Driving Across the Life Span

Megan Frazier, MS, OTR, DRS

Who am I?

- An OT and Driver Rehab Specialist
- Practicing for 15+ years
- Owner of Functional Stability and Mobility, LLC
- Vic-President of ADED Texas Chapter and Co-Chair of TOTA's new Driving and Community Mobility SIS



Why Driving and Community Mobility?

- Underserved population
- Maximizes independence & promotes engagement with the community
- Reduces depression, isolation & onset of more complex medical conditions
- It's a fun, dynamic & individualized to each client
- Involves collaboration with a wide variety of professionals
- Emerging practice area



What are today's objectives?

- Identify why addressing driving as an IADL across the life span is important
- Identify the cognitive, physical, and social components needed for driving safety
- Age:
 - Teens
 - Identify skills and requirements needed to obtain driver's permit
 - Adult/Geriatric:
 - Recognize how aging and disease progression may affect driving safety



What are today's objectives?

- Cite 3 clinical assessments that assess cognitive and physical skills needed for driving
- Understand Texas state driving laws that govern restrictions for driving based on medical needs
- Identify the difference between a driving school, an OT generalist, a Driver Rehab Specialist (DRS) and Certified Driver Rehab Specialist (CDRS) and their roles in driving evaluations
- Resources and organizations including NEW TOTA Driving and Community Mobility SIS







- <u>IADL</u>: is an activity to support daily life within the home and community that require more complex interactions.
- <u>Driving & Community Mobility</u>: planning & moving around in the community including the use of public & private transportation

The American Journal of Occupational Therapy. http://ajot.aota.org/



"Driving is often one of these clients' most important IADLs (Dickerson, Reistetter, & Gaudy, 2013) and often underlies all their other occupations, including work, education, play, leisure, and social participation, as well as most of their other IADLs (e.g., shopping, health management, money management, caregiving) (Schold Davis, Dickerson, Dellinger, & Chodrow, 2016)."



https://wisselandwalsh.com/news/2016/2/26/senior-driver-safety



INDEPENDANCE

Freedom

Spontaneity

Status & Identity

Feelings of self worth

Desire to help others

Interaction with community

Only way to get around

Ability to work, transport kids, etc



Why are OTs perfect for addressing driving?

- Driving is a high-volume & high-risk activity
- Unique skills to ID deficits in performance skills (client factors) that affect ability to complete daily activities (occupation) through an Occupational Profile (focused interview)
- Assess impairment & safety issues with performance of daily occupations
- There is a professional & ethical obligation to ID & warn when safety deficits are identified.

Foster Occupational Therapy Engagement in Older Drivers: Addressing Gaps through Pathways



Why are OTs perfect for addressing driving?

• "OTs & COTAs have an obligation to work within their level of competence: Generalist OTs are qualified to obtain data, assess skills related to driving, should take steps to manage risk relevant to driving, & should be familiar with appropriate referral sources for more specialized evaluation" (principle 11, AOTA Code of effects).

Foster Occupational Therapy Engagement in Older Drivers: Addressing Gaps through Pathways



Why are OTs perfect for addressing driving?

- Case law exists & sets a precedent for the professional obligation to warn clients based on the foreseeable likelihood of danger or harm due to an impaired client.
- OTs have an ethical responsibility to know the laws in their state that relate to their reporting obligations & options with impaired drivers.
- Referrals for driver rehab services or recommendations should not be influenced by ability to pay

Evidence-Based Consensus Statements for Driving and Community Mobility & the AOTA Occupational Therapy Code of Ethics (AOTA, 2015a)



Occupational Profile





Vision

- Visuospatial Skills
- Speed of Processing
- Scanning
- Useful Field of View (UFOV)
- Peripheral Vision
- Visual Reaction
- Contrast Sensitivity
- Acuity
- Glare Recovery
- Visual Attention



Motor

- Range of Motion
- Reaction Time
- Psychomotor skills/Coordiantion
- Limb Strength
- Limb Sensation
- Trunk stability, proprioception & balance
- Muscle tone
- Muscle Endurance
- Gait



