



In this issue, we describe a project underway to develop measures of environmental factors that may shape participation for people with spinal cord injury, traumatic brain injury, and stroke. We also bid farewell to Dustin Williams, a project manager and valued team member, as he embarks on the next phase of his career.

We're very excited to promote an upcoming symposium, "Enhancing Outcome Measurement in Rehabilitation Settings," a pre-course symposium to the 2010 ACRM-ASNR Joint Educational Conference in

Montreal on Wednesday, October 20, 2010. Registration information, including a discount until August 31st, can be found online at www.acrm.org.

Read inside about our collaborator, Dr. Carolyn Baum, and her career in measurement. Other updates include a free lecture series on measurement in healthcare available on our website, as well as recent publications and presentations. We also encourage you to find us on Facebook!

Allen Heinemann, Director

Measuring Environmental Barriers and Facilitators

It is far easier for a rehabilitation therapist to track a patient's progress in a hospital setting than it is to predict how people will fare after they go home. Will they be able to function independently in their apartment or house? Once they venture outside, does the environment allow them to be fully participating members of the community?

"People without disabilities take the environment for granted when they want to go across town," said Allen Heinemann, PhD, director of the Center for Rehabilitation Outcomes Research (CROR) at the Rehabilitation Institute of Chicago. "Many of our

"The results will help provide evidence-based data on the shortcomings in our community"

Rabnee Patrick, Access Living

patients with mobility limitations can't do that."

Environmental challenges and community access are some of the issues that a new project, "Developing Environmental Factor Measures for Persons with Stroke, Traumatic Brain Injury, and Spinal Cord Injury," is designed to address. The five-year \$4 million study funded by the National Institute of Disability and Rehabilitation Research was approved in late 2009.

The study's goal is to develop a set of meaningful and accurate measures that reliably assess how patients are functioning after they leave rehabilitation. There are plenty of existing surveys, but

Collaborator Profile: Dr. Carolyn Baum

Carolyn Baum, PhD, director of the occupational therapy program at Washington University, has always been more interested in what people can do than in what they can't. As a veteran occupational researcher in St. Louis, her work has been focused on how the elderly can continue to live independently, an increasingly urgent issue given the aging U.S. population.

Instead of testing people to assess their deficits, Baum has developed an "executive function" test to help determine whether someone can function at home alone. The test is comprised of four seemingly simple tasks: cooking oatmeal; paying a bill; making a telephone call; and taking the correct medication. But those tasks are more complex than they seem.

"We're looking at whether the person can initiate these tasks. Can they collect the tools they need? Can they sequence the task and have they used judgment, which means they are safe? Baum said. "What we're finding is some people are having tremendous problems with organization and sequencing."

The evidence collected is helping families know what level of "cuing" and support their older relatives need.

It has applications in the workplace as well.

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Upcoming Symposium

Registration is now open for "Enhancing Outcome Measurement in Rehabilitation Settings." For details, see [Page 5](#).

CROR Publications

A list of recent CROR manuscripts, abstracts, and presentations is on [Page 7](#).



Dustin Williams: Farewell and Good Luck!

Growing up in Oklahoma, Dustin Williams wanted to become a family and marriage therapist so he could better understand human relationships and help people. He discovered a knack for research and grew to love tackling large problems and developing new insights. That led him to Chicago where he was accepted into a doctoral program in business psychology.

To gain experience and make a little money on the side, he landed an internship with advertising giant Leo Burnett. Williams worked on a 2008 employee engagement survey that spanned the globe, covering 90 Burnett offices in 80 countries. "It was a great experience," he recalls.

After the survey was completed, Williams saw an online job posting for a project manager at the Center for Rehabilitation Outcomes Research. He applied for the position at 1:30 p.m. on a Saturday. "I got an email back from Allen at 2:45 saying 'We're very interested.'"

