For those of us joining us. We want to let you know that over here in the files pod we have a number of handouts that I highly encourage you to start downloading now. If you click under the files, if you click on name, that will put it in order one through five. In then we also have the bios of our wonderful presenters here today. We also have our CME sign in sheet which you will need to return to myself or Troy Spencer. I will put that email in the chat box soon. I also have some extras from here and we also have a presentation in PDF version, so they are there in the files pod. And if there was one handout I would direct you to our highest priority at the beginning of our workshop it would be handout number two, and we will be orienting you to that before you get new information so you have a strong context for this new information.

For those of you who have been joining us all day and have been in another workshop or, not, please reminding you that the sessions that are on the website are prerecorded and will be available through FY21 for access. We just have to request it on the website, and they will be good for material training through FY21.

A reminder for those of you who just joined us. Listed over here in the files pod are a number of handouts. If you click under files, if you actually click on name, it will put it in order one through five in alphabetical after that. Highly recommend you start downloading those handouts. Also, we have the bios of our wonderful presenters today. We have the CME sign in sheets. It says day one. I will be changing and adding day two as well. I already have that available I just did not download it and then also we have the presentation in PDF for the presenters.

Okay. It is about that time. I don't want to hold up -- although we have a lot of people coming in here now -- don't want to hold up the flow but we have a number of logistical announcements to make so let me get through those and then we can get to our presentation.

Reminder -- first of all, welcome to the 10th Annual Pain Care Skills Training. This is our first virtual one, so we are very excited to have you all here again today. Just a reminder, today is recorded. Also, we remind everyone to mute their microphone if they are calling indirectly. Also, we request that you put any questions in the chat box as we go along, and they will be addressed accordingly. Also, we have this hand, raised hand at the top where you can raise your hand. If you have a question, I recommend putting it in the chat box. As I previously mentioned for those of you that are still entering, the plenary sessions are prerecorded and we are lucky enough to have these two amazing presenters on two of our sessions. Please make sure to go there and download their presentation that will be available through FY21. Then a reminder that all the information you will need is in the files pod. I will be making sure that you are getting the date two CME shortly but everything else, downloaders had lots that you will need. Also, a reminder that there will be a survey coming out in the next couple of days to next week. We appreciate all your feedback it's helpful for our planning purposes and funding and things of that sort. We really appreciate all your feedback. A reminder that though you will have that survey there is also a survey attached to the CME/CME required to retrieve your CME. What will happen is that you will eventually come up probably in the next three or four weeks, receive an email from us and, or an email from the CME website and you will please go in and access all of your certificate information from there. If anybody is having logistical issues such as the presentation goes blank for a minute or audio issues, I urge you to leave and come back in. Because we have found that actually helps quite a bit with any logistical issues. And thank you for listening to all of this and I will be signing off. I'm handing it off to your wonderful presenters, Bryan and Geoff.

Thank you, Amy and thank you to everyone for the opportunity and the invitation to come share some areas of passionate interest for both Geoff and I and definitely content that is related to our life's work, commission and purpose. We will jump right into the presentation. We will be introducing ourselves more along the way. I mentioned that I'm located at Fort Bragg your co-located with Geoffrey Dardia here. I'm in Army Family Physician currently in the outpatient clinical

environment and with aspirations to get to Special Forces out of the house shortly. My packet is in. And Geoffrey Dardia, introduce yourself?

Master Sergeant Geoffrey Dardia. The Operation Sergeant for Special Forces group human performance and wellness group. Also, the Action Officer for the meta-transitional retirement position here. Thank you for the opposition need to present this affirmation. My portion of the briefing today is something I teach with our programs here to help medical providers and people in our team unity identify these problems and solve them.

Unique training background in functional medicine and training to the level of IFMCP certification for the Institute of Functional Medicine and I've been lucky enough to be included in part of the teaching cadre for the annual functional medicine training pathway that the National Capital Region Pain Initiative sponsors and funds. It is a TDY opportunity to, learn more about the content you will pull exposed to today. So, we will be skimming the surface of what functional medicine is and how it can be applied, framework and operating system can be applied to thinking about how we can better heal our patients and prevent them from dysfunction. Saw -- so, we will go into some of these lies. No disclosures. The disclaimer being that we are going to be expressing the opinions and perspectives that are our own and do not represent that of large organizations that we are part of. DoD or PA our National Capital Region Pain Initiatives.

All right. Our biggest learning goals and then we will touch on objectives in a second. That is to help you as healthcare practitioners and healthcare team members or team leaders better understand the military operational environment. And specifically, things that contribute to root cause dysfunction in the operational environment. I referenced a handout number 2 that I would love to direct your attention to an ask you to open up. We are going to be introducing some frameworks that are going to help you assess and address early dysfunction and a key framework, the most important one is that handout number 2, S-T-A-I-N-D framework. Let me roll into learning objectives here and tell you how this handout and this framework will give you context for the new information. So, we want to make sure that at the end of this workshop that you are able to identify health and military operational environment, specifically following the STAIND framework. It's a pneumonic. We love acronyms and mnemonics in the military said this that's in line with our way of speaking already. And we want to give you more information about how we can make other decisions once we are aware of those threats to the health in the operational environment and help her patients make better decisions but also how specifically we can try to mitigate some of those threats. Once again, being aware of it. And then alluding to a term, a new term, not just here but it's personal protective nutrition and personal protective lifestyle. How you can leverage lifestyle and nutrition to mitigate these threats to health and the operational environment. S-T-A-I-N-D framework is the most important one you will walk away with but you will be exposed to another one that follows a different acronym and pneumonic, C-L-I-N-I-C-A-L. We will explain that later. Ultimately, we want to additionally show you what a conversation would look like of some glaring, and we will say check engine lights -- so, if you understood what the operational environment included and what early dysfunction looks like, then if check engine lights were going off and it was glaringly obvious that there is an area of dysfunction that is being prioritized, then how would a conversation any clinical environment or clinical setting look? We want to increase your confidence about what a conversation around this topic would look like.

So, specifically, let me direct your attention to the handout to give you context for new information. As we show the agenda here, I'm going to give you a brief run through and orientation to the S-T-A-I-N-D framework. Weird doing things in a different order than what's listed. The framework is where we will focus and that handout number two. If you pull that up, I will jump into that in a second. And Geoff will lead in with telling you about the military operational environment and specifically antecedents, triggers and mediators of dysfunction in the military operational environment. These are things that set someone up for dysfunction. And disease. Or triggering

events that since that triggering event, it was onset of clear dysfunction or patterns of dysfunction or disease. And then mediators for things that are essentially driving the bus and continuing either a dysfunctional process contribute to the disease states or heading you down the path for disease. So those terms, antecedents, triggers and mediators are on the handout. Beach and to framework handout and one is the antecedents and that triggers is clear triggering event and mediators is keeping that dysfunctional process rolling either contributing to disease are leading to disease. That in itself can lead you down the continuing to disability and potentially an early death. Really being aware of the full spectrum of wellness all the way from wellness to early symptoms to disease to diagnose the disease and then disability and death.

On your handout, do pneumonic or the acronym there, S-T-A-I-N-D, I will break it down but for S we have stress, sleep and snips there are some genetic snips we will touch on. Specifically, around detox -- those being actionable and providing some relevant into information for some individuals but not everybody. And T as trauma, toxins and tablets. You we hear a lot of information from and six on all of the S and the T. You will spend a lot of time getting new information related to operational environment here. A is antigens, allergies and autoimmunes. We will touch on some of that. Won't dive too deep. I is infections and ingestions. And we will elaborate on what those are further. N is nutritional excesses and deficiencies. And these are correctable. Easily correctable through lifestyle and nutrition and D is this biases and digestion. We will elaborate on the full list here later but specifically Geoff will do a deep dive orienting you to the operational environment around the S and T. He will dive deep there. With that context I want to -- before we get into Geoff's part -- I've given you a context here. You will get a lot of new information focused generally around the S and T. But then I'm going to reinforce it and expand the conversation a bit to cover the A, I, N, D. And then you will hear a new patient story where you immediately apply what you've learned and the main goal here will be to identify those antecedents, triggers and mediators given this new patient story. After that, I'm going to ask you guys to provide your input and you will choose your own adventure. We have two handouts and two communication tools. And up 4 and handout 5 that later I will ask you which do you guys want to do a deep dive into? If you care to look ahead of time at handout 4 and 5, we will offer you the option of which you would like to deep dive into with our time together. All right. That covers the agenda.

Before we get into Geoff's portion of the presentation, let's ask you guys to respond to April and help us understand what clinical role or what professional role you play at your local MTF and your answer response will help us understand that as you guys are responding I'm just covering a couple of the places you guys said you were from we have Hawaii represented. Something like 70 aware your ad. Thank you for jumping in early. And making the time. We have joint base San Antonio. We've got Walter Reed and Bethesda, Maryland represented. Dardia and I are co-located here at Fort Bragg. The free to tell us where you're from just to see what geographical regions are represented.

We are getting a lot of MD, DO, PA. We have several specialty service providers. PhD, chiropractors, social workers. And we have others and feel free to let us know what professional role you are bringing to the table. I know someone said NIH. Nice to have you here. Thank you for joining us. And we have at least one administrative individual. You guys are critically important helping us direct resources and services. All right. I think that gives us a good sense of who we are chatting with today. Thank you, Amy. If we could swap out the slide deck, we are ready to world.

We cover disclosures and we will get started with this and push through the slides. No conflict of interest here. Both of us have been doing and teaching these workups workshop to different audiences for a few years now. My biography. You can download that and look at that in detail after the presentation. Learning objectives. Be able to understand the operational environment every time you heard that term, operational environment, people here different aspects of that with an

operator in the operational environment or your somebody who was working with special operations and the first imperative is to understand your operational environment. Not just things you say out of context or to the wrong people at the wrong time but it's the actual environment you work in. Occupationally, deployment-related, and training and garrison. That environment is a continually changing environment and you have to be fully aware of that entire environment everywhere you go and in everything you do. And being able to understand the indicators. Indicators is a term we use in intelligence. I was a special forces intelligence sergeant and a weapons sergeant and operations sergeant. What you will see in this brief today. I am translating military processes and frameworks and principles into medicine. That way the people that are helping us with our medical problems can speak the same language and we can solve problems together by having a mutual understanding. And then the check engine lights is a term we will keep using. Those are the symptoms. The early signs of dysfunction and disease before they become catastrophic. We're going to deep dive into that right now if I can find my button over here. All right. Here's the agenda. We will go into a quick intro of the background and then we will go into self-identifying. This is something you hear in our inner circle where we are. We are community that does not self-identify. We do not ask for help so how do you get to a person that refuses to ask for help? And then we will show you what that looks like coming usually by the time someone does raise her hand to ask for help it's usually too late so we are trying to prevent that. And I understand the operational environment, you don't have to ask what's wrong. You pretty much know what's going on with a person when they spend that much time in the environment and getting to the end of the road. An operator syndrome. A term that's being thrown around a lot operator syndrome. The cluster of symptoms we see in this community and I will get into great detail on that and then Army medical timeline. I'm going to show how I took military intelligence framework developing timelines and significant activities and applied them to medicine and that's where functional medicine came in. And then how I applied these principles and frameworks to my own problems that. And then what I found when I used that and then applying what happened with me and my story. We are going to dig in.

Patient background. This is what the doctor sees. This person right here will show up in your office and what you see is you might know their MOS but you know a rank and a name and a unit they are located at. You don't know anything else about this person except they are special but they went through some training and they go down to the range and do some stuff. So, that's a pretty general idea of what this person is doing but it's not real specific and unique to them. And that operational environment we keep talking about, you're going to see exactly what it means.

Self-identifying. This is 2012. This was halfway through a career in special forces. Out of 19 years, this is the halfway mark. I'd been suffering for over five years all of the symptoms listed up here. We are talking irregular bowel functions, sexual dysfunction, short-term memory problems, fatigue, balance problems, vision issues, the whole gamut. Losing muscle mass. Sleeping and waking up feeling like you never slept an ounce. All of those things were there. I came in and I said, you know, I'm at the end of my rope. I need help. A couple of the things I was suffering through I did not tell anybody as far as how I was feeling psychologically because of losing security clearance or the fear of being ripped off the team and not being able to go downrange again. So, I did not want anything. I did not want a mentor. I did not want disability. All he wanted to do was get back to functioning at the level I'd been functioning before and the straw that broke the camel’s back for me personally was sexual function. Any special operator career there's two places where you want to function because the battlefield and the bedroom. And when you come home from the battlefield and can't function in the bedroom, a lot of people, they can't deal with that too well and the usually self-medicate and get themselves in a lot of trouble. We are going to talk about that. And medical provider, the one I saw was one of the best ones at the unit. A very open-minded person but at this time in 2012 there wasn't too much information about traumatic brain injury or toxic exposures or PTSD. These were all kind of new things that were developing halfway through the war. I was basically, no clear ideology to correlate all of these complaints. I was basically saying, we have no

idea what causes this but he said you would be willing to look and write your referrals to where I needed to go so that was a start. But basically, it was written off as fatigue. I wasn't missing a limb. I did not have any holes in me. No puncturing wounds from gunshots or anything. I got shot and the helmet my first combat rotation and I had a hand grenade grow up blowup IP for me but only body parts were intact and I had no visible scars. It was basically all in your head. That's what it was written off to.

