



Points of Excellence

The Newsletter of the VISN 17 Center of Excellence for Research on Returning War Veterans

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Christina Hejl and Dr. Rakeshwar Guleria examine a centrifuged blood sample for flow cytometric analysis

The VA VISN 17 Center of Excellence for Research on Returning War Veterans is dedicated to conducting research that serves to improve the quality of life of our nations Veterans and foster the wellbeing of their families.

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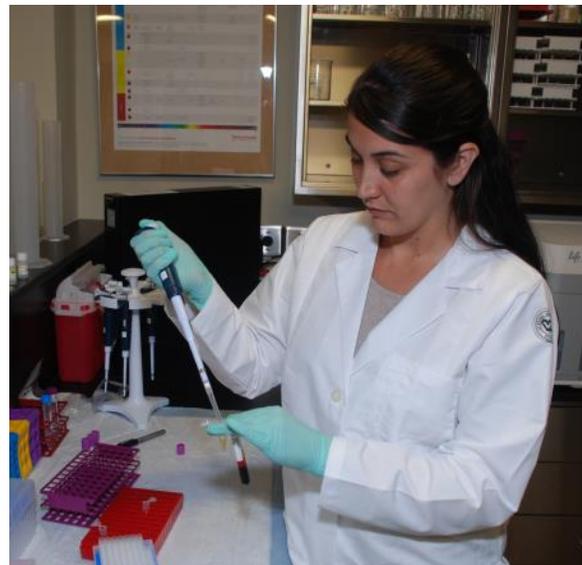
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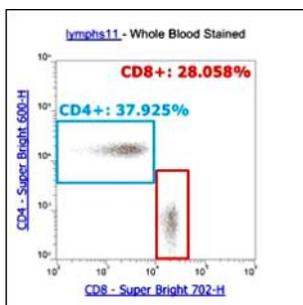
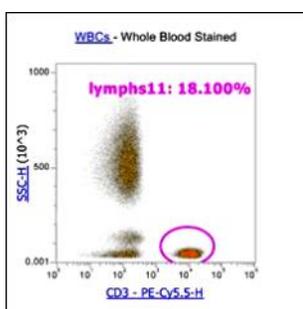
Introducing the Biomarkers & Genetics Core

In addition to our research on the psychological aspects and neuroscientific underpinnings of posttraumatic stress disorder and traumatic brain injury, the CoE has established a Biomarkers & Genetics Core dedicated to studying the biochemical and molecular mechanisms of these disorders. Biomarkers are substances in the body that indicate the presence of a disease or infection, and their study could improve our knowledge of the mechanisms implicated in diagnosis, prognosis, and even targeted therapy. The Biomarkers & Genetics Core incorporates numerous tools and assays to better understand conditions afflicting our Veterans and study their effects at the molecular level. To do so, their team is using a four-pillar strategy of investigation including proteomics, genomics, neuro-imaging, and molecular signal transduction.



Dr. Yvette Szabo pipettes plasma for future testing using Mass Spectrometry analysis and Enzyme-Linked Immunoassay methods

Several projects are currently underway in their lab, including the use of a state-of-the-art Attune NxT Acoustic Focusing Flow Cytometer to delineate the cellular mechanisms involved in neuronal inflammation. With this equipment, the Biomarkers & Genetics Core is able to study various immune cell activation patterns by targeting specific cell markers which are responsible for initiating a signaling cascade that alters the behavior of the cell.



Flow cytometric data derived from whole blood sample

One example of this research involves the study of a cardiotoxic steroid known as marinobufagenin or MBG. MBG is produced naturally in the body following an injury leading to inflammation in the organs, possibly even the brain. Chronic periods of this inflammation would have a significant negative impact on the brain's ability to heal following a TBI. Therefore, MBG could serve to be a reliable biomarker for TBI and a focus of treatment. Dr. Rakeshwar Guleria, a biochemist in the Core, says that his research aims to use MBG-regulated receptors as a target for inhibition of the inflammation process by blocking its function and thus reducing damage to cerebral tissue. Identifying biomarkers of neuro-inflammation could ultimately improve upon our current diagnostic approaches to TBI and help develop pharmaceutical treatments that target inflammation in the brain. Dr. Guleria's MBG research was recently featured on KCEN-TV news.

