



CINDRR Circular

Center of Innovation on Disability and Rehabilitation Research

VA Health Services Research & Development

North Florida/South Georgia Veterans Health System, Gainesville FL
James A. Haley Veterans' Hospital, Tampa FL

October 2015

CINDRR in the News

GeoSpatial Outcomes Division (GSOD) Will Report to Office of Rural Health, VA Central Office

Within the Center of Innovation on Disability and Rehabilitation Research (CINDRR), a small group of Geographic Information System (GIS) analysts, Justin Ahern, Eric Litt, and Lauren Wilson, led by director Diane Cowper Ripley, PhD, provide mapping and analysis services using geodatabases and the industry's leading GIS mapping software, Esri's ArcGIS Software Suite, to offer geographic analysis for feasibility studies, consultations, and access assessments such as the 2010-2012 VISN and National Geographic Access Assessments and the upcoming 2014 Rural Health Atlas, as well as other geographic data and information requests. GSOD frequently collaborates with investigators on research projects and produces publications that identify the location of specialty care services, such as Using GIS to Plan Specialty Health

Services for Veterans: The Example of Acute Stroke Care that appeared in the *Journal of Geographic Information Systems*, Vol.6 No.3, June 2014.

Funded by the Office of Rural Health (ORH), the GeoSpatial Outcomes Division (GSOD) supports research and VA Central Office (VACO) by providing geographic aspects and data, supporting maps for proposals and evaluation, and ad hoc mapping. GSOD has assisted with both clinical demonstration and quality improvement projects and often provides data for ORH reports to Congress. The GSOD was established in 2008 as part of the Veterans Rural Health Resource Center – Eastern Region (VRHRC – ER). Previously, GSOD's focused on assisting the VRHRC – ER and those it serves, but as the GSOD's responsibilities and the demand for their services have grown, it has become clear that their scope has

expanded to a national level. Beginning October 1, 2015, the team will report directly to ORH in VACO. This change, requested by ORH, should enable GSOD to provide geospatial analyses and mapping services to individuals and entities in the VHA affiliated with Rural Health.

Highlights of GSOD's recent activities include assisting the Director of Office of Tribal Government Relations and ORH by creating maps in response to requests for American Indian/Alaskan Native Veteran Enrollee data aligned with information on American Indian Reservation lands and producing an impact analysis of the Prostate Cancer Follow Up Care project. GSOD is currently working on the 2014 Rural Health Care Atlas which will evaluate by county, state, and VISN, health-related issues for the rural Veteran population compared to the general population. It is scheduled to be completed by the end of September, 2015.

CINDRR/JAH Rehabilitation News

James A. Haley Veterans' Hospital Helping Veterans through the Use of Rehabilitation Medical Marvels

Grayson Kamm, of Tampa/Sarasota WTSP TV, Channel 10, recently interviewed some James A. Haley Veterans' Hospital (JAH) combat Veterans with spinal cord and other disabling conditions, and Dr. Kevin White, Chief of the Spinal Cord Injury Service. "What we do [here] is we try to create something that will be adaptable. And then, often, it's just the beginning." The cutting-edge work they do helping soldiers hurt in combat recover may some day help others recover from a car crash, a stroke, or Parkinson's disease.



Some of that work involves the driving simulator which has hand controls for amputees and over time can increase hand-eye-brain coordination, as can the 'video games' in the Virtual Reality (VR) Therapy Room. One Veteran has had recurring dizziness, nausea and confusion since he returned. But after his stint inside the video game where he moves his body while on a rocking platform, his recovery has taken off and his balance has improved, all while playing a 'video game.' "Put them inside a virtual world, if you will, and they don't even realize that they're doing their rehab," said Dr. Karen Skop, Physical Therapist at JAH of the VR experience.

[Watch the interview here](#)

Director: William Mann, OTR, PhD

Tampa Co-Directors: Gail Powell-Cope, PhD, ARNP, FAAN and Steven Scott, DO

Gainesville Co-Directors: Diane Cowper Ripley, PhD and Charles Levy, MD

Newsletter Editor: Virginia Hessels

From the Tampa Mentoring Chair, Susan McMillan, PhD, ARNP, FAAN Introduction to Measurement Issues in Research

Measurement is an important activity required in most quantitative studies. Several types of scales are available for use but this article focuses on affective or attitudinal instruments used in research studies. These measure attitudes or affective states such as anxiety, depression, or coping. In addition, we use these in health care research to assess patient perceptions of variables such as pain intensity or distress, the intensity of other symptoms, or even multi-faceted variables such as patients' perceptions of quality of life.

