

Safe Mobility at Any Age

Identifiers of High-Risk Drivers: An Occupational Therapy Perspective

Wendy Stav, PhD, OTR/L, CDRS

University of Florida

National Older Driver Research & Training Center

Topic Areas

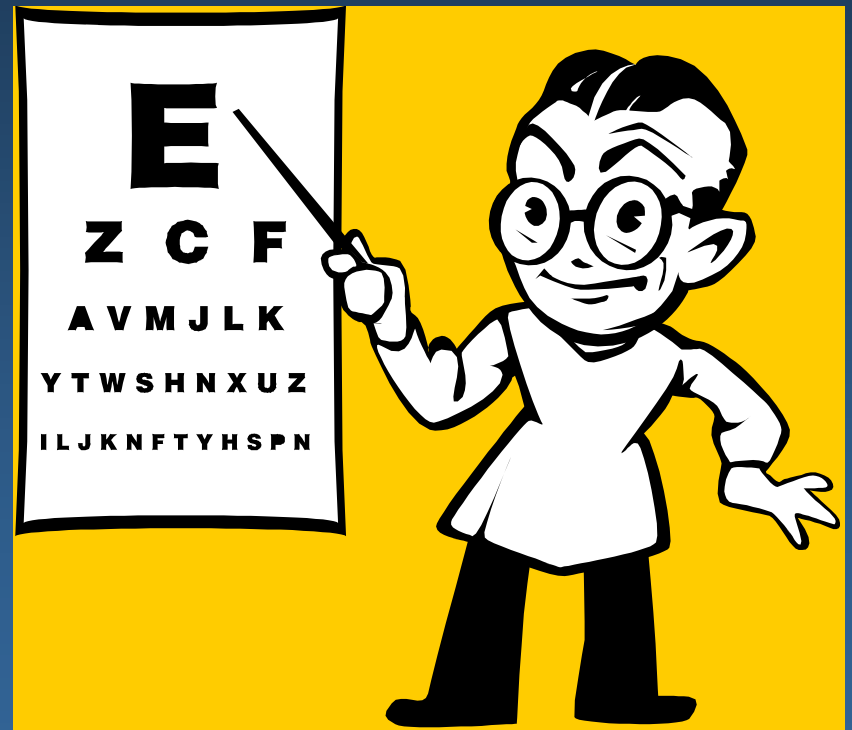
- Assessment options
- What the government wants
 - Florida Programs
- The realities of safety thresholds
- The National Older Driver Research and Training Center

Assessment Options

- Consider what should be assessed
 - Vision
 - Cognition
 - Motor Performance
 - Reaction Time
 - Roadway knowledge
- Are older drivers different from rehabilitative clients?
- What level assessment is being done?

Assessment of Vision

- Snellen Chart
- OPTEC series
- Keystone Vision Tester
- Perimetry Testing
- Visual Perception Tests

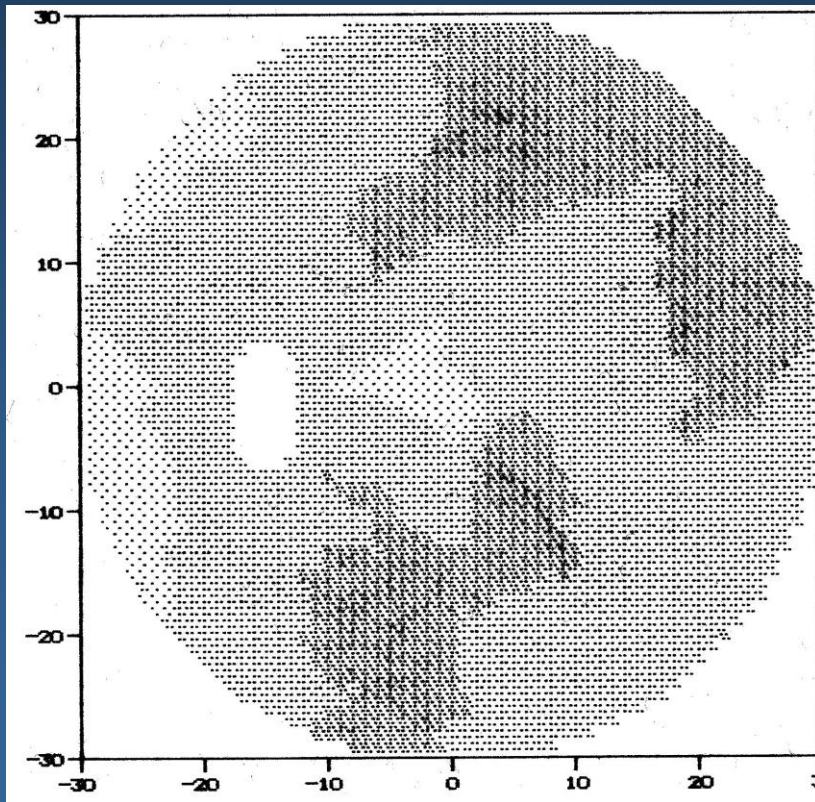


OPTEC



- Interchangeable slides
 - Static Acuity
 - Peripheral Fields
 - Depth Perception
 - Color Discrimination
 - Phorias
 - Road Signs
 - Contrast Sensitivity
- 3000 version- glare recovery

Perimetry Testing



- Useful in identifying blind spots/field cuts
- Gross deficits obvious
- Unknown effect of mild deficit on driving
- Need referral to eye care practitioner

Porto-Clinic / Glare

- Tests:
 - Visual Activity
 - Field Of Vision
 - Depth Perception
 - Color Perception
 - Simple Reaction
 - Complex Reaction Response
 - Glare Recovery
 - Night Vision



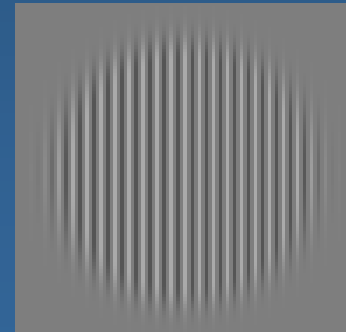
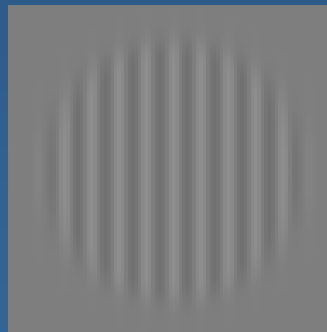
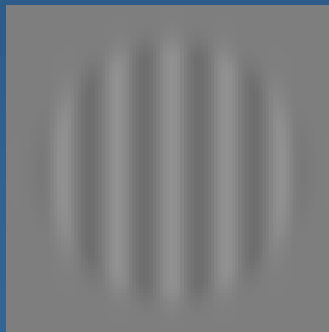
Contrast Sensitivity