Cognition

- Attention/Divided Attention
- Concentration
- Speed of processing
- Insight/Judgement
- Mental Flexibility
- Memory
- Ability to Anticipate
- Orientation
- Problem Solving



Emotion

- Regulation
- Insight
- Lability

Values/Beliefs

- Reason for driving
- Goals for driving
- How Driving Retirement may affect them
- Family influence/Support level

Skin integrity



Cognitive Frame of Reference: Michon's Model of Driving Behavior

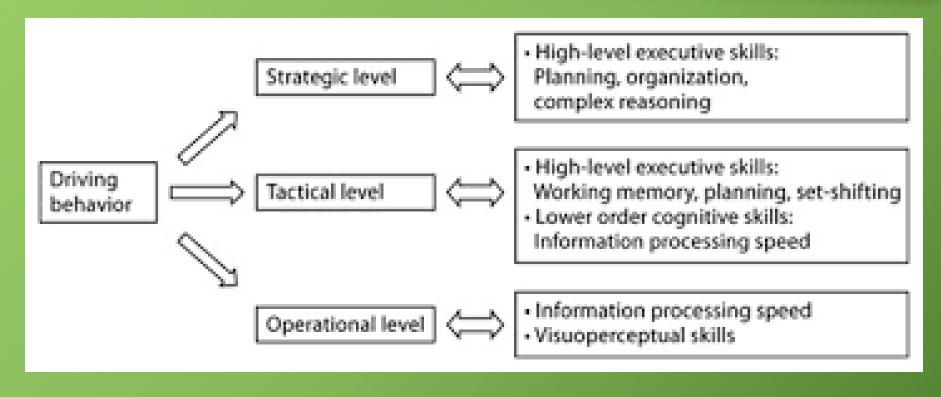
Strategic

Tactical

Operational



Cognitive Frame of Reference: Michon's Model of Driving Behavior





Spectrum of Driver Rehab Services

OT Generalist	OT DRS/CDRS	Driving School
Applies knowledge of medical conditions with implications to driving	Same as OT Generalist	Instructs new or relocated drivers
Assess the cognitive, visual, perceptual, behavioral & physical limitations impacting performance	Same as OT Generalist	Limited or no training on medical or aging conditions that may interfere with driving
No In-Car training or evaluation	Integrate the clinical findings with assessment of on-road performance	Teach, train, refresh or update driving skills
Educate clients about role of DRS & start discussion about driving with a disability	Coordinate multidisciplinary providers & resources including equipment & vehicle modifications	Counsel family members for student driver skill development.





- Developed to help practitioners understand how to apply their clinical knowledge & reasoning skills to the IADL of driving and community mobility for their older adult clients.
- IADL of driving and community mobility evaluation begins at the level of client factors of visual, sensory, motor, and cognitive function
- Helps clinicians work "at the top of their license"
- Guide practitioners to fulfill their duty to address driving as an IADL & to develop a plan that will prioritize the health and safety of the client and community







"OT"

- Complete a "typical" evaluation
- Look at your performance components
- Determine whether driving is an option for the client (teen/adult) or risk for the client (older adults)
- Determine if you need to explore alternative community mobility options and are the skills present to participate
- Determine if additional assessments can be added
- Decide if other team members should be involved



D for "Develop"

- An Occupational Profile
- Consider past, present and future mobility needs
- Determine readiness for driving or other forms of transportation

"The therapist must consider whether their clients' needs are or should be directed toward driving or community mobility or both, and this consideration should address where the clients are right now and their expected future potential."



R for "Readiness"

- Identify impairments that do or do not require further testing
- Consider how strong the evidence of impairment
 - RED: Impairments that clearly demonstrate a safety risk. The justification is based on results of performance evaluations (s) with clear recommendations.
 - Green Clients with an acute impairment with expected return to PLOF. No driving evaluation indicated.
 - Yellow: Mix of strengths & impairments that impact IADLS. A driving evaluation may be deferred, but NOT FORGOTTEN.



