

First issue of 2009: Outcomes and Traumatic Brain Injury



In our first issue of 2009, CROR Outcomes celebrates the newly designated Model Traumatic Brain Injury (TBI) System at the Rehabilitation Institute of Chicago (RIC). NIDRR funding allows RIC to track patients after rehabilitation, conduct studies of virtual reality and acupuncture, and participate in collaborative research projects.

We also share information about CROR conferences; Last October's "International Symposium on Measurement of Participation in Rehabilitation Research" has resulted in

a permanent networking group within the American Congress of Rehabilitation Medicine. We plan to offer this course as a webinar, as well as our most recent conference, "Improving Efficiency in Health Outcome Measurement." Please check our website, www.ric.org/cror, for more information.

In this issue, we also highlight our former post-doctoral fellow, Theresa Pape, PhD and valued staff member, Patrick Semik.

Allen Heinemann, Director

Patrick Semik, Data Manager, Critical to CROR Success

After nearly two decades spent creating databases and assisting with complex statistical analysis on various research projects, Pat Semik, data manager at the Center for Rehabilitation Outcomes Research (CROR) at the Rehabilitation Institute of Chicago (RIC), credits his long tenure to a positive work environment and ever-changing research initiatives.

"There are always so many different projects going on, and it certainly does keep things interesting," he said.

Semik, who has a physical disability from a spinal cord injury sustained more than twenty years ago, was a patient at RIC for several years before acquiring his current position at CROR through RIC's Vocational Rehabilitation Program. The program provides clients with vocational assessments, internship opportunities, evaluations, and job placement. Eighteen years later, the placement continues to be a great match, said Semik.

"I enjoy my job and I really like the feeling that I am contributing something to rehabilitation research," he said. "I certainly enjoy working with patients and researchers, and it is a good job for someone like me who has a disability."

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Midwest Regional Traumatic Brain Injury Model System

In 1987, prompted by the complicated nature of traumatic brain injury (TBI) and the lack of consistent, reliable data related to TBI treatments, the National Institute on Disability and Rehabilitation Research (NIDRR) sponsored the creation of a program that would examine the course of recovery and outcomes in coordinated systems of acute and rehabilitation care. The Traumatic Brain Injury Model Systems of Care program was established to track short- and long-term TBI outcomes, foster research into care and delivery innovations, and evaluate best uses of resources.

The central, overarching goal of that research, according to the Traumatic Brain Injury Model Systems (TBIMS) program, is to contribute to "evidence-based rehabilitation interventions which improve the lives of individuals with TBI."

"It is a great honor to be included in the TBI Model Systems program. It really opens the door for communication and collaboration."

Dr. Elliot Roth, Co-Director

NIDRR awards grant funding to rehabilitation research institutions in five-year cycles and for the first time, the Rehabilitation Institute of Chicago (RIC) became one of 16 designated Model System sites. The award is an honor, said Dr. Felise Zollman, medical director of RIC's Brain Injury Medicine and Rehabilitation Program, because NIDRR is careful to select institutions that have distinguished themselves as leaders in traumatic brain injury research and treatment.

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Upcoming Webinars

Not able to attend in person? CROR conferences will also be available in online webinars. Check our website for updates: www.ric.org/cror. See *Page 6* for more information.

Innovations in TBI

CROR proudly collaborates with the Midwest Regional Traumatic Brain Injury System. Read about innovations in patient care and ongoing TBI research projects on *Page 3*.

Our Publications

Highlights of recent CROR publications on *Page 7*.

The Center for Rehabilitation Outcomes Research (CROR) conducts studies measuring how medical rehabilitation and health policies impact people with disabilities. The Center also examines methods to increase effectiveness and efficiency of the rehabilitation process. CROR is a part of the Rehabilitation Institute of Chicago – ranked #1 Rehabilitation Hospital for 18 Consecutive years by U.S. News & World Report.



