
- Total score can be converted to a percentile range for their corresponding age range.
Welcome to UfoV® Test 1

This test will measure how fast you can identify a single item. Tests speed of processing.

Which object was inside the white box?
Welcome to UFOV® Test 2

This exercise will measure how fast you can divide your attention between two objects.

After each presentation you will be asked two questions. Which object was inside the white box?

On which spoke was the outside object located?

Indicate your answer by clicking the button which corresponds to the location of the target.
Welcome to UFOV® Test 3

This exercise will measure how fast you can divide your attention between two objects when the outside object is surrounded by clutter.

After each presentation you will be asked two questions. Which object was inside the white box?

On which spoke was the outside object located?

Indicate your answer by clicking the button which corresponds to the location of the target.
CONCEPTUAL: USEFUL FIELD OF VIEW
Older drivers with poor UFOV were 2.2 times more likely to incur a crash over the next three years

Owsley, Ball et al. (1998) JAMA
Population-based field study using UFOV task 2 performance alone

Drivers with poor UFOV were twice as likely to incur an at-fault crash over subsequent 4 to 5 years (Ball, et al. 2006 Jornal of the American Geriatrics Society)

UFOV reduction correlates with on-road performance- overall score and specific items (Duckek et al, 1998; Raedt et al, 2000)
MVPT – VISUAL CLOSURE SUBTEST
Difficulty on both MVPT visual closure and Trails B indicates a client will be 22 times more likely to fail the on the road test. (Mazer et al., 1998)

The visual closure subtest of MVPT is used in driving test batteries including GRIMPs and CanDRIVE Study.

Trails B correlates with on the road performance with client groups (Ott et al, 2008; Dey, 2004; Grace et al, 2005)

Trails A is associated to increased crash risk (Stutt et al, 2008)
DEMENTIA RATING SCALE 2
HOW COGNITIVE DEFICITS POTENTIALLY IMPACT DRIVING SKILLS

- Memory loss – Difficulty to remember appointments, sees posted speed limit but quickly forgets, forgets destination of trip, confusion on rules of the road
- Difficulty with problem solving or planning – difficulty planning driving route to destination, confusion with new detour or construction zone, unable to get back on course after making a wrong turn
- Confusion/decreased orientation – gets lost in usually familiar areas or routes,
HOW COGNITIVE DEFICITS POTENTIALLY IMPACT DRIVING SKILLS

- Visual/spatial problems – may drive wrong way down one way street, difficulty to stay in lane, difficulty to understand road signs, difficulty with correct stopping distance, difficulty with gap acceptance.

- Word finding/language problems – unable to understand written road signs, difficulty to follow GPS or written directions

- Decreased judgement – blames accidents on others, difficulty to judge distances appropriately

- Mood/Personality Changes – drives too fast or too slow, road rage, becomes agitated with other drivers easily or too timid and afraid to drive
DRIVING ASSESSMENTS

- Visual Examination
  - Optec Vision Tester
  - State Vision Standards – Florida has standards for Far Visual Acuity and Peripheral Vision
  - Visual Acuity Far and Near
  - Peripheral Vision
  - Binocularity
  - Contrast Sensitivity – Pelli Robson Chart
  - Depth Perception
  - Color Perception
How Visual Impairments Affect Driving

- Acuity impairments – inability to read road signs and other information, driving in low light, detecting road hazards
- Peripheral Vision impairment – not seeing the whole environment including pedestrians, difficulty to manage in a parking lot, planning turns
- Depth Perception – difficulty with timing turns, gap acceptance, stopping distance, parking in a defined space, lane positioning and land changes.
DRIVING ASSESSMENTS

How Visual Impairments Affect Driving

- Color Perception – road signs and traffic lights
- Contrast Sensitivity – night driving, glare, fog
- Visual Field Cuts/Neglect – difficulty with lane management and lane changes.
Completed in dedicated vehicle with safety equipment
Completed by an Occupational Therapist
Cannot be done in their own car
Route leaves from Byrd Institute parking lot and can include residential, urban and interstate driving.
Drive lasts approximately 45-60 minutes.
Patient is evaluated on a scale for each driving skill experienced – ie. Left hand turns, merging into traffic, safe stopping distance, following road signs and traffic laws.
Assessment on fitness to drive determined by outcome of all parts.
Report sent to the referring physician and to the patient upon request.
We only report to the medical review board under special circumstances. This is deferred to the referring physician.

Recommendations:
- Continue with the potential for safe driving and no restrictions
- Continue driving with restriction – ie no night or interstate driving, only familiar locations, retesting in 6-12 months with dementia or AD diagnosis
- Retirement from driving
- Retraining recommended for processing speed, divided attention, selective attention. Computerized cognitive training.
- Adaptations to car.
- In the car training.
Recommendations can include adaptations to the car.
- Left foot accelerator
- Spinner knob
- Extended turn signal
- Hand controls

Recommendation can be made for in-car training to improve skills.

Computerized training with an occupational therapist to improve processing speed and divided attention skills

Referral to optometrist or ophthalmologist for improvement with vision

Training in community mobility that is available if retirement from driving is recommended.
Call my receptionist to schedule: 813-396-0728
Insurance DOES NOT cover driving assessments.
Cash, credit card with a deposit to hold the appointment.
Two hour clinical exam with possible 1 hour road test on a separate day.
Cancellations – we will let you know if the patient cancels and refuses to reschedule.
Our physicians make it mandatory, not an option.
Make it positive – a chance to prove their driving skills.
Some will refuse. Some will get mad. Most will understand.
ROAD BLOCKS

- Fear of losing a license and independence.
- Denial of deficits.
- Forgetting incidents or accidents, episodes of getting lost.
- Feel people are out to get them.
- Try to make it as positive as possible – offering them a chance to prove their driving skills.
- Liability – chances of being sued
- Limited information from patient only
QUESTIONS?

You got a problem with my driving, punk?

TO SCHEDULE A DRIVING ASSESSMENT, PLEASE CALL 813-396-0728