The NIH Toolbox®

Molly Wagster, PhD
Division of Neuroscience
National Institute on Aging

Workshop on Synergies between Alzheimer’s Research and Clinical Gerontology & Geriatrics
December 2, 2016
NIH Toolbox
Assessment of Neurological and Behavioral Function

A multi-dimensional set of brief, measures to assess cognitive, sensory, motor and emotional function that can be administered in 2 hours or less across diverse study designs and settings.

For more information, please visit http://www.nihtoolbox.org

Four domain level batteries available in English and Spanish

Developed by more than 250 contributing scientists at 80 institutions

Individual measures nationally normed for ages 3-85
Building Requirements

- Dynamic/adaptable over time
- Utilize state-of-the-art psychometric and technological approaches including computerized adaptive testing (CAT) and computer assisted evaluation
- Methodologically sound
- Diverse
- Minimally burdensome to subjects and investigators
Little uniformity currently exists
• Hinders ability to share, integrate, interpret results

Maximize yield from research investment
• Brief, valid, readily available measures encourages richer data collection
Measures of Brain Health/Function

• Advance our knowledge of brain health and normal function

• Avoid pitfall of resorting to use of diagnostic tools or measures for disorder/disease
Building Plan

- Domain Teams - 9
- NIH Project Team
- Epidemiology/Biostatistics Team
- Technology Team
- Spanish Language Team
- Multi-Cultural Team
- Pediatric Team
- Geriatric Team
Norming

- N=4,859 subjects English and Spanish, ages 3-85
  - 1-week retest (N=525)
- Stratified random sampling conducted at 10 geographically diverse market research firms
  - Single year age bands 3-17, 7 adult bands through 85
  - Census-balanced by age, race, ethnicity and education
  - Separate English and Spanish samples
- Genetic material obtained on over 2600 subjects
Cognition Domain Framework

- Executive Function
- Attention
- Episodic Memory
- Language
- Processing Speed
- Working Memory
Motor Domain Framework

Motor

- Dexterity
- Strength
- Balance
- Locomotion
- Endurance
Sensation Domain Framework

- Vision
- Olfaction
- Audition
- Vestibular
- Gustation
- Somatosensation
Emotion Domain Framework

Psychological Well-Being
  - Positive Affect
  - Life Satisfaction
  - Meaning & Purpose
  - Positive Social Development

Social Relationships
  - Social Support
  - Companionship
  - Social Distress

Stress & Self-Efficacy
  - Perceived Stress
  - Self-Efficacy

Negative Affect
  - Fear
  - Sadness
  - Anger
Alzheimer’s Disease Research Resource (U2C)

- Invites applications to establish measurement properties of the NIH Toolbox in persons with aMCI, early AD, and in individuals over age 85

- Establish research resource that facilitates detection of disease at the earliest stages, assessment of change in function over time, and ability to track success of prevention and therapeutic interventions

Letter of intent - Jan 2, 2017
Receipt deadline - Feb 2, 2017
Funds available - $2.5 M/year for 3 years, contingent upon NIH appropriations
NIH Toolbox
Assessment of Neurological and Behavioral Function

http://www.nihtoolbox.org