Rehabilitation Institute of Chicago

#1 Rehabilitation Hospital in America

Dr. Theresa Pape: On the Forefront of TBI Treatment

Collaboration among health care institutions is often viewed as an effective method of sharing data and improving patient outcomes, and according to Dr. Theresa Louise-Bender Pape, this is especially true for clinicians and researchers working in the field of traumatic brain injury (TBI).

Pape is a research scientist with the U.S. Department of Veterans Affairs (VA), an assistant professor at Northwestern University's Feinberg School of Medicine in the Department of Physical Medicine and Rehabilitation, and a frequent collaborator with the Rehabilitation Institute of Chicago (RIC).

"Collaboration is particularly important for traumatic brain injury research because TBI is so scientifically complicated," Pape explained. "Working together enables researchers to tap into the intellectual milieu at one organization while utilizing the rehabilitation care at another. We're all learning from each other."

Pape is originally from Evansville, a small farming town just outside of Madison, Wis. After completing her undergraduate education at Marquette University in Milwaukee, Pape headed to Western Michigan University where she earned a master's degree in speech pathology. She spent several years in Kalamazoo, Mich., working as a speech pathologist and treating people who had sustained traumatic brain injuries. It was that experience, said Pape, that prompted her to pursue her research interests further.

She relocated to Chicago, and while working on a doctoral degree in public health at the University of Illinois at Chicago, Pape completed a pre-doctoral fellowship with the VA Health Services Research and Development Services.

Following the completion of UIC's program, Pape was awarded a post-doctoral fellowship in 2001 at NU's Institute for Healthcare Studies, under the direction of Dr. Allen

Heinemann, director of the Center for Rehabilitation Outcomes Research (CROR) at RIC.

"That post-doc was a great experience," said Pape. "I was in the very first training class, Allen was my mentor, and we were developing rehabilitation outcomes measurements for traumatic brain injury."

Pape went on to serve on the faculty at NU and work at the VA, where she earned a succession of three VA career development awards, each at a progressively more advanced level than the last. For the level two award in 2004, for instance, Pape used research funds to study the use of transcranial magnetic stimulation (TMS) – or magnetic brain stimulation – to treat traumatic brain injury.

Recently, Pape applied for and was awarded the VA's

third-level Career Development Transition Award. Over the course of the next three years, she will continue research on TMS with the goal of moving on to phase II clinical trials.

"TMS induces a magnetic field and using that, I'm trying to find one dormant neuron and get it to activate again," she said.

"One patient so far performed very well and improved quite a bit. His behavioral gains, as measured with the Disorders of Consciousness Scale (DOCS) coincided with the provision of TMS."

In addition, Pape is working on several other research projects including a study aimed at improving the DOCS, a measurement tool developed by Pape that predicts recovery of consciousness. Research into the validity of DOCS items has been helped tremendously by RIC therapists, who use DOCS as part of their clinical protocol, Pape added.

"That gave me all the data I needed to move the DOCS measure forward and predict recovery of consciousness

with even greater accuracy," she added. "I couldn't have done this work without RIC."

Pape is also working on a third research project examining whether familiar voices have a therapeutic effect on patients with traumatic brain injury. Using both the DOCS measurement tool and functional MRI, Pape

and researchers at RIC, Northwestern and two VA sites will determine if there is a difference in response from patients when they hear a familiar or non-familiar voice. It is an interesting project, Pape said, and a great way to use her past experience as a speech pathologist.

Success in these projects and others depends heavily on collaboration between the VA, RIC and other institutions, said Pape.

"It has been delightful to watch Dr. Pape grow and achieve success, and to develop collaborative relationships both within the VA and in private sector hospitals," Heinemann said. "She has distinguished herself in the field of traumatic brain injury and measurement of coma. She has also been incredibly nurturing of early career scientists."



"Working together enables researchers to tap into the intellectual milieu at one organization while utilizing the rehabilitation care at another. We're all learning from each other."

