Welcome today to the functional medicine workshop. I am the senior program manager for the National Capital Region Pain initiative and we are really excited you're here for another day of workshops and so I wanted to bring your attention to the files pod. There is the sign in sheet as well as the agenda as well as some really important handouts that I think we would love you to take a look at and download as well as I was able to put part one and part two of this presentation in the files pod as well. Please make sure you go ahead and do that. And then also bringing your attention to the notes section where it has information about if you need closed captions and where to send your sign in sheet to the email or to the center. So, with that said here are a number of basic items I need to go over. This session will be recorded so just a note. Also, a reminder that the plenary sessions are still on our website available for you to cube viewing for the next year. They will just need to be returned with the questioner to the DHA email or Troy Spencer. We hope that you enjoyed all the prerecorded plenary sessions. If you have not done so, there is a statistics code which can be found by going to the phone icon at the top of Adobe connect, go to the audio conference details and a pop up will appear and undermine number three you will see a participant code. This merges your phone number with your name and is vital for us to recognize you for CME purposes. As mentioned, the presentation and sign in sheet are in the files pod. During session please put your questions in the chat box. We like questions. So please put your questions in the chat box and if we get a chance to unmute, you need to press star pound to unmute to vocalize your question at a good point when we pause for questions. Following the training there will be a survey that will go to your personal and military email. Please complete the survey it is vital for the future of our trainings and we really take your feedback to heart and we want to get all the information that you feel you want to share with us in regards to the training. Additionally, you will also get a survey if you have applied for that, you will need to complete the CME survey when you receive an email from the system please note CME will not be available for 3 to 4 weeks and you will receive an email from the system. Also, there are certificates of completion available. If you would like that, please go to my email, send me an email and I will give you a certificate within the next week or so. Again as I mentioned there are real-time closed captions available with the link under the notes tab. Also, for the last couple years the region initiative has been working with the Institute for functional medicine and this is a little taste of what you will learn from functional medicine. We do have funding to send people for the applied functional medicine and clinical practice. We have helped develop a phase two for the course, for now the course is virtual and it will be from March until May 2022. The phase 2 will be June of 2022. If you want to commit and are interested in the course please send me an email and I will put my email and the chat box right now. We will put you on the interest list. We are not sending out applications until the end of October early November and we will have applications to be completed by this December. So, I will now turn it over, thank you so much for your time.

Thank you everyone for joining us. I know we have got some notable mentions for some of the extreme geographical distribution , I want to mention I don't know what time it is in Italy so it may be good evening to you. We have Italy, Alaska, Hawaii, Washington state, Georgia and Florida. A few others. We appreciate you signing on and joining. To piggyback on one of the announcements. The partnership with the Institute for functional medicine and the pain initiative has set the precedent for how functional medicine education will occur in the civilian sector moving forward. The two-part educational process with the second part being case based and small groups facilitated learning with real patients and real soldier cohort patients that have set the standard for functional medicine on how the introductory course is delivered. If you want to see how it's done being right and who setting the precedent it is those cohorts so thank you to the team. Before I get into the presentation. A couple of alibis before disclaimers. If I lose connection during this I apologize. Real-world mass vaccination efforts have me in a remote location. Might need to sign on if I get kicked off. Also my co-presenter and co-facilitator is also involved in some real-world Afghan related requirements that may keep him from joining us on time. So you will get the best possible experience based off whatever happens and we will make sure we have a good time together and we'll get exposed to and experience some new material and content that I am hoping will whet your appetite for further learning. So Jeff and myself or our family members, none of us have conflicts of interest. No financial gain from any of the material presented. All right, we are focusing on how functional medicine can be used to reverse divvies and optimize performance in the military community. This is a combination of briefs and workshops delivered in various settings over the last 3 to 5 years between Jeff and myself. He does the protection brief to military commanders and special force community members as well as their spouses, military wives and spouses and we have done this similar brief and workshop at military family medicine conferences and this will be the second year delivering with the national capital and pain initiative.

Before we fully diving I want to invite everybody to kind of relax, sit back take a step back, allow me to help us set the intention and the tone for today's learning experience and time together. We are all on a shared mission to advance the care we provide for the military community members and me personally I feel honored and privileged to be able to provide the highest quality care to the most deserving population in America. I hope you take from this something you will be able to use immediately on Monday morning and we will try to identify some of the immediate takeaways and added value. I am hoping we entice you to want to understand and learn more on how we can identify, discuss and mitigate health and threats to performance in the operational environment. The opinions and assertions that we will express in this presentation are that of our own and do not represent any other agencies. Or any of the branches for the national regional payment initiative. If we do a good job today and we will help you think about communicate about assess and mitigate health in them environment, there's a powerful analogy which will you will hear emphasize multiple times. Is what it would look like for us to be able to help ourselves in the person next to us. How can we enhance awareness or threats to help in the operational environment where people can come see with the check engine lights might look like. Rather

than putting tape over the light and waiting for the wheels to fall off what would it be like to check the light, understand and have some knowledgeable conversations or know what to do to get to the bottom of it. Preventive maintenance checks and services coming the Army gets that an Air Force has similar, please correct me if Navy and Marines do not have the terminology. I already mentioned we will help you by the end of the presentation identify threats to health in the military operational environment and tie that into chronic pain and the experience of chronic pain. I will share with you lessons learned and yes it is nice to know functional medicine stuff but there are still challenges with how we get the patient buy-in especially when trying to facilitate and motivate them to change behaviors. And how do we do personalized lifestyle and interventions especially those that rely on behavior change? I will show you a few simple frameworks to get to that shared understanding and help motivate them to action. And then we are going to talk about how to mitigate threats to health and the military operational environment. Those tools in the handout area, and of 06 and 07, the sustained and day in the life will do a deep dive into one of those so during the breaks or throughout the workshop please take a look and later on we will ask you which you would like us to dive deeper into. You will choose one or the other. All right for the agenda for today. I will define what functional medicine is. After that I will talk about those frameworks that help deliver some of the functional medicine interventions or personalized lifestyle integrated interventions how do we get that patient buy-in and motivate them to action and to drive behavior change? It's nice to know what but it is separate to do it in partnership with the patient. And then Jeff is going to chime in whenever he is able to join to give his operational environment brief and he will be diving deep into those threats to health and when you learned it from Jeff you will apply that immediately to identify it in a patient case and the Josh L story is when we are able to share. After that once again choose your own adventure. I direct you to the handouts that you can look at through the workshop, later on we will ask which you would like to dive into. Choose your own adventure.

I want to get a feel for who is in the audience. Let's pull up the poll. I want to get a response from you guys to understand we are talking to and how we can maybe tailor this to ensure the most value today. Right off the bat we have some team leaders physician leaders and I apologize for the groupings if you disagree I just had to generally categorize so, no offense in case you disagree with the grouping. We have got others, we have got physical therapy, rehab, and chiropractic specialists. I saw acupuncture in there as well. I saw some PAs for centers of excellence. Used to be provider in the audience. All right appreciate the responses. We will move on. All right. So, let's define functional medicine. Now, when I am asked the question of: what the heck is functional medicine or if it comes up in conversation and someone is interested they will ask. Essentially I have a three layered onion of how I will respond. It really depends on who is asking, how much time we have and how much genuine interest they have in the answer. My easiest most straightforward answer is it's a framework and operating system for delivering personalized medicine. It is a way of delivering personalized lifestyle and integrative interventions that address dysfunction. By the way the pain initiative has the pathway to learn functional medicine and that has to impress them. And then if they're really interested and we have a lot of

time or maybe they have previous exposure to formal training, we can talk about the more formal official response in the middle of my onion. However, that is rare. Where that I encounter that individual or have the conversation. So I want to draw your attention to focus on the middle layer. Functional medicine is a person oriented medical approach rather than a problem oriented medical approach. Rather than labeling symptoms and clinical findings with the diagnosis and starting with the problem it is way of understanding a person in context overtime delivering personalized lifestyle and integrative intervention and address the cause for dysfunction. Understand it is a paradigm of care like surgery. The analogy is a surgeon practices medicine but they use surgery to do so. A functional medicine practitioner practices lifestyle and integrative medicine but we as functional medicine operating system to do so. The ultimate goal is optimal performance and wellness and system and safe approach. The functional medicine operating system uses guided by the mnemonic and I will walk you through it and identify some of the main tools that we use. First, we gather, we gather ourselves before we engage the patient ensuring it is a clean slate regardless of what's written or said to us. We approach every encounter is unique experience and we remain open to whatever may happen moving forward. And then we gather a lot of information in this is a deep dive into history, into the current states of well-being and lifestyle habits. One of the main tools that we emphasize is the intake questionnaire as an opportunity to gain a lot of information before the patient ever steps foot in the room. We can have conversations about workflow, give everybody the questionnaire and don't try to engage everyone with the functional medicine approach they are involved in the selection of the right patients we will talk about that and we use a timeline tool essentially the information we get from the intake questionnaire, the clinical exam, the interview the patient interview and engagement gets placed on a timeline tool. In addition we have the matrix tool so the timeline tool is the patient facing tool that we use to organize thoughts, life events, health events and drivers of dysfunction or drivers of optimal health and performance. But the matrix is more so a practitioner or team facing tool that helps organize thinking. We organize on it and to see these triggers and mediators of dysfunction or things that put this individual at risk for the trigger or the drive the dysfunction and disease and then we also have areas to organize the modified lifestyle factors and mental, emotional and spiritual factors that are contributing. To their current state of well-being. And then with the teen this is where there is a unique difference between conventional and functional medicine. We will spend time telling a patient their story and it can include all the way from conception or preconception through childhood through early years young adulthood into the time now. And then talk to them about life events, health events and how they have contributed to either their departure from optimal health and well-being or their return to optimal health and well-being. We want to make sure we tell the story in a manner that resonates with them to where they fill understood and where they resonate with you and create a good cooperative partnership but also optimistic story about how we will help and help them return as best as possible a state of more optimal health and well-being. So after that, we order the priorities, after we have the story and we organize thoughts we understand what it is we could do to help them the lifestyle or integrative interventions that could unroll the ball of yarn however it needs to be driven by the

patient. What matters to them, their thoughts, beliefs, priorities and their capabilities, limitations and what social support they might have. Basically we align priorities and say we come to a shared understanding of where to start? What can we do together? How do we get the most bang for the buck with the first step interventions and then we initiated a plan which you will see the functional medicine approach to care we have the communicating tools in the toolbox and you will see that coming up. And then you want to quantify change over time. Baseline interval assessments and it can be quantitative or qualitative data and this could be lifestyle, behavior, frequency, this could be data, lab data, clinical data or just subjective ability and functional assessments or reporting. Like hey, I was able to go for this walk on the trail that I thought I would never be able to do again. Little things like that. The mnemonic and the approach is uniquely applied to facilitate the healing process. If we have a shared understanding that this only happens when four criteria are met than it does happen sequentially. We have a trusting and therapeutic partnership with a patient and we achieve a shared understanding of what's happening and why and what will make it better. Then we initially a plan , you do this or I do this for you or we do this together or we do this for someone else but it will make things better. And then there is achieving and improving the state of well-being which can be any domain physical emotional spiritual even financial. When we talk about forced fitness or holistic health and fitness there is a lot of domains of well-being that we identify. So, the tools that I made reference to will highlight three of them. The heuristic outline here. Most important I want to draw your attention to is the intake questionnaire. We have a lifestyle and exposure questionnaire that you guys can pull up and download, the first handout that we provide. This gathers a lot of lifestyle and exposure information data before the patient walks in the room. A deep dive you can digest and already start to collect modifiable lifestyle factors. And you will be able to identify a lot of areas that, I might need you to control the slides. Apologies.

