



**Defense Centers of Excellence for Psychological Health  
and Traumatic Brain Injury (DCoE)  
Webinar Series**

**March 2, 2015, 1-3:00 p.m. (ET)**

**“Traumatic Brain Injury Educational Forum: Best Practices and Current Research”**

Welcome and thank you for standing by. I'd now like to turn the call over to Major Pamela DiPatrizio. Thank you.

Ladies and gentlemen, my name is Major Pamela DiPatrizio and I am honored to be the Master of Ceremonies for today's kickoff event for Brain Injury Awareness Month. The Defense and Brain Injury Center join a network of partners across the Department of Defense in supporting our veterans, wounded warriors, and their families in our ongoing efforts to advance the research, education, and prevention and treatment of brain injuries. We welcome you as we gather together to join in this international observance and kick off a month-long focus on brain injury awareness, education, and prevention across the country. As a courtesy, at this time we ask that you please turn off all cellphones and pagers for the duration of the ceremony. Thank you.

Ladies and gentlemen, please rise for the presentation of the colors and remain standing for the singing of the national anthem by Sergeant Trinity Ruiz.

Honor guards, post colors.

(Presentation of colors)

(National anthem sung)

Ladies and gentlemen, please be seated.

On behalf of all those in attendance today, I would like to thank the Walter Reed Honor Guard and Sergeant Trinity Ruiz for singing the national anthem. We appreciate your presence here this afternoon.

Distinguished members of today's ceremony include Navy Captain Richard Stoltz, Director, Defense Center of Excellence for Psychological Health and Traumatic Brain Injury; Dr. Joel Scholten, Acting National Director of Physical Medicine and Rehabilitation Program Office, VA Central Office, Clinical Coordinator of Polytrauma Blast-Related Injury Quality Enhancement Research Initiative, Associate Chief of Staff for Rehabilitation Services, Washington, DC; Colonel Sidney Hinds, National Director of Defense and Veterans' Brain Injury Center; Colonel Jamie Grimes, Chair, Neurology, USUHS; Colonel Walter Greenhalgh, NICOE, Director; Dr. Lou French, NICOE Deputy Director for Operations; Dr. Thomas DeGraba, NICOE, Senior Clinical Scientist.

We'd also like to extend a warm welcome to all those other distinguished guests, friends, and coworkers that have made this day possible.

Before we begin, let us review some housekeeping details. We are joined here today at Walter Reed National Military Medical Center by our virtual participants via our webinar platform on Adobe Connect and Defense Connect Online.

We welcome all of you here today.

All who registered prior to the deadline of 4:00 p.m. Eastern Time today and meet eligibility requirements may receive CE credit or a Certificate of Attendance. If you preregistered for this event and want to obtain CE credit or a Certificate of Attendance, you must complete the online CE posttest and evaluation by visiting: [www.continuingeducation.dcri.duke.edu](http://www.continuingeducation.dcri.duke.edu) to complete the online CE posttest and evaluation and download your CE Certificate of Attendance. The Duke Medicine website online CE posttest and evaluation will be open through Thursday, March 9, 2015, until 11:59 p.m. Eastern Time.

You have received an end-of-session feedback form as you entered the room. We are interested in hearing from you about the quality and usefulness of the presentations today. Please be sure to complete the end-of-session feedback form and give it to our group of collectors.

Please raise your hands.

And they are wearing a nametag with a red dot. Also, if you'd like to discuss your feedback with them, they're interested in hearing from you. Please feel free to approach them.

Ladies and gentlemen, our first speaker for today's event is Captain Richard Stoltz. Captain Richard Stoltz became the Defense Center of Excellence Director in 2013. As the Defense Center of Excellence for Psychological Health and Traumatic Brain Injury Director, he is responsible for the work of DCoE headquarters and centers, the Defense and Veterans' Brain Injury Center, the Deployment Health Clinical Center, and the National Center for Telehealth and Technology in a combined mission to improve the lives of our nation's service members, families, and veterans by advancing excellence in psychological health and traumatic brain injury prevention and care.

Previously, he served as Commanding Officer of the Naval Hospital, Guantanamo Bay, and Commander of the Joint Medical Group, Joint Task Force in Guantanamo Bay. He served as Director of Behavioral Health Services and Women's, Children's, Emergency Room, Behavioral Health and Primary Care Services at the National Navy Medical Center. His personal decorations include the Legion of Merit, Meritorious Service Medal, Navy and Marine Corps Commendation Medals, and Marine Corps Achievement Medal.

He earned his Ph.D. in clinical psychology from the University of North Carolina.

Please welcome Captain Richard Stoltz.

[Applause]

Thank you, Major.

It's a great pleasure to be here, and we really appreciate your interest in this very important topic.

Okay, so there is my opening slide for you. I know many of you have seen this before, and I'm not going to dwell too much. I'm only going to make a few intro comments before introducing really our keynote speaker. But just to set the stage here a little bit, you can see that first number indicates that greater than 80% of the TBIs that active duty members experience do not occur in a deployed setting.

So for those people that think now that the number of people deployed in harm's way overseas is going down, that somehow we're going to have a significant decline in TBIs, I don't think that's the case given the reality of that.

The second number gives you some sense of how many people since 2000 on active duty have been diagnosed with a TBI. That's an actual figure going up through the third quarter of 2014. We know that number is actually lower than what it really is. Certainly early on in the post 9/11 world, when a lot of people initially deployed, we didn't have as many things in place as we have now to help us with the detection of all the people that are near a blast, for example – within 50 meters of a blast – and some other kinds of things; so that number is actually a little bit low.

And then of course that last number, about 82% of all the TBIs that we've been able to track are of the mild variety, which gives us a sense of how important it is to sort of track those.

Of course we know that active duty members not only have increased operational kinds of things and physical demands from their job requirements, but they also tend to have lifestyles where they engage in a lot of things that could possibly lead to injury -- so things like driving motorcycles and bicycles and climbing mountains and going surfing and things like that. So we know that since most of the people in the military are young, we have increased risk there.

And then if we go further out, we know that the Veterans Administration certainly has a strong interest in this as well and rightfully so because frequently by the time a service member starts to get care in a VA, they may have quite a few mild TBIs during their time. And of course we know about CTE and some of the dangers involved when people have a series of mild TBIs. So it's important that we do everything we can to prevent TBI; it's important that we track the TBIs that occur; and then that we obviously provide the best treatment to speed the recovery and decrease the likelihood of some longer-term complications.

The next slide here just says a little bit about DCoE. And as the Major mentioned, yes, the mission of DCoE is really to further advance both psychological health and TBI prevention and care for our service members, for our veterans, and their families. And we take this very seriously. And the key component we have within DCoE that focuses on TBI prevention and care is the Defense and Veterans' Brain Injury Center, often referred to as DVBIC.

Which sort of takes me to today, and so what are we doing? We're kicking off Brain Injury Awareness Month. What is the primary thing we're going to try to do with many, many presentations – really not just in CONUS but also outside of CONUS? We're trying to raise awareness; we're trying to promote prevention; and we're trying to provide additional education and support so, again, we have less people that have TBIs. And those that have them, they get identified; they get tracked; and they receive high-quality care.

This slide is exactly the same as this thing here. This is our poster for this year focusing on Brain Injury Month. We have partnered with the Brain Injury Association of America on this theme. The theme is "Change your mind about brain injury," and it's focused really on three things. And those are on here and they're on the slide. Again, it's about prevention; it's about recognition; and it's about providing high-quality support to people. And it's about encouraging people, even if they just had a mild hit of their head, to go seek help, be checked out, don't feel like you have to tough it out, don't feel like, well, it's not that bad because we do know that you'll do better if you get appropriate care and better education about how to respond to any type of significant head injury.

So those are my intro remarks. And my last slide I thought was something else, but it's not. But what I'm going to do now is introduce to you our keynote speaker. It's a real pleasure for me to do this because we have a wonderful speaker.

It's Dr. Joel Scholten, who received his medical degree at the University of South Dakota and completed his residency in physical medicine and rehabilitation at the Eastern Virginia Graduate School of Medicine. Dr. Scholten joined the staff at the James Haley VA Medical Center in Tampa, Florida, in 1998 and served as the Medical Director of the Traumatic Brain Injury Rehabilitation Programs for over ten years.

In January of 2009, Dr. Scholten transferred to the Washington DC VA Medical Center to assume the role of the Associate Chief for Rehab Services. Dr. Scholten also works in the VA Central Office within the

PM&R Program Office, currently serving as the Acting National Director of Physical Medicine and Rehabilitation.

He serves on a number of national VA committees, including the Post Deployment Interdisciplinary Clinical Initiative --Technical Advisory Team; the National Pain Committee; and the TBI Screening and Evaluation Committee; and also the Health Care Leadership Development Program Advisory Board. His research interests include traumatic brain injury, polytrauma, and pain. And in addition to all of that, Dr. Scholten is the Associate Clinical Professor of Rehabilitation Medicine at Georgetown University School of Medicine.

How about a nice warm welcome for Dr. Scholten?

[Applause]

Thank you, Captain Stoltz, for that very kind introduction. I feel like I should be all grown up now after hearing that very distinguished intro.