When designing a study, investigators often search the literature for instruments that others have used to measure similar variables. We look at what the scale measures, the format of the scale, whether it is appropriate for our population, how it is scored, and the meaning of the score when it is high or low. We also need to look at the issue of usability for a given setting. *Are the reading level and length appropriate? Are the instructions clear? Is the print readable (size/contrast)? And, might any portion, such as sexual, religious, or political references offend some study subjects?*

To evaluate an instrument we need to consider the qualities of validity and reliability. Validity refers to whether the instrument measures the variable that my project is trying to measure. Investigators need to look for evidence that the instrument they choose is valid for their purposes in their study population. Content validity evidence can be provided by the way the tool is developed (using a blueprint or table of specifications) or by generation of a content validity index from a panel of content experts. Using both of these methods provides even stronger evidence of validity; it may be helpful to use additional approaches to gathering evidence of instrument validity, as well. Criterion approaches require the comparison of scores from the instrument of interest to a criterion (gold standard) measure, hypothesizing that the correlation will be moderate to strong.

Construct validity evidence may compare two groups, hypothesizing differences or correlating the instrument of

interest with another similar measure which is not a criterion measure. And, factor analysis is a multivariate statistical technique that can determine the factor structure of an instrument and whether it is a single scale or a scale with multiple subscales.

An important aspect of study design is to maximize systematic variance and minimize error variance. When we use instruments with low or questionable reliability for our sample, we are building in error variance that can damage our study and lead to questionable findings. Thus, reliability is an essential characteristic of a measure. Reliability assures that the measurement results will be the same for an individual over time if the individual's abilities or attitudes remain the same. Test-retest focuses on consistency over time; parallel forms reliability is seldom used in research but is an issue when there are multiple versions of an instrument, i.e., the SAT, or GRE. Internal consistency approaches such as Cronbach's alpha coefficient or the Kuder-Richardson 20 estimate the extent to which individual measurement items are working together.

These methods are appropriate for scales that need to be internally consistent, such as, an anxiety measure. We need to ensure that each subject is not swayed by the interviewer, assuring high inter-rater reliability. For some questions, the interviewee may want to provide socially desirable responses; in these cases, the questionnaire should provide for the anonymity of the subjects.



Recent Publications

Figley, C., Pitts, B., Elnitsky, C., & Chapman, P. (2015). Female Combat Medics (Chapter 8). In E. C. Ritche & A. L. Naderio (Eds.), *Woman at War*. New York: Oxford University Press.

Belanger, H.G., Barwick, F., Silva, M.A., Kretzmer, T., Kip, K.E., & Vanderploeg, R.D. (2015). Web-based Psychoeducational Intervention for Postconcussion Symptoms: A Randomized Trial. *Military Medicine*, Feb;180(2), 192-200.

Berndt, D. J., McCart, J. A., Finch, D. K., & Luther, S. L. (2015). A Case Study of Data Quality on Text Mining Clinical Progress Notes. *ACM Transactions on Management Information Systems*, April; 6(1), 1-21. doi: 10.1145/2669368.

LePage, J., Ottomanelli, L., Njoh, E., & Barnett, S. (2015). Spinal Cord Injury Combined with Felony History Effect on Supported Employment for Veterans. *Journal of Rehabilitation Research and Development*, 51(10), 1497-1805. doi: 10.1682/JRRD.2014.02.0045. PMID 25856266.

Luther, S. L., McCart, J. A., Berndt, D. J., Hahn, B., Finch, D., Jarman, J., Foulis, P. R., Lapcevic, W. A., Campbell, R. R., Shorr, R. I., Valencia, K. M., & Powell-Cope, G. (2015). Improving Identification of Fall-related Injuries in Ambulatory Care Using Statistical Text Mining. *Am J Public Health*, 105(6), 1168-73. PMID: 25880936.

Mentorship Highlight

Patient Safety Center Fellows: Latricia Allen, DPM, MPH and Bradley Trainor, PhD



Dr. Bradley (Brad) Trainor is a cultural anthropologist who specializes in organizational culture. He performed his dissertation research at the Ford Motor Company and conducted interviews with 40 clinicians to assess a VA patient safety program for the Government Accountability Office.

He has been deployed twice to Afghanistan as a Department of Army civilian while working with U.S. and allied military units. From 2010 to 2011, he was with the US 4th Infantry Division in Kandahar and in the nearby Argandab River Valley accompanied by troops from the US 10th Mountain Division. In Kandahar he was a liaison between the military and settled Afghan nomadic groups. While in the Argandab, he walked patrols for a month while conducting a needs survey for the largest village in the Valley. He discovered that walking with body armor is a great weight loss program.

From 2013 to 2014, while in Afghanistan, he worked for sixteen months with allied forces of the NATO-led International Security Force. For the first eight months he worked with a Polish brigade performing an evaluation of Afghan army training and later, worked at headquarters in North West Afghanistan accompanying German and Croatian patrols within a security sector surrounding the HQ. He learned to rapidly duck and cover to avoid car bomb explosions and incoming rockets.