My computer crashed but I will get it back in the second. So the intake questionnaire in particular is a blend of three main intake questionnaires. It was the VA health intake questionnaire, the Army moved to health holistic initiative intake questionnaire and then also the Institute for functional medicine adult intake questionnaire. We put the three of those together and added elements that encompasses the military specific exposures and that was the result, the intake questionnaire that we have been sharing for three years. Please feel free to download it, that is something you can easily use Monday morning to get a better assessment of lifestyle and exposure factors for your patients. Next slide. I mentioned, we collect information and try to organize on a timeline and communicate in a way that the patient understands and it resonates with them that these are the drivers of why I'm not feeling well or why I am not the best version of myself right now. So the drivers of dysfunction, the triggers and mediators we have been educating as a way to organize some of those areas or certain areas of investigation. So draw your attention to stress, sleep and we have some genetic things that we consider at certain points in working with your

patient this may be relevant, things like ventilation, detox, and then that may be very relevant to a few patients especially with cardiovascular disease or Alzheimer's risk especially at a young age. For trauma we talk a little more on TBI, overpressure exposure, Jeff will dive deep into those topics with us. Toxins industrial chemical exposure, heavy metal exposure, airborne hazards especially in deployed environments and it can be particulate matter or other toxins that might be from things like burn days for example. Tablets talking about the real risk and the approach of masking a pill as to how we may medicate side effects of the medication and the conventional approach especially in the military setting where you have constant changing of primary care providers and providers just providing care at any point of care. We also talk about supplements, over-the-counter use, self-prescribed items and supplements that may be unsafe we can have a discussion about that, the DOD has resources to help guide safe supplementation use. I forget the name of the initiative but it is quarterbacked by champ available on the website. For allergen talking about not only allergens but sensitivities and intolerances and functional and training teaches us how to decipher the difference between something you are allergic to come sensitive to order and tolerant of. There are clinical patterns that can emerge that are easy to identify. Autoimmune talking about clinically apparent and obvious and the known but then also possibly subclinical or the subtle clinical events but may not be actively treated or identified. And we talk about how the autoimmune process can be mediated by things like intestinal permeability and intestinal immune activity so you have a genetic predisposition, environmental trigger, but the connecting elements sometimes not always may be intestinal permeability. So we talk about things like that and how to identify an immune system that is lost tolerance. Infections, the clinically apparent ones and subclinical infections. And others including diseases and parasites from deployments we have individuals coming back with some almost IBS type pictures and sometimes labwork will show that and you might need to consider things like parasites. Ingestion's talking about substance use, self-medication, self-medicating behaviors and stress mitigating behaviors. Things like alcohol and smoking as well. Nutrition access and deficiencies, generally looking for sad and mad diets, standard American or military American diets. Taking a good account of what dietary practices are and historically or even familiar tendencies of dietary patterns can influence decisions they make. Deficiencies, there are certain nutritional deficiencies higher on the radar for military personnel.

With the imbalance in the Omega six to the omega-3 ratios their papers and evidence available even in the military medical journals that reference vitamin D deficiency prevalence being as high as 70% for military uniform personnel pretty shocking. And then this biosis and digestion, that can be something like overgrowth, that can be something like good bacteria that climbs too high into the intestinal track and it ends up in the small intestine when it should be only in the large intestine so there would be small intestinal bacterial overgrowth in their clinical patterns we talk about entering on in functional medicine that helps identify do we have good guys in the wrong neighborhood? Bad guys that shouldn't be there? What may have led to the conditions for this to happen? How can we reverse that? And then digestion, maldigestion and malabsorption. Talk about ways to

distinguish the difference and also with things that would clue you into thinking about that. Think about loss of gallbladder, surgeries that change normal anatomy like gastric bypass or otherwise and also lifestyle behaviors, not stopping to get into a parasympathetic state, not chewing, eating on the run. Little things like that. There is a handout related to that so feel free to download that and that goes and enumerates more on these but that's the gist of it. Next slide. Apologies for spending a lot of time on that but that is an important framework. Clinical approach to care so functional medicine we generally look at reversing or addressing social isolation and ensuring we are not treating patients in a silo and that we are engaging Pierce support networks and accountability networks and some of those surrounding the healthy behavior modeling to tie them into social networks like church groups or social groups. One of the best things we can do is introduce to people that want to get healthy to each other. We make sure that as a tool in the toolbox and something we consider. When we look at the patient context. Lifestyle intervention kind of self-explanatory and then making sure those lifestyle interventions are personalized becomes extremely important and trying to ensure they connect the behavior they are asking to do with their priority or the biggest reason why they cannot do the things they want to do. Integrative interventions, I know we have some acupuncturists, maybe some yoga trained teachers and leaders. OMT, chiropractic manipulation, chiropractic work. Biofeedback, stress management techniques, medication, breathing, all of those are tools in the toolbox. And then we lean heavily and rely on nutrition. Hold real food first that's the main tenant especially with DOD cohorts. We try to do minimal supplementation however sometimes their unique unmet needs and there is even therapeutic opportunities with supplemental vitamins and minerals, herbs or otherwise and botanicals. We do get exposure to that throughout training and if you have those tools in the toolbox you are amongst birds of a feather. I can, we emphasize a lot on how do we execute and support and motivate behavior change, motivational interviewing, even health behavior negotiating skills. Assessing readiness to change and how do we build that self-advocacy for the patient starting with where they may have been successful before, relying on areas where they see themselves where they see themselves being successful. Aligned with beliefs and priorities I mentioned we order priorities and we have to make sure this is right for them, it aligns with their belief and what they feel is most important and possible. Inc. about smart goals and setting smart goals. Next slide. So, when we say functional medicine why it is important for the military community, we have got civilian community a plethora of modifiable lifestyle mediated conditions and we have also got quite a list of high-priority high prevalent , high prevalent complex comorbid chronic conditions, things like chronic pain, the reason for this conference. TBI and mild TBI reported and unreported. PTS, PTSD, suicide, more recently a lot of emphasis on toxin exposure or airborne hazards or exposure. Next slide.

So this is a departure from some conventional ways of thinking that can lead to a patient feeling like all we're doing is matching a pill to the ill and I want to share with you something Jeff has said in other presentations before. I don't want to be part of the system that does a name it, blame it, tame it, fill it, refill it. A fun way of thinking

about it but I have to credit Jeff for that one. Over 10 years, TRICARE expenditures on medications just show us that this is an unsustainable approach to care. If we are looking at mitigating some of the modifiable lifestyle and mediated conditions with prescription medications really this will be a big drain on tax dollars in an unsustainable approach to care. How do we drive behavior change and rely on lower cost patient led patient driven interventions next slide.

When we look at the chronic pain burden the national survey from 2010 to 2014 looking at veterans versus nonveterans and across the age groups and across the gender groups veterans had a higher prevalence and higher incidence of chronic pain compared to the nonveteran counterparts. Our community needs the approach to chronic pain care because it is a problem. More problem in our community than the general civilian sector. Task force report from the Army Surgeon General in 2010 highlighted our strategy needs to be holistic, multidisciplinary, multimodal decreasing reliance on medications. Matching the pill to the ill and incorporating integrative and alternative patient driven carriers blend. There is no listing for where functional medicine operating system fits into the step care model but I would argue it fits perfectly right at the intersection between self-management and clinical care and this is a framework and a way of empowering the patient with information and instructions on what they can do, think and eat differently in order to support optimal function and unravel some of the chronic disease and chronic pain conditions. Next slide. When we talk about how the functional medicine operating system fits into healthcare and human performance especially for the soldier community we can look at the holistic and integrative programs that are shared between the VA and the military branches on the left of the screen and in the middle we have the VA whole health paradigm on the right and to the left is the Army move to health paradigm for the holistic wellness initiative and interesting to note the move to health paradigm was born from the VA whole health so there's obvious alignment built off the performance triad. So we are all aligned in thinking of what right looks like but how does that change day-to-day practice and what we can do for the patient that's where functional medicine comes into play and provides team members with those tools and the awareness of how to do things differently to achieve that. We have human performance holistic and human performance initiatives in the DHA coming as a directive from the secretary of defense down and through the branches, total force fitness on the bottom right. In the Army we have holistic health and fitness. Focusing on human performance optimization. Once again, functional medicine helps us understand what we can do differently to achieve these idealized forms of care. Next slide. So, Amy has mentioned and we have plugs for it but there is opportunity for further learning especially DOD funded, there is for five days of a learning experience for part one and I think that is virtual so it may be the opportunity to do it at a self-paced virtual location. Part two is the two-day case based small cohort case based learning process where we discuss real patient cases with your peers. It is an excellent opportunity to really accelerate the learning and the application of functional medicine into your clinical context. Amy is the point of contact, her email is there. There is also plenty of content to learn more on the fly. If you don't want to protect the time or have the time to protect for formal training and books, podcasts, presentations,

YouTube, all kinds of options but one book I would point you to if this is your first exposure to learn more Jeff Bland offered disease delusion which is an excellent introduction into how functional medicine operating system came to be and why it is important moving forward. Plenty of podcasts, I will invite you to share in the comment box may be one you're following but a few notable mentions. High-intensity health, pursuing health, evolution of medicine just to name a few. Next slide. Let's take a brief kind of, we can do a three minute break before we roll onto the next portion. I want to get my computer back working.

Sounds good we will start at 9:15.

Thank you.

Grab your stimulant of choice and use the restroom, do what you need to do.

All right I am back in the room. I see the comment about the parasite. There are a few interesting studies on Giardia where military personnel cohort were looked at for Giardia infections, subclinical and it was high enough prevalent to warrant further investigation. This was in soldiers deployed to Africa. I know it is a huge continent I don't remember the specifics but there's some literature where investigators were looking at Giardia specifically. When you're eating on the economy drinking the water, bathing in the water and eating local meets, plenty of opportunity for introduction of non-familiar . Impressive the healing potential with acupuncture and the ability to influence the body system and functions. Just amazed by the opportunities there. One more minute and we will get rolling. Okay. I have heard back from Jeff. I know he is alive, good. Amy are you good to go?

Are you back in and you can see everything?

Ready to rock.

Awesome. Knowing functional medicine is one thing and having the initial training and exposure is excellent. It teaches you where to look, what to say, how to get alignment and get patient buy-in. To drive behavior change, but chronic pain is a beast and the people come in focusing on their pain and they want relief immediately. That is a game stop or a showstopper, so how do you get a person who is in pain to focus on things like stress management or sleep on nutrition? How do we get them to appreciate the opportunity to drive some of the healing when they are in pain? That is something I grappled with 40 while but a couple years ago a few podcasts there was framework introduced by one individual who is a integrative pain specialist, anesthesiologist military trained went to the civilian sector and was disillusioned by what he would be able to accomplish. Integrated practitioner who said I will do all these things, all of these procedures and interventions and I will tie in integrated stuff and he was not seeing healing happen. He said let me draw things

back, what is it I am treating? He looked at redefining the pain was and looking at the actual definition that it is an experience. Not a pleasant experience and how do we define each person's unique experience of pain? Taking what model he talked about and modifying and tailoring, bouncing it off some functional medicine practitioners we came up with this framework as a way of communicating to a patient and getting by in that there are four main ingredients to your unique experience of pain. A tissue issue, something that initiates the signal that we interpret as painful. Then there is the nerve, the spine and the brain that transmit the signal and interpret it as painful so we think about the integrity and function of the nerves, spinal cord and the brain and then there's the metabolic soup that the system sits in. Metabolic, hormonal and micro-environment. Think about mitochondrial health. This is an area where functional medicine shines. So many opportunities to bring in holistic and integrative modalities and lifestyle modalities that can address the metabolic soup, so that is a key that unlocks a lot of healing interventions. And then if they can appreciate there is a mental and emotional layer to the experience your quality of sleep matters, how stressed you are matters. Your social isolation or social connectedness matters. Typically do it by printing this out, appreciate, let's say you have a bad night of sleep and you got into three arguments that they already nothing is going right. You are experiencing pain that day and it will be different from the night where you had fantastic restful sleep. You had a chance to reconnect with someone, a family member or friend that you had not seen in a long time and had a chat about something great. That day you will have a different experience of pain compared to the previous. So you can appreciate that small change that can occur in these four components defined their experience of pain and we can all be on the same page that will never run out of options.

