ANNUAL REPORT

2016

THE NATIONAL INTREPID CENTER OF EXCELLENCE

HOPE | HEALING | DISCOVERY | LEARNING

Walter Reed National Military Medical Center

NICoE

NATIONAL INTREPID CENTER OF EXCELLENCE

WALTER REED BETHESDA

LETTER

COLLEAGUES:

We are very proud to provide you with our Fiscal Year (FY) 2016 National Intrepid Center of Excellence (NICoE) Annual Report. As in years past, the report highlights the incredible work performed by our highly capable staff in caring for our patients and their families affected by traumatic brain injury (TBI) and psychological health (PH) conditions. The NICoE is a local, regional, and national asset within the Military Health System (MHS) TBI Pathway of Care. We are honored to serve our patients and their families with compassionate and holistic interdisciplinary care since our doors opened in 2010. In this report, we focus on the achievements that are foundational to fulfilling our strategic vision that lies beyond the curved walls of stone and glass that define the healing environment of the NICoE. As an integral part of the Walter Reed National Military Medical Center (WRNMMC) and the MHS, we continue to look to the future of supporting the TBI care continuum.

FY 2016 saw a maturing of our integration with the WRNMMC, including a portfolio of care options that expands the scope of TBI evaluation and treatment. The passion and singular focus with which we treat every patient is the bedrock upon which we continue to advance and innovate TBI care and research. Our four-week Intensive Outpatient Program (IOP) and NICoE Outpatient Services, together with our one-week NICoE Evaluation Track, Brain Fitness Center, and inpatient consultation service, offer a full range of TBI and PH treatment and rehabilitation. Much in the way that the original architects of the program envisioned, the NICoE Directorate is seen as a beacon of leadership and innovation supporting the maturation of a national network of nine Intrepid Spirit Centers (ISCs) that are in operation or being built around the country. These TBI research and care facilities are part of the future of care for thousands. This incredible network, which includes the NICoE, saw the opening of two more ISCs in FY 2016, bringing five of nine ISCs on line and helping the network achieve "critical mass."

This network is creating a new paradigm in the way a disease process is managed in the MHS, setting clinical care and research standards, and fostering interdisciplinary, inter-facility, and interservice communication. The collaboration that exists among the NICoE, the five open ISCs, and the four future ISC sites was on full display in August 2016. Leadership from the NICoE, the ISCs, the Veterans Health Administration, Landstuhl Regional Medical Center, the Defense and Veterans Brain Injury Center (DVBIC), and the military services' TBI consultants, met for a first-ever summit at the NICoE. The goal of the summit was to improve TBI patient care through the development of standardized processes; metrics; research data collection and analysis; patient satisfaction tracking; clinical and administrative information analysis; and patient referral and movement criteria. It was a remarkable experience to be part of this effort, and the success of this summit was not lost on stakeholders far and wide.

With such success comes further opportunities, challenges, and broadening expectations. It behooves us to maintain momentum through FY 2017 and beyond. What were previously strategic efforts now become tactical as our influence increases locally, regionally, and nationally. Previously unique and novel innovations have become today's standard of care, and our future advances will need to reflect our determination to push the boundaries of clinical care and research. As an integral part of this nascent national network of TBI care and research, the NICoE will continue to lead the way.

Sincerely,

Captain Walter M. Greenhalgh
Medical Corps, United States Navy
Director for the National Intrepid Center of Excellence
Walter Reed National Military Medical Center

MISSION

We improve the lives of patients and families impacted by TBI through excellence and innovation

VISION

To be a global leader in TBI care, research, and education

GUIDING PRINCIPLES

Excellence, Innovation, Compassion, Honor, and Collaboration

WHAT THE NICoE DOES

CLINICAL

The NICoE's patient-centered clinical care model for TBI and PH conditions offers patients and families a variety of treatment options to achieve optimal physical, mental, emotional, and spiritual well-being. Incorporating state-of-the-art equipment and cutting-edge diagnostic evaluations, the NICoE builds unique, comprehensive treatment plans that consider all aspects of a patient's diagnosis.

RESEARCH

The NICoE integrates research and clinical care data to further the TBI and PH condition research strategy across the MHS. The NICoE collaborates with federal, academic, and private organizations to build understanding of the short- and long-term effects of TBI and PH conditions, and their impact on patients and families.

EDUCATION

The NICoE educates medical professionals, providers, students, professionals in training, staff, patients, and families on promising and best practices that support TBI understanding and recovery. Educating clinicians and researchers through hands-on experience allows the NICoE to influence care both within the MHS and civilian sectors, nationally and internationally.

ADMINISTRATION

The NICoE is able to achieve its mission of providing exceptional care to patients and families by maintaining a solid infrastructure of dedicated, knowledgeable personnel, who procure materials and funding for day-to-day operations, plan for the future, gather and organize informatics data, and communicate the value of the organization to stakeholders and the world.

The stories throughout this annual report are pieces of a puzzle, that when put together give a full picture of the work of the NICoE. NICoE staff, experts in their fields, are truly the exceptional pieces that, together, will continue building greater momentum toward achieving the mission of the NICoE – improving the lives of patients and families impacted by TBI through excellence and innovation.

THE NICoE'S STRATEGIC GOALS CONTINUE TO FRAME THE WAY AHEAD

GOAL 1:
Optimize patient functioning by providing exceptional holistic care across the spectrum of TBI and PH conditions

GOAL 2:
Advance the understanding of pathophysiology, clinical expression, natural history, and response to treatment of those affected by TBI and PH conditions

GOAL 3:
Enhance the knowledge of TBI diagnosis and treatment for NICoE patients, families, staff, experiential learners, and the global community

GOAL 4:
Develop a work environment that invests in and values a competent, engaged, and committed workforce

GOAL 5:
Promote the value of the NICoE to the global community

INTRODUCTION

In FY 2016, the NICoE at WRNMMC continued to advance care, research, and education for TBI with a mission of improving the lives of patients and families. According to August 2016 data from DVBIC, TBI still impacts a staggering number of U.S. military members with a worldwide total of 352,619 diagnoses made since 2001.

Although the NICoE has made an impact on treating service members affected by TBI and PH conditions and contributed to the body of TBI research since 2010, there is still much to be done. Many questions remain to be answered such as, "Why do some people get better and some don't?," and, "How do certain treatments make patients better?"

With the vision of becoming a global leader in TBI care, research, and education and strides already made, the NICoE is positioned to answer the many challenging questions about TBI that still exist. When the NICoE opened its doors in 2010, it was a center dedicated to advance our nation's understanding of the "invisible wounds" from the wars in Iraq and Afghanistan. With the celebration of the sixth year of patient care came the continued evolution of NICoE as a directorate at WRNMMC, and as a key component within the MHS TBI Pathway of Care. The TBI Pathway of Care ensures that all MHS beneficiaries with TBI receive the proper diagnosis, care, and education to live a fulfilling life. The NICoE Directorate's role within the TBI Pathway of Care now spans from screening and identification to reintegration (see Figure 1).

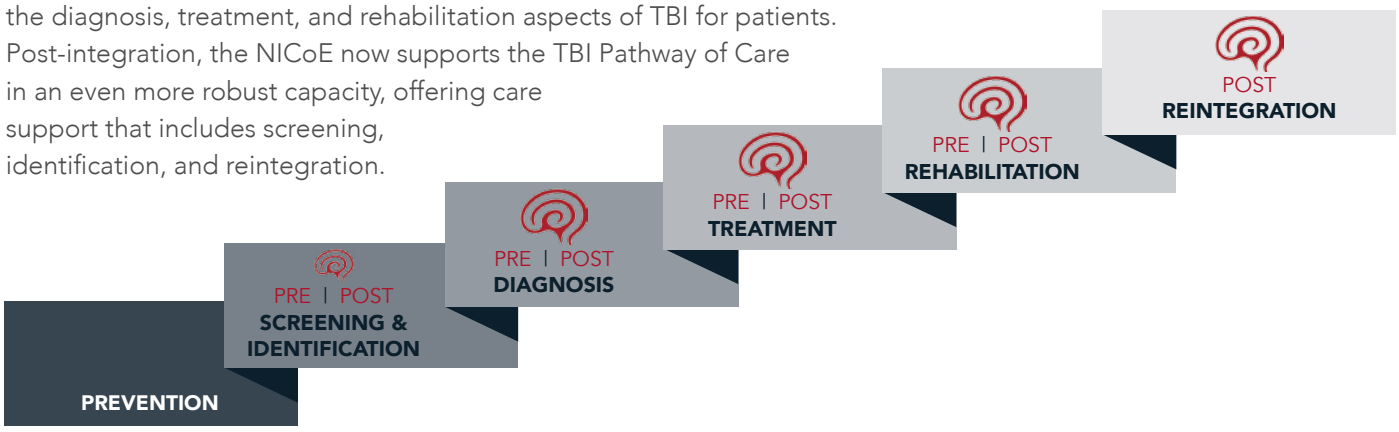
Through collaborations with federal, academic, and nonprofit organizations, the NICoE uses the most advanced technical and clinical resources to drive TBI evaluation and treatment forward. The collaboration between the NICoE and a rapidly-developing network of ISCs – localized TBI care facilities across the country – is one of the most integral partnerships to addressing the challenge of a continued increase in TBI incidence. The construction of the NICoE and ISCs were made possible through the generosity of the American people and their support through the Intrepid Fallen Heroes Fund (IFHF).

Overcoming the challenges the MHS currently faces with TBI incidence and the resulting costs requires an all-hands-on-deck effort across the TBI Pathway of Care. Likewise, just as the NICoE plays an integral role in the TBI Pathway of Care, each NICoE staff member plays an integral role in ensuring the delivery of the highest quality of care that fosters hope and healing and advances research.

From providers who touch the lives of NICoE patients and families; to researchers who identify evidence-based clinical practices; to the administrative department that oversees the operations and management of the directorate and its cutting-edge facility; to the countless volunteers, interns, and residents who are advocates of the NICoE mission; it takes all NICoE staff working together to guide the NICoE in its daily operations and long-term goals.

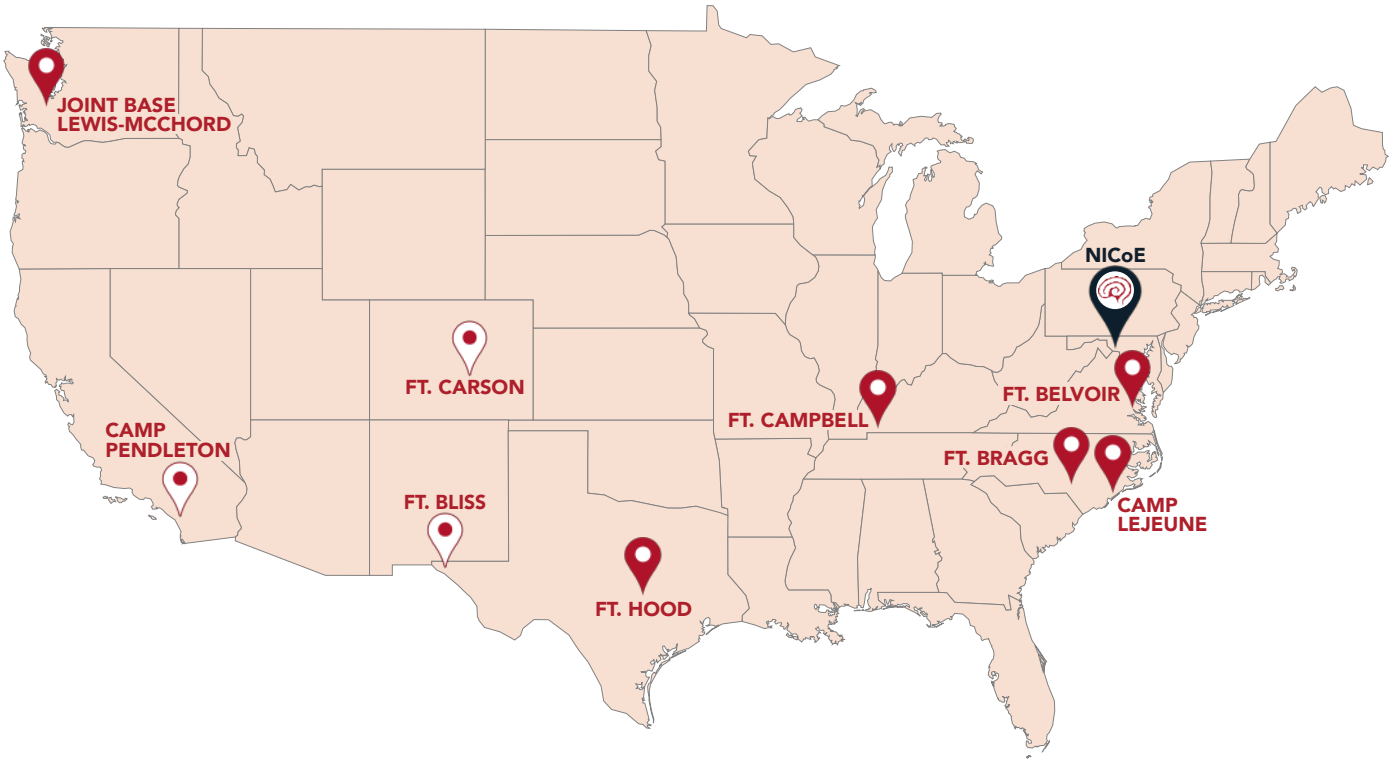
FIGURE 1. TBI SPECTRUM OF CARE/PATHWAY OF CARE

Prior to 2015 and pre-integration with WRNMMC TBI services, the NICoE supported the diagnosis, treatment, and rehabilitation aspects of TBI for patients. Post-integration, the NICoE now supports the TBI Pathway of Care in an even more robust capacity, offering care support that includes screening, identification, and reintegration.