I for "Intervention"

- Red: Clients that are NOT appropriate to drive; transportation planning
 - Explain the evidence gathered through evaluation, observation, and clinical judgement to the client, family, and physician
 - Neurological progressive conditions-discuss planning for driving retirement
 - Provide clear & concrete evidence and education
 - Assist with determining level of transportation needed
 - Assist with developing a community mobility plan & skills needed for the plan to be successful
 - May require multiple visits



I for "Intervention"

- Green: Clients with an acute medical condition
 - Offer cautionary guidance
 - Educate on how medication impacts driving (http://roadwiserx.com)
 - Teens: discuss skills & resources needed to progress toward driving
 - Older Adults: discuss planning for future community mobility needs & strategies to maintain Fitness to Drive
 - Include the caregiver for equipment training and transportation needs



I for "Intervention"

- Yellow: Clients that you need more information! The UNKOWN!
 - A mixture of strengths & weaknesses
 - May be a good candidate for remediation, restoring & optimizing of driving skills
 - Look at contacting your local DRS/CDRS to discuss appropriate timing for a driving evaluation and possible training
 - Engage client in discussion about learning to drive (teen), returning to driving (adult) or concerns regarding driving safety with planning for the future (adult/older adult)



V for "Verification"

Verify that driving is an important goal. Verify the plan with the physician & the team.

Green

- Verify that the client is not medically at risk
- Red
 - Discuss recommendations with team & then with client if possible.
- Yellow
 - Address any uncertainty with the client. Verify recommendations with team, physician and DRS/CDRS.



E for "Evaluation"

• The comprehensive driving evaluation (Transportation Research Board, 2016) is defined as a complete evaluation of an individual's driving knowledge, skills, and abilities by a health care professional that includes medical and driving history; clinical assessment of sensory-perceptual, cognitive, or psychomotor functional abilities; an on-road assessment, as appropriate; an outcome summary; and recommendations for an inclusive mobility plan, including transportation options. It is the last step in the OT-DRIVE process, referral for the CDE—the right service, at the right time for the right person (Lane et al., 2014).



OT-DRIVE offers a model to develop your plan for driving and community mobility and address client goals beyond the home so they can live life to its fullest.



Assessment Tools to Assess Driving



Standardized Cognitive Assessments

Short Blessed Test (SBT), GDS & MMSE Montreal Cognitive Assessment (MoCA)

Brief Cognitive Assessment Test (BCAT)



Cognitive Assessment: Screening Tools

SBT

Refer to DRS score 6+. Driving Retirement with score 10+
GDS

Refer to DRS score below 3.
Driving Retirement with scores
5-7

MMSE

Referral to DRS with a score below 28. Some studies indicate a score below a 24 is unsafe to drive (McGuire & Schold Davis, 2012)



Cognitive Assessment: MoCA

- Training required & fee for use
- Available in multiple languages
- Tests visual perceptual skills, executive functioning & abstraction, object & delayed recall, attention & orientation, & language
- Normative data linking test performance to MCI & Dementia
- Widely used by physicians
- Scores of 18 or less should consider driving retirement. Scores less than 26 indicate referral to DRS.



Cognitive Assessment: BCAT

- Training required & yearly fee for use
- Tests orientation, verbal recall, visual recognition, visual recall, attention, abstraction, language, executive functions & visuo-spatial processing
- A referral for an In-Car evaluation is beneficial with a score below 44. Scores less than 24 should consider driving retirement.
- Able to print out results with explanation for client, family & other providers



