

DVBIC Monthly Webinar Series: Hot Topics in Traumatic Brain Injury
The Role of Integrative Medicine in the Treatment of TBI
Dec. 18, 2013 1 – 2:30 p.m. EST

Welcome and thank you for standing by. All lines will be in listen-only mode for the duration of today's conference. I'd like to remind parties that today's call is being recorded. If you have any objections, you may disconnect at this time. I would now like to turn today's meeting over to Dr. Jean-Louis Belard. Thank you. You may begin.

Good afternoon, and thank you for joining us today for the DVBIC December webinar. My name is Dr. Jean-Louis Belard. I am the research advisor for Integrative Medicine at the Defense and Veterans Brain Injury Center. I will be your moderator for today's webinar. Before we begin, let's review some webinar details.

Live closed captioning is available through Federal Relay Conference Captioning. Please see the pod beneath the presentations slides. Today's webinar is hosted using the Defense Connect online platform. Should you experience technical difficulties please visit dcoe.mil/webinars to access troubleshooting tips. There may be an audio delay as we advance the slides in this presentation. Please be patient as the connection catches up with the speaker's comments.

During the webinar, you are welcome to submit technical or content-related questions via the question box. The question box is monitored and questions are forwarded to the moderator for response during the question-and-answer session held during the last half hour of the webinar. Our presenters will field as many questions as time permits. Please feel free to identify yourself to other attendees via the chat box. We do request you refrain from marketing or advertising your organization or product in the chat box.

Additionally, today's presentation, the resource list, and additional resources are available for download from the file box below and will be archived in the online education section of the DVBIC website. Please note that continuing education credit is not available for this event. I will now move on to today's webinar's topic, "The Role of Integrative Medicine in the Treatment of TBI."

Over the past 12 years, military health-care providers have noted an increase in the incidence of mild traumatic brain injury during the provision of care to service members. Although common, mild TBI is often challenging to delineate in its presentation due to co-occurring psychological health systems. Integrative medicine, synergistically combines conventional and alternative medicine treatments to achieve safe and effective care.

In this webinar we will examine evidence-based authoritative and complementary medicine interventions for symptom management. We will also discuss the role of integrative medicine in holistic personalized patient-centered care. Webinar participants will learn to define the difference between conventional and integrative medicine, describe alternative and complementary medicine practices commonly employed in the military health system, and discuss and explain how to create an integrative medicine clinic and/or program.

We are very pleased to have two distinguished presenters today for today's webinar, Dr. Margaret MacDonald and Dr. David Drake. I would now like to introduce our first presenter, Dr. Margaret MacDonald. Dr. MacDonald joined DVBIC at Fort Carson, Colorado, in 2010, where she serves as a senior scientific director. While at Fort Carson, Dr. MacDonald held the role of sub-investigator in the Integrative Metronome Randomized Clinical Trial. She is about to initiate a pilot study of a neurofeedback technique targeted for soldiers who experience persistent TBI symptomology. Her primary research focus is detection of physiological change after TBI, and remediation of functional deficit by targeting neuroplastic responses in the brain. Dr. MacDonald received her medical degree from Dalhousie University Medical School in Nova Scotia, Canada. She began her career in family practice, spent several years working as the medical officer at Forensic Psychiatric Hospital and eventually branched into neural rehabilitation. Dr. MacDonald holds certifications in neurofeedback and quantitative electroencephalography, in addition to clinical experience in biofeedback and mind body medicine. Thank you for your participation, and welcome Dr. MacDonald.

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Thank you, Dr. Belard. Thank you so much. And thank you everyone for taking the time to tune in to listen to us today. Next slide. There's my title, and if you'd go on please for my disclaimer, usual thing, no financial interest. This is all only my own opinion. And if I do mention research, you can be sure it was all done under the right rules. Next slide, please.

So I really did not want to repeat any information to all of you about the stats regarding TBI. I'm sure everyone is familiar. But I will spend a couple of minutes just framing some things for you so that we can easily see why we may want to considering integrative or alternative care for our TBI patients. Certainly we all know that TBI is a big problem, especially for the military people. And in this presentation I will be mostly talking about the milder TBIs, as opposed to the severes, and I will definitely be talking only about the stable, post-acute TBI patients with ongoing symptoms. Next slide, please.

So if we just remember, of course, from the definition that the DOD uses for TBI, it is traumatic, it causes injury or disruption of brain function, at least temporarily. And certainly, we also know now from recent evidence that there's probably more going on underneath that molecular and cellular levels than we have necessarily been able to piece out with some of our ordinary testing. And we do know that some of these guys have significant issues with mental processing speed, emotional regulation, novel learning, fluid intelligence, and those kinds of things after deployment, and particularly after TBI. Next slide. Certainly it's easy to imagine why there might be a significant challenge to integration if someone is injured in this way. Next slide.

And a quick review of blast physics, it reminds us that there's a whole lot going on there. You know, you have your positive pressure wave, your negative pressure wave. You have ricochets. You have other injuries that can occur, and invariably there's some degree of blunt trauma involved, in addition to the blast wave itself. And certainly post-acute phase, we now know, in fact, that the characteristics of TBI probably aren't really different between blast injuries and other mechanisms of injuries. So we can still pretty much talk about this as just TBI.

By the way, there's a really excellent article, if no one's seen it, for the blast physics, and the pathology, and Colonel Ling was part of that magnificently enough. It was published in the "Journal of Trauma" in July of 2012, the "Neuropathy of Explosive Blast TBI." It's a really great reference. Next slide, please.

So any of us dealing with TBI care know that there are lots of challenges in terms of the fact that no two TBIs are the same. No two brains are the same when they start, and we know that the baseline status of a person, and even genetic factors and other things can play a role on how someone does in terms of their injury and their time to recovery. We also know that there are frequently other injuries to think about, and we all end up having to consider the other sequelae that occur in terms of the insult that occurs even to the soldier's identity and their self image and there are role in their units and the other ramifications for their families. Next slide, please. So now we're going to slide 14.

So if we think about how far have we come with the finding evidence-based treatments for mild TBI in particular, and TBI in general, over the years, I mean certainly we've had a lot of work going on, particularly [inaudible], and NIH has certainly done a lot of studies. We have found out some things about changes that occur in metabolic issues, hormonal response, "microendotoxic" damage, amyloid clearance and things like that. But none of this yet has led us to a magic pill. Next slide, please.

So what I did here was I tried to summarize for you some of the standard treatments that we have or the status of the evidence for the treatments that we have for the persisting symptoms that we encounter after TBI. So we will notice here that there's actually very good evidence of benefit and that there's not harm to things like early education or individualized psychotherapeutic treatment or, look at that, stress management, sleep education, relaxation in a way that does make sense to us, because we know that there are many interrelated factors that go into the effective functioning of an adult human being. And so it does make sense to target some of these basic functions that really do support everything else. But then we sort of think about, well, yeah, but how much did most of us get taught in medical school about, you know, how to help somebody sleep better or how to teach them how to relax. And so it doesn't feel

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like our area, all though I think that more and more providers are recognizing the importance of these things. Next slide. So now we're on slide 16.