NICoE STAFF ENJOYED MORE THAN 25 TEAM-BUILDING ACTIVITIES, CELEBRATIONS, AND EDUCATIONAL OPPORTUNITIES IN FY 2016

The collaboration between the NICoE and a rapidly-developing network of ISCs – localized TBI care facilities across the country – is one of the most integral partnerships to addressing the challenge of a continued increase in TBI incidence.



FIVE YEARS OF TBI CARE AT THE NICoE

In October 2015, the NICoE and WRNMMC celebrated five years of TBI care at the NICoE. Although TBI care has long been an important part of WRNMMC and its legacy organizations, Walter Reed Army Medical Center, and the National Naval Medical Center, the development of the NICoE in 2010, followed by its transformation into the NICoE Directorate in FY 2015, signified the unity of TBI assets across the medical campus. This new milestone in TBI care, research, and education on the campus was celebrated with a ceremony hosted by Army Maj. Gen. Jeffrey Clark, then WRNMMC Director.

Patients, staff, and stakeholders enjoyed remarks by NICoE, WRNMMC, and IFHF leadership. Navy Capt. Walter Greenhalgh indicated that stakeholders were "very impressed with the distance the NICoE has traveled in five short years."

MORE THAN 200 STAFF MEMBERS CONTRIBUTED TO EXCELLENT PATIENT CARE, RESEARCH, AND EDUCATION AT THE NICoE IN FY 2016

TRAUMATIC BRAIN INJURY: THE WOUNDS OF WAR AND PEACE

Prior to September 11, 2001, and the beginning of the wars in Iraq and Afghanistan, the rate of new TBI diagnoses among U.S. service members was approximately 11,000 per year. In 2011, after more than ten years of war, the rate of new TBI diagnoses was 32,907 per year.* The NICoE opened its doors during the height of the rapid increase of new TBI diagnoses, with a focus on serving active-duty service members affected by significant and ongoing symptoms from their TBI and co-occurring PH concerns.

Although Operation Iraqi Freedom, Operation New Dawn, and Operation Enduring Freedom – Afghanistan have officially ended, TBIs in military and former military populations demand that a focus within the MHS remain on TBI treatment, and on research aimed at advancing the understanding of clinical expression, natural history, and response to treatment.

While the rate of new TBI diagnoses has decreased since 2011, the total number of service members who have had a TBI diagnosis continues to grow. In August 2016, the total reported TBI diagnoses among service members since 2001 was 352,619.

*Source: Defense and Veterans Brain Injury Center, http://dvbic.dcoe.mil/dod-worldwide-numbers-tbi

2001

September 11
Terrorist attacks on American soil

October 7
Operation Enduring Freedom – Afghanistan (OEF-A) begins

2003

March 19
Operation Iraqi Freedom (OIF) begins

2007

The U.S. Department of Veterans Affairs mandates screening and evaluation of possible TBI in OEF-A and OIF veterans

2010

The NICoE opens its doors to patients

2011

TBI incidence in the U.S. military is at its height

September 1 to December 18
OIF transition to Operation New Dawn

Statistics show that even in peacetime service members are at an increased risk of TBI exposure compared to their civilian counterparts. Many factors contribute to this increased risk including operational and training activities, increased deployment to areas where they may experience blast exposure, daily physical activity requirements, and leisure-time sports and hobbies. Additionally, as advances are made in diagnostic evaluation, it is only natural that more cases would be accurately detected and identified at the time of injury. This further underscores the importance of the focus on TBI within the MHS, and the NICoE's contributing role.

In FY 2016, the NICoE began to hit its stride as a new directorate and celebrated many achievements. The expanded patient population and service offerings enabled the directorate to have a greater impact on patient care, policy, and the future of TBI treatment and research.

NICoE continues to lead the way in its patient-centered, holistic care model integrated with translational research. The potential for future impact is extraordinary with the best-of-the-best staff, state-of-the-art technology, and an unparalleled collection of unique data being analyzed by innovative clinical researchers.

September 11
The Intrepid Spirit Center at Fort Belvoir, Virginia, opens its doors to patients

September 8
The Intrepid Spirit Center at Fort Campbell, Kentucky, opens its doors to patients

October 4
The NICoE celebrates its five-year anniversary

March 9
The Intrepid Spirit Center at Fort Hood, Texas, opens its doors to patients

2013

2014

2015

2016

October 2
The Intrepid Spirit Center at Camp Lejeune, North Carolina, opens its doors to patients

December 28
OEF-A combat operations draw down

October 29
The Intrepid Spirit Center at Joint Base Lewis-McChord, Washington, breaks ground

March 31
The Intrepid Spirit Center at Fort Bragg, North Carolina, opens its doors to patients

1,100 ART THERAPY SESSIONS ALLOWED PATIENTS TO EXPLORE HEALING THROUGH ART IN FY 2016

REFERRING PROVIDERS

The work of the NICoE would not be possible without the partnerships that exist with military treatment facilities across the MHS. All patients come to the NICoE through a referring provider who has knowledge of their treatment history and existing challenges. Many times these patients require a more intensive evaluation and treatment program or thorough diagnosis than can be provided at their home station. Other times these patients are referred for their ongoing treatment.

NICoE providers, working in tandem with referring providers, ensure that patients receive treatment continuity through the TBI Pathway of Care, increasing the likelihood and durability of long-term recovery.

Born out of the integration in FY 2015 as a single point of entry for patients referred to the care system at WRNMMC, the NICoE Directorate has been able to expand its capacity to help patients and their families manage their TBI conditions. The integration of the NICoE IOP, TBI Consultation Service, and Outpatient Services in FY 2015 brought about the realization of seamless care in FY 2016 to include:

- More four-week IOP patients receiving ongoing care through NICoE Outpatient Services
- More TBI patients receiving NICoE Outpatient Services, and more opportunity for additional, eligible patients to be seen
- Accommodating more referrals from Fort Belvoir for NICoE Outpatient Services, like Sleep Lab evaluations and neuropsychological testing
- More integration of services throughout the spectrum of TBI severity from immediate post-injury care and consultation to long-term follow up

MORE THAN 200 BOTOX PROCEDURES WERE PERFORMED TO TREAT POST-TRAUMATIC HEADACHE IN FY 2016

PATIENTS AND STAFF PARTICIPATED IN SIX NICoE CREATIVE ARTS CAFÉS IN FY 2016

EXPANSION OF SERVICES AND CLINICAL EFFICIENCIES REALIZED

The NICoE Directorate's evolution in FY 2015 set the foundation for FY 2016's growth to fully serve patients with TBI and PH conditions through their journey along the MHS TBI Pathway of Care. Providing a single point of entry for patients referred to the TBI care system at WRNMMC, the capacity to help TBI patients expanded, and the NICoE continued to play an exciting and integral role in shaping the future of TBI care regionally, nationally, and globally.

To enhance patient care and maximize efficiencies across the directorate, consolidating resources became a necessity. In FY 2016, most TBI outpatient services were brought together under the NICoE building roof. This offered a greater opportunity for collaboration among providers and other staff, and efficiency for patients.

MASTERING CLINICAL CARE

In FY 2016, eight NICoE providers, out of a total of 65 from WRNMMC, were honored as Master and Associate Master Clinicians at an awards ceremony hosted by Navy Cmdr. Randy Bell, the Chair of the WRNMMC Executive Committee of the Medical Staff, and Army Col. Michael Heimall, WRNMMC Director. This WRNMMC program recognizes providers who are nominated by their peers and leadership for teaching, research accomplishments, and clinical productivity. The award highlights some of the ways that providers bring solutions to patients, showcasing their dedication and commitment to excellence. The following are the NICoE recipients:

Master Clinicians
(eight or more years of service):
Dr. Louis French
Dr. Paula (Nikki) Kodosky
Dr. Jeannine Mielke
Ms. Marcy Pape
Dr. Lisa Smith
Ms. Katherine Sullivan

Associate Master Clinicians
(fewer than eight years of service):
Ms. Shannon Auxier
Dr. Tara Staver

MORE THAN 400 SLEEP STUDIES WERE CONDUCTED IN FY 2016

A DAY IN THE LIFE OF A CORPSMAN

FIRST LINE CARE

On the front line of care, I know my work is essential to the success of the NICoE mission. As part of a collaborative team, I have the honor of working with top clinical providers, researchers, TBI experts, and the greatest support staff I know, who are all dedicated to serving TBI patients.

Growing up with a mom who is a doctor had a lasting impact, and I always knew I wanted to follow in her footsteps. I also had a desire to serve my country, so enlisting in the Navy to provide medical support was a perfect choice.

Working with patients is the highlight of my day. I work directly with the patients to draw blood, take vitals, order labs, and do other necessary history and intake work. I also do a lot of clinical support work behind the scenes to create a positive patient experience. I coordinate appointments, complete patient intake evaluations, assist with logistics for patients who are staying for our IOP, and perform many other duties. I also work with my colleagues to foster an environment of fun and collaboration among the staff.

Not all days are easy, especially when I see patients like I did today. A patient began his stay at the NICoE today and will be with us for the next four weeks. His wife and daughter will be joining him in the coming weeks, and he is really looking forward to the family sessions the NICoE provides. He has spent the last four years struggling with sleepless nights, migraines, and anxiety. He says he is not the man he was before his three deployments. He is hopeful that we can heal him and his marriage.

Another patient came to the Interdisciplinary Clinic today for her initial evaluation. She was in a car accident and had been experiencing memory and vision problems. She also is struggling to meet the demands of the course work in her undergraduate program. If we can't identify treatment options, she risks failing the semester, and we risk failing her.

I am one piece of the puzzle in providing seamless transitions for our patients from beginning to end. The road to recovery for patients and their families is difficult, which is why it's my job to make sure it goes as smoothly as possible. I take pride in being an essential part of a patient's continuity of care, and if a loved one of mine was a NICoE patient, I would want them to receive the very best care, too.

I would not be able to do what I do without the wonderful scheduling team that juggles the complex nature of providing tailored care. I am always amazed at how quickly they can work to make changes to a patient's schedule by leveraging the custom continuity management tool built by our Informatics team.