Visual Perceptual Assessments

Clock Drawing Test

Maze Test

Trails Making Test Part A & B

MVPT

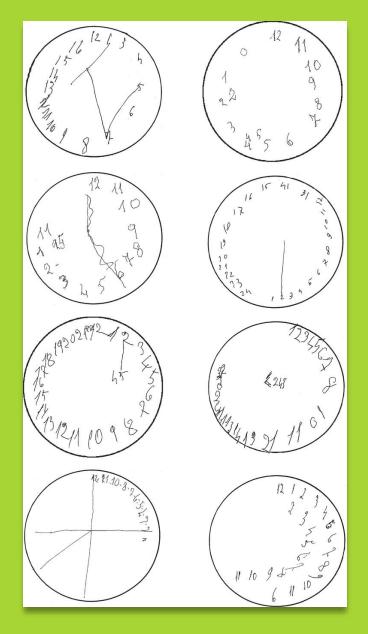
OT DORA

Rey-Osterreith Complex Figures Test



Visual Perceptual Assessment: Clock Drawing Test

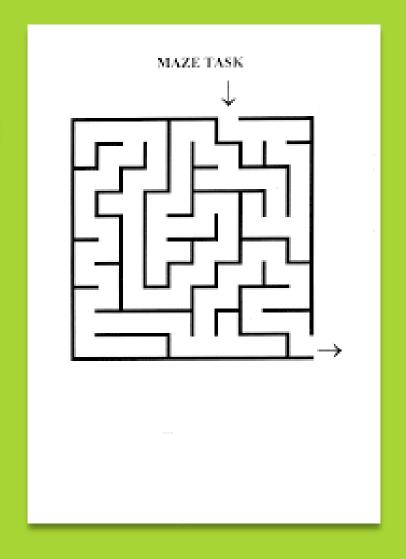
- Screens long-term memory, short-term memory, visual perception, visuospatial skills, selective attention, abstract thinking & executive functioning skills
- Intervention could include referral to DRS
- Consider cause of errors





Visual Perceptual Assessment: Maze Test

- Multiple versions available
- Snellgrove Maze is a 1-page cognitive screen for driving competence that was validated with older adults with MCI
- Assesses attention, visuoconstructional ability & executive functioning skills





Visual Perceptual Assessment: Trails Making Test Part A & B

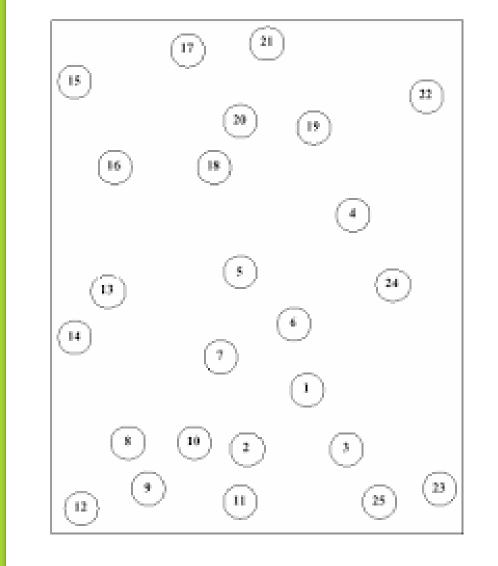
Assesses working memory, visual processing, visuospatial skills, selective & divided attention, & psychomotor coordination

Numerous studies have linked poor performance with poor driving performance.



Visual Perceptual Assessment: Trails Making Test Part A

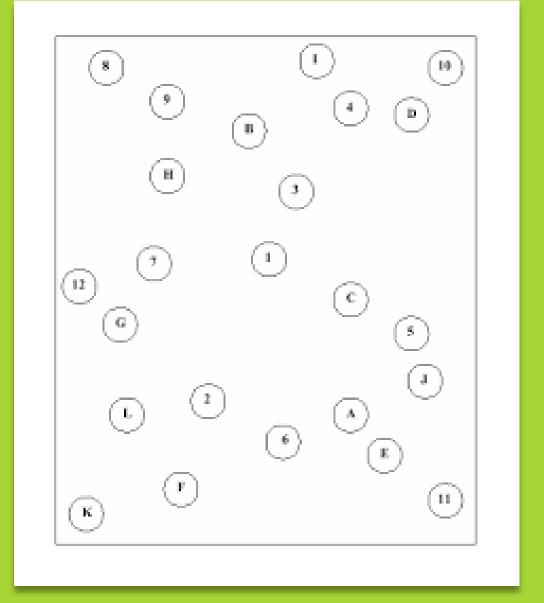
- Poor performance resulted in 4 times more likely to report a crash at follow-up by participants (Lesikar, S.E. et al. Prospective Study of Brief Neuropsychological Measures to Assess Crash Risk in Older Primary Care Patients. J Am Board Fam Pract 1591): 11-19, 2002.)
- Ave. 29 seconds; 0 errors
- 60 seconds is below normal