Let me say thank you. It's really an honor and a privilege to be here representing the accumulation of some of the work that we've done with DVBIC over the years. When I say "some of the work," I guess I'm taking credit for all of the work the VA has done in collaboration with DVBIC and even way back to the history of when it was DVHIP, our Defense and Veterans' Head Injury Program. But really, it is very much an honor to be here; and I thank you for inviting me. And I say thank you on behalf of my VA colleagues as well as my Central Office staff – some are here with me – and my DCVA colleagues as well.

So let's make sure I remember to advance the slides. And I think I skimmed past my disclosure. I have no interests – as my friend in the front row pointed out, I have no time for interests outside of work.

Let me just talk briefly about the VA's Polytrauma System of Care and where we've come over the last 10 years. I don't want this to become a VA promotional talk. I really want to talk about our collaboration that we've done with DVBIC over the years.

Ten years ago, we stood up the Polytrauma System of Care; and at the time, the greatest need was for that of inpatient rehabilitation. We had four TBI centers, which had started back in 1992, which was then a collaboration with DVHIP. We've since added another polytrauma rehab center, and these are our state-of-the-art centers providing inpatient comprehensive interdisciplinary care for TBI and polytrauma in Tampa, Richmond, San Antonio, Palo Alto, and Minneapolis. We also have 23 polytrauma network sites, which are more of our regional sites, providing greater emphasis on outpatient care and providing a hub of centralized care within each region. And we have 87 different polytrauma support clinic teams throughout the VA.

So as the system evolved initially focusing on inpatient care and then adding on those outpatient teams, our goal was really to be able to provide care for service members and veterans, and provide that care as close to home as possible. And so over the 10 years, we've been able to train up 110 specialized teams; and we're very proud of the care that these teams are providing across the system.

In addition, every VA medical center that doesn't have a fully staffed TBI rehabilitation team also has a polytrauma point of contact as a way to integrate patients at those medical centers to the closest center that meets that individual's needs. And I'll talk a little bit about some of the specialty programs that we have available across the system as well.

Here is a map. You'll notice, if I can get the laser pointer to work, that there is the great state of South Dakota where I did receive my medical education and a listing of all of our specialized teams across the system.

Just to touch briefly on what we've been able to accomplish over the last – these next few slides will cover the last four fiscal years and the extent of the work that we're doing in VA. For our inpatient polytrauma

rehab centers for those individuals receiving acute inpatient TBI care, we've seen 1,300 unique patients. About 40% of those are OEF/OIF/OND veterans, and the average length of stay is 38.7 days. And we've been able to collaborate with the TBI model systems to compare our outcome data, which we find quite favorable. It's been a great collaboration to encourage our teams to up their game and increase the quality of care that's being provided.

We also have polytrauma transitional rehabilitation programs at our polytrauma rehab centers at those five sites. In this program, veterans and service members stay a little longer – a little over 70 days – and really focus on activities that help them transition back into the community. Over 40% of those individuals are from the current conflicts, and we've seen almost 640 unique patients in those programs.

When it comes to our outpatient programs, we're now to the point where we've seen 53,000 individuals just in FY14. This is, as you can imagine, a huge increase in access and availability to TBI specialty care on the outpatient setting within VA. And we've primarily done that as we've transitioned. As I said before, initially the focus was really on inpatient rehabilitation and taking care of those that were most severely wounded from the current conflicts.

But in 2007, with very close help and collaboration with DVBC, we developed our TBI four-question screen for all service members who separated after September 11, 2001. That went into effect in April of 2007; and as of the end of last fiscal year, we have screened over 880,000. Actually, the breaking news update – we have over 910,000 that we've screened so far. And the rates have remained about the same, so between 7% and 8% of individuals who are screened then wind up with a TBI diagnosis.

Those individuals that have a TBI diagnosis and ongoing needs are provided a comprehensive interdisciplinary plan of care and provided the services that they need, often focusing on needs that may not be TBI-related. So we have a close collaboration with our mental health colleagues to help to treat issues due to mental health comorbidities.

Within our system of care, we look and are very focused on ensuring quality rehabilitation care for our veterans and service members. We've adopted the Mayo-Portland Participation Index. For individuals receiving outpatient TBI care, we have a templated algorithm and plan to provide interdisciplinary rehabilitation care. And as many of you know who provide TBI services, it's really tough to provide really interconnected/interdisciplinary TBI care in an outpatient setting; and we think our teams have done a phenomenal job of that across the country. For our other rehab programs, we utilize UDS, or the Uniform Data System, for medical rehabilitation so we can compare admission and discharge times for our inpatient programs.

As I mentioned before, we have a collaborative project with the TBI Model Systems looking at the longitudinal outcomes database for the polytrauma rehab centers. And then I want to stress the importance of obtaining the voice of the veteran or the consumer that you're serving. And we've adopted uSPEQ, which helps us achieve CARF accreditation at all of our TBI and all of our actually inpatient rehab centers. That's a mechanism by which we can collect individuals' experiences focusing on their satisfaction, both with their inpatient stay and their treatment that they receive.

It would be a shame if I were to talk about TBI care and not give a shout out to our amazing case managers that we have throughout our system. Both social work and nursing case management are key to providing interdisciplinary care. And all of our patients within the polytrauma system of care receiving this interdisciplinary rehab care have an assigned case manager. There are different staffing ratios that we use at each of our levels of care within the polytrauma system of care. And if you've worked in TBI care, you know the tremendous work that these individuals do. I think we have a couple of the finest TBI case managers in the VA system right in this room; and I won't embarrass them, Elsie Moore and Sheri Gordon, by calling out their names today.

A few other things that we're very excited about in regard to increasing access to care for TBI and polytrauma. We have really had a huge emphasis on increasing our virtual care options for veterans with TBI, and so we've had a pretty significant jump in our numbers for Tele-TBI evaluation. So this would be,

as I mentioned before, the TBI screening process where we identify individuals with a possible TBI. We had a group of subject matter experts get together in 2011 and develop a protocol to utilize to complete the comprehensive TBI evaluation through virtual care. This is using a TBI subject matter expert that's based at a VA medical center and having a telehealth presenter at the patient site in a community-based outpatient clinic.

Through that program, we've had a significant increase in our access to TBI specialists, and it's created a unique opportunity for our TBI docs or TBI specialists to integrate and provide support for those individuals at community-based outpatient clinics and a nice opportunity to interact with the primary care providers at those sites.

We've had a big increase in Tele-Rehabilitation encounters, as well as we now have 47 sites, which is about one-third. In the VA, we have 151 medical centers; so about one-third of those are using telehealth to actually connect right into the veteran's home. About a year ago, or maybe it's been two years ago, VA worked through the privacy and security issues to be able to connect right into the patients' homes through home clinical video telehealth. And I will tell you, it's very rewarding as a clinician to work with individuals in their homes. Sometimes they see you when they're wearing their pajamas; but they are very, very happy to invite you into their home. They almost feel like you're doing a house call. So it's been a very nice opportunity, and I have found it to be very effective and a rewarding extension of my practice.

A little bit more about some of our virtual care options – I talked about the standard TBI evaluation process. With that pilot, we've trained up 40 sites. It was kind of on an ongoing training basis. Over two years, those 40 sites evaluated 417 unique veterans. It doesn't sound like a lot; but as you can imagine, in a large bureaucracy there are some obstacles to overcome to set up new clinics and to establish new practices. So our first year we had 13 sites, and then we've kind of exponentially added on; and we're seeing the numbers uptick very quickly.

That has also led to an opportunity to develop a TBI telehealth team that is located at the Washington DC VA Medical Center, so we are funded for that. We have a TBI doc, a case manager, a psychologist, and then a program support person. So we're a regional TBI center. We're actually providing TBI evaluations and follow-on services for veterans who are receiving care at some of the outpatient clinics from Baltimore, Atlanta, and Augusta. So this is one of the first times this has been attempted, similar to VA's National PTSD Telehealth Center of Excellence. So we're trying to build the TBI Telehealth Center of Excellence at the Washington DC VA.

Other virtual care modalities include secure messaging through My HealtheVet, where we're able to send confidential e-mails to patients back and forth, and then electronic consultations, which are another way to support your primary care providers that have TBI-related questions and provide the education and recommendations to them where they can integrate that back into the patient's care at their convenience.

We are also very proud of an app, the Concussion Coach. The link is available on the slides. I'd encourage you to download it and utilize it in your practice. It's a nice way to enhance the care that you can provide to veterans and service members. Unfortunately, most providers when we provide this great education when we're in clinic, we think that patients remember everything. Well, that's not really the case. And so by using this app, you can extend your reach back into the patient's home.

A little bit about our Assistive Technology Program. We have a contract with the University of Pittsburgh, and we currently have 22 VA medical centers that are working with U Pitt to implement this service. We're really trying to focus on developing a system of care and centers of excellence that provide, through telehealth, virtual consultation so patients at smaller centers can have access to this expertise. We're very excited about this. We have ongoing education, and more locations are adding assistive technology. This really has been an essential addition to our rehabilitation programs because, as you know, technology is a key factor in helping veterans with cognitive impairments, as well as physical and other impairments, integrate back into the community.

I know there will be some more talk today about research initiatives, but I wanted to cover a couple of initiatives within VA. The Polytrauma and Blast-Related Injuries Query is a – in the VA system, the QUERI programs really focus on implementation science and trying to get that last piece of the research pipeline getting that evidence-based medicine implemented into clinical practice, so focusing on those initiatives pertaining to veterans with TBI and polytrauma. The polytrauma QUERI has had a pretty extensive portfolio looking at the TBI screening and evaluation process, enhancing the delivery of interdisciplinary care, and then, very important, looking at caregiver needs. So those are some of the main areas of the QUERI portfolio right now.