MORE THAN 9,000 ACUPUNCTURE NEEDLES WERE USED IN FY 2016

VA/DOD CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF CONCUSSION-MILD TRAUMATIC BRAIN INJURY

SHAPING TBI PRACTICES AND POLICY

With fast-moving understanding of TBI comes a need to keep practices updated, and these guidelines provide input to the care system for the DoD, VA, and private sector. In 2016, the Department of Veterans Affairs (VA) and Department of Defense (DoD) published updated Clinical Practice Guidelines (CPGs) for TBI. CPGs are evidence-based recommendations that assist practitioners and patients with health care decisions, and are developed by a multidisciplinary panel of experts. The Veterans Health Administration (VHA), in collaboration with the DoD, has been developing CPGs since the early 1990s.

In 2004, the VA and DoD Evidence-Based Practice Working Group was chartered, with a mission to advise the VHA and MHS on the use of clinical and epidemiological evidence to improve the health of patients.

In 2009, the VA and DoD published a CPG for the "Management of Concussion-mild Traumatic Brain Injury." Advances in research and treatment practices led to the initiation of an update beginning in 2014. Guideline Working Group members representing the DoD included the NICoE's Army Col. Geoffrey Grammer, who served as co-chair; Dr. Louis French, deputy director for operations for the NICoE; and Dr. Thomas DeGraba, chief innovations officer for the NICoE.

These guidelines were updated to reflect increased clinical experience, advances in science and research, and changing clinical environments.

NICoE CREATIVE ARTS CAFÉ

In FY 2016, the NICoE Creative Arts Café was launched as a forum for patients, staff, and families to participate in and enjoy creative arts performances and presentations. The creative arts have become a widely recognized form of therapy. The NICoE's creative arts therapy program includes music therapy, art therapy, writing, dance and movement therapy, photography, and other forms of self-expression of interest to patients.

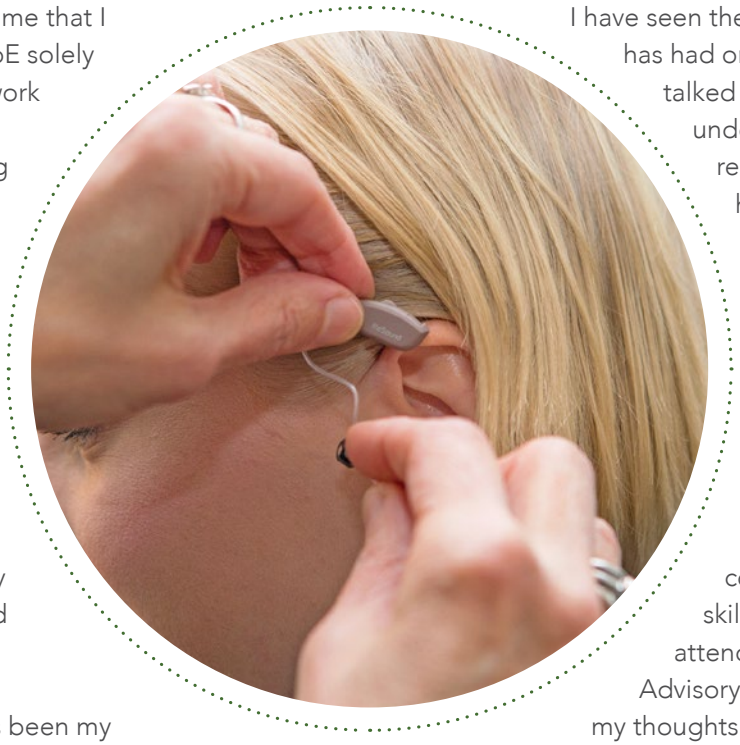
Participants express themselves through music, singing, playing instruments, photography, art, poetry, creative writing, dancing, and drama. Six NICoE Creative Arts Cafés were held in FY 2016 with dozens of performances and hundreds in attendance.

This forum provides an opportunity for patients to demonstrate the strides they have made in their recovery, and provides an outlet for NICoE patients and staff to engage with each other and enjoy creativity through performance.

PATIENTS EXPRESSED THEMSELVES THROUGH MORE THAN 1,200 HOURS OF MUSIC THERAPY IN FY 2016

A DAY IN THE LIFE OF A NICoE PROVIDER

HEALING TOUCH



Most people would assume that I decided to work at NICoE solely because of the unique work environment. A quote about treating the young and the old, and the sick and the weak, was a catalyst for my career path, which led me to my current position at the NICoE. Today, this quote continues to fuel my philosophy of public health, and my desire to care for military families who have served our country.

My job at the NICoE has been my first experience witnessing the power of holistic health care. When my patients are in the care of another physician, I find myself working side-by-side with the world's greatest TBI experts and researchers to find innovative ways to improve standards of care now and in the future. I am one piece of the puzzle in providing seamless transitions for our patients from beginning to end.

I have seen the impact that this model has had on our patients. Today, I talked to a patient who is undergoing audiologic rehabilitation therapy. The hearing aids he received last week allowed him to experience music therapy on a whole new level. It was the first time I have seen him relaxed in recent months.

I love that I have the opportunity to work with colleagues who have diverse skill sets and expertise. I attended a NICoE Scientific Advisory Board meeting to provide my thoughts on the patient experience at the NICoE and to help identify opportunities for new research protocols. The discussion sparked ideas about how to use existing data and leverage our Informatics team.

I like to say that I chose the NICoE simply because it gives me a chance to make a positive impact on the lives of service members who risk it all to protect my freedom.

MORE THAN 180 HEARING AIDS WERE FITTED TO NICoE PATIENTS IN FY 2016

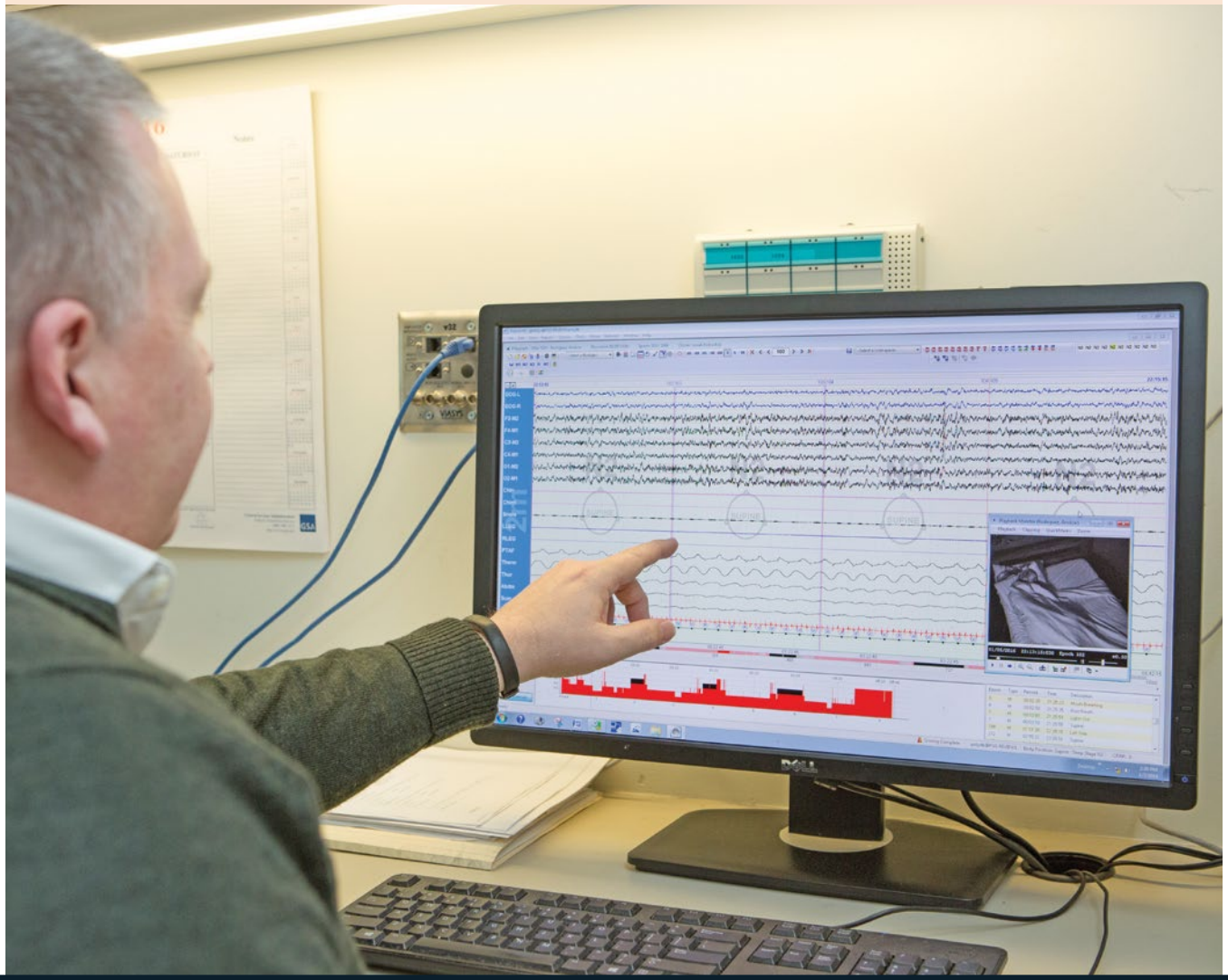
BEDSIDE TO BENCH AND BACK AGAIN

Trends have shown that new TBI diagnoses have declined since 2011; however, it is important to note that the total number of patients diagnosed with TBI continues to grow.* Fundamental to accomplishing the NICoE mission of improving the lives of patients and families impacted by TBI, a commitment to innovation and excellence through research is paramount.

The NICoE's research agenda is focused on longitudinal studies, treatment-based protocols, and the use of technology for diagnosis and treatment. The NICoE has had success in reintegrating patients back into their daily lives, but the job is far from done. Leveraging the volumes of data the NICoE has collected, and has access to within the MHS, is the first step in answering the challenging question of why some people get better and some don't.

To translate research into real outcomes for patients, researchers must connect the findings from longitudinal studies, treatment-based protocols, and the use of technology. Only then will the future of those enduring the persistent effects of TBI bring renewed hope.

* Source: Defense and Veterans Brain Injury Center, http://dvbic.dcoe.mil/dod-worldwide-numbers-tbi



NICoE CLINICIANS AND RESEARCHERS SUBMITTED 25 JOURNAL ARTICLES FOR PUBLICATION IN FY 2016

15-YEAR CAREGIVER STUDY: THE FUTURE OF TBI CARE-GIVING

A significant TBI research effort currently underway is the Congressionally-mandated 15-Year longitudinal study investigating the natural history of TBI and the impact of injury on service members and caregivers. This effort is critical to understanding the long-term impact of TBI on both individuals who have experienced a TBI and the families and loved ones who care for them. The 15-Year studies consist of four projects separated into two categories: Natural History Studies and Caregiver Studies.

While much of the attention in TBI research focuses on the injured person, an underserved area of research is the impact of TBI on the caregiver. Caregivers are immediate family members, close relatives, or other individuals who provide primary care and support to a patient after they leave the hospital. Often, these caregivers are the sole support to the patient and are "on call" 24 hours a day. The support they provide can include feeding, bathing, dressing, and essentially functioning as an extension of the patient to meet all of their daily needs. Despite the importance of this population, little research has been done to investigate the emotional, physical, and financial consequences of providing such intensive and demanding support.

As part of the Caregiver Study, the NICoE has helped characterize the challenges faced by this population and identified urgent needs for future actions to alleviate some of the stresses placed on the entire family unit of an injured service member. By providing around-the-clock care, oftentimes the caregivers can no longer remain employed, which places a tremendous financial burden on the family. Providing continuous basic care to a TBI patient, such as bathing and feeding, transforms the caregiver from an equal partner to the person with sole responsibility for their loved one's survival. The emotional demands placed on the caregiver can be compounded by the often fragile emotional state of a TBI patient, increasing challenges of care. Being in a long-term, stressful environment, with unremitting demands on emotional and physical resources, causes significant physical and psychological damage to those responsible for providing care.

