Rochester Rehabilitation

DriveOn

Helping People Drive Safely

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Instrumental ADL

" Occupational therapy practitioners are in a position to support continued driving and transition to other modes of mobility at the individual client and population levels because of their understanding of human performance and the influence of context and environments on that performance. In addition, driving and community mobility are within the scope of occupational therapy practice and are identified in the Occupational Therapy Practice Frame Work: Domain and Process (3rd ed.; AOTA, 2014)."

Stav, W.B., (2014), Updated Systematic Review on Older Adult Community Mobility and Driver Licensing Policies. AJOT, Dec 2014, 681-689.

OT and Driving

- General OT has knowledge and skills for the assessment of:
  - Cognition/ Executive functioning
  - Vision
  - Physical skills
  - Insight/awareness
  - Emotional regulation
  - Sensory

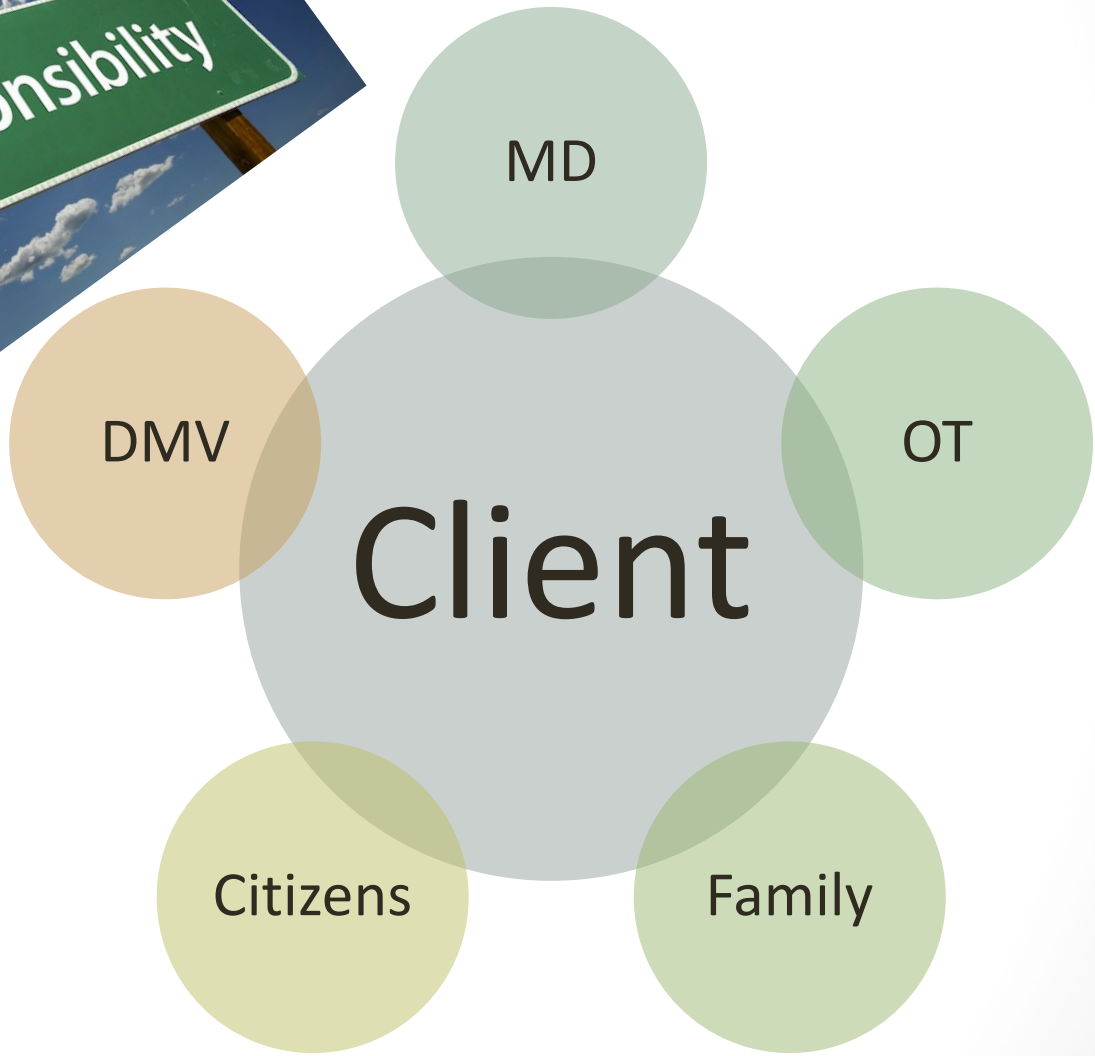
How do OT's answer: Are they safe to drive?