Visual Perceptual Assessment: Trails Making Test Part B

- Numerous studies have demonstrated validity of poor performance on test with poor driving performance
- Ave. 60-90 seconds; 0-1 errors
- 180 seconds with or without errors is abnormal





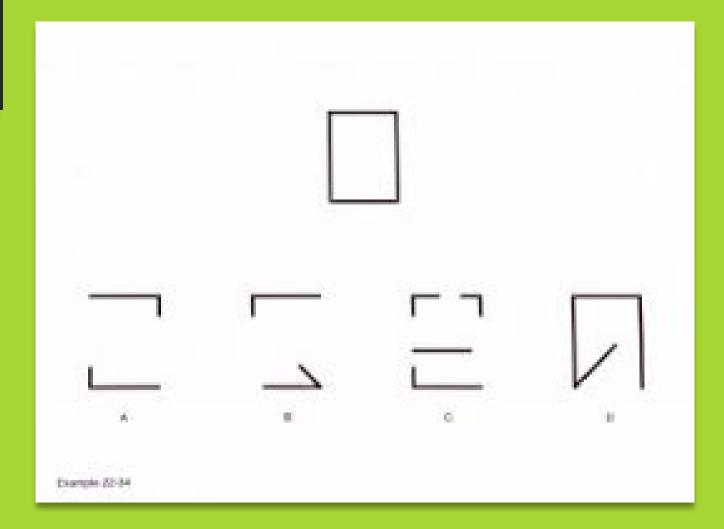
Visual Perceptual Assessment: MVPT

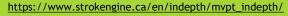
- Available for purchase
- Standardized for 3 years old to older adults
- Assesses figure ground, spatial orientation, visual memory, visual closure, & processing speed
- Used mostly with CVA/TIA, Autism, ADD/ADHD/Dyslexia, TBI
- Below average on age norms recommend referral to DRS
- Pay special consideration to processing speed & visual closure



Visual Perceptual Assessment: MVPT

- 3 or more errors on the visual closure section indicates a 3.75 times greater chance of an at-fault accident
- 5 errors indicates client has nearly a 5 times greater chance of having an at-fault accident





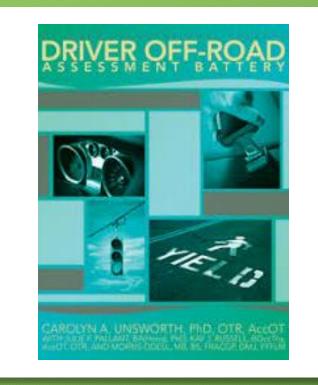


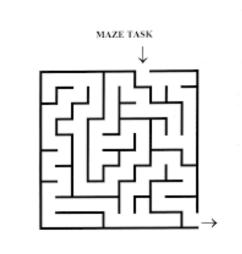
Visual Perceptual Assessment: (OT DORA) OT Driver Off Road Assessment Battery

- Battery of previously published assessments
- Available for purchase from the AOTA
- 90 minutes to administer
- Battery includes a thumb drive that contains two downloadable booklets
- Items needed include 2 chairs, a Snellen Vision Chart, a vision wand, stopwatch, an eye patch & blindfold, shoes, a ruler, a step box, a goniometer



