Medical Rehabilitation Research Infrastructure Network

- A network to research centers, each with a specific focus, to support enhance the capability of medical rehabilitation investigators, <u>particularly early-career investigators</u>, to understand mechanisms of functional recovery, develop therapeutic strategies, and improve the lives of people with disabilities.
- Funded through R24 mechanism by NCMRR
- www.ncmrr.org

Centers provide a variety of opportunities including:

- State-of-the-art research facilities
- Courses and workshops
- Mentorship and consultation
- Pilot grants
- and other collaborative opportunities

Current Centers

- Children's National Medical Center (Washington, DC)
  - genomic analyses, gene expression, and proteomics
- University of California, San Diego
  - muscle physiology, histology, imaging, and metabolism
- Stanford University
  - human modeling and simulation of movement
- Rehabilitation Institute of Chicago
  - bioengineering and robotics

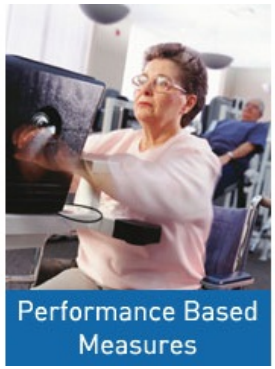
Current Centers

- Boston University Medical Campus
  - outcomes measurement and assessment
- University of Texas Medical Branch at Galveston
  - using large datasets and health services research
- Simbex, Inc. (Lebanon, NH) and Dartmouth College
  - technology assessment and product development; translation and commercialization of rehabilitation applications

- An overview of the activities of the Boston center follows.
- For more information about the other centers, please visit the relevant center’s website or link to the sites via www.ncmrr.org

BOSTON | ROC

Boston Rehabilitation Outcomes Measurement Center



The Boston Rehabilitation Outcomes Measurement Center (Boston ROC) is a rehabilitation research infrastructure center dedicated to advancing rehabilitation research by improving rehabilitation outcome measurement.

Funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development as part of the Medical Rehabilitation Infrastructure Network: 1R24HD065688

BOSTON | ROC
Boston Rehabilitation Outcomes Measurement Center

BU Boston University School of Public Health
Health & Disability Research Institute

Tufts UNIVERSITY

SPAULDING REHABILITATION HOSPITAL

A collaboration among researchers with specialized expertise in rehabilitation outcome measurement in the following areas

- Patient/Clinician Reported Outcomes Core - located at Boston University, Directed by Wendy Coster, PhD, OTR/L
- Performance-Based Measures Core - located at Tufts University, Co-Directed by Roger Fielding PhD and Jonathan Bean, MD, MS, MPH
- Instrumented Outcome Measures - located at Spaulding Rehabilitation Hospital, Directed by Paolo Bonato, PhD

BOSTON | ROC
Boston Rehabilitation Outcomes Measurement Center

BU Boston University School of Public Health
Health & Disability Research Institute

Tufts UNIVERSITY

SPAULDING REHABILITATION HOSPITAL

Consultation and technical assistance

- An essential part of Boston ROC's mission is to provide consultation and technical assistance to researchers interested in learning more about outcome measure options.
- **Boston ROC Researchers can provide information, resources, and guidance regarding:**
  - Selecting rehabilitation outcome measures
  - Capturing dimensions impacted by an intervention
  - Responsiveness to the effects of an intervention
  - Established validity in the targeted population
  - Feasibility

Pilot Studies Program

- ***Goal:*** to assist researchers in developing, refining and applying innovative outcomes measures for rehabilitation research; to obtain preliminary support needed for high quality research proposals.
- Studies should address the development or refinement of rehabilitation outcome measurement in one of the three Boston ROC Cores.
- Previously funded projects have included evaluating a CAT assessment for osteoarthritis, identifying a quantitative measure of physical activity intensity in youth with cerebral palsy for clinical trials, and refining a CAT to measure community reintegration for injured service members.

Visiting Scientist

- Opportunities for visiting rehabilitation researchers to work with outcome measurement experts in the Boston ROC Cores.
- The visiting scientist has the opportunity for hands-on experience working on-site with investigators at one of the collaborating Boston ROC institutions and/or year-long in-depth consultation around the scientist's own project.

Outcomes Measurement Projects

- PRO
  - Activity Measure for Post-acute Care (AM-PAC)
  - Late-life Function and Disability Instrument (LLFDI)
  - PEDI-CAT and PEDI-CAT-ASD
  - Adult and Pediatric Spinal Cord Injury CATs
  - Computer Adaptive Testing for Osteoarthritis Clinical Trials

Performance-based Measures

- Measures used by the PBM core have standardized protocols and manuals developed. Some of the assessments most frequently used in studies include:
  - Isokinetic Peak Torque
  - Short Physical Performance Battery (SPPB)
  - Gait velocity
  - 400 m walk

Instrumented Outcome Measurement

- The Boston ROC IOM core has extensive experience developing and using IOMs in clinical research, particularly wearable sensors. Sample projects include:
  - Assessing usability of the ARMEO robotic device for upper extremity training of individuals with neurological impairments
  - Robotic assessment of lower extremity motor learning
  - An in-shoe device to monitor toe-walking in children with cerebral palsy
  - Robotic gait training in children with cerebral palsy

Visit our website to learn more about these opportunities

- **www.bu.edu/bostonroc**

BOSTON | ROC
Boston Rehabilitation Outcomes Measurement Center

BU Boston University School of Public Health
Health & Disability Research Institute

Tufts UNIVERSITY

SPAULDING REHABILITATION HOSPITAL