In FY 2016, the seventh year of the study, researchers continued to make progress toward understanding the needs of TBI caregivers and identifying possible solutions. Data collected through this study will ultimately lead to identifying the challenges faced by caregivers and the solutions that will solve those problems. Examples of possible solutions already identified include tailored emotional counseling programs, supplemental funding beyond current benefits, and technology that allows caregivers to get the support they need.

MORE THAN 400 SPOUSE COUNSELING HOURS WERE PROVIDED IN FY 2016

A DAY IN THE LIFE OF A NICoE RESEARCHER

"THE ANATOMY OF A STUDY"

I'm getting really excited about a research project that I'm working on! I'm hoping that my colleagues have good suggestions in my meeting today with clinical operations.

I've been giving a lot of thought to my hypothesis and study design and think my overall design is solid; however, I'm reconsidering the number of participants. Based on the conversation, I may gather some additional data on the use of two particular patient assessments and complete a few comparative analyses on a handful of others. The NICoE is one of the few places where researchers and clinicians have the opportunity to work hand-in-hand.

I also need to schedule a touch base with the Informatics team, that is helping me with data collection. I know what analyses I want to run, but their team has much more expertise with accessing the data and running the comparisons I need.

As a researcher, I have found that everyone at the NICoE is accessible and willing to help ensure both clinical care and research are unparalleled. Yesterday, I popped in to chat about my project with the clinical service chief to better understand when two particular assessments are administered to patients. She was so helpful in explaining the process and was excited to hear that I'll be able to piggy back my work on what's being done clinically.

I was pleased to see an email from a journal that recently accepted one of our publications. They're doing the final review and the tech editors had a few minor questions that needed answers. I have a sense of excitement when the publication gets to this phase of the process, since it's the first time I get to see the whole article in its final layout.

Being a NICoE researcher gives me a lot of responsibility, and a lot of pride, too. I'm on the front lines of making discoveries that could change the future of TBI care. No matter what I'm working on, or what posters or journal articles are in progress, I keep thinking about the patients and families that our scientific advances will help. I am one piece of the puzzle in providing seamless transitions for our patients from beginning to end.

MORE THAN 2,400 HOURS OF BRAIN GAMES WERE PLAYED IN THE BRAIN FITNESS CENTER IN FY 2016

THE FUTURE OF TBI CLINICAL CARE AND RESEARCH

Contributing to the pipeline of medical professionals, providers, and researchers is an ongoing commitment of the NICoE. Providing hands-on experience to professionals in training gives the NICoE an opportunity to influence care both within the MHS and civilian sectors, nationally and internationally.

ART THERAPY STUDENT STUDIO

A biannual Art Therapy Student Studio, held in December and August, is provided by NICoE art therapists. Individuals of all ages who are interested in learning more about the program participate in this four-hour program with a small class size which may include: an art therapy presentation and case examples, an experiential activity, such as mask-making, and a question-and-answer session to provide aspiring art therapist attendees an opportunity to learn more about art therapy as a career.

BUILDING A NETWORK OF ADVOCATES

The NICoE welcomes distinguished visitors year-round ranging from U.S. military and government leaders to international experts and dignitaries. These visits provide an opportunity for the NICoE to increase awareness, understanding, and support among interested stakeholders looking for innovative, cutting-edge research, promising best practices, proven results to improve TBI treatment, and to overcome the challenges faced post-war.

A DAY IN THE LIFE OF A PROFESSIONAL IN TRAINING

LEARNING FOR THE FUTURE

I just finished my first week at the NICoE as a professional in training. I learned a lot about how the many different types of rehabilitation are used at the NICoE to support patient needs and goals. On my second day, I had the opportunity to shadow a physical therapist. She was incredibly knowledgeable and had a good sense of what the patient was going through. After one patient's vestibular visit, the physical therapist noticed something that may indicate a balance issue. Fortunately, the NICoE has a CAREN, or Computer Assisted Rehabilitation Environment, where patients can get specialized assessments for balance and gait.

In chatting with one of the patients, he told me he was really looking forward to his next appointment with the animal-assisted therapy program dogs. He has a lot of anxiety about being in crowds and going out in public, but with a four-legged friend at his side, he feels less anxious, and he was even able to ride the Metro.

I am inspired by patients' determination to take an active role in their recovery, and providers' commitment to giving patients the tools to succeed. I'm looking forward to the next six months of immersing myself in the patient experience. My time at the NICoE will help me become one piece of the puzzle of the future of TBI care.

PATIENTS SPENT HUNDREDS OF HOURS IN CREATIVE WRITING SESSIONS IN FY 2016

BIG DATA

Big Data is at the intersection of the advances made in data collection and the use of technology to analyze and understand it. With the NICoE's focus on tailored patient care, patient data can't be analyzed in isolation or siloed. Clinical, research, and Informatics professionals must work in tandem to leverage the power of Big Data to improve the quality of life for patients and build comprehensive, personalized health plans.

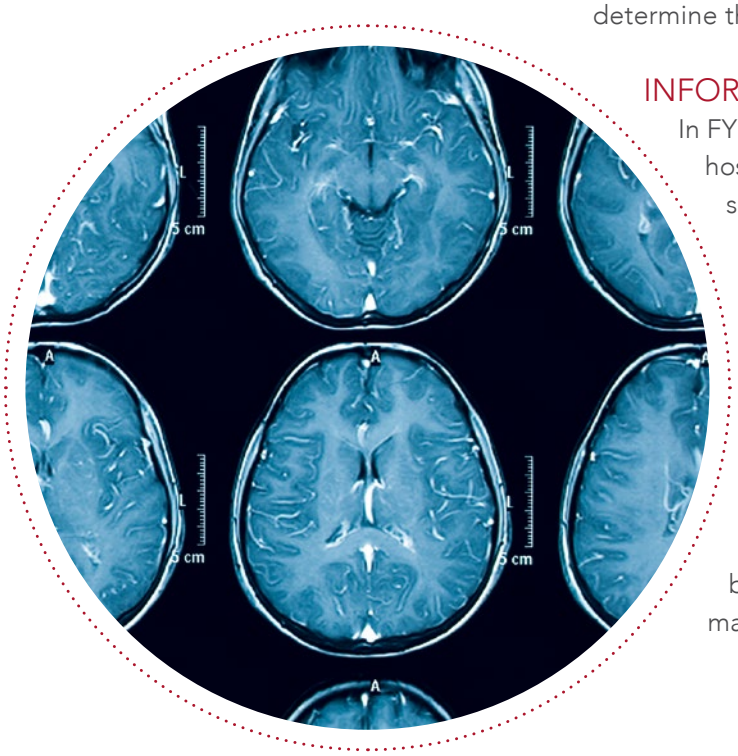
The NICoE has made great progress in the development of its IT infrastructure to assist clinicians and researchers in better understanding the complexity of each patient's case with a vision of using these insights to influence the future of TBI care. In FY 2014, the NICoE launched a system critical to clinical operations and research, the NICoE Continuity Management Tool (NCMT). The NCMT, leveraged with the Wounded Ill and Injured Registry, can be used to better understand the short- and long-term effects of TBI and provide metrics for further evaluating diagnoses and treatment efficacy.

CONTINUITY MANAGEMENT TOOL EXPANSION

In FY 2016, the functionality of the NCMT was expanded to include accommodation of provider availability and the incorporation of a messaging component to enable rapid clinician-administrative team coordination. A patient medication tracker was also developed to improve standardization and accessibility of information for the interdisciplinary team. Using standardized case report templates, such as the treatment plan form, intake form, and discharge summary, improved provider data collection and made it easier to analyze.

NICoE INFORMATICS DATABASE PAPER

Dr. Jesus J. Caban, NICoE Medical and Research Informatics Specialist, published, "A Large-Scale Informatics Database to Advance Research and Discovery of the Effects of Mild Traumatic Brain Injury," in *Military Medicine*'s May 2016 edition. The paper details some of the current limitations and opportunities of implementing large-scale databases within the Defense Health Agency (DHA). It also speaks to the efforts put forth to create user-friendly systems for collecting and analyzing deployed enterprise (MHS/DoD) databases that leaders, clinicians, and researchers can use to improve clinical care and determine the value of such an investment.



INFORMATICS OPEN HOUSE

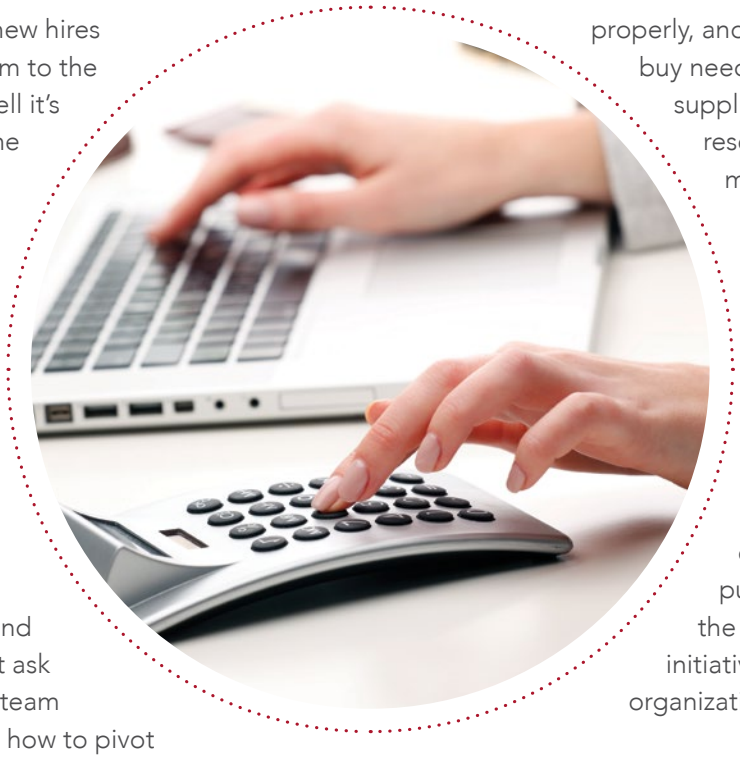
In FY 2016, the NICoE, in partnership with the DHA, hosted an Informatics Open House. This event showcased the latest advancements in database development, application utilization, and dashboard integration conducted within the DHA and at the NICoE.

The Informatics Open House brought together leaders from across the DHA, clinical personnel from the MHS, and supporting contractors to discuss leveraging data capabilities across the MHS. This was an opportunity for the NICoE to be a leader in developing applications and managing data effectively.

THE NICoE BRAIN IMAGE LIBRARY EXPANDED BY MORE THAN 11 MILLION IMAGES IN FY 2016

A DAY IN THE LIFE OF AN ADMIN STAFF MEMBER

UNWAVERING SUPPORT



I just escorted one of our new hires onto the base to bring them to the NICoE, and I can already tell it's going to be a busy day! The processing of a new staff member takes time and energy but pays off when they are able to step right into their role within the organization. It does take the entire team within the administrative staff to ensure all aspects of supporting clinical and research operations are carried out in an efficient and effective manner. I couldn't ask for a better administrative team that always seems to know how to pivot and adapt no matter what comes our way. For example, yesterday, one of our researchers was having trouble with her computer. Our IT support came right away so that she could finish her abstract by the submission deadline.

Because my team and I handle the finances, staff members get paid, the lights and building works properly, and we can maintain and buy needed equipment and supplies for the clinic and research departments. We monitor facilities, and ensure that the building is comfortable, all systems work correctly, and everyone has a workspace. We support the administration of contracts, provide for staff education and engagement, handle public affairs, and oversee the quality and strategic initiatives for the entire organization.

The work that we perform behind the scenes; ensuring that everything from personnel, equipment and supplies, financial resources, and informatics and IT support are available when needed, allows the NICoE operations to carry on as planned. We are proud of what we do to support the NICoE in providing consistent, high-quality patient care and conducting innovative research.

