ADAPTIVE STROKE OUTCOME ASSESSMENT

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A 2002 editorial in *Stroke* suggested the use of item response theory (IRT) modeling and adaptive testing for clinical outcome measurement in stroke. The purpose of this seminar is to look at the question of how to do this most effectively.

No single generic or stroke-specific health status measure efficiently covers the range of problems in functioning and well-being experienced by stroke survivors. IRT modeling permits effective and sample-independent calibration across scales, and development of adaptive algorithms for computer-assisted multi-domain assessment. Some additional details on IRT and its use in computerized adaptive testing may be found at http://www.chrp.org/love/IRTlove_020712.pdf.

The purpose of this work is to facilitate the development of computerized adaptive assessments of stroke outcomes by: (1) building a sufficiently large database of items and responses to allow for the investigation of critical properties of item response theory models; (2) identifying gaps in the item pool which deny investigators the chance to assess clinically relevant differences in studies of stroke interventions; (3) completing appropriate IRT analyses to evaluate the potential for successful application of adaptive instruments in stroke studies. Given IRT results and computer-assisted administration, efficient tailored scales can measure multiple domains of stroke outcomes for clinical trials and observational studies. Such metrics might be appropriate for research use in baseline adjustments (for instance, stratification) or as outcomes of their own, or both.