Signs and symptoms in 2012. This is what we see with operator syndrome. Lethargy and anxiety and depression, self-doubt, loss of confidence, short-term memory problems, difficulty learning new information. Sexual dysfunction. Weight gain. Light sensitivity. Ringing in the ears pick migraine headaches. Balance issues. Hair loss, turning gray. Uncontrollable rashes in the lower extremities. Aches and pains like cow -like symptoms. Calcium deposits in my jaw and my skull and my legs. And actually, lipomas as well. Short fuse and intolerance to stress. Basically, your BS meter was completely pegged and you're like a dying dog in the corner. You don't want anyone to go near you and mess with you. All you want to do is your job and that's it and then G.I. issues. Bloating, constipation, diarrhea, mucus. All those things were present. I did not care about any single one of those things except what was affecting my family life and my personal life in the bedroom so that was the straw that broke the camel's back.

So. After suffering for five years my only regret was not getting help earlier. That was my ego and that was me not wanting to self-identify because as soon as you show a sign of weakness you are done in this community so keep it to yourself. Suffer in silence. Overthrew Pickett through the job and then focus on work and everything else is just ancillary at that point. I functioned perfectly well downrange and in combat. Combat operations, where felt like I was at home. But when I came home I couldn't function in a garrison environment juggling a divorce, juggling with joint custody, juggling being an instructor, juggling between my team time and my family, and all my individual education that my team collected training. That was a massive amount of things that finally, my bucket was overflowing. Being in combat was like a vacation for me and just keep me there and it would've been fine, but I knew that wasn't right. Those alarm bells were going off in my head. How do I fix this because that's not who I was. After going to the doctor a few times and running some labs and sing there's nothing really big here, don't worry about it. Just suck it up and drive on, had to take the initiative to figure out what the problem was so that's what I did. I took these principles and processes, being a Special Forces operator, and applied them to my environment and my problem set. And what we have is intelligence preparation and the benefit requirements. A four-step process. A continual process of assessment and that is defining the battlefield or operational environment and describing the FX. Just change that from battlefield effect to health affect evaluate the threat. What are those threats and how much of an impact it can have on me? And my force? And determine a course of action or implementation that you can do to mitigate that risk or threat. Pretty simple four step process used in every part of mission analysis and mission planning in the military and apply it to medicine. And the operations process. Understand, visualize, describe and threat and then lead and assess continuing. Understand the problem with visualizing the problem. Describing it to a medical provider and then directing resources based on that visualization and understanding of the problems to get me the help that I needed so I figured if I could convey these processes and principles to a medical care team, maybe they would understand my problem and help me solve and get to the root of it.

Operational environment. It's a composite of conditions, circumstances and influences that affect the employment or readiness of military forces. So, around all those boxes are pictures of me and my operational environment or where I was and what I was doing a very unique environment. Dive operations, freefall operations, heavy weapons. Explosives. Air pollution. Burn pits. That was my life and still is. And that's something I lived in every day besides being home. But when I walked into a Dr.'s office they don't see that. The give a person in uniform that has a problem and what

they want to do is focus on the problem and not look at that operational environment and how it affected me.

And that's obviously garrison. I will -- and spinning. Those conditions, circumstances and influences. What I did is I listed all the things that I was exposed to and my operational environment. Both the garrison and in training. And what I did is from that list I prioritized them. Which ones were the biggest threats and which ones were having the most impact on myself so they were there sleep deprivation and disorders, chronic stress, unmanageable stress, talking about OPT MPO, heavy metals and conditions? Air pollution, burn pits, food and water. We ate off the local economy. We ate local food. We lived in the middle of nowhere. We were not at big basis of everything we got we got locally. And looking at heavy air pollution. I don't know if anyone here has been to Bob from our Kandahar or Kabul? They know some of the worst air pollution in the world in Africa and Asia. Southwest Asia. In the den exhaust fumes and working around vehicles and aircraft all the time. Anyone who has been an aircrew member or pilot or someone who flies in and out of country all the time, it's a constant JPA cocktail. You're constantly breathing in the extreme heat. All day long, all night long working around this equipment and generators diesel generators on the basis that power everything. A constant influx of fumes and radiation. We look at radio frequencies, radios. Jammers. Munitions we had to handle. Toxic waste dumps. A lot of people may be familiar with K 2 and Curtis Stan. Superfund sites. Toxic waste sites. The Russians contaminated and then we used that for a base during the invasion into Afghanistan. All these things in the environment are there all the time but we never really hear about them being a threat to waiting IED's and bullets and bombs and ambushes and attacks but we are not thinking of the occupational deployment exposures. And looking at medications where we are forced to take antimalarials for 6-9 months at a time. Some guys over 14-18 deployments. And then lifestyle choices. Full throttle, right? And our community it's red bull, whiskey and beef jerky and not the healthiest stuff. We don't walk into a commissary PX and look on the shelves and is just junk food everywhere and self-medicating. ATM. Alcohol, tobacco and medications. People putting stuff in their body they shouldn't be in lifestyle and diet and nutrition. Divorce. Over 90% divorce rate in our community. Used to be a prerequisite. You cannot be SF without one divorce and no fail schools. No fail schools. River developing schools that if you feel you are done. Basically, unmanageable and uncontrollable stress. That was me at that time. And I will visualize and show you that.

I will talk about dealing with stress. Doing interior breaches in confined spaces and a marksmanship instructor for two years. Talking about the munitions and explosives I was being exposed to, and the medication. Those were my big four, as far as what was affecting my health, so that is what I want to deep dive and focus on. Then, special forces advanced reconnaissance target exploitation. That school is an MOS development school for a specialty, for a special mission unit within special operations. So, a very unique school and skill set that is not available to everybody. A nine-week school that put you into a new category or a soldier, within special forces.

I just want to contribute one comment real quick. Some of you may start to think, well, what does this special forces operator, with such unique burden, how does that translate to the average Joe that you may see on a regular basis? There is a term I want to introduce here, the importance of understanding extrema files. Those with uniquely high burden and exposure. We turn to learn lessons of practice, by understanding the information that Geoff painted the picture for these operational exposures, you will learn a lot from him. You will understand more about how those exposures lead to dysfunction from this community. They are unique canaries in the coal mine amongst canaries in the coal mine.

And we will talk about operation tempo, too, so you understand. The special operations community is very unique. The fact that you are constantly developing, and you are never settling. So, when you're home, you're not home. You are constantly doing professional development. You're doing

individual training, for unique skill sets. Or you are doing collective training as a team, getting ready for combat. We spend over 70% of our time at home TDY or at schools. The other 30% on administrative tasks. Just because you see a person, they look at the deployments only, not the environment. You can see this is my timeline from 2005 to 2018. Between every one of those schools in those blocks where you see a gap, those are deployments. The only time I wasn't in school is when I was deployed. So, seven deployments between those things and then being an instructor for 2 1/2 years and an advocate for care coalition for 11 months, as well. So, there is no white space in my career. All of it was full. Talking about the load, my major stress burden -- being task saturated. I started in 2003, when I enlisted in the Army, active-duty, and I went all the way to 2012. Some of my timeline is missing on here, but what you have is those things highlighted in red, that is where my health changed significantly and changed my daily living quality. All of this felt like hitting a wall. A triggering event. Your ATMs. Your triggers. When I hit that it was like all of a sudden I felt like I was dragging a dead body. I wasn't living anymore, I was existing. I could still function, doing my job, but my personal life was destroyed. I knew those were significant items on my timeline that needed to be addressed. You can see all these things after happening over time, you can visualize the end of the rope event in 2012. I had an aneurysm. Divorce. I had three deployments. Three kinetic deployments, back to back to back. My daughter was born. I went through SFARTAETC, which is a nine-week school and then I did two six-week assaulting schools, back to back. Then became an instructor for 2 1/2 years. All of that was nonstop, so I never had a break between any of it. Just when you think you can overcome one thing, three more things came on top and you never said no when this is your career. You continually take any school and opportunity you can get, so talk about doing 100 miles per hour in 100 different directions.

So, you have the timeline. This is the situation report. For each one of those events on the timeline, you just do a quick who, what, when, where, why, and how? What you are doing, what you noticed, how it happened, where you were? All those things. Times, duration. All those things can paint a clear picture in the intelligence environment. In medical it is the same thing. Your starting to build this picture of where this person was in time and space and what was happening to them and what they were putting in their body and being exposed to. You start to unravel and dissect all these problems. You know, we talked about air pollution. Pressure. Medications being used. Stress. All those things. They are right here. And they are very clearly articulated over what was going on. Then like I said, getting to the end of the rope, that is where we will work up to right now. That end of the rope ended up getting me to the National Intrepid Center of Excellence, right after it opened. Okay, you scored for your medical retirement. No, I am deploying in four months. There like what are you talking about? My goal here was to keep going. So it was kind of a new concept. I reiterate every time that I didn't want to end my career. I was trying to pace myself. So being proactive, I wasn't using the medical system to get out of anything, I was using it to get into more. That is what I was trying to do. Think back on everything we covered with an ideology that correlates to complaints.

I didn't even deep dive into each of these yet, just give a broad overview of what they were in my environment, but knowing what you know now, reread this encounter and think with this information that I know now, what I have told the service member, you know, it is probably stress or fatigue or all in your head or drive on, not a big deal. Knowing the environment where I was working, I had a pituitary tumor at the time. I just remembered that. Knowing the environment I was working in, you wouldn't ask somebody if they are okay or if you are broken or if you are damaged. You think of being thrown into a fire. You are going to fall into a fire and say I'm fine, I didn't get burned. If you get burned in the fire, you are going to get burned. How bad goes back to circumstances, conditions, and factors, right? How long you were in the fire, what you are wearing, what types of PPE, how powerful was the fire? You get the idea, but you are going to get burned in this environment. 10 years in the special operations environment, that is pretty significant. And I am at the 20-year mark now, 19 1/2. To think someone can work in this environment and not have a brain injury or some kind of dysfunction from toxic exposures or stress disorders, you would be like wow,

you can't do this job and walk out every day. So, having that clear picture of the operational environment is not, hey, are you messed up? It is let's check and see how bad it is.

And then what did my doctors think? I briefly touched on this. These were all real quotes that I was told. They are the best, acute medical doctors we have out there, but their job in scope is not health and wellness and that is what I was having an issue with. It wasn't that I had a hole in my leg and was bleeding where I got blown up and had third degree burns, it was that I wasn't functioning optimally and felt like I was dragging a dead body. Since I didn't have physical injuries, it was all in your head. But you know, I got asked, are you the doctor? Do you want to do my job? It's all in your head. You must be exaggerating. It can't be that bad. You look fine. You look good. One problem at a time. I can't do all of these things. If we keep looking, we will find more things that are wrong. Something someone actually said. We are chasing rabbits, looking at labs. I should on the weekends, and I don't have issues with lead. Obviously didn't know how much we shot. I will get into that after. I took those medications, and I didn't have any issues. And you should consider a MEDBOARD. I will get into why that is not an option. But these were all real things. My biggest difficulty wasn't medical conditions, it was dealing with the broken, distorted medical system and going to 13 different referrals and starting over from scratch every time I got a new provider. That was my most difficult part of my pathway.

So, applying the functional medicine operating system. This is literally like the military framework I just showed you. This is the timeline. Mind, body, spirit. Then you have lifestyle. Implementations and control measures. Just like in positive risk management. Applying military principles to frameworks and processes to medicine. This is literally what functional medicine is. Call it what you want, but this is literally medical systems -- military systems applied to medicine.

All right, now we get the full picture. The baseball card. The first picture I showed you was just the operator guy. It comes up, everything's okay. How are you, I'm fine. That is what everyone who works in this position will tell you. They won't tell you anything is wrong. Everything is fine. What is your pain scale? Two. So, they are not going to tell you how they feel. But based on, you know, the things in the end operational environment and what was discussed, you know that was not true. But looking at this, all the schools, all these qualifications, all these deployments tell a story. More than just a badge. More than just a metal or more than just a kit you are wearing. It shows you that environment that person went in, to what extent and how much they did. Each one of those schools, deployments and qualifications is unmanageable, uncontrollable stress. That is the allostatic load. The garrison environment and combat environment, building that timeline. So, it is not just the rank and the name and the branch. So, you've got to know where these people were. Diving operations. Freefall operations. Explosive breaching. MOS specific. A medical provider like a special forces medic is not going to have the same type of blast overpressure and exposure to munitions as a special forces weapons sergeant or a preacher and soldier. The same thing with an 18E. He has a radio one inch from his school. Why are we getting tumors on these guys and cancer? The MOS correlates to the environment and is not one-size-fits-all. We have to understand all those things and what they do to get a clear context.