The Biomarkers & Genetics Core has a growing team, consisting of Dr. Steven Nelson (Acting Core Chief), Dr. Rakeshwar Guleria (Investigator), Dr. Yvette Szabo

Biomarkers & Genetics Core cont'd

(Postdoctoral Fellow), Christina Hejl (Lab Technician), William Stewart (Lab Technician), and several trainees. Through their collaborative efforts with our other research teams at the CoE, they hope to build stronger bridges between basic and clinical sciences and develop better biologically-based treatments for mental health conditions affecting combat Veterans.



Will Stewart freezes blood samples

To see their recent feature on KCEN-TV news, go to:

www.kcentv.com/article/news/local/military/groundbreaking-blood-study-aims-to-detect-ptsd-tbi-faster/500-526092157

Moral Injury Treatment Workshop



Chaplain Antal discusses factors which contribute to the development of moral injury in combat Veterans

In April, the Center of Excellence hosted a training workshop with Rev. Christopher J. Antal, DMin., an Army Veteran and VA staff chaplain who co-developed a group treatment for moral injury at the Crescenz VA Medical Center in Philadelphia. In his three-hour workshop, Chaplain Antal discussed the components of this novel moral injury treatment and reported on its promising results. The workshop also emphasized the crucial need for collaboration between mental health providers and chaplain services to better serve our Veterans, particularly those afflicted by feelings of guilt or regret.

With over forty attendees representing different mental health disciplines, including social work, psychology, and chaplain services, the workshop facilitated the identification of barriers to collaboration between the two fields and promoted a conversation for ways to overcome these barriers. Rev. Antal also led an experiential exercise that prompted a deeper reflection on the emotional struggle resulting from moral dilemmas that our military service members face, which can ultimately result in a moral injury. Antal argued how chaplains are ideally suited to help mental health providers facilitate healing of such problems. Overall, the workshop left attendees with excitement and hope for expanding collaborations between mental health providers and chaplains.



Welcome Our New Staff



Hailey Fox, B.S. is a Psychology Technician working in the Neuroimaging Core. Inspired by her father, a retired Army Colonel, to work with Veterans, she completed our two-semester undergraduate

internship this Spring, and we are fortunate to bring her aboard before she pursues her Ph.D. in Neuroscience. She is currently working on the TEMI and TEVA studies.



Taeja Mitchell, M.S. is a Psychology Technician working on the REGIONS and MINER studies. Prior to joining the CoE, Ms. Mitchell was employed with Aspiring Behavioral Health Services, a mental health

organization providing care to children and adults with mental health needs, where she found her passion assisting people who do not readily have the access to traditional forms of therapy.



La Shanda Montgomery, MSN, FNP-C is a Nurse Practitioner working on several projects in the Behavioral Science Core. Ms. Montgomery began her career at the Balboa Naval Medical Center in San Diego,

California and aboard the USS Mercy, finishing her time in the Navy as a Hospital Corpsman, Third Class. She joined the CoE to work with fellow Veterans stating, "Who better to understand a Veteran than another Veteran?"



Brandon Moore, Ph.D. is our new Administrative Officer for the Business Core. He is a Marine Corps Veteran who received his Ph.D. in Curriculum and Teaching from Baylor University. Dr. Moore had a

wealth of different experiences in the educational field prior to joining the CoE, including work as the Director of Institutional Research & Effectiveness at McLennan Community College.



David Pollard, M.D. is a Psychology Technician working on the REGIONS and MINER studies. Dr. Pollard earned his medical degree from Texas A&M University and began working with Veterans at Carl R. Darnall

Army Medical Center near Fort Hood, Texas. He is excited that, through his experiences at the CoE, he will gain a deeper understand of the unique problems affecting our Veterans and how to address them in his practice.