Dr. Theresa Louise-Bender Pape

Innovations in the Treatment of Traumatic Brain Injury (TBI)

Determining effective treatments for traumatic brain injury (TBI) and its associated symptoms requires a large patient population, access to research data and a commitment to innovations in care. At the Rehabilitation Institute of Chicago (RIC), providing successful brain injury rehabilitation services and improving quality of life for individuals with TBI are always high priorities, said Dr. Eric Larson, a neuropsychologist at RIC's Brain Injury Medicine and Rehabilitation Program.

"Because of RIC's reputation and the affiliation with other hospitals in the area, we get a large number of referrals," said Larson. "That high patient volume means we have a very experienced team, and that experience makes a big difference when you are dealing with something as complex as traumatic brain injury. The treatment team really knows the TBI population and their needs, and we're able to coordinate treatment in a way that not many other places can."

RIC recently received recognition for its efforts in TBI care and research when the hospital was designated as a Traumatic Brain Injury Model System site. The four-year award, funded by the National Institute on Disability and Rehabilitation Research (NIDRR), provides institutions with resources to conduct research related to interventions for TBI.

Acupuncture and insomnia

One component of RIC's work as a Traumatic Brain Injury Model System is original research. The center-specific research is a mandatory part of the program, and provides an excellent opportunity for each organization to develop projects that reflect and serve the needs of their patient population, said Dr. Felise Zollman, medical director of the Brain Injury Medicine and Rehabilitation Program at RIC.

RIC is using Model Systems funding from NIDRR to conduct two research projects. In the first study, researchers will develop an acupuncture program and assess whether the treatment improves sleeping patterns, cognitive function and mood in inpatient traumatic brain injury patients. Insomnia is a serious problem among TBI patients, and may affect as many as 75 percent of people with brain injury.

Insomnia is often treated with sedating medications, but some doctors are concerned that this type of treatment may slow recovery in TBI patients, said Dr. Eric Larson.

"Those medications, by virtue of the fact that they sedate the brain, may interfere with optimal cognitive recovery," agreed Zollman. "If we can find an effective treatment for sleep dysfunction that could be used in place of these drugs, that would, of course, be a much better choice."

The acupuncture study is a randomized, controlled trial. Some patients will be assigned to a control group and will receive the standard course of sleep medications. The second group will receive a series of acupuncture treatments, said Larson, who added that researchers are currently recruiting subjects and beginning data collection.

"The goal is to determine if acupuncture can be as effective – or perhaps even more effective – as insomnia medications, and can result in fewer side effects," Larson said.

Virtual reality and attention

RIC's second Model Systems research project will utilize virtual reality and robotic technology to test whether a low-distraction environment can help people with traumatic brain injury to pay attention for extended periods of time. Patients with TBI often have difficulty with attention and memory, and these obstacles can make recovery much more difficult, said Zollman, who serves as primary investigator.

"In order to learn and understand, you have to be able to attend to things and keep your mind focused," Zollman said. "Lack of sustained attention is

a hallmark of TBI and we are trying to see if a low-distraction, virtual reality environment can make a measurable difference."

The project will study the effects of a virtual reality intervention on patients with severe traumatic brain injury to determine if there is any impact on the patients' attention impairment. In addition, said Larson, the project is unique because it is looking at patients who are in the early stages of recovery. While studies have examined attention impairment further along in rehabilitation, few studies have examined the effectiveness of early interventions.

Researchers will use a virtual reality system and robotic apparatus that Larson compares to the 3-D environment of a video game. Patients perceive visual stimuli and receive tactile feedback.

"We have done some preliminary tests and so far, patients seem to respond very well and have been able to focus their attention without cognitively wandering off," said Larson. "We'll be starting formal recruitment for the study soon."

Other TBI research and innovations

In addition to the two Model System studies, RIC has several other projects that aim to improve care for TBI patients, said Zollman. For example, RIC recently received funding from the U.S. Department of Defense to examine the use of acupuncture to treat insomnia in individuals with TBI. Unlike the TBI Model System study, this project focuses solely on those with less severe injury who are seeking treatment on an outpatient basis, she explained.

"This gives us the opportunity to look at a similar modality with a different population," said Zollman.