Good Contrast Sensitivity



Poor Contrast Sensitivity



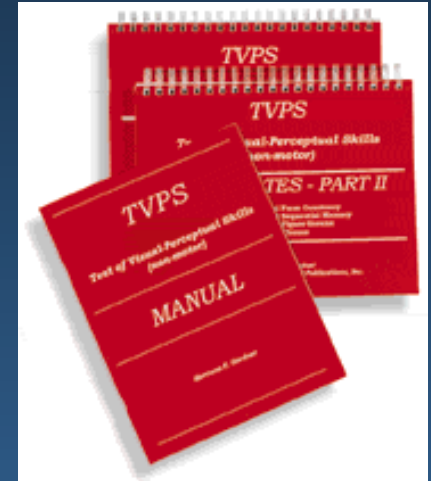
Visual Perceptual Tests



- MVPT – 3

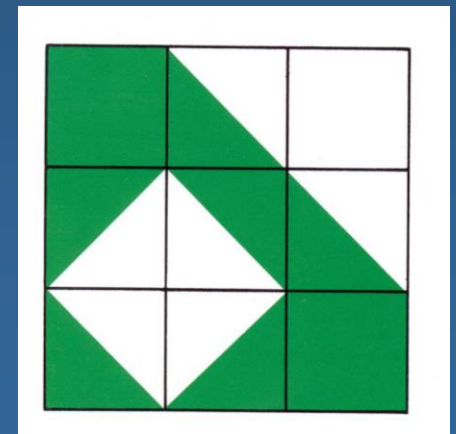
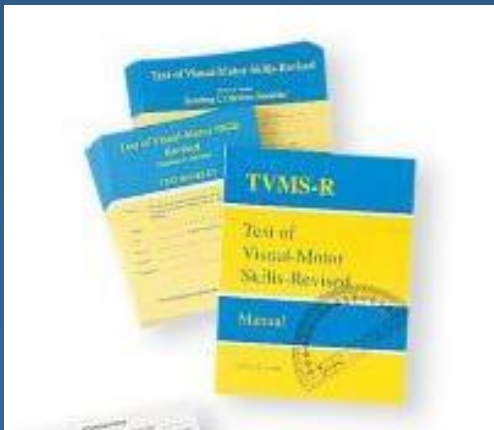
- TVPS

- TVMS



- Bender – Gestalt

- Block Design



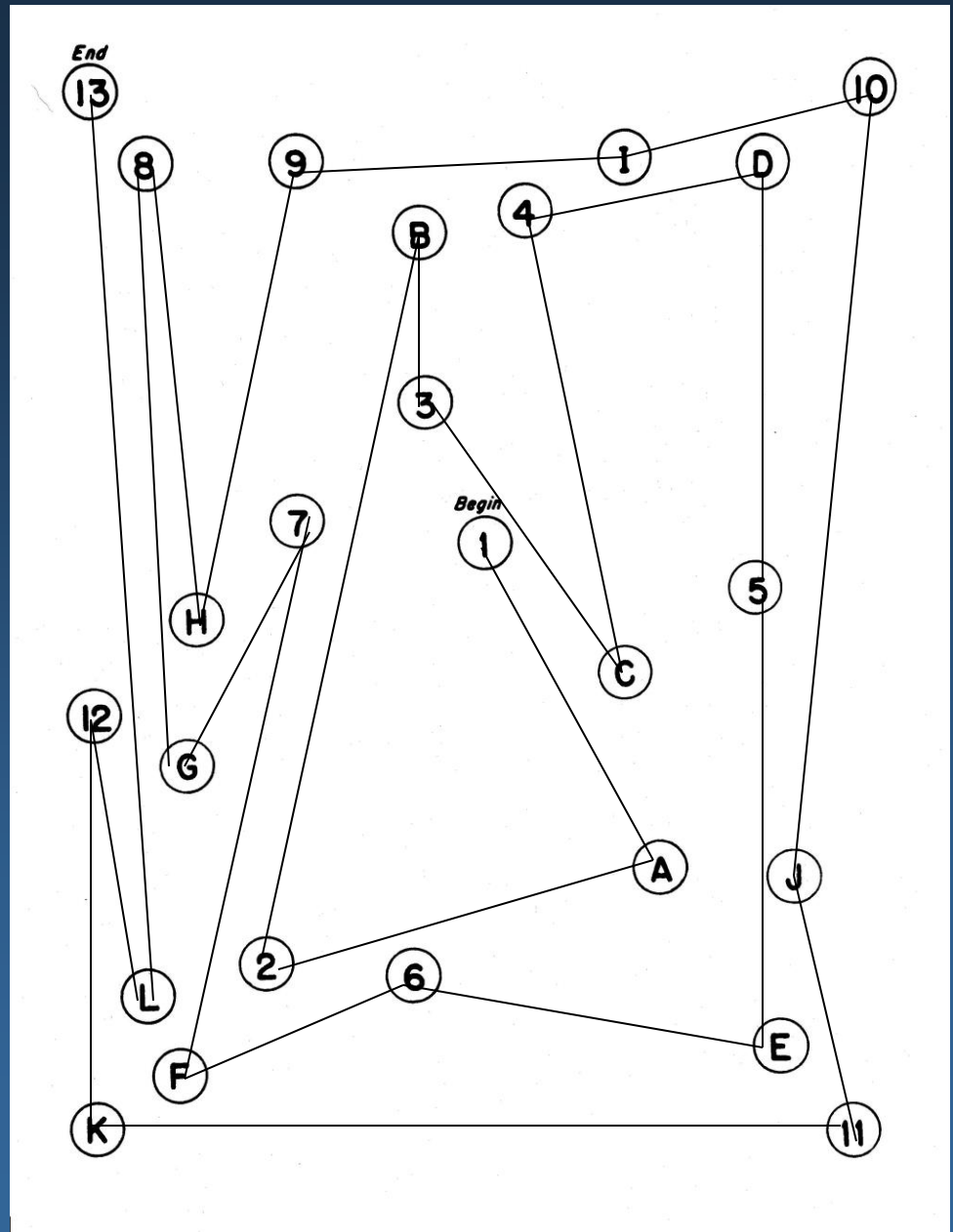
Cognitive Assessment Tools

- Trails A and B
- ACLS Leather Lacing
- Digit Symbol
- Stroop
- UFOV
- Map Skills
- Problem solving scenarios