Now I am going to talk about antecedents. In 2012, I went to a medical provider and told him I was having these issues. It can't be that bad, no big deal. Why is this affecting you that much, right? Well, I was medically discharged from the Navy three weeks before becoming a Navy seal. I had an adverse reaction in phase two, midway through my training. I powered through it and kept getting doped with more antibiotics through training, so everything started snapping and popping. I didn't know at that time that actually had that deficiency. So, you know, fast forward when I got genetic tested at the Cleveland clinic, we know why that happened back then. Because I am a slow metabolized with those medications in the build up to toxic thresholds. Having all that, I didn't want to be a disabled veteran yet. I had 80% disability. I was in rehab, going to college. I do pale that

back to come back to the military. I'll save that discussion for another day, but I wasn't trying to get anything from the medical provider. I was just trying to get back to baseline where I was.

So those are my antecedents, the big picture understanding the patient. We defined the operational environment. Now we will go into more detail about some of those things, so when you hear the terms bridging or overpressure or heavy metals or munitions, all those things will start to make a lot more sense. So, looking at principles again, just to hammer those home. Think about those. This is something you have to do in the military environment to plan and conduct operations. Again, apply these principles to medicine. Anyone and any policy, you know, policy decision-makers out there that see this term functional medicine and out of the ordinary, just know this is exactly what we do, and we are planning on conducting operations and doing intelligence work.

So, TBI. We will go into the stressors and traumas. Traumatic brain injury. We're talking a huge population in the military. Now it is close to 440,000 people diagnosed with mild traumatic brain injury. Some people we think aren't even diagnosed yet, because they didn't think that overpressure would cause TBI and they never got evaluated. The majority of these injuries are guys within the community that don't self-identify. They finally get looked at and find out they had TBI, but they were probably suffering through it for 10 or 15 years before.

So, blast overpressure. We are talking rapid pressurization and equalization. Imagine dropping a Pepsi on the floor, going to open it, that rapid pressure and equalization. So, like that picture you see up there, that is myself shooting that. Over five psi, depending on the confined space. What that is one time in that event, imagine doing that 12 or 15 times that day and all the other weapon systems you're shooting. Mortars, 16mm mortars, 80-millimeter mortars. Grenades, machine guns, many guns. All of those things are going off. Imagine a 12-hour firefight, now times nine months or six months and some guys, 14 deployments. That is just combat, not training where you do twice as much. So, a clear picture of these things, what is happening when someone says I was exposed to thousands of blasts. What that means, that is just one night there. You can visualize in the picture, the pressure wave hitting me in the head. You can see the pressure pushing everything away. Uniforms are slapped against the body. Everyone is holding their ears and trying to turn away from the blast, because it is painful, and you do that over and over again. So, just some context on that. Clear visualization to get the point across.

All the research coming out now is saying hey, organic weapon systems are causing traumatic brain injuries. We just are recent events in Iraq, where ICBMs were fired at a base. Everyone there got a Purple Heart, all diagnosed with traumatic brain injury. So, imagine all the other guys doing this for years and years. Thousands of those things going off all the time and never getting looked at. No purple hearts. Nothing in the medical record. Just part of the normal day. Like I said, we don't self-identify. We are going to keep doing that job, no matter what, until we become catastrophic. So why is this important? Because traumatic brain injury, especially undiagnosed, is the number one cause of death or suicide associated with traumatic brain injury. It is significant. Studies have shown, I linked them in here, the people with brain injury are nine times more likely to kill themselves. That is significant. If you told me six years ago that you got TBI and you are probably going to kill yourself, I wouldn't believe it. But in the last couple years, suicide has tripled in our community and these are people who normally wouldn't kill themselves, but I can tell you what, they do have TBI, sleep disorders, and a ton of stress. Connecting these things together, part of that operational environment. Looking at TBI symptoms. Toxic exposures. All these systems are overlapping.

Fatigue, poor memory, anxiety, depression, weight gain, weight loss, emotional, lack of concentration, attention difficulties. We will keep seeing the same things over and over again because the mechanism for these injuries and exposures affect the nervous system in the brain and the entire body. They are neurotoxic injuries, so you will have neurological effects. Looking at

the brain when I had MRIs, they found white matter. Pituitary lesion. Not a big deal. They told me at the time that the lesion is congenital. I kind of had it since there was a kid without knowing it. All I can tell you is my testosterone levels were in the 200s when I was a kid and I was functioning optimally, playing sports and doing everything in the bedroom perfectly fine, until a certain point when it all stopped. That is when I asked to get checked out and found the lesion. Pretty much a mild traumatic brain injury, not a big deal. You can't be functioning at this level if it is moderate or severe. Fair enough, I'm still doing this job, so it can't be that bad. I felt fine. I knew something was wrong with migraine headaches, vision problems. All those things are happening, and I knew it wasn't all in my head or just stress related. So, in 2015, I paid out-of-pocket to get some advanced functional brain imaging done to check for lesions and blood flow to the brain. The bottom of the scale is the dark blue. The top, very the top, hypoperfusion. Very bottom. You can see my brain and you can see every area of dysfunction. Dark green, you see the toxic encephalopathy. You can see clear as they were parts of the brain were injured and it was correlating to the cognitive effects that I was having. Seen on the EEG and also neurologic testing.

So, three different means of testing should pretty much the same pattern of dysfunction and the things I was self-describing, they found them all in testing. So, another connection, we talked about the G.I. and got issues. Besides things put in your body with medications and the poor lifestyle. You have brain inflammation and vice versa. The brain and got are connected. So, looking at that, the environment I was working was full of toxins, not eating well. Super stressed out, not sleeping and getting my head blown up every day. My head and my gut were both blowing up. No pun intended on that one.

Looking at it, we will go more context of when a guy walks into your room and says I was a breaching instructor. You're like I don't know what that means. What did you eat, why did you put those in your mouth? I want you to understand that when they say eating the charge or being exposed to these, what it means. An explosive charge put on a doorway or a wall to blow it up to gain entry, it is usually a quarter pound of C4 explosives. Imagine being in a confined room and someone throws a hand grenade in there with you while you're standing there. That last overpressure affect that you feel on your body. Every time one of those goes off, that's what you feel. On certain days as an instructor, we would have 40 of those charges per day going off. Students would be exposed to that much, because they come and go in groups. But there has to be a student to instructor ratio. Students got exposed minimally, we got exposed every day and every class throughout the year. So, in two years, over 2400 high explosive charges for me in that environment. That didn't include any other type of training or school or combat deployment, that was only as an instructor. So, I created memos for all the people who worked at the range with me to get something in their medical records, to show what they were exposed to, how much, and for what type of duration. The time frame they are there. So later, down the road, when all this information came out, they would be able to get the proper care and not be written off as hey, it is all in your head.

Looking at neurological effects. Once I figured out what this environment did to me, I know where it affected the body, so I asked to get these things tested. Imagine going to a doctor and saying I think I have binocular vision disorder, because I can't focus on my pistol. I have double vision and then telling them I have balance problems. Because when I get in high areas, standing on a wall, I start swaying. Or I get in an elevator and get out, I feel like I am still moving. Or if I am sitting in a parked car and another car moves, I slam on the brakes, thinking I am moving. All those things are happening. I wrote it off, as that was weird. But they were there and when they did the testing, severe binocular vision disorder. All those things are there.

White matter lesions in the brain. Pituitary lesions. Low testosterone, low cortisol and secondary hypothyroid. All those things were there. That is where if we keep looking, we will find things that are wrong came from. It came from there is nothing wrong with you, to all of a sudden, if we keep

looking -- I was in such a weird position. I was like look I just want to know how to fix this. I don't care that I have it, but
what can I do to make it better? That is what I focused on how can I improve it? I don't want to be a victim. I just want to do my job. Then neurocognitive testing, although learning disabilities. Short-term memory problems, concentration, all those things are there, crystal clear. They repeated the test so many times and they were so consistent, they wanted to make sure I wasn't gaming the test. Being able to function at a certain level, they don't know where you were before. So, when you come down 30% and are still optimal, you're functioning in the normal range for the average person. For me, in my context, I was far from normal operating at the level that I was. No one knew what I was before, they just do what they saw in the office. Go ahead.

Amy, can we do a quick check? Are we good on audio? I want to make sure you can hear us well, coming in clear. Testing, testing, one, two, three.

We are good.

Okay. We will talk about heavy metals munitions. Everyone is pretty familiar with lead toxicity at this point. We had Flint, Michigan. Everyone hears about that, the amount of lead in the water there. In the military, you hear about it and you think bullets. Everyone gets fit target fixated, pun intended on this one. Okay, lead. We will just test for lead. Well, lead is one of over 14 toxic metals. It is encapsulated in a copper jacket and when it is fired out of a rifle, it leaves in one piece and vaporizes it as it goes down the barrel. But when it is pushing it down the barrel, you get the most exposure from the primers and propellants. So, the lead dioxide primer gets that going, blows up and then ignites the other powders that are in there. The grains. Then that goes into a big cloud and comes in your face, to the charging handle, out the end of the barrel in a big cloud. Look at the metals on here and ask yourself if lead is the only problem, right? You have mercury, cadmium, copper, barium, bismuth, brass, hydrogen cyanide is in there. Tungsten, 10. We have all these things. This is just the brass munitions, not explosives or anything else. These are from munitions, small arms and machine guns. So, all of these things are in this environment. I will show you a picture of what it looks like, so you can see. This is just walking into a shoe house. So, you explosively breached. The explosive dropped chemicals into the environment, then you go into start shooting. You can see the cloud coming from the weapon is these people were shooting and guess what, there is 20 years' worth of that material in those chute houses. There is no abatement done. Depending on how old, there is no ventilation, so all that accumulates on the ground, the walls, the furniture, and every time you explosively breached going in there, you knock up 15 years of heavy metal and carcinogens into the atmosphere. You breathe it in, goes in your skin, in her mouth, in your lungs. In your body. It gets on your uniforms, your equipment, your weapons, then you leave that shoot house and take all that stuff home with you. You take it back to your team room. You put it in your vehicle, you put it in your laundry, you contaminate every other environment you go into after leaving this one. And a lot of people wash them at homes. Trace amounts of that stuff. Well established in scientific literature, not a theory. We know this.

If you look, there are schools and cross bones everywhere, because of it. In the early part of my career, this was not available. People used to laugh, don't eat the bullets and don't eat paint chips, but we didn't know the effect this was having overtime. Leave the range and will be okay. They didn't tell us that it is stored in our tissues and bones. So that was a huge deal learning that. On the left-hand side you can see that was actually a study from the range I was working at. That was the range I had been an instructor at for 2 1/2 years and also been a student at, two times the year prior, as well. So, I basically lived in that environment continuously for 2 1/2 years, three years. The lead levels weren't supposed to be over 200 picograms per square foot, but they were over 13,000 and 17,000 and some of those areas of the shoot houses. If you look where it says soil samples, some of those had dirt floors. They weren't cemented. So, imagine having a dirt floor with 20 years of accumulating heavy metals and you are walking around, kicking this stuff up. How much you are

being exposed to, right. So, a clear picture on the heavy metals. I don't have to beat a dead horse on that one anymore.

I will show you what it looks like on labs. Four weeks into my school they were doing a lead study in 2007. I was able to go back and pull up mine. I didn't even know at the time what it was. I didn't find out until six years later that this was available. Look, I was at 32 micrograms per deciliter. By today's standards, that is three times over threshold levels, right? We used to be told 40 and below you are fine, but we know that is not true now. There is no safe amount of any of these metals in your body. It is what is tolerated that is the threshold. So that was the only one we looked at. I'll talk about mercury and other things after.

Geoff, I will just move this. Amy, can you confirm you're getting good audio? Everybody else says we are good. Is there any skipping of audio from the audience? Can you mention, are you hearing fluid conversation or is there any skipping? Thank you guys. Awesome, we will continue.

So, I was told over and over again, I don't have problems. Or when you leave the range will be fine, it will take a couple of days. I learned that wasn't true. Once I figured out about the heavy metals in my environment, again, all the things I did as a Green Beret. Figuring out what type of effects these had. What threats they were. What I learned was there is no safe amount. These things do permanent damage. The damage DNA, that is why they are labeled carcinogens and a lot of them storing your body over time, especially lead. Your bodies' ability to store it is calcium in your bones and your teeth. So, I kept asking, what was the smoking gun? That was no pun intended on their part. It literally was a smoking gun, but what is causing all these things, all these problems with you? I listed them out, but I focused on the one thing to the most about. That was lead and testosterone at the time. I said I think I've got all this stuff in me, can we run some labs and look at them? They went back and said yeah, you did have a lead lab that was 32, seven years ago. Yeah, that is pretty significant. They are like you are fine now, you only have five or six. That only shows the last 30 days of exposure. It doesn't show chronic or cumulative overtime. I said I think I have a technique I can use to look for this. I contacted Mount Sinai Research Hospital and Kevin Doran, the Chief of Internal Medicine at Walter Reed, got me an appointment and did an assessment on me. Figured out I was full of lead. My bones were tapped. At that point I was halfway through my career and over twice the expected level. They usually see a five microgram bone level in someone my age in that occupation. I was at 11 micrograms. That is pretty significant, right? So, had I connected continued on the same path, imagine being twice over the halfway mark, where I would've been in 20 years, had I not had corrective action.