Zollman and other researchers also received funding from the McCormick Tribune Foundation to validate a TBI screening instrument for the military. This project is still in early stages, said Zollman.

In another project, RIC used philanthropic funds to start a creative writing group in the hospital's TBI unit. For two hours each Saturday afternoon, a professional writer with experience as producer for Chicago's Second City comedy theater comes to RIC's TBI unit. The first hour is designated as a time for patients to work on expressing themselves through writing, while the second hour is for family members, said Zollman.

"That program was very well-received and we are hoping we can get the funding to start it up again," she said.

RIC is also one of only a handful of hospitals in the country to have a traumatic brain injury fellowship for physicians, said Zollman, who directs the fellowship program. Fellows have the option of one- or two-year training opportunity that includes both clinical and research experience. The fellowship, along with the projects described above, demonstrates RIC's commitment to TBI research and innovation.

Acknowledgements

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Comments?

Your opinions are important to us. If you have a comment or suggestion regarding our research or the *CROR Outcomes* newsletter, please email your comments to hdemark@ric.org.

American Congress of Rehabilitation Medicine (ACRM) forms Networking Group on Participation Measurement

ACRM President, Wayne Gordon, PhD ABPP/Cn FACRM, has charged Allen Heinemann with forming a Networking Group on Participation Measurement.

The Networking Group builds on the broad interest in this topic that was evident at the International Symposium on Measurement of Participation in Rehabilitation Research, a preconference to ACRM's 2008 annual meeting in Toronto.

The preconference was funded by the National Institute on Disability and Rehabilitation Research as part of the Rehabilitation Research and Training Center on Measurement of Rehabilitation Outcomes; Dr. Heinemann is the project director for the center.

One of the first charges to the group is to maintain and extend the enthusiasm in measurement of participation as an outcome of rehabilitation.

Program time at the 2009 ACRM meeting in Denver will be devoted to Networking Group meetings. The 2009 ACRM-American Society of Neurological Rehabilitation Joint Educational Conference is scheduled in Denver, Colorado, at the Marriott Denver Tech Center Hotel, October 7-11, 2009. Additional information and registration details are available at http://www.acrm.org/annual_conference/index.cfm.

In addition, ACRM has created an email listserv for those interested in the measurement and participation networking group. To join the listserv, please send an email to Holly DeMark, hdeMark@ric.org. Once you are a subscriber, you may post measurement-related questions, comments, relevant literature, or any other pertinent information to others in the networking group. Those who wish to participate in the Networking Group meetings at the 2009 Denver ACRM meeting are encouraged to join the listserv to stay apprised of scheduling and events.



At a Glance: Traumatic Brain Injury (TBI) Model Systems

The Model Traumatic Brain Injury (TBI) Systems are funded by grants by the Department of Education's National Institute on Disability and Rehabilitation Research (NIDRR). Currently, 16 systems are funded across the country, and 4 systems receive funding to carry on longitudinal follow-up on previously enrolled participants.

Carolinas TBI Rehabilitation and Research System

Carolinas Health Care System, Charlotte, NC

Rocky Mountain Regional Brain Injury System

Craig Hospital, Englewood, CO

JFK-Johnson Rehabilitation Institute TBI Model System

JFK-Johnson Rehabilitation Institute, Edison, NJ

Southeastern Michigan Traumatic Brain Injury System

Rehabilitation Institute of Michigan, Detroit, MI

Mayo Clinic Traumatic Brain Injury Model System

Mayo Medical Center, Rochester, MN

The Institute for Rehabilitation and Research

TIRR Memorial Hermann, Houston, TX

Midwest Regional Traumatic Brain Injury Model System

Rehabilitation Institute of Chicago, Chicago, IL

The Ohio Regional TBI Model System

The Ohio State University Medical Center, Columbus, OH

Moss TBI Model System

Moss Rehabilitation Research Institute, Elkins Park PA

The Virginia Commonwealth TBI Model System

Virginia Commonwealth University, Richmond, VA

New York Traumatic Brain Injury Model System

Mount Sinai School of Medicine, New York, NY

Univ. of Alabama at Birmingham TBI Care System

Spain Rehabilitation Center, Birmingham AL

North Texas Traumatic Brain Injury Model System

Univ. of Texas Southwestern Medical Center, Baylor Institute for Rehabilitation, Dallas TX