In fact, even in the national research plan that was recently released, they do certainly recognize that there is a need for integrated care and treatment that addresses the whole person when you are treating TBI. Next slide.

So if I haven't convinced you yet, here is my argument for why integrate. I think it's sort of obvious that if we only look at one thing, we're probably not going to get very far. Next slide, please. And so enter the idea of integrated and holistic approaches. Certainly, historically, we can see that things to eventually come around again, don't they, from roots and herbs to medicine men and prayer, to all the wonders of science and modern medicines, all the way back to roots and herbs again. These days the public does seem to be seeking alternative treatments, and they don't like the idea of artificial drugs, and they are using lots of these preparations themselves. And science is starting to catch up with this demand and beginning to explore more things, so more and more evidence is coming out. Not to say we don't need more, but we are seeing more research into these techniques. Next slide, please.

So what is integrative medicine? Basically it incorporates complementary and other practices. We don't really like this word "alternative" anymore. It's in that slide. But Dr. Drake is also agreeing with me that "integrative" is really the word we need to think about. Many of these things, it's not either or. They're not really alternatives. They're just added to or mixed in with our regular treatments. And certainly the goal is to consider all aspects of approaching the patient and to take advantage of the patient's own sort of healing-oriented abilities. Next slide, please.

So, again why provide integrative treatment? Well it really is already happening. The patients certainly seem to perceive that it's beneficial. I think many clinicians by now are proceeding that there can be some benefits at least from these techniques, and it seems to make sense to combine these things for holistic care. However, we do need more evidence. But what I want to do now is review with you what we do know about some of the theoretical and research bases for some of these modalities, and full disclosure, I'm going to talk mostly about the things about which I know, and I won't dwell too much on those things which I'm not very familiar. Next slide, please.

We've established that there is already a lot of this kind of care occurring, and all levels of medical providers are involved with this, and certainly I don't think there's anybody left who would not agree to make a referral for a patient who was asking for something like massage or yoga or acupuncture if there were any indications that that might help their problem. So that's a good thing. We're making progress. Next slide, please, slide 22 now.

So here's a little summary of the different sort of divisions of what kinds of complementary and integrative care is out there. So some of them, of course, are whole independent systems of care that were developed, maybe before we even had or allopathic western medicine, things like homeopathy or Chinese medicine or Ayurveda. Some of them are just specific techniques that can be used alone or added to other things. As you can see here, some of them are based on metabolic activity in terms of biologic agents. Some of them are based on using the power of the mind to understand and control the body better, and some of them are based on manipulating the body, and some of them are based on dealing with the energies in the body. And I think, in general, those methods are not talking about metabolic energy, they're talking about usually electrical or other. So next slide.

We know that after TBI there can be quite a spectrum of difficulties that arise in the aftermath. Certainly there are many problems which can lead to or complicate each other. And I believe this is an animated slide, so if someone wants to just start pressing the button then that's great. So we certainly encounter patients with headaches, chronic pain, sleep problems, dizziness, memory troubles, stress, difficulty coping with stress, marital problems, alcohol and drug abuse, driving difficulties, and more. So all of these problems, we can see that they are related to a baseline level of the person's ability to interact appropriately with their environment, which does appear to be affected by this situation.

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So next slide, if we think about some of the things that produce these symptoms, you know, obviously there are direct and indirect sequelae of having any kind of injury to your brain, even if that injury supposedly resolves. And certainly we know life is stressful, especially the life of a soldier. I just found it very interesting. I came across a paper early in 1990. Dr. Prichep discovered a person who had had a TBI years before was still highly functioning, but after a series of psychosocial stressors that were significant, she encountered a significant mood disorder, which was not characteristic of her prior to her injury. And then looked at her EEG and determined that there were differences in her frontal lobes that he thought might actually account for those symptoms. And even way back then, he used the EEG biofeedback to help her to learn to reactivate that area of cortex, and she got better.

So it's not that recent that there is some understanding out there, even though it may not be popular yet, that your behavior is a result of how your brain is doing. And so we spend a lot of time trying to sort people into boxes; is this TBI-related problem, is this a psychological problem, when, in fact, a lot of it is still coming from what the brain is doing. Now the brain may be doing something different as a result of having been injured or it may be doing something different as a result of neuroplastic change that occurs simply on the basis of our own life experience. And, of course, we'll never know which came first in this case. But nonetheless, it does behoove us to consider that we have to treat the whole system instead of picking out just a cognitive problem or a psychological problem. The brain certainly does not function in isolation. So next slide.

So this is my own conception of a way of looking at the way that stress alone could affect people. and then we're going to see how different people might be affected. So this is a performance arousal curve, and the X axis is the arousal level. So basically the bottom left corner is you're asleep and there's nothing happening. And so you have to have some degree of arousal in order to have any degree of performance. And then it's pretty easy to visualize this, that you get to a certain point where more arousal produces a decrease in performance, and then, of course, there's a drop-off point eventually where the whole system is overwhelmed and gives up.

Now if we look at the next line we could also think about this, the red line now, could be just an ordinary person. I'm sorry, that was an orange line, so we'll just quickly say the orange line could be an ordinary person. And say we consider now the X axis to simply be the stressors that one encounters throughout one's day. So then the red line might be, like, a soldier who is highly trained and is used to having to perform. So they may come up a little faster than the ordinary person. They may be good at catching a break in the middle of the day whenever there's a lull, and then they may actually be good at really increasing their performance when demands are on, like combat or training exercises. And when things are allowed to go down, they get down very quickly. And they know they have to get their sleep.

Now the next line could be a conceptualization -- this is the green line now -- of what if that soldier had had a brain injury. And so he may find that he has a harder time getting going through the day, and that he poops out a whole lot earlier and drops off sooner and just can't handle the same load. Now I'm not saying that this is anything necessarily totally real. But this is sort of my own sort conceptualization of how we can think about the way that stress can affect us. And if we have significant levels of stress or some kind of an underlying problem to begin with, then all of these other factors load in to essentially move us along this curve to a place of less performance. Next slide, please.

Just reminding us all about the use it or lose it, you know, we are always building and rebuilding and deconstructing and reconstructing the connections in our brain, and there are many factors that affect that process. So, obviously, if the cells get disrupted that will affect the process. But stress, cortisol, sleep deprivation, nutrition, all of those things can affect this process. So we also need to remember that all of these things can also enhance our brain and our body and our mind's comprehensive unit to be able to develop and to heal and to learn. So, again, another argument for holistic care. Next slide.

I don't need to remind everyone, I'm sure, of the effects of stress, both acute and chronic, and we've just talked about what that can do. Next slide, please.

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So some of, I think, the most common sort of complementary activity that most of us are somewhat familiar with are these mind/body medicine techniques; mindfulness, meditation, stress management, and even biofeedback, which would add in an objective component as well for being able to show the patient what's going on with themselves. And, really, these things are just based on basic physiology, and so there's no reason for medical practitioners to be afraid of these things. Next slide.