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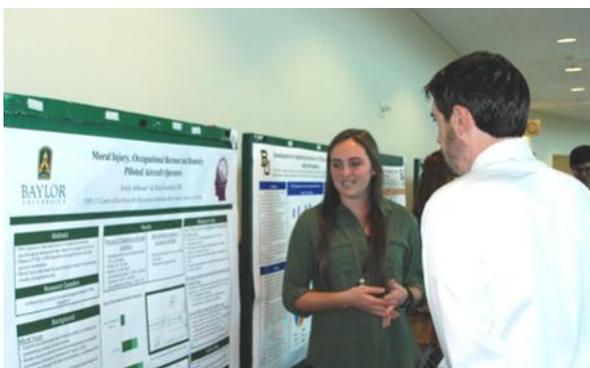
VA-CERP Internship Updates

This spring, each of the interns participating in our VA Center of Excellence Research Program (VA-CERP) presented research posters at local conferences. In March, our nine Baylor students were competitively selected to participate in the Undergraduate Research and Scholarly Achievement (URSA) Scholars Week hosted annually by Baylor University. Habib Abla, mentored by Drs.

Gordon and Nelson from our Neuroimaging Core, received a Best Poster from the Psychology and Neuroscience Department. In addition, in April, our four Tarleton State students represented the CoE for the first time at the Annual MCC/Tarleton State Scholar's Day.



CoE staff and interns attend MCC/Tarleton State Scholars Day



Emily Johnson presents her poster at the Baylor URSA Scholars event

Our program concluded in May with a graduation ceremony recognizing our students' many accomplishments, including acceptance to competitive summer research programs, graduate schools, and employment in the VA. We are excited that seven of our students will be returning for a second-year internship, and we are proud of our four seniors who received their bachelor's degrees this Spring.

Helping Veterans' Family Members

The CoE has partnered with the National Alliance on Mental Illness (NAMI) to offer NAMI Homefront training. Homefront is an educational program for spouses and family members of Veterans who are experiencing PTSD, TBI, or other mental health issues. This six-week class focuses on the unique needs of Veterans by helping their family members better understand and support them while maintaining their own well-being. CoE administrative support assistant, Ruth Ann Mitchell, and her husband, Bill, are certified trainers for the program, and they led their first class at the CoE in May and June.

"When I worked in Psychiatry Service, I would constantly have Veterans' family members ask about resources for their families," Ms. Mitchell stated, "NAMI Homefront does exactly that." She added that the students of this first cohort came from a wide variety of backgrounds which contributed to great discussions. The next program has been tentatively scheduled to start in September. If you are interested



Ruth Ann Mitchell



in getting more information about NAMI Homefront Education Program, please contact Ruth Ann Mitchell at ruth.mitchell@va.gov

Project SERVE to Begin Third Phase

The CoE is thrilled to announce that, after following Veterans for over eight years to evaluate symptom trajectories, Project SERVE has received grant funding for a third study phase. This phase will continue to collect data at 8-month intervals over a 2-year period; however the length of the assessments will be substantially reduced to make it as easy as possible for Veterans to continue to participate in the study.



This next phase of the study will also include a treatment component to help Veterans improve functioning in important life domains (e.g., social, occupational, self-care) using Acceptance & Commitment Therapy (ACT). Research has shown that ACT can help Veterans cope with numerous mental health concerns. For example, a recently published paper by the Principal Investigator of Project SERVE, Dr. Eric Meyer, and his colleagues showed that Veterans who received ACT in an outpatient setting had significant rates of improvement in PTSD symptoms, alcohol use issues, depression, and overall quality of life. These gains were maintained at 3-month follow-up along with reductions in suicidal thoughts (Meyer et al., in press). We are greatly looking forward to offering this therapy to our SERVE participants.

The Winner of the \$100 SERVE Raffle is Participant 204262. Congratulations!