Univ. of Washington Traumatic Brain Injury Model System

University of Washington, Seattle, WA

Northern California TBI Model System

Santa Clara Valley Health and Hospital Systems, San Jose, CA

TBI Model System Longitudinal Follow-up Centers

Georgia Model Brain Injury System
Spaulding/Partners TBI Model System, Harvard Med. School
TBI Model System of Mississippi
University of Pittsburgh Medical Center TBI Model System

Northern New Jersey Traumatic Brain Injury System

Kessler Foundation Research Center, West Orange, NJ

Traumatic Brain Injury (TBI) Model System (Continued From Page One)

“The Model System program funds centers that are recognized as providing comprehensive services across the spectrum of care in traumatic brain injury from acute care through inpatient rehabilitation and long-term care,” Zollman said. “This will open up real opportunities for research, and the brain injury team is very excited.”

RIC received funding for this program in 2008, after Congress expanded the funding for the grant cycle starting in 2007 to include two additional sites. RIC’s program, the Midwest Regional Traumatic Brain Injury Model System, also includes Northwestern Memorial Hospital and Northwestern University’s Feinberg School of Medicine.

“We’ll get four years rather than five to do our research, but it is still a great chance to get important work done,” said Zollman, who intends to pursue designation again in 2012.

TBI Model System research projects

The TBIMS program is a collaborative, longitudinal effort to study the course of recovery after acute care and rehabilitation, explained Dr. Elliot Roth, Chairman of the Department of Physical Medicine and Rehabilitation at Northwestern University’s Feinberg School of Medicine and co-project director of RIC’s Traumatic Brain Injury Model System. Research projects – both single site and collaborative (e.g., multi-site) – are a critical component of the program, he added.

“The ideal model system entails the creation of a continuum of care for people with TBI, communication and relationships between organizations, and research projects,” Roth said.

That continuum of care includes emergency medical services, acute neurosurgical care, comprehensive rehabilitation care in an inpatient rehabilitation facility, and long-term follow-up coupled with outpatient rehabilitation.

In addition to module projects, each TBI Model System site also pursues original, center-specific research projects, said Roth. RIC is pursuing two such studies: one that will examine the effect of a virtual reality environment for improving attention span in persons with TBI, and another that will test the use of acupuncture as a treatment for insomnia.

Researchers at other Model Systems centers are testing a variety of interventions in their projects including phone intervention for TBI caregivers, magnetic resonance imaging (MRI) techniques for predicting TBI outcomes, and exercise. RIC also received a supplemental award from NIDRR to collaborate with Kessler Medical Rehabilitation Research and Education Corporation to improve quality of life measures for use by persons with TBI. The project is led by David Tulskey, PhD at Kessler; Allen Heinemann, PhD is the local project director.

The TBI Database

Another key component of the TBIMS program, according to Roth, is the TBI Model Systems National Database. Created in 1989, the purpose of the database is to collect follow-up information on individuals with TBI by following them from the time of injury through subsequent follow-up contact. The more complete the database, said Zollman, the more accurate the understanding of the TBI population.

“The database is designed to be a repository of data describing care and outcomes of TBI patients across both time and setting,” said Zollman. “It’s extremely helpful to have access to a large source of data like that when you are trying to answer complicated research questions.”

Using the database, researchers can evaluate treatment innovations, predict long-term outcomes, establish a basis for comparison, and better understand the clinical course of individuals with TBI from injury to acute care, rehabilitation care, and the post-discharge environment. In order to have their information entered into the database, patients must have moderate to severe TBI, be admitted to the hospital within 72 hours of injury, be 16 years of age or older, and receive both acute care and rehabilitation care within Model System hospitals.