So that was a huge eye-opener for us in the community, as well. So, going back to the effects, cause and effect, if I knew that stuff was neurotoxic, caused neurological damage and also fertility issues, let's look at the fertility and see how I was. We did fertility testing, a year after coming out of the range. You can see motility was shot. Count was still there, but motility was damaged. Now I am sterile. I can't have kids anymore. But that was after a year of being in that environment that I was having those effects. If you look, you will find it. If you know what is in the environment and no, the health effect of that, you can look and see the dysfunction. That is just basic stuff. No fancy tests, besides the cancer.

The blood testing and testing, all these labs are military labs. You can see my arsenic and military levels are three times over. You can see my blood level was A4, but if you're only shooting for three or four days, you don't expect to see a level 20 or 30 micrograms. But we are constantly carrying that lead level between 2 to 10 micrograms constantly. That builds up in your body. Then looking at arsenic, lead, and mercury, they are all there. Imagine all those other metals that were being tested. That goes to third-party testing, you know, looking outside what the military offers, a full toxicology panel or something that looks an environmental and occupational exposures. You can see proximal exposures, my arsenic level, three times over the reference range. This is overtime,

different periods of time throughout my career. But you can see, just looking at it. Third-party testing, they wanted to make sure I wasn't eating thermometers or eating tons of tuna fish. All of these other metals that are in you, if you are saying that these things aren't an issue. If it is just the munitions, then all those things for munitions should be in you if what you're telling us is correct. They did third-party testing and literally everything is on that slide showing what is in munitions is literally what was elevated. In Tammany, arsenic, lead, and a little bit of uranium from stuff blowing up downrange, but they were all there. Third-party, military lab testing. Cleveland Clinic tested then in private testing also the same picture. Again, looking at Mercury. Pre-deployment. I was at the acute toxic threshold for Mercury, lurking in my blood. This stuff is in the environment and it is known.

I actually briefed the Senate Armed Services community about heavy metals.
We already looked at this, this is not a big deal. The levels went to high levels in our guys. I said did you look at special operations and they were like, no. I said you understand that a special operations soldiers shoots more in one day than a conventional soldier shoots in an entire year. At deployments on top of that in there like, we didn't consider that at all. I was saying literally, as an instructor, we are around over 180,000 rounds every six weeks and in two years that is over 3 million rounds of munitions. They couldn't fathom it. Like we need to go back to the drawing board on that. But they didn't have context for that or what it meant and why they see this operator syndrome and people. They thought it was a big mystery of why this was happening to us at the time. Couldn't figure it out. But crystal-clear ideology. You know that Stephanie environment has an effect in overtime, my body started reacting to that adversely. When I was shooting, I started wheezing and coughing and then developing chronic bronchitis and pneumonia and reactive airway dysfunction. This was prior to going into pre-mission training. Shooting indoors, confined spaces, for a week. I told the doctor I think I have pneumonia. My lungs are swollen, I'm coughing up blood. I got a chest x-ray done and it was confirmed as pneumonia.

It wasn't flu season, it was what I was breathing in my environment, damaging my lungs. Inhalation of highly toxic fumes. I just talked about training right now and I didn't talk about the air pollution and particulate matter. Controlled environment training, before adding all the other fumes and exhaust on top of it. You can see my labs again on the left. Cleveland Clinic, doing testing again. I came out with unprovoked labs, being at an acute toxic threshold for Mercury and near it with lead. It was 30 times over the reference range for Mercury in 20 times over for lead. So, it was there. It was in me. They wanted to see how bad it was to determine if I needed -- or not.

Two weeks after coming back from Africa, you can see that the lead and arsenic and mercury are still elevated in May, two weeks after returning back from a highly polluted country. And my kidneys being damaged. Twice over the reference range. Urinating with big bubbles. Dark, stinky urine. My girlfriend said that I smelled like a dumpster, sweating, for months after getting back. I was overloaded and my kidneys were showing dysfunction and damage.

And looking at it, we talked about air pollution and burn pits. Look at air pollution deaths worldwide. Looking at Afghanistan, number one. So, for deployments to Afghanistan. Living in that environment, working there. Then we of Pakistan, India, China. Africa is not listed there, but Africa has some of the worst air pollution in the world. Yeah, I will show them that. So, everyone knows that has been to Africa or some parts of the world, they don't have waste management. They don't have a garbage service that picks up barrels and recycles. They literally dump all their trash in giant piles on the street and burn it, every day and every night. So those countries are giant burn pits. They burned tires in the winter, to stay warm.

All the waste from the town. Plastic bottles. That's how they keep warm and keep their stoves going. That burning waste is what we breath, 24/7, when deployed nine months out of the year. You can see when I came back, my 02 stat was dropping down. 92 and a heart rate of 47. All over

the map. Not being able to breathe, wheezing on X sales, losing two minutes off my runtime. Passing a pulmonary function test. Obviously, a visible wheeze, but low 02 stat and being told nothing was wrong. That is exactly what I was told, nothing is wrong. After being checked out, I got scoped. I had swelling in the airway and swelling in my lungs, the reactive airway. I addressed those and they had sleep apnea as well, because of that hypoxia. After going down, all those things started to resolve on their own. I started to build a run again, exercise, and my heart rate started going back to normal.

Talking about air pollution, the shooting and blowing things up. Just looking at air pollution now and the health effects. We are talking cancer, heart disease, stroke, COPD. Metabolic dysfunction. Diabetes. Type two diabetes. In some cases, causing autoimmune problems. Myocardial infractions. Degenerative diseases. All those things just from air pollution. We didn't have TBI, we didn't have heavy metals, we didn't have chronic stress and sleep deprivation. We're talking allostatic load. You're starting to see all those things dumping in the bucket and how they affect you.

So back to the timeline, looking at it again, now you know what these events are. Where they were, Africa, Afghanistan. You are thinking all those things I was doing. Now you are like okay, this is clear ideology. I can see how this is affecting this person. Allostatic load being hammered on. That is all the antecedents, triggers, and mediators.

Get that now, so when patients walk into your office were like okay, I have an idea of where you have been. Not a mystery at this point. So, we are going to go into stress and chronic stress and acute stress.

Bryan, can I ask you to share a brief story on the list of toxins, where that came from and just the story around that one.

So, Bryan wanted to ask about the exposures with the propellants and primers. I came from the counterterrorism organization in Virginia. A friend designed to that. He developed and implemented all of the weapons and munitions for the Department of Defense and agencies under it. While he was testing and developing all these things, he got heavy metal toxicity, the same way I did. Mercury, lead, and arsenic. All the same metals. He was having some pretty adverse health effects and it affected him psychologically pretty bad, too. Pretty much made it his life mission to address this issue and come up with better ways to do things in the military to protect servicemembers and develop safer munitions and weapons systems that didn't divert all the gases in your face and developments we could use for training. Filtration masks that you clip on your helmet, like the Norwegians use, to prevent that toxic inhalation. The Norwegians call it gas fever. We presented it to them, and they couldn't believe our practices and procedures, what we were doing in the United States. They literally said if they did as much shooting without any screening, that they would be shut down in the country for being inhumane. They literally said that, that we would be shut down from doing operations if we did this with our people. It was comical for us, because we showed them the round counts we do every year. Look, we do the best we can with the stuff, but we will do better. So, Jim, out of frustration with that, took his own life. To basically draw awareness to the problem and what was happening. So, we continue to educate on his behalf and try to take better care of our servicemembers when we do that.

So, I will be going to chronic stress now, we've got that up. So, chronic stress. We will talk about chronic stress versus acute stress. I won't go into much acute stress. Acute stress being healthy stress. It builds resiliency, makes you stronger. More resilient your environment. You recover from it, not really a big deal. The chronic stress over time causes breakdown, wear and tear. That is the allostatic load. How safe is it? How do you adapt your environment and then when you bust over that allostatic load, were bucket overflows and you start degrading and getting into disrepair and

dysfunction? So, for us, sympathetic, fight or flight. We don't flight where we come from. So, we are constantly going into fight and we are never doing the repair side, which is the brake pedal. Rest, digest. What we do is over activate the sympathetic for so long that we don't come back to baseline. We stress inoculate to prepare for combat, but we never D stress inoculate to get out of combat and transition to a civilian or instructor, garrison environment, right? So, we have the hypervigilant mindset where you have to go 110 miles per hour to feel normal. But when you come out of that, you feel horrible and need to get back to it to feel normal.

What does that do overtime? We're talking heart disease. G.I. issues, IBS, Crohn's disease. Insulin resistance, type two diabetes. Anxiety, depression. All those things that we see is the leading cause of stress in the United States. Stress and environment related. And we talk about sexual dysfunction. Usually in my community it is the only thing people care about. The sexual dysfunction part. I don't care about that other stuff, but why am I having problems in the bedroom? I like to tell them, look. If you operate completely fine in a controlled environment with your computer, your deployment partner, then you go home and try to interact with another human and things aren't working properly, it is probably because you are hypervigilant. A threat your environment. You're constantly assessing that environment and can't shut down. You can get the parasympathetic and sympathetic symphony, the balance you need, to be in that state of pleasure or intimacy to work properly. After you stress inoculate, going through school, combat environment, whatever it is, that put you above baseline, you're not going to function properly after that. Especially if you don't understand the physiological and psychological changes that happened. It will make it worse. Everyone here is performance anxiety. That is exactly what it is. You are hypervigilant because of what you are conditioned for and it is preventing you from performing in that aspect. That is a good icebreaker I use with my community. The straw that broke the camel’s back. That is a good one.

So, what it looks like. We talked about overreacting stress. Beating the dead dog. You overreact and then you don't come down to baseline, you stay above. And then the diminished tone, you overreact, shoot you down and you don't come back to baseline with parasympathetic. You want deep sleeping. No anabolic. I won't say none but diminished anabolic recovery. Mental alertness. You are wired for war and you can't get back down to normal. Most people after this change, they don't realize it happened, so they don't remember what normal felt like. If someone asks you if you're stressed, no, it is the least stress I've been in, but your nervous system is still like you're jumping out of an airplane. Hypervigilant, super tuned to your environment and you can't calm down.

We believe that one now, but over time, what it does to your immune system. Inflammation. Weakened immune response and fire start earning. We talk about the force field we built. I talked about the Death Star analogy. This super weapon with a force field around that nothing can touch. After all the years, everyone keeps trying to get in and bring it down and do some distraction. All of a sudden, they get a crack in the shield is disabled and little things get in there and start burning those little fires. That is your blood pressure. Your inflammation. The migraine headaches. The little fires that start burning. All of a sudden, that one magic shot comes into the environment and that blows up. That is your cancer, your suicide. Those are catastrophic events. So that force field we need to build with our immune system, chronic stress put those cracks in there and all those triggers and mediators from the environment, they get in there and that is when the damage happens. That is hitting the wall. So very important that we address those things and give people tools so they can manage that stress and be super aware of that environment and how to control it.

Unmanageable stress we talked about. OPTEMPO, we talked about allostatic load. But unmanageable stress has worse effect than acute stress or, you know, getting into a firefighting coming out with a high five and going through a school and graduating, triumphantly. Building that resiliency and coming out a better person. When you get put into positions of helplessness and hopelessness and powerless to change and outcome in a situation, that affects the physiology a lot

different. When we think about that, we think about sexual trauma. Failing at school. Getting a DUI. Or a career ending event that you can't change it all. All of a sudden you are screwed. Being in a toxic environment with toxic leaders. You are the bottom of the totem pole and constantly getting crushed every day. Failed relationships. Divorces, financial struggles. All those things you can't manage can cause the stress level to be 100 times higher than your normal day-to-day stressors that affect you. So, we look in our SERE school that we go through, we looked at cortisol and testosterone levels. What they determined is that when you put someone in that situation, they saw the highest recorded levels of cortisol they have seen in humans. Castration levels of testosterone, within a couple of days of putting someone in this environment, where they have no power to control the outcome of their situation. This changed to them. In some cases, never coming back down to baseline. You have to be debriefed coming out of the schools, because of psychological trauma that can happen to people who aren't prepared or aren't as resilient as some. So, we're talking and environment, imagine that a controlled environment. Then go back to the garrison environment, talking about divorces, DUIs, failed relationships. Toxic work environments. This is constant throughout this entire career. So, everyone always asks me about suicide.

They say how come suicides are higher in noncombat people than they are in people flying into combat? Is it because when you are in combat, you have a clear mission purpose and focus? You know what you are up against in the most part, if you are in a job like I was. It was pretty clear-cut, where it was black and white. I didn't have all of those stressors in my environment. I could problem solve no problem and I had all those people to my left and right that I knew had my back at all times. When I came back to the garrison environment, I didn't feel that way. I felt more unsafe, more insecure, more stressed and powerless to change my situation. With home and work, juggling all those things. That stress wore me down and that is where we start to see all those things coming together. Injury, stress, toxins. All the things we talked about. Triggers and mediators. A clear picture of that. So, metabolics, what would start to happen. We look at these things, heart disease, hypertension, diabetes. Dementia, cancer. Liver damage, right?