Recently relocated from Baltimore, Dr. Trainor enjoys recreational reading and ballroom dancing in his free time and is looking forward to seeing his first wild alligators while in Tampa! He hopes to spend time at the beach and local amusement parks when his wife and eight year old daughter, Krassimira, come to visit.



Dr. Latricia Allen received a Biology degree from the University of Louisville, Master of Public Health degree from Northern Illinois University, Doctor of Podiatric Medicine degree from Kent State University/Ohio College of Podiatric Medicine and completed her podiatric surgical residency training at the Atlanta VA Medical Center. Latricia recently completed a two year

American College of Foot and Ankle Surgeons Limb Preservation research fellowship at the Providence VA Medical Center in Rhode Island where she also worked as an attending podiatric surgeon.

Dr. Allen's research interests include limb preservation in high risk patients with complex wounds and examining outcomes in the areas of safety, quality, cost, and the prevention of adverse events. She is currently working on an IRB-approved study that will retrospectively evaluate the clinical, cost, and adverse events related to distal lower extremity amputations in high risk Veteran patients. This will be accomplished by exploring healthcare utilization data, clinical outcomes, and cost analysis between patients that have undergone various types of distal lower extremity amputations.

Her goal is to continue to diligently contribute to evidence based literature by designing and implementing patient safety research that will lead to increased quality of care and prevention, reduced health care expenditures, improved patient education, and increased interdisciplinary patient care.

She recently relocated from Massachusetts to Tampa where she resides with her husband, three month old son, and two French bulldogs.

Publications, Continued

Ottomanelli, L., Barnett, S. D., Goetz, L. L., & Toscano, R. (2015). Vocational Rehabilitation in Spinal Cord Injury: What Vocational Service Activities Are Associated with Employment Program Outcome? *Topics in Spinal Cord Injury Rehabilitation*, 21(1), 31–39. <http://doi.org/10.1310/sci2101-31>.

Powell-Cope, G., Moore, H., Weaver, F., & Thomason, S. (2015). Perceptions of Practice Guidelines for People with Spinal Cord Injury. *Journal of Rehabilitation Nursing*, 40(2), 100-10. PMID 25782593.

Ripley DC, Kwong PL, Vogel WB, Kurichi JE, Bates BE, Davenport C. How Does Geographic Access Affect In-hospital Mortality for Veterans with Acute Ischemic Stroke? *Medical care*. 2015 Jun 1; 53(6):501-9.

Presentations

Cotner BA, Keleher J, Ottomanelli L. Key Principles to Promote Employment of Veterans with Spinal Cord Injury. Poster session presented at Society for Disability Studies Annual Meeting; 2015 Jun 11; Atlanta, GA.

Ottomanelli L, Goetz L. Return to Work: Using Evidence-based Practice Supported Employment with Spinal Cord Injury. Paper presented at the International Society of Physical and Rehabilitation Medicine Biennial Meeting; 2015 Jun 22; Berlin, Germany.



Photo by Bryce Mosely

Tampa CINDRR Project Staff Kiersten Downs, MS, ABD

Kiersten Downs, MS, ABD, Health Science Research Assistant, is currently a team member of the Action Ethnography of Community Reintegration for Veterans with TBI, collecting data, and assisting with analysis and recruitment. She became a member of the USF Student Veterans Association (SVA) after her tours in the Air Force and Air National Guard. While cycling across country to raise money and awareness for grants for SVA chapter projects, she met many other women Veterans who provided ideas for her dissertation research.

Her primary research addresses four salient themes:

- 1) impact of military masculinity on re-entry;
- 2) issues with self-identification of women as Veterans;
- 3) programmatic inclusion and exclusion of women Veterans;
- 4) experiential differences between enlisted women and women officers,

and how these differences may affect reentry after service. She is currently collecting online survey responses and conducting interviews with participants. Her goal is to defend her dissertation at the end of the Spring 2016 semester.