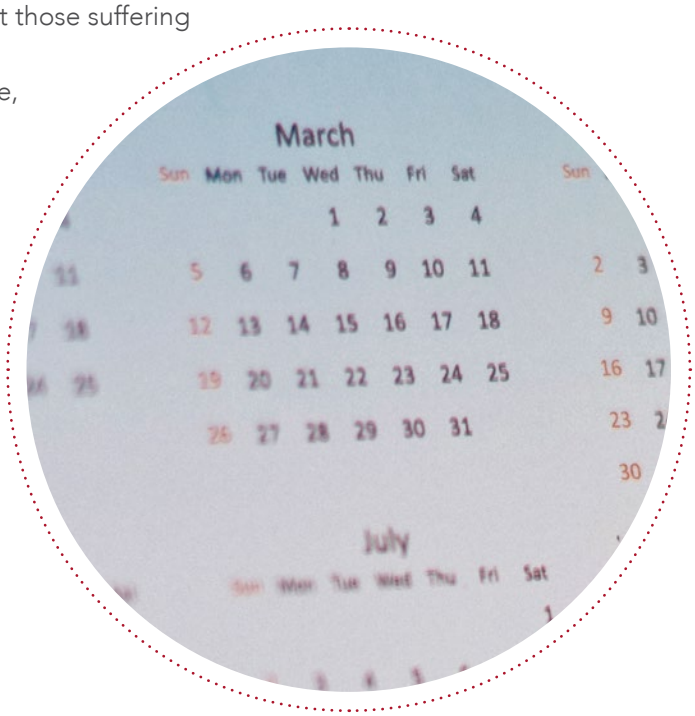
MORE THAN 2.4 MILLION PATIENT DATA POINTS WERE COLLECTED IN FY 2016

NICoE STAFF ATTENDED MORE THAN 60 PROFESSIONAL CONFERENCES IN FY 2016

BRAIN INJURY AWARENESS MONTH

Brain Injury Awareness (BIA) month, held in March each year, is a time to raise awareness and share information about TBI. As a contributor to the world of TBI research and clinical care, the NICoE marked this month with a myriad of activities.

A WRNMMC BIA Month Resource Fair kicked off the month and provided the opportunity for NICoE and other organizations to interact with hospital staff, patients, and their families. Other events included a post-traumatic headache discussion, a symptom that can negatively affect those suffering from TBI, and a NICoE Town Hall, which former WRNMMC Director, Navy Rear Adm. David Lane, attended to congratulate NICoE staff and share well wishes for successes and hard work.



NICoE educators also provided a "TBI 101" course open to all WRNMMC staff and patients, providing information on TBI definition, epidemiology, common causes and symptoms, basic assessment, management, and resources.

To close out the month, NICoE leadership and research personnel attended Capitol Hill Day. This was a great opportunity for staff to advocate to our nation's leaders for the continued focus on TBI care and research.

A DAY IN THE LIFE OF A VOLUNTEER

GIVING TIME, GIVING CARE

As a WRNMMC Red Cross volunteer who mans the front desk, I am often the first person who interacts with patients, families, and other visitors. It's really busy today with Interdisciplinary Clinic appointments and a conference taking place in the NICoE Auditorium. I am one piece of the puzzle, and I love getting to meet so many people.

My grandfather served in the military, as did several other friends and family members, so giving back to those who sacrifice for our country and their loved ones is important to me. This is why I signed up to volunteer at the NICoE.

Patients who come through the NICoE's doors don't always look injured. They walk, talk, and act like anyone else you might know. But some of them carry experiences and trauma with them that isn't visible to the naked eye. I can't imagine how that must feel, but I can lend a hand to contribute to NICoE patients and families who go through these hardships. Knowing that they get the care and learn skills they need to move forward in their lives is reward enough for me.

PATIENTS MADE MORE THAN 1,500 SUN SALUTATIONS IN FY 2016

Distinguished visitors from more than 18 countries visited the NICoE in FY 2016. They represented stakeholders across the federal government, Congress, the military, and other academic and research partners.

139 MILITARY VISITORS

70 ACADEMICS, NONPROFITS, AND OTHER VISITORS

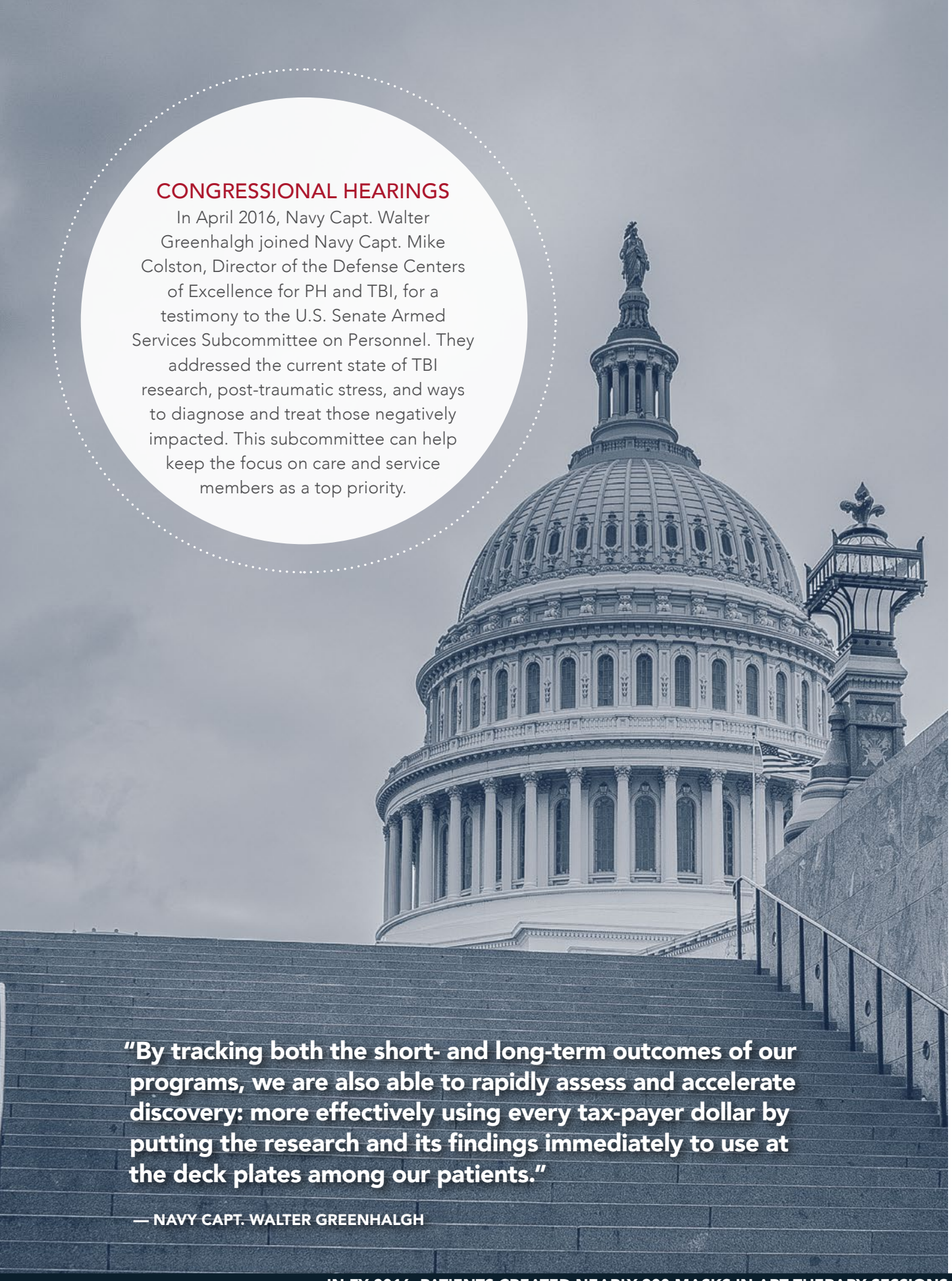
79 INTERNATIONAL VISITORS

90 MEMBERS OF CONGRESS AND THE FEDERAL GOVERNMENT

PRESIDENT BARACK OBAMA VISITS THE NICoE

President Barack Obama visited the NICoE in August 2016. During his visit, he spoke to patients and providers, learned about the organization, WRNMMC, and how the NICoE plays a key role within the MHS.

PATIENTS CREATED CDS IN MUSIC THERAPY SESSIONS, INCLUDING A COMPILATION FOR PRESIDENT OBAMA, IN FY 2016



CONGRESSIONAL HEARINGS

In April 2016, Navy Capt. Walter Greenhalgh joined Navy Capt. Mike Colston, Director of the Defense Centers of Excellence for PH and TBI, for a testimony to the U.S. Senate Armed Services Subcommittee on Personnel. They addressed the current state of TBI research, post-traumatic stress, and ways to diagnose and treat those negatively impacted. This subcommittee can help keep the focus on care and service members as a top priority.

"By tracking both the short- and long-term outcomes of our programs, we are also able to rapidly assess and accelerate discovery: more effectively using every tax-payer dollar by putting the research and its findings immediately to use at the deck plates among our patients."

— NAVY CAPT. WALTER GREENHALGH

IN FY 2016, PATIENTS CREATED NEARLY 300 MASKS IN ART THERAPY SESSIONS

NICoE AND INTREPID SPIRIT CENTER PARTNERSHIP NETWORK

FIRST-OF-ITS-KIND TBI SUMMIT

In August 2016, the NICoE hosted a summit with leadership from the NICoE, the nine Intrepid Spirit Centers (ISCs), the VHA, Landstuhl Regional Medical Center, the DVBIC, the military services' TBI consultants, and the IFHF.

This first-of-its-kind TBI Summit demonstrated the evolution of the TBI care network first envisioned in 2009, and was an opportunity for network leadership and partners to discuss advances being made, challenges to overcome, and capabilities specific to each organization. The focus of the summit was primarily clinical operations, with an emphasis on leveraging clinical care to guide research concepts. Identifying IT resources and data sharing opportunities for program evaluation and research activities was also a point of discussion.

Representatives joined forces to share knowledge on many key areas of TBI and PH, including:

- Enhanced case management
- Integrative treatments
- Internal medicine
- Neuroimaging
- Occupational therapy
- Post-traumatic headaches
- Pain management
- Physical therapy
- Sleep disturbances

The summit resulted in two major accomplishments:

1. An agreement among NICoE, ISCs, and partners that core evaluations and outcome metrics are needed to enhance the ability to measure the effectiveness of TBI treatments in this complex environment across the network

2. The establishment of clinical discipline working groups across the network to determine standardized core evaluations, a research agenda, and patient referral and tracking guidelines

Together, these accomplishments will provide a platform to assess clinical performance across the network, as well as an opportunity to perform critical MHS research using the unique patient care programs being offered at each facility.

As TBI remains a major focus for the MHS and other government, private, and academic organizations, the sharing of TBI and PH conditions data and associated best practices ensures that more people, globally, can get the care and information they need. The network continues its research to propel TBI care forward and find individualized solutions to support the TBI patient population.

MORE THAN 85 CHILDREN JOINED THEIR PARENTS AT THE NICoE IN FY 2016

WELCOME TO THE FAMILY!

Two New Intrepid Spirit Centers Open and One Breaks Ground

In 2016, the TBI Pathway of Care welcomed two new ISCs to the family. Fort Hood, Texas, and Fort Bragg, North Carolina, ISCs opened in March. Additionally, FY 2016 saw the ground breaking of the ISC at Joint Base Lewis-McChord, Washington, which is set to open in 2017. A total of five ISCs are currently open, and the IFHF, with support from the American people, has offered to fund and build a total of nine localized TBI care facilities across the country. These ISCs contribute to the expansion and growth of the TBI care model that began with the NICoE. Though command and control is overseen by their respective local military treatment facility, they serve as vital components of the TBI Pathway of Care by providing interdisciplinary, holistic, patient-centered care to patients who are stationed or live in the vicinity. These innovative facilities treat thousands of patients annually.

MORE THAN 5,000 FRUITS AND VEGETABLES WERE PREPARED IN NUTRITION APPOINTMENTS IN FY 2016

NICoE WORKS AND CONTRIBUTIONS

The NICoE has partnered with numerous government laboratories and private and academic institutions. The National Institutes of Health and Uniformed Services University of the Health Sciences have been key collaborators, due to both physical proximity and shared interests in advancing the global knowledge of TBI and PH conditions.

