



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

January 2017

CINDRR in the News

Jolie Haun, PhD, Produces Team Connect Videos

In collaboration with the Office of Connected Care and My HealtheVet, Dr. Jolie Haun's Team Connect (Nicole Antinori, Margeaux Chavez, and Wendy Hathaway) created a series of Connect to Your Health videos for Veterans and VA employees about using electronic resources to support health care delivery and self-care management.

They created an educational website for Veterans and VA health care team members which houses videos about the suite of VA electronic health resources including Secure Messaging, Rx Refill, and VetLink Kiosks, some of which are available as standalone videos. They have also created videos to support clinician adoption of Secure Messaging and most recently collaborated with the national My HealtheVet Coordinator Workgroup, to analyze a national dataset of 171 qualitative survey item responses on Secure Messaging Best Practices collected from the clinical field, across 15 VISNs. From this data they developed a best practice chapter that was accepted for the NEW Secretary for Health, David J. Shulkin's book "Best Care Everywhere" and a video for the VA health care team members throughout the nation. In addition, they just completed a HealthLiving Assessments video in partnership with..... *Continued on page 3*



First row-left to right: Jolie Haun, Wendy Hathaway
Second row-left to right; Nicole Antinori, Margeaux Chavez

CINDRR Investigator Contributions 2016 VISN 8 Improvement Forum

The 2016 VISN 8 Improvement Forum, was held October 25-26, 2016 in Orlando, FL at the Orlando VA Medical Center. The audience included Executive Leadership Committee members and invited guests. The theme was "INNOV8: Driving Excellence Thru Innovation." The presentation format was "Conversation Cafes" (i.e., poster presentations) of 5 minutes in length. In the Conversation Café, the topic presenters hosted tables with a tri-fold display or posters, highlighting their project to attendees. The remainder of the time was allotted for table discussion and Q&A. The target audience was leadership, Lean-Six Sigma Belts, QSV staff, physicians, nurses, pharmacists, and other interested clinicians.

A major initiative of the VISN 8 Quality Council and the Executive Leadership Council (ELC), the Forum provided a platform for sharing strong practices among VISN and facility leadership as part of the VISN 8's Lean Six Sigma Program, recognition of VISN 8 Lean Forward Award winners, and collaborations between Lean-Six Sigma, Quality Management, Systems Redesign, Patient Safety, and Patient Centered Care. Keynote presentations were by Lynne Cannavo, VA New England Healthcare System, and Dana Beldsoe and Kellie Olmstead, Nemours Health System, Orlando, Florida.

Thirteen of the 49 Improvement Project posters were from the North Florida/South Georgia Veterans Health System. Topics ranged from "Nurse Hiring Process" to 'VETSTEPS 2.0: Veterans Engaged in Treatment, Skills, & Transitions for Enhancing Psychiatric Safety.'

Linda Cowan, PhD, FNP-BC, CWS, and Casey Bopp, RN, presented their poster, 'Teleostomy: Improving Access to Care for Rural Veterans with Ostomies.' The poster explains that prior to the program, none of the Veterans in the program had access to telehealth technology for ostomy consults or follow up visits. Prior to program, Veterans often went several years without appropriate ostomy follow up. Telehealth was utilized to improve access to ostomy specialists for ostomy patients and primary care providers connecting from local CBOC locations.

'Improving Access to Cardiac Rehabilitation through a Home-based Program' by Dr. David Winchester and Ki. E Park moved on to win top honors as a Gold Status Practice. This new model of triaging consult requests requires physicians to review specialty consult requests at the time of the order. Depending on the Veteran's condition, physicians may triage the Veteran's request for a face-to-face encounter, e-consult, or answer clinical questions electronically. As a Gold Status Fellow, Dr. Winchester will work with the Iowa City VA Health Care System, the implementing facility, to help them adapt and replicate his Gold Status Practice.

To view the posters from the 2016 VISN 8 Improvement Forum and learn more about the improvement processes utilized, go to (VISN 8 SharePoint access needed):

<http://vaww.visn8.portal.va.gov/v8/office/director/quality/Improvement%20Forums/Lists/FY161F/Accepted%20Abstracts.aspx>



Attendees included Thomas Wisnieski, Director, NF/SGVHS (third row, far left), Linda Cowan (front row, far right), and Casey Bopp (seated beside Linda)

Career Development

New Patient Safety Fellow, Courtney Jones, MHA, BA

Courtney Jones, MHA, is the current VA Interprofessional Patient Safety Fellow at the VISN 8 Patient Safety Center of Inquiry in Tampa, FL. Ms. Jones graduated from the University of Kentucky in 2015 with a master's degree in Health Administration. Prior to receiving her master's degree, she received her bachelor's in Business Administration from Montclair State University. She completed an internship in the Primary Care department at the Lexington VA and another internship in Employee Relations at the Lincoln Park Care Center in NJ.