It's been two years, but Allen Heinemann, CROR's director, remembers why he was so interested. "Dustin was an attractive candidate because of his diverse experience in counseling, psychology and project management.

"I expected he would have considerable academic and organizational experience to help manage CROR's growing portfolio of projects. It was clear he had the capacity to track multiple tasks simultaneously and to oversee human resources to achieve project goals."

Moving from the world of advertising to disability research may sound like a large leap but Williams says



The rehabilitation community has tackled this task before for a long list of illnesses. There are plenty of existing surveys, some with as many as 900 questions. The challenge for Williams and his group is to find out which questions work well and which don't and why.

"Since we are working with three different disabilities, we have to make sure the measure we're designing will work for all three groups. We had some good questions from earlier surveys, so people said, 'Why don't we use them?' Williams said. "The problem is a stroke isn't an injury or an illness. It's an event that greatly impacts your life. We've had to think through how we're writing these questions."

The project is at a critical point. Williams and his team have drafted prototype survey questions. Now they are evaluating the content for its "translatability" into Spanish. The goal is to weed out American colloquialisms that might not translate well. Then the project moves into the cognitive interviewing portion, where researchers get feedback from real patients about the survey questions.

"Do we need to change a specific word? What makes sense? What doesn't?" Williams said. "We'll ask them 'probes.' 'How often do you get out and do this?' If the answer is 'seven days a week,' we'll ask them, 'How did you figure that out?'"

His work at the Rehabilitation Institute and his PsyD classes don't leave the 30-year-old Rogers Park resident much time for anything else. He loves to cook real food, "the kind of food that people love to eat." And he recently started a new hobby--cultivating bonsai trees.

Beyond that, Williams' life is almost all work. "I'm a pretty busy guy," he said.

Post-Script: Since this article was commissioned, Dustin has accepted a position with the Symphony-IRI group, where he will have opportunities to gain additional experience related to his doctoral program. "Dustin made invaluable contributions to several projects and helped assure that goals were achieved in a timely manner," Dr. Heinemann said. "We miss the energy, enthusiasm and wit that he brought to his work and wish him the best."

I've gotten pretty good at throwing myself at new content and the nuances of whatever I'm doing.

Dustin Williams, M.S.

the chasm wasn't as great as it appears. "One of the advantages I have is I have done research in different contexts. I've gotten pretty good at throwing myself at new content and the nuances of whatever I'm doing," he said. "There are people with really good backgrounds who might struggle with the concepts of research if they have not had to learn about research in new contexts."

Now that Williams has been at the Rehabilitation Institute of Chicago for several years, he manages six projects. His main project, though, is a five-year study to develop environmental measures for people who have experienced stroke, spinal cord injury or traumatic brain injury.

The goal is to develop a set of comprehensive and accurate surveys that measure environmental factors that predict the social health and ability to participate in community activities for people with long-term disabilities.

Post-doctoral Fellowship Provides Research Opportunities

When a patient is in a coma after a traumatic brain injury, it used to be largely a matter of guesswork when--and if--they would regain consciousness. That question mark was really difficult for families to deal with and it concerned Theresa Pape, a speech pathologist who had worked at the Rehabilitation Institute of Chicago for five years.

She decided to do something about it. After completing her PhD in public health, Pape applied for and was awarded a post-doctoral fellowship at the Institute for Healthcare Studies at Northwestern University.

Mentored by Allen Heinemann, a Northwestern faculty member and director of the Center for Rehabilitation Outcomes Research at RIC, Pape became versed in predictive techniques and collected data that later allowed her to create a scale that predicts a patient's likelihood of regaining consciousness with an 88 percent accuracy rate.

Pape received a merit grant from the U.S. Department of Veterans Affairs to pursue that work and created the Disorders of Consciousness Scale, or DOCS. Pape is now working under another VA grant to refine the scale's precision.

"Our goal is to improve that accuracy to 95 to 99 percent," she said. "The brain has an amazing ability to adapt to injury. The younger you are, the more plastic your brain. I am working with a 53-year-old gentleman right now and there's no way his brain should be doing what it's doing. We're learning something new every day."