- Utilize standardized assessments
- Determine ADL/IADL skills
  - Medication management < using a stove < driving
- Determine safety risk
- Utilize clinical judgment to make a determination or to refer to DRS

Hierarchy of Driving (Michon's) /IADL

	Driving	IADL
1. Operational	Controlling the car • Steering, pushing brake pedal, put on wipers/turn signal • Never forget how to ride a bike	Controlling tools • Can the client manipulate utensils, toothbrush, etc.
2. Tactical	Decisions/maneuvers during tasks • When is it safe to make left turns/ where to pass/ change lanes	Decisions/maneuvers during tasks • Is the client able to multi task: Walk/talk, listen/perform, follow 2+ instructions • Is he/she aware, are they attentive and do the possess good processing skills?
3. Strategic	Decision making process, affecting all levels of driving. • Able to plan a trip, including type of transportation (plane/car/train • Navigating the trip, including changes/adjustments while on the road	Decision making process • Is the client independent with medication management? • Are they aware of their limitations & when to ask for help? • Can they plan a complex activity?


Responsibility


MD
DMV
OT
Client
Citizens
Family

NY state DMV Forms

- Physicians
  - Concerned for safety
  - Medical/Cognitive changes
    - DS-6- If driving is affected due to physical or mental impairment
    - 80U.1 - Medical review for LOC, awareness, and/or body control (atrial fibrillation, heart arrhythmia, pacemaker, uncontrolled HTN, CAD, murmurs, stents)
    - MV-80 – Medical Review for any other medical condition (falling asleep, Rx meds,)
    - MV- 80L- Loss of vision or wearing telescopic lenses
- Families or concerned citizens DS-7
  - Concerned for safety
  - Don’t want to take keys away
- Law Enforcement DS-5
  - After ticketing, traffic stops, concerns for safety

