

## **VALIDATING THE NIH TOOLBOX IN THE ACUTE NEUROREHABILITATION SETTING**

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Among the new Clinical Tools is the NIH Toolbox, a 2-hour assessment battery developed to standardize evaluations in specific clinical populations for investigations of neurological development and change, disease recovery, and therapeutic interventions. The Toolbox integrates a wide variety of neurologic evaluations into a single instrument. The assessment battery comprises 4 broad neurologic domains (cognition, emotion, sensation, and movement) and incorporates computerized testing where possible. The final Toolbox test components will be made available in October 2009 following extensive multisite development of normative data ranges. At that time, studies can begin to test the validity and feasibility of the Toolbox in specific neurologic populations. This 2-year Challenge Grant study will evaluate the feasibility and initial validation of the Toolbox in the acute rehabilitation inpatient population.

The field of neurologic rehabilitation presently lacks an integrated, comprehensive, multidisciplinary and multifunction assessment instrument to evaluate the impairments that follow the diverse and common, acutely disabling neurologic disorders (e.g., stroke, traumatic brain injury, post-tumor surgery). Thus, the Toolbox may eventually prove valuable in the inpatient setting for treatment and discharge planning and to experimentally test integrated hypotheses of neurologic recovery. This study will test 120 adult acute rehabilitation inpatients who are recovering from disabling brain disorders. This study will compare their Toolbox findings to 120 rehabilitation inpatients without known brain disease to distinguish the general effects of hospitalization (e.g., from multiple medications, concurrent medical illness) and thus determine the Toolbox's sensitivity and specificity to acute brain illness. The study will also test 120 community-living, age-similar, brain-healthy participants drawn from the caregivers of the inpatients, to control for the effects of socioeconomic background, age, ethnicity, and region of origin when evaluating the patients. The control population will also contribute valuable normative data to the national Toolbox data set. The study will also determine the cognitive impairment limits to Toolbox assessment, by determining whether the Mini-Mental State Examination can distinguish which patients are able or unable to comply with testing. This feasibility analysis will help subsequent proposals to target the patients who are best able to be evaluated with the Toolbox.

**Public Health Relevance Statement:** This 2-year Challenge Grant will conduct an initial and exploratory validation study of the NIH Toolbox in the acute neurologic inpatient rehabilitation environment. The Toolbox assesses diverse neurologic functions (cognition, emotion, sensation, and movement) in a 2-hour examination. The proposed research will determine the sensitivity and specificity of the Toolbox to acute neurological illness and its feasibility with assessing adult inpatients with a wide variety of debilitating neurological disorders.