Pape, now a faculty member in Northwestern University's neurosurgery department, is just one of the success stories that have come out



Dr. Theresa Pape

of the Integrated Fellowship in Health Services Research program, a partnership between the Rehabilitation Institute of Chicago and Northwestern's Feinberg School of Medicine.

The fellowships are funded by several government sources, including the Agency for Healthcare Quality and Research (AHQR), part of the U.S. Department of Health and Human Services; an Advanced Rehabilitation Research Training award and a Rehabilitation Research and Training Center funded by the National Institute on Disability and Rehabilitation Research, part of the U.S. Department of Education; and the National Institute of Diabetes and Digestive and Kidney Diseases, part of the National Institutes of Health.

The two-year fellowship program is co-directed by Jane Holl, MD, Director of the Institute for Healthcare Studies and associate professor of pediatrics and preventive medicine at Feinberg, and Heinemann, PhD, professor of physical medicine and rehabilitation.

The focus of the program is health services and outcomes research. The goal is to provide physicians and PhDs with the learning experiences to "turn them into very competitive applicants for tenure-track positions in departments focused on research about the delivery of healthcare," said Holl.

Requirements are rigorous. Fellows are expected to produce five or six articles in peer-reviewed publications during their appointment. They also must submit at least one grant proposal or a draft of a career-development award, the type of grant most will be seeking when they become a faculty member following the fellowship.

"It is rigorous, but they seem to be able to do it," Holl said.

"The majority write and submit six or seven publications."

It's usually an easier transition for doctoral candidates than it is for physicians, Heinemann said. "The PhDs have completed a dissertation. The physicians typically have less research experience and have a bigger transition during the first months with us."

Fellows are assigned mentors based on their research interest areas. Heinemann usually has several fellows assigned to him, as does Holl. Northwestern faculty mentors may engage a fellow to work on their own research, but they aren't allowed to monopolize all of fellows' time. "We expect them on site at least three days a week," Heinemann said.

One PhD fellow finishing in 2010, Jae Chul Lee, is heading to Oregon Health and Science University, with a strong analytic background that will help disability researchers with outcomes research focused on healthcare disparities.

Trudy Mallinson, another fellow and former research scientist at RIC, was recently hired at the University of Southern California as a faculty member in the school of occupational science.

In the first 10 years of the program, 163 people have applied for the fellowships. Sixty-two applicants were made offers and 48 of those accepted.

The fellowships follow the National Institute of Health guidelines in terms of stipend. A fellow with a new PhD receives about \$38,000. Fellows with seven or more years of experience can receive \$51,000. The fellows also receive health benefits, tuition, workspace and some expenses toward travel and education costs.

"They're not getting rich on this," said Heinemann. "Physicians will get \$45,000. They could be making several times that amount in clinical practice. They also are likely to have sizable debts. They really need to be dedicated to two more years of poverty wages to pursue a research career."

Two fellows whose work is being funded by NIDRR will be starting in August. They are Lucy Bilaver, who received her PhD from the University of Chicago's School of Social Service Administration this year and devoted her dissertation to the relationship between family income and childhood obesity, and Mansha Mirza who received her PhD from the University of Illinois Chicago in Disability Studies and wrote her dissertation on the global ethnography of disabled refugees.

With the passage earlier this year of the federal healthcare reform plan, there has never been a greater need for the type of researchers that the Institute for Healthcare Studies fellowship trains, Holl said.

"We have to be able to measure healthcare outcomes. It's a field where we have not invested. If you look at the dollars invested in basic science research, only 1 percent has been spent at AHRQ, the primary agency funding research about the delivery of healthcare," Holl said.

"When you think about the amount of dollars spent on healthcare -- around 16 percent of Gross Domestic Product -- that's almost 5 percent higher than any other industrialized nation. But comparative analyses consistently show the U.S. underperforms relative to other countries on most dimensions of healthcare quality performance," Holl continued.