Visual Perceptual
Assessment: (OT
DORA)
OT Driver Off Road
Assessment Battery







Other Visual Perceptual/Cognitive Assessment

Traffic Sign Test & Symbol Recognition Road Rules & Driving Knowledge

DriveSafety Simulator

DynaVision/Vision Coach Trainer

UFOV test

DriveAble Screening



Motor Assessments

Manual Muscle Test & ROM 30 Second Chair Rise Test

Less than 8 unassisted stands

Rapid Pace Walk

> 7 sec. associated with greater crash risk

+9 sec x3 greater

Arm Curl Test

Below normal may have AE considerations

Functional Reach

0-6 high risk for falls

Alternative Foot Tap

12.75+ sec. elevated traffic conviction rates



Other Assessments

Reaction Timer

Sensation Testing Fitness to Drive Screening Measure

BCAT System Driving Self-Assessment

Online Self
Driving
Assessments

Rookwood Driving Battery



Key to Successful Client Outcomes: Timely Referrals

A patient is independent with their ADLs & expresses interest in returning to driving after a medical complication.

The clinician feels that an On-Road Assessment is needed to determine safe driving skills & decision making.

The patient demonstrates decreased executive functioning skills despite having few physical limitations.



Driving Across the Lift Span



Teen Driving & Disability

- Physical Conditions
 - Cerebral Palsy <u>www.cerebralpalsy.org</u>
 - Spinal Cord Injuries www.idonline.org
 - Spina Bifida www.spinabifidaassociation.org
 - Brachial Plexus Injury <u>www.tbpi-group.org</u>
 - Amputee <u>www.amputeecoalition.org</u>



Teen Driving & Disability

- Cognitive/Sensory/Emotional Conditions
 - ASD <u>www.teendriversource.org</u>
 - ADD/ADHD <u>www.ncbi.nlm.nih.gov</u>
 - Dyslexia www.idoonline.org
 - Anxiety <u>www.anxiety.org</u>
 - Non-verbal Learning Disorders www.understood.org



Factors to Consider With Teen Drivers

Age

Maturity Level

Co-Morbidities

Family Support

Local Community Resources

Cognitive & Physical Needs/Limitations

IEP/504 Plan

Employment goals

School



Texas Teen Permit/License Requirements

- Any person who is age 14 to under 25 must complete a driver education course.
- The classroom phase of a driver education course is at least 32 hours which cannot be completed in less than 16 days. The in-car phase consists of 7 hours of behind-the-wheel driving, 7 hours of in-car observation, and an additional 30 hours of behind-the-wheel driving of which 10 hours must be done at night.
- Must have driver's license for 6 months if under age 18

https://www.dps.texas.gov/driverlicense/teendriver.htm



Considerations for School Setting

- Very first finding of Congress in IDEA, which refers to "our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities." [20 U.S.C. 1400(c)(1)] Preparing children with disabilities to "lead productive and independent adult lives, to the maximum extent possible" is one of IDEA's stated objectives. [20 U.S.C. 1400(c)(5)(A)(ii)]
- IEP must include transition goals by the time the student is 16, though, is not cast in concrete
- Activities must be coordinated, focused on results, & address functional achievement



Considerations for School Setting

- Complete a Transportation Skills Checklist
- Check out Partners Resource Network: Empowerment Through Education
- Look at Transportation Safety
- Accessibility of campus
- Consider teens with "hidden" cognitive disabilities (executive functioning disorders, NVLD)



Considerations for Clinic

- Complete Assessment of Readiness for Mobility Transition (ARMT)
- Does the student/pre-teen/teen have the visual, cognitive, motor, & emotional skills needed to drive
- Help family & teen develop a Parent-Teen Driving Agreement
- Discuss possible vehicle modifications available if appropriate
- Develop goals to address pre-driving skills
- May be able to co-treat with Speech Therapy



Texas Department of State Health Services.

Texas Medical Advisory Board.

Guide for Determining Driver Limitations.