Trailmaking A & B

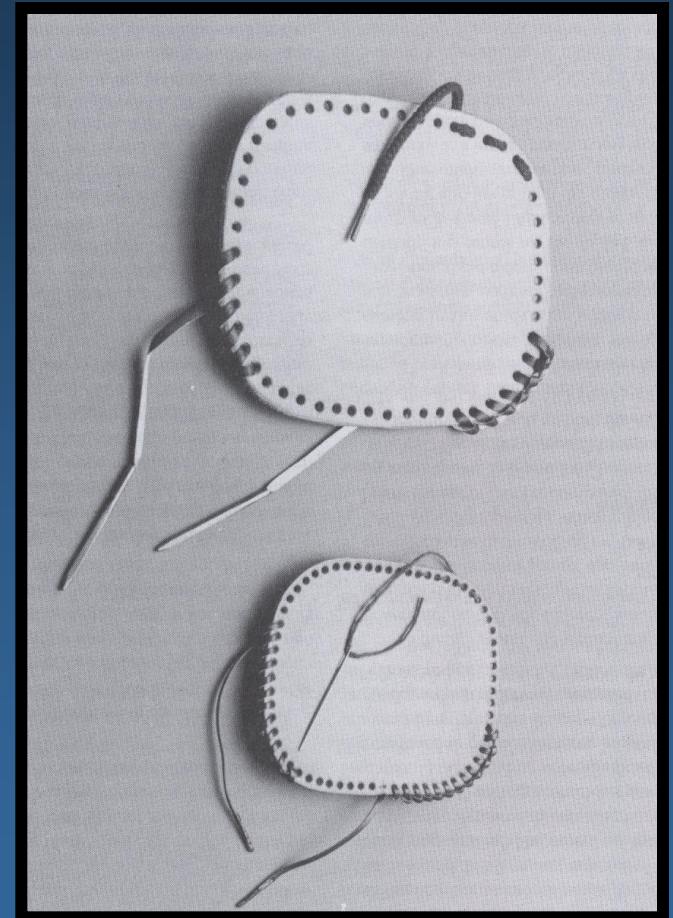
- Paper pencil test
- Quick and easy to administer
- Trails A – connect numbers sequentially
- Trails B – connect numbers/letters alternatively and sequentially
- Assesses:
 - ✓ Attention
 - ✓ Scanning
 - ✓ Planning
 - ✓ Problem solving
 - ✓ Divided attention
 - ✓ Attention shift

Trails B



Allen Cognitive Level Screen

- Leather lacing
- Quick / easy to administer
- Level 5.6 to drive safely
- Poor face validity



Stroop

- Neuropsychological Screen
- Paper test
- Quick to administer
- Assesses
 - selective attention
 - mental flexibility

BLUE	GREEN
GREEN	BLUE
RED	RED
TAN	BLUE
GREEN	TAN
BLUE	RED

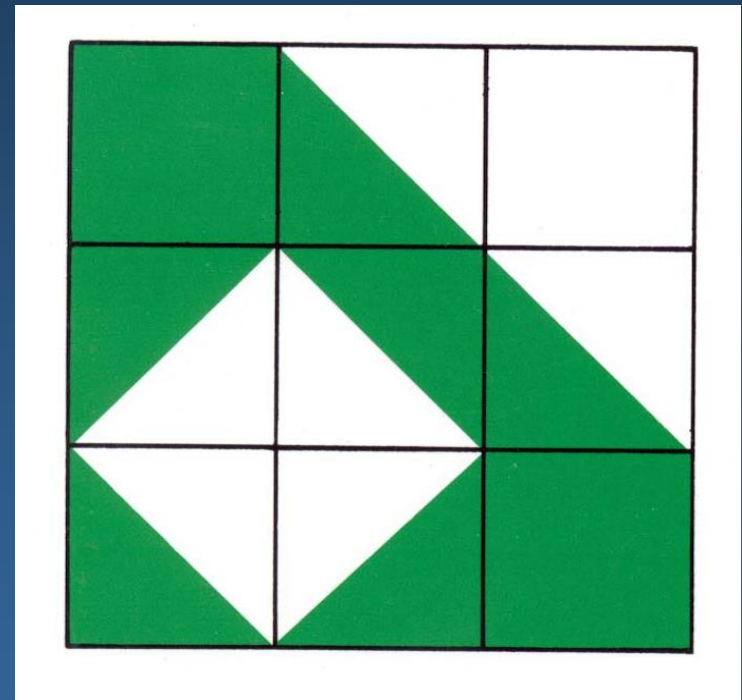
Useful Field of View



- Visual Processing Speed
- Divided Attention
- Selective Attention
- Per test fee
- Psych Corp
- Visual Awareness, Inc.

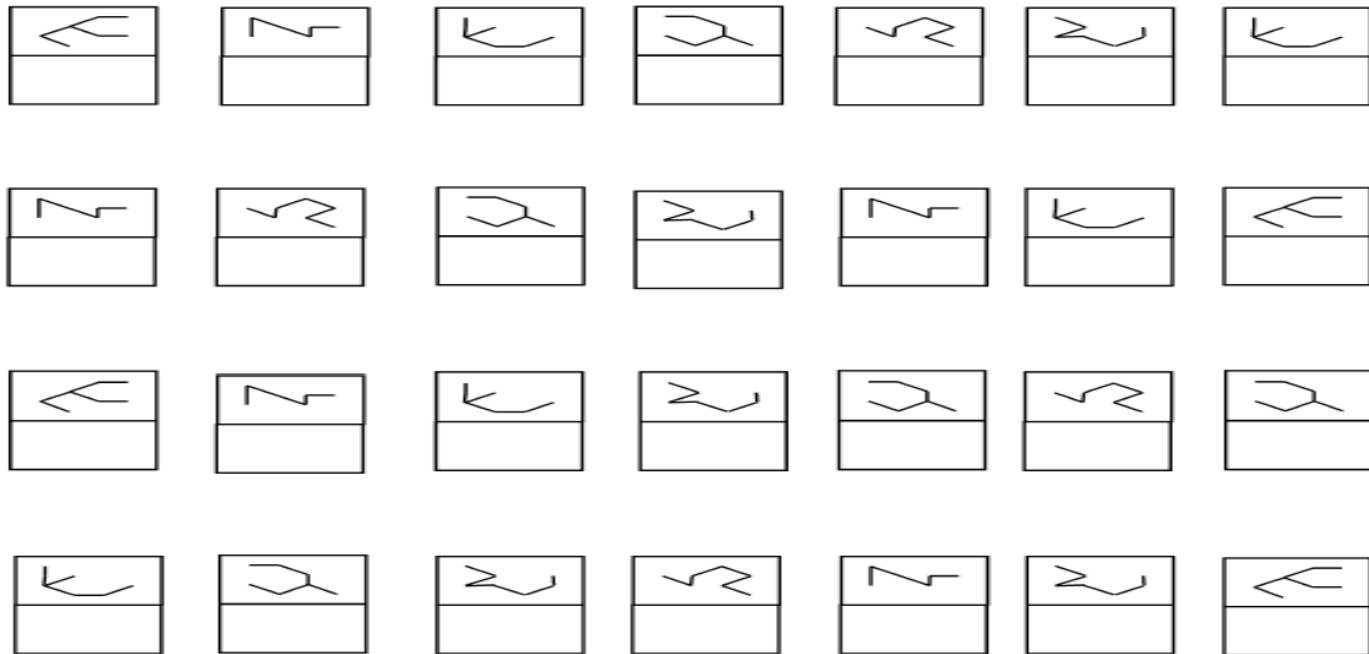
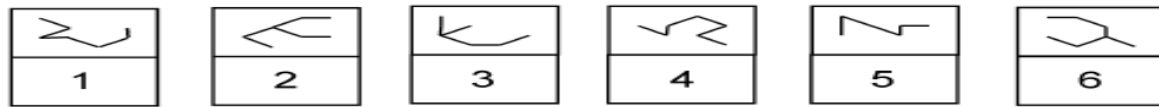
Block Design