VA Office of Research and Development also has a large TBI portfolio that includes TBI, PTSD, and polytrauma. There are 18 different research investigations going on; many of those are at our polytrauma rehab centers and network sites.

A few other key research activities – I mentioned before about the TBI model systems. Being able to partner with and compare outcomes and care delivery with their database has been instrumental in helping to drive the quality of our care and really push us to be comparable to the private sector. We have a TBI Veterans' Health Registry for OEF/OIF/OND veterans and are working on finalizing the first summary report that will be posted on the public health Internet site.

Then just to highlight one other DVBIC collaboration is the IMAP study, which will likely be covered more extensively a little bit later today. But we're just very pleased that we find DVBIC to be such an amazing partner to drive clinical and research initiatives for veterans and service members.

And finally, many of you know my good friend and colleague, Dr. David Cifu. He is the co-PI for the Chronic Effects of Neurotrauma Consortium. And this very complicated schematic attempts to identify the pipeline of research that this large consortium will try to address to identify chronic needs for individuals who have suffered a traumatic brain injury. And so Dave leads that charge for the VA, and we're very appreciative of his expertise and his extensive efforts.

With that, I would like to close today and again thank the Defense and Veterans Brain Injury Center for their ongoing collaboration and friendship and support that they provide to the VA. It's really terrific to be back here to say hello to many of my friends and colleagues. Thank you.

[Applause]

Thank you, Dr. Scholten.

Ladies and gentlemen, our next speaker of the day is Colonel Sidney Hinds. Colonel Hinds became DVBIC National Director in July of 2013. As National Director, he oversees all aspects of the organization's mission of serving active duty military and veterans with traumatic brain injury through state-of-the-art medical care and care coordination and innovative clinical research and education programs.

Colonel Hinds is Board-certified in neurology and nuclear medicine, and he leads DVBIC with integrated multidisciplinary approaches to care. He previously served as Deputy Director of the Armed Forces Radiobiology Research Institute for Military Medical Operations. He served as in-theater neurologist in Afghanistan. Colonel Hinds formerly was the Chief of Nuclear Medicine Services at Walter Reed Military Medical Center. He is a graduate of the U.S. Military Academy and received his M.D. from the University of Connecticut Health Center.

Please welcome Colonel Sidney Hinds.

[Applause]

Thank you very much, Major DiPatrizio.

I'd like to have Dr. Scholten come back up for a moment – just a bit of housekeeping.

Joel, thank you very much for coming today. We really appreciate it, and thanks for helping us kick off Brain Injury Awareness Month.

My disclosures – I was joking earlier. If I had anything to disclose, I probably wouldn't be here. I'm at that point in my career that I'm looking for another job, but here we are.

One of the things being in a headquarters element and not being out where all of the 16 network sites are located is that we don't have patients coming in and out of our offices. And so one of the things that we try to do is remember not only this picture, but what this picture represents -- the service members who have been injured, as well as those service members who are taking care of those wounded warriors. And if we can focus on that every single day, when we do our daily tasks, we know that we are effecting a change; and the things that may seem very menial, maybe even very tedious, have a huge impact on the fight for the whole spectrum of traumatic brain injury, from prevention all the way back to reintegration.

And as we talk about a pathway of care, a system of care, that's what we're talking about – taking care of our service members, our veterans, their family members throughout the whole continuum of care. But not only care because we don't have all the answers for traumatic brain injury; and if it were that easy, we probably wouldn't have to have such a huge collaboration with research. Not only research, once we come up with these great clinical recommendations, how do we get them out there, how do we sell them? And I think all of us in this room, and you see arrayed before you how throughout the world we're providing traumatic brain injury care. It's not just DVVIC; it's not just the VA; it's not just Intrepid Spirits; it's not just NICOE institutes.

Over these past 14-plus years of conflict, there are a lot of and still what I call "mom and pop shops" that are using standardized methods working with the other organizations that are out there to provide the best care, the state-of-the-science care, for our traumatic brain injury patients.

I'll get to a timeline momentarily. But when you look at what is a pathway of care, don't ask me later on in the question and answer. I don't have a definitive answer. I don't think you can find it in any textbook. When we go out and we talk to those who have pathways of care, it's very hard for them to put a name to it. So let's talk about defining it rather than putting a label on what a pathway of care might entail.

Now, as we look at it, those of you who are familiar with centers of excellence can see right here that we have education and training, research, clinical care. Three pillars of centers of excellence when we had a meeting and Captain Stoltz chaired the Center of Excellence workgroup to figure out where we should all be aligned. Some of the things – and as you can imagine talking not only with disparate services, but with people who are looking at different disease processes -- or maybe not even disease processes but looking at systems of care for health -- they agreed at least on those three pillars as being the spine, the backbone, of a center of excellence. Add to that perhaps some policy assistance and you have what a center of excellence might be.

Now, a large group of subject matter experts, many of whom are in this room, met in January of last year to decide on really NSA Bethesda. How were we going to have a one button, get the patient, any type of patient who might have a traumatic brain injury, through the system that is the National Support Activity Bethesda? We're talking about National Capital Region Medical, Uniformed Services, NICOE Institute, Walter Reed National, any of the other folks who might be on campus. I talked to some friends back at Afri, and they have some very interesting findings about iron and traumatic brain injury. So there are a lot of folks here who are fighting the good fight for TBI.

Well, as we started talking about those things, our leader, Dr. Mike Deneen from Health Affairs, said, "Well, you really are talking about a pathway of care." And he is a great thinker and has looked at different medical systems – I'd say at least in the country, I don't know if he's looked worldwide – and said, "What we're really talking about is a pathway of care." And I think everybody scratched their heads – wait a minute, that's not why we're here. But certainly the discussion turned into what are those things

that we need to do to take service member or veteran or family member and prevent them from getting a head injury? But should they get a head injury, how do we get them back on the road to recovery?

And so we came up with this very nice chart. And what we notice is that a lot of people do a lot of things throughout this continuum. Some of those resources that do some of these things focus on a small area; some are more broad; some are heavy on the strategy and operations and less on the tactical. But as we were looking at this, when I looked at it, it seemed like we have an opportunity. We have an opportunity to deliver that spectrum of care in a very resource-wide methodology so that we're not all competing for the same resources. We're not all looking for the same solution and forgetting about some of the gaps that might be out there in regard to traumatic brain injury.

This is our working diagnosis, our working mission. I think if you can take anything away from this slide, it is that the pathway of care is going to be outcomes-oriented and using state-of-the-art methodology. We won't forget about the state of the science; we'll use state of the art. But we want to encompass all of those things from the research – getting what's ready for translation into clinical recommendations, maybe clinical practice guidelines of how we do business. Get that out there; test it; we'll probably have to do some research on that because a lot of the things we're doing with traumatic brain injury aren't validated – get the message out.

But regardless of whether we're talking about education, research, or clinical practice, we need to take a look at what we're doing and show that we're effective in doing it. We can't just say that we've handed out a certain number of pamphlets and have effected a change. We don't know that; we're assuming that. It maybe makes us feel a little bit better, and we want to pat ourselves on the back. But we want to be sure that we're effecting that change that we know our patients and their family members need.

So I promised you a little bit of a timeline. I wish it was rock history or something and the development of how we went from blues to punk, but maybe it's very similar. So back in January we met. I won't bore you with the fruit salad that happens to be the governing bodies at the Defense Health Agency. But rest assured each one was a hurdle to get over and to have our senior leaders decide that this is the right thing to do, to have a traumatic brain injury pathway of care.

Now, having said that, we're the first out of the chute. There is no other pathway of care in our military health organization. So a lot of eyes are on us – on how we're going to execute this and whether or not we're going to be effective.

Now, the big thing to recognize is that Dr. Woodson signed this memo back on the 17th of September. That's all well and good, but there's a lot of work that needs to happen. One of the things that we were required to do as soon as this memo was signed, or about 60 days after the memo was signed, was to come up with a traumatic brain injury Advisory Council charter. The folks here at NSA Bethesda had another requirement, and that was to see and come up with how the NICoE Institute would be integrated into the TBI system of care here on campus.

Now, our mission was the TAC, the TBI Advisory Committee. We didn't have to dig too far because this idea about traumatic brain injury and using our resources widely while still providing the best care isn't a new concept. Many of you who sit on or attend the TBI Quad Service meeting every Thursday, we had tried to charter that meeting way before I was ever in the focused TBI fight.

So we took that out, dusted it off, and it seemed to fit almost exactly in what we were trying to do with a TBI pathway of care. We vetted that through the services, and currently we're waiting for and answering responses to – because as you can imagine, a lot of time has occurred since January to now. And a lot of people are trying to remember what we decided was our mission and what we were going to do. We're working on that, and we hope to have that finalized – I'd like to see it done by July 1st this year.

So what is the – or what isn't the TBI pathway of care? Well, we're not just about putting our clinical practice guidelines. We weren't mandated. This is the right thing to do; it's the right time. After 14 years and over \$2 billion worth of resources put into TBI, we have to be responsible and say what we have

gotten for that investment. And I think we've gotten quite a bit. And the partnership with the VA, as well as partnership with all of the military organizations and the non-governmental organizations out there, we have really pushed forward TBI care, education, and research.