Driver Evaluator Credentials

- CDI

- DRS/CDRS

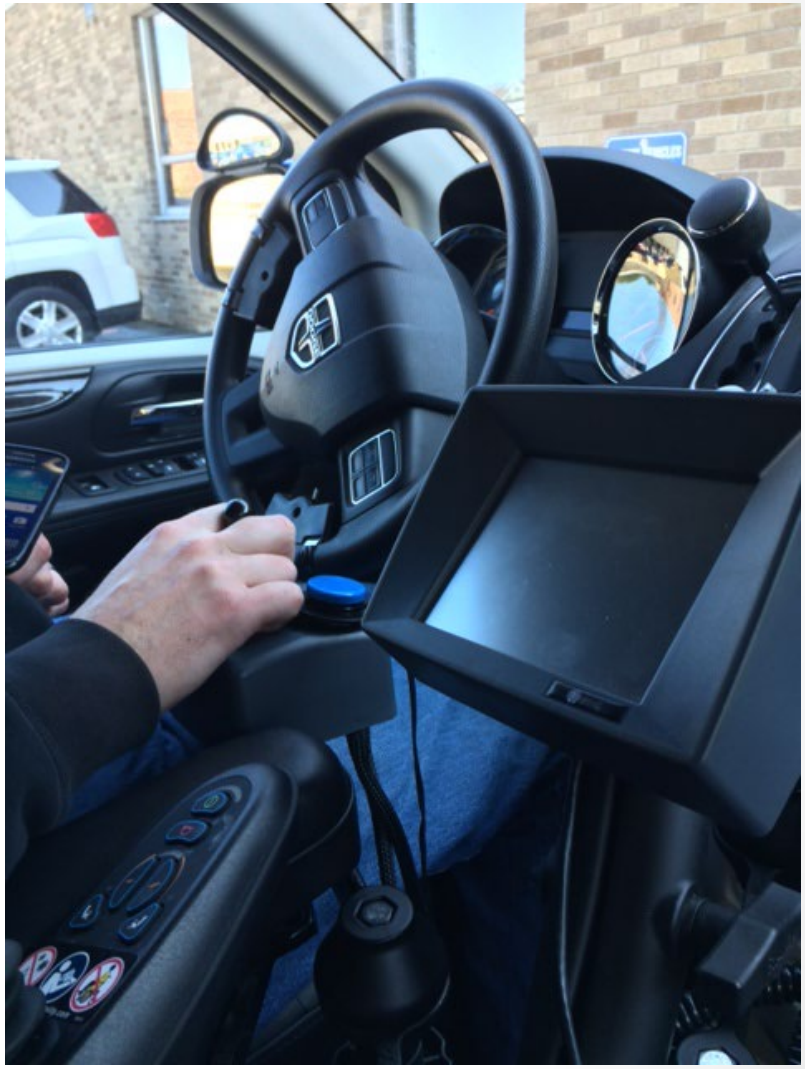
- OT

DriveOn Clients Served

- New drivers
  - Attention deficit hyperactivity disorder
  - Autism spectrum disorder
  - Asperger's syndrome
  - Cerebral Palsy
  - Muscular Dystrophy

- Experienced Drivers
  - Progressive neurological syndromes
  - Cognitive impairments
  - Stroke
  - Multiple Sclerosis
  - Amputee
  - Spinal cord injuries
  - Burns
  - Spinal Muscular Atrophy
  - Senior Drivers
  - Additional physical disabilities

- Safe Passengers



Assessment

- Part 1: Clinical
  - History, cognition, vision, reaction times, physical skills
  - Evidence Based Practice
- Part 2: Behind the wheel assessment

Assessment
Part 1

- Clinical Assessment- 2 hours
  - Diagnosis
  - Driving History
  - Medications/ Medical History
  - Inquire about ADL/ IADL's
  - Vision
    - Optic 5000
      - Acuity
      - Depth perception
      - Peripheral vision
    - Useful Field of Vision (VFOV)

Visual Assessment for Driving

Evidence Based Practice

- Useful Field of Vision (UFOV)
  - Test 1: Central vision and/or processing speed
  - Test 2: Divided attention and visual attention
  - Test 3: Selective attention

UFOV

"The UFOV assessment is one of the best visual or cognitive predictors of crash rates surpassing the visual acuity tests (used at most DMV test sites)."

- Poor Performance: Subtest 2
  - Correlates with crash & risk for unsafe driving
  - 2X as likely to have accidents
  - Longer to cross intersections & initiates crossing later
- Physical/motor impairments association:
  - Wile walking may have bump into items during obstacle navigation
  - Increased incidences of injurious falls

Classen et al., 2009
Amick et al., 2007

Assessment- Part 1- continued

- Physical Abilities
  - UE/LE general mobility, strength, and ROM
  - Brake Reaction Times
- Cognitive
  - Saint Louis University Mental Status (SLUMS)
  - Trail A & B
  - Midpoint- Line bisection
  - Motor Free Visual Perceptual Test (MVPT)
  - Snellgrove Maze test (<60 seconds 0-1 errors)
- Knowledge of driving
  - Road signs
  - Rules of the road

Assessment Evidence

- Clock drawing
- Helps identify executive function impairments & need for further driving assessment. Jonas, et al (2013)
- MVPT = fitness to driving is inconsistent – attend to processing time to respond
- Trail Making Test B:
- > 2 minutes indicated “significant risk for unfit to drive” due to slowed processing speed
- Best indicator for “on-road outcomes” (Classen, 2013)
- Parkinson’s Disease
- Rapid walk test: > 7.5 seconds decreased fitness to drive = 2.5X increase risk of accident, > 9 seconds = 3X increased risk
- ADReS = Assessment for Driving Related Skills for Older Driver-Screening (NHTSA)- https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/811113.pdf

Evidence Based Practice

- Systematic review of 64 studies: (5 Level I, 6 level II, 53 Level III
  - Single tool to measuring cognition, vision, perception or physical ability .... Is not sufficient to determine fitness to drive
  - Some tools have stronger evidence than others
  - Indicates importance of using different and focused assessment tools, along with medical conditions.
  - Behind-the-wheel assessment remains the "gold standard" for driving evaluation
  - Emerging evidence for observation of complex IADL's and driving simulation support further investigation.