So one of the things that I'd like to do in my practice -- slide 29 now -- is to use physiologic monitoring to actually show the patient some objective signs of what's going on with them, because what we find is that you can often discover and you can show the patient that their body is saying something that their words are not, and that can be a really pivotal moment in the therapeutic process for engaging that patient. Next slide.

So here, I just wanted to quickly show you an example from a printout from something that I do, called a "physiologic stress evaluation." So the bottom tells you what these different phases are. It's two minutes each. So we start with a baseline, then we try to stress them out. We give them a stroop color word task, and then we let them recover from that. And then we give them a mental math task, then a recovery, and then a stressful event recall, and then another recovery. So in this case, the tracing is of a 45-year-old male who had complained of stress and chronic illness, including chronic pain. And I was pretty sure he had anxiety, but he really couldn't consciously acknowledge that. And he saw his stresses kind of being external to himself. And we really hadn't gotten very far with CBT to address his internal response to the stressors.. So this ended up being a very useful exercise for him.

And what we can see on the top line, the green line, is his muscle tension activity. And it actually is kind of high to start with, and you can see it goes up to the stressors and tries to come down during the rests, but goes up again for each stressor. On the second line the temperature is the blue line, and he actually decreased his peripheral temperature, even in the beginning during the rest, and this happens sometimes when people are, like, not wanting to be watched or what have you. Then he tried to increase it again during the first recovery, but then it just started to down again for the rest of the test.

And the orange line on the second graph is his skin conductance, and that's going to be pretty sensitive to sympathetic response. And it shows quite a reactive increase during his first stressor, and there's not very much recovery. He goes up again, and not very much down, and he never gets back to baseline by the end of the test.

Similarly, the third line is his heart rate, very reactive during the stressors. It takes a little while for him to get it down, except at the very end when I told him that was his last one, he was able to relax much better. And then the very bottom tracing is his -- let's see -- skin conductance, heart rate, what am I missing. I may have misled you on which one -- oh, respiration, okay, that's the bottom line, similar to what his heart rate is doing.

So after this test, I was able to show him all of this, explain what it meant. We talked about what that was saying about his ability to even handle a mental arousal or other kind of stressor. And he really understood that very, very quickly after being able to look at these data. And this was a pivotal moment for him, after which he was able to engage in doing some basic biofeedback and some training to master his body and his mind. And through that process, he was able to understand that stress wasn't something that had to happen to him. Stress was something that he had a reaction for, that he could now learn to control that reaction. And it really helped him a lot. Next slide, please.

So one of the first things we would do with someone like that is to train them in something called "heart rate variability, and you can go ahead and bring in the bullet. So heart rate variability is a natural change in your heart rate that occurs with your respirations, and that's partly a function of the physical mechanism of your diaphragm moving and changing the pressure inside your chest cavity. But some of it is also, there is a native frequency at which your own heart rate will change anyway, and that is called "natural

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heart rate variability,” and that normally is around six cycles per minute, which is about ten seconds per cycle.

So what we do is we try and teach patients to slow down their breathing using they are diagram and not their thorax, and to get in sync with their natural variability rhythm, and this is kind of like finding the sweet spot on a pendulum, and so they can maximize the difference between their inspiration and their expiration heart rate, and we know that you can train this and you can get better at it with practice. It relates to a balance between sympathetic and parasympathetic activity and barrier receptors, et cetera. And there's a huge body of literature on HRV and the benefits of it for blood pressure, for stress, for sleep, for asthma, for depression, for lots of things. And it is also a prognostic factor, and people with low heart rate variability have higher rates of mortality. Next slide, please.

Now, also, when we train heart variability, you get another nice side effect that is good for the brain. So this is a tracing on the top graph of brain wave activity, just the amplitudes over time, and this is just a few minutes tracing. And the green line is the beta wave activity, which is considered slow activity and would be correlated with low cerebral blood flow. This was measured over the frontal cortex in a TBI patient. And only a couple of minutes later, when we got the guy to slow his breathing down to five breaths per minute, now this was after he had been trained, so he knew how to get there and do it right, then you can see how much the slow wave activity decreased. The lower lines are the fast activity, which didn't make a big change. And so this is showing that when you maximize your balance of your parasympathetic and sympathetic systems, you can improve the blood flow to your brain, and we can all only imagine that must be helpful. So next slide, please.

So as I was saying, the value of show and tell in these kind of mind/body thing, especially if you can add some objective measures there, is really, really useful for patients. It empowers them. And you can also use these measures to reevaluate a patient after a period of training or treatment. Next slide, please. I have a message of five minutes left. Gosh, is that right? Okay.

Adding energy to the system, so, here, energy medicine, as I mentioned, not usually metabolic, usually considering other things, but, hey, we all use heat, and we may not think of that as something we do that is energy medicine, but there we go. We are already aware of the value of adding heat to the system for various systems. So commonly out there something you may here about is something called “craniotherapy electric stimulation.” There are several devices already available, FDA approved, on the market, and mostly by prescription. They are not exact mechanism of action unknown, but, hey, we can say that for most of our drugs. It is thought that they stimulate brain stem, they increase endorphins and serotonin release. They do result generally in a more relaxed state that's visible on an EEG after a session. Many clinical studies have found improvements in anxiety, depression, insomnia.

This is a device where you put little clips on the earlobes and you turn it on. You wear it from approximately anywhere from 30 to 60 minutes. It tends to want to be used every day for the first while, because it has a cumulative effect, and then it can be used two or three times a week for a maintenance effect. I have had great success with this myself, and I know that many of the behavioral health units in our military treatment facilities are starting to use the CES units as well, to help patients for relaxation, insomnia, and depression.

Another form of energy medicine could be this repetitive transcranial magnetic stimulation. Now this is something that we all are probably aware of because there have been big medical studies. It's a big fancy piece of equipment, and most of the studies were done at Harvard. But, you know, really this is an alternative different kind of thing, isn't it? And similarly transcranial direct current stimulation, which is still considered experimental but has a large body of evidence for how it can enhance the firing of neurons. With RTMS, they set a certain frequency and they use a magnetic field to essentially drive the neurons in the area to where it's supplied on the brain over the skull, and through that repetitive signaling you get neurotransmitter release and you get neuroplastic change, and you can enhance an area of activity or decrease an area of over-activity if needed.

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In TDCS it doesn't directly fire the neurons, but it does change the polarizations of that neural pool under the electrode, and that can enhance the ability of those synapses to fire if you, for example, add a learning task. So it can improve the ability for people to learn new tasks. There's been good research done with that in normals, with motor control studies, and with acquired brain injury and stroke, but I really haven't seen anything yet on it in TBI, although we are actually trying to put together a proposal for that, so stay tuned. Next slide, please.