- Identifies issues with:
 - Planning
 - Organization
 - Problem solving
 - Frustration



Symbol Digit

Substitution Test



Motor / Sensory Assessments

- Functional Quick Screen
- Manual Muscle Testing
- Dynamometer
- Diadochokokinesis
- Posture/Stature assessment
- Proprioception / Kinesthesia



Reaction Time



- Combination of:
 - Sensory awareness
 - Cognitive processing
 - Execution of a motor response

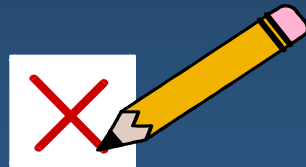
Assessment of Driver-Vehicle Fit

- Ergonomic Perspective
- Small drivers in large vehicles
- Prevent injury through:
 - Proper positioning
 - Appropriate use of vehicle safety features
- Address positioning with regard to:
 - Seat
 - Seat belt
 - Mirrors
 - Air bag
 - Foot pedals

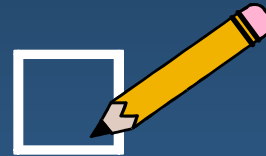
Driver – Vehicle Fit Guidelines

- Sit 10-12” from airbag
- Angle steering wheel at chest
- Eyes at least 3” above steering wheel
- Access to foot pedals
- Mirrors positioned to allow greatest visual access to environment
- Head rest positioned no lower than ear level
- Seat belt- shoulder belt crossing middle of clavicle
- Seat belt- lap belt low across hips on ASIS on pelvis

Clinic testing will NOT produce definitive answer whether a person can drive safely or not!!



Safe



Not Safe

Clinic testing WILL provide a picture of how the client will likely perform in the vehicle.

What the Government Wants

- Federal and State governmental agencies
- Looking for a “silver bullet”
- Assessment that identifies high risk drivers
 - Inexpensive
 - Fast
 - Reliable
 - High Sensitivity
 - High Specificity
 - Non-Biased
 - Politically acceptable

Government's Unrealistic Expectations

- Inexpensive
 - Validated tools cost money to develop/ test
- Fast
 - Too fast and things are missed
- Reliable
 - Inexpensive to administer = non-professionals
- High Sensitivity and Specificity
 - Does not yet exist
- Non-Biased
 - A possibility in a perfectly homogenous society
- Politically Acceptable
 - An oxymoron in older driver testing

Florida's Programs

- Florida Aging Driver Council
- Florida At-Risk Driver Council
- Florida Senior Safety Resource Centers
- Tiered Assessment Model
 - Screening – Community level
 - DriveABLE, UFOV, GRIMPS
 - Assessment – DMV / physician
 - AMA screen
 - Evaluation – Occupational Therapist / DRS
 - Comprehensive clinic based and behind-the-wheel

Florida Senior Safety Resource Centers

- Website
- <http://fssrc.php.ufl.edu/index.php>
- Self Assessment
- Transportation resources
 - Listed by county
 - Name, eligibility, cost
- Links



Florida

senior safety resource center



find alternative
transportation
in your area

assess your
driving
knowledge

link to
national driving
resources

Choose a resource above

Welcome to the **Florida Senior Safety Resource Center**. This site, developed by the **University of Florida**, is designed to provide information and resources on alternative forms of transportation, driving knowledge and skills, and links to national organizations that address transportation issues.

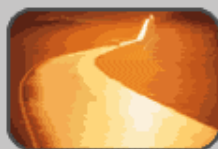


Funding for this program
provided by the Florida
Department of Transportation

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Florida

senior safety resource center



Find transportation

Assess Road Knowledge

National Resources



Search for alternative transportation

Search for transportation in your area. Select the county and city for which you would like to find alternative transportation services by clicking in the gray boxes.

Select a county:

After selecting a county you may then

Select a city:



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page layout modified: 09.12.2003

FileEditPrintWindowSign OffHelp

Mail

ReadWrite

PeopleIMChat

ServicesShopInternet

SettingsAOL Help

FavoritesMy FavoritesRadio

Parental ControlsRemind Me

ChannelsAOL Keyword

http://fssrc.php.ufl.edu/mainGenReturn.php?countySelect=Broward&citySelect=all&Submit=SearchGoSearch



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senior safety resource center



Find transportation

Assess Road Knowledge

National Resources



All search results for all cities in Broward County

43 matching services

Display: all | intracounty | intercounty | statewide

Below is a list of all transportation services matching your search criteria. For more information, simply click on the orange-colored title of the service.

Intracounty Services (28)▲ top of page

AAA Wheelchair Service

Not yet rated
rate this service

Who can ride

Medicaid eligible

Vehicles

wheelchair van with lift (high-top)

American Cancer Society - Broward County

Not yet rated
rate this service

Who can ride

Vehicles

Done

startAmerica Online - [Flo...Microsoft PowerPoint ...