"There is clearly something wrong with the way we deliver healthcare and we need to provide the evidence of what works and what doesn't."



Dr. Jane Holl

Dr. Carolyn Baum (Continued from page one)

“Many people can make improvements. But it’s really sad when people don’t perceive they have these problems, they go back to work and lose their jobs,” Baum said. “They haven’t had the accommodations to allow them to be successful.”

Since 1996, Baum has been the principal investigator of a grant from the James S. McDonnell Foundation to study the relationship between brain function, behavior and performance in people who have experienced a stroke. The goal of the research is to design interventions that maximize recovery in these individuals.

The project team has studied 10,000 stroke patients admitted to Barnes Jewish Hospital in St. Louis. The study has collected brain imaging data on more than 7,000 and follow-up data on more than 800 individuals.

Baum’s interest in rehabilitation and measuring cognition made her a logical collaborator for the Rehabilitation Research and Training Center at the Rehabilitation Institute of Chicago. Since October 2009, she has worked as a co-investigator at the center, which was created to serve as a catalyst for new ideas to help the



her doctorate in 1985. While she was working at the hospital, a neurologist became fascinated with how she got patients to do things he didn’t think they could do.

She told him it was years of experience in occupational therapy that provided her frame of reference. “He said, ‘I think we need to start putting some science behind it.’ They hired a psychologist to work with me and help me start developing my ideas,” Baum said.

Today, Baum teaches, does research, writes books and travels around the world to conferences and workshops. In April, she was inducted into the Academy of Science of St. Louis, making her one of the few women to be so honored and the first who isn’t a physician or a basic scientist.

But no matter how busy she is, Baum, 67, heads to a medieval village on the border of Tuscany and Umbria for several weeks every November. She cooks Thanksgiving dinner for a growing crowd that numbered 35 last year and sometimes includes the mayor and the assistant chief of police.

“It’s something that’s very important to me,” Baum said. “I run away.”

Dr. Baum has developed an “Executive Function” test to help determine whether someone can function at home alone.

larger healthcare system be more responsive to the needs of people with disabilities. Her work focuses on better understanding the role cognition plays in daily life performance.

Baum had 22 years of experience as an occupational therapist before she went to Washington University for

Social Media Update: Follow CROR on Facebook!

The Center for Rehabilitation Outcomes Research is now on Facebook! We want to connect with you to keep you apprised of research findings, recent publications and presentations, educational opportunities, and other relevant information.

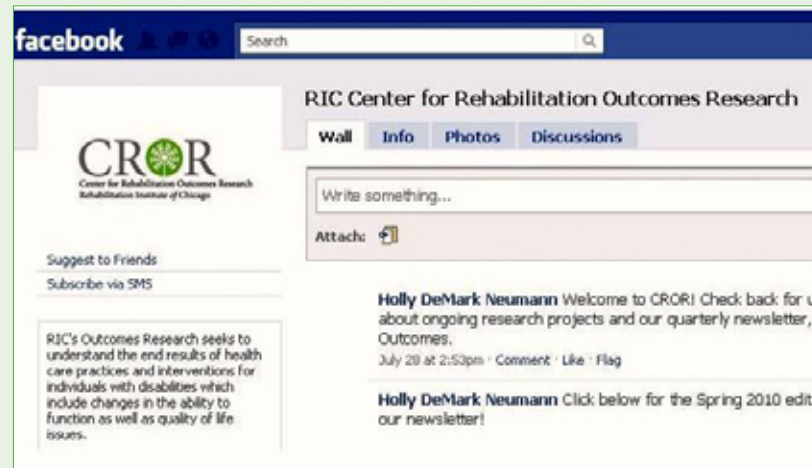
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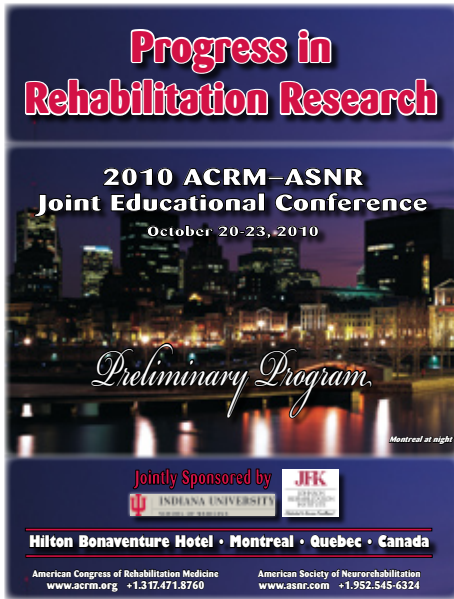
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Upcoming Symposium on Outcome Measurement in Rehabilitation