The following highlights works and contributions from FY 2016.

PEER-REVIEWED JOURNAL ARTICLES

Bailie, J. M., Kennedy, J. E., **French, L. M.**, Marshall, K., Prokhorenko, O., Asmussen, S., ... & **Lange, R. T.** (2016). Profile Analysis of the Neurobehavioral and Psychiatric Symptoms Following Combat-Related Mild Traumatic Brain Injury: Identification of Subtypes. *The Journal of Head Trauma Rehabilitation, 31*(1), 2-12.

Brickell, T. A., Lippa, S. M., French, L. M., Kennedy, J. E., Bailie, J. M., & **Lange, R. T.** (2016). Female Service Members and Symptom Reporting after Combat and Non-Combat-Related Mild Traumatic Brain Injury. *Journal of Neurotrauma*. Advanced online publication. doi: 10.1089/neu.2016.4403.

Caban, J. J., Bonnema, A., **Bueno, E. R., DeGraba, T., Grammer, G., Greenhalgh, W., & Kass, S.** (2016). A large-scale informatics database to advance research and discovery of the effects of mild traumatic brain injury. *Military Medicine*, 181(5S), 11-22.

Chernomordik, V., Amyot, F., **Kenney, K.**, Wassermann, E., Diaz-Arrastia, R., & Gandjbakhche, A. (2016). Abnormality of low frequency cerebral hemodynamics oscillations in TBI population. *Brain research*, 1639, 194-199.

Cooper, D. B., Bowles, A. O., Kennedy, J. E., Curtiss, G., **French, L. M.**, Tate, D. F., & Vanderploeg, R. D. (2016). Cognitive Rehabilitation for Military Service Members with Mild Traumatic Brain Injury: A Randomized Clinical Trial. *The Journal of Head Trauma Rehabilitation*. Advanced online publication. doi: 10.1097/HTR.0000000000000254.

Dabek, F., & Caban, J. J. (2015, November). A grammar-based approach to model the patient's clinical trajectory after a mild traumatic brain injury. In *Bioinformatics and Biomedicine (BIBM), 2015 IEEE International Conference* (pp. 723-730). IEEE.

Dabek, F., Chen, J., Garbarino, A., & **Caban, J. J.** (2015, October). Visualization of longitudinal clinical trajectories using a graph-based approach. In *Proceedings of the 2015 Workshop on Visual Analytics in Healthcare* (p. 5). ACM.

Dretsch, M. N., Williams, K., Staver, T., Grammer, G., Bleiberg, J., DeGraba, T., & Lange, R. T. (2016). Evaluating the clinical utility of the Validity-10 for detecting amplified symptom reporting for patients with mild traumatic brain injury and comorbid psychological health conditions. *Applied Neuropsychology: Adult*, 1-5.

Emmerich, T., Abdullah, L., Crynen, G., **Dretsch, M.**, Evans, J., Ait-Ghezala, G., ... & Crawford, F. (2016). Plasma Lipidomic Profiling in a Military Population of Mild Traumatic Brain Injury and Post-Traumatic Stress Disorder with Apolipoprotein E ε4–Dependent Effect. *Journal of Neurotrauma*, 33(14), 1331-1348.

Haran, F. J., **Dretsch, M. N., & Bleiberg, J.** (2016). Performance on the Defense Automated Neurobehavioral Assessment Across Controlled Environmental Conditions. *Applied Neuropsychology: Adult*, 1-7.

Haran, F. J., **Dretsch, M. N.**, Slaboda, J. C., Johnson, D. E., Adam, O. R., & Tsao, J. W. (2016). Comparison of baseline-referenced versus norm-referenced analytical approaches for in-theatre assessment of mild traumatic brain injury neurocognitive impairment. *Brain injury, 30*(3), 280-286.

Jonas, W. B., Bellanti, D. M., Paat, C. F., Boyd, C. C., Duncan, A., Price, A., ..., **French, L.M.**, & Chae, H. (2016). A Randomized Exploratory Study to Evaluate Two Acupuncture Methods for the Treatment of Headaches Associated with Traumatic Brain Injury. *Medical Acupuncture, 28*(3), 113-130.

Karamzadeh, N., Amyot, F., **Kenney, K.**, Anderson, A., Chowdhry, F., Dashtestani, H., ... & Diaz-Arrastia, R. (2016). A machine learning approach to identify functional biomarkers in human prefrontal cortex for individuals with traumatic brain injury using functional near-infrared spectroscopy. *Brain and Behavior, 6*(11), e00541.

Kenney, K., Amyot, F., Haber, M., Pronger, A., Bogoslovsky, T., Moore, C., & Diaz-Arrastia, R. (2016). Cerebral vascular injury in traumatic brain injury. *Experimental neurology, 275*, 353-366.

Koay, C. G., **Yeh, P. H., Ollinger, J. M.**, İrfanoğlu, M. O., Pierpaoli, C., Basser, P. J., **Oakes, T, ... & Riedy, G**. (2016). Tract Orientation and Angular Dispersion Deviation Indicator (TOADDI): A framework for single-subject analysis in diffusion tensor imaging. *NeuroImage, 126*, 151-163.

Lee, D. J., Schnitzlein, C. W., **Wolf, J. P.**, Vythilingam, M., Rasmusson, A. M., & Hoge, C. W. (2016). Psychotherapy versus Pharmacotherapy for Posttraumatic Stress Disorder: Systemic Review and Meta-Analyses to Determine First-Line Treatments. *Depression and anxiety, 33*, 792-806.

Nathan, D. E., Bellgowan, J. F., **Oakes, T., French, L. M.**, Nadar, S. R., **Sham,** E. B., ... & **Riedy, G.** (2016). Assessing quantitative

changes in intrinsic thalamic networks in blast and non-blast Mild TBI: Implications for mechanisms of injury. *Brain connectivity, 6*(5), 389-402.

Onakomaiya, M. M., & Henderson, L. P. (2016). Mad men, women and steroid cocktails: a review of the impact of sex and other factors on anabolic androgenic steroids effects on affective behaviors. *Psychopharmacology, 233*(4), 549-569.

Pape, M. M., Williams, K., Kodosky, P. N., & Dretsch, M. (2016). The Community Balance and Mobility Scale: A Pilot Study Detecting Impairments in Military Service Members With Comorbid Mild TBI and Psychological Health Conditions. *The Journal of Head Trauma Rehabilitation, 31*(5), 339-345.

Popescu, M., Hughes, J. D., Popescu, E. A., Riedy, G., & DeGraba, T. J. (2016). Reduced prefrontal MEG alpha-band power in mild traumatic brain injury with associated posttraumatic stress disorder symptoms. *Clinical Neurophysiology, 127*(9), 3075-3085.

Riedy, G., Senseney, J. S., Liu, W., Ollinger, J., Sham, E., Krapiva, P., ... & **Nathan, D.** (2015). Findings from structural MR imaging in military traumatic brain injury. *Radiology, 279*(1), 207-215.

Temme, L. A., Onge, P. S., & **Bleiberg, J.** (2016). A History of Mild Traumatic Brain Injury affects Peripheral Pulse Oximetry during Normobaric Hypoxia. *Frontiers in Neurology, 7*, 149.

Walker, M. S., Kaimal, G., Koffman, R., & DeGraba, T. J. (2016). Art therapy for PTSD and TBI: A senior active duty military service member's therapeutic journey. *The Arts in Psychotherapy, 49*, 10-18.

Wickwire, E. M., Williams, S. G., Roth, T., Capaldi, V. F., Jaffe, M., Moline, M., ..., **Morgan, G.W.**, & Pazdan, R. M. (2016). Sleep, sleep disorders, and mild traumatic brain injury. What we know and what we need to know: findings from a national working group. *Neurotherapeutics, 13*(2), 403-417.

ORAL/PODIUM SCIENTIFIC CONFERENCE PRESENTATIONS

Brungart, D., Kwiatkowski, T., **Kruger, S.**, Cohen, J., & Heil, T. (2016, February). *Effects of Blast Exposure and mTBI on the Aurally-Aided Visual Search Performance of Walking and Standing Listeners.* Presentation at the Association of Research in Otolaryngology Annual Mid-Winter Meeting, San Diego, CA.

French, L.M. (2016, February). *The Role of Resilience on Outcome from Traumatic Brain Injury: Examination of Neurocognitive Status, Neurobehavioral Functioning, Personality, and Health-related Quality of Life*. Presentation at the International Brain Injury Association World Congress, Hague, Netherlands.

Gong, Y., Campbell, C., Qu, B.X., Silverman, E., Moore, C., **Kenney, K.**, & Diaz-Arrastia, R. (2016, April). *Biomarkers of vascular integrity after traumatic brain injury (TBI), and correlation with cerebrovascular reactivity and phosphodiesterase 5 inhibition.* Presentation at the 2016 American Academy of Neurology (AAN), Vancouver BC, Canada.

Greenhalgh, W., French, L.M., & DeGraba, T. (2016, August). *Centers of Excellence Research Overview.* Presentation at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Highland, K., **Onakomaiya, M., Mielke, J.**, Brungart, D., Roy, M., & **Kruger, S.** (2016, August). *Neuropsychological correlates of performance in the Computer Assisted Rehabilitation Environment (CAREN) in service members with a history of traumatic brain injury.* Presentation at the Military Health Research Symposium (MSHRS), Kissimmee, FL.

Karamzadeh, N.S., Amyot, F., **Kenney, K.**, Wasserman, E., Diaz-Arrastia, R., & Ganghbankche, A. (2016, April). *Cerebral hemocynamic changes after mild TBI.* Presentation at the 2016 National Capitol Area TBI Research Symposium, Bethesda, MD.

Kenney, K., Amyot, F., Turtzo, L.C., Haber, M., Silverman, E., **Moore, C.**, Shenouda, C., Wassermann, E., & Diaz-Arrastia, R. (2016, August). *Cerebrovascular reactivity in chronic traumatic brain injury-the sildenafil effect.* Presentation at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Koay, C.G. (2016, June). *Pseudometrically constrained centroidal Voronoi tessellation of the sphere and its application to 3D radial MRI acquisition design.* Presentation at the SIAM Conference on Discrete Mathematics, Atlanta, GA.

Koay, C. G., Yeh, P.H., Ollinger, J., İrfanoğlu, M. O., Pierpaoli, C., Basser, P., **Oakes, T., & Riedy, G.** (2016, April). *Tract Orientation and Angular Dispersion Deviation Indicator (TOADDI): A Framework for Single-Subject Analysis in Diffusion Tensor Imaging.* Presentation at the Dagstuhl Seminar, Dahgstuhl, Germany.

Koay, C. G., Yeh, P.H., Ollinger, J., İrfanoğlu, M. O., Pierpaoli, C., Basser, P., **Oakes, T., & Riedy, G.** (2016, May). *Tract Orientation and Angular Dispersion Deviation Indicator (TOADDI): A Framework for Single-Subject Analysis in Diffusion Tensor Imaging.* Presentation at the International Society for Magnetic Resonance in Medicine, Suntec City, Singapore.

Kokx-Ryan, M., **Nousak, J.**, Jackson, J., **DeGraba, T.**, Brungart, D., Grant, K. (2016, August). *Improved Management of Patients with Auditory Processing Deficits Fit with Low-Gain Hearing Aids.* Presentation at the International Hearing Aid Research Conference 2016, Tahoe City, CA.

Nathan, D. & Riedy, G. (2016, April). *Exploring the Influence of Depression Symptoms within the Default Mode Network in a Military Chronic Mild Traumatic Brain Injury Sample.* Presentation at the National Capital Area TBI Research Symposium, Bethesda, MD.

Ollinger, J., Yeh, P., Koay, C. G., & Riedy, G. (2016, August). *Detection of DTI Anomalies in Chronic Mild Traumatic Brain Injury.* Presentation at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Ollinger, J., Yeh, P. & Koay, C. G. (2016, April). *Detection of DTI Anomalies in Chronic Mild Traumatic Brain Injury.* Presentation at the National Capital Area TBI Research Symposium, Bethesda, MD.