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1:14 AM

FileEditPrintWindowSign OffHelp

Mail

ReadWrite

PeopleIMChat

ServicesShopInternetAOL Help

Settings

FavoritesMy FavoritesRadioParental ControlsRemind Me

ChannelsAOL Keyword

http://fssrc.p.php.ufl.edu/mainDetail.php?TID=142&county=Broward&city=allGoSearch



Florida

senior safety resource center



Find transportationAssess Road KnowledgeNational Resources

<<Home

Detailed information on AAA Wheelchair Service

Not yet rated

rate this service

AAA Wheelchair Service

Website: N/AEmail: N/A

Phone: main line: (954) 791-8120

Areas served

Coconut Creek, Cooper City, Coral Springs, Dania Beach, Davie, Deerfield Beach, Fort Lauderdale, Hallandale Beach, Hillsboro Beach, Hollywood, Lauderdale Lakes, Lauderdale-by-the-Sea, Lauderhill, Lazy Lake, Lighthouse Point, Margate, Miramar, North Lauderdale, Oakland Park, Parkland, Pembroke Park, Pembroke Pines, Plantation, Pompano Beach, Sea Ranch Lakes, Southwest Ranches, Sunrise, Tamarac, Weston, Wilton Manors

Eligible riders

Medicaid eligible

Need types serviced

medical

Types of vehicles

wheelchair van with lift (high-top)

Cost (approximate)

Hrs of Operation

S:-

M:8:00 AM - 5:00 PM

T:8:00 AM - 5:00 PM

W:8:00 AM - 5:00 PM

R:8:00 AM - 5:00 PM

F:8:00 AM - 5:00 PM

S:-

Dispatch hrs:

Advance notice:

America Online - [Florida Senior Safety Resource Center]

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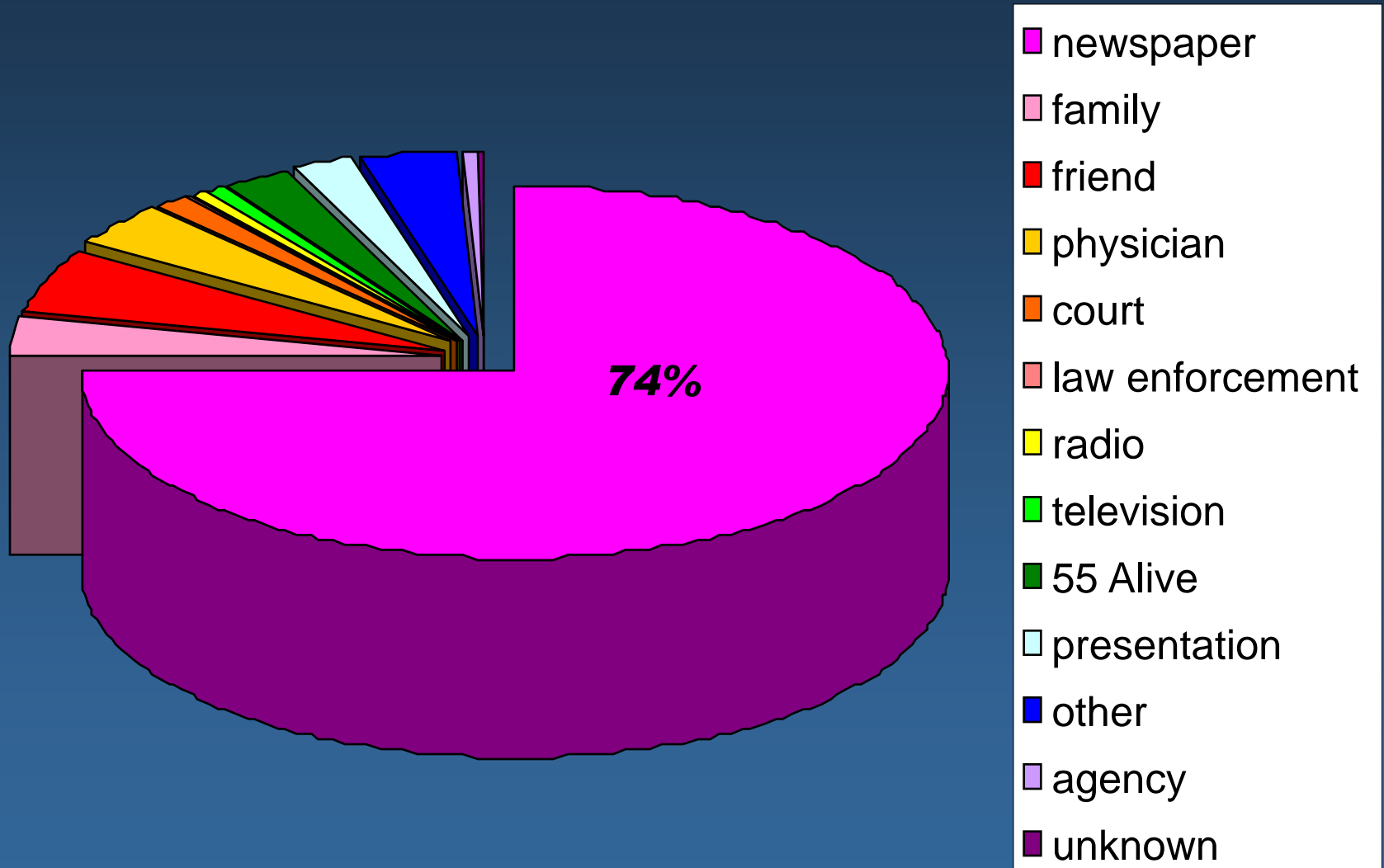
The Realities of Safety Thresholds

- Study conducted as part of the Elder Mobility Project
- South Florida – elder dense area
- Funded by FL Dept of Transportation
- Comprehensive program
 - Education
 - Assessment & feedback
 - Counseling & Mobility Management

The Clients

- 323 Well elderly drivers from South Florida
- Voluntary program
- Most self-referred
- 74% participated after reading newspaper
- 6% referred
 - Physicians
 - Traffic court judges
 - Law enforcement
 - Local Memory Disorder Centers

Referral Source of Clients



Data



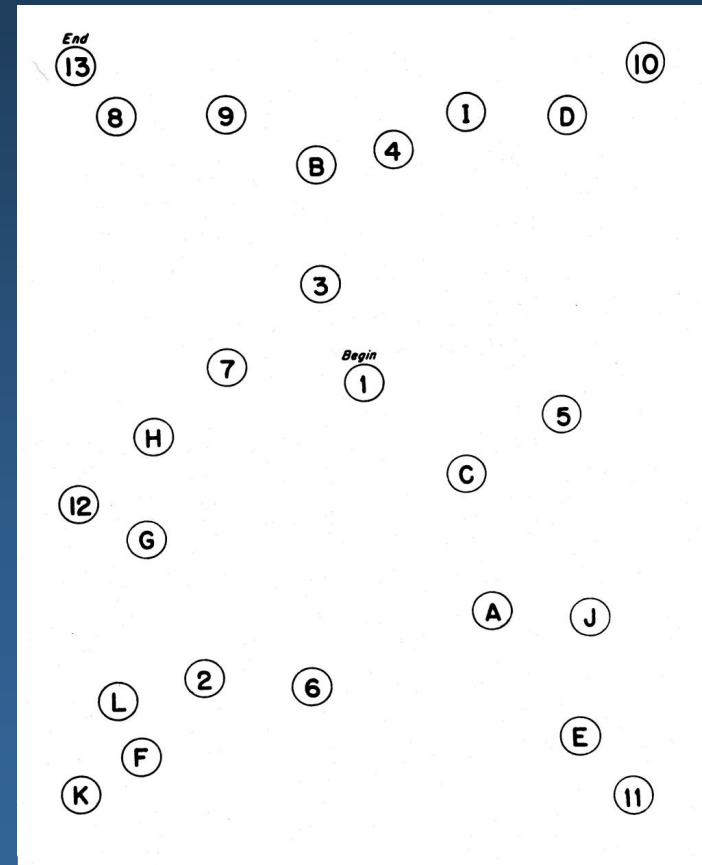
- Results from all assessments collected
- Only certain tools had established safety thresholds
- Performance on those tools compared to safety thresholds