Texas DPS Form DL-76

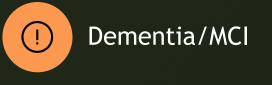
Occupational Therapists have the ethical obligation to report a client if there are concerns about safety for the client or the general public

Texas Laws



Adult Driving & Disability

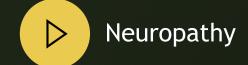
















Adult Disability: MCI/Dementia

- Drivers with dementia are at increased risk to cause traffic accidents.
- Dementia impairs a driver's ability to react quickly, make safe decisions and remember important personal and situational information.
- 6 in 10 dementia victims will wander at least once, and if not found with in 24 hours are at increased risk for serious injury or death.

Texas Department of State Health Services. Texas Medical Advisory Board.

Guide for Determining Driver Limitations.



Adult Disability: MCI/Dementia

The diagnosis of dementia precludes operation of a motor vehicle unless the individual is judged to be safe by:

- a neuropsychological evaluation of cognitive abilities involved in driving
- a driver evaluation by a center or persons trained to evaluate driving ability in the setting of cognitive or physical impairment (an Adaptive Driving Evaluation)
- medical assessment by a physician with expertise in evaluating attention, memory, language, visuospatial function, etc., in a standardized way
- if none of the above 3 options are available, then a passing score on the Department of Public Safety (DPS) WRITTEN AND DRIVING evaluation will suffice



Adult Disability: Heart Disease

- Cardiovascular disease can make a driver lose control of a vehicle without warning and thereby lead to an accident.
- Ten percent of the accidents were attributed to medical problems, and of these 10 percent, 90 percent were classified as cardiovascularrelated.
- MI & CHF: Must be cleared by MD
- NEW YORK HEART ASSOCIATION CLASS III OR IV <u>Precludes private</u>, cargo transport and passenger transport vehicles in classes A, B and C. Cardiovascular disease is complex to the individual and a physician should be consulted.
- Greater restrictions for commercial drivers



Adult Disability: Other Cardiac Conditions

- Syncope: 6 months depending on cause
- A-Fib/A-Flutter: Precluded from driving until medically controlled
- Ventricular Tachycardia
- Heart Block: No driving with 2nd degree heart block unless MD approved
- Pacemaker: Generally no restrictions
- DVT: No driving until medically treated



Adult Disability: Stroke

- A stroke can impact a driver's safety awareness, motor coordination, vision and insight
- TIAs
 - May preclude the operation of passenger transport vehicles in classes A, B and C.
 - A 1 month driving restriction should follow the last known episode if persons are not treated with anticoagulant therapy or if the underlying cause of the TIA is not corrected.



Texas Department of State Health Services. Texas Medical Advisory Board. Guide for Determining Driver Limitations.

Adult Disability: Stroke

- Blackout: 6 month driving restriction
- Stroke
 - Demonstration of driving ability through the DPS comprehensive driving test should be required in evaluation of stroke patients with moderate to severe motor, sensory, visual, or language impairment.
 - Visual field deficit caused by a stroke must be cleared by an ophthalmologist prior to driving (and must meet the peripheral vision requirements).





Adult Disability: Parkinson's Disease

- Researchers found that the odds of failing an on-road driving test were more than six times greater for PD patients compared to controls
- Odds of crashing during a driving simulator test were more than 2.5 times greater.
- Recommends a driving test for all classes of moderate to severe cases
- A periodic review by the examining physician for side effects of medication is recommended
- A yearly Medical Advisory Board review is recommended for progressive movement disorders.



Adult Disability: Parkinson's Disease

Areas that clients may struggle

- applying appropriate pressure to the brake
- judging the distance needed to stop when approaching traffic or a stop sign
- stopping quickly
- making quick decisions
- staying alert due to medication or difficulty maintaining sleep health
- turning head/neck/shoulders to check mirrors due to increased stiffness
- difficulty seeing during nighttime driving



Adult Disability: Neuropathy

- Studies indicated elevated levels of pain, motor weakness, & ambulation difficulty met statistical significance for increased MVA frequency
- At higher risk for "pedal confusion"
- Common symptoms: hand/foot numbness, slowed response time, loss of balance, decreased proprioception
- Discuss alternative driving options (hand controls, steering wheel modifications)
- NO state guidelines!