What we're going to do – outcomes, outcomes, outcomes. That's going to be our responsibility. Make sure what we're doing. It's the right thing to do. There's no provider in this room, and hopefully no provider anywhere, that wouldn't want to give the best care to their patients.

We're going to take a look at gaps and redundancies. We all don't have to do the same thing. As a matter of fact, if we're doing the same things, we're probably wasting a lot of that great brain power that's in the room, the talent, the time – all the things that we can't get back when we're trying to tackle this problem.

A lot of these functions – the reason why they stood throughout the entire process of approval, is they're values. Everyone agrees that we should be doing these things. How we do it, we're still working on. But we need to take a look at our research; get what we can translate into effective clinical care out there as safely and as quickly as possible.

Before I finish up, I want to tie this all back into why we're in here today. I'd like to think every month is brain injury awareness month and not just in March. But this gives us a nice motivation to go out there and make our New Year resolutions to really focus on the collaborations because if you think you can do it all, you're going to be sorely mistaken; and you're going to make a lot of mistakes. There's a lot of information that's out there; there's a lot of experience. Together we can tackle this issue.

Captain Stoltz mentioned over 80% of the traumatic brain injuries that occur in the military are diagnosed in the in-garrison setting. We want people to take risks. We're not a risk-averse organization. We want them to participate in sports; we want them to be healthy. The Army has a performance triad of sleep, good nutrition, as well as exercise. These are all important for keeping not only physical health but mental health, and we're learning more and more about its impact and specifically about having brain injuries and maybe even being a little bit hardy in regard to when you do get a brain injury and helping with your recovery.

I want to thank everybody who is in this room. I see a lot of people who have already had and drank the TBI water. One of the things we have to remember is that about 80% to 85% of our patient population goes to see primary care physicians. So they're going to their ED; they're seeing their PMs; they're seeing internists. We have to take care of them as well because what we do know is if we can get the early identification, we can get the early treatment, and then we get the best possible outcome.

I want to thank everyone for your attention today. And we have a lot of great speakers, so don't leave us. And there will be some time later on for questions and answers. Thank you.

[Applause]

Thank you, Colonel Hinds.

Ladies and gentlemen, our next speaker of the day is Ms. Katherine Helmick.

Ms. Helmick is the Deputy Director for DVBIC. Ms. Helmick has served in a variety of leadership advisory and operational roles, including Deputy Director for the Defense Center of Excellence for Psychological Health and Traumatic Brain Injury; Deputy Director for the Clinical and Educational Affairs Office for DVBIC; Manager of the Office of Clinical Standards at VBIC; neurological surgery nurse practitioner at Hodes Neurosurgery in Louisville, Kentucky; nurse practitioner and clinical care coordinator at the University of Louisville Hospital; and Clinical Research Coordinator in the Division of Neurosurgery at the Medical College of Virginia Hospitals.

Ms. Helmick holds both bachelor's and master's degrees in nursing from Virginia Commonwealth University, as well as a Bachelor's of Science in Family and Child Development from Virginia Tech University. She has earned the following certificates: Adult Nurse Practitioner through the American Nurses Credentialing Center and Neuroscience Registered Nurse through the American Board of Neuroscience Nursing.

Please welcome Ms. Katherine Helmick.

Thank you very much. I just want to get started. Thank you very much for that kind introduction. But I only have 15 minutes. I already know that I'm not going to do this justice because this is your clinical talk. This is 15 minutes to talk about what we have out in play that will help guide best practices for clinical care. So let's get on with it. I have no disclosures to report.

And as we start looking at clinical recommendations or clinical practice guidelines and we think about how they represent best practices, really a Center of Excellence function is to identify best practices; to analyze those best practices; and then push those best practices out into the field. And those best practices should be clear and concise. They should be user friendly for the provider, who many times only has 15 minutes to evaluate and treat a patient.

So that's what clinical recommendations are. They're systematically developed. We use expertise from the field in the DoD, our service program directors, and the VA system as well. Again, I want to stress that these clinical recommendations are clear and concise. That's the whole goal. We don't want thick guidelines out there that are going to sit on a shelf in a binder, but we want something that's useful and tangible, that can come into play very easily when you're evaluating your patients.

Here's a schematic of our current process to develop a CR or a clinical recommendation. And it really starts with the needs or the gaps being identified by our primary stakeholders. And our primary stakeholders are our service representatives. So the Army, Navy, Air Force and Marine Corps coming and letting us know what our boots on the ground assessment is of clinical conundrums, clinical challenges that are faced with our providers throughout the military health system each and every day, and how we can best address those needs through the development of these concise clinical recommendations.

You can see, we go through a rigorous approach of looking at systematic reviews. We assess and grade and synthesize the evidence to date that we have. One noteworthy fact is as we began this fight about the year 2000 when we were engaged in war in the early 2000s, there were only 200 peer reviewed publications on mild traumatic brain injury. So we really didn't have a lot that we could use to start looking at evidence-based practice. So there has been a significant amount contributed to the field of mild TBI or traumatic brain injury over the last 15 years or so.

We engage with our DoD and civilian and VA partners to convene a working group looking at the state of the science. And then at the end of the day, we compact that or condense and coalesce that into these concise clinical recommendations. At the end of the day, the deliverable is a CR suite.

And a clinical recommendation suite includes a clinical recommendation narrative, a clinical support tool, some type of algorithm that you can put in your lab coat or on your person as you evaluate and treat patients. It has patient education information, so something you can hand to your patient and they can go home with that explains whatever nuance of care that you're treating. And then in addition, there's a provider slide deck. So it goes through in detail how to assess and manage whatever the topical area is in a way that is able to train up on it, using the validated tools that are within the clinical recommendations.

This is just an example of four symptom management worksheets, fact sheets, that we have for patients so that, again, they can leave and they can be more consumers of their healthcare in learning about healthy sleep, learning about changes in behavior, personality, or moods and learning about dizziness

and what that may mean for them and how they may thwart some of those sequelae that come from some of their symptom reporting.

Here is just a matrix of the clinical recommendations that have been developed in the last eight years or so. Many of you are well aware of No. 1, which was the MACE, the Military Acute Concussion Evaluation, that we're currently on Version 4.0; and that was deployed in 2006. And we continue to evolve that product, which is the basic screening tool, as we gather more information from the (inaudible) or in-garrison environment.

That also comes with clinical management algorithms for the deployed setting. And that algorithm comes in a four package that goes from your medic and corpsmen battlefield response all the way to a comprehensive evaluation if you sustain three concussions within a 12-month period.

I'm going to highlight some of the nuances and pearls, if you will, from No. 6 on down. So we're going to take a look at dizziness and vision and progressive return to activity and some of the recent clinical recommendations that we've deployed into the environment. And I want to highlight some of the salient points that really will help with that assessment and treatment.

Also, one of the goals is to really instill in you that confidence that what these represent is the state of science. Many of you are well aware that there are over 650 studies that have been funded through Congress and through the Department of Defense since 2007. And many of those studies are bearing fruit for us now. Some of them haven't even been published yet. So if you go to PubMed and you try to do a literature search on some of this information, it may not be there. But we have access to those government funding sources and are able to identify, analyze, and then push out or disseminate those best practices.

So let's start with dizziness quickly. The assessment and management of dizziness associated with mild traumatic brain injury provides an approach to evaluate dizziness from a multiple perspective. If you take a look at something nebulous, like a dizziness complaint, what are you going to do with that? Somebody comes in and says, "I'm dizzy. I think I've had a concussion."

You go through a process of determining whether it is concussion based. But some pearls, such as looking at a decision tree that allows you to take these three top differentials and be able to bucket them into one of these three, and then what ensues in this clinical recommendation is what is the assessment of vertigo? What is the assessment of disequilibrium? And what is the assessment of lightheadedness? And pre-syncope and syncope is embedded into the lightheadedness aspect of this tool. But it really is gauged to help providers take a somewhat challenging patient complaint and really wrap this into the appropriate diagnosis to lead to the appropriate treatment.

Let's move on to visual dysfunction. We deployed a clinical recommendation called the Assessment and Management of Visual Dysfunction Associated with Mild Traumatic Brain Injury. We did this in partnership with another center of excellence, Division Center of Excellence, who brought together their vision's needs with traumatic brain injury's needs to discuss assessment and management.

And I just inserted here Sidebar 1C, which is the basic eye and vision assessment. So making sure -- as Colonel Hinds mentioned, that most of these folks go to primary care clinics, outpatient clinics, or the emergency department, we want to make sure that there is a basic understanding and ability to perform basic eye assessment and vision assessment. So this is a cut to the chase. You can have it in your pocket; you pull it out and you take a look at it; and you know what areas to hit.

The next two slides I'm going to talk about neuroimaging briefly. Neuroimaging was another clinical recommendation that was released about two years ago -- Neuroimaging Following Mild Traumatic Brain Injury in the Non-Deployed Setting. One of the reasons we decided to answer the need that came up about neuroimaging is that there were not standardized ways in which people were neuroimaging. There was a lot of information coming out about DTIs, Diffusion tensor imaging, in our research paradigms.

So people started asking, "Am I supposed to be doing DTI on all my concussion patients now because we've heard there's a lot of information coming out. And also, when are we supposed to image? Are we supposed to image in the emergency department? Are we supposed to wait for three months and see if their symptoms ensue?"