Tools with Thresholds

Trialmaking B

2m 30s (Staplin, 1999)

2m (Raleigh, 2000)



Tools with Thresholds



Useful Field of View

Category 4 or 5

(Ball, Owsley, Sloane,
Roemaker, Bruni, 1993)

Tools with Thresholds

AAA Brake
Reaction Timer

Slower than .5
seconds



Tools with Thresholds

Stroop
Neuropsychologic
al Screen

>2 minutes

(Trenerry, Crosson,
DeBoe, Leber, 1989)

BLUE

GREEN

GREEN

BLUE

RED

RED

TAN

BLUE

GREEN

TAN

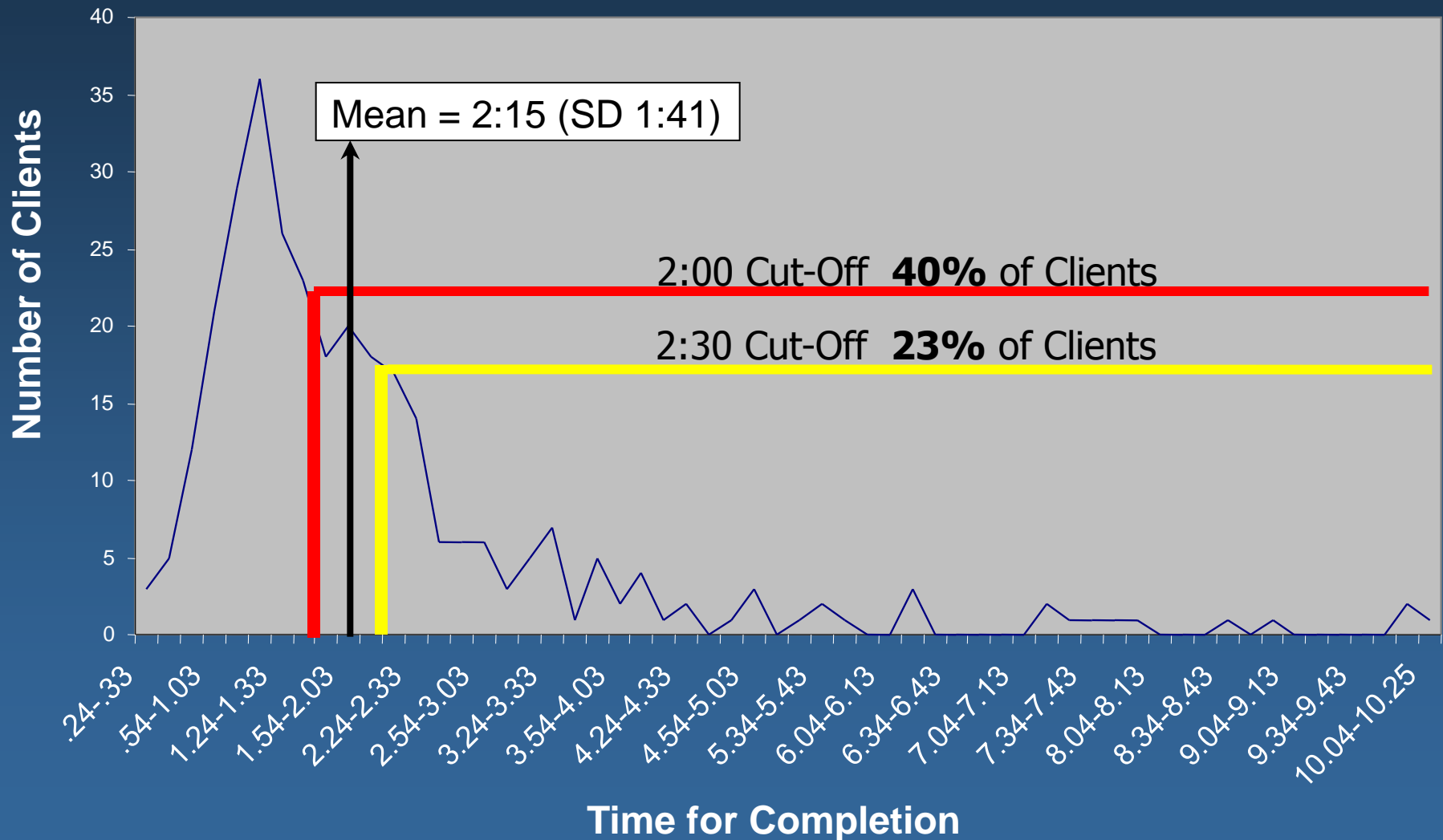
BLUE

RED

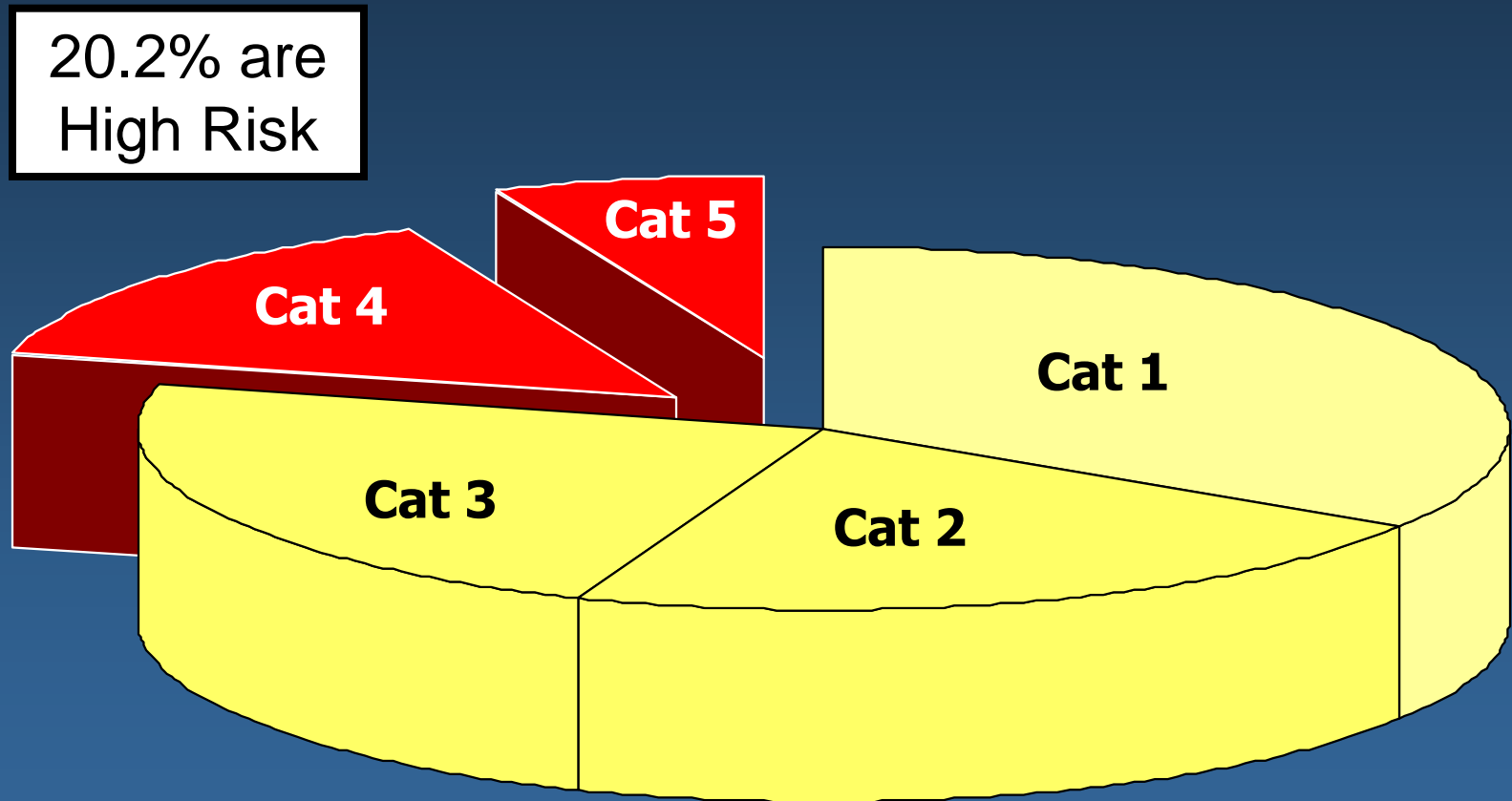
Analysis

- Data analyzed with descriptive statistics
- Compared to industry accepted safety thresholds
- Secondary analysis
 - Correlation of assessment results with age
 - Pearson product-moment coefficient for interval data
 - Spearman's Rho correlation coefficient for ordinal data