We can move the ball down the field, yes I will take care of your pain priorities now but we have other opportunities to move the ball down the field. So, kind of already talked about this but as I discussed with patients and walk them around defining their experience of pain I will list with the tissue issues are. The bad knee, the multiple joint arthritis from hard landings over 100 jumps airborne status. The TBI and exposure injuries, the fractures.

Listing the tissue issues and I will pair that with interventions we are going to be doing. We will talk about massage therapy, chiropractic intervention. Orthopedic visits or primary care visits for injectables all the way to joint replacement. I will pair the issues with interventions we are doing for the tissue issues. Transmission and interpretation. I mentioned integrity and function of the nerve and brain so we can talk about where the nerves may be inflamed irritated or pinched or we have sciatica coming into play. Some chronic regional pain syndromes. These are all things you would list out in this area and pair them with interventions that can be helpful. This is where medications come into play changing the way the signal communicates and interprets. You have your medication modalities but then you have integrative approaches like acupuncture. Battlefield acupuncture saying this is how it works. It works here where the signal is interpreted as painful pumping the brakes. Once again using the tool to list issues in this area and the interventions that we have on our menu of what we can do and what we will do next. I mentioned I simplify the terminology and say this is the metabolic soup where we talk about inflammation, thyroid, blood

sugar, this is where we tie in smoking. This is where we tie in diabetes and central obesity. This is where we tie in sources of stress and maybe some occupational or lifestyle exposures that might be a source of toxic or environmental allergen exposures and things like that but there is a lot that we can list here pairing it with strategies that do mitigate that. And then with the mental and emotional state this is where we talk about them not using their CPAP, they talk about checking the box for getting restful sleep, this is where we address things that might be impeding including restless leg syndrome or TMJ or getting up frequently to urinate. Sleep is a big one that I focus on what is disrupting sleep, what can we do to fix it? We also talk about the stress management and we talk about biofeedback, meditation, we talk about who will help you do it? At the Army wellness center from my end the behavioral health embedded practitioners we have some certified yoga instructors or massage therapists. Who will help us here? Pairing the issues, lifting the interventions we will do. So this is an amazing framework that I print out and I have it in the handout, list the issues, help them define their pain and then walk the areas with interventions that we either have already done or have yet to do or can do. This shows them you understand them and that you have a plan and you are not running out of options. The next framework that helps me get to a shared understanding with the patient to motivate them into action. It revolves around communicating with some of the things they're helping were healthy enough. This is where Jeff has influenced me in this area of thinking and communicating, he has helped me understand how to communicate with soldiers and, front-line soldiers, military leaders, instant frameworks they may understand so intelligence preparation in the battlefield. The four step process to defining the things you will be exposed to in your operational environment for the health and performance of the military operational environment. Describing those that are relevant to them that may be contributing to their current state whether you know for sure they are exposed to and helping them how it understands and impacts their physiology, giving them a sense of if you can give them a sense of awe about the way the body works and how it is impacted by the things they do, think or eat or get exposed to then you're working toward getting alignment and buy-in. Then how do they understand or assess the impact of those exposures on them. And then helping them understand courses of action or corrective action, things they can do to protect themselves. Lifestyle and nutrition is where teachings in the DOD functional medicine cohorts where we lean toward. You will see personal protective nutrition or lifestyle we will touch on later. So this is a bit of a framework for how you can talk about those exposures and those activities. For those that are essentially out of their control or that are job or mission specific you can talk about how to identify them and quantify them or document but they know they are going into poor air quality regions or around a burn pit in particular they can get that documented and you can make better decisions about what to do to either document and quantify the exposures or the next layer down is how you can do things slightly differently despite activities or if you have flexibility and opportunity maybe decide not to do the activities. If you put in a lot of range time on your own or reload your ammunition as a hobby back home and basically you're showing clinical signs of heavy metal burden, and autoimmune conditions or inflammatory conditions that are unexplained. Or

mono disruptions, production issues, maybe you don’t want to do those things and you focus on not doing those things or doing them better, you'll see us talk later on with range hygiene a nice deep dive we can do later. For the individual factors, helping them understand where they are fragile. Resilience is a big squishy word and a lot of people don't quite get it because of how ambiguous it is but if you tell them the opposite of resilience is fragility and how do you mitigate being fragile, what are your areas of fragility and how do you become less fragile and more resilient? Once again the terms of personal protective lifestyle nutrition to control controllable's and that's the theme. Control the controllable to mitigate fragility. You can be fragile in any domain. Help them understand where they are fragile and how they can be less fragile. So personal protective lifestyle and nutrition there is a handout available for one-way that it was adopted and modified for a specific threat. These terms were defined and developed basically by a task force a joint service task force called task force resilience and it was healthcare and human professional in the DOD with a couple of VA and civilian practitioners that answered the COVID-19 call to action and basically said we know lifestyle and nutrition is important. How can we use lifestyle and nutrition to protect those who protect others meaning the soldier community and how can we communicate this in a way that is digestible but is also modifiable to fit whatever the mission whatever the threat whatever the need. We came up with terms. Personal protective nutrition and personal protective lifestyle. Reach out everything you can adopt this or adapted for a different threat or a different mission or different performance goal. Please start using the terminology. It is up for grabs, that handout was something that me personally I modified the previous versions and pushed it to the lowest level for an armored or gated combat team, 4200 soldiers through the chain of command now have this handout which you have any attachment box with some scannable QR codes that link to additional information with some very easy to follow checklist and items on personal protective nutrition and lifestyle. So, pulling this introduction together, functional medicines the operating system and from work a way to deliver personalized care. It is a person oriented medical approach rather than a problem oriented approach and we can use the system to deliver that personalized and idealized form of care that the DOD and the VA are aiming for. The VA whole health and total force fitness with health and fitness, those are idealized forms of care but this bridges the gap between what we are doing and how we should be doing it to achieve that. Pain, communicating it is an experience with four components. Helping the patient defined their experience of pain, what is contributing to it and what we can do for those components. Very helpful tool. To get the shared understanding and buy-in. Define personal protective lifestyle and nutrition for threat mission or other performance goal. It is something that can be used and helpful, the current champion for it in the DOD is the human performance Center of excellence the Consortium for health and military performance. They are available online. I will put the link up in a little bit for their website where it talks more on it and it links to YouTube where we present on it in relation to COVID. I was part of the initial task force resilience group. All right. How did we do? Only one and a half hours is that right? Jeff is in and Amy is here. All right. Let's take a little

break. We're going to be switching to this presentation momentarily. What do you think? Five minutes or 10 minutes? 10 minute break?

Let's do five minutes for now.

Be back at 7:37.

Geoff are you back?

I am back. Do you hear me loud and clear?

Perfect.

Hopefully everyone is having a good day today. We had some technical difficulties yesterday. Hopefully we can get up and running today pretty good. Let me know when you are ready.

Ready, go.

Good morning, I went to the private office today to try to do this with the Internet connection, talking about health effects of the operational environment. Operator syndrome, you know it's not an official medical diagnosis but it is a cluster of symptoms that we will see in people who work in this profession and is not unique to the military for special operations or operators. All right. The mouse is working today. I have nothing to claim,

I don't get paid for this I am still active duty. I run a performance and wellness program for special operations so this is my specialty where I work so there is no conflict. Today we're talking about how to apply the Army maintenance principles to humans. We talk about humans more important than hardware and then defining operator support looking at the chickens and the symptoms and then talking about Allah static load for those who are not familiar with those turns in understanding the operational environment. Where we work and how it affects us. And then understand looking at operator injured syndrome from a clinical perspective of what it looks like when someone walks in the door. And they tell you they have these things so you can start to see it collectively as one thing not a bunch of individual conditions. And then applying principles and frameworks that we use in the military and the military members understand so it can help them deconstruct what has happened to them over time so they get a better sense of what's going on. I like to use pictures. I'm a pretty simple person but a picture says 1000 words. When he joined the military nobody gives you a technical manual. Even when you are born you figure things out from people who have done it you learn from their mistakes but whenever you get a new piece of equipment it always comes with instruction manuals to teach you how to use this so you don't damage or break it but going back to us as humans we don't get that especially in the military when you have a human weapon performance especially a special operator and you need to teach people how to maintain and repent themselves. So, this is a system, a cornerstone of readiness in the military. Before, during and after operation of equipment you're supposed to expect these things to see how they are functioning from baseline.

Until recently in programs in the military there was no PMCS for the operator. You basically did post appointment health assessment and a reassessment asking questions and if the person was okay they kept deploying but as anyone knows especially in our community nobody answers those things honestly and nobody will say they are broken or damaged because they don't want to get pulled off the team or miss a deployment. So PMCS looks at people before, during and after services. Changing that maintenance to medicine you get preventive medicine checks and services. We look at this what is the Army do this? It is streamlining processes, more effective and efficient, eliminating duplication of work, fewer maintenance, reducing logistical footprint. We hear about that, those labs are so expensive but in the long run if you prevent people from being ill you do not see them in the office often and they're not on 5 to 10 prescription drugs for the rest of their life so it is cheaper in the long run to do this and it keeps the equipment running better. Instead of managing symptoms. Checking back this is the Army regulation 750-1. The purpose to maintenance for generating power, I'm talking human investment, combat systems, equipment, enable training and mission accomplishments. If you apply this 750-1 to medicine you will get functional medicine. Personalized lifestyle medicine performance medicine that is all this is. We're talking human combat systems. And then apply that to PMCS, we talked about performance during and after, baselining this is why we push for baselining and special operations. So when we see people go off baseline we can show them what it looks like so they can make a personal investment and then we can get them back to where they were and then we can monitor them and assess them over time to keep them performing optimally. We talked about that field level and what we're doing with programs. The field level maintenance level X control controllable's teaching people to make better decisions and how to maintain themselves so they stay out of the doctor’s office which level 20 would be performance medical teams which would be if you can't control the controllable , you're doing everything you need to do then you're not moving the needle then you need to go up to level XX which would be the comprehensive programs. Principles and operational process taking and data, processing and analyzing, aching sound decisions everything we do in the military, all these decision-making processes and risk management all of it is create better situational understanding and make better decisions, facilitate decision-making so everything we talk about today is to enable better decision-making especially working with a population. There is the agenda. Like I said we will talk a lot about operator syndrome and a lot of things we see in the community especially on the medical side through TBI and toxic exposure, chronic and unmanageable stress and disorders. Operator syndrome is looking at the neural consequences, natural consequences and high static load documentation and physiological of response. Prolonged chronic stress. Looking at everything in the operational environment and how it affects us and how we are adapting to their becoming resilient to it or not and becoming fragile. When you start to see operator syndrome it is a sign you're not adopting to the environment well anymore and you are becoming fragile and started to notice the effects and it is affecting your ability to operate at optimal performance levels. This is defined as the process of maintaining balance their adaptive changes in the internal and external environment to meet anticipated demand. To summarize it is how you adapt to your environment through hormones,