So if I still haven't convinced you, I hope I have, but if you want to think about using some of these techniques or recommending them to your patients or be a part of discussing them to you patients, you're certainly in good company, because the National Trauma Center of Excellence has been using a lot of these complementary techniques, and they claim to be getting very good success with them, and certainly they seem to have good patient satisfaction.

Despite a lack of hard evidence in some of these cases, there's certainly no denying that there's a demand for them from patients, and there's a certainly a sense of efficacy, and we already know that when you can engage that self-empowered feeling and make a patient feel like they have some way to help themselves, we all know that that's valuable, and especially when we can combine these methods with a multidisciplinary approach to the medical care of TBI, and we're not doing any harm, then it is a good idea to familiarize yourself somewhat with these things. Okay, next slide is the final slide, so what I did was try to produce for you a similar assessment of the levels of evidence for some of these complementary things, and we do see that there's great levels of evidence already for self education and training and things like biofeedback, again, stress management et cetera.

So some of these other things still need to be researched more, but, again, if we consider that we don't want to do any harm and we want to help all of the general underpinnings of what the patient needs to function in their daily lives, I think you will find that some of these alternative techniques are very useful. I hope that that's helped to set the stage for you.

Next, you're going to hear all about how an integrated medical system gets set up. So thank you so much for your kind attention, and I will hand the floor over.

Thank you for your presentation, Dr. MacDonald. If you have any questions for Dr. MacDonald, please submit them now via the question box located on screen. I would now like to introduce our second presenter, Dr. David Drake. Dr. Drake serves as director of the Interventional Pain Clinic and director of Integrity of Medicine in the Department of Physical Medicine and Rehabilitation at the Hunter Holmes McGuire Veteran Medical Center in Richmond, Virginia.

Dr. Drake received his medical degree from the University of Nevada School of Medicine. He completed a physical medicine and rehabilitation residency interventional pain management fellowship, and currently serves as the assistant director of the department's Pain Fellowship at the Virginia Commonwealth University Department of Physical Medicine and Rehabilitation where he is an assistant professor. Dr. Drake's past position include working for the Departments of Defense and Veteran Affairs, in support of the Warrior Transition Unit, as pain fellowship director and pain consultant and as an Army reserve medical officer. Thank you for your participation, and welcome, Dr. Drake.

Well thank you. Thank you for having me. This is like a Hollywood presentation. This is impressive. I like this. Although, my one thought is, as I look at this screen, is that if I had a brain injury, this would be incredibly distracting with all this. But it's been fun. I see that we have over 20 participants, 211 currently, and I've been looking at the conversation in the public chat there, and you all look like you're going to be talking on the Internet or on via e-mail coming up.

I'm happy to answer questions at the end if there's time, and you can also contact me at David.drake4@va.gov as well. And I've had some people contact me in advance, and I'm happy to answer questions anywhere along the line in the future. Next slide, please.

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So this is my disclaimer. I have no relevant financial relationships and do not intend to discuss the off-label investigative unapproved use of medical products, devices. The views and opinions and/or findings contained in this presentation are those of me and only me. It should not be construed as an official Department of VA policy or decision unless so designated by other documentation. next slide, please.

So these are my objectives, briefly. And you can see that Dr. MacDonald touched on a couple of them. But I'm going to go into maybe a little bit more depth on some of that, and then I'm going to talk about how we started things here at Richmond, and it's really just our experience in kind of creating an integrative medicine program. Next.

So, you know, CAM defined -- I think this has already been established. She already gave this slide out, and I'm not going to go over this much. We'll skip over this. Next slide, please. And she did mention this. The term "complementary" is really not used. I mean the term "alternative" is not used. Complementary is used, because most of the people who use CAM, and that's the vast majority of us. Normally if I give this talk live, I have people raise their hands in regards to has anything here received a massage, anybody taking multivitamins, anybody here taking any type of supplement? Has anybody received acupuncture, and, you know, does anybody practice yoga or Tai Chi? And by the end, pretty much everybody has their hands up.

So, as you know, most of our population practices some form of complementary medicine, and, again, complementary. We don't use it as an alternative anymore. So the term "alternative" is being replaced. Next slide. And it's being replaced by the term "integrative," because what we're doing is we are integrating the complementary, which is generally thought of as Eastern, although I would say Native American medicine would be included as well, but we generally think of it as being more Eastern and, like, Chinese, or you can actually use even older European techniques. But complementary and integrative, because it's integrated into the Western practices now, and we do them together. So, for instance, I'm a pain physician. I will do injections, so an epidural, if I feel it's necessary, in addition to acupuncture, because I do practice acupuncture. And then I will send them to my Tai Chi instructor or Qigong master. So I incorporate all of this. And I may write prescriptions if I feel it's necessary.

Some of the treatment modalities are listed here -- next slide -- and as well as here. The interesting thing is that if you look at these, the movement therapies, we talk about mind body activities. Most of these activities are mind body if they're done properly. Anybody who's been a good yoga class, Tai Chi or Qigong class will notice that a lot of it -- at some point you'll be focusing on your breathing. You may be listening to your breath. You may be instructed on your kind of thought process in a meditative fashion. Most of the good instructors will do those types of things. And so it's not like you're exercising on a stationary bike watching the news. It's much more engaging than that. And I think, in that sense, probably has more healing involved and more wellness benefit. Next.

So integrative medicine, so the term that you'll start seeing and already are seeing is complementary and integrative medicine, so SIM is replacing CAM in that sense. And as I mentioned before, it integrates the East with the West, but it integrates more than that. It's the patient and the physician, the family, and the patient, the mind with the body with the spirit. And in reality, there's really nothing that can't be integrated here. If it's anything, it is inclusive, and that's the beauty of integrative medicine. And the term "integrated" medicine, in a sense, is really integrative wellness and health. So it begins, ideally, even before there's any type of pathology. It can certainly continue if there is pathology, and it can be started during pathology as well. But as we all know, the earlier on certain practices, health-related practices occur, the better the long-term health of those individuals, whether it's diet, nutrition, exercise, you know, even we've been touting that for years in Western medicine, and if you ever have the opportunity to go to China and you go to a park, you will see practitioners early in the morning at all ages practicing Tai Chi or Qigong. Next.

And then most important thing, and this is the key element to this, and Dr. MacDonald, a lot of what she does is teach the patients, the veterans, the soldiers, sailors, airmen, marines, teaches them to take control so they become less dependent on the system and it's proactive and it creates an independence.

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It frees the patient up, and that's the beauty of this. So it truly empowers the patient. It empowers them by educating them. I really think that's probably the key this whole factor, is educating them. A lot of them don't know about this. They may have heard some things. There might be some fear, some apprehension towards it. Educating them, teaching them, and including them are the key elements in this, and it truly empowers the patient at the end of this process. Next slide.

In January of 2011, the VA Office of Patient Centered Care and Cultural Transformation -- it's a mouthful, we just use the term OPCC for short -- was created. And it was created to move the VA medicine in a direction of personalized, proactive, and patient-driven care. And we use that term continually throughout the VA. That is the message that's going on. There's multiple trainings at multiple facilities that are focused on this. And as you see, that independence, that patient empowerment is central to this, a personalized proactive patient driven, and that's the key element here. Next slide.