Pape, M.M. & Kodosky, P.N. (2016, November). *A Multisensory Approach to mTBI Vestibular Disturbance*. Presentation at the MD/DE/DC APTA Combined Sections Conference, Silver Spring, MD.

Reinsfelder, A., & Porcello, D. (2016, July). *The Use of Assistive Technology (AT) to Address Cognitive Deficits for those with Anxiety, Depression and PTSD.* Presentation at the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), Arlington, VA.

Santhanam, P., **Yeh, P.**, Varvaris, M., **Teslovich, T., Oakes, T., Riedy, G.**, & Weaver, L. (2016, April). *Central Auditory Processing Disorders after Mild Traumatic Brain Injury.* Presentation at the National Capitol Area TBI Research Symposium, Bethesda, MD.

Sullivan, K. (2015, November). *Best practices to navigate and implement the emerging brain health toolkit.* Presentation at the Sharpbrains Virtual Summit 2015: Monitoring & Enhancing Brain Health in the Pervasive Neurotechnology Era, Webinar.

Sullivan, K. (2015, November). *Military Mental Health Brain Fitness Center BrainFutures.* Presentation at the BrainFutures 2015 Centennial Conference of the Mental Health Association of Maryland, Annapolis, MD.

Walker, M. (2016, May). *Consequences of Polypharmacy in Patient with Traumatic Brain Injury and Comorbid Psychological Health Conditions: Case Report of a Service Member with Severe Postconcussive Syndrome and Polypharmacy and their Recovery Facilitated by Creative Art Therapy.* Presentation at the American Psychiatry Association, Atlanta, GA.

Walker, M. & Kaimal, G. (2016, July). *Art Therapy for Active Duty Military Service Members with PTSD and TBI: Clinical Practice, Research, and Evaluation.* Presentation at the American Art Therapy Annual Conference, Baltimore, MD.

Wolf, J. (2016, May). *Effective Treatments for PTSD and How it Interacts with TBI*. Presentation at the U.S Special Operations Command Care Coalition Conference, Orlando, FL.

Wolf, J. (2016, May). *PTSD and TBI - The Future of SOF Care*. Presentation at the U.S Special Operations Command Care Coalition Conference, Orlando, FL.

Wolf, J. (2016, May). *Practice Guidelines and Meta-Analyses for Medication Management of Traumatic Brain Injury and PTSD.* Presentation at the American Psychiatric Association 169th Annual Meeting, Atlanta, GA.

Yeh, P. & Riedy, G. (2016, April). *Aberrant Structural and Functional Networks Associated with Comorbidity of Depression and Mild Traumatic Brain Injury.* Presentation at the National Capital Area TBI Research Symposium, Bethesda, MD.

POSTERS

Amyot, F., Haber, M., **Kenney, K., Moore, C.**, Silverman, E., Shenouda, C., … & Diaz-Arrastia R. (2016, April). *Correlation between cerebrovascular reactivity and cerebral blood flow in TBI.* Poster presented at the 2016 National Capitol Area TBI Research Symposium, Bethesda, MD.

Bleiberg, J., Temme, L., Smith, C., & **Williams, K.** (2015, December). *Prolonged Effect of Normobaric Hypoxia on Cognitive Function*. Poster presented at AMSUS the Society of Federal Health Professionals, San Antonio TX.

Brickell, T.A., Lange, R.T., Graham, A., **Gartner, R., Driscoll, A.**, Zoe, L., …, **Johnson, L., Nora, D., & French, L.M.** (2015, November). *Psychological Resilience and Health-related Quality of Life following Mild TBI in U.S. Military Service Members.* Poster presented at the 35th National Academy of Neuropsychology, Austin, TX.

Brickell, T., Lange, R., Lippa, S., Bailie, J., **Gartner, R.**, Dilay, A., … & **French, L.M.** (2016, June). *The Impact of Mild-moderate TBI on Health-related Quality of Life from 1-Year to 2-Years Post-injury in U.S. Military Service Members.* Poster presented at the American Academy of Clinical Neuropsychology, Chicago, IL.

Brickell, T., Lippa, S., French, L.M., Kennedy, J., Bailie, J., & **Lange, R.** (2016, April). *Gender Differences in Self-reported Postconcussion and Posttraumatic Stress Symptoms Following Combat and Non-combat Related Mild Traumatic Brain Injury.* Poster presented at the North American Brain Injury Society's 13th Annual Conference on Brain Injury, Tampa, FL.

Brickell, T., French, L.M., Bailie, J., **Lippa, S., Gartner, R., Driscoll, A., … & Lange, R.** (2016, April). *Post-9/11 Family Caregivers: Examining the Characteristics and Perceived Burden of Family Members who Care for U.S. Military Service Members Following Traumatic Brain Injury.* Poster presented at the North American Brain Injury Society's 13th Annual Conference on Brain Injury, Tampa, FL.

Brickell, T., Carlozzi, N., Sander, A., Kratz, A., **French, L.M.**, Tulsky, D., … & **Lange, R.** (2016, April). *Barriers and Supports to Health Care among Caregivers of Service Members with Traumatic Brain Injury: A Qualitative Analysis using Focus Group Methodology.* Poster presented at the North American Brain Injury Society's 13th Annual Conference on Brain Injury, Tampa, FL.

Brickell, T., French, L.M., Lange, R., Bailie, J., **Sullivan, J.**, Thompson, D., … & **Lippa, S.** (2016, June). *A Longitudinal Comparison of Postconcussion Symptom Status from the Acute/Sub-acute Recovery Phase to 1-Year following Mild-moderate TBI: Part 1 of 2.* Poster presented at the American Academy of Clinical Neuropsychology, Chicago, IL.

Cole, J., Hauptmann, A., **Caban, J., Pettit, W., DeGraba, T., & Grammer, G.** (2016, August). *Identifying sub-populations among service members with combat- or mission related mild traumatic brain injury and co-morbid psychological health conditions.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Cord, L., **Law, W., Marble, S., Kensky, S.**, Arbogast, A., & **Sullivan, K.** (2015, November). *Participation in Heart Rate Variability and Mindfulness Skills Training in Military Patients Seeking Cognitive Improvements.* Poster presented at the American Speech-Hearing Association Annual Convention, Denver, CO.

DeGraba, T., Grammer, G., Williams, K., NICoE Working Group, & Kelly, J. (2016, April). *Efficacy of an interdisciplinary outpatient program in treating combat-related TBI and psychological conditions.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

DeGraba, T., Popescu, M., Popescu, A., Mikola, J., Dretsch, M., DeGraba, M., & Hughes, J. (2016, May). *Reduction in magnetoencephalography event-related activation of dominant hemisphere association cortex during lexical retrieval in mTBI patients with residual cognitive deficits.* Poster presented at the WRNMMC 8th Annual NCR Research Competition, Bethesda, MD.

Eierud, C., Nathan, D., Teslovich, T., Varbaris, M., **Riedy, G., & Ollinger, J.** (2016, April). *Mild Traumatic Brain Injury Blast Differentiates Neural Cortex Thickness and PTSD Symptoms.* Poster presented at the Maryland Neuroimaging Retreat, Baltimore, MD.
Eierud, C., Nathan, D., Teslovich, T., Varvaris, M., R**iedy, G., & Ollinger, J.** (2016, April). *Significant Cortical Difference Between Blast and Non-Blast Mild Traumatic Brain Injury.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

French, L.M., Brickell, T., Lippa, S., Bailie, J., **Gartner, R.**, Dilay, A., … & **Lange, R.** (2016, June). *Self-reported Outcome Five Years Following Mild-Moderate Traumatic Brain Injury.* Poster presented at the American Academy of Clinical Neuropsychology, Chicago, IL.

French, L.M., Brickell, T.A., Sullivan, K., & Lange, R.T. (2015, November). *Relationship between Sleep Distribution and Health-Related Quality of Life Following Mild TBI in U.S. Military Service Members.* Poster presented at the 35th National Academy of Neuropsychology, Austin, TX.

Hughes, J., Popescu, M., Popescu, A., & DeGraba, T. (2016, April). *Regionally specific alpha-band asymmetry in prefrontal and medial parietal cortex in mTBI with significant PTSD symptoms: an MEG study.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

Kenney, K., Amyot, F., **Moore, C.**, & Diaz-Arrastia, R. (2016, January). *Cerebrovascular Reactivity in Chronic TBI.* Poster presented at the Keystone Symposia, Traumatic Brain Injury: Clinical, Pathological and Translational Mechanisms, Santa Fe, NM.

Kenney, K., Amyot, F., **Moore, C.**, Turtzo, L.C., Silverman, E., Haber, M., … & Diaz-Arrastia, R. (2016, April). *Cerebrovascular reactivity in chronic traumatic brain injury (TBI).* Poster presented at the 2016 National Capitol Area TBI Research Symposium, Bethesda, MD.

Kenney, K., Amyot., F., Turtzo, L.C., Haber, M., Silverman, E., **Moore, C.**, … & Diaz-Arrastia, R. (2016, June). *Cerebrovascular reactivity in chronic traumatic brain injury- the sildenafil effect.* Poster presented at the 2016 Society of Neurotrauma, Lexington, KY.

Kenney, K., Katz, D.I., Edlow, B.L., Diaz-Arrastia, R., Daneshwar, D. H., Dams-O'Connor, K., … & Perl, D. P. (2016, August). *Latent dementia after single moderate-severe TBI: The clinicopathological findings in 2 cases.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

King, J., Pape, M., & Kodosky, P. (2016, March). V*estibular Test Patterns in Blast Injury Population.* Poster presented at the American Balance Society, Scottsdale, AZ.

King, J., Pape, M., & Kodosky, P. (2016, August). *Vestibular Test Patterns in Blast Injury Population.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Tricia, J., Kwiatkowski, T., **Kruger, S.**, Heil, T., Ramos, L., Kokx-Ryan, M., & Brungart, D. (2016, August). *The Effects of Platform Perturbation and Variable Length Auditory Cues on Auditory Localization and Visual Search Performance in Service Members with Blast-Related Traumatic Brain Injury.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Kwiatkowski, T., **Kruger, S.**, Zion, D., Heil, T., Highland, K., & Brungart D. (2016, April). *Effects of Walking on Auditory Localization and Visual Search in Service Members with Blast Traumatic Brain Injury.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

Lange, R., Brickell, T., Lippa, S., Chan, L., McNally, S., Van der Merwe, A. J., & **French, L.M.** (2016, August). *The Influence of PTSD on Outcome from Civilian and Military-related Mild Traumatic Brain Injury: Preliminary findings from and NIH/DoD Multi-site Collaborations.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Lange, R., Brickell, T., Tulsky, D., Holdnack, J., & **French, L.M.** (2016, April). *Development and Preliminary Validation of Symptom Validity Index for the Traumatic Brain Injury-Quality of Life (TBI-QOL) Scale.* Poster presented at the North American Brain Injury Society's 13th Annual Conference on Brain Injury, Tampa, FL.

Lange, R., French, L.M., Bailie, J., **Lippa, S., Gartner, R., Driscoll, A., … & Brickell, T.** (2016, April). *Caring for U.S. Military Service Members Following Mild-Moderate Traumatic Brain Injury: Examination of Access to Services, Service Needs, and Barriers to Care.* Poster presented at the North American Brain Injury Society's 13th Annual Conference on Brain Injury, Tampa, FL.

Lange, R., French, L.M., Brickell, T., Bailie, J., & **Lippa, S.** (2016, June). *Does the Validity-10 Scale Incorrectly Identify Symptom Exaggeration when Genuine Distressing Symptoms are Endorsed?* Poster presented at the American Academy of Clinical Neuropsychology, Chicago, IL.

Lange, R., French, L.M., Lippa, S., Bailie, J., Pizzano, B., Johnson, L, … & **Brickell, T.** (2016, June). *The Natural History of Individual Postconcussion Symptoms from the Acute/ Sub-acute Recovery Phase to 1-Year following Mild-moderate TBI: Part 2 of 2.* Poster presented at the American Academy of Clinical Neuropsychology, Chicago, IL.