Nonalcohol fatty liver disease. These things are from the environment. The disease fairy didn't come down and say all of a sudden you have a deficiency enough to fix this with a pill. This is dysfunction in the body, because of environmental and lifestyle factors. So, these are things we can control. If we know these things are happening, we can control them ourselves. Taking ownership of health in action. So, looking at the human costs. Heart disease, cancer, chronic lower respiratory disease. Stroke. Diabetes. Pneumonia. Lung and kidney problems. Go back to the operations environment where we just learned about all the toxins and heavy metals in stress and sleep deprivation and all these things. Start adding them up in that bucket and think about that allostatic load.

Then looking at it, obesity problems. Over 77% of the population is ineligible to join the military now because of health reasons or behavior health problems or lacking the intelligence to pass the basic standards to get in or having a criminal record. So, our recruiting tool is dwindling and getting worse every year. Again, there are lifestyle and environment factors that we can implement in the house, not even when you join the military. It starts at home. We need to be aware of that environment. The American lifestyle. The modern American diet. Looking at all these things we can control. Metabolic stress, metabolic dysfunction. Operator syndrome. This is me, 2014. The peak of my career, operating in Afghanistan. Phenomenal deployment. But all the things you see on the left are what I had. Low cortisol. Deficiencies. Low testosterone. Cognitive impairment. Narrow endocrine dysfunction. I had mercury poisoning. Lead poisoning. Thallium toxicity. Insulin resistance. The list goes on. Vitamin D deficiency in TBI. Here is a person considered, you have to be a performer to be where we are but dealing with all these health issues. And I wasn't on a single medication except testosterone at that time.

So, I had all these things, knew where they were coming from and is trying to manage them. Lifestyle and environmental factors and control measures. Had I not known what these things were, it would've been a never-ending battle that led to suicide. I can tell you that firsthand. But those things were in there. I looked perfectly normal and was functioning at what most people consider optimal in combat. All these things were present while I was doing all those things in combat. If you look you will find it. No surprise what we're seeing with suicides and cancers in our communities.

It goes back to the lifestyle environment. Do the legwork. Lifestyle, environment, and genetics. Look at those things in the environment and how they affect you.

Now we will talk about sleep disorders. 80% of servicemembers studied had some form of sleep disorder. 50% had sleep apnea. I never had sleep problems, as far as apnea problems, until 2018. I have a sleep study done in 2012. Unremarkable. Almost seven hours of sleep, halfway through my career. But after I came back out of Africa, I couldn't breathe anymore. Having that wheezing affect when I would lay on my back and breathe. All those things happening. I had untreated sleep apnea for a year and didn't know it. It was causing heart problems. All those things were happening. A sleep deficiency rating of 54%. What I want to harp on right here is the only thing I was told by the medical provider is that I had mild obstructive sleep apnea and to get a CPAP. That was it, the end of the story. Did not tell me I had a sleep disorder. Did not tell me that I had insomnia. That had obstructions and wasn't snoring, and it could be neurological.

You know, having PVCs and arrhythmias while I was sleeping. None of those things were discussed. It looked like I was trying to get 50% disability, get my CPAP and get sent on my way. So, there was no counseling like try to do these things, sleep hygiene. It was here is your CPAP. I wanted to harp on that, because there are way more sleep disorders than obstructive sleep apnea and their multiple forms. Central, mixed, and sleep apnea. That is what we need to focus on. Being more detailed with that.

Why is that important, because having untreated sleep apnea is like someone putting a gun to your head every night or drowning while you're trying to sleep. Getting hypoxic and your sympathetic nervous system going into overdrive, while you think you are dreaming. And that might have something to do with anxiety, fatigue, migraine headaches and all those things you're dealing with. It is basically another massive form of stress on top of your allostatic load. Your bucket getting super full and then all of a sudden putting a supercharger on there when you have sleep apnea that is not being treated. You can see in 2018, coming out of Africa, those were new things. I was having events, then going down with a heart rate in the 20s and 30s. Almost passing out while driving. It happened after going from standing and moving positions to seated positions. Orthostatic hypertension. Ended up being discussed diagnosed with that. I had acid reflux and my liver, lower back, and a blocked kidney coming out of Africa. And hypertension and migraine headaches. As soon as my kidneys got unblocked and got the sleep apnea fixed, the inflammation in the lungs resolved, all these things started lessening and getting back toward baseline.

So, I just want to talk about the importance of something. Geoff and I have the opportunity to hear from eight sleep apnea in TBI expert recently and she was emphasizing interesting data and increasing importance of the sleep apnea identification. So, the study in 2017 about sleep in the military said that 80% of active-duty individuals have some version of sleep disorder. Geoff highlighted about 50% have some version of sleep apnea. The majority being obstructive.

A majority of obstructive, however, there are a variety of types. The most severe version of sleep apnea that this expert told us she had ever seen was a 22-year-old, basically a guy in basic training. That fell out during a run and ended up having arrhythmia and brain injury. Didn't die, but had significant morbidity related to that event and the arrhythmias -- so extremely important to

identify it. Definitely want to evaluate with sleep studies. It is a huge checkbox we don't want to miss.

If I can harp on anything, sleep studies, if you have any kind of other injury, put a sleep study in there. Imagine someone putting a gun to your head and saying, give me all your money. That is what your nervous system is doing when you become hypoxic and your levels drop like that. Imagine basically drowning or getting robbed, what your brain is doing to try to keep you alive and alert, so you don't die. That is a pretty significant deal. Being able to articulate that to someone who has sleep apnea and why it is important to get it treated and not blow it up, that affects a lot of things, especially metabolic function, but also cancer and suicide, as well. So, people found to have sleep apnea are found to be twice as likely to kill themselves. If you look at this article that came out, you see that insomnia is up 650% since 2003. I will go one step further, that it is not just a military problem. It is also in the civilian population across the globe. Insomnia. Talking about being glued to phones, social media. Jobs, kids. Whatever it is, we are constantly glued to our electronics. Constantly engaging our mind and when we go to sleep after blaring blue light interfaces all day and right before bed, we are affecting sleep and circadian rhythms. Stress obviously goes into that and then we talk about adding brain injury or toxic exposure on top of that. Bottom line, 23 times the risk of heart attack. Three times the risk of stroke. Three times the risk for diabetes. So, sleep is very important on this one.

Then we talk about suicide. We know that having traumatic brain injury puts you at increased risk, up to nine times risk for killing yourself. Sleeping 2 1/2 times. If we know there are over 440,000 people diagnosed with mild traumatic brain injury at the DOD and we have 80% of servicemembers with sleep disorders, it is not a shock why people are killing themselves. In our community normally you would see rates like this. In 2018 it tripled. We were looking at the psychological factors not the physiological factors and paid the price. More people are switched on to looking at the physiological now. Remember everything in the operational environment. Looking at the mind and body, not just the mind.

We talked about over two times the risk of suicide with sleep disorders. So, neuroendocrine dysfunction. We won't go to in depth, but basically pituitary dysfunction. The cascading effect that happens from the top down through your nervous system. From the hypothalamus responding to your environment, signaling to the pituitary to create hormones to adapt to that environment. Hormones are messengers that tell her body how to interact with their environment continually, through negative feedback system. A continuous assessment of our environment. When you get damage or dysfunction in that feedback loop system, you are going to feel off. So, hormones being off can affect how your metabolism is working and also your behavior. And looking at that and discussing the term, neuroendocrine dysfunction, is specific to traumatic brain injury. So, I like to use the term endocrine dysfunction, because you don't have to have a brain injury to have endocrine dysfunction. Toxins, sleep, ATM. Alcohol, tobacco, medication. All those things affect testosterone levels, not just brain injury. The bottom line is, fatigue, poor memory, anxiety, depression, weight gain, weight loss, emotional lability. All those things I was complaining about in 2012 were all there. I had TBI, exposures, stress and sleep deprivation. All those things were there. When these symptoms keep popping up in your head, when you think of all the patients who walk through your door, you would be like okay, let's paint a picture of what is going on. Let's see how much of this were exposed to and what type of effect it had on you. So, looking at the neuroendocrine dysfunction or endocrine dysfunction, again, goes back to me having all those things at that time. So, it is there if you look.

Timeline. Now you understand why it is so important. We don't need to go into that again.

Then, crystal-clear ideology. We go back to that one more time. Look at the bottom again. Fatigue. You think you'll feel tired if you have TBI, toxic exposures, sleep disorders? Yeah, you will probably

feel fatigued and rundown. That is metabolic dysfunction. That is your body being in dysfunction, head to toe, mind and body. Yes, you will feel fatigued when all those things are off.

Applying functional medicine or personalized lifestyle medicine. In 2012 I was told, consider that. But I didn't want that. So, what I did was apply that operating system. I took ownership of my health. Ownership of my action, everything I was doing. Applied all the principles and frameworks that I did as a Green Beret to my health and I had success. I was able to get back. For more deployments.

Jump master. Did all my special development schools. Got promoted to master Sergeant and then where I am now, doing this in teaching. Had I gone down the path that others were going down with the medications, I probably wouldn't be in the same mind frame I am in now, doing what I am doing. I would probably be a very disgruntled person and focused on getting medical retirement.

You can see, I am living proof that these things work. I had no medical background, until I started studying all the stuff and getting credentials and all the things I was doing with the military. Signs and symptoms, there is your operator syndrome. You know where the signs and symptoms come from. When you are seeing these things, you will be able to take what Bryan covered in his portion and apply them and start managing that environment, that lifestyle.

Recap, so, principal, situational. Principles of the operations process. The product of applying analysis and judgment relevant information to determine the relationships. The key word is relationships. Among the operational and mission variables to facilitate decision-making. What are we doing? We take what we know about the operational environment. We connect them together. We create clear understanding, visualize the problem, and then we are applying those principles and frameworks to get an operational approach to solve this problem. Then we are directing and leading and getting those resources and the people those resources to get them help. It all comes down to understanding that problem. So, how we do that, those are all the things in there. The preparation and environment, that is a military model that I tailored toward health and wellness. Those are all things you can do as an individual to optimize yourself for this environment.

That is it. It is all about making better decisions. Any questions, before we go on?

Amy, if we could roll into the poll and I want to invite everyone to an impromptu break. Let's go ahead and give a five-minute stretch. Actually, that was a bit of drinking from the fire hose. Geoff, you did a phenomenal job covering the info. So, let's adjust fire and take a 10-minute break. I just want to invite you to answer the poll and then jump into a 10-minute break and we will jump into the next section of our workshop.

Can everybody see the poll? We've got to, I believe. With the information that Geoff just shared, kind of orienting you to the environment, helping you define it and understand the antecedents, triggers, and mediators. The exposures. The allostatic load in the environment associated with the job in training and even life in Garrison. Who do you think would benefit from a similar type of orientation to the military operational environment? So, please take a look at the responses here and give us your input, who you think would be most helped by learning a little bit more about this military operational environment and related to soldiers. Right now, it seems like a lot of individuals gravitating toward primary care. We definitely interact with these individuals and see some of these straws that broke the camel’s back complaints. I feel that hormones are off. Constantly fatigued. I'm just not the same. I can definitely echo, from my own perspective. We've got a few individuals. The next highest is everybody. We had a majority of individuals in yesterday's workshop who echoed everybody, saying hey, this gives me a better understanding and context of the person in front of me, regardless of my professional lane. I see some more individuals populating there.

And the second question being, list one surprising fact you learned here. I appreciate the free text answers. You guys are jumping in. So, heavy metal, inflammation, how it impacts the body. Therapy. We will talk on some nutritional strategies. Detox pathways, making sure they're working. Neuroendocrine dysfunction, I will echo that. That was a first-time exposure for me. I learned at the end of my second year residency training, and it wasn't for my residency training pathway at all, it was because I was interacting with Geoff and Geoff told me, I had this downstream TBI injury, with hypo functioning pituitary gland and it is called neuroendocrine dysfunction and the Center of Excellence for brain injuries and related studies, you can easily search TBI and neuroendocrine dysfunction. There was a presentation done by a PhD researcher that will explain more on neuroendocrine dysfunction. Geoff pulled some of the slide content from that guy's presentation. It was game changing for me, because I was wondering, wow, how many people get this? Do I need to look for this? Bottom line, their screening labs recommended. For people with persistent symptoms and ideology, three months to three years post-concussion or post TBI. That was new information. A lot of the heavy metal exposure stuff. Greater toxin exposure compared to active duty. Once again, learning lessons from the extremophile. Higher mortality and morbidity rates related to operational exposure for a lot of these ATMs we are touching on. But consider the MOS. We talked about instructor roles. We talked about breaching training. We talked about people that may be have attempted the course multiple times and never quite made it all the way through. Going to SERE school training. Feeling helpless and hopeless with stressors both at home and in a training environment and deployed downrange. Burn pit exposure. The average Joe will get these exposures. We are just learning them a lot faster, because of the community in a high sense of urgency. All right. Aware of the exposure and solution. The environment in deployments. Had not appreciated the lead and heavy exposures. Another eye-opening conversation we had early on when I first met Geoff was related to training exposures and training environment. How someone who had never seen combat overseas could have such burden, such an allostatic load. That was a really an interesting take away for myself.