Registration is now open for “**Enhancing Outcome Measurement in Rehabilitation Settings**,” a pre-course symposium to the 2010 American Congress of Rehabilitation Medicine - American Society of Neurorehabilitation (ACRM-ASNR) Joint Educational Conference in Montreal, Quebec. This symposium will be held Wednesday, October 20, 2010 at the Hilton Montreal Bonaventure. Registration information, including a discount until August 31st, can be found at www.acrm.org.

This symposium builds on feedback from members of the Outcome Measurement Networking Group during the 2009 ACRM-ASNR annual meeting. High priorities for the Networking Group members were to

- (1) learn about the PROMIS Assessment Center
- (2) continue discussions of participation measurement, and to
- (3) address outcome measurement needs of clinicians.

This program proposal addresses these distinct needs in an integrated program focused on advances in outcome measurement.

One of the goals of the Patient Reported Outcomes Measurement Information System (PROMIS) is to develop a computer-based item banking and test delivery system. The PROMIS Assessment Center has been developed following hundreds of hours of interviews with clinical researchers and measurement professionals to administer PROMIS computerized adaptive tests and short forms, as well as user-defined items and test forms.

The morning session of this symposium will demonstrate Assessment Center capabilities for online item banking of items in multiple languages and delivery models including easy “Pick-a-PRO” of existing instruments; “Build-a-PRO” capabilities for researchers to pick items from existing calibrated banks and build custom instruments with calculated norms based upon existing PROMIS data collection; and study setup features enabling the creation, administration and monitoring of multi-mode (online, stand-alone computer, integrated voice response and paper), multi-target (participant, clinician) studies. Attendees will be given access to the Assessment Center for use in their own development efforts.

The afternoon session builds on the energy and enthusiasm of Networking Group members:

- Jeanne Zanca will report results of an on-line survey completed recently of clinicians’ use of outcome measures and their satisfaction with available tools.
- Linda Ehrlich-Jones will describe work that provides an on-line, searchable web site that contains information about outcome measures for various clinical populations.
- Susan Magasi will discuss recent efforts to assure accessibility of outcome instrumentation for users with disabilities.
- Extending the 2008 ACRM-ASNR preconference symposium on participation measurement, David Gray will describe contemporary studies to measuring participation in community settings.
- Holly Hollingsworth will describe companion studies to measure meaningful environments for participation.

We will allow sufficient discussion time to answer participants’ questions and to begin planning for the 2011 ACRM-ASNR annual meeting.

This preconference symposium is supported by a National Institute on Disability and Rehabilitation Research (NIDRR)-funded Rehabilitation Research and Training Center on Improving Measurement of Medical Rehabilitation Outcomes.

For more information about the symposium, please contact Allen Heinemann at aheinemann@ric.org,

Special Supplement on Measuring Participation in Archives of Physical Medicine and Rehabilitation

In September, the *Archives of Physical Medicine and Rehabilitation* will publish a supplement on

Measurement of Participation. This supplement builds on presentations and discussions from a pre-conference symposium organized in conjunction with the 2008 joint meeting of the American Congress of Rehabilitation Medicine (ACRM) and the American Society of Neurorehabilitation in Toronto, Ontario.