Lange, R.T., Iverson, G.L., Arrieux, J.P, Dennison, E.M., Bailie, J., Ivins, B., & Cole, W.R. (2015, November). *Non-specificity, and Some Instability, of 'Postconcussion-like' Symptom Reporting in Healthy U.S. Military Sample.* Poster presented at the 35th National Academy of Neuropsychology, Austin, TX.

Lange, R., Lippa, S., French, L.M., Bailie, J., **Gartner, R., Driscoll, A., … & Brickell, T.** (2016, April). *Transitioning Home Following Traumatic Brain Injury: Examination of the Long-Term Service Needs and Barriers for Caregivers of Military Personnel Following Injury.* Poster presented at the North American Brain Injury Society's 13th Annual Conference on Brain Injury, Tampa, FL.

Lange, R.T., Yeh, P., Oakes, T.R., Riedy, G., & French, L.M. (2015, November). *Diffusion Tensor Imaging and Postconcussion Symptom Reporting in US Military Service Members Following Mild-Moderate Traumatic Brain Injury.* Poster presented at the 35th National Academy of Neuropsychology, Austin, TX.

LaRochelle, C., **Grammer, G., Williams, K., Rampino, M., & DeGraba, T.** (2016, April). *Differences between Special Forces and Non-Special Forces response to TBI as Measured by Breath-Hold Index: A Study of Cerebral Autonomic Dysregulation.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

Leonard, T., St. Onge, P., **Bleiberg, J.**, Still, D., & Smith C. (2015, December). *A History of Mild Traumatic Brain Injury May Alter Pulse Oximetry During Normobaric Hypoxia.* Poster presented at AMSUS the Society of Federal Health Professionals, San Antonio TX.

Lippa, S., Brickell, T., French, L.M., Bailie, J., **Sullivan, J.**, Thompson, D., … & **Lange, R.** (2016, June). *The Relationship between Symptom Reporting in the Acute Care Phase and Neurobehavioral Outcome 1-Year Following Mild-Moderate Traumatic Brain Injury.* Poster present at the American Academy of Clinical Neuropsychology, Chicago, IL.

Lippa, S., Lange, R., & Axlerod, B. (2016, February). *Subjective Memory Problems, Performance Validity Test Failure, and Objective Neurocognitive Performance.* Poster presented at the 44th Annual International Neuropsychological Society Conference, Boston MA.

Lippa, S., Lange, R., Brickell, T., Bailie, J., Pizzano B., **Johnson, L., Nora, D., Mahatan, H., & French, L.M.** (2016, June). *A Cross-sectional Perspective of Self-reported Postconcussion Symptoms across the Frist 10-years of the Recovery Trajectory following Mild-moderate TBI.* Poster presented at the American Academy of Clinical Neuropsychology, Chicago, IL.

Liu, W., Yeh, P., Nathan, D., Sham, E., Morissette, J., **Ollinger, J., Bonavia, F., & Riedy, G.** (2016, June). *Longitudinal Characterization of Brain Iron Deposition in Patients with Cerebral Microhemorrhages.* Poster presented at the Organization for Human Brain Mapping, Geneva, Switzerland.

Mielke, J., & Highland, K. (2016, February). *Correlation of the ToPF and the WAIS-IV IQ scores in a High Functioning, Active Duty, Military Population.* Poster presented at the International Neuropsychological Society 2016 Annual Meeting, Boston, MA.

Mikola, J. & Nousak, J. (2015, November). *Auditory Attention and hearing Deficits in Active-Duty Service Members with Mild Traumatic Brain Injury and Psychological health Conditions.* Poster presented at the American Speech-Hearing Association Annual Convention, Denver CO.

Nathan, D., Mielke, J., Wolf, J., Liu, W., French, L.M., Sham, E., Ollinger, J., Bonavia, G., & Riedy, G. (2016, April). *Exploring the Influence of Depression Symptoms within the Default Mode Network in a Military Chronic Mild Traumatic Brain Injury Sample.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

Nathan, D., Ollinger, J., Bonavia, G., & Riedy, G. (2016, September). *Exploring the Quantification of Dynamic Functional Connectivity Within Intrinsic Thalamic Networks of Mild Traumatic Brain Injured Subjects Using Entropy.* Poster presented at the 5th Biennial Conference on Resting State Brain Connectivity, Vienna, Austria.

Nathan, D., Wolf, J., Liu, W., French, L.M., Oakes, T., Sham, E., … & **Riedy, G.** (2016, June). *Understanding Post Traumatic Stress Symptom Effects on the DMN in a Military Chronic Mild TBI Sample.* Poster presented at the Organization for Human Brain Mapping, Geneva, Switzerland.

Neuges, D., Williams, K., Grammer, G., & DeGraba, T. (2016, May). *Transcranial Doppler measures effects of mind-body training on cerebral autoregulation in service members with combat related TBI.* Poster presented at the WRNMMC 8th Annual NCR Research Competition, Bethesda, MD.

Onakomaiya, M., Kruger, S., Highland, K., & Roy, M. (2016, February). *Multi-Tasking in a Computer Assisted Rehabilitation Environment (CAREN) Distinguishes Service Member with Mild Traumatic Brain Injury alone form those with Comorbid Post-Traumatic Stress Disorder.* Poster presented at the Symposium of the International Neurotrauma Society, Cape Town, South Africa.

Onakomaiya, M., Kruger, S., Highland, K., & Roy, M. (2016, March). *Examining the Value of an Integrative, Sensorimotor, Multi-Tasking Virtual Environment in the Computer Assisted Rehabilitation Environment (CAREN) in Distinguishing between Service Members with Traumatic Brain Injury Alone and those with Comorbid Posttraumatic Stress.* Poster presented at the International Brain Injury Association World Congress, The Hague, Netherlands.

Onakomaiya, M., Kruger, S., Highland, K., & Roy, M. (2015, Octoboer). *The Computer Assisted Rehabilitation Environment (CAREN) as a Tool for Differentiating Traumatic Brian Injury from Post-Traumatic Stress Disorder: A Retrospective Analysis of Three Virtual Environments.* Poster presented at the Society of Neuroscience Annual Meeting, Chicago, IL.

Onakomaiya, M., Pape, M., Highland, K., **Clayborne, D., & Kruger, S.** (2016, August). *Immersive, Military-Relevant Dual-Tasking Assessment in the Computer Assisted Rehabilitation Environment (CAREN): A Pilot Study in Service Members with Comorbid Mild Traumatic Brain Injury and Posttraumatic Stress Disorder.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Pape, M., Hoover, P., & Kodosky, P. (2016, February). *Common Vestibular Findings among Active Duty Service Members with Mild Traumatic Brain Injury and Psychological Health Dual Diagnoses.* Poster presented at the American Physical Therapy Association, Anaheim, CA.

Razumovsky, A., **Rampino, M.**, Kouperberg, E., **Neuges, D., & DeGraba, T.** (2016, August). *Long-Term Changes in Cerebral Hemodynamics in Service Members with mTBI Exposure.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Sullivan, K. A., Lange, R. T., & Edmed, S. L. (2015, November). *Utility of the Neurobehavioral Symptom Inventory Validity-10 index to Detect Symptom Exaggeration: An Analogue Simulation Study.* Poster presented at the 35th Annual Conference of the National Academy of Neuropsychology, Austin TX.

Tchopev, Z., Turtzo, L.C., **Kenney, K.**, Amyot, F., **Moore, C.**, Silverman, E., … & Diaz-Arrastia, R. (2016, April). *Baseline diffusion tensor imaging, cerebrovascular reactivity, and neuropsychological evaluation in patients with chronic moderate/severe TBI.* Poster presented at the 2016 National Capitol Area TBI Research Symposium, Bethesda, MD.

Teslovich, T., Yeh, P., Santhanam, P., Varvaris, M., **Oakes, T., Riedy, G.**, & Weaver, L. (2016, April). *Decreases in white matter integrity linked to PTSD in mild traumatic brain injury.* Poster presented at the Cognitive Neuroscience Society, New York, NY.

Teslovich, T., **Yeh, P.**, Santhanam, P., Varvaris, M., **Oakes, T., Riedy, G.**, & Weaver, L. (2016, April). *Decreases in white matter integrity linked to PTSD in mild traumatic brain injury.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

Van der Merwe, A. J., McNally, S., **Brickell, T., Lippa, S., Lange, R., French, L.M.**, & Chan, L. (2016, August). *Neuropsychological Outcome 1 Year Post-Injury Following Mild to Moderate Traumatic Brain Injury in a Civilian and Military Sample: Preliminary Findings from and NIH/DoD Multi-site Collaboration.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

Varvaris, M., Teslovich, T., Santhanam, P., **Oakes, T., Riedy, G.**, & Weaver, L. (2016, April). *Neural correlates of post traumatic stress disorder in mild traumatic brain injury.* Poster presented at the Cognitive Neuroscience Society, New York, NY.

Varvaris, M., Santhanam, P., Teslovich, T., **Oakes, T., Riedy, G.**, & Weaver, L. (2016, April). *Multiple blast-type traumatic brain injury associated with decreased default mode network synchrony.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

Walker, M., Jones, J., & Kaimal, G. (2016, August). *Art Therapy for TBI & PTSD: Findings from a large scale study of active duty military service members.* Poster presented at the Military Health System Research Symposium (MHSRS), Kissimmee, FL.

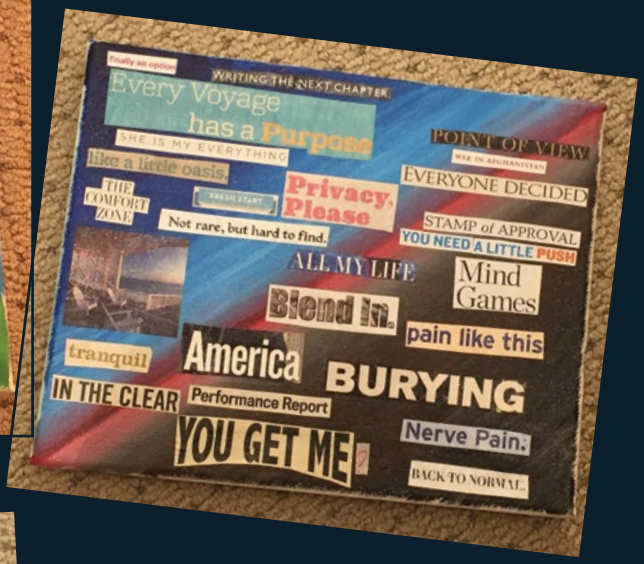
Wang, L, Faldzicki, Z., Byrne, C., Scher, A., Levin, L., Yan, L., …, **French, L.M.**, & Rusiecki, J. (2016, May). *Global methylation and traumatic brain injury (TBI): a repeated measure case-control study among U.S. military service members.* Poster presented at the Uniformed Services University of the Health Sciences (USUHS) Research Day, Bethesda, MD.

Wolfgang, A., **Kenney, K.**, Amyot, F., Turtzo, L.C., **Moore, C.**, …, & Diaz-Arrastia, R. (2016, April). *Cerebrovascular reactivity and neuropsychological function in chronic TBI.* Poster presented at the 2016 American Academy of Neurology (AAN), Vancouver BC, Canada.

Yeh, P., Graner, J., Koay, C.G., Mielke, J., Staver, T., Sham, E., … & **Riedy, G.** (2016, May). *Aberrant Structural and Functional Networks Associated with Comorbidity of Depression and Mild Traumatic Brain Injury.* E-Poster presented at the International Society for Magnetic Resonance in Medicine, Suntec City, Singapore.

Yeh, C., **Yeh, P.**, Kubli, A., **Koay, C.G., Sham, E.,** Joy, D., … & Riedy, G. (2016, April). *Changes in the Fronto-Parietal Brain Metabolites Following Traumatic Brain Injury- a Proton MR Spectroscopy Study.* Poster presented at the National Capital Area TBI Research Symposium, Bethesda, MD.

FACT: IN ADDITION TO OTHER EXPRESSIONS OF CREATIVE ARTS THERAPY, PATIENTS MAY CREATE MONTAGE PAINTINGS.



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