So what this CR did is it really did two things. One, it offered some timeframes on acute, subacute and chronic -- which I'll go to that and then I'll come back to this. So we defined what the acute stage is after an injury event known as concussion as injury to seven days post-injury. We also defined subacute as 7 up to 89 days. And then if you were over 90 days from your injury event with continuing persistent symptoms, then you were considered chronic. And we wanted to put some definition to this because some of the literature had varied, and we wanted to be able to frame it in three different time courses so folks knew what imaging components would be appropriate.

This was also a really keen table that came out of the neuroimaging clinical recommendation because it specifically ties mild traumatic brain injury pathophysiology to imaging finding, which really had never been done before. So we took a step; it's a mark on the wall. And we'll continue to evaluate and see if we got some of this right because, as you're aware, many mild traumatic brain injured or concussed patients have negative finding on imaging. So we wanted to take the body of literature known at the time that we developed the CR and find what pathophysiology linked to what specific MRI findings.

So now I have two more to go through. Progressive Return to Activity – this was really a game changer, no pun intended, in the world of how to return somebody to their pre-injury activity level. You've heard a lot out in the mainstream media about have them rest and then they can go back. When their symptoms abate, send them back. But there really wasn't guidance, even coming from international panels, on how to striate that. How do you really return somebody? Do you open the gate and tell them to run and go do whatever they were doing prior?

So these two clinical recommendations -- one aimed at primary care, the other aimed at rehabilitation providers -- offers a six-stage approach to returning to your pre-injury activity level in a very safe manner. And it outlines vestibular, physical, and cognitive activities that you should be slowly importing into your everyday activities free from any type of blood pressure, heart rate, or negative sequelae – adverse sequelae – so that you can safely return to your pre-injury activity and know it's safe to do such because the neurochemical changes that have occurred after your brain injury have really calibrated out. And your body is letting you know that because of the way that you are adapting to some of those physical, cognitive, and vestibular activities. So it really was seen as a game changer in terms of management of concussion post-injury.

And then finally, looking at sleep – sleep was a very common complaint that occurred after concussion and a common complaint that occurs in our deployed troops. So we wanted to take on the management of sleep disturbances following concussion, mild traumatic brain injury. And this was an attempt to – many times it's like the cat chasing the tail or dog chasing the tail, whatever animal, where you're looking at a headache and pain and problems thinking. And the less sleep you get, the more headaches you get, the more problems sleeping. The more problems sleeping you have, the more problems you have with your thinking. It's this vicious cycle over and over.

So we really wanted to get a good healthy sleep, part of the Army triad that Colonel Hinds alluded to. And we did this by giving some key questions that will help frame whether or not this condition is really acute or chronic insomnia, circadian rhythm sleep/wake disorder, or obstructive sleep apnea. And the suite of products included again a provider slide deck to train up on this clinical recommendation, healthy sleep education for patients, as well as a nice algorithm of care to walk through those.

Where do I get these tools? If you go to the DVBC website and you go under the Education Materials, you can download these tools. You can also put them in a basket and get the hard copy product. We are working on just for the future – this is the little trailer for it – we're working on post traumatic headaches following mild traumatic brain injury. Right now the team, working with our service partners and

collaborating with academic experts in the area, are working on a clinical recommendation that we plan to deploy in August of 2015.

So be on the lookout for that. We're very excited about it. With headache being the number one reported complaint after concussion, we know that it will be a widely used tool. Please take a look at these tools and use them in your practice. At the end of the day, as we talk about education and research and policy and all these other vectors, it comes down to making sure that we're taking the very best care of our patients. And we believe that these tools offer that, and we are currently evaluating the usefulness and the utility of these tools as we speak.

Thank you for your time and attention, and please check out the website and take a look at these.

[Applause]

Thank you, Ms. Helmick.

Ladies and gentlemen, our next speaker of the day is Dr. Saafan Malik.

Dr. Saafan Malik is the Director of Research Division, DVBIC. His research interests include neuroprotection in TBI, neuroplasticity, clinical research and development of novel TBI therapies. He established a neurotrauma research program at the Texas Tech University Health Science Center. Dr. Malik completed postdoctoral work at the Carolinas Healthcare System on stem cell transplant and biomarkers for amyotrophic lateral sclerosis and on preclinical testing of oligonucleotide gene therapy for Duchenne muscular dystrophy. He completed clinical neurosurgery training at the Cleveland Clinic Foundation.

He was the recipient of the National Neurotrauma Society Murray Goldstein Award for TBI research. He earned his medical doctoral degree from King Edward Medical University.

Please welcome Dr. Saafan Malik.

[Applause]

Good afternoon, everyone.

Thank you so much for the nice introduction, Major DiPatrizio.

It's been an honor to become a part of the Defense and Veterans' Burn Injury Center in Silver Springs, Maryland. I came from academia, and my last like long-tenure for TBI work was at Penn being a Senior Research Investigator there. I've seen all the basic signs at the lab site. I've seen patients that suffer from TBI. So there has been a long – several years it took me to come to a point so I can go somewhere so I can make a difference in the lives of these patients, not only from advanced research in clinical care for TBI patients, but also from a policy standpoint of view so it would have a broader impact on service members, from civilians across. And I see that this venue at DVBIC offers me that opportunity to make that difference.

I'm going to start my slides by saying I have no financial disclosures, no interests.

My first introduction slide is just an introduction of DVBIC. As you all now, the mission of DVBIC is to serve our active duty service members, their beneficiaries, and veterans with TBIs with state-of-the-art clinical care, innovative clinical research and educational tools, and support for force health protection.

For today's talk, I'm focusing here at the Research Division. We have several divisions and DVBIC Chief of Staff supporting research, clinical affairs, and education. And that's our headquarter element and outside our network that is 11 MTF sites and 5 VA sites.

The three pillars of DVBIC's mission essentials – I'm going to talk about this first pillar here, the research, and focus on the highlights that DVBIC has been doing with the research and TBI avenue. We conduct and support clinical and translational research. And we work closely with our clinical affairs and education divisions as we look at the gaps in the research. We do the research; we conduct and support it; and we look at the translational potential of this research and how we take it to the clinical recommendations and (inaudible) to our educational division. So we work hand-in-hand with our other two divisions at DVBIC.

Just to reiterate my mission for my division here at DVBIC, the Research Division, we provide evidence-based knowledge through conducting and supporting clinically-focused research on TBI to improve the treatment and outcomes for TBI patients, our service members. And we conduct our mission through our three offices. We have our Research Activities Office that basically is the hub and coordinating center for our network through which we support all this portfolio of 60 studies across our network of those 11 MTF sites and 5 VA sites. And that research encompasses all the way from technological research all the way to treatment prevention, rehabilitation, reintegration, and back into the caregiver mode also. So we cover all the continuum.

The second office is the Clinical Translation Office. This office basically catalyzes the translation of promising clinical research. And we work hand-in-hand with MRMC, looking at all the potential for all the clinical research that has been done in the TBI field, especially in 2007/2008 when a lot of investment was done. We have helped MRMC to look at the translational potential for research – so basically serving the bookends. We look at the gaps. We look at the analysis. We conduct and support our research through our network. And then we look at the translational potential, how we can take it further from there.

The third office is our Program Evaluation and Continuous Process Improvement Office. This office helps not only just our division but also our other two divisions, Education and Clinical Affairs, as well as our network, looking at certain metrics/measurements to see how we can improve our processes, how we can further robustly increase the impact of our research, and the money that is supporting this research, it goes to the best possible use.

This map is kind of a snapshot of our 11 MPF and 5 VA sites. I apologize that the functionality is not working. It should have popped up the three silos. I just want to highlight our Walter Reed site here, illustrate Dr. Lou French; it's right here. And it is representing a study that is a 15-year longitudinal study that we're supporting with DVBIC. Another site, the San Antonio site here, San Antonio Military Medical Center; and I'm just highlighting the SCORE study just recently completed. And we're in the process of looking at the results and the outcomes of that and dissemination

So it's this 11 MTF sites; 5 are VA. And this research network basically offers a vital resource center that you can see what the clinical (inaudible) in the field, MTFs, local providers, look at the recent questions that need to be answered, the things we need to invest more research into, or the things we need to take further for translational potential.

This is a snapshot of our research portfolio, the 60 studies that I just mentioned, and how they're split in terms of looking at the first pie chart that describes the support. About 62% of the studies are funded by DVBIC and 38% of whom are similarly funded as well.

Looking at how the research is split in terms of all these areas that are mentioned here. We support about 36 studies that are focused on the epidemiological aspects of the TBI because in 1991/1992, when DVBIC was stood up, it was more looking at these patients; so we can capture this population. So most of the bulk, the 36 studies, are epidemiological. We have about 10 studies that are treatment/management phase studies; we have about 6 of them that are looking at screening potential; 7 of them have that a rehab/reintegration aspect; and 1 study that is a family/caregiver study. So we particularly look at all the continuum, all the way from epidemiology to caregiver aspects.