Tracy Gaudet is the director, and she is outstanding, energetic. Her whole staff is energetic in getting this message out. And I just included these quotes here because I really honestly felt that these touched the heart of what her message is, but certainly beyond that, what the Office of Patient Centered Care and Cultural Transportation, integrative medicine in general is trying to get at. And something here I want everybody to consider is while the VA is doing this, and it's a formal program within the VA, and it's being implemented in different areas. Here it's kind of -- initially drawn through our pain clinic, and it's been percolating throughout that aspect of it and throughout rehab medicine, and in mental health. But in reality, this is the future of not just VA medicine, not just DOD medicine, but this is the future of medicine in general. This is the way that I see all of medicine going. And it's not going to be a separate integrative medicine.

Right now you see integrative medicine centers, clinics, programs, and so forth. In the future, integrative medicine will be just that. It will be so integrated that there will not be a separate integrative medicine, and so that's the goal. The goal is basically to eliminate the need for integrative medicine. The goal is to basically have integrative medicine just be medicine, and that's the future. Next slide.

So with our experience here, I just, you know, again I'm speaking from my personal experience, and I know other people have experience. Looking at the public chat, I see a lot of people there that have been practicing either within the complementary and integrative medicine with field, or are, you know, directors there or, you know, and a lot of the brain injury world, you know, it's an interdisciplinary team, and interdisciplinary team almost by it's nature is almost integrative, so I know you guys know this. So I will be speaking from our experience personally.

So the idea was, you know, I came onboard as the director of the pain clinic here. I practice acupuncture, and so I had a physical therapist contact me who practiced Tai Chi. He had been practicing tie Chi for years, and he was just, you know, "Hey, good to have you onboard. I practice Tai Chi, you know,. I'd like to do more of that." We started chatting. And then I inquired with mental health and said, "Is there anybody there who does integrative medicine practice?" And they put me in touch with a post doc fellow who had studied under a Qigong master, and so he ended up -- now he's hired on actually, as one of our psychologists, and so he came onboard, and then there's a kinesiologist who is doing pool therapy who had done some training in yoga, but also was a massage therapist, and so she came onboard. And we just started kind of talking, and then we just said, you know what, let's see if we can find a common time. Let's meet. Let's talk. And then what does your guys' schedule look like, and can we get together and make this happen. And that's exactly what we did.

And then we met with leadership and we got their support, so, really, the grassroots level. That's how it started here. It doesn't have to start that way, but that's how it started here. And it's been expanding further. Now we've actually got some of the OPCC trainings onboard. We have health coaching onboard, and so forth. Next slide.

And so these are the providers. I kind of briefly mention them. I want to say something quickly about integrative health coaches. Integrative health coaches is a special training. Ours went through Duke.

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The VA is creating its own training. But what it does is they look at -- they'll sit down one on one with the veteran or the patient, or soldier, sailor, airman, marine, and they will give them generally what's called a "wheel of health." The wheel of health talks about the different aspects of health, and with the patient or the subject being in the center. And as you can imagine, that includes the spiritual, the physical, the mental, the family environment. And they sit down and they say, "Okay, what of this is important to you? Kind of rate what you think is most important? What would you like to work on?"

And then the integrative health coach meets with them, comes up with a plan on how to work on the goal, and the goal was created by the patient, so it's very patient-driven, very proactive. And the integrative coaches follow up with them, kind of, you know, it's like if you go to a gym and you have a workout partner. You're more likely to go to the gym and participate in the gym, most of us are, if you have that workout partner. And so that's kind of the integrative health coaches do that. And they will discuss different ways to approach these. And they're plugged into the system so they are, you know, plugged into primary care, pain medicine, mental health, you know. They know who providers are if there's any questions and stuff as well. So integrative health coaches are a wonderful thing to have. Next.

Our program, this is it. We kind of modified it a little bit. The six-hour day tends to be long for some folks, so, you know, that's kind of been shifted around some. But, you know, and again this is ours. We talked about doing it two days a week, three days a week. But with our schedules and the fact that some folks come to travel to spend time with us, it actually is easier for them to travel one day and be here almost all the day than it is to come on multiple days. So at the moment, this is what our program looks like. Next slide, please.

So each patient -- because it was through the pain clinic initially, so they were evaluated here, history physical, all that stuff was obtained. And then the big thing was they were presented with this option, would they be able to commit to the schedule, because it's pretty demanding and it does demand a lot of the patient. Again, this is a patient-driven system, this integrative medicine. Next slide.

Two weeks prior to the program, they come in, they get an orientation. We go over the entire program with all the elements there, and we let them know what their expectations are. Some of the expectations that they have is they keep a food log, they keep an exercise log. They are given modalities to do on their own in between visits. It's weekly initially, then it's every other week for four more visits. So that in between week, when they're not coming to see us, there's follow-up phone calls made to say, "How's it going? How's that anti-inflammatory diet coming," that kind of stuff. Next.

The demographics of our program, it's a veteran population, but we're actually significantly more younger folks and females. This is my second tour at the VA. I was initially here in 2001 to 2005, and it's definitely more females now, and they're younger than they used to be, which is what we would probably expect. And they're across the spectrum as far as whether they're employed, disabled, or retired. The pathology also is numerous. Don't do a lot of the TBI stuff, but obviously, given the population, there is some mild TBI. Next.

And these are what we look at as far as our outcome measures. I'm not going to go a lot with this. But you can see, the one thing I want to point out is we actually do use a Wii Fit, and the gaming panels are actually very fun for the patients. They really enjoy that, and it doesn't matter what the age is. Don't be afraid to use it on somebody who is in their 60s, 70s, and 80s, because they're relatively simple, and it gives you immediate feedback. It actually can track progress from time to time, so they actually see themselves progress. It's really kind of a fun way to do that. Our kinesiologist got that involved in with the program. It's a fun program. So next.

Our overview on our goal is to treat veterans while educating and empowering them to take control. In this case it was primarily pain, but we addressed many, many, many more things than pain. And then the benefits, we hope, are basically decrease health care utilization. Next slide.

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A rough overview of what the day looks like for these patients, the limiting factors are really the acupuncture and aquatics, because it requires changing of clothes. The acupuncture is, you know, pretty much one on one. Essentially two patients can kind of be done. I can do about two, maybe three patients kind of at one time if they're a little bit staggered, and depending on what support personnel I have. So that kind of limits it a little bit there. And the aquatics is primarily through bathing and showering that limits that. The rest of the classes are all done in group sessions. And then the big part that I think personally is what they get the most out of is the Lunch and Learn Program, and that's where we have an education series. Next slide.