“The Model System inclusion criteria are very specific about which patients are included,” explained Roth. “Although RIC draws patients from many referrers, only patients who receive acute treatment at Northwestern Memorial Hospital and then rehabilitation at RIC are eligible at our site.”

While this reduces the number of RIC patients included in the database, it also ensures consistency because patients received a standard of care at each site, he added.

Researchers enter information into the database during the course of care and then at follow-up intervals, which take place at one year, two years, five years, and then every five years thereafter. They gather information using in-person interviews, phone interviews, and mail questionnaires.

The information gathered during the initial rehabilitation stay provides baseline data on a range of variables including age, race, level of education, employment, premorbid conditions, and details about the patient’s TBI, including severity, loss of consciousness, and blood alcohol level at the time of injury. Follow-up interviews provide comparison data about the person’s injury and rehospitalizations, as well as other outcomes like employment status, earnings, functional independence, and community participation.

Participating in the TBIMS through research projects, care innovations and contributions to the National Database presents an exceptional opportunity for RIC, said Roth.

“It is a great honor to be included in the TBI Model Systems program,” Roth said. “We are also excited that Chicago will finally be represented in the system. There is such a tremendous amount of collaboration among these centers, and it really opens the door for communication and collaboration.”

“It’s extremely helpful to have access to a large source of data when you are trying to answer complicated research questions.”

Dr. Felise Zollman, co-Project Director

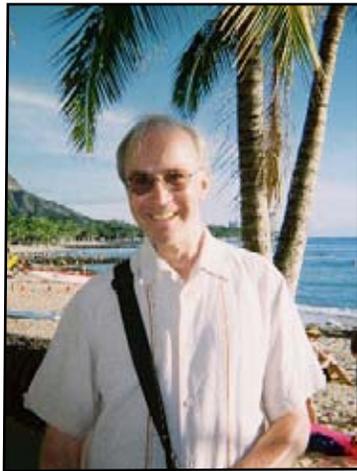
The 16 NIDRR-designated sites, in Alabama, California, Colorado, Michigan, Minnesota, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Texas, Virginia, Washington, and Illinois work together on collaborative TBI research modules.

For instance, five TBIMS sites, led by Mount Sinai, are conducting joint research on the relationship between post-TBI fatigue and insomnia. In another study led by the University of Washington’s Model System, six sites are examining the history of headache after TBI.

RIC is also participating in a collaborative study with five other institutions looking at sexuality after traumatic brain injury, said Zollman. Led by The Institute for Rehabilitation and Research (TIRR) Memorial Hermann in Houston, Texas, the study will examine how sexuality is affected, both directly and indirectly by TBI, as well as the impact of education on sexual function after injury.

“The collaborative project with Houston will allow us to look at sexual function as well as changing attitudes about sex in individuals with traumatic brain injury,” said Zollman.

Patrick Semik (Continued From Page One)



Originally from Chicago's south suburbs, Semik earned his bachelor's degree in psychology from the University of Illinois at Chicago. During his time at RIC, he has participated in a wide range of research projects.

According to Dr. Allen Heinemann, CROR's director, Semik is currently funded on the Midwest Regional Spinal Cord Injury Care System – a program aimed at developing projects to improve care and services for patients with spinal cord injuries. He is also the database manager for the Rehabilitation Research and Training Center (RRTC) on Measuring Rehabilitation Outcomes and Effectiveness, a set of projects aimed at improving outcome measurement and methods of collecting data in post-acute care.

"Pat is an invaluable data manager," Heinemann said. "His memory for detail is incredible, and he can recall circumstances, reasons for certain analy-

ses, or coding decisions that none of the other researchers can remember."