This is a breakdown of the 60 portfolio of studies across different sites. And the thing I want to highlight here is that there are several studies that are ongoing at multiple sites. And that basically offers collaboration potential between different sites; different PIs can cross talk, they can share ideas, they can collaborate. And basically it also helps with the recruitment efforts. For example, for our 15-year longitudinal study with Dr. French here at Walter Reed, now they have sites at the Naval Medical Center of San Diego; they're cooperating with Fort Belvoir and Camp Pendleton. And we also have studies that are out of our headquarters element as well.

This slide describes our recent studies across the continuum, just highlighting a few of them. Looking at the epidemiological aspect, I want to highlight again the longitudinal study, 15-year study. Many of these studies are also Congressionally-mandated studies. DVBIC supports the Congressionally-managed studies, and we go across the continuum looking at all the research questionnaires.

In August 2012, as you all know, an interagency National Research Action Plan was mandated after a Presidential Executive Order. And NRAP basically addresses the key areas, the priority areas, that need to have more research done on them. And looking at those areas, it mandates and emphasizes a need for better classification of patient characteristics, different sorts of injuries. So we can make sure that if you recruit and do research and we do clinical trials, patients are recruited in the right cohorts. And you can see better outcome results because the patient population is more focused and narrowed.

It asks for understanding more neuropathological mechanisms, like the secondary injury, what happens after the primary insult in our TBIs, how we can understand better looking at the long-term effects also. How a single concussion, or maybe multiple concussions, may or may not affect the pathology looking at leading to CPE or other long-terms effects.

We still need to have treatment, pharmacologic and non-pharmacological treatment. So these are the priority areas that NRAP basically highlights. But it also gives us an opportunity to pick these areas and try to focus our recent efforts on these goals.

So how DVBIC is looking at these research priorities and how we are addressing them or supporting them to cover all these areas that I just mentioned – looking at classification, looking at the tools, the biomarkers, looking at treatment, and how we can look at the long-term effects.

So the first one I'm going to mention – I'm going to only mention two studies in the interest of time. First, the 15-year study here led by Dr. French. It's a work in progress. It's based out of Walter Reed. We still have collaborating sites at Naval Medical Center of San Diego, Camp Pendleton, Fort Belvoir. And this is looking at long-term effects – like physical, mental, and medical – for our OEF and OIF service members and looking at also the family/caregiver aspect – how TBI is affecting the families and the caregivers of these patients.

So basically, overall, this is one of the examples that is led out of an MTF on the DoD side but also partnering with VA. And along the same lines, this study is also partnering and collaborating and making bridges to support the VA-funded chronic effects of the Neurotrauma Consortium, like Dr. Scholten had mentioned earlier, as well as the IMAP study, where you have a lead from a VA site, the Tampa VA. But other collaborating sites, the DoD, and then neither supported as well element there. There's a lot of cross-collaboration, and that's what we want to see moving forward – to have a focus on research and effort interagency.

The next study I just want to mention is the SCORE study out of San Antonio Military Medical Center; it's completed. It was looking at the study of cognitive rehabilitation effectiveness for TBI patients. And this was (inaudible) study – again, a lot of crosstalk/collaboration between DVBIC researchers. And this study is in the phase of analysis of the results, and soon we'll start to disseminate this in collaboration and with the support from our Defense Center of Excellence.

So basically what you see here, looking at moving forward in terms of the research planned activities for DVBIC, I just want to highlight a few. We have completed the SCORE study. We have also completed

another study looking at a head-to-head comparison of different neuropsychological batteries to assess TBI. That is also completed. So we are looking forward to these two big studies to disseminate their results and share with our research community – academic, DoD and VA partners.

We, I think, also feel the importance – like Colonel Hinds and Ms. Helmick mentioned earlier – that we have devised a lot of distinct recommendations. So our research is also helping to evaluate effectiveness, such as the progressive return to activity of clinical recommendations to see how we can validate these tools that are out there. They are there; they are very reliable; but we still need to validate them so when we design for the studies, then make them into clinical practice guidelines, they should be a valid tool and can be used across.

Just to summarize – I know I'm running out of time here – I think we're looking forward to being more collaborative with our services. Just like our recent network shows that we have sites from the Army, we have sites from the Navy, we have sites from the Air Force – so working collaboratively with our services. And basically, we continue to put effort into working closely with MRMC, looking at the programmatic reviews, having a (inaudible), looking at how these new initiatives that have come out. For example, the last two initiatives that were just recently funded by MRMC are brain trauma evidence-based consortium and the TEC, the TBI Endpoints Consortium.

DVBIC continues to provide support and participate in the government oversight committees so we can make sure that the research that is funded is leading in the right direction for us and solving those answers.

Last but not the least, I want to mention two things, one in line with Colonel Hinds' path of care. We have a new role to look at, the visibility across DoD/MHS of all the research and clinical research that is being done so we can focus on (inaudible), remove the redundancies, look at the major gaps and the hot topics so we can address them in the short term but also, in the long term, make a cohesive plan interagency and also across DoD so we have better results for our TBI research.

Last of all, but not the least, I want to thank all our service members that serve us. It's our duty and job to help our service members to (inaudible) with all the TBI effects and especially their families that have to sacrifice the most.

Thank you so much. I appreciate it.

[Applause]

Thank you, Dr. Malik.

Ladies and gentlemen, our next speaker of the day is Lieutenant Commander Cathleen Davies.

Lieutenant Commander Cathleen Davies is a certified speech language pathologist, certified brain injury specialist, a uniformed service public health service officer, is the Chief of the Office of Clinical Training and Education at DVBIC. Her career path has led her through a variety of clinical, management, and administrative experiences in hospitals, home health, and skilled nursing facilities. She is a certified brain injury specialist and a clinical specialist for adult dysphagia and neurological diseases. She received her bachelor's degree in communication disorders and her master's degree in speech-language-pathology from the Pennsylvania State University.

Please welcome Lieutenant Commander Cathleen Davies.

[Applause]

Thank you, Major DiPatrizio.

Like everyone else, I have no disclosures.

I want to start with a little bit of TBI facts. According to the CDC, the Centers for Disease Control and Prevention, unintentional injuries account for the majority of deaths. They actually account for 51% of the deaths in people ages 1 to 44. And in fact, the deaths from these injuries occur in more than non-communicable and infectious diseases combined.

Despite improvement in protective equipment, there has been an increase in TBI incidence rates over the past decade. However, we need to be cautious that this might also be due to the fact that we've had better surveillance techniques and an increased awareness of TBI over that decade as well.

Although everyone is at risk for sustaining a TBI, males tend to be more at risk than females. There are many causes of TBIs including falls, motor vehicle accidents, objects, sports, and objects penetrating the skull, and violence. I want to be sure to mention that falls are the most common cause of injury in the general population, and motor vehicle collisions are the most common causes in the military population.

Some examples of prevention and public awareness initiatives – there are head-borne system initiatives, which are systems that are used to improve protection from a ballistic event and reduce injuries from blast events.

Also, some public awareness campaigns aimed at education and prevention strategies. Most people are aware of the CDC Heads Up campaign. It's a fabulous campaign website. It has a vast array of toolkits, fact sheets, posters, quizzes, training for athletic trainers and providers. We also have worked diligently over the past several years for increased NFL partnerships and, more recently, NCAA partnerships.

You've heard a lot about the Change Your Mind About Brain Injury campaign that we've taken on this year and as you see in our poster. The goal of this campaign is really to reduce that stigma -- that it's okay to seek treatment, that you don't need to suck it up, that prompt care will enhance your recovery. And that manta that you've heard several times today that the earlier you recognize, the earlier you report, the earlier you diagnose, the earlier treatment you're going to get for your head injury, which will ultimately result in better outcomes.

Later this month, DVBIC is planning to re-launch its TBI awareness, education and prevention initiative, "A Head for the Future." So we want you to be on the lookout for this on our website. What is the purpose of this initiative is to raise awareness of the signs and treatment of TBI, educate military and veteran communities about recognizing the symptoms of concussion, getting prompt treatment, and preventing future TBIs from occurring on the homefront.

We also want to make sure that you're aware that DVBIC has gone social. As of March 1st, we have a DVBIC Facebook page; so please go online and find us and like us.

Our prevention efforts – as you're aware, our stakeholder groups are not just service members but our service members, family members, caregivers; and we want to make sure that we're looking at prevention across that entire spectrum. There are many ways to reduce the chances of TBIs, and obviously this is not all inclusive. But big ways you want to think about are: use child safety seats appropriately; wear your seat belt every time you drive or ride in a motor vehicle; obviously, never drive while under the influence of alcohol or drugs and don't drive while you're half asleep; fall prevention for seniors and children – we'll go into that later; and playground and equipment safety.

So unless you've been asleep over the past couple of years, you've notice that there's an increased awareness on sports-related concussions. Prevention and preparation when it comes to sports-related concussions has been key. Check with our league or your schools' policies about concussions. Insist that safety comes first. It's actually interesting how many times we hear the athletic trainers tell us that it's the parents that want to the kids to go back to play, even when the coach or the athletic trainer wants to keep them out.

Insist that there is no head-to-head contact. And a lot of schools are going to actually no-contact practices on a more regular basis. Encourage athletes and make sure players are wearing the most properly fitted equipment. And learn about the dangers of concussions and how you can recognize them and be more vigilant about not going back to play too early.

Helmets are a big way to make sure that you are avoiding concussions. Wear your helmet and ensure that your children wear helmets whenever they are riding a bike, four-wheeler, motorcycle, snowmobile. And this is a big one. You know your children learn by example, so you should be wearing a helmet, not just making your child wear a helmet.

