


**NIH Toolbox**  
Assessment of Neurological and Behavioral Function

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## “Instrument Selection”

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Westat  
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For more information, please visit [www.nihtoolbox.org](http://www.nihtoolbox.org)  
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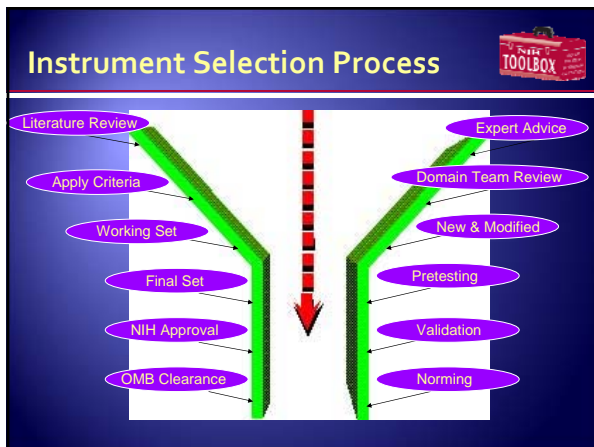
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### Selection Criteria



- Applicable across the age span
- No intellectual property concerns
- Psychometrically sound
- Brief, easy to use
- Applicable in variety of settings and with different subgroups
- Preference for instruments already validated and normed for ages 3 - 85

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## Test Selection Process



- Candidate measures (Toolbox Library = 1,391) generated from literature review and expert input (requests for information, interviews, team meetings)
- Measures systematically reviewed

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## Initial Exclusions (Cog)



- Self-Report, Proxy (for adults), Clinician-Rated
- Commercial instruments (IP Rights/purchase required)
- Screening/global measures (e.g., "Brief" measures, anything that assesses impairment vs. non-impairment)
- Disease-or Population-Specific (e.g., Alzheimer's, Aged/Elderly, etc.)

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## Results of these Activities



- Instrument recommendations for constructs
- Draft development plans established for about 50 different measures

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## The Process Continues. . .



- Instrument development
- Pre-testing and piloting of new items and instruments
- Concurrent validation of new instruments with industry "Gold Standards"
- Selection of final instruments for norming

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## Selection Challenges



- Most compatible for use in non-standard locations (Home)
- Dynamic/adaptable over time
- Stand-alone use by those selecting only some instruments
- Robust with ethnic and racial minorities

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## Additional Review



- Translatability (Spanish)
- Accessibility Issues (508)
- Pediatric Approach (Ages 3-6)
- Geriatric Needs (Ages 80-85)
- NIH Project Team Review (Contract)

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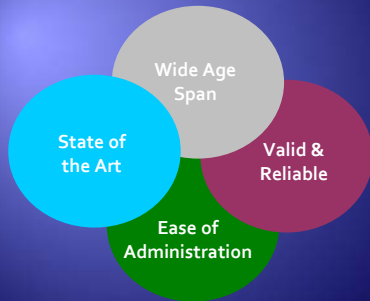
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## Toolbox Criteria



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## Cognition

Instruments



### Executive Function

- Flanker Task
- Self-Ordered Point
- Card Sorting

### Episodic Memory

- Imitation-Based Assessment of Memory

### Language

- Vocabulary-Comprehension
- Reading-Decoding

### Processing Speed

- Pattern Comp Task

### Attention

- Flanker Task

### Working Memory

- Complex Span Task

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## Emotion

Instruments



### Positive Affect

- Happiness
- Life Satisfaction
- Well-Being

### Negative Affect

- Sadness
- Fear
- Anger
- General Distress
- Apathy

### Stress and Coping

- Perceived Stress
- Coping Strategy
- Coping Self-efficacy

### Social Relationships

- Social Support
- Social Network
- Integration
- Loneliness

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**Motor**

Instruments

<p><b>Endurance</b></p> <ul style="list-style-type: none"> <li>• 2 &amp; 3 Minute Walk Test</li> </ul>	<p><b>Locomotion</b></p> <ul style="list-style-type: none"> <li>• 8 &amp; 10 Foot Walks</li> </ul>	<p><b>Strength</b></p> <ul style="list-style-type: none"> <li>• Grip Strength</li> <li>• Electronic Muscle Strength-Lower Extremity</li> </ul>	<p><b>Dexterity</b></p> <ul style="list-style-type: none"> <li>• 9-Hole Peg Test</li> </ul>	<p><b>Balance</b> <i>(Non-vestibular)</i></p> <ul style="list-style-type: none"> <li>• Single Leg Stance</li> </ul>
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**Sensation**

Instruments

<p><b>Olfaction</b></p> <ul style="list-style-type: none"> <li>• San Diego/Brief Odor Identification</li> <li>• Alcohol Sniff Test</li> </ul>	<p><b>Taste</b></p> <ul style="list-style-type: none"> <li>• Sucrose Preference</li> <li>• Beaver Dam Taste</li> <li>• Quinine Perception</li> <li>• PROP Sensitivity</li> </ul>	<p><b>Vestibular Balance</b></p> <ul style="list-style-type: none"> <li>• Dynamic Visual Acuity</li> <li>• Sensory Integration for Balance</li> <li>• Vestibular Ocular Reflex Suppression</li> </ul>
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**Sensation**

Instruments

<p><b>Audition</b></p> <ul style="list-style-type: none"> <li>• Pure-Tone Audiometry</li> <li>• Word in Noise</li> <li>• Hearing Inventory</li> <li>• Tympanometry</li> </ul>	<p><b>Somatosensation</b></p> <ul style="list-style-type: none"> <li>• Body Part -Pain</li> <li>• Wrist Position</li> <li>• Heat Perception</li> <li>• Texture Discrimination</li> <li>• Sensory Feedback</li> </ul>	<p><b>Vision</b></p> <ul style="list-style-type: none"> <li>• Visual Acuity Test</li> <li>• Vision-specific HRQL</li> <li>• Motion Detection Perimetry</li> </ul>
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## Conclusions



- A wide net was cast to identify potential instruments.
- Application of criteria & expert opinion narrowed the field.
- Many new or modified instruments became necessary.
- Pre-testing and piloting are refining these instruments.
- Extensive validation will result in final instruments.

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