In addition to the SCI Model System and RRTC projects, Semik has worked on many other studies over the years. One of his favorites was a 1995 study on the nature and incidence of injury among professional horse-racing jockeys, on which he collaborated with Dr. Joel Press, the Reva and David Logan Distinguished Chair in Musculoskeletal Rehabilitation at RIC, Heinemann, and several other researchers. More than 700 professional jockeys were surveyed about their injuries in an attempt to examine relationships between the characteristics of the jockeys, the nature and severity of their injuries, and other factors. The resultant data set was quite substantial.

idents in older caregivers of patients surviving stroke and their subsequent effects on stress, while another studied the use of telephone support for persons with spinal cord injury. In another recent study, Semik worked with Hartke and other researchers to look at the effects of expressive and narrative writing as tools for stroke patients. That project, in particular, resonated with Semik, who extolled the value of writing about experiences as an effective coping mechanism for people with disabilities.

Currently, Semik is working on a project with Northwestern University's Dr. Rosemarie King. This project focuses on caregivers of stroke survivors who may experience negative emotions and chronic distress as a result. The project, with Semik's assistance in data manage-

"Pat is appreciated by many RIC investigators for his quiet and effective support of their work"

Dr. Allen Heinemann, Director

"That was a very interesting project, and I really liked participating in it," Semik said. The work was published by Semik, along with Drs. Press, Weisner, Davis, Addison, Heinemann and Rymer in the *Clinical Journal of Sport Medicine*.

Semik has also worked with Dr. Robert Hartke, a psychologist at RIC, on several projects. One examined ac-

ment and analysis, will test and evaluate a caregiver problem-solving intervention to prevent these negative caregiver outcomes.

"Simply put, he is a very capable, dedicated, and reliable member of the CROR team," added Heinemann. "Pat is appreciated by many RIC investigators for his quiet and effective support of their work."

In case you missed it: Improving Efficiency in Health Outcome Measurement

The RRTC on Measuring Rehabilitation Outcomes and Effectiveness hosted a successful conference on **Improving Efficiency in Health Outcome Measurement** on Saturday, March 28, 2009, at the Rehabilitation Institute of Chicago. The conference was well attended at RIC, as well as by remote sites in the US and Canada.

Post-conference webinar

Fortunately for those who were not able to attend, we will be preparing a post-conference webinar with all of the content. This webinar will be available in May 2009, and participants will be able to earn Continuing Education Credit.

For more information, please email Holly DeMark at hdemark@ric.org.

What is the conference about?

The goal of the conference is to provide health and rehabilitation administrators, clinicians and researchers with advances in objective measurement as it relates to outcomes.

What will I learn?

The objectives are to define and discuss the state-of-the-art in the contemporary measurement methods, including item response theory/Rasch model and computer adaptive testing.

Who are the speakers?

Benjamin D. Wright, Ed Bouchard, David Cella, William Fisher, Jr., Richard Gershon, Carl Granger, Dennis Hart, Jin-Shei Lai, Robert W. Massof, A. Jackson Stenner, David Tulsky

CROR Staff Promotes Healthy Lifestyle at Quality Improvement Festival

Each year, employees at the Rehabilitation Institute of Chicago have the opportunity to present ideas about quality improvement to the organization. Known as Quality Fest, this year's theme was "A Bright Idea," and 21 teams from across the RIC System of Care entered their projects into a good-natured competition. Awards are given by judges, as well as a "people's choice" vote by peers and visitors at the festival.

For the second year in a row, the Center for Rehabilitation Outcomes Research made an exceptional showing. Following last year's 1st place People's Choice Award for a project encouraging more widespread recycling across the organization, the CROR team took home a People's Choice 2nd place for this year's ideas about promoting health and wellness.

For this year's project, CROR members participated in a pre-survey about physical and mental wellness, and were asked to wear a pedometer to measure daily activity. During a three-month intervention phase, CROR held brown-bag seminars about nutrition, took field trips to and participated in a free yoga class at local fitness clubs, held guided meditation and stress-relief workshops, and sent weekly emails for inspiration. A post-intervention survey was then given to participants.

Overall, there was a significant increase in the overall "wellness" score between the pre and post-intervention surveys. Participants maintained an average daily step count over 10,000, which is the Centers for Disease Control recommendation for an active lifestyle. CROR participants were asked to rate the interventions, and found that the active participation sessions and use of pedometers were most beneficial.