And this is some of the topics we talk about. You can see, I mean, honestly, most of this is not even focused on pain. The first one, slide, is what is pain. That basically is a talk that I gave to a warrior transition unit when I was in Europe. I wasn't sure. I kind of tested it out on them. It was a secondary talk. I had given a talk prior to that, and I thought -- I had a little bit of extra time and I asked them if they wanted to hear about it. And they said, "Sure," so I did it. They accepted it, which was a little bit surprising. But it basically talks about, you know what, life includes pain. Pain is a part of life. It's everyday part of life. So at some point we have to accept it. And it's a matter of how we accept it and how we look at the pain. And "if you change the way you look at things, the things you look at change" -- that's a quote from Wayne Dyer, not from me. And the same holds true of pain, and so that's kind of what that talks about a little bit.

We talk about everything, sleep hygiene. We have a mindfulness class where our mindfulness instructor, he's the deputy for our mental health department. A psychologist comes in and teaches them kind of a body scan type of thing. But it's included within the Tai Chi, Qigong, as well as the continuum. And we talk about other aspects. And then they are do keep a binder of these notes. They're given readings prior to it, and like I said, there is some follow up. Next slide.

This talks about some of the homework, essentially, that they have, some of the things that they have to have. And we look at this and give them individual feedback, you know, sleep log, food log, activity log, and it's interesting what you see. And I think they get surprised by it. That's the interesting part. I think they don't really pay attention to it. They go through their day and then they realize, "Gosh, I haven't eaten. I eat one meal a day. It's fast food on the way home from work, and I gorge myself." And that's exactly what this normal weight, totally normal weight female was doing every single day. And so we gave her some, you know, ideas on how she might avoid that and eat some healthy higher protein things in the morning, maybe last throughout the day a little bit longer, and wouldn't be quite so hungry at the end of the day, that kind of stuff. And as I mentioned, they are contacted, particularly in the weeks that we have off sessions. So next slide.

The final outcome measures, we're still gathering data. And my hope is to get funding to get somebody onboard to kind of do that, and I think I might have some. Although if anybody has any resources, I'd be happy to hear those. But most of these were from the VHA pain outcomes toolkit, and I would also say there is a new VA Defense Veterans Pain Score that I would encourage people to start using when it comes to pain, and it's out there and it's free and it's accessible, and all that, and it's been validated. So it's actually -- and we are encouraging people to do that. I'm in the pain health executive committee, and we're encouraging everybody to participate with that. Next slide. Next. Skip through the next three slides, please. Right there. Stop right there.

This is just, real quick, I'm not going to go over this in detail, but this is a very detailed pain inventory, and it looks at many aspects of the pain throughout. And it looks at things from daily functional activities, interactions with family, and how pain affects those different parts. Next slide.

So this is just an example of a patient. We've done some just kind of couple crunching and numbers on a few folks. The first group that went through, we we're just curious, are we having any benefit, any effect, or is this just something a feel good for us. But you can see that there's definitely improvement, and we saw this in all of the patients that we've evaluated. There has been some change. There was one patient that didn't have a change. But it was funny because his verbal comments were all positive, so I'm not

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exactly sure what that was about. But all the rest have had some change. It hasn't been statistically correlated to see if it's significant to all at this point. And we have had follow up with some of those. We're trying to create the clinic so the follow up is a little bit tighter on that. So we're still in the progress of kind of moving forward with this whole program. Next slide, please.

This just talks about -- this just shows the specific differences that we're seeing, like pre and post. And you can see that there are differences noted here, and they are affective. They're physical. We see it in a lot of the different dimensions. Next. You can see that. Those are more the functional activities. Next.

And, again, this is the next patient. You can see where some people had a better change than the others. The BDI is the bank depression inventory pain disability index, and then Tampa kinesiophobia scale. So those are the three. We have others, you know, they're beyond that, but these are the three we kind of took a snapshot of. Next slide, please. Let's skip through the next slide and the next slide.

So we asked them, and this was a key element, we said, "Okay, how are we doing," and we actually asked them to look specifically at this slide, and there's multiple areas that we asked them to answer questions, you know, positive or negative, and they were allowed to comment. And we really used these comments. And we actually meet with them one on one beyond this and say, "Okay, what are the areas where we can improve. Next. And so these are some of the comments that came up. Next slide.

So do you feel you got something of value or importance from taking the integrative medicine program? And they have the three choices, yes, no, or not sure. So far, fortunately, they've all said, yes. Now keep that in mind that there are have been three dropouts, one of which was because he had a recurrence of his squamous cell carcinoma in his esophagus and was admitted. One guy was working and couldn't -- actually the other two were working, and as they started the program everything was cool. But as the program went on, they were having difficulty with follow ups. But basically these are some of the comments they said. It says, "The education, motivation to find other ways to deal with my pain." I feel better when I attend the program and get the treatments offered." "Change of lifestyle, better understanding of pain and how to control it versus it controlling me." That's exactly what we want. We want a proactive patient-driven experience, and so that tells me we're doing something. This program was doing something. And it mentions decreasing stress as well and how to manage it instead of, you know, without, you know, medications and stuff. Next slide.

We had them rate it as well, and asked if they had made any changes in their life. And, you know, it was interesting, there were some very specific, "I'm not falling as much now, I sleep more, try not to let the small things at work stresses stress me out." Sleep patterns, you know we talked about sleep hygiene or that kind of stuff, turn the TV off and that kind of stuff, or even not having a TV in the bedroom, for example. And so they talked about specific changes that they had tried to do and implement throughout this program. Next.

And would you recommend -- and so far, everybody who has completed the program has said, yes, and here are some comments as well, some of which are saying that they need to -- you know, we need to expand it and do more with that. I have five minutes left, so I'm going to skip to the next one.

So what other comments and changes? The biggest comment and changes, one was incorporating massage, which was interesting, because we wanted to initially, but the day after we had oriented the patients, the leadership said we're not going to do it, and so we had to kind of redirect, and we came up with a transitional aquatics program because the kinesiologist was an aquatics person, so she does the Wii Fit, the second part of it, there's some aquatics in the first part. Kind of transitions them from water to land. It works out really well, and in hindsight it was probably a good thing. But I think, in hindsight, massage certainly could be an aspect that would be worthwhile. And also, the timing has been a big issue, as far as how we get all the elements in that have been beneficial in a period of time that works for people. Next slide.

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And we've created this new program now for those patients who are on larger doses of opiates, have had multiple comorbidities, and so on. And we have these providers here, and it truly is an interdisciplinary integrative pain practice that incorporates everything that I think is going to be beneficial to. These are challenging pain patients. These are the very difficult pain patients, so I'm excited about this program. It's just starting though. They're just beta testing some patients currently. Next slide.

So the key here is look at what your facility resources have. Get in touch with other like-minded individuals. Get together, look at your schedule, see if there's some way you can collaborate, and then go to your supervisor with a plan to do so. And then, you know, incorporate that into your schedule. As time permits, if there's opportunities to get somebody to invest in your program, jump on it and do it. Next. And that's it. I appreciate everybody's time. Thank you.