Ms. Jones' patient safety interests include quality improvement and preventing adverse events in the hospital. Eventually, she would like to work in risk management, compliance, or quality improvement. Her primary evaluation goals focus on patient falls and safe patient handling.

Currently, she is working on a project evaluating the patient monitoring system being used in the Spinal Cord Injury Unit at the James A. Haley (JAH) VA Hospital. The project involves comparing outcomes, such as falls, medical response team activations, and code blue activations, from before installation and after implementation of the patient monitoring system. The system monitors the patient's heart rate and respiratory rate, as well as, any motion and movement using a

sensor placed under their mattress or on the chair in the patient's room. If the patient starts to exhibit distress, deteriorate, or is about to fall, the system will alert the provider via a page to their beeper so that they can immediately help the patient. Patients' vital are also displayed on a hallway screen in order to keep track of patients' changing vitals. Ms. Jones will record feedback from the JAH staff to determine their opinions, such as ease of use, accuracy, and impact, regarding the patient monitoring system.

In addition to this evaluation project, she hopes to work on more projects involving patient falls during her fellowship.

Since moving to Florida in 2016, Ms. Jones enjoys touring and seeing the many things the Tampa Bay area has to offer. She enjoys visiting the different beautiful beaches. She also hopes to make it to Walt Disney World in the next couple of months.



Ms. Courtney Jones, MHA Patient Safety Fellow

CINDRR Investigator Wins Prestigious Award

Joshua Yarrow, PhD, a VA research health scientist specializing in physiology and kinesiology at North Florida/South Georgia Veterans Health System, was named by President Obama as one of 102 scientists and researchers selected to receive the Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor bestowed by the United States Government on science and engineering professionals in the early stages of their independent research careers. His team is currently conducting the second phase of a randomized clinical trial evaluating the safety/efficacy of testosterone plus finasteride therapy on neuromuscular function and metabolic health in men with ambulatory dysfunction subsequent to motor-incomplete spinal cord injury (SCI). Dr. Yarrow will receive his award at a ceremony at the White House later in the year.

<https://www.whitehouse.gov/the-press-office/2017/01/09/president-obama-honors-federally-funded-early-career-scientists>

CINDRR Investigator News

Service to Civilian Conference (S2C), September 2016

Envisioning Veteran Transitions in a Community Context

Researchers, policy makers and federal agencies have been slow in coming to terms with the realities of being in long-term, worldwide conflicts in multiple countries and the impact that has on service members, veterans, their families, and their communities. The 2nd annual Service Member to Civilian (S2C) Summit was hosted by the University of Alabama's School of Social Work September 21-23 2016.

S2C is an international summit addressing the current and emerging needs of service members in their transition to civilian life (AKA Military to Civilian Transition). S2C examines how service members from all branches of the military transition to civilian life and how we can improve that transition through translational science and service. The 2016 Summit brought together service members, Veterans, their families, and community stakeholders to meet with advocates, researchers, clinicians, educators, and policy makers from around the nation to better understand and explore ways that all stakeholders can improve the transition from service to civilian life. S2C is hosted by The University of Alabama School of Social Work and is partly supported by a grant from the National Institute of Child and Human Development and support from the University of Alabama and other sponsors. <https://www.facebook.com/UAS2CSummit>



Gail Powell-Cope, CINDRR Associate Investigator and David Albright, PhD, Hill Crest Foundation Endowed Chair in Mental Health and Associate Professor, University of Alabama School of Social Work (and former doctoral student at CINDRR). The photo was taken at the University of Alabama Service to Civilian (S2C) Summit in September 2016.

CINDRR Posters Displayed at American Medical Informatics Association (AMIA) 2016



Stephen Luther with his poster, *Using Results of Statistical Text Mining in Big Data Analysis*

Data from FY 2009 -13 were obtained for 12,001 Veterans with SCI seen in VHA SCI Centers during FY 2009 who had no recorded pressure ulcers in the previous year. A sample of 2,500 documents were chosen from the more than 9 million generated for this cohort and were labeled by two annotators and adjudicated by a clinical expert. The data were split into a training (n = 1,750, 70%) and test set (n = 750, 30%). Statistical Text Mining (STM) employing stratified cross validation were built and compared via 5x10 fold support vector machines (SVMs) on the training set to select model parameter values. Using the best performing parameters, a final model was built from the training set and achieved sensitivity = .85, specificity = .91, positive predictive value = .87, and an F measure = 0.86 on the test set and was then applied to all documents in the cohort.