We appreciate you guys and your feedback there. Okay, so let's restart at 2:46. We will give a five-minute protective time and I would like you to have a handout with the antecedents, triggers and mediators. The first thing I will walk you through on that.

[The event is on a recess. The session will reconvene at 2:46 Eastern Time. Captioner on stand by]

All right, I am coming off mute and welcoming those coming back.

I will ease back into our restart here. So, what I would like to focus on, we will go a little bit off script based on feedback and lessons learned in the workshop yesterday. You are getting an improved, version 2 of our workshop. We will focus on this handout, the STAIND framework, first. I really want to, while it is fresh, empathize this framework as the context for the new information you just got from Geoff and we will expand on some of the other areas, antecedents, triggers, enumerating some of these. Since Geoff has already given us a rather clear visualization. We can maybe field more specific questions later, but I do want to roll into the As, so we will start there.

We are good to go and will roll right into the As. With regards to antigens, allergies. I want to emphasize that there is a difference between allergy, sensitivity and intolerance. They can easily be confused and in a primary care setting or even a clinical setting, the presentation of these may be very different. It is important to know the difference. So, allergies, histamine mediated. Pretty immediate response and noticeable or outwardly obvious reaction to antigens. So, there are formal allergies we can test for. Skin testing. There are other ways of testing, blood testing. Typically, we look for IGE responses. Now, the sensitivities are IGA, IGE, mediated. More typically. Those can be delayed onset symptoms and those can be subclinical symptoms or clinical symptoms that the individual has continued to write off. Something like inflammatory skin rashes. Something like

relating to cardiovascular, maybe even hypertension. Maybe even some tension type headaches. Those type of general, vague, nonspecific symptoms that may be traced back to inflammation and the immune system being triggered by these antigens that may be mediated.

Then, in tolerances are things that we may digest very poorly, that when they make their way further down our system, especially to our micro biome, it not only leads to symptoms that might be fermentation related. Take lactose, for example. You digest it poorly. Micro biome's and get exposure to it. It over produces gas and gas byproducts. You end up with loose stools, abdominal bloating, belching and discomfort. So, intolerance is important to pick up on, as well.

I will move on to autoimmune. From functional medicine training and a lot of emerging literature, we are learning that there is kinetic susceptibility that loads the gun. Then lifestyle and other environmental exposures will pull the trigger. In training we learn that there tends to be a mediator in the middle and a mediator that makes someone more susceptible to the lifestyle or environmental exposures, being a trigger, tends to be intestinal permeability. Good fences make good neighbors and the things we eat should stay within the alimentary tract, from mouth to anus. If you're fences are broken and in need of mending, then you may get proteins, food proteins and other type of proteins in your intestinal tract, that will get through and seen by the immune system. 70 to 80% of the immune system sits in your gold gut and associated tissue. That sits along your G.I. pathways and you will see and start targeting these proteins and they can sometimes have cross-reactivity with tissues. So, permeability, got function in general. Any ability to protect that, build that and ensure you have a robust and diverse got micro biome is going to be helpful and something that you can emphasize as something maintaining resiliency and wellness in anybody, regardless of their genetic susceptibility. So strong family history of autoimmune conditions. You may care to identify that and talk to them about cut functions and gut health.

Now, infections, specifically talking about things like infections, coming home from deployments or tropical areas, with travelers that are unwanted visitors. You didn't intend to bring them back. Sometimes there are obvious symptoms. Sometimes they are not specific. Granted, I have not seen any studies on this, but sometimes you will start to see this on lab work, with some vague intestinal symptoms and some remote history of either deployments, with an intestinal virus, or intestinal symptoms around that time, were immediately afterwards. So, you may look for parasites and things like that. So, we talked about some of the parasites, some of the warms, that may be going on in the background, but then there are viruses. Ones that once you get exposed, they may stay subclinical and in your body for a period of time, that could basically get flared up. Infections. Syphilitic infections, those are all things to consider. Those are on the list. Injections. These are individuals that sometimes it will be from the perspective of self-medicating. To blow off stress and deal with some of the hopeless, helpless stressors that they are feeling. But it could also be just social patterns. They go out drinking with their buddies and it is part of the normal routine. So, consider the non-illicit versions. You know, alcohol and tobacco. Then there is drug use, as well. We see that. Separate from that, we talk about over-the-counter meds and medicating themselves, especially to try to get to sleep. To address sleep issues. We see that all the time in the primary care sector.

Overuse of some of the antacid medications, being on those for extended periods of time. That borders the tablets and the ingestion, over the counter. Antacid use, as well. Energy drinks. Lipids, Red Bull, that being part of the military American diet. We have access to it. So, there is a lot of individuals making kind of poorly informed choices. Over supplementing. There is a resource I want to point people to and touching on this right now. So, the consortium for health and military performance. There is a holistic wellness and human performance initiative called total force fitness. They have operations supplement safety. So, on the website for that total force fitness, there is operations supplement safety. A resource that is both soldier facing and healthcare team

facing, to help people make better informed decisions about higher-quality supplements and for the right reason at the right time. So, it is an excellent resource I want to direct you to, there.

Now, nutritional excess and deficiencies. Specifically, in the military community, there have been studies identifying common deficiencies, being vitamin D. And a balance of Omega three to Omega six ratios, having insufficient fatty acids in diet or supplementary form. But ended up having inappropriate ratios, more in the inflammatory levels. Non-health promoting ratios. So, healthy fat, vitamin D in general, are things that we know we tend to see low in military populations, specifically. But then you've got people who will, just as part of their normal dietary habit, have a rather limited or narrow dietary diversity. Not all the time, including the amounts of fruits and vegetables that are recommended. I think we had over 60, almost 70% of Americans in general, not just military. Not meeting the average serving recommendations of 5-8 servings of vegetables per day. So, there are a lot of opportunities to address insufficiencies or deficiencies in the diet. A lot of processed food consumption, too. We even, downrange, try to give our soldiers access to the fast food, to remind them of home. That is something that was emphasized. Geoff, can you attest that they get fast food downrange, as well?

Not anymore, unless available. They got rid of it all. He used to be in Kandahar.

Okay, so not anymore. A step in the right direction. Got it. Nutritional access. So, obesity. Over the last, I think since 2007, we had, at that time, it was obesity rates of BMI 30 or higher and military service members was at 7% on average. Then 2017 data was up to 17% obesity. So, I know the fat around the organs tends to be the most inflammatory and creates endocrine dysfunction. So, looking for not only the overweight and obese individuals, but the ones who tend to have that central obesity picture. So, there is a lot of opportunity to identify the problematic, endocrine, and inflammatory fat.

So, digestion. A deep dive here. So, this bios is -- dysbiosis. Specifically, in regard to what is in us, you can have -- right, I am not intending to be moving my slides. I apologize. We are doing things slightly out of order and I am going through the handout. So, with regards to the good guys, they can be low in number or low in diversity and that can be your dysbiosis picture or it can be good guys in the wrong place. Higher up the intestinal tract, specifically small intestine bacteria. We can touch more on that later. Digestion. A lot of us put on the throttle, put on the gas pedal and we are not chewing our food. Not taking the opportunity to slow down and appreciate it. That impairs your ability to digest and secrete enzymes and appropriate levels of acids. Not chewing your food. More of those proteins end up down the intestinal tract, further. More intact. That changes your micro biome.

So that was a crash course. We will role on. But that was the most important framework to reinforce this workshop, been able to identify those because hey, Amy, I'm going to need your help.

Yes.

The slide ended up getting all the way to the end here. I'm trying to bring all of them back to the beginning.

Let me.

I'm going back all the way to the beginning. Now that we have some awareness of how to think about those triggers and mediators. And you have some awareness of the framework. I'm going to ask you as you hear the patient's story. I would love for you to keep a mental note and refer back to your tools here, the same framework. Which indices trigger the mediators, that are going to be relevant to the story. So, this is a gentleman that we presented earlier. We did a workshop in 2018

where we shared the story originally. Keep tabs on the triggers and mediators. You are going to be applying these concepts as we go through the story. And we will ask you what you noticed at the end. All right. Josh, 39 years old. He was a special forces weapons surgeon. 15 years active duty service. five deployments. This was mostly to Iraq and Afghanistan. Five years, as a Green Beret, four years on the team time. Once again, the Iraq deployment, he got a Purple Heart, and he did not deploy after that. He was actually pulled off of and moved back to a different unit. He ultimately retired medically, honorably after 15 years of service. He spent 1.5 years with the unit. So the are born, Pathfinder, jump master, sniper course. He gave a brief description of what was included in that. We know that there were exposures.

I will let you guys fill in the blanks. All right. Let's give it a minute. So, growing up he said that he had a pretty happy childhood. My family was together. We had a lot of frosted flakes, high sugar diet, he had multiple antibiotic exposures. He was diagnosed with ADHD and Medicaid briefly. He was a thrill seeker. Snowboarding, and he said played some other contact sports. He actually put a note, that he had 40 head Knox, he got his bell rung about 40 times, but reported about four knockouts. This was before joining the military. He joined the military in 2000. His first deployment was, it was not his first deployment, but it was a notable deployment for him. And Afghanistan he was there for eight months. He was in firefights and he fired his weapon for 29 days in a row. He was actually manning the burnt pits and responsible for throwing into the burnt pits while he was there. I'm not sure how many days in row, but he had exposure. He noticed that is health was going downhill. He was getting some abdominal symptoms, certain food triggers were really setting him off. Chronic, and he would go to the medic and his medical providers and he got some antibiotic exposure there. He went in 2009, he remembers having Motrin and more than the allowable doses. This is a new thing for him. He remembers one night in particular, nighttime jump that he had about it to hundred-pound gear strapped to him. He knew that he was hungry, he knew the that he needed the covers, so he downed a shake. This did not sit well with his belly at all. It was an Emory dairy shake. As soon as he landed, he said that he felt like his gut have exploded. He was in a tremendous amount of pain. He ended up having another round of antibiotics there know he is on team. He was out there catching up guys. He had worsening symptoms but gut issues in particular. Now he was getting a lot of these arthropathy's a lot of pain, he could not get restful sleep, as well.

In 2012, he remembers the triggering event for him. He had an IED explosion. He said this is the one that gave me a Purple Heart. I was completely unraveled after this. He was with others in a heavily armed vehicle. He pulled over it did not flip the vehicle. It lifted it enough or he hit his head on the inside of the armored vehicle. And he did not get knocked out or knocked unconscious or anything. The others in the vehicle were okay. For him, that was it. So, he ended up having worsening symptoms after that. Anxiety and depression after that. Impulse control, he said that he felt like he could not have a normal conversation with his family at home without an argument. Without him putting holes in the wall and locking himself in the better. Daily headaches. Of course G.I. symptoms, infections, more antibiotic exposure. So, this is him prior to the coming undone. Prior to the 2012 IED and the blast exposure. He was out there doing his job, was again, catching bad guys. But he had this about abdominal bloating. It was noticeable. Not only to him, but to the guys around him. They actually nicknamed him, and he jokingly owned it, Julie valley. Here he was in 2011. And in 2012, I talked to him about this. In 2013, they brought him back and put him in a training environment where he started getting a lot of exposures to munitions and pressure events. The constant pain, headaches, fatigue, and he was reporting the symptoms. But they were continuing despite treatment that he was getting. The symptom range included, he was not able to exist at home, or as a dad or as a has been. He explained that when he got separated from the military in 2014, he is now being torn away from the community on the identity that he was associated with for so long. And been unable to really exist as a family member he developed, he sat there and did intelligence preparation, like he was trying to, and without the pros and cons. He developed a course of action that basically would be to take his own life. He said it was going to be more beneficial for my family, if I was no longer around. He had considered all of the courses of

action and determined that this was the best thing and going to be the best for my family. He was at that point.

Well, he reached out, and the care path. He got plugged in with the clinic center for functional medicine. We will talk about how that went in a minute. Let's recap right here. So, these are the diagnoses that he racked up between 2012 and 2014. You can see there the medications that he had been prescribed and that he was using on a scheduled basis. He had all of these. Ancillary services, so he did get some modalities, acupuncture, nerve block, and he has some other treatment modalities Inc. He was still having the pain, sinusitis, cognition symptoms, and behavioral issues. Before I move on here, can you put up a responsible and I would like to ask you guys what antecedents, triggers and mediators did you take note of? I would love some free response answers, which do you think were most significant for this individual? And we will take a few minutes. What was noted? In this will just be a free response. If you want to take a moment and say what you are taking note of.

Give me a second.

Some of you going for the chat box, that is okay.