Thank you, Dr. Drake, for your presentation. If you have any questions for Dr. Drake, please submit them now via the question box located on the screen. It is now time to answer questions from the audience. We are monitoring the question box, and we'll forward questions to our presenters for response. If you have not already done so, you may submit questions now via the question box located on the screen, and we will respond to as many questions as time permits.

I would like to thank, again, those speakers for a very outstanding presentation, and I think that the first take home message is probably to understand that CAM is now worthy of the past. Now we are going to integrative medicine, and I can tell you, as the founding chair of a NATO group on Alternative Medicine, that there is a consensus among researchers from many countries that we should even switch from integrative medicine to integrative health, which includes the important notion of prevention, which leads me to if first question that we had, which is for both speakers. "How do health-care professionals you work with really feel about integrative medicine?" Dr. Drake, do you want to start?

Sure. Yeah, so I actually find that it's pretty widely encouraged, at the very least. I don't see a lot of resistance to this. Our primary care chief here is one of the biggest proponents. She's gone to the Office of Patient-Centered Care Whole Health Training program. She's gone to the chief of staff personally to try to continue these trainings. The primary care has utilized the health coaches. One of our biggest proponents of health coaching is the primary care docs. So we're fortunate in that sense. Now getting the director and chief of staff's schedule right so you're able to meet with them, that's the tough part in my mind. But I think that those at the service chief level widely accept it, here at Richmond anyway.

Dr. MacDonald, do you share the views from our colleague at Richmond?

No. Actually I'm jealous. So I think the difference is perhaps that, you know, you are primarily a pain clinic, so that always lends itself, I think, a little bit to people wanting to think out of the box, because you know that you can't always fix everybody with what you've got. Where I'm at, we're in a multispecialty TBI care clinic, and I think, own the whole, it's the primary care people who are more in favor of this stuff. And I've had a little bit of work to convince, you know, some neurologists and some other people that some of these things are probably worth a try. But we're making great progress, no doubt about that. But I think that, myself having come from primary care, I think that somehow makes me more open in some of these things than some of the other specialties.

Thank you. I have a question for you, Dr. MacDonald. What exactly are mind/body exercises, and how are they more beneficial than working out?

That's such a fun question. I have a funny little story about that actually, because back in the day, when I was doing family practice and really knew nothing about any of this stuff, I remember having a patient come in for a follow up once, and they had COPD, and they had been referred to the respirologist at the hospital, and the respirologist had sent them to physical therapy. And I remember experts noticing, gosh, why would an COPD patient go to physical therapy, but anyway. And then they came in and they told me, "Oh, yes, I'm doing much better. The physical therapist taught me breathing exercises." And in my

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mind I was thinking, “What, breathing exercises. You can’t exercise by breathing.” But I just didn’t know what they were talking about.

And it turns out that this was a physical therapist that did biofeedback and was teaching this person heart rate variability training, and that was enabling this person to minimize some of their wheezing symptoms. So when we use the word “exercise” here, I think we’re talking more like the use of a word for doing math exercises, as opposed to doing, you know, physical workout kind of exercises.

But also, I think, the reason I like this question is that it really made me -- once I learned what some of this biofeedback and stuff was about, it really made me kind of look in the mirror and go, woe, you know, you’re a tunnel vision, traditionally trained doctor who, you know, just because you didn’t know what it was, you were wanting to write it off. And I think that we’re not as much up against that now as we used to be. But we do have to remember that us doctors tend to be a little arrogant sometimes about where we get our information, and I think it behooves us to open our minds and look for the science wherever we can find it in terms of anything that will help our patients.

Thank you. Dr. Drake, anything to add?

No, I would just say I think the best way to know what a mind/body exercise is is to do it. So if you have the opportunity to participate in yoga, Tai Chi, Qigong that does, again, like I said, talk about the breathing, they will kind of instruct you through certain thought processes and stuff, and so it incorporates that mindful aspect. By “mindful,” I mean being aware of the present. Being aware of the present, and then as you’re doing the postures or doing the specific exercises. And it’s so it allows you to strengthen, I think. Some of those postures are great for that. And almost anybody can participate in these. They have chair yoga, so almost anybody can participate. So there’s really no limitations. But they have postures that could be strengthening that can increase flexibility, but also helps engage the mind in the present and become mindful.

Thanks. Dr. Drake, the next question is for you. “Does the VA have a training program for integrative health coaches that you mentioned during your presentation? And if so, how does credentialing” -- I’m sorry -- “work for these providers?”

Well, the answer is, kind of still in the process of being formulated. I’ll say that. The quick answer is the Office of Patient-Centered Care has created a training for health coaches, or health coach training, that is based on what the Duke University, University of Wisconsin have done with their health coach training. It’s a three-day -- the initial program is a three-day course, and then you have -- we did it in October. Then you have, like, two months before you have another three-day follow-up course. In those two months, small groups of three meet to discuss and practice their health coach skills so that when they follow up at the end it kind of brings it all together. And then we have health coaches here that serve as mentors for those individuals. So this there is a training out there.

The question of the credentialing, and there was also a question of who are health coaches, is those are great questions right now, because I actually had a discussion yesterday with our -- it’s called a polytrauma integrative medicine initiative coordinator here, in regards specifically to the credentialing, and we’ve had a lot of discussions on that. Our current health coaches, they all have bachelor’s degrees in something, but at least bachelor’s degrees in something. Our current health coach, one was a coach, I think a high school coach, baseball coach at one point, so it’s in physical education. Two of them have a degree in music, which is interesting, and one was a massage therapist. One practices continuum or has practiced continuum, which is kind of like a free-style Tai Chi. So that’s what our makeup is.

Now we have sent -- to the VA training, the providers we’ve sent are nursing and therapy, predominantly nursing and kinesiotherapy. I’m not sure if PT and OT were involved. There might have been some PT and OT involved as well. And they’ve gone to the local VA-based training. So that’s kind of where we are there as to what the credentials are. And, yes, somebody mentioned social work, absolutely. I think

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we've had some social workers involved with that as well. I don't know if it's at this facility. But I know, I think, Palo Alto or San Antonio does, and they've had social workers involved with that. And so that's it.

The uniform credentialing, you know it's kind of like the uniform credentialing for acupuncture, which is another project I'm working on. It's kind of facilities and facility at this moment. But part of the goal of this program is to be able to come up with some uniform credentialing, and that's a really good question there, and there are a lot of people trying to work on that aspect of it.

Okay, thank you. Dr. MacDonald, could you please tell us more about what you're doing with neurofeedback and QEEG?

Well at this moment we are mostly just doing that through our research. We did attempt to get a small clinical program started with neurofeedback, but our resources didn't allow that to continue long. I was able to find another practitioner here, our occupational therapist, who was interested in learning how to do the biofeedback end of things. So I've been training her and mentoring her, and she's been, actually, now developing quite a nice little biofeedback program. And that physiologic stress evaluation that I showed you, we have instituted now doing that as a matter of routine on all of the new patients who are referred into the multidisciplinary evaluation process for TBI, and we've had some really sweet results in terms of looking at the post tests after someone has had a course of treatment here and some biofeedback training with her.