Adult Disability: Falls

Older adults who had fallen were 40 percent more likely to experience a car crash after their fall than older adults who had not fallen.



Driving Retirement

- A Driving Retirement Plan is an individualized plan to help an older adult maintain community mobility, participate in important life events, full fill daily needs such as accessing food, medication and doctors.
- A Pew Research Study, starting on January 1, 2011 for every day for the next 19 years, 10,000 baby boomers will reach age 65. That means that by 2030 the number of Americans over the age of 65 will expand to 18% of the population.
- Columbia University & the AAA Foundation for Traffic Safety found that "older adults who give up driving are <u>nearly twice as likely</u> to suffer depression as those who stay behind the wheel.



Driving Retirement

What locations does the older adult need to visit?

What times of day do they need transportation?

How often will they need transportation?
Will it be reoccurring?

What public & private transportation options are available in area?

What is the budget available for transportation?

Is there any physical or cognitive limitations to consider?

Is the transportation handicap accessible (walker, cane, wheelchair, etc)?

Will the older adult need assistance with transporting items (groceries, shopping bags, etc.)?



The Hartford Center for Mature Market Excellence





Resources & Additional Training



Silver Alert



https://www.elderoptionsoftexas.com/article-texas-silver-alert.htm

- A public notification system that is used to broad cast information about missing seniors to assist with their safe return
- Must meet ALL 6 criteria
- Commonly use commercial radio stations, television stations, electronic billboards, and cable TV
- Make sure that you have documentation from a medical provider stating the medical condition
- Create a profile

CarFit: Become a technician!

- Program developed by AOTA, AAA & AARP
- Improve driver safety & comfort behind the wheel
- FREE event for clients
- Takes 20 minutes
- CarFit Technician Training FREE 5 CEUs with online training option

Ravonne McCray

(254) 202-6539

Ravonne.McCray@BSWHealth.org





Organizational Resources

- AOTA www.aota.org
- Association for Driver Rehab Specialists (ADED) www.added.net
- National Highway Traffic Safety Administration (NHTSA) www.nhtsa.gov
- AAA www.aaa.com
- AARP www.aarp.org
- Children's Hospital of Philadelphia (CHOP) www.chop.edu
- The Hartford Mature Market Excellence Program



Foundational Resources in Driving Rahab

- Clinician's Guide to Assessing & Counseling Older Drivers
- Driving Diagnosis Pathway Sheets
- Evidence Based Consensus Statements from AOTA and ADED
- Articles:
 - Stav, W. (2015) Occupational Therapy Practice Guidelines for Driving and Community Mobility for Older Adults.
 - McGuire, M.J., Schold Davis, E. (2012) <u>Driving and Community Mobility:</u> Occupational Therapy Strategies Across the Life Span.
 - Redepenning, S. (2006) <u>Driver Rehabilitation Across Age and Disability: AN</u> Occupational Therapy Guide



Additional Professional Development

- AOTA/ADED Specialty Certification
 - AOTA (SCDCM) currently being revised
 - ADED by exam (CDRS)
- Join TOTA Driving and Community Mobility SIS, AOTA Fit to Drive Community of Practice and/or ADED Texas Chapter
- Review articles, books & research
- Attend conferences
- Attend Adaptive Mobility Courses
- Find a mentor



FREE CEU course





Adaptive Mobility, LLC is offering a **FREE**

1.5 hour AOTA approved
online course on
Driving & Community Mobility for
OT Month April 2020!
www.adaptivemobility.com

Questions/Comments



Thank you!

My contact info:

Megan Frazier, MS, OTR, DRS

Functional Stability and Mobility, LLC

Megan@homeanddriving.com

(254) 290-3333 work

(609) 354-8883 cell

(254) 300-9246 fax



WWW.HOMEANDDRIVING.COM