Dickerson, A.E., Brown Meuel, D., Ridenour, D.D., Cooper, K.

https://ajot.aota.org/article.aspx?articleID=1934883

Assessment Evidence Continued:

- Snellgrove Maze:
  - Up to 60 seconds with ≥ 2 errors – unfit to drive
  - ≥ 61 seconds = unfit to drive (Stroke)
- MMSE
  - < 18 = risk of driving due to "moderate to severe dementia
  - UFOV
    - Test 2- correlated with crashes and unsafe driving due to decreased processing speed
- BTW
  - Best tool to determine safe driving (Dickerson, et al 2014)
  - ADReS = Assessment for Driving Related Skills for Older Driver- Screening (NHTSA)- https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/811113.pdf

VAMC
SLUMS Examination

Questions about this assessment tool? E-mail aging@slu.edu.

Name _____ Age _____

Is patient alert? _____ Level of education _____

__/1 ❶ **1. What day of the week is it?**

__/1 ❶ **2. What is the year?**

__/1 ❶ **3. What state are we in?**

4. Please remember these five objects. I will ask you what they are later.

Apple Pen Tie House Car

5. You have $100 and you go to the store and buy a dozen apples for $3 and a tricycle for $20.

❶ **How much did you spend?**

__/3 ❷ **How much do you have left?**

6. Please name as many animals as you can in one minute.

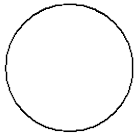
__/3 ❶ 0-4 animals ❶ 5-9 animals ❷ 10-14 animals ❸ 15+ animals

__/5 **7. What were the five objects I asked you to remember?** 1 point for each one correct.

8. I am going to give you a series of numbers and I would like you to give them to me backwards. For example, if I say 42, you would say 24.

__/2 ❶ 87 ❶ 649 ❶ 8537

9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.



❷ Hour markers okay

__/4 ❷ Time correct

__/2 ❶ **10. Please place an X in the triangle.**

❶ **Which of the above figures is largest?**

11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.

Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.

