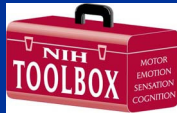


# Development of the NIH Toolbox for the Assessment of Neurological and Behavioral Function: Implications for the Clinical Neuropsychologist

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## Contributors

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- Robert Heaton** - University of California, San Diego
- Patricia Bauer** - Emory University
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- Richard Havlik** - Westat
- David Blitz** - Evanston Northwestern Healthcare
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- Beth Borosh** - Northwestern University Medical School
- Richard Gershon** – Northshore University Healthcare
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## **NIH Toolbox for Neurological & Behavioral Function**

There is little uniformity among the measures used to assess neurological function and behavioral health.

The NIH Toolbox initiative seeks to assemble brief, comprehensive assessment tools that will be useful to clinicians and researchers in a variety of settings

NIH Toolbox places particular emphasis on measuring outcomes in longitudinal epidemiologic studies and prevention or intervention trials across the lifespan.

Currently, standardized measures of cognitive, sensory, motor, and emotional functioning are not included.

## NIH Toolbox for Assessment of Neurological and Behavioral Function

- If there were unified/integrated measures of multiple indicators (cognitive, emotional, motor, sensory) of neural and behavioral health functioning ... .
- Could be used as a form of “common currency” across diverse study designs and populations in large cohort studies
- Would maximize yield from large, expensive studies with minimal increment in subject burden and cost

## The NIH Blueprint for Neuroscience Research

- **Aims to develop new tools, resources, and training opportunities to accelerate the pace of discovery in neuroscience research.**



- Initiated in 2004
- Designed to enhance collaboration among the NIH Office of the Director and 15 NIH institutes and centers (ICs) that support research on the nervous system.
- Pooling resources and expertise, the Blueprint confronts challenges that transcend any single institute or center and serves the entire neuroscience community.

<http://www.neuroscienceblueprint.nih.gov/>

## Sponsorship



- Funding is provided by 15 NIH agencies
- The Toolbox effort is overseen by the National Institute of Aging (Molly Wagster)
- Funding is through a cost reimbursement contract
- This project has been funded in whole or in part with Federal funds from the National Institute on Aging, National Institutes of Health, under Contract No.: HHS-N-260-2006-00007-C

## NIH Project Team Members

National Institute on Aging (NIA)  
National Institute on Mental Health (NIMH)  
National Institute on Drug Abuse (NIDA)  
National Institute on Neurological Disorders & Stroke (NINDS)  
National Institute on Environmental Health Sciences (NIEHS)  
National Institute on Deafness and Other Communicative Disorders (NIDCD)  
National Eye Institute (NEI)  
National Institute on Child Health and Human Development (NICHD)  
National Institute of Nursing Research (NINR)  
National Institute on General Medical Sciences (NIGMS)  
Office of Behavioral and Social Sciences Research (OBSSR)  
National Center on Complementary and Alternative Medicine (NCCAM)  
National Institute on Alcohol Abuse and Alcoholism (NIAAA)  
National Center on Research Resources (NCRR)

## Lead Site

- Northshore University Healthcare
- Center on Outcomes Research and Education (CORE)
- PI: Richard C. Gershon, PhD

## Eight Domain-Sites

### Primary Collaborators

1. Northwestern University School of Medicine
2. Kessler Foundation
3. University of Washington
4. Rehabilitation Institute of Chicago
5. Feinberg School of Medicine
6. Northwestern School of Communication
7. University of Pittsburgh
8. UCLA

## Four Domains

- Cognition
- Emotion
- Motor Functioning
- Sensation

## Timetable

- The Toolbox initiative commenced on September 30, 2006
- 5-year project, structured in two phases
- Phase I - Identification of criteria for acceptance of domain specific tasks to the behavioral and neurological research communities
- Phase II & III – Testing and refinement of the final toolbox including pilot testing of potential subtests, evaluation of different modes of administration, normative studies, and psychometric properties of the instrument.

## Phase I: 12 Months

- Expert Survey of criteria to select sub-domains
- Scientific Advisory Board (SAB) meetings to select final criteria
- Identification of existing psychometric tests and measurement tools
- Interviews with a variety of scientists
- Identification of domains of functioning
- Review of all potential tests
- Nomination of tests to use in toolbox.

## Phase II: 18 Months

- Official approval of tests (from NIH).
- Development of the new tests, items for adults and children.
- OMB approval of tests and items
- Pilot Testing of the tests and comparison against “gold standards”

## Phase III: 30 months

- Spanish translation
- Program of CAT administration
- Calibration & analysis of item bank based measures
- Field testing/Normative study of toolbox
- Psychometric testing

Cognition Team Progress

# Cognition Team

## **STEERING COMMITTEE & COGNITION TEAM SENIOR SCIENTISTS**

Sureyya Dikmen, University of Washington  
Nathan Fox, Duke University  
Robert Heaton, UCSD  
David Tulsky, Kessler Foundation  
Sandy Weintraub, Northwestern University

## **TEST DEVELOPMENT TEAMS**

Patricia Bauer – Memory  
Sureyya Dikmen – Memory  
Jennifer Manly - Reading  
David Tulsky - Processing Speed & Working Memory  
Noelle Carlozzi - Processing Speed & Working Memory  
Richard Gershon – Vocabulary  
Sandra Weintraub - Vocabulary  
Phil Zelazo – Executive Functioning & Working Memory

# Cognition Team

## **JUNIOR SCIENTISTS**

Beth Borosh, Northwestern University  
Noelle Carlozzi, Kessler Foundation  
Joanne Deocampo, Emory University  
Jennifer Richler, University of Minnesota

## **PROCESS/ORGANIZATION**

David Blitz, ENH CORE  
Dick Havlik, Westat  
Jerry Slotkin, ENH CORE  
Kathleen Wallner-Allen, Westat

## MANDATES FOR COGNITION TEAM



1. Cover 4-6 Subdomains
2. Take no more than 30 minutes
3. Cover the full range of normal function
4. Cover ages 3-85
5. Instrument should be free/minimal cost
6. Use state of the art methods