through neurotransmitters, so when we perceive threats or stressors from the environment the body produces hormones and the responses it needs to fight or flight from those things or to learn from those things so you're more capable in doing with it further down the road. So, meeting challenges. When we are not meeting challenges the way we are used to it is a good indicator that the hormones and neurotransmitters are not where they need to be and you are not perceiving your environment that we should be. Doesn't enter primary mediators and you can see those, stress hormones and sex hormones. When we see people not adapting making decisions and struggling it is probably a good time to start looking at hormones and neurotransmitters to see how these people are working. And then overtime with chronic stress that is your secondary outcome. Your chronic illness, your check ins when you start to see the metabolic syndrome, hypertension, disproportionate weight gain, elevated glucose. Those are all stress related and static load is how much, how much from your environment are you getting? Relationships or toxins, whether it is chronic stress, sleep deprivation, all of those things we talk about in the operational environment. What are those things? Looking at people in a community of people who do not self-identify when you go to ask how are you doing today? They walk in the office and a sampling everything is good with a smile on their face and thumbs up. There's a difference between being a quite professional being humble and getting the job done and that being a silent professional who suffers in silence and will never tell anybody they are broke or something is wrong with them. One is pride and ego but they also don't want to be ripped off a team and sent to a desk. Signs and symptoms of operator syndrome. You can see these things. G, apathy, anxiety not in the fact that I can do anything but just constantly switched on and overthinking not making decisions clearly. And then feeling like everything in the world sucks even though you have is what you want. You feel depressed but there is no reason for it. Self-doubt, weight gain, sexual dysfunction, ringing in the ears, migraine headaches, balance issues, itchy rashes, all those things. Those are your check engine lights. By today's standards each one of those things would be a disease and each one would come with its own set of prescription drugs. When I finally went to the doctor you can see I had all of those things. Short-term memory problems, depth perception issues, low testosterone, all those things but most importantly what you can look at is this is no clear ideology or diagnosis to correlate all of my complaints so this is 2012 at a special forces unit with a doctor who treats person out. Basically this area sure your not trying to get anything after the three back-to-back deployments to Afghanistan and I was medically discharged out of the Navy at 80% tax rate disabled veteran on vocational rehab with his own business going to college? I do not want those things I wanted to know why I felt like I was dragging a dead body. They chalk it up to it is in your head and the diagnosed fatigue but luckily this doctor when the national intrepid Center of excellence came out said if you want to go to this place I will send you. So I ended up getting lucky on that one. After that I said I'm done, I'm done with the medical system that wanted to tell me I was depressed or had PTSD and wanted to pop me full of drugs. We have bunch of tools to solve problems. One of those was the decision-making process which comes with a four step process in the analysis called, the step process is easy to understand, the environment where we are working to understand hazards in the environment and how we can protect ourselves.

The first is always defined the operational environment or the battlefield. What is in the environment you are going into and then how is it going to affect you? Three, evaluate threats to see which are the greatest threats and then determine the correct course of action of housecoat impact you in your ability to operate. I took these tools looked at the operational process and I said if I am ever going to get a medical provider to understand me or to help me I need them to understand my operational environment and how it is affecting me and what they can do to provide assistance to me to get better. You cannot fix a problem unless you frame or understand the problem and medical providers did not understand the problem of what was going on in the environment. That was my mission to get them to do that. Looking at at the pictures imagine being a medical provider and you have a person walks in your office and you say they are special operators what does that mean? Okay you are shooting and blowing things up, you jump out of airplanes but what does that really entail and what are the health effects? That goes back to conditions circumstances and influences. If you have seen the pictures I worked in a highly volatile environment would toxins, blast overpressure, air pollution, jumping and diving but did they really understand what that meant? So I put them all in a list and I took everything I was exposed to when doing intelligence preparation to the environment and battlefield and I said which one of these is in my environment and what are they doing? What are the health effects? I put them in a list and from the list I did my threat course of action to determine which are having the greatest impact. Chronic stress, TBI, exposures and sleep disorders or deprivation. And I took all these things that were redlined incidents and I put them up on a timely and visualized them overtime what happened to me. Which had the greatest impact on me and I said okay most of these things were stress, a lot of them were big things that had to do with a lot of acute stressors, events like people in my work dying getting killed going to countless funerals being in schools that were zero fail schools some of the toughest in special operations after coming back from a crazy deployment. It was like the high load in those time periods that is when it was impacted the most and when I started to understand that I was like this is pretty simple now I know why felt this way and why my body was responding this way. For each incident I could write down all the reports of everything I experienced in the symptoms, where I was, how it happened, when and what things were in my body when that was happening. I could take the time I and these representatives the situation reports would get them to the medical provider and take 20 years of information and put in a format digestible in five minutes and they could see big picture what was going on. Just these pieces of paper, the timeline and the sit reps my medical providers were like I wish all my patients did this. This made my life so much easier I could better understand your situation to get you help even though I can only deal with one problem at a time I have been a better understanding of your health situation and I can direct you to the resources where you can get help. That might be out of my skill set but I can get you. Talk about those things. Traumatic brain injury one of those injuries 10 years ago we didn't know much about. It is all in your head it can't be that bad, everybody pumps there had. You know all psychological that's what's going on you are stressed and depressed but they were not looking at physical injury. TBI is significantly underreported. I know countless people who have gotten out of the

military ever never looked at for traumatic brain injury only answering five questions in a doctor's office to see if they could remember a couple words. No one physically looked at the brain afforded functional brain imaging. They never did EEGs or conference of neurocognitive testing. They assumed they could answer five questions and there okay but not knowing they had been blown up multiple times and shot thousands of high explosive ammunitions in the military or had fallen with horrible jump action parachuting or even vehicle accident and they were told there's nothing wrong with you, good luck the rest of your life with the VA. You can see the majority of brain injuries and even those that are required are classified as mild, no big deal. You got your bell rung and it will be okay, we know now that's not true. Because suicide is the top cause of death tied to traumatic brain injury. Those with any type of brain injury are 4 to 9 times more likely to take their own lives, that is significant if you remember the last slide word set over 440,000 people have been diagnosed with brain injury in the DOD what has been looked at and underreported. You understand why we have a suicide and cancer problem in the military. Not just because it is psychological, they are caused by psychological risk factors. There is a huge physiological burden of traumatic brain injury on the body but we're talking about hormones that control how you adopt to your environment. After traumatic brain injury it's known you get hormone imbalances in the hope you adopt and also help you sleep and repair and adapt to the environment. In 2018 suicides tripled in special operations. Kind of a misleading headline. They were higher than usual but 2017 we had significantly lower suicide levels but in 2018 they spiked again. Whenever saw suicides like we did until the war started winding down. When the deployments started slowing down in Afghanistan and Iraq and Syria all the guys they came back though using combat deployments as the sole purpose of existence to stay alive and fight all of a sudden that mechanism ended and they were forced to face their demons back in the Garrison environment behind a desk which hurt people with identity feeling like they had no purpose no mission and no focus. All of a sudden those not at work themselves and all the problems they were hiding and using deployments to escape from started facing those things pretty significantly had on all at once. All the stuff they never noticed before was front and center. Looking at that would training the majority of traumatic brain injuries in the military happen in a training setting not in combat some of the stuff we do in training like shooting rifles for 120 millimeter mortars all of those things those are having a significant impact on brain health. That's what we know now, back then the more the better. We would fight to shoot more in training and do as much as possible and at the end of the day you couldn't remember your name or how to get home and you would like that's weird. Now that we know about these things with blast overpressure more is not better and we don't need to be doing these things for training or proficiency then we shouldn't unnecessarily be exposing service members to these things when it is not necessary. Think of a Pepsi can or you drop some type of carbonated beverage on the ground and you go to open up the can all of a sudden there's a rapid release of pressure with gases escaping and we see this all the time. In the drink overflowing out of a container imagine your body being filled with all these organs and blood vessels with blood caring air, compressed down inside the liquids to deliver oxygen to your body. What happens when all the sudden that is super compressed all

at once and then released rapidly and then equalized in the body? We see this with arterial gas embolism with diving when you hold your breath and go to the service too rapidly the bubbles expand and you get blockage and damage at the bottom. That is what we see with complication injury in the brain it happens a lot quicker but it is causing blood vessel damage and organ damage when we do these things and that's where the science is going now for the blast overpressure. So, knowing this I felt these effects back in 2012 or 2011 even I knew at some point in time the science would catch up so I started making memos for the guys that I work with and I started putting down how many high explosive charges had been exposed to and along with ammunitions they had been shooting and in one class over 180,000 rounds of 556 ammunition and we would you know detonate over 150 high explosive charges so doing that over two years you're getting exposed to over 2400 high explosive charges and over 2 million rounds of ammunition. Think about blast overpressure and I will talk about this in a second. Traumatic brain injury looking at dysfunction, looking down the middle when you blend those over you have fatigue memory problems anxiety depression weight gain or weight loss, emotional ability lack of concentration and other difficulties. That looks a lot like operator syndrome. If you look at my intake in 2012 when it was complaining about these things that's literally every single thing I was complaining about what do we know then compared to now. Even now most people are chucking that up to individual conditions and you will get individual medications for each one of those things. Fatigue and poor memory you will get Adderall, anxiety, anxiety meds depression the same thing and then with the insulin resistance you will be on Metformin, all those things. A chemical cocktail of medications to manage each one of those symptoms. That's not what we want. Everybody following along pretty good? Anyone want to take a break or are you guys good? Neuro-endocrine dysfunction and ED these are hormonal imbalances because of dysfunction. After a brain injury with blast overpressure usually get pituitary hypofunction. So all the pituitary hormones, in all LH, FSH, prolactin, all the hormones start not being produced and all of a sudden you start feeling like you're not adapting to your environment. Overwhelmed by stressors that never bothered you. You can't build muscle mass, sex drive is tanked. Short-term memory is horrible. You're having hot flashes or intolerance to heat or cold. All these things are happening in your like why am I not adapting to my environment? And all of a sudden you are stuck with this person that's not you and you are like I used to thrive why am I struggling now? , You get told that psychological and you go to the psychologist and they tell you it's all in your head you are stressed or depressed and you never look at the underlying physiology of the brain and look at the biomarkers for endocrine markers then you are missing a huge chunk of why these people are filling this pain. Neuroendocrine screening from traumatic brain injuries it used to be the brain centers you have a clinical practice guideline since 2011 to look at hormones following traumatic brain injury and symptoms that are persistent past three months. Looking at cortisol, testosterone, thyroid, pituitary, insulin growth factor looking at growth hormone deficiency. These are the knowns in the literature. Well-established in the literature being off after traumatic brain injury and affecting behavior with significant impact on overall health. So I guarantee a lot of people in this room have never had this clinical practice guideline and been able to order these labs because military

hospitals are discouraging any type of provider outside of internal medicine from looking at these things. So imagine the patient that walking on a day-to-day basis complaining about those operator syndrome type things that are going on and they never get these labs looked at. You'll see why that is so important in a few slides. So, toxic exposure this is another one. Everybody hears about lead toxicity don't eat the paint chips, don't put your pencil in your mouth and chewing your pencil. But when you talk about shooting in the military or munition and explosive it is everywhere but lead is not the only metal in there and you'll understand completely why when you look at all those things we breathe in on a daily basis. If it is ammunition and explosives or air pollution and burn pits, these metals are everywhere. I don't have time to talk about what is in your food or your homes as far as getting exposed but Brian will cover that. This chart shows everything in munition that we shoot on a daily basis for special operations. Special operations unit will shoot more in a week or a day than a regular army in an entire year not an exaggeration. That is actually under exaggerated. We shoot significant amount of munition all the time. You're looking at all these things known carcinogens, lead is only one of these. Cadmium, arsenic, mercury, nickel, chromium, all of those metals are in munition and every time you shoot one of those, that powder making the rounds go out the end of the rifle and the primers that's really the most amount of exposure. The cloud of gas causing the round to get out of your weapon. You can see the cloud pushing out the round with the puffer jacket case from going out with all the powders pushing that that is where you get the most exposure to the heavy metals. By the way everyone knows about benzene is not just in plastics but also in gun powders and primers. So you're getting carcinogens ingested every time you're shooting and handling firearms. They affect every system in your body. There is no safe amount, wherever they accumulate they do damage. The bottom line is they affect metabolic function and cause inflammation, chronic inflammation and they cause DNA damage and disrepair so metabolic dysfunction untreated oxidative stress which ends up leading to cancer in the long run. Looking at it this shows the mechanisms all the heavy metals come in. Oxidative stress, talking about cell damage, degeneration, that is exactly what happens to people when they are breathing in toxins. Looking at this you can see walking in after a shooting you are in a chemical path of heavy metals and other chemicals and you are sitting in this all day long. So besides ingesting the toxins breathing them in through your nose and mouth going through your eyes also all of your equipment is being saturated with this so think of firemen look at the equipment they are using their getting testicular cancer because they rest helmets on their pants at night when they were sleeping and they put depends on where the helmets were and they were getting testicular cancer because carcinogens on the uniforms. Look right here you can see what it looks like when you're in a range doing that all day long all the carcinogens are soaking and saturating not only in your lungs and blood and brain but on your equipment, clothing, helmet, body armor shoes and gloves. Guess where people take their stuff after they are done using it? They take it home and put in the house and the kids play with a. They touch it and they put it on. They handle it and then expose themselves to the list of toxins that I showed you with all the metals and we are wondering why people are having health problems. Look on the left-hand side the study for the shoot house I

worked in -- they were at 13,000 to 70,000. 20 years of shooting in this environment those things accumulate over time and when you go blow things up and start shooting and kicking things around your knocking up 20 years' worth of toxins in the air and breathing those in. Looking at the target when medical providers only look at the lead they are not getting a current exposure unless the person was just in the house or at the ranges. You'll use it a month or two after they were in the environment and then you are only looking at one metal. For example here's my heavy metal probably one month actually that was two weeks after shooting in a confined space. The levels were six which by then in those standards 0 to 40 you were fine. 10 is acute toxic threshold and if you look at the arsenic levels above that, they were three times over the reference range. Just because logic was okay not too bad I knew better to get my mercury and arsenic levels checked and they were off the chart. Those metals that I showed you in the munition they are there and if you're in the environment when they are going you will get exposed to them. See you can see them here again to reiterate the importance of that. That cloud of gas you're shooting above it, that's the list of chemical composition of what is in there. The left is the human and the environment soaking in those things. That's the metals. Known what is in the environment if you're in the environment it will be in you. How much is in you? That goes back to conditions, circumstances at the operational environment. How long were you in it, how much was in the environment, body composition, metabolic function, mineral composition or body, how well your body is clearing toxins. Those are the variables but the bottom line if you're in the environment the environment is part of you. Air pollution looking at the countries going down that is everyplace we deploy down that is everyplace we deploy to and the worst where I was deployed the most so Afghanistan and Africa. That's where I spent the majority of my career in and out of those countries with some of the worst air pollution in the world. Take the shooting the explosives and the others out of my life and look at the highly contaminated environment where the water is contaminated, the soil and the air and the food. Here I am doing these things shooting up and blowing things up soaking up from the air pollution in the country. It's going to be an issue. Air pollution is one of the biggest killers in the world, 7 million to 9 million per year killed prematurely. In other countries they were masks because they understand the impacts of air pollution but in the United States until COVID-19 nobody considered wearing a mask. Now people are scared to go outside without a mask on. Air pollution kills over 3 to 4 times more people than COVID-19 and is not even on the radar. Health effects of air pollution. Being in a highly polluted environment for hours and a couple days permanent damage to DNA. There is no reason why this shouldn't be on your threat assessment before you go into a country of what will impact your health when you do your risk management and remission planning. You'll want some type of respirator, you want to minimize time outdoors, you don't want to have your unit run 5 to 10 miles in the air quality index that is horrible. If you don't understand the impacts of that you will be damaging a lot of people when they come home you can understand why the PT test and have asthma and weird respiratory illnesses and they go to the doctor and they are told there is nothing wrong with you. We are starting to see this, constructive bronchitis. So chronic stress. This one is the one that most of us in special operations, we blew it off because we got assessed and selected

because we could deal with a lot of stress. Chronic stress and the impact of stress was the last thing that I knowledged in my life as having such a significant impact on my health. I thought I'd overstress really well it cannot be stress it is all medical. It is either a pathogen or toxin or a brain injury. I never looked at how much stress not only made me predisposed to those things but how much of an impact it had psychologically and physiologically to what was happening to me on a daily basis. We hear the word stress but do we understand the impact it really has? Think of stress, think of a bank account. I wish my bank account was overflowing with money but you can use a bucket or a sack. When you keep putting stress in these buckets eventually you will run out of space to deal with stress and double star overflowing. Eventually you will not adapt to the anymore and you will redline, you'll start to snap at people, it will start to isolate yourself. I'm not doing that anymore I don't want to talk to you. You become overwhelmed and all of a sudden you're not living you are existing and you are oversensitive to the environment. All of a sudden all the little things in your life that never bothered you become significant and on your radar. The check engine lights. So think of your immune system as your force field, I use Star Wars because most people relate to that. You are dead the star the human weapon the human weapon platform and have this immune system that protects you from these things in your environment. When the immune system starts to get weakened because of stressors, all of a sudden you have cracks in the immune system and the little things that used to bounce off the force field come in your body and start causing little fires and those are the secondary outcomes you start to see. 's start to see the blood pressure not regulated, cholesterol, blood sugar, inflammation. The asthma and weird things start going on. Because your body is losing the ability to protect itself and repair itself and that goes to immune function and metabolic function. Check engine lights. When I came back from Africa in 2018 all of a sudden my check engine lights were going off. I know how to take care of myself, how to manage stress, exercise and eat and do those things but when I was over there I was exposed to contaminated water and before I went over there my father died, my best friend died, I was in a massive amount of schooling wherever stressed and not sleeping. To Africa with my force field down. My immune system was shot and it was exposed to contaminated water. I ended up with three parasites that I had for a year that I didn't know I had but when I came back from Africa the doctor saw them all and I was having severe health issues. Here is a guy who has an incredible medical team and knows about all this, could not figure out why I had asthma and severe hypertension. My blood pressure was 180 over 100 and my heart, all these weird things happening. Cannot figure it out. Come to find out I ended up having three parasites in the. Looking at the nervous system you know we was talk about sympathetic her sympathetic fight or flight. The gas pedal and the brake pedal the easiest way to remember this. When you're on the gas pedal smashed to the floor your over activating the sympathetic response, hypervigilance hyper aroused and when we do that we see things like yes you will feel anxious, you have IBS, you will have elevated glucose. You will not be absorbing nutrients and doing much repair and you will feel anxious. All of those happen in a hyper aroused state and we're supposed to be catabolic when we are stressed because that's how we break things down to create energy but when that is in balance and you're constantly breaking down for energy you're not

rebuilding and repairing so naturally you're in a catabolic state when you're chronically stressed. Why is that important? When you have to go to the other side to function and have relationships and maintain relationships, you're not going to be a lovable guy. You're not the person who is aroused pleasured or stimulated. You're going to have sexual dysfunction. You will be the apathetic jerk, the husband comes home and it's like where's the guy married 20 years ago? This guy does not care about anything. He doesn't want to do anything. Go to concerts or vacations. This person is stuck in survival mode. They are maxed out, the bucket is full and they don't have tolerance to do with anything except work. That's a good indicator somebody's having problems with chronic stress you will start to see the check engine lights go off and is going to look a lot like operator syndrome. Chronic stress response. The over response to stressors, not letting things go. Think of road rage, the easiest one anybody can comprehend or understand. Something that might not be a big deal six years ago someone cuts you off in traffic now you're willing to spend the rest of your life in prison because you want to beat up somebody because they cut you off. That's the strong sympathetic stress response. That is what happens when someone is in survival mode. The strong sympathetic response and then it comes back and it does not go to baseline so you stay for a day or week dwelling on that stressor and you are like 20 years ago that would not have been on my radar. And then what happens with the parasympathetic, you get stuck below baseline now coming up to the relaxed state because of calm or I am sleeping deep sleep in getting restorative sleep and I am digesting and absorbing or having normal sexual function. You're stuck in a hyper aroused state way off baseline and then over time you will fall apart, psychologically and physiologically. When you go to the gym think of the acute stress. You put the weight on your muscles to break them down and then when they repair they repair and rebuild stronger so the next time you put a load on them they can handle it. Your mind is the same exact way when you get acute stress you break it down, rebuild and it becomes resilient and stronger so the next time it handles a threat or the challenge, you're able to handle it. That is resiliency. Psychologically and physiologically we need resilience to maintain a state of readiness in the environment to adopt and take on the perceived threat. It is that simple. When we look at this acute stress is beneficial to you that's how you build immune resiliency. That's how you build strength. All those things have to happen but it cannot be a chronic never ending on relentless attack of stress your whole life. It is catabolic and is going to cause you to fall apart psychologically and physiologically. Increased inflammation, decreased anabolic capacity. Immune dysfunction. All those things happen with chronic stress. It destroys your force field and your ability to repair and maintain. Looking at unmanageable stress, talking about traumatic stress. I differ in traumatic and chronic I just wanted this so everyone had a perspective of unmanageable stress, stress we are powerless helpless hopeless to change the outcome of the situation. When we think about this everyone thinks PTSD combat. The majority of suicides in the military are for people who never deployed into a combat setting. The majority of suicides and special operations are 18 to 24-year-olds who don't have much combat experience but they have unmanageable stress and they feel helpless and hopeless and powerless to change the outcome of what's happening. Usually facing punitive action. They made a mistake now the weight of the

military is down on them, they don't have family support, they have failed relationships, they are in debt. They have all of these things. They are not sleeping, there up playing video games or social media all night. These are all factors and risks for suicide but they feel helpless and hopeless. All as children before they come to the military and then happening again in the military is a recipe for disaster. Think of that unmanageable stress and also think about it being in a position of hierarchy stress, being at the bottom of the totem pole is horrible scientifically proven over and over and over in the literature when you're in a position of less power you're more stressed and more sick that is well-established. Figure being in the military and having zero power and having the weight of the military on top of you. That is pretty significant. I'm going to talk about briefly our survival escape resist evade. Where we go for a few weeks in the woods to learn how to cope with all of these things in a controlled environment. The resistance training laboratory , they put us in a controlled environment to see how we react to uncontrollable unmanageable stress so if we are ever captured we have some type of reference point to go back to where we can resist these things and have a sense of honor returning out of the battlefield ever going to get broken off psychologically and physiologically and we will show you what that does looking at cortisol levels. If you can see in the graph you can look on the left-hand side to see that is the little school we go to resist capture and learn how to evade. You can see cortisol levels are higher than open-heart surgery, military flights or even skydiving. I pulled this answer out of the study this study was published within special operations, it did not go out of special authorization for a good reason but it says recorded changes in cortisol levels for some of the greatest ever documented in human. This is a few days in a controlled environment where they put you in a position where you are a prisoner of war and your life is threatened on a daily basis in these your friends life to leverage her to interrogate you and slap you around a little bit, you can see what it does to the body. Unmanageable stress and then look at changes in testosterone levels similarly remarkable in some cases testosterone dropped from normal to castration levels within eight hours. Why is that important? Consider to be functionally stare I'll because unmanageable stress is the worst form of stress you can endure and in the Garrison environment you're chronically stressed. You're in a position a lot of the time we feel helpless, hopeless, powerless to change the outcome of the situation because your meeting unrealistic expectations in your meeting unrealistic deadlines so you feel overwhelmed and you feel like you're out of control. That is having a huge impact on your health and most people have no idea and they see this all the time in the clinical setting why do these people have low testosterone? Why do they have sleep issues or inflammatory conditions? Why are these things happening and stress is usually the last thing on the radar. Imagine having that and then all the toxins, the brain injury, the air pollution and all those things on top of stress and you can understand why operator syndrome is so prevalent. Why do people with PTSD have neurodegeneration? Pretty simple because they are in a catabolic state of disrepair. When the body is full of information especially in the brain it cannot heal and recover so if your brain has neuro- information all the time is going to die it's going to shrink. Your volume will change it is that simple. Sleep disorders. I like to wrap these other exposures up with sleep because this is the

repair and maintenance. If you do not deep sleep you're not doing repair and maintenance that you need to keep up with the high metastatic load. This is the imbalance, we talked about homeostasis or balance, if you're not doing the repair you're going to encounter all the chronic illnesses. Not if just when. Looking at sleep disorders, everyone thinks they think insomnia that's easy to grasp and then I think obstructive sleep apnea. When our guys go to get a sleep study and they come from the doctor's office they say they told me it was fine I didn't need CPAP just because they did not have sleep apnea doesn't mean they didn't have the other sleep disorders like restless leg or non-REM sleep. There's a lot more to sleep disorders and insomnia and having sleep apnea. We will talk about that why it is important. Sleep deprivation. We talked about disrepair, dysfunction, all those things happen because a system that is over activated that's not getting the person sympathetic balance to get the deep sleep to do the oxidative repair in the body in an optimized function. When the body is not sleeping and imbalance and catabolic and overstressed your metabolism is going to slow down, it's going to be in a diseased state and you will not be doing any type of repair. When you look at this picture, the first time a guy sleeping on the couch now that is a service member sleeping on top of his Humvee. Get it when you can but insomnia look at this DOD study insomnia in the military up 650% since 2003. At the same time the headline obstructive sleep apnea was up 652%. Why is this important? Think about what happened in 2003. Smart phones, social media, we had the invention of energy drinks and then two major conflicts going on in Iraq and Afghanistan. All of these things are risk factors but the bottom line is when your overworked and under arrested you're not sleeping, sleep is the last thing put on the plate when you're planning and conducting operations. It is the last consideration that is ever done. You're doing everything else before you get any type of sleep and then what are you doing to stay away? Massive amounts of caffeine through energy drinks. Doing everything you can't overpower the fatigue and then eventually, when you do go to go to sleep your mind is going 1 million miles per hour.

[Captioners Transitioning]

Migraine headache, you have no memory. Your brain is in a fog and all of a sudden you're like why am I struggling so bad during the day. I was in bed for six hours. But just because you're in bed for six hours does that mean you're getting to sleep for a deeper sleep. You can see that the oxygen levels and the rest of you I was having. That's what happens when you have three parasites in you and hypoxia because of the reactive airway and you're not getting enough oxygen at night. Your body starts to not respond the way it should be. That's exactly what's happening to me. I was getting orthostatic hypotension. After exercise I would sit down and my heart rate would go into the 20s or 30s. I would almost pass out while driving. Just after writing my bike. So these are the normal responses to high sympathetic - you can see things like hypertension and cardiovascular issues. Everything in the bottom right there everything that was happening on the left-hand side is my medical chart. We're talking about not sleeping when you're in a hyper aroused her provision state it's putting the check engine light is on at once. So where is an important. Because people with insomnia are twice as likely to take their own lives. Suffering, no end to the suffering, wanting to end, insomnia,.

Metabolic dysfunction. When you think of that just think about putting uniform on that guy and you'll get operator syndrome. It's stress, poor nutrition, for our case it's over exercising not under exercising. There'll caused the same thing, stress. Things from your environment that anybody can adapt to anymore. You getting too much from it. The human cost of it. Look at it here. Heart disease, cancer, COPD. Lung issues, stroke and Alzheimer's. These are all metabolic diseases. Inflammatory conditions. This is the body being in a state of cannibalism for too long with uncontrolled oxidative stress. That's why we end up with the cancers. Those are the pathways, this is what happens have unchecked stress you'll start getting DNA disrepair and damage. All metabolic. This is metabolic illness. If you know that 90% of illnesses are caused by lifestyle of our malefactors, why are we not embracing a form of medicine that focuses on lifestyle and environmental factors? Conventional medicine focuses on fighting disease with pharmaceuticals. Is not working and it's an effective. Is a time and place for pharmaceuticals but if we already know lifestyle and environment are the leading contribute factors to disease then we need to focus on optimizing lifestyles and environmental factors. We do it this way. Understanding what's in our environment, how it affects us. Developing the controls and implementing them. Composite risk management. Intelligence preparation of the environment. Looking back and recapping, all these things affect metabolic function and hormone production they cause massive amounts of information and oxidative stress in the body. Metabolic dysfunction. Think of your environment and connect them all together. Talking about that load. I like to use the picture of the guy on fire. This is the expected response to putting someone in this environment. All the diseases that we see are normal expected responses that happened to somebody who's put in this crazy chaotic environment. So if the doctor were to ask me, if I walk into a doctor's office and say I'm on fire. So why do we feel this way. The consent I'm on fire and they put that fire out. They understand that they do that fire. So when the person who comes from this environment for special operations walks into your room, they are on fire. And ask where this is happening. All you have to do is put up that fire and understand what's happening. Get them to understand it and work on correcting those issues. It is that simple. The load causes the person to be on fire. Going back and looking at my medical records. I think you guys has a clear ideology of what's happening to people that are complaining about these things. It's that simple it's overexposure to that environment and not adapting. Releasing your since he. You're becoming broken. All the check engine lights are going off so recapping an operator syndrome. Think of the fire that's the expected response. It's normal. That's what we expect to see for somebody who endures that much distress. Going back to this was that with your patience. Right now apply a few simple tools. Identify the environment. Assess those things and develop controls. Make good decisions and implement those controls then constantly assess and evaluate those things. Every day you wake up and walk out your door your assessing your environment is in hot is a call to someone trying to kidnap me. Constantly during the risk assessment whether you know it or not Sonali aware of these other things in your environment your patient can be aware of those things to. That's all I have here, I'm happy to take any questions if this is new to you to seeing this context if it's functional medicine. The cure will be all but it's the closest thing we have to this military process and frameworks

and principles that we use every day in the military. These systems are used for re-them.
>> I'm going to stand by if anybody has any questions other than that I have to get back to my army stuff >> >>It was fun to see some of those light bulbs going off. And some of the comments in the chat. The way the information resonates with a lot of the individuals that have been seeing the problem through their own lands and their own plane and Jeff, putting it and characterizing and helping us visualize it in a way that makes sense and is really eye-opening. It's fun to cook present with just because people in the room tend to have this wide-eyed energized sense after his talk about the problem. Whether they're motivated energized to address it saying okay, what next like how do we approach this how do we think about it. Thanks for the insight and then they are ready to address that.

So let's take a break and do 10 minutes. Rallying at 10 50 a.m. see you back here in 10 minutes. 10:50 AM. >>

Okay just trying to capture the of the support, and separately, some sidebar conversation has been going on the chat prompted by a couple of questions about this sounds like it requires a lot of time like how would you do this in a clinical setting how do you work with patients if it requires so much time with a deep dive so feel free to scroll through but the bottom line is we focus a lot of time and attention on that in the DOD pathway. And we will be focusing on it more with future cohorts because it's a continuous pattern of everybody having the same questions. And some people having solutions are best practices. So thanks for the responses, influence response is responding here. Some people are shifting answers from primary care to everybody so thanks for the engagement. Welcome back to the space. My apologies if this is a bit annoying but the format of this second slide deck is going to be a little funky. Please feel free to put questions into the chat for Jeff if he's able to join us he'll address it as we go. >>

This is an opportunity for you to flex some of the mental muscles that Jeff is helping us form and with Josh's permission this a few pictures for some in-depth information about his past and his six as a soldier with health conditions engaging the help system condition and soldier medically separated despite best efforts. Despite the best efforts experiencing medical separation and ultimately having engaged medical function clinical care after medical separation. He reached out for help with engaging clinical functional medical care at the Cleveland clinic of function for outcome. Were going to ask you as we go to the story. What antecedent’s triggers or mediators are you seeing in the story. What threats to help in performance for the operational environmental exposures are you noting. Just be mindful and take mental notes as we go through. >> Looking at the slide that says professional background. >>So Jeff uses some fantastic analogies in terms. He's basically saying baseball cards. In 2018 when we initially did the patient case I got the information he was 39 years old. He was in special weapons Special Forces sergeant and had served 15 years in the Army and interred 5 deployment. One and has a total of five years as a Green Beret with four years being on the teams and deploying. He earned his apart from an IED blast exposure explosion and basically after a year and a half, medically

separated and was in the warrior transition unit engaging some of this rehabilitative comprehensive programs. All of which are the best available to the communities. The prep programs everything he was referring to. He was airborne Pathfinder jump master certified. Sniper course completed and advance reconnaissance as well as advanced urban contact courses completed. He completed time as an instructor for some ranges and munitions training after his IED blast during the last two years of military service. Let's jump into the timeline. Growing up he had a positive and loving family environment. The family states get the parents stayed together he had a high sugar diet with a lot of snacks. Multiple doctor visits for strep throat, had a headache and got anabolic treatments to where they decided they should take that his tonsils. He was very active in sports, skating and extreme sports. Getting diagnosed with ADHD around the age of five or six and being medicated for it for a period of time but not always. Had numerous head injuries totaling about 40 had knocks in about 4 knockouts for joining the military. Joined in 2000, deployed to Afghanistan for eight months his first deployment 2007 he notices help start to go downhill. He was responsible for growing trash and other staff onto the burn pit and he experienced the stress of having to fire a weapon 29 days in a row under enemy contact and noted that some got stuff started around that time as well as chronic sinusitis and that led to multiple doctor visits and frequent antibiotic use. 2009 he was in the training course pipeline to become Special Forces and he remembers eating Ranger candy. Basically coaching and ibuprofen at higher than prescribed maximum doses and recounted one event in particular it was night training jump and they strapped about 200 pounds of equipment to him. He was dying of hunger but we publish it at the good big meal for the job so he had dairy shake. You took a shakedown and felt kinda bubble got all the way out but once you hit the ground he basically couldn't get up. Was experiencing overwhelming abdominal pain, couldn't get it to reach the collection points of EMS was called and brought in from the field to get an urgent cholecystectomy and from that point while he made it to the training pipeline and with no special forces Green Beret he had worsening that issues. Difficulty sleeping and relaxing. His mask - his pain was more noticeable. She sought out care for that often. For clarification this was his fifth deployment in 2012 and IED blast exposures, he was basically in a Bradley vehicle with three or four individuals and the Bradley rollover was to somewhat lift the vehicle but not rollover it was enough to jolt him to hit his head on the top of the internal compartment he was wearing Kevlar and helmet. Despite that blast that seems insignificant. This was the straw that broke the camel’s back began to unravel. After that incident the Purple Heart and started experiencing anxiety and depression and difficulty concentrating. Memory issues, marital strife. And hair trigger. He said I was like text dog who couldn't have dinner with family without getting into an argument. He said he couldn't be around his family in the way he knew that he should or wanted to be. These are pictures before the last deployment. What was noticeable to him was his abdominal distention and team members named him jelly belly. In 2013 here he quantified weekly exposures of about 1000 rounds expended 10 to 15 blast exposures at the range he continued with constant pain, headaches, fatigue, he couldn't really work out the way he used to be able to. The fits of rage were incongruent and came up discordant with command he wasn't getting along well with his chain of command. 2014 he separated, found unfit for duty. Recounting some of the

diagnoses compiled and noted during the two years for insomnia and depression, Gerd , IBS and chronic sinusitis. Some were medicating for psychotropic medications. Some of these programs really pulled out all the stops trying to treat him holistically. Taking pause and asking you to answer in the chat box, what antecedents trigger mediators what operational environmental exposures have been noted along the way? We know with the change in PCM and the one-off care piecemeal this can play into the total picture. Let's keep going with his story. In 2016 after medical separation from the military being torn from the community and the environment he's known for 15 years, he after losing mission and purpose and focus, was at the end of his rope. Explained he's done brisk versus benefit. My family would be better off if I was no longer around and the idea to end his life was just one out of compassion that his family would be better off without him. That he reached out to a nonprofit special force one that Jeff has been associated with in the long time. It is pipeline that Jeff established he was the first. For the timely fashion held an open spot on Thursday for each week they assessed him and said you've got body on fire and bring on fire. All of these exposures and blast injuries and talks and exposures let's just focus on fixing the inflammation first. So looking back at the list you guys provided me. Numerous interest knocks out before the military but afterwards talking about the blast exposures and the munitions ultimately his IED exposure on the fifth deployment burn pit sounded like a change of help very significantly. Some of the stress exposed to on the first deployment, 2090 is an enemy combat firing his weapon. Altering his anatomy with the sex me and high rates of and said antibiotics and other medication use, the straw that took the camels back on the fifth deployment was definitely the trigger. The Purple Heart while the other occupants were unaffected from the blast. He was looking for the answer at the bottom of the bottle or in a park. The burden of munitions and blast overpressure events. We identified mailing to those exposures. Triggers and mediators. The initial plan for him to address the brain on fire and body on fire, focusing on the inflammation, giving him some easy first-line steps where it was a combination of Here's what you going to do here's what we’re going to do for you. They started with an elimination diet. For the bloating and such he developed some food sensitivities along the way saying they might have to focus on addressing the got stuff first. Starting with an elimination diet pulling out sugary foods, fried foods, inflammatory foods and alcohol. And also some of the more common food allergens with a systematic introduction later to find out what he was sensitive to keeping them out for a while. For physiologic levels after doing the screening assessment. There are certain injuries were pituitary gland takes it direct physical hit for the vascular supply the end result is persisting per function for the pituitary gland. Incorporating breathing exercises and yoga encouraged by those around him. Finding the military nonprofit another services that helped him with these relaxation techniques for community members. After this plan we can talk about those results. They saw some benefits and some decreased cravings for alcohol and foods that were pulled away. Then transitioned to a period of ketogenic diet that was with social support around people who are doing it, people who were supportive and a family member who is educated on how to support him along with the dietitians at the clinic. It was not a lifestyle forever this was a therapeutic diet. Here is still doing archery and still with the jelly belly. They kept him

grounded and allowed him to keep some sanity when things were spiraling out of control. 230 down to 185 with the intervention plan and dietary plan and supplementation to physiological levels for the Hmong treatment. Is participating here in the infectious gait. Areas during the discus throw. The complex integrated physical activity that he would not have dreamed of being able to do in 2015 or 18. Over the course of two years you can see the treatment plan that encourages a lot of patient ownership to the treatment plan. And a lot of support and high touch to the care team. He was able to get a lot of improvement. His wife on record said she got her husband back and her father back, for her kids, he was grateful and appreciative. He explains that he was now able to take his kids out to the lake for some stand up paddle boarding and calls vividly saying I would have never been able to do this it would have resulted in us getting into an argument and me punching out a window. He had better energy and endurance. Still having bouts of rage and easy agitation. Spec functioning since 2018 is since achieved Masters and I can't recall what the Masters is but he's definitely improved his quality of life and functional capacity. He got there largely due to his own actions with some refocusing and some pretty clear marching orders. Every Sena Josh like this anywhere before? I know that I have. Once you see these things you can't unlearn them. Went to see the clinical patterns and start the history. You start to connect the dots and the conversation started to change. Your ability to focus on some of these antecedents trigger and mediators. These are things that we can change and things that you can change by what you think and eat. That never goes away. I appreciate you guys responding to that. Plant was Paul and asking the audience is this your first exposure for time. If not do you have formal trainings and if it is are you interested in hearing more about it or did we ultimately hit our learning goals for the day. >> So we've got about an hour and 15 minutes left so let's go ahead and take a 15 minute break. Because the next part of the deep dive into one of those two handouts. This is where I need you to choose your adventure. I want to tell you about what you're choosing that from. The two handouts are number 10 and number 11 in the file attachment area. It's handouts six and seven it's a version that hasn't existed that Jeff and myself and a group of medical practitioners who were involved in this DOD training pathway, came up as a way of doing this on yourself and the person next to you. Basically helping to identify check engine light in those areas that were outlined 's dysfunction. What to check engine light look like and how can I assess the early and address an early. Coming up with this version or handout of how this can be useful to the end-user. When I bounced it off my wife she basically said that's nice but it's a lot of information if I wanted to know bottom line hello I support my husband what does that look like and where the heck do I get that. That was the main basis these very helpful have it habits, basic concept of what does it look like in the training environment or the deployed environment. That was the impetus to that handout. [Meeting on break, captioner standing by] >> Let's go ahead and take this poll, in the way were walking through this and fielding some questions as we go. So please express your preference's. STAIND handout versus day in the life. We have done both it just depends on what the consensus is for today's audience. Okay as the majority right now, speak or forever hold your peace. >> What happens when you allow things to be crowd sourced. Everybody knows that reference your quietly chuckling to yourself right now I think it was the English Royal Fleet

they decided to crowd source the name and name that one out and quite literally I think they dumped the new vessel boat boat phase. So much growth >> The STAIND handout content is here right now were going to spend time basically on the other hand . So once again it's just structured and organized into three sections for each of those entities, triggers and mediator areas. The check engine light up top what they might look like. Was the clinical patterns are history clues that would tell us that maybe the issue is in this area that maybe there's some contributing factors in this area the middle is early assessment either self-assessment at home or assessments they can ask for in the clinical context or with some of the services around them. What is early intervention look like starting with self-care first but also indicating some of the resources and services available to them so anywhere virtually this would be service dependent you can add or subtract from these lists. Basis is the version number one of something that didn't exist before. It was playing on this epiphany of what it would look like to those next to us what does a family member did help identify some of his clinical patterns or root causes of dysfunction and how can you facilitate discussions that maybe this is an issue for you, really just helping to facilitate some of clinical or personal discussions. Changing the narrative. Here's the big picture. The handout really drives home what it would look like to achieve a change in the culture. Exemplified by the conversation of the two soldiers. Right now the narrative can be very well maybe don't worry, I won't tell anybody. What it should be and what I think we need to work towards is changing the narrative in the culture to where if it seems off, let me talk to you. Let me show you and work with you. Basically saying it doesn't seem right. To be done, let me show you. Once we get to the point where the narrative has changed is that changed for the perspective. The slides, we have not made them available because of PII so whatever your situation is if you email Amy or myself or Jeff afterwards, we can get through that but let's jump through a day in my life handout. This is what does life look like and how can we support each other or support ourselves in the different environments. Starting with the trading setting. I might engage in conversation but were going to be true to time. Just let me know when we have 10 minutes left Amy. >> Dissolves some kind of obvious but the goal with these handouts is to dive a little bit deeper and explain it in a way that ultimately the end user, a soldier or a family member or team member of a soldier can appreciate and get a sense of the way the body works and how what you think or eat changes the way the body works. No alcohol prior to sleep. We know quality of sleep changes with certain medications and sedatives. Alpha wave intrusion on your deep restful delta waves sleep prevents you from your brain cleaning house and repairing from all the activity. Clearing out all those proteins throat the day. Really your ability to get deep restful sleep. Wing of changes based off of what you drink, eat, or take before bedtime. The next one is 6 to 8 hours of quality sleep. I believe the American Academy for sleep medicine recommends at least seven hours of sleep nightly. With regards to CPAP, we can comment here because this was initially circulated in a soft community with operator syndrome one of the main conditions that is in that pattern is sleep apnea. It's not always obstructed. Sometimes it's essential and sometimes it's because it's either direct trauma or vascular impairment to the respiratory control centers of the brain may impair abilities to regulate sleep at night time. So potentially it's

high enough in the soft community to where your threshold should be very low. We know it's a stressor during sleep. It makes those feel-good hormones in the brain allow you to focus and remember things. And moving onto number three. Wake up and measure heart rate variability. The ability with where wearable tech these days, with data specifically continuously monitoring and evaluating stress and and indirect measure of your autonomic parasympathetic tone , HRV. Basically that being your biofeedback tool. Continues measurement tool to determine how stressed you are right now either psychologically, physiologically or physically. Regardless of the source your autonomic parasympathetic tone is directly related to HRV levels in readings that should help you gauge what you're ready and able to do today. So if your heart rate variability is low coherence meeting on high stressed and low parasympathetic tone that you can make decisions to do some restorative activities like light swimming or yoga or getting some time outdoors as opposed to hitting the gym heavy and going for those tiaras. PR's. >>Thinks like heart math. Working with smart devices and media clips on the finger or a clip on the ear can be used to actively press on the brake pedal and get into a very sympathetic state to make sure you're actively relaxing throughout the day. The mindful minutes of meditation and prayer. Really just taking an intentional break to reflect on what happened, where you're at mentally and what is happening for the rest of the day. Moments of gratitude, journaling, prayer, all of these are mindful reflections. We know that when your brain gets the brakes and gets into that parasympathetic rest relaxed state, it increases your miracle growth for the brain cells. You want to set your intention for the day. Be intentional about what you're doing and what you're not doing. Things steal our time attention and energy all the time. Approached each day was some intentionality and create a very specific list of what you're not spending time and attention on today. Get lost in some good tunes like singing loudly to and from work. Gargle in the shower, belly breathe at stop lights and throughout the day. This makes reference to vapor tone exercises. Is the things that engage your soft palate? Singing loudly, gargling. And belly breathing. Diaphragmatic exercises are all table tone exercises that help to increase peer tones and can be helpful after some traumatic brain injury histories. Sometimes a blast overpressure event and TBI events will create some smoldering inflammation and might impair the communication actively engaging that was rehabilitating that and it was important I don't think we talk about those exercises. Which is make reference to it. Indicating whether and 10 students. Has to deal with how we digest food. It can be helpful for that as well basically strength and direction of correction can be improved with key goals for men. Just fun for any soldier to know. So take some nutritional support. Not mandatory for everybody by any means but just there for if you've ever been low. It's a good idea to check this box I've seen several operators lean towards these higher nutraceutical brands. There's some high-quality versions but in general we say look for USD or NSF labels him a bottle. Meaning that the company hired another company to verify good practices for sourcing, processing, and then what is advertised is in the bottle. I mentioned to you already. Service members, vitamin D, studies show up to 70% of service members are deficient in that. Fish oil is a great idea as well. Magnesium tends to be low frequently and 30 Mincey, nutrients that can help with detoxifying and nutritional chelation agents that help to draw some of the toxins or heavy metals that they may engage in the