The aims of the symposium were to highlight the state-of-the-art in the measurement of participation and discuss its utility as an outcome measure for individuals with disabilities by examining the construct.

Below is a list of the supplement’s manuscript titles and authors. For a free copy of this supplement, please contact Allen Heinemann at aheinemann@ric.org.

Issues in the Conceptualization and Measurement of Participation: An Overview
by Marcel Dijkers
A Critical Review of Participation Measures: Psychometric Properties and Linking to the ICF by Susan Magasi and Marcel Post
Measurement of Participation: Intersecting Person, Task, and Environment
by Trudy Mallinson
Participation: The Insider’s Perspective
by Margaret Brown
Cognitive Appraisal Processes that Affect Patient Reported Outcomes: Applications of

Response Shift to Participation Measurement
by Carolyn Schwartz
The Intersection of Participation and Environmental Factors: A Complex Interactive Process
by Luc Noreau and Kathryn Boschen
Participation Measurement in Outcomes Research and Clinical Trials by Gale Whiteneck
Measuring Social Participation: The PROMIS Experience by Rita Bode et al.
Examining Participation: What Can We Learn from Older Adults, People with Intellectual Disabilities and People with Psychiatric Disabilities? by Joy Hammel
Community Participation: Measurement Issues with Persons with Deficits in Executive Functioning by Jennifer Bogner
Recommendations for Research and Clinical Applications by Allen Heinemann and David Tulskey

Measuring Environmental Barriers (Continued From Page One)

Heinemann calls them a “hodgepodge” that combines different kinds questions.

After searching the literature on aging and psychiatric rehabilitation, CROR researchers identified 1,000 questions that they thought were good candidates. They winnowed them down to five domains that address everything from social support and attitudes to access to information and technology. A separate category will attempt to assess economic quality of life with questions such as “Do I have enough money to pay my bills?” and “Do I have enough money to have fun?” Another category will evaluate the amount of social stigma that patients encounter.

“We kept, tossed and modified,” said Dustin Williams, project manager for the project. “There’s a lot of new content in what we’re going to start testing.”

Heinemann says the hope is “Within each arena, we can create a ruler to measure how big the barriers are. It’s a bit of a gamble that we can develop an item bank that measures each category.”

The new survey already has gone through two rounds of expert review. Now the researchers are looking at how well the questions translate into Spanish. “We want this to be something someone from Central or South America can use 10 years from now,” Williams said.

The next step is cognitive interviews. This fall, the researchers will administer the surveys to about 90 people, one-third of them with spinal cord injuries, another third who sustained strokes and the remainder with traumatic brain injuries. The patients will answer the questions and then be asked if they understood what the question was about.

For instance, one statement they will be asked to agree or disagree with is “I have access to the Internet when I need it.” Researchers will then ask if the last part of the statement—“when I need it”—made the question easier or harder to answer. Once the interview responses come in, “Then we’ll be able to fine-tune the questions,” Heinemann said.

This fall, the item banks will be pilot tested on a sample of 300 people, 100 in each of the impairment groups. Next year, researchers will tackle a larger group of 600 people, 200 in each group. The patients will come from RIC itself as well as other organizations that work to enhance options for the disabled. The subjects will be a mix of newly disabled people “who are still figuring things

out” and disability veterans, “those who’ve been out there a long time,” Heinemann said.

Eventually, the survey will be administered online. The online questionnaire will include a complex algorithm that will cut down on extraneous inquiries once an answer is given. For instance, if someone strongly disagrees with the statement that “I feel welcomed in my community,” the survey will skip follow-up questions asking about low levels of stigma. “There’s no sense in asking them a harder question if we’re confident we can predict the answer,” Williams explained.