❷ **What was the female's name?** ❷ **What work did she do?**

__/8 ❷ **When did she go back to work?** ❷ **What state did she live in?**

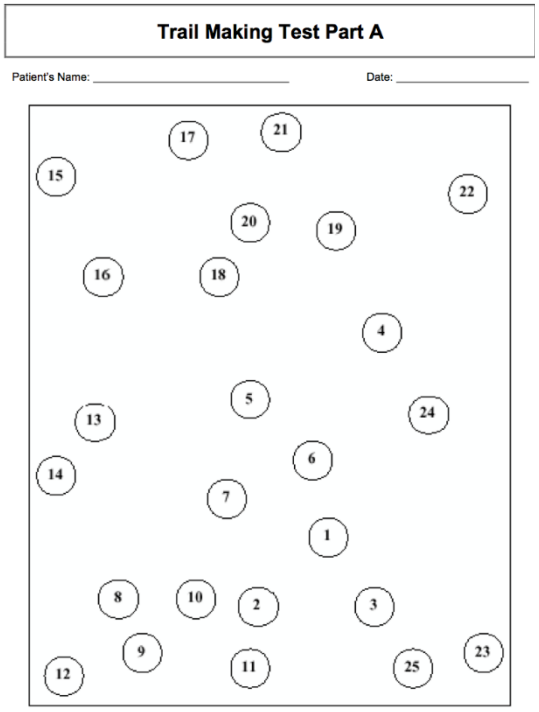
_____ **TOTAL SCORE**

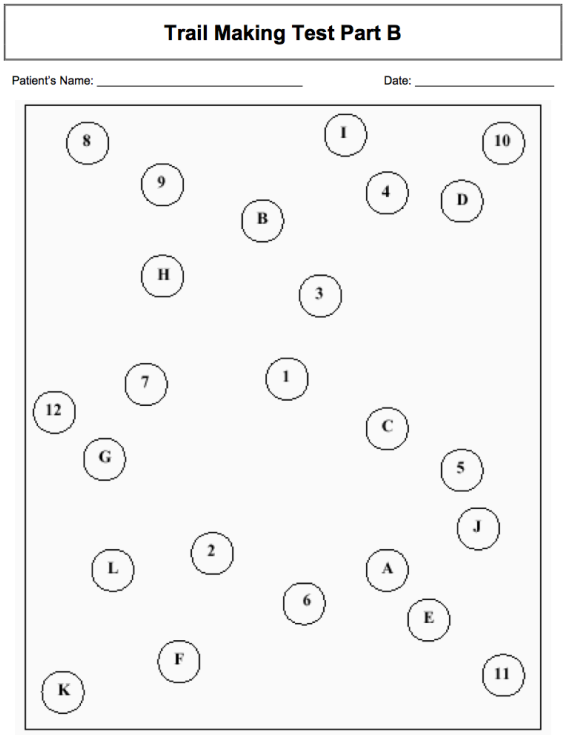
SAINT LOUIS UNIVERSITY

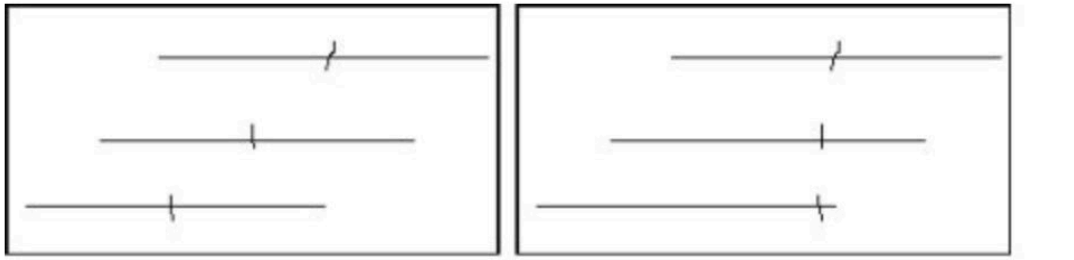
SCORING		
HIGH SCHOOL EDUCATION		LESS THAN HIGH SCHOOL EDUCATION
27-30	Normal	25-30
21-26	MNCD*	20-24
1-20	Dementia	1-19

* Mild Neurocognitive Disorder

SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. The Saint Louis University Mental Status (SLUMS) Examination for Detecting Mild Cognitive Impairment and Dementia is more sensitive than the Mini-Mental S tatus Examination (MMSE) - A pilot study. J am Geriatri Psych (in press).







A. Normal line bisection

B. Highly impaired line bisection

Trails B-

- Tests skills of:
  - Alternating attention
  - Mental sustainability
  - Processing time

•No single screening is the “one & only to determine safe driving

Behind the Wheel Part 2

- One hour assessment
  - Residential- Expressway
  - Staying in the lane
  - Changing lanes
  - Turns
  - Signs recognition
  - Use of secondary controls
  - Speed
  - Variety of road type/conditions
  - Multi-tasking, concentration, judgment, decision-making

- Recommendations and follow-up

What's Next ?

- Seniors
  - Recommend to
    - Return to driving
    - Return for additional session(s)
    - Modified driving
    - Stop driving
      - NYS DMV DS-6

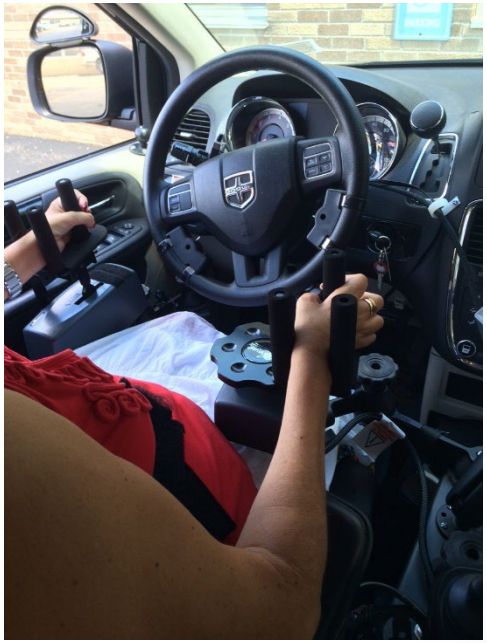
- Physical Disabilities
  - Modifications/ Adapted Vehicles
  - Training with equipment

- New Drivers
  - Training

Training

A. Without equipment
   - ADHD
   - Autism
   - No physical impairments

B. With adapted vehicle
   - Low Tech
     - Hand controls
     - Left Accelerator
     - Adapted mirrors
     - Ramps to get into the van



   - High Tech
     - SERVO

Questions

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