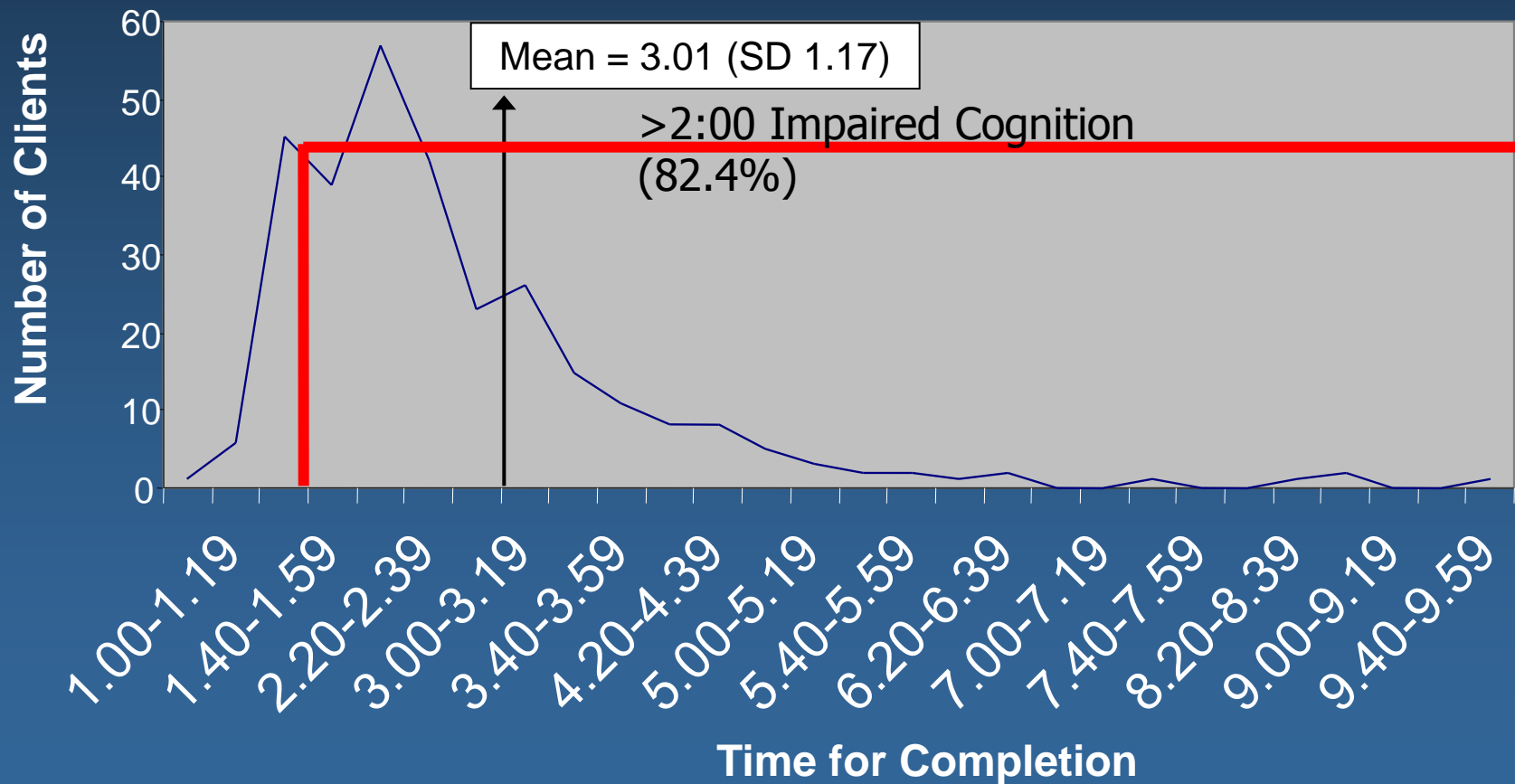
Trails B Distribution for Older Adults



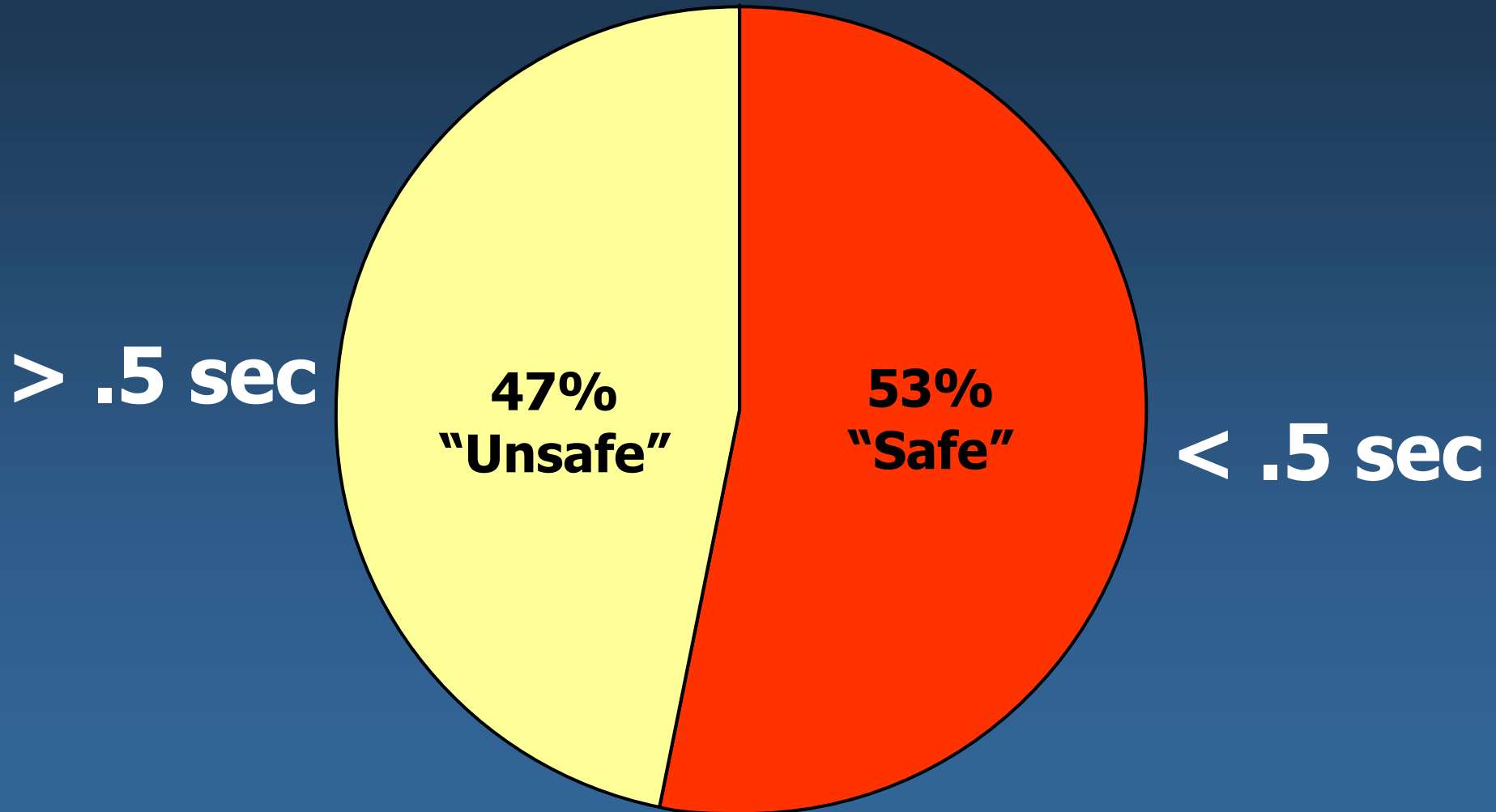
UFOV Category Ratings of Older Drivers



Stroop Performance of Older Drivers



Brake Reaction Timer



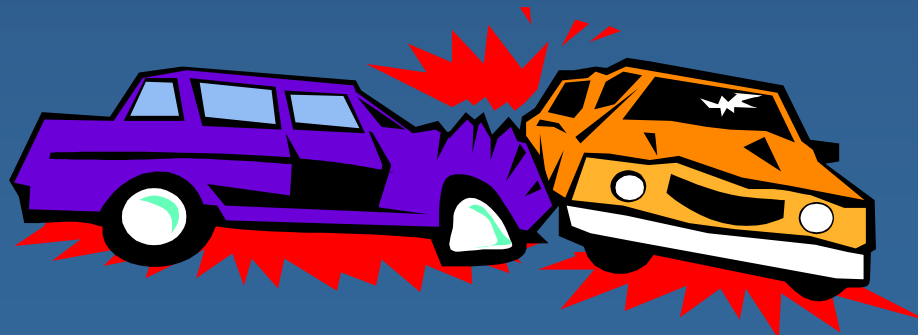
Age Correlations

Tool	Age Coeff.
Trailmaking B	.196
Stroop	.186
Brake Rx Timer	.030
UFOV	.408*

*.01 Significance level

Safety Thresholds

- Set by establishing predictability of crashes
- Typically prospective studies
- The problem: crashes are rare occurrences
- Driving is human performance
- Need to study the predictability of driving performance



Conclusion

- Age is not necessarily related to decreased performance
- Significant discrepancies between “normal” and safe performance
- Well elderly may be high risk drivers
- Current assessments / thresholds are problematic

More Questions

- Are older driver stereotypes correct?
- Have we identified the wrong assessments?
- Are the tools valid to assess driving?
- Are the tools sensitive enough, or too sensitive?
- Are these large segments of the older population really at risk?
- Do we need a paradigm shift from crash risk to driving performance?

National Older Driver Research and Training Center

- University of Florida
- Funded by
 - Center for Disease Control
 - Federal Highway Administration
- Multidisciplinary team
 - 10 team members (OT, computer engineering, public health, transportation safety)
 - 9 support staff (grant writers, budget preparers, computer support, administrative support)

NODRTC

- International Consensus Conference (12/03)
 - Assessment Panel
 - Remediation Panel
 - Alternate Transportation Panel
- Reports from committees shaping future

NODRTC

- Federal Highway Administration
 - Older driver performance and problematic roadway conditions
 - Instrumentation of vehicles for objective performance measures
 - Replication with Driving Simulator

NODRTC

- Centers for Disease Control
 - Development of comprehensive program offering assessment, remediation, and counseling
 - Subcontract with AOTA to increase the capacity of OTs to work with older drivers

NODRTC

- Setting up 4 data collection sites in Florida
- Examine use of vehicle safety features
- Evaluate the impact of medications on driving performance
- Identify assessment tools predictive of driving performance
- Evaluate the most effective methods of driver training

Questions