The neurofeedback generally is a little bit of a tricky animal when it comes to clinical use, because you really do need quite a lot of training to be able to do it properly. But there is a new technology available that will kind of automate the process for us and basically train the whole brain at once. And so that's actually the subject of a research study that we are just about to get started with. So we're very excited about that, because if we find that this thing works, then it will be actually quite an easily deployable system that will not require people to be highly trained in order to use it. So we're pretty excited about having the opportunity to do that research, and we'll be sure to keep people posted.

Okay, now we have a question for both speakers. "At some point in your presentations you mentioned medication, biofeedback, but what about treatment with hypnosis as an intervention with TBI? Do you have any experience on that?"

Are you asking me?

Go for it.

I don't personally. I think that there are a few of the behavioral health people who do it, so my experience has been that patients sometimes will ask about that, and then we will refer them over. Or they get streamed into behavioral health and then they met someone there that knows how to do it and it gets suggested for them. I think for an appropriate patient, what I've seen is that it can be quite helpful.

Okay. Now we have another question. "What are nutraceuticals, and do they have side effects?" Maybe I should have started by do you use them, and if, yes, can you explain to our nurse what is that?

Do you want to tackle that one, David?

I'd be happy to. Nutraceutical are basically, like, herbs and supplements for the most part. And, you know, I think the key thing with this that you need to keep in mind is that they are not regulated by the FDA, so when you purchase those, it's a really a buyer beware. You may get what the label says. You may not get what the label says. You may get more than the label says. You may get less than the label says. So I always preface everything by that, by saying that. And as some people are aware, there was a big news story yesterday. I'm not sure what journal it came out, and it said certainly multivitamins are useless, and that's what they claimed, and that further research should not be done. You know, there's people that are going to argue back and forth on that.

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I believe, and I think a lot of people do believe that some herbs or supplements can be effective for people with certain pathologies. So, for instance, there's some evidence to support feverfew or butterbur for pain. Now being able to find the supplier that gives you a good, you know, reasonable chance at having the real thing and it's safe, that's probably the tricky part. But there is evidence to support the use in some occasions. I'm not a widespread, like, you know, everybody needs to do this type of thing, but we do talk about that in our integrative medicine clinic, and we do have a provider here who is a certified herbologist as well. Again, don't widely prescribe them. We will discuss it and, in specific instances, we may suggest one or two different types of nutraceuticals in that sense.

Dr. MacDonald, do you have anything to add?

I think -- well I'm not seeing people on a sort of ongoing care basis. I sort of touch them intermittently, so I'm not really prescribing them, per se. But other practitioners have been asking, and I've been give giving them information that, in the realm of TBI, there is some evidence for the possible value of Omega 3s and vitamin D to enhance -- you know, just basically to provide the building blocks for neural regeneration. And I think these things are pretty harmless. So that is something that some of our practitioners are definitely advising patients to go ahead and use. But I don't think anyone is using much other than that here.

Okay. And for the clarity for our listeners, I would like to remind them that "nutraceutical" is a word formed or based on two other words, which are nutrition and pharmaceutical. And then that goes to what Dr. Drake said. There is no FDA oversight about that, so we are taking risks taking this by ourselves.

Another question would be -- some listeners asked, "What is homeopathy, and do you use it in the treatment of TBI patients?"

I do not.

Okay. Dr. Drake?

I can answer what homeopathy, but, again, I'm not a TBI practitioners.

No, no, that's all right. I think that what the listeners want to know is what is homeopathy based upon? I mean there is so many things which are said on homeopathy in the open literature, the newspaper that would be good to take a couple of minutes for a doc to explain what homeopathy really is.

Well I did spend some time in Germany, and that's the home of homeopathy.

Uh-huh.

And I will tell you that one of the -- the person that I boarded my dog with put her on homeopathic remedy for separation anxiety, got her off of her Clomipramine, and she did great. And we got her off the homeopathic agent too. So my personal experience is that it helped my dog. However, with that said, looking at the literature and looking at the theory behind it, the theory behind it is that you take these micro amounts of an element and you give them to somebody for certain -- for a specific disorder. And the element itself doesn't -- it's such a small amount that it really doesn't have any physiologic effect. That's the interesting part of that. And from the science perspective, that's the part that's troubling.

So I would say from a practical perspective, it worked on my dog. From a scientific perspective, I think the evidence really, at this point, hasn't supported it, for the most part. And I don't know about you. I can't mention TBI.

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Yeah, I agree with you. Homeopathy is very difficult to understand for many people because of the level of dilution, which is way below the actual numbers, so you're wondering what molecule is left after these dilutions.

We have time for only another question, and I would like to ask a question which has maybe nothing much to do with TBI. But since you are both doctors, is there a place for integrative medicine intervention in cancer care? Why this question on cancer, because most of the veterans -- most, no. A great amount of veterans are aging people, and they are asking is there a place for integrative medicine in my treatment? Do you have any thoughts?

Sure. I will say, yes, but I'm a proponent of integrative medicine. Like I said, I think it's the future of medicine in general, so I don't think there's anywhere it's not present. I did have a cancer pain clinic that I ran for a long time, so I'm familiar with that. And I work with the palliative care folks here who do a lot of that, and they embrace it. They are some of the first who wanted to learn our ear acupuncture. So they are openly practicing it and learning it as much as they can. They took part in our whole health training, which is the Office of Patient-Centered Care training. So I do believe that there's a role, and I believe that those that practice in cancer medicine or oncology are openly embracing it, at least, again, locally and within the context of my little world here in Richmond.

Oh, thank you. Dr. MacDonald, any thoughts?

I would totally agree. I think that if ever there were an insult to the whole body, just about any form of cancer would be that. And, you know, if we think of the fact that there are now medical fellowships available in this thing called "psychoneuroimmunology." We know that the mind and state of mind and spirit can affect how the body heals, can affect the immune system, and that can affect how someone can either fight a cancer or at least recover from the treatment of the cancer. And also, I know even at UCLA, they have been doing some studies using neurofeedback, for example, to try to help people over the cognitive effects post chemotherapy, and that sort of thing.

Okay. I think we are right at the end of our presentation. I would like to thank, again, our presenters. To help us improve future webinars, we encourage you to complete the feedback survey that has been opened in a separate browser on your computer. The link is also available on the DVBIC website. To access the presentation, the resource list for this webinar, you may download them from the file box below or visit the DVBIC online education website as dvbic.dcoe.mil/online-education. An edited transcript of the closed captioning will be posted to that link.

Again, I thank you all for attending today's webinar. The next DCoE TBI webinar topic, "Humility of Concussion," is scheduled for January 16, 2014, from 1:00 to 2:30 p.m. Eastern Standard Time. Thank you again for attending. Have a great day, and Merry Christmas.

That concludes today's conference call. Thanks for your participation. You may disconnect at this time.