We've included a link to the National Highway Traffic Safety Administration. They have a really great handout included on that link where it shows you the proper fitting of a helmet because most children are not wearing the right size helmets. Additional helmet use – make sure that, again, you're wearing it whenever you're playing in a contact sport; riding a skateboard or in-line skates -- if it were me, it would be even with those four-skate things; batting and running bases; riding a horse; skiing or snowboarding – any kind of incident where you might have increased risk of fall.

Child safety seats – buckle your child in a car seat. Make sure that they're in a booster seat. Make sure you're following the right child height and weight recommendations. All too often, we try to move our kids too fast through this process; and make sure that you don't put them into a seat that they're not properly fitted for.

You want to make sure that you install window guards to keep young children from falling out the windows. Put safety gates at the top and the bottom of the stairs. I think a lot of times, we remember the tops of the stairs -- but the bottoms of the stairs because once they go up, they come back down.

We talked about fall prevention. Falls are the most common incident rates for the general population, and that's typically in your younger and your older populations – so being aware of some fall prevention for seniors. Remove tripping hazards – throw rugs and clutter from hallways. It's amazing how many times people trip over throw rugs. Use non-slip mats in bathtubs and on shower floors and install grab bars next to the toilet and in the tub or shower.

You want to put handrails on both sides of the stairwells; improve lighting throughout the home, especially on stairwells; and ensure lighting around the house is bright enough.

Additional prevention measures – I don't know how many people remember, at our playgrounds they were usually on concrete. Well, hopefully we're not seeing that anymore, that your playgrounds have some kind of absorbent material underneath it, whether it's mulch or sand.

The other thing to keep in mind, it's scary how often we hear that people are not letting their kids participate in physical activities because they're afraid of concussion. It's good that people are aware of it, but we want to make sure that people are not so afraid that they're not letting their kids get involved in activities because we also have other issues with our children like obesity rates. And like Colonel Hinds said, we want to make sure that our kids are active and that our service members are active.

So the main goal with this is that want our kids and we want our family members to be active, but we want them to be safe while they're doing that.

And here are some references that are involved in that. Thank you.

[Applause]

Thank you, Commander Davies.

Ladies and gentlemen, it is my privilege to introduce a patient of the TBI NICoE Program at Bethesda. Command Master Chief (Retired) Dan Marshall. He retired as Command Master Chief after 23 years of

active military service in the United States Special Operations Command and as a Navy SEAL and Explosive Ordnance Disposal Operator.

His last tour before retiring was the Command Senior Enlisted Leader, East Coast Training Command. He was responsible for the training of the five East Coast SEAL teams. He ensured training relevancy to best prepare to constrain emerging threats around the globe; has held all levels of tactical and operational leadership positions; and has served in numerous conflicts around the globe, including nine operational tours in combat.

As the Command Senior Enlisted for the Deputy Commanding General of the NATO training mission, Afghanistan, Dan was directly responsible for the execution of security and vulnerability assessment of critical infrastructures. Dan also served as Senior Tactical Leader for overall security, tactical operations, security assessment, and executed protection for five heads of state and ten physical sites during the establishment of the Interim Government of Iraq.

Dan served as the Leading Chief Petty Officer for the requirement and assessment directorate. He led a 10-man team in combat, development of new emerging technologies. He wrote requirements for multi-million USSOCOM Programs of Record, directly contributing to the lethality of special-operations forces personnel forward-deployed.

He currently is the Business Development Manager for SDS, providing security assessments for schools, corporate and hospital campuses, as well as government customers.

Please welcome Command Master Chief (Retired) Dan Marshall.

[Applause]

(inaudible)

(Music/video)

Mr. Marshall, can you please describe what your personal experience was after sustaining a TBI?

We've talked about this a few times. One, it's real important for me to be able to share the information and share my journey through the process of traumatic brain injury or what I didn't know existed as I navigated through my military career. So 23 years in Special Operations trying to figure out how to do things right – how to serve my country, serve my teammates, and provide for my family.

Not to walk down a long journey, but throughout the extent of my career, there weren't a whole lot of defining moments that defined the injury. Obviously, high-risk evolutions from parachuting, diving, working with explosives, combat, fighting, and then combat operations – so exposed to quite a bit in training. And back then it was, well, headaches and bloody nose and getting knocked out and just get right back up.

Well, over the years, it started to take a toll. I considered myself a high-end individual that could manage a thousand different things at once and still perform at an extremely high level. I noted a significant swing in 2008 during an offsite event. I fell two stories during a training event. That I thought was going to limit me from actually deploying because I needed to deploy in about two months. It slowed me down significantly for about a month, but I still made the deployment not knowing the true effects of how that would impact me long term.

So continuously navigating through some of the effects of training and then combat deployments forward – so I never really could pinpoint when I said, today was the day. I grew up as an active kid. I played contact sports and many concussions, knocked out. So I could never really attribute it to one key event – at least in my mind, I didn't.

When did you realize that you needed to get help?

My last position I held was the Command Senior Enlisted Leader for a training that had a corps of about 70 to 80 senior operators that trained troops going forward. And I noticed a significant issue with performance of the men that worked for me – men that had anywhere from 12 to 18 to 20 years of service now were not performing at even a minimum standard. And instead of looking at it for face value and saying, well, wait, there's an issue here, they're just non-performers, they've just kind of gotten a bad attitude towards the end, I kind of started to ask questions, trying to figure out, maybe listen a little bit to what was going on.

NICoE had come down to give command leadership brief. I sat in, and I was sitting next to a physician assistant who is a friend of mine who had been on a journey of being injured. And a slide came up, and it showed Post-Traumatic Stress and all the symptoms; and then it showed Traumatic Brain Injury and all the symptoms. And then there was a big circle in the middle where they converged, and then there were the shared symptoms. And I started going down; and I went yes, yes, yes, yes, yes, yes, yes and yes. And then I got a nudge. And I got, "Are you ready?"

And so really the drive for me to get help was the fact that how could I tell my guys to go get help if I couldn't help myself. And really that was my own individual journey that I had to start. And I had to put everything else aside – from ego to attitude to everything – and figure out that if I could help me, then I could help many more. And that's really how it started.

Thank you. What was your experience in getting the help you needed?

I probably come from a fortunate background where we had dedicated doctors 24/7, could reach out and ache/pain/bruise/bump -- I could get immediate assistance. It wasn't set up an appointment; it was walk in and talk to the doc. So being engaged and understanding what NICoE could provide, some friends of mine – peers – had gone and said, "Hey, you need to get yourself right before you can even think about helping others."

So I walked next door and basically said, "Can I get checked out?" And then within a very short period of time was evaluated, selected, and went off to attend a four-month treatment research at the Intrepid Center.

Awesome. What was the time period from the initial provider visit to you going to NICoE?

Like I said, very fast – fast and furious for me. I don't believe I had to wait long. I believe it was just a month or two, so talking through not a whole lot of prescreening. A lot of the timeline of events or process that have been displayed here earlier, I was oblivious to it – had no understanding of it, wasn't educated on the process, not even as a senior leader, and just stumbled into it. It was like, "Hey, we're here to get you help. Here's the process. Talk to this person, interview here, submit your package here, and then go."

What was your NICoE experience like?

For me, I shared some pictures of my personal life, work life – so very personal. My journey at NICoE was equally as personal. I had to search myself a little bit and maybe drop my guard or drop my level of resistance to help for change. So going in approach was, I'm going to share everything, give everything, learn everything I can, was opposed to nothing, and had no preconceived notion of what I was going to get walking out. I just know that the man I was when I started my career to the man I was standing there – I was not the same man.

And it was scary. My biggest fear walking in there was that I was going to walk out of that facility and they were going to say, "Nothing is wrong with you." And then I would have to start my next journey of figuring out, where am I going, what am I doing?

So throughout the whole process, I learned quite a bit about myself as an individual. I call it mind/body/spirit because I believe it takes all three to figure out what your path is. And I walked away not with fear or apprehension, but more comfort in knowing that I had information that I never had before. I had information that was potentially affecting my life, my family, my work. And based off the doctors' findings and the analysis, there was a recommendation, "Do not expose yourself to anything that could potentially give you another concussion."

And knowing that concussion and brain injury potentially lead to worse effects – whether it be dementia or other debilitating side effects of it – I made a decision. I made a decision that I'd served long enough; and that I wanted to, one, continue to provide for my family and, two, remember my family. So walking out of NICoE, I knew what my path was; and then probably within the next six to eight months, I had retired.

Okay, was there anything about your care that you would have changed?

I would say the immediate care, no. As far as – I guess my journey starts, the gift that I received, and we talked about this, the gift of being able to go to NICoE, and for all the service members that get the opportunity to receive whatever treatment it is, whatever facility it is, to give them that little pearl back of being who they were after serving their country. There's not one defining moment. So I would say that if I could recommend anything, it's to start early. Start early and start often.

Fellow teammates of mine, we continue to kind of carry the flag or the banner, to support those that are overexposed or get exposed to traumatic brain injury. I understand and we understand that that's the necessary risk of doing what we do and the beliefs that we believe in, and you take that oath when you join. But it doesn't mean that we have to continue to expose our service members to events, specifically in training, where you can mitigate risk. We don't take chances; we mitigate risk. We educate ourselves. Depending on the mission, depending on the level of effort we had to apply to these specific events.