Spot checks were conducted on a sample of over 3,000 documents to

validate the performance of the model on the large corpus. Results of document level analyses were aggregated into contiguous (by date) clusters of documents within patient records to summarize results of STM temporally. Rules to label clusters based on ICD-9-CMs (range of 707.00 to 707.9) alone were compared to two others that combine information from ICD-9-CMs and text.

Labels based on ICD-9-CMs alone classified 3,779 (31%) of patients in the cohort as having a pressure ulcer. Adding unique patients identified by a single document with a high probability (.84 based on spot checks) increased this number to 5,163 (43%). The more conservative interpretation of evidence for documents requiring a high mean probability score of documents written over time, resulted in 4,221 (35%) being classified as positive.

Data generated from STM and other text extraction techniques are increasingly available for inclusion in big data analyses. This necessitates the development of strategies that can aggregate these data to the patient level. For serious and chronic diseases that generate long term or multiple interactions with the health care system, this can result in hundreds and even thousands of documents in the electronic health record. Summarizing these data over clinically relevant periods of time could result in more valid representations of the patient's condition.

More posters from AMIA 2016 on page 4

Recent CINDRR Publications and Presentations

Peter A. Toyinbo, Rodney D. Vanderploeg, Heather G. Belanger, Andrea M. Spehar, William A. Lapcevic, and Steven G. Scott, A Systems Science Approach to Understanding Polytrauma and Blast-Related Injury: Bayesian Network Model of Data From a Survey of the Florida National Guard, *American Journal of Epidemiology*, published December 16, 2016.

Garvin JH, Kalsy M, Brandt C, Luther SL, Divita G, Coronado G, Redd D, Christensen C, Hill B, Kelly N, Treitler QZ, An Evolving Ecosystem for Natural Language Processing in Department of Veterans Affairs, *J Med Syst*. 2017 Feb;41(2):32. doi: 10.1007/s10916-016-0681-4. Epub 2017 Jan 3.

Connected Care Messenger Blog, Telehealth Brings Dance/Movement Therapy and Arts Therapy Directly to Veterans in Their Own Homes, December 1, 2016, Levy, Charles, <http://vaww.blog.va.gov/CCM/?p=998>

Aldehaim Abdulkarim Yousef, Alotaibi Faisal F., Uphold Constance R., and Dang Stuti. The Impact of Technology-Based Interventions on Informal Caregivers of Stroke Survivors: A Systematic Review, *Telemedicine and e-Health*. March 2016, 22(3): 223-231. doi:10.1089/tmj.2015.0062.

Kozel, F. A., Didehbani, N., DeLaRosa, B., Bass, C., Schraufnagle, C. E., Morgan, C. R., Jones, P., & Spence, J. S. (2016). Factors Impacting Functional Status in Veterans of Recent Conflicts with PTSD. *J Neuropsychiatry Clin Neurosci*, 28(2), 112-117. PMID 26670785.

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My HealtheVet and the Office of Connected Care. These videos support pro-active Veteran-centered care. Team Connect continues to create more direct-to-consumer videos to highlight the benefits of using electronic resources to support health care delivery and self-care management.

Video Descriptions:

- Connect to Your Health Care: VetLink Kiosks (6:09 minutes). Video produced in collaboration with Patricia Dear at VetLink Kiosks. This video is available to operational partners and is ready for dissemination. Available at: <https://www.youtube.com/watch?v=ZEJIEOHBTKs>
- Secure Messaging Workload Credit (21:00 minutes). Video concept developed and produced in collaboration with Dr. David Douglas, Portland VA Medical Center. Video is available to operational partners and disseminated to facilities nationally via My HealtheVet workgroup and their SharePoint site. Available at: https://www.youtube.com/watch?v=g3NgLIHrg_o
- Secure Messaging Best Practices (8:48 minutes). This video addresses Secure Messaging best Practices by VA clinical care team members from the field across the nation. This video was filmed with volunteer VA clinical team members at three sites, including Washington, DC with Neil Evans, Physician and Chief Officer, Office of Connected Care. Available at: <https://www.youtube.com/watch?v=b4167kPvjDA>.
- HealtheLiving Assessment (7:33 minutes). Video concept developed and produced in collaboration with Heidi Martin and Kathleen Pittman at the National Center for Health Promotion & Disease Prevention. It provides information to Veterans about how to use HealtheLiving Assessments to assess well-being and health risks. Available at: https://www.youtube.com/watch?v=blylX5tO_SY