International Efforts to Promote Veterans Mental Health



In April, Dr. Sheila Frankfurt, an investigator of the Behavioral Science Core, was an invited speaker at the International Conference Veterans Healthcare in Amsterdam, Netherlands. Presenting to Veterans and mental health providers from across Europe, Dr. Frankfurt discussed moral injury and how to approach treatment drawing from recent research findings.

“Moral injury has been overlooked for years,” Dr. Frankfurt says, “and it is something with which Veterans across the world struggle as they transition to civilian life.” The conference highlighted the global efforts promoting issues related to helping Veterans with reintegration issues.

Dr. Nelson Presents at Research Week

In May, Dr. Steven Nelson, Chief of the Neuroimaging Core, gave the keynote address during Research Week of the Central Texas Veterans Health Care System. Dr. Nelson spoke about using a neuroimaging-informed approach to individualized medicine, and its implications for the diagnosis and treatment of PTSD and TBI.



Navy Fleet Week

This year, the City of Waco was selected as one of the locations for Fleet Week, honoring the U.S. Navy. The CoE hosted two booths at the Doris Miller VA Festival to help Veterans win prizes and learn about our research.



Kathryn Roe and Mollie Shin help Veterans with ring toss game

Undergraduate Veteran Starting Medical School

Rob Athey, a recent graduate from the CoE's undergraduate research program, was accepted into the prestigious McGovern medical school in Houston, TX. Athey, a Marine Veteran, said he had no plans to join the military while in high school, but "it was the best decision I've made....The Marine Corps gave me the discipline, dedication, and tools to succeed in life," including returning to school at Baylor University and joining the CoE's undergraduate research program. Witnessing friends affected by TBI and PTSD, he found deeper meaning in his involvement with the Neuroimaging Core's study testing neurofeedback strategies as TBI treatment. Mentored by Drs. Nelson and Gordon, his intellect, passion, and arduous work translated into a Student Poster Award last year. In May, an article about Rob's deployment experiences and training in our internship was featured in the Waco Tribune-Herald.



2018 URSA Leadership Award



Drs. Sara Dolan, Richard Seim, and Laura Zambrano-Vazquez received the 2018 URSA Institutional Leadership from Baylor University for their direction of the VA-CERP Research Internship. This is the first time this award was conferred to an external institution.

Recent CoE Publications

Here is a sample of some of the recent articles published by our researchers:

Frankfurt, S., & Russell, M. (in press). Private lives, public stories, and healing from moral injury: Commentary on Schaff (2017) and Jones (2017). *Military Behavioral Health*.

Gratton, C., Laumann, T. O., Nielsen, A. N., Greene, D. J., **Gordon, E. M.**, Gilmore, A. W., **Nelson S. M.**, Coalson, R. S., Snyder, A. Z., Schlaggar, B. L., Dosenbach, N. U. F., & Petersen, S. E. (2018). Functional brain networks are dominated by stable group and individual factors, not cognitive or daily variation. *Neuron*, 98(2), 439-452.

McGuire, A. P., Mota, N. P., Sippel, L. M., Connolly, K. M., & Lyons, J. A. (in press). Increased resilience is associated with positive treatment outcomes for veterans with comorbid PTSD and substance use disorders. *Journal of Dual Diagnosis*.

Meyer, E. C., Kimbrel, N. A., Tull, M. T., & Morissette, S. B. (2018). PTSD and co-occurring affective and anxiety disorders. In B. Moore and W.E. Penk (Eds.). *Handbook for the Treatment of PTSD in Military Personnel (2nd ed.)*. New York: Guilford.

Pulverman, C. S., Kilimnik, C. D., & Meston, C. M. (in press). The impact of childhood sexual abuse on women's sexual health: A comprehensive review. *Sexual Medicine Reviews*.

Evans, W. R., **Szabo, Y. Z.**, Stanley, M. A., Barrera, T. L., Exline, J.J., Pargament, K. I., & Teng, E. J. (in press). Life satisfaction among Veterans: Unique associations with morally injurious events and posttraumatic growth. *Traumatology*.

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