Research in Progress Clinical Projects, PI: Josh Yarrow, PhD

The researchers on the Bone Regeneration Effects of Anti-Sclerostin Antibody after Spinal Cord Injury (SCI) and the Testosterone Plus Finasteride Treatment after SCI projects examine alternative uses for drugs that are already FDA-approved or are promising drugs that are well along in the drug development pipeline. In the case of the anti-sclerostin antibody (romosozumab) research, the drug manufacturer has completed Phase I and II trials and is currently conducting a Phase III trial to determine the safety and efficacy of this drug to

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Current Research

Dissemination of Amputation and Prosthetics Evidence-based Medicine (DAP-EM), PI, Sandra Winkler, PhD, OTR/L

DAP-EM is an R24 (Dissemination) Agency for Healthcare Research and Quality (AHRQ)-funded project (R24HS022021) that tests the dissemination of evidence-based self-management information for individuals 18 and over who have upper and/or lower limb differences, limb impairment, and amputation(s). The training is presented in an avatar-based virtual world (experimental) and e-learning (control). The aims are to: (1) Increase the impact and effective use of evidence-based health information by presenting information in a virtual world environment; (2) Evaluate the usability of the 3-module self-management training; and (3) Conduct a randomized clinical trial to compare individual amputee (health-patient centered) outcomes of interventions delivered via e-learning versus the virtual world environment. The research team includes investigators from Nova Southeastern University, the University of Florida, and the Miami VA and consultants from DoD, Colorado State University, and Moss Rehab in Philadelphia. Virtual Ability, Inc. created and manages the virtual world environment.

This project originated out of a collaboration with Dr. Paul Pasquina who needed to train Walter Reed Army Medical Center (WRAMC) clinicians and Dr. Winkler's training of pre-service clinicians. But, because training projects for clinicians were not available for VA funding at the time, the project evolved into training patients. The three-year DAP-EM project is in its third year. More than 50% of the anticipated subjects, N=92, have been enrolled. The DAP-EM project currently collaborates with the Amputee Coalition to sustain the project beyond the funding period, a transition that is championed by former subjects. Focus groups conducted by Nova Southeastern University graduate students have found that individuals with limb differences, limb impairment, and amputation(s) want both educational information (50%) and peer support (50%) in a virtual world environment. Data collection and analysis is ongoing. In preparation for the transfer of the virtual world to the Amputee Coalition, Dr. Winkler and former subjects champions are building a virtual support group and enhancing the evidenced-based literature venue in the virtual resource center.



Subject avatar performing the same exercises as demonstrated in the video

CENTER OF INNOVATION ON DISABILITY AND REHABILITATION RESEARCH (CINDRR)

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CINDRR is a multi-institutional research center at the North Florida/South Georgia Veterans Health System (Gainesville, FL) and the James A. Haley Veterans' Hospital and Clinics (Tampa, FL). Scientists at this Veterans Health Administration Center of Innovation conduct research to develop strategies to improve—for Veterans of all ages—inpatient and outpatient rehabilitation services and long-term management of disability, including issues that impact family members.



<http://www.cindrr.research.va.gov>

VA



U.S. Department of Veterans Affairs
Veterans Health Administration
Center of Innovation on Disability
and Rehabilitation Research

Upcoming Conference... 2016 Safe Patient Handling and Mobility Conference

with special emphasis on fall, fall injury, and pressure ulcer prevention. **When:** April 11-15, 2016 **Where:** Renaissance Hotel, Glendale AZ.

Who: Nurses, Physical/Occupational/Kinesio-therapists, Risk Managers, & Physicians † Contact Valerie.Kelleher@va.gov for information

Research in Progress, Continued

alleviate postmenopausal osteoporosis. The Phase I and II studies have demonstrated that romosozumab increases hip and spine bone mineral density to a greater magnitude than other FDA-approved osteoporosis treatments. The Phase III trials will confirm these results in a larger population and assess safety, required prior for FDA approval.

Although osteoporosis caused by SCI occurs via different mechanisms, the project goal is to determine the effectiveness of anti-sclerostin antibody in preventing osteoporosis resulting from SCI. The project team developed a rodent severe contusion SCI model that mimics the bone loss that occurs clinically after SCI and has demonstrated that sclerostin-antibody completely prevented SCI-induced bone loss by stimulating formation of new bone. These results provide initial proof-of-principle for future clinical trials. In the testosterone/finasteride study, testosterone is FDA approved for the treatment of hypogonadism (low testosterone) in men and finasteride is approved for the treatment of benign prostate hyperplasia. The team conducted preclinical (animal) studies using this combination therapy which demonstrated that testosterone completely prevented bone loss and ameliorated muscle loss after SCI and that finasteride blocked prostate enlargement, a known side-effect of testosterone treatment.

For the upcoming Phase II clinical trial, the team will recruit Veterans over 18 years of age who have experienced a motor-incomplete SCI and who have low testosterone and ambulatory dysfunction. Participants will be randomized to receive testosterone plus finasteride or placebo treatment for 12 months and will be evaluated to determine if this combination drug therapy safely improves musculoskeletal integrity, neuromuscular function, and metabolic health, without inducing prostate enlargement.

More information on this trial can be found on the ClinicalTrials.gov website <https://clinicaltrials.gov/show/NCT02248701>



Veterans Affairs @DeptVetAffairs Veterans find therapy through art <http://bit.ly/1P6FK7v> via @ocregister