WHAT TOOLBOX PROMISES:
ADVANCES OVER CURRENT APPROACHES,
UNIQUE FEATURES, AND PRODUCTS

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The Cognitive and Emotional Health
Project: The Healthy Brain

Sponsors: NIA, NIMH, NINDS

- International workshop
  - Create a panel to conduct critical analysis of
    existing studies
- Critical Evaluation Study – Blue ribbon panel
  - Secondary analyses
  - Ancillary studies/prevention trials
- Development of standard questionnaire to
  measure cognitive and emotional health

Needs Assessment for
NIH Blueprint Proposal

- Project Team members
- Extramural/Intramural Research
  Community
- Cognitive and Emotional Health
  Project
  - Suggestions from Critical Evaluation
    Study Committee
**Responsiveness to Goals**

- Assessment of multiple indicators important for wide range of Institute/Center/Office missions
- Current assessment tools not uniform and universal for all research needs in Neuroscience community
- Not a duplication of other completed or ongoing activities
- Intent to provide a national resource for the scientific community and across NIH

**NIH Toolbox Concept**

- Develop unified/integrated measures (assessment tool) of multiple indicators (cognitive, emotional, motor, sensory) of neural and behavioral health functioning for use in large cohort studies and clinical trials
- Could be used as a form of "common currency" across diverse study designs and populations
- Would maximize yield from large, expensive studies with minimal increment in subject burden and cost

**Characteristics of the Toolbox**

- Multidimensional
- Versatile
- Brief
- Methodologically sound
- State-of-the-art
- Diverse
- Dynamic
Multidimensional
- Cognition
- Motor
- Emotion
- Sensory

- Taste
- Olfaction
- Audition
- Vision
- Vestibular Balance
- Somatosensation

Versatile
- Monitor change over time
- Readily portable from one type of study design to another
- Incorporate ways to ‘crosswalk’ to existing and previous studies
- Avoid ceiling and floor effects

Brief
- Ensure low respondent burden
**Characteristics of the Toolbox**

- Methodologically sound
  - Fulfill appropriate psychometric characteristics
  - Demonstrate validity and reliability

- State-of-the-art
  - Employ modern psychometric approaches to measurement of latent dimensions
  - To the extent possible, use Item Response Theory models and computer adaptive testing

- Diverse
  - Demonstrate known measurement properties across cultures and age ranges
  - English and Spanish versions to be developed and validated
**Characteristics of the Toolbox**

- Dynamic
  - Capable of being adapted over time in response to scientific and/or technological advances

- Where possible, objective measures favored over self-report

- To be made freely available and free of charge to the scientific research community

**What the Toolbox is not:**

- Not a diagnostic tool
- Will not target disease outcomes
- Not conceptualized to substitute for the in-depth assessment of a domain or subdomain
NIH Toolbox for Assessment of Neurological & Behavioral Function

- Contract awarded September 2006 (FY06) to NorthShore University HealthSystem Research Institute, Richard Gershon, PhD [PI]
  Other Principals –
  David Cella, PhD – NorthShore
  Nathan Fox, PhD – University of Maryland
  Richard Havlik, MD - Westat
  Hugh Hendrie, MB, ChB, DSc – Indiana University

Conducted in Two Phases

- Phase I (2 years) – ID of content area, expert interviews, research on instrumentation, development of draft instruments
- Phase II (3 years) – Field testing, refinement, norming, delivery of final product and procedure manual

Vision for the Final Toolbox

- Four Domain level batteries
- Individual instruments fully normed for ages 3 – 85 years
- Tool “shed” of additional instruments