The survey results could play out in several different ways, Heinemann said. If stigma were discovered to be a big problem, the issue could be dealt with through community intervention and education or a program to help disabled people deal more effectively with stigma.

If community access is lagging, that could fuel the ongoing debate about expanding public transportation options. “It’s not just what the person can do,” Heinemann said. “It’s what the community provides to facilitate participation.”

At the macro level, the results should inform public policy discussions. “Our independent living partners would be interested in the results. It would give them information to lobby more effectively,” Heinemann said.

Rahnee Patrick, director of independent living at Access Living, is eager to have the information. Her group mobilizes the disabled to push for improved services through activities such as public rallies and visits to legisla-

“It’s not just what the person can do,” Heinemann said. “It’s what the community provides to facilitate participation.”

tors.

“The results will help provide evidence-based data on the shortcomings in our community,” she said. “All I can tell you right now are anecdotes because I don’t have any evidence-based data demonstrating that.”

Some barriers to community participation for the disabled have improved in the last 20 years such as access to public transportation. But much more needs to be done, Patrick said.

One out of five disabled people living in nursing homes in order to have access to necessary services would like to live somewhere else. “If you don’t want to be there and we can get you those services in your own home, that’s what we need to change. That’s what the whole community needs to change,” Patrick said.

“Whatever we can do to help, we should do it.”

Acknowledgements

The Center for Rehabilitation Outcomes Research at the Rehabilitation Institute of Chicago is funded, in part, by the National Institute on Disability and Rehabilitation Research, National Institutes of Health, Centers for Medicare and Medicaid Services, and the Rehabilitation Institute of Chicago. We thank them for their continued support.

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“Measurement in Healthcare” Lectures Available Online

As part of the RRTC on Rehabilitation Outcomes and Effectiveness, the Center for Rehabilitation Outcomes Research is pleased to present “Measurement in Healthcare.”

This three-part lecture series aims to identify the importance of measurement issues in health outcomes, guide instrument development to assure test validity, and describe how Rasch analysis may be used to create a “ruler” that can help make meaningful comparisons across measurements.

These lectures are now available for free at any time at:

<http://www.ric.org/research/centers/cror/edandtrain.aspx>

Archived using Adobe Connect Pro™ presentation software, the lectures consist of PowerPoint presentation accompanied by the speaker's lecture.

For more information on this lecture series, please contact Holly DeMark at hdemark@ric.org. For information about Adobe Connect Pro, get a quick overview at:

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Lecture 1: Why Measurement Issues Matter When Measuring Outcomes
by Trudy Mallinson, PhD, OTR/L, NZROT

An introduction to measurement, emphasizing the importance of unidimensionality, hierarchical ordering, and equal interval units. Issues of measurement in rehabilitation are discussed.

Lecture 2: Instrument Development

by Allen W. Heinemann, PhD

Instrument development in healthcare measurement and the importance of test validity. Heinemann also describes an example of this process in the development of the Community Participation Indicators tool.

Lecture 3: Measurement and Rasch Analysis

by Anne Deutsch, RN, PhD

Dr. Deutsch describes how Rasch analysis may be used to create a “ruler” for measurement using data collected from a set of test items or a set of items that use a rating scale.

Recent CROR Dissemination Activities

Manuscripts

Bode RK, **Heinemann AW**, Butt Z, **Taylor C**; **Rowe M**; Stallings J; Roth EJ. **Development and validation of participation and positive psychological function measures for stroke survivors.** *Archives of Physical Medicine and Rehabilitation*, in press.

Hahn EA, Devellis RF, Bode RK, Garcia SF, Castel LD, Eisen SV, Bosworth HB, **Heinemann AW**, Rothrock N, Cella D; on behalf of the PROMIS Cooperative Group. **Measuring social health in the patient-reported outcomes measurement information system (PROMIS): item bank development and testing.** *Quality of Life Research*. 2010 Apr 25. PMID: 20419503

Heinemann, AW. Measurement of Participation in Rehabilitation Research. *Archives of Physical Medicine and Rehabilitation*. 2010 Sept; 91(Supplement 1): S1- S4.