The educational website is available at <http://connecttoyourhealthcare.com/users/login>

CENTER OF INNOVATION ON DISABILITY AND REHABILITATION RESEARCH (CINDRR)

Director: William Mann, OTR, PhD
Tampa Associate Directors: Gail Powell-Cope, PhD, ARNP, FAAN and Steven Scott, DO
Tampa Assistant Director: Stephen Luther, PhD
Gainesville Associate Directors: Diane Cowper Ripley, PhD and Charles Levy, MD
Gainesville Assistant Director: Sergio Romero, PhD

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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>



Upcoming Conference... **2017 Safe Patient Handling and Mobility Conference**

with special emphasis on falls, fall injury, and pressure ulcer prevention. **When:** April 10-14, 2017 **Where:** Renaissance Hotel, Glendale AZ.

Who: Nurses, Physical/Occupational/Kinesio-therapists, Risk Managers, & Physicians

Register: <http://www.cvent.com/d/0fq5kc> **Contact:** Valerie.Kelleher@va.gov for information

CINDRR Posters Displayed at American Medical Informatics Association (AMIA) 2016 Symposium

Dezon Finch with his poster, *Using Machine Learning to Improve Sentence Detection*

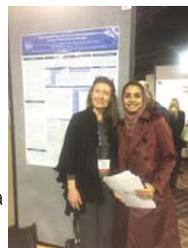
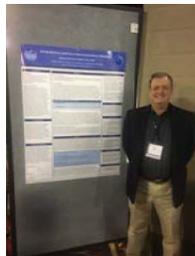
Based on the results of this study, sentence boundary detection can be improved through the use of the C5.0 machine learning algorithm and should in turn improve the efficacy of neuro-linguistic programming (NLP) systems. Medical progress notes in the Veterans Health Administration CPRS have proven to be challenging for standard sentence splitters due to the presence of semi-structured data and because punctuation is absent.

The goal of this study was to evaluate a method of text pre-processing using updatable machine learning models to improve sentence boundary detection in VHA medical progress notes. The method detects sentence boundaries and joins sentence fragments so that each sentence or phrase is placed on one line of text.

Lina Bouayad, PHD, and Stephanie Shimada, Bedford VA, and their poster, *Opioid-Related Side Effects and Adverse Reactions: Mining of Patient Secure Messages*

Extensive data about opioid-related side effects and risk factors to predict opioid-associated adverse events are stored in the electronic health record (EHR) in coded fields and progress notes. However, research indicates that the structured data in EHRs are incomplete and inconsistent. Prior literature has targeted mining of clinical documents written by providers. Yet, data extracted from unstructured progress notes contains provider-reported information only.

Recently, secure messaging has been developed as a tool that provides patients with convenient and fast access to healthcare



providers regarding non-urgent health concerns. As of October 2015, an exponential growth in secure messaging (SM) adoption was reported among Veterans, with more than over 1 million SMs sent. SMs represent an important new resource that was previously inaccessible for clinical care or research.

Patient-reported side effects and adverse events can be extracted from SMs. Data extracted from SMs could be integrated into the EHR as structured fields to: (1) enhance predictive risk models for opioid-related adverse events, and (2) improve response times by health care providers for patients with pain. In this study, we use analytics to explore the content of SMs. If successful, the method could be applied to other high-frequency, high-risk, and/or high-cost conditions.

Identifying Discrepancies in Diabetes and Diabetic Foot Ulcer ICD-9 Codes Via Administrative Data in a Veteran Population. Latricia Allen, MD, was unable to attend.

Diabetic foot ulcers may pose a safety risk for adverse events. The team conducted a quality improvement evaluation to determine the prevalence of adverse events related to diabetes and diabetic foot ulcers in our local Veteran population. 41,324 patients were noted to have a diagnosis code for diabetes, 3200 patients were noted to have a code for diabetic foot ulcer with diabetes, and, surprisingly, 2783 patients with diabetic foot ulcers did not have a diagnosis code for diabetes.

The number of patients with diabetic foot ulcers without a diabetes diagnosis code brings questions to mind such as possible false positives or false negatives for diabetes as well as diabetic foot ulcer coding errors in this patient population. The data set from this project will be further examined in a chart extraction study to determine any variation in documentation of diabetes and diabetic foot ulcers in the electronic medical record and ICD-9 codes. This information may prove valuable in improving EMR accuracy as well as improving the management of patients with diabetes.