So we've looked at different ways that we can continue to advocate for service members that we collectively still work and for those that continue to serve. So part of what I do is I work with defense industry partners to try and make things better for the service members. And then we look at long-term transitional effects and share my story, share the things that were affecting me. If I can't share the different effects of things that were helping me within my peer group or further, then we're going to continue to put this in a box and not talk about it.

And so obviously when you reached out and said, "Would you be willing to speak on behalf of traumatic brain injury and your experiences," the answer is, "Yes." I don't think it's ever comfortable to share personal events with people, but it's very easy to share an experience with someone else – one person – one person that can either go down a path and instead of going right, which could have been devastating, they go left. And now the outcome is totally different.

Thank you. What message should the primary care providers take home?

Well, obviously, I wouldn't be here if I didn't get sound advice from primary care providers. I wish I could say that I wasn't physically beaten and played hurt my whole career because that's what I did. But I always had somebody there that was a voice of reason that would say, "Hey, look, maybe not today." The help I got, the nudge I got from a primary care provider was, "Hey, Dan, it's time; when are you going to go get help?"

And the persistent presence to be there, to educate the junior service members but, more importantly, the senior members, I believe that's probably the biggest impact that we can have -- is to continue to educate and get in front of it instead of behind it on the effects that -- the wear and tear, the wear and tear doing your job is taking on all of our service members.

A lot of the things that were presented here, I still have not heard of or don't know about. Still I have some reservations of asking for help; I guess it's in my DNA. It's in certain people's DNA; we would rather help than be helped, but making things available. Obviously, the signs, the times, the technology,

younger service members coming in are digitally savvy compared to butcher block and white paper and dry erase boards, chalkboards – they don't exist. Now it's the snap of a finger, here goes the information.

Continue to provide it. Provide the information, continue to champion the efforts for those that continue to serve. And tell stories; tell stories and share because I guarantee you that folks in here that have gone forward and served in harm's way have had similar experiences to what I have. They may not be exact, but they are similar. I found that when I came back and shared my story and I started talking to my peer group and those who served with me and for me, I said, "Yeah, I can't sleep. No, I'm irritable; I'm dizzy; I can't stand up. I have bink, bink, bink," and I started listing everything. And they looked at me and it's not, "Oh, he's crazy." It's, "Well, so do I." So continue to care; continue to communicate; continue to send the message forward and be there.

Thank you.

[Applause]

Mr. Marshall, come back up.

Master Chief, thank you very much for sharing your experiences with us. Thank you for your service. We appreciate you being here on the kickoff for Brain Injury Awareness Month. The team that put this together did such a phenomenal job. They were able to get some pretty shaky weather, knowing that falls are one of the largest contributors to head injury. But we do appreciate you being here today. And keep fighting the good fight for us and getting the word out.

[Applause]

Now we're going to do the question and answer session. So all the speakers, I'll have you come up here and take a seat.

My first question is for Ms. Helmick: Is there any specific criteria needed to admit a patient to a PRC?

No, that's for the VA, sorry.

Yeah, that's a VA question. Polytrauma, transitional rehab program – I don't think you know anything about that, do you?

Oh, I could sure take a stab at it – just kidding.

You want to phone a friend.

The admission criterion for a Polytrauma Rehab Center is an individual with a traumatic brain injury with skilled rehabilitation needs. Some of our centers do short-stay, kind of comprehensive evaluations just to assess rehab potential. We have, obviously, other individuals who are coming in severely injured and require more intensive, long-term stays. But we can connect you with the appropriate polytrauma case manager and screening coordinator. The information is listed on the website at: [www.polytrauma.va.gov](http://www.polytrauma.va.gov).

And my e-mail is actually on my PowerPoint slide, so you can e-mail me directly too.

And they will be available for download later.

Thank you, sir.

So of the 73,000 veterans who had a confirmed diagnosis of mild TBI, were they not diagnosed beforehand? What were the reasons they fell through the cracks of the system?

I'm guessing that's for me too.

I'm not sure who that's for.

No, I'm assuming that's from the slide on our TBI screening and evaluation processes. The TBI screen is for any individual who separates after September 11, 2001. If they have a prior diagnosis, they kind of skip the screening. They go right to a consult, and they're transitioned or connected to a TBI specialist. If they answer "yes" to all four questions, that triggers the consult to go for the comprehensive evaluation to provide a diagnosis and appropriate treatment plan.

I can't say for certain why they would not have been diagnosed before; many actually have. They'll come in; they may have a positive screen. They may not recall they've been diagnosed with a TBI before; but when I go back through records and VistAWeb, I see a very clear diagnosis. But I think that's also – for one, it's an opportunity of the screening process – the last question in order to get through the screen, you have to have current symptoms, so thereby identifying someone who is in need, has current symptoms, and likely in need of treatment. So it's a great opportunity to get them in and get them hooked and connected with the right services.

Thank you, sir.

I think this next one is for research: How does DVBIC research support the Force Health Protection Service?

Of course I believe through our network for MTFs, we see service members that are enrolled in these studies. I believe basically we get to the gaps of the questions that need to be answered. And to have a service member in an optimal condition, ready to serve, to basically be ready when called for duty, we need to make sure that we are translating the actual knowledge, the clinical implication of studies. So we need to provide that evidence.

The way we do it is we provide that evidence through our research; that basically translates all the clinical implications toward the clinical recommendations. And further, when we test these clinical recommendations and validate them, that provides the evidence to have these implicated to the service members that are going to those MTFs or clinical care. So basically, it's indirect; but it still goes through the same, where they get them ready for the best possible clinical care. So basically the goal is still the best treatment of clinical care, but through the evidence and the support of an evidence-based knowledge to validate research.

Thank you.

I'm not sure who this one is for, but any one of you could take a stab at it: What are some of the products being created to improve protection of our service members from TBI?

I'll go ahead and start. I think the biggest thing over the past 14 years that we've done is come together as a group and decide that incidence-based reporting is the best way to identify folks because our service members wanted to stay with their units; they don't want to let their buddies down. There's a saying that says that the flag gets you to the fight; but it's the buddies, the people around you, that keep you in it.

And so what we want to do is have it be okay for them to say, "You know, I took a hit; I need an evaluation." And let them know that just by being evaluated doesn't mean that they're going to have to sit it out, but they need to be evaluated. And if they do have a head injury, then they can get the right care. And what we do know is that multiple head injuries, especially if you don't recover from the first, lead you to more prolonged symptoms and a poor recovery.

Thank you, sir.

I think I have time for one more question, right?

Okay, this one is for you, Lieutenant Commander Davies: "Are there state mandates that ensure that the playground surfaces are safe for children?"

Are there state mandates? Every state has a Return to Play law, and they have different guidelines. Unfortunately, the states are different from state to state. But most states have some kind of a guideline. But as far as a guideline for what is on playground prevention, I am not aware of that.

Okay, we'll get back with them on that one.

All these questions that we have, we will make sure that the webinar – the ones who are signed in – will collect those questions, and we will vet them to the right person and they will be answered. I'm going to ask one more question, and that is: Where can I refer my patients' parents to ensure that they have installed the car seat properly?

That one I do know. If you have your child's safety seat, you can most likely go to your fire department; and they will go and they will check to make sure it's installed safely. However, they won't install it for you. They'll watch you install it and make sure that it's right. Also, most hospitals before your discharged will make you check out before you go.

Thank you.

That concludes our question and answer session. Thank you very much.

[Applause]

When we talk about resources and things of value, we talk about a person's time -- I wish I was the originator of this, but my former boss is big about it. But time you can never get back. So we always appreciate when someone donates their expertise, their time, their perspiration into any mission. So I want to thank you all for attending this kickoff for Brain Injury Awareness Month. I know there are plenty of other places that perhaps people want you to be, but I am very happy that you want to be here.

I want to thank the Division of Education for putting this all together. I want to thank all the folks from DCoE, the folks from Walter Reed, my esteemed colleagues, my friends in the audience. Thank you very much for everything you do on a daily basis to keep us in this fight, and I think we're going to overcome it. I don't have a crystal ball to tell you exactly when, but we're heading in the right direction. We need to keep these partnerships up. We need to make sure that the word gets out and just doesn't stay among us. And we're going to work to that end to see how we can effect a change.

So I want to thank you very much.

Any other comments, Major DiPatrizio, before we close?

No, sir – just my little ending. We're good. Thank you, sir.

Let's have a big round of applause for Major DiPatrizio.

Ladies and gentlemen, this concludes today's event. As a reminder, you have received an end-of-session feedback form. Please be sure to complete the end-of-session feedback form and give it to the group of collectors. They will raise their hands, and they have red dots. As I had said earlier, if you'd like to discuss any feedback with them, feel free to. They're interested in hearing from you.

I would like to send a special thanks to a few organizations for their contribution to the success of today's kickoff: the Defense and Veterans' Brain Injury Center, the VA Medical Center, the Defense Center of Excellence for Psychological Health and Traumatic Brain Injury, and all our medical commands within the Army, Navy, Marines, and Air Force. Without the support of these organizations and others, this month's observance would not be possible.

On behalf of Colonel Hinds and Captain Stoltz, thank you for your support of our nation's heroes and their families; and thank you for joining us today.

[Applause]

That concludes today's conference. Thank you for participating. You may disconnect at this time.