Granger CV, Markello SJ, Graham JE, **Deutsch A**, Reistetter TA, Ottenbacher KJ. **The Uniform Data System for Medical Rehabilitation Report of Patients with Traumatic Brain Injury Discharged from Rehabilitation Programs in 2000 – 2007.** *American Journal of Physical Medicine and Rehabilitation*, 2010; 89:265-278.

Kalpakjian CZ, Houlihan B, Meade MA, Karana-Zebari D, **Heinemann AW**, Dijkers M, Wierbicky J, Charlifue S. **Marital Status, Marital Transitions, Well-Being and Spinal Cord Injury: An Examination of the Effects of Gender and Time.** *Archives of Physical Medicine and Rehabilitation*, in press.

Kay E, **Deutsch A**, Chen D, Manheim L, Rowles D. Effects of Etiology on Inpatient Rehabilitation Outcomes in 65-74 Year Olds with Incomplete Paraplegia from a Non-traumatic Spinal Cord Injury. *Physical Medicine and Rehabilitation*, 2010; 2504-513.

Kay E, **Deutsch A**, Chen D, **Semik P**, Rowles D. Effects of Gender on Inpatient Rehabilitation Outcomes in 65-74 Year Olds with Incomplete Paraplegia from a Non-traumatic Spinal Cord Injury. *Journal of Spinal Cord Medicine*, in press.

Larson E, **Heinemann AW.** Rasch Analysis of the Executive Interview

(The EXIT-25) and Introduction of an Abridged Version (The Quick EXIT). *Archives of Physical Medicine and Rehabilitation*, 91, 389-394, 2010.

Lee JC, **Heinemann AW.** Forgoing Physician Visits due to Cost: A Source of Health Disparities for Elderly People with Disabilities? *Archives of Physical Medicine and Rehabilitation*, in press.

Mwachofi AK, Al-Assaf AF, **Heinemann AW.** Factors Affecting Reduction of Gender Differences in Healthcare Coverage for Vocational Rehabilitation Clients with Disabilities. *Women's Health Issues*, 2010: Jan-Feb;20(1):66-74.

Reistetter TA, Graham JE, Granger CV, **Deutsch A**, Ottenbacher KJ. **Utility of Functional Status for Classifying Community Versus Institutional Discharges after Inpatient Rehabilitation for Stroke.** *Archives of Physical Medicine and Rehabilitation*, 2010; 91:345-350.

Whiteneck G, Gassaway J, Dijkers M, Lammertse D, Hammond F, **Heinemann AW**, Backus D, Charlifue S, Ballard P; Zanca J. **Inpatient and post-discharge rehabilitation services provided in the first year after spinal cord injury: Findings from the SCIRehab study.** *Archives of Physical Medicine and Rehabilitation*, in press.

Presentations

Jutai J, Fuhrer M, Bode R, **Heinemann AW**, Demers L, Lenker J, DeRuyter F. **A computerized adaptive testing approach to measuring the impact of mobility devices on activities and participation.** Paper presented at the International Society for Gerontechnology 7th World Conference, May 30, 2010, Vancouver BC. *Gerontechnology*, 9(2), 116-117.

Heinemann AW. Can Reporters Raise Health Literacy in the Community? Panel participant, Association of Health Care Journalists annual meeting, Chicago, IL, April 23, 2010.

Deutsch A, Suerth EJ. **Health Literacy and Developing Educational Materials A New Decade of Discovery: Making a Difference through Nursing Research Partnerships.** Northwestern Memorial Hospital Annual Nursing Research & Evidence-Based Practice Symposium. Chicago, IL; August 5, 2010.

See more at: <http://www.ric.org/research/centers/cror/publications/index.aspx>