CROR is currently working with RIC's Human Resource department to enhance the organization-wide Wellness program with feedback from this project.

Definitions of Wellness by CROR Staff

- "Making choices that directly benefit your mental and physical health and actually following through on a daily basis."
- "A state of being in which the person in question has a general sense of satisfaction with his/her self."
- "Being content with your physical and mental abilities."
- "Wellness is a state of being healthy and happy as well as being in physically and mentally good shape."



CROR wishes to extend congratulations to other winners at this year's event:

JUDGES' AWARDS:

1st Place – **Rehabilitation Nursing: Patient Safety/ Supervision reduction** (Alexian Rehabilitation Hospital)

2nd Place Tie – **Bright Light Stop Light: Prevention of Patient Falls (8th Floor)** and **Supporting Clinical Care at the RIC Help Desk (IS)**

POPULAR CHOICE AWARDS:

1st Place – **Spinal Cord Injury Knowledge: Is it being taught? Who's Learning?** (7th floor SCI Team)

2nd Place – **Steppin' it up with CROR!**

Recent CROR Publications

Alexander MS, Anderson K, Biering-Sorensen F, Blight AR, Brannon R, Bryce T, Creasey G, Catz A, Curt A, Donovan D, Ditunno J, Ellaway P, Finnerup NB, Graves DE, Haynes BA, **Heinemann AW**, et al. **Outcome measures in spinal cord injury: Recent assessments and recommendations for future directions.** *Journal of Spinal Cord Medicine*, in press.

Burger H, Franchignoni F, **Heinemann AW**, Kotnik S, Andrea G. **Validation of the OPUS upper extremity functional status module in people with unilateral upper limb amputation.** *Journal of Rehabilitation Medicine*, 40(5), 393-399, 2008.

Deutsch A, Granger CV, Russell C, **Heinemann AW**, Ottenbacher KJ. **Apparent changes in IRF outcomes due to a change in the definition of program interruption.** *Archives of Physical Medicine and Rehabilitation*, 89, 2274-2277, 2008.

Heinemann AW, McAweeney M, Lazowski LE, Moore D. **Utilization of substance abuse screening by state vocational rehabilitation agencies.** *Journal of Applied Rehabilitation Counseling*, 39(2), 5-11 2008.

Heinemann AW. **Considering Race and Ethnicity in Rehabilitation Outcomes after Brain Injury.** Paper presented at the International Conference on Culture, Ethnicity, and Brain Injury Rehabilitation, Arlington, VA, March 12, 2009.

Lynch EB, Butt Z, **Heinemann AW**, Victorson C, Nowinski CJ, Perez L, Cella C. **Stroke-related quality of life: Insight from focus groups with patients and caregivers.** *Journal of Rehabilitation Medicine*, 40, 518-523, 2008.

Magasi S, Durkin E, Wolf M, **Deutsch A.** **Consumers' Use and Understanding of Quality Information: A Health Literacy Perspective.** *Archives of Physical Medicine and Rehabilitation*, in press (February 2009).

Magasi S, **Heinemann AW**, Whiteneck G. **Measurement of participation following traumatic spinal cord injury: An evidence-based review for research.** *Journal of Spinal Cord Medicine*, 31(3), 34-45, 2008.

Mallinson, T., Fischer, H., Rogers, J. C., **Ehrlich-Jones, L.**, & Chang, R. **Human occupation for public health promotion: New directions for occupational therapy practice with persons with arthritis.** *American Journal of Occupational Therapy*, 63, 220-226, 2009.

Papadimitriou, C. **Becoming En-wheeled: Re-embodiment as a wheelchair user after Spinal Cord Injury.** *Disability and Society* 23 (7): 691-704, 2008.

Williams R, **Heinemann AW**, Wilson C, Bombardier C. **Depression Measurement after SCI: An Extended Evaluation.** Poster presented at the Rehabilitation Psychology Conference, February 27, 2009, Jacksonville, Florida.

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