Parasympathetic system, no fill environment, high stress. Irritable bowel syndrome, valley, symptoms, childhood exposure to any products, yeah. We mentioned 40 head hit prior to coming to the military. Recurrent TBI's possible heavy-metal exposures from admissions ammunitions. We notice some of the triggering events, that IED blast. Jeff is bringing up, the weapons sergeant. Okay, TBI's, chronic stress, food sensitivities or toxins. We know that he had a lot of antibiotic chronic exposure. Looking at those as micro biome disrupting events. A unique opportunity for some despite for some of those belly symptoms. Any other small arms, ammunitions, we talked about the training environment. And then the leader training environment that they had access to in 2012, to the IED exposure. Thank you for entertaining me I appreciate your responses here.

We are going to roll on and show you what the Cleveland Center for functional medicine identified. Thank you for that mental muscle that we are training here. So they identified when they did their work up on him was the head injuries and knockouts, definitely set the stage and were also out of the triggering events. Meaning the 2012 IED exposure. The triggers burn pit exposure 20 07. And some of his inflammatory symptoms. Events where he had that additional anabolic exposure. A lot of bellied symptoms. And the IED blast was the star that broke the camel's back. Mediators, like you are pointing out. Chronic stress, self-medicating behaviors. Polypharmacy. High burden of ammunition. High burden of ammunition of gasoline and toxins and these are on top of the head injuries. Yes, you guys nailed it. All right, so what they chose to do for him. So, they started out with ultimately reducing inflammation. How do we do that? Let's look at what you do. What he ate, they started with elimination diet, eliminating inflammatory foods. Processed foods, high sugar foods, added sugar food, fried foods, browned means, and including Finning focusing on anti-inflammatory foods. Incorporating some spices that are and take inflammatory. Turmeric, curry, incorporating some healthy fats sources. So specifically, I assume you guys know what I'm talking about here. And then trying to eliminate alcohol use and some of that self-medicating behavior. He was willing to do anything you told him to do, if it would for sure make him feel better. He did this for about one month. I'm sorry, they also did some sensitivity testing and allergy testing. They looked for IGE, ITN IGA. There was some extensive lab testing to find sensitivities. So, they figured out what he was sensitive to and they put that Oedipus died as well. That was contributing to inflammation. That 70% of your immune system that lines the gastric tract. After one month, he started to feel better. Less dreams about alcohol, some weight-loss, some of the loading was coming down. He said wow, my dillydally is really started to go down. He ended up switching to the Kennedy neck diet. And some of the other individuals that he was interacting with. This was a therapeutic step for him. He started doing that and for the next several months he saw more weight

loss more increase in cognition, but he really saw so some of the most notable in tax, we talked about this.

Hearing about this hypo functioning pituitary gland, and the diet TBI injury. He had definitely met the criteria for persistent symptoms of post-concussive syndrome. More than three months out from energy injury. They screened him and they found that his pituitary gland was not signaling to make the testosterone. That is really where he started to notice that the additional mood, cognitive be defense. He started to be able to reengage with his family. This is what meant the most to him. He recounts now being able to take his son out to the lake and get out on the stand-up paddle board and have a fantastic day at the lake. He said that he remembers getting back into the vehicle getting back home thinking to himself, there is no way that I never would've been able to dream about doing this before. Get to play, I would get out and get an argument. That is what would have happened. That is the difference. Him been able to now be with his family and become a family member again. So for him, a mindful exercise activity that was a constant in the background was archery. Archery was his yardstick. If he was having a good day or bad day, he could go out and shoot some arrows and he was able to calm down and focus. Or is today about date? For him, archery was that way that he could gauge how he was doing. Relaxation techniques, yes, he engaged them. But really, the archery was the most for him. 2015, he started out at 230 pounds. This is before the functional medication. Here's 2017, after the supplementation, the anti-inflammatory diet, the elimination diet, the Kennedy neck diet, and regaining health and tools to residual it. Participating in games, doing activities on the right that he would never imagine doing. This is a guy that used to be called Julie Belly. He here he is with a sense of mission, and focus, and connecting with the community of individuals and feeling part of the team. So, he continued on with the archery. He went on to finish a master's degree. He is now in law school. All right, so that is Josh's update. Symptoms of 2010, when we originally presented. You have a lot of improvements with the symptoms on the left. The bloating of the valley, gone. A lot of those belly symptoms were gone. The mood, anxiety and depression were significantly better. Still is short fuse, some bouts of rage. His short-term memory was a challenge, a constant challenge for him. So, he used a lot of notes and reminders to work around that. And still was some pain and discomfort, he has a lot of arthritic changes.
VistaCare a lot of the arthritic step.

So regenerative medicine. A lot of ortho Biologics Inc. He had some significant improvements. I know that this was one topic in this conference. If you get an opportunity to explore that, you can see his treatment plan also. All right. Let's look at these two polls and get you to provide some information here. I want to understand, have you seen or treated a Josh before with regards to functional medicine, is this your first time hearing this approach to care? If you could take some time to answer those two. Awesome.

All right, so taking a look, have you seen or treated a Josh L before, overwhelmingly yes. So far 19 responded say yes, zero are say no. I see a Josh L or a version of him, I was a multiple times each week. I do not treat the majority, I don't treat the extreme files, I treat the average Joe. I know that a lot of you do as well. We see these people and we have on a great day, 20 minutes, to address what is in front of us and how often do we miss a lot of these antecedents, or mediators, or some of these check engine lights that you see in the story of Josh L. With regards to functional medicine, we have some individuals and yes, it is the first time. And some that are excited about it. Thank you for that.

And some that have not heard about it before, but Amy is online, and she can attest that we have a fantastic training pathway for you to learn more. We have an annual training pathway in March and April, typically a five-day training, complemented with a two-day Walter Reed training to reinforce what was learned. Myself and several other teaching faculty members are included to help facilitate the experience in the learning experience. All right, thank you you for your responses here.

We will go ahead and pull those off and move on to the next section. So, we just went through, we just went through the framework, which is your biggest take away. We exercised that muscle of identifying some of those as antecedents, and mediators and really try to understand the context over time. For those that this is the first time in learning about functional medicine, one breakdown! To you how we respond to the question of what is functional medicine? Functional medicine is a critical operating system. Is a person oriented medical approach, rather than a problem oriented medical approach. Rather than symptoms and diagnoses, rather than labeling with a diagnosis and starting with the problem, this is a way of understanding a person or soldier in context over time. And pairing personalize lifestyle and integrative modalities that address root cause dysfunction. It is really a way to identify those antecedents, triggers and mediators anti-that to why this person is feeling the way that they are. And help a patient, or a soldier, understand that the symptoms that they care about is tied to the things that they do, think and eat. That is an empowering thought. When you understand that when you do, think and E is tied to your physiology. The dysfunction of the physiology is under your control, here's what I'm going to do. Here's what you can do to help yourself. To give them the tools and the toolbox to make a difference, and once they start seeing the change that is empowering. This is progress that they have made. They become responsible for their own health. So functional medicine really asks two main and important questions. What is this person sitting in front of me get too much of that they get less of? What we need to get rid of? And what is it that they are not getting enough of that they need more of? It asks a third and very important question and this is continuously why? So, I've got the symptoms and the diagnoses, why? Well, I have depleted these environments and I have these nutrition habits. And really just continuously asking why? In trying to get to the root cause dysfunction. Once we identify the root cause dysfunction, we can address it with things that the patient can do.

Lifestyle and nutrition is really where we start. You will see another mnemonic in a minute about where we start. So, there is a heuristic that guides the functional medicine guide to care. We gather ourselves first. You got to be in an open and receptive place before he you open in the room and connect with patient. You cannot read fibromyalgia and then walk into the room thinking it is all in your head. I'm not going to do anything for you. That is not going to be a very good relationship. Gathering information. I make reference to a questionnaire and a timeline tool. You will see what tools we use in a minute. But you want to gather as much information before we meet the patient and we will show you a questionnaire to do that. And then once they in front of you we are gathering information relevant to these antecedents and mediators pretty one organizes the information that you have obtained. In a specific way, we have a tool called the matrix, and I will orient you to that in the second. This is where we look for the core and then the physical exam. There are functional labs, in additional to standard labs. There functional ways in interpreting these labs. There are ways of working within the system, not going out without the system, and looking at data in the lab studies around the data there available to you. Trying to understand their lifestyle, behavioral habits. Those become extremely important. Then you want to, what you have obtained all that information, any place it on the timeline, we use that as a tool to relay back to the patient, so they understand the context over time. And their life events, how their health has changed over time, where they departed from wellness and maybe the things that were triggers and mediators that have contributed to their departure from wellness. But then also you tell them the optimistic story about how you can move the needle and get them back towards wellness. Especially with livestock, nutrition and integrative modalities first. So, after that we prioritize where the patient is ready to start and also what is a pure priority way. We try to match the two. We try to understand, what do you want your help for? And pair what is important to them. Why their health is important to them. Where we can start and what we can accomplish together. A place where we resonate and that's where we start.

Any functional medical practice will have an extensive intake process that will gather a lot of information about this person over time before they even walk in the room for you guys we have

extra documents, which I do not see in here. Amy if you could help me out -- there it is. Extra 02 the lifestyle exposure questionnaire. Feel free to open up that handout and explore the use of that. That will be helpful to identify before the person walks in the room. It may help with occupational exposures that they may have had. Then there is the timeline. On the timeline, just the same way that Jeff organized his [Indiscernible] on his timeline. We identify those antecedents, triggers and mediators. We use this timeline to help us organize information but also help communicate back to the patient and tell their story and walk them through set them up for disease and dysfunction where clear triggers of when is the last time you felt well? After this thing started falling apart. Those clear triggering events and showing them that we understand this is where changed. And then mediators. Mediators are things in the background not only decrementing the health, but we talk about the protective factors and things that were improving their health, the resilience factors. It would be a sad story if it was all negative bad news. We pair that with protective mediators and also optimistic story about how we think we can help make it better. The major tools on the far right and on the matrix tools there are three main areas. On the bottom of the matrix is modifiable lifestyle factors. This is where sleep, stress, nutrition, movement and connection is where lifestyle medicine, that is all of the main factors that we consider as part of our matrix information gathering portion.

On the far left is the antecedents, triggers, and mediators. Off to the right, that big white space with the blue writing and the circles, that is our matrix region where we do a problems list. It is a problem list but organized by systems biology and system functions. We have some functions where we say these diagnoses, these areas of notable dysfunction and clear and obvious and these history items we organize that as a problem list based off of systems biology and functions. Really, that is the tools. We had more in-depth orientation to this. This is the most important framework I would like you to walk away from. One tool I would like to print out and use Monday morning is the lifestyle and exposure question. That will help you gather a lot of this information without spending the time directly with them in the clinic.

This is something I want to make sure that you leave with added value today on. This is how any functional practitioner organizes tools in the toolbox. This is a nice way that you would consider what resources and services are available to me locally. This handout is for us, the handout number three clinical approach intro, a standard way of thinking about community interventions, ways of getting them peer support and accountability or help coaching resources, maybe even chaplain resources. Lifestyle. Lifestyle maybe Army wellness center. May be some performance centers, dietitians and nutritionists. May be integrated behavioral health clinician is someone who can help with some of these motivational interviewing and behavior change type of discussions around a specific healthy habit. Considering the modalities around the services locally, acupuncture, massage, yoga, all of these fit in, nutrition, food first, whole food, real food first.

I made reference to operation safety. Some resources to help you navigate that discussion and you can share that resource with patients, and they talk about if you need to supplement and then how can you do that, where can you look and where can you go? [Indiscernible] is the motivational interviewing positive psychology starting in areas where patients were strong previously. They had ingrained behaviors established before but maybe they fell off the wagon. How can we get you back there, let's explore that with some motivational interviewing and health negotiating?

Aligned. Aligned would be what is important and relevant to the patient based on the preference, culture, values and preferences. Making sure where you start and what you give them is aligned with what they value and they find us important.

Function medicine. Where it sits in the health system. In general, we have some idealized forms and idealized forms of holistic integrative care that is described by these initiatives. On the VA side we have whole health that is getting fantastic attention and they are improving at a rapid pace. On

the Army side we have moved to health model which is 100% mirrored off of the VA whole health model. Now we are seeing holistic health and fitness come from DHA level and another human performance kind of focus is the champ total force fitness model. All of these mirror each other in what they find us important and relevant as the way we should deliver care, but there is a disconnect. The disconnect is how do I as a health professional or clinician, how do I deliver that care, what do I do or say differently in my clinical setting? That is a functional medicine and operating system comes in. That gives us an operating system to deliver these idealized forms of care.

Specifically, with regards to the DHA approach to pain we have the stepped care model. Right here where the blue arrow was pointing at the intersection between military health system and patient self-management, this is where we can empower our patients by helping them understand what they do, think and eat and how that impacts your physiology and how that can change your experience of pain. This is where functional medicine has a unique opportunity, some of the survey respondents say I care would be a good place for these people to understand better the operational environment, but functional medicine can empower the patient to take better care of themselves.

Let's see. Let's drop in these two poll questions and I will invite you to stand up and move around. Pop an answer in and we will get a break. I think we will read the answers and responses and then take a 15 minute break and protect that. Amy, do we need to take a 15 minute break or is 10 minutes sufficient? >>10 minutes will work.