training environments to eliminate them the G.I. intestinal pathways. Bringing it to this next one. Basically those supplements in particular help with detox and elimination the pathways. I remain buffered to mitigate oxygen and stress. Then we can make it a certain rate but we also is likely based on what nutrients are available to support the cycling process. These are all types of things that we learn about talk about and function each year. Plain water and tea. This was just here & it's a tool in the toolbox. Not but it needs to be a sustained way of life. It might not optimal during certain training periods. However, time restricted eating. If you want to indulge there's ways of doing it safely during periods where you don't have conflicting performance demands or wellness related demands to where you can help with reducing inflammation. Eliminating problematic cells that contain dysfunctional mitochondria. Basically looking at signaling for that so that the functional cells are able to switch to their source for fuel whereas the mitochondria that's dysfunctional that are precancerous. They essentially got the signals to die off because they can't switch gears to work off of ketone rather than glucose. So an interesting tool in the toolbox for people who care to do that. Immune system tolerance. The immune system genotype. Especially for the adaptive changes with decrease in frequency of exposure to certain antigens, if you give the intestines to break and you're giving 70 to 80% of your immune system break from working between 60 and 80% of your immune system resides in and around the gut. So you're giving yourself a break doing water only for a period of time. Hormone sensitivity in general there is some studies we can talk about, for restoring sensitivity and testosterone and androgen sensitivity as well as growth hormone increases that are seeing once you get into such states. >>Other any comments? There's several, we share some best practices and resources or you can email us afterwards. Break the fasting period with nutrient and meals containing a variety of veggies. Had to highlight Jessica and Allie on. Both being sulfur containing - Kelly M - increasing and supporting detoxification they also are involved with hormone production. Neurotransmitter production and management for both of them. If you were deficient that could be impairing the way your body makes and manages neurotransmitters. There also prebiotic foods. We know that prebiotic foods see the good bacteria and support a healthy microbiota. So make a healthy practice to seek out it increase the take of those. Choose foods high in zinc and selenium. Those are among the most critical nutrients of sex hormone metabolism. Testosterone and estrogen. Number 10 is choosing organic grass fed, free range, wild caught animal proteins, eggs, milk. This is just an opportunity to highlight that. It may contain toxins that they been disposed to. For those individuals there's conversations but clean and optimal sources as well as fruits and vegetables. We know that 1530 doesn't is at least one source of information. The EAP put those out each year. Not important for everyone but if your state and fragility warrants it. Autoimmune, neurologic, immunologic conditions that it's a little more fragile. Having the means and ability to adhere to this is the opportunity for good guidance. Stay hydrated. One bowel movement daily. Elimination patterns are extremely important when this ongoing exposures in the operational environment to munitions, heavy metals, airborne hazards. You want to ensure the exit pathways are clear and free of obstruction. At least one bowel movement a day and making sure your hydrated enough to urinate frequently and regularly. A decent described color it does not

have to be clear it just has to be well enough to urinate frequently after this detox occurs you have water soluble toxins that need to be eliminated. So don't be low on water. Range hygiene. That's such a fantastic picture about other soldiers like the range and stuff. But making sure that going into the range. They are bringing some bags with them, changes of clothes, as needed. Ways of separating if the going home with her family to engage. Making sure that the rest of the family sits in there as well. Showing that wet wipes or something they carry with them to the range. At the range be sure to keep dirty hands out of the mouth. The not obvious ones are smoking and dipping chewing tobacco. Other reasons like keeping hands out of the mouth. Leaving the range, changing her clothes. Bagging up your stuff and putting it in the trunk the truck bed. Don't wear dirty gear put on the seat can goes to daycare like leaving that bag of clothes in the garage. Changing before coming into the house and showering right away. Hygiene. We kind of touched on this. Supporting good regular bowel movements. Ensuring your taking things that keep you associated and full. >>Eclipse glucose stabilize for a period of time. Is a paper available by a triple physician called Alex mascaras. The five-part wellness protocol. It talks about multivitamin, vitamin D, fish oil, magnesium and probiotics. The evidence behind where those are helpful as a safe and easy thing to start. They should be incorporated with a period of time to rehabilitate the gut microbiota. Like intestinal illnesses, you can mitigate some of that biosis that occurs vitamin D. About 2000 per day is a safe starting point? Multivitamin in general. The body doesn't need that you'll pee it out. Fish oil, 2 to 3 grams per day. Magnesium. Think it's like 15 milligrams per day basically one tablet that you may as well take it nighttime because it's a cofactor for for converting glutamate to gather. You want more GABA because it's inhibitory so when you're trying to go to bed, waking sure the magnesium is there to convert the glutamate GABA so your calm and able to get sleep. PM nutritional support. Protein shakes. Yeah we talked about that. Magnesium. There's different forms that are absorbable. Readily used in others. L crenate is good for cognition support it gets passed the blood-brain barrier. There's articles and information as you can find on the use of magnesium. Is not usually on the list but, which in a rhythm. Prepare for bed it's critical for biorhythms and basically physiological clocks. That determines which hormones are made when those hormones rely on that biorhythms to be established in order to function. Light exposure, caffeine exposure, those are all external ways that can impair or help set your biorhythms blocks. In the garrison setting everything in moderation. So it's not as a zero defect for no fail environment. We know that with higher risk social groups that regularly risk personal health and well-being together and alcohol consumption is a part of the bonding experience. That's just something that happens. So everything in adoration. And making sure that if the lines with the group and personal health and wellness performance goals. Mentioning that the wearable tech lifestyle data. The ability to monitor stress and HRP is critically important to making better decisions. When somebody has an oral rating or Garmin device or some kind of other wearable device and say see the stress the body is and after consuming alcohol before going to bed and how unprecedented sleep is. How physiologically stressed the body is. During the time when you're supposed to be resting and recovering, and making hormones. They might make different decisions about whether or not to go to the bar after the

range or go home and hang out with her loving family for the rest and relaxation levels goes to the group. >> Prioritizing time with loved ones. Decreasing information and hormones. The center is just meant to give you a sense of awe and appreciation as to how the body works. Vitamin D exposure. You basically get Pro vitamin D that happens when you get UV exposure to the skin. It gets converted to vitamin D it converts to the bioactive form once it hits the liver. Vitamin D should be called the hormone. I know a lot of people in the audience designate with that. When you talk about building resiliency metabolically and immunology. Just being mindfully present in nature. Impacting prophecies for immune systems and decreasing inflammation. Build communities. If you define a community as a group bound together by sharing stories and experiences. Then you know exactly build community. Share those experiences and socially connected. We know that's a very different phenotype than being socially isolated. Maintaining hobbies that you're passionate about. Mission and purpose and focus. Being clear on your sources of compassion and joy. All of these are ways of ensuring that you stay connected to the reason why you are here and the mission that you serve even after separation from the military. Especially after separation for medical reasons. Making sure that those sources of passion and joy clear and that you can pursue that and engage in them despite which communities you belong to. Having a bigger why what you meant to accomplish with your time here on earth. Being physically active with others. The physiologic impact both metabolically and hormonally. Basically last for 2 to 3 days. If you're exercising every 23 days incorporating some version of cardiovascular impact exercise like high intensity energy trading. Or just a good old-fashioned cardiovascular exercise. In addition to the strength training you're going to keep it was a feel-good hormones levels at a level that supports optimal function and optimal sense of well-being. These exercises sport BD NF. For brain habilitation for any opportunities to increase on your to do list. This is a tool for variety of reasons. The bottom line is they'll get to the sweat. This is a way of detoxing and offloading some of those water-soluble toxins that detox phases one and two have now made those water toxins soluble. If the purpose is to detoxify. Make sure you got the nutritional support to help it's not the best practice make sure it doesn't reabsorb. There's cardiovascular benefits gained from specific doses of hot sauna. I believe it's 15 or 20 minutes for hundred 15 degrees Fahrenheit. If the changes during a fasted state there might be some performance output benefits to doing a list or heavy list in PR. Just drawing attention to that there might be some human performance will restart to refuel for the specific reasons , we know the growth factor gets triggered along with insulin so insulin spikes after a workout after you've given the raw materials needed to rebuild the muscles that you've just torn up. That's something you can consider. So do that right after fasting. At the fantastic walk-through of the evidence base.

>>Take your high-quality probiotics especially with friendly fungi. An example of a probiotic that contains it is actually something we had on formulary for pediatrics. Floor store. It's something over-the-counter think I've seen, I didn't see it there for adults. There's other high-quality friendly fungi lenses that you can look for. At least a seal or a symbol of the NSD if. Once you get into that. Will start sharing resources and best available supplement sources. That's always a part of

the fun discussion. So microbiota disrupting events. Being able to identify those and pairing it with concurrent probiotic use as well as a brief period afterwards. Typically a few weeks and typically at least 10 billion CFU or higher. Of the people may know better than me and try to understand people around you and training who are comfortable with that topic. You might be able to rely on dietitians our clinical pharmacists and physical therapist. You might have some people who have a wealth of knowledge around this. But being able to identify those microbiota events is extremely important. You deftly want to support these micro biomes. >>Taking doses of deployed settings. You might be out and unable to control some exposures. New and additional exposures especially talks and exposures and airborne hazards. Heavy metals and chemicals. Toxins that might be in the air or water or soil. Make sure your detox pathways and the elimination pathways are well supported. Things like vitamin C and chlorella. These are all snacks that will help you eliminate things the G.I. tract. Steak hydrated and having daily bowel movements. Avoid local water and local needs. The micro biome is what's in you and on you. Everybody's microbiota is different. It might resemble those they spend the most time with are those who eat the same way and live in the same space. When you get implanted into a new location you might bring home visitors that you didn't intend to like we talked about parasites. That's just a nod to the fact that opportunity to shift the micro biome and to get some pathogenic agents either in the forms of fungus, viruses, parasites or other. Being mindful of that. Decreasing your exposure and making better decisions. Avoiding exposures to obvious sources. If you can avoid things like proximity to burn pits. Get documented. It could be from commanders or change of command. It can be medically documented. It's important and helpful for improving exposures down the line. Lead wipes, hand hygiene when handling equipment. Drink filtered water. Control the controllable’ s. Have at least one bowel movement daily. Anon to the G.I. tract being important to offloading toxins. Maintain time restricted fasting practices. Not optimal for everybody. Always a sustainable way of eating. Based on mission demands and performance goals. It's a way to remain anabolic with flexible for your energy substrates. One thing is to make sure you don't get hungry. Make sure your brain is adapted and ready to run on ketone bodies rather than just carbs. Maintain that metabolic flexibility and you will be an asset to the team. I'm referring to like ketogenic or carb restricting practice is there. So stand up and shake it off or at the end of the handout. And the end of our time. Rolling into the summary here. Bringing you back into a safe mental space. Drop a comment or two into the chat box. You chose your adventure. What did you think about that tool? Helpful wasn't too much was way off. Let me know. Our ultimate goal is to improve and refine it. We've gotten some very good feedback from soldiers and spouses and chains of command on the handout. Like you know useful to have bowel movements but you never really understood why it was important or something like that. There's some other poll question about pace and content feel free and be honest. If this is your first exposure to functional medicine. The beautiful things about it once you learn it, you never learned and you start to see the same patterns and opportunities to have this conversation. It gets easier how's the content of the pace was too much too fast. Just right. If you guys don't mind just getting some feedback from you here. It's like drinking from a fire hose I know that the running joke is that we just throw so much that people. You latch

onto different amounts and different contents but the goal is having value in things it can increase your learning. You can incorporate this into carriages feel free I want to let everyone get a sense of increasing the audience.

>> Thank you. Then let's roll in to the clinic support. So we've got room for improvement I guess that's the obvious bottom-line. We affect the systems and processes and care services around us. So this might make you start thinking a little bit differently of how the team around you supports you and definitely as you go through this training will start to think how can I leverage these other people because of time. Because of energy. For focus and attention. How do I create the systems and processes and modify the workflows to support were trying to do. Thank you. Is not a question of if but rather when and we can help anybody identify the check engine light. It's a part of being able to PMC yourself. Starts with awareness and education and lifestyle nutrition. Getting to a shared understanding. Share what you have learned you may have experiences in the past. You saved more lives and saved more careers and returned more family members home are intact. Once again I'm grateful for the opportunity to serve the community that we all serve. And I know you are to. So personally they've expressed this sincere gratitude rather than responding with you're welcome I say you're worth it. And I mean. It's such a different feeling and it feels right and good. Tried out because you're worth it. You'll see what I mean.

Thanks for your time you guys. I really appreciate any feedback that you provide us. Feel free to reach out via email. I'm stepping off now talk to everyone later. >>Thank you so much everyone. If you could just I mean if you have any questions. Just go ahead and email us and our information is in that chat box there. Also, if anybody has any questions about the training, email me. See if we can get you into an application for the spring session. Also please visit our website and you can actually find information about all of our training and support at our website. Thanks again. I'm leaving the room up for about 5 minutes. That's going to be the end for today. Have a great rest of your day and I hope to see you at some of the workshops.