Okay. We appreciate your engagement and your continuous feedback with these holes it is gold. We appreciate it. It helps us to iterate and improve. The first question is, what is your comfort level discussing the lifestyle with patients as it pertains to --. One being not very confident at all, five being very confident. We have a majority of individuals in the middle, three with about seven respondents and a few that are on the 2 and scale. We have a few individuals saying I am really confident, and this is where I wanted to be today. I'm glad you are here in the audience. How well does your clinical system support behavior change for your patience from 1-5, one is poor, five is excellent. We have a lot of respondents landing in the 2-3 range. Some say poorly. And some are saying excellent. You do a great job, and it might help the system. Really excellent and want to understand best practices. We appreciate you being the audience and we look forward to continued engagement. Thank you. Seeing some comments. Working at the DA to volunteer to teach, loving it. >>Excellent. We appreciate you being here and being engaged.

Let's go ahead and take 10 minutes. We will do 15:50 as a restart, when we come back you will choose your own adventure. I will ask you guys and we will do an impromptu poll to find out if you want to go through handout five or handout for. Take a look and we will describe it when we get back, we will start at 15:50 with a deep dive into those.

Amy, can you hear me? >>Yes. >>All right. >>I cannot see you. >>Let me see. Start sharing. Do you want to go ahead and throw out the whole poll? >>Can you see me now? >>Yes.

Welcome back everybody. I want to give you a little further context to see if answers changed. It looks like we have a few individual selecting a day in the life. Yesterday the group did select a day in the life as well. Granted we had already done a deep dive into the other hand out. I wanted to give you the option to make it more interactive.

With this understanding of antecedents, triggers, and mediator helping you to better identify these check engine lights for related antecedents, triggers, and mediators that prompted me to translate what we know into a -- within sleep, within trauma, dysfunction on here, what does early dysfunction look like? What does the check engine like look like, how can you sister further by yourself, or how can you ask for targeted assessment? How can you address it yourself, but then

who can you go to for further first care? The check engine light assess and address early dysfunction in those domains of the ATMs. That is what the handout was for the sustained communication tool. The other tool, a day in the life because I asked -- my wife asked me a profound and simple question. She said, she is honest, and she keeps me brief. Basically she said, so what, you came up with this great tool, what does [Indiscernible] look like. Me as a spouse and a wife of a soldier, what can I do to help them basically keep the force field up and what does right look like in the day of the life. That prompted -- balance hormones and defend against cancer. Can we put that poll up one more time? I just want to -- that we deleted already?

Shall I roll with a day in the life?

Yes.

Okay we will roll forward. I am going to jump to the portion of my presentation where we talk about that. We will skim through this briefly, orienting you once again with that handout you have is a combination of life's work and it is a starting point. It is meant to be adjusted as needed to help you think about and help you communicate on how you can identify check engine lights, do early assessments and do early address for healthcare first. There is a lot of content for you to dive through at your own leisure. It is organized around these antecedents, triggers, mediators that we talked about. This is generally how I organized it, reinforcing check engine lights, earlier says, early address starting with Celtic CareFirst. Keeping it all actionable. There are some terms that are in quotations. Those are Google search terms if you want a deeper dive. This can be prescriptive. It can facilitate communication, or it can be a study tool for you, if you are looking to start learning more. If you do go into the training pathway this will be helpful you will have one leg up amongst your peers in the class. If you are already tracking this information.

I am just displaying it so that you can get a little idea of what it was. Okay.

I am going to pass that. This is what my wife asked me that resulted in this tool. When we presented this workshop to military spouses and senior spouses, we had several of them in the room they wanted to go through this to learn what this right learned look like. I think it will be an exciting topic. We will just start at one and work through 30. How much time do we have? >>One hour. >>We will try to knock this out within 30 minutes, maybe 40. We got it.

No alcohol prior to sleep. Quality as well as quantity of sleep are extremely important for repair, rebuilding, producing hormones, alpha wave intrusion on your Delta wave sleep. Delta wave is that deep stage of sleep where a lot of the metabolic processes happen. We get poor quality sleep when you consume alcohol before that. Anyone who wears HRV trackers and lifestyle data trackers and wearable tech you will see that your sleep quality is different when you have one or more beverages before bed.

One thing for orientation, this is a training setting that we are going through. It is broken down into training setting, Garrison setting and deployed setting. You will see helpful habits that will be specific to different environments.

6-8 hours of quality sleep at nighttime. Using CPAP if prescribed and using sleep trackers or activity trackers to monitor quality as well as quantity. We talked about CPAP use being important and people connected to the why. I cannot tell you how many times in a primary care setting I have seen veterans or patients that have their CPAP, got their diagnosis but they use it two or three times a week and do not understand the importance or impact of what not using it does. I use the analogy of thinking of themselves underwater and how would your bodies respond? It is fight or flight it is chronic information in the background, and it is not producing testosterone and it's not healing the brain.

Wake up and major HRV. It is a measure of your parasympathetic tomes and it can do biofeedback giving you real-time measurements. Rolling out of bed and immediately measuring HRV can help you understand how taxed or how burden your body is to start with and maybe that will change your agenda for the day or your training regimen and you can make more important decisions based off of how much repair and regeneration you were able to get and how parasympathetic tone you are that day

Mindful minute or meditation and prayer. We know actively reaction relaxing and having gratitude and reflection doing [Indiscernible] which is local growth for the brain is having -- is important for mood and emotional and spiritual health and wellness. Adding this as a regular practice and taking time out of your day to reflect and appreciate what you have we no changes metabolic you and changes system function. Get lost in good tunes, singing loudly, gargling aggressively in the shower. Belly breathing at stop lights throughout the day. All of these activities engage an increase tone. These are [Indiscernible] tone exercises. By stimulating your vagal nerve you are using your breathing and your diaphragm to give signals to your brain to calm down, to reduce stress and it is also exercising the vagal nerve and which helps to [Indiscernible]. Ensuring that this can contribute to improving digestion, this can contribute to helping with mood behavior and brain health, once again these are vagal tone exercises. Do you do any of these?

I do one. Continual biometric monitoring. Using different apps, I have ready band that goes through my carbon connect that measures heart rate, stress, variability and sleep quality and training. We are using that in our program here. We have what we call operator readiness assessment where we are partnering with USC to start permitting all of these things into an app where we can have an app for breathing, heart rate variability throughout the day, to get people ready before they go into training and apply all these things that you see. We will have what is called smart database to compile the data and then compile an app with all this in it. We will see this soon operational. We have limited capability right now with the wearables that we have but we will expand it to doing all of these things in a digital platform.

As you come up with comments, we will address them as well. Someone asked a question of ago saying what about [Indiscernible]. Definitely. We will talk about routine rhythm and sleep hygiene that I will invite you to include from your line of expertise as well. This is just some of the ones that may be less commonly known or maybe extremely important to incorporate. Next one on the list here a.m. nutritional support. Individuals will do protein supplementation or multivitamins and other vitamin supplements in the morning. You definitely want to emphasize who first from a nutritional standpoint and micronutrient sufficiency or optimization. Being realistic a lot of individuals will you supplementation. Discussing with them if it is something that has a seal of approval for USP or NSF that might be a higher quality. Specifically, a multivitamin. Vitamin D, fish oil, magnesium, those tend to be a safe and easy thing if people want to take something, we know that Vitamin D tends to be low end and you can safely supplement 2000-4000 IU per day high-quality multivolume multi-vitamins, for high demand individuals and high activity and just to ensure you are getting the right amount of micronutrient specifically around zinc and magnesium, it will be helpful to include. Magnesium is another Keystone nutrient that we will address more later on it is one that can be helpful in the nighttime [Indiscernible] which is a calming neurotransmitter. Vitamin C [Indiscernible] and [Indiscernible]. I am simply putting this up here for a starting point and discussion point. I know individuals may feel strongly one way or another against this or for its [Indiscernible] are supportive of the [Indiscernible] recycling process. That is basically the body’s ability to handle oxidative stress [Indiscernible] is your number one innately made. Your body makes an antioxidant molecule in the body and [Indiscernible] directly support the recycling of that. Vitamin C and Corolla when you are in a training environment especially if you're doing house training, Vitamin C and Carella can be helpful for binding toxins, neurotoxins and through heavy

metals and passing them through the stool. Vitamin C and Carella will be helpful to adhering and passing or [Indiscernible] real-time during exposure.

Plain water, plain tea, plain coffee until the end of fasting period. This is another area of increasing evidence and discussions around incorporating, some may feel strongly, and some are not there yet we have digestion nutritionist. I have had some where we were on different ends on whether we support it or whether they don't support it. Fasting and fast mimicking strategies can be used for a fine period of time to increase fat adaptation, metabolic flexibility and can also be helpful for purging the body of dysfunctional cells through [Indiscernible]. It really is high-level content and emerging evidence and increasing evidence saying that this can be helpful and relevant for lifespan, health span and specifically with regards to [Indiscernible] and the increasing rates of cancer. There is an opportunity to start doing something that can have little to no risk with some benefit in the long run. You must consider the core morbidity and be sensitive to the possibility of complications. For the novice practitioner or someone who does not have a clear strategy on how to work with someone, I would not say start incorporating this tomorrow I would say learn more.

Sugar, alcohol, Splenda, Truvia being bad for you any evidence of this? In general, nonnutritive sweeteners, Stevia sets itself apart as better than others. In general, the non-nutrient sweeteners have some evidence behind it being better than others, me personally I do direct people using Stevia if they must. For fasting or strategies, where you are trying to not create a hormonal response, you don't want to incorporate non-nutrient sweeteners during a fasting period because it will still have a hormonal response to suite and that can throw you out of the fasting period.

I agree there is opportunity for punch list and practitioners to work hand-in-hand with teens especially with the whole model coming up. Let's keep rolling. We have break fasting period with nutrient dense meal continued variety of veggies specifically Frasca and Allie and family. Jeff, you and I talk about the roughage, broccoli, asparagus, fibers that we digest poorly, prebiotic's, prebiotic's feed those healthy gut bugs that need to be in high density and adversity in the large intestine primarily.

Since we are in the training environment think of what the military feeds people in the field either MRD or UG are. Highly processed preservatives. You know if you eat MRD you don't eat need toilet paper for week. It has all that fiber and nutrients in there. Sometimes you have to eat those meals. There are things you can do, [Indiscernible] for nutraceuticals or supplements that you can take with you that will aid in the digestion and absorption of these foods. Think of that training environment it is not just the chow hall back at the garrison. For people who are deployed [Indiscernible] NTC program. They are forced to eat foods that do not fall under this category.

Good to know. Actually, there was some interesting studies, I was listening to, there was a nutrition conference and they had studies where they looked at MRAs. People eating a standard diet back at garrison versus MRD only a looking at the change in the gut. They did the study and Rangers surprisingly ended up being somewhat protected and the fiber, even though it was low fiber MRD it was on average more fiber than the maintaining normal standard diet back at home. They were getting more fiber even though it was less than the recommended threshold. It ended up being protected from maintaining diversity with a few strains that [Indiscernible] ended up suffering. It ended up going down because there was no fermented foods.

The last test I did for my micro [Indiscernible]. Non-detected. Biodiversity from 19 years of [Indiscernible] for anti-malaria and stress and toxins. We are coming up to that in the deployed environment.

In addition to the micro bio implants, the vegetables improve detox pathways in the body and help you unload from may be medications you are taking, and antiviral that you might be on,

environmental toxins you might be exposed to, even detoxing your standard hormones and metabolic waste products. We know that if detoxing poorly, you could be breaking hormones down into versions that they can be cancer promoting rather than cancer protective.

Estrogen dominance for men.

Yes. Optimizing those metabolic detox pathways are extremely important. Next, choose foods high in zinc and selenium.

Testosterone and estrogen both, six hormone, finding -- there are a lot of ways to influence that and then [Indiscernible] and degradation. Sensitivity level, physical activity, changing how sensitive your tissues are to the available hormone levels, but then things like sleep, stress, the amount of information all of that changes how sensitive your body is with bio available forms. On top of that the breakdown in the detox and are you breaking it down into cancer promoting or cancer protection versions. There are a lot of opportunities there to support the right way of detox and good amount of sensitivity despite what your numbers look like.

Choose organic, grass fed, free range, wild caught animal protein, eggs and milk. When you said you were eating off the economy in a deployed setting, what does that look like?

Chicken, meat, beef, sometimes camel.

Here's the interesting thing. Those animal products derived from that environment. The animal fat tends to house those toxic chemicals, hormones that they get close to and that is out in that environment with airborne hazards and toxins and whatnot. A more plant diet in that type of environment, avoid getting some of those concentrated exposures to toxins and [Indiscernible] from that environment. If reading off the economy maybe more plant-based and supplemented with quality protein that you brought from home.

Staying hydrated.

You talked about this with soldiers, is that -- A lot of our folks have [Indiscernible] issues. Flushing to it too fast, going to the bathroom six times a day. A lot of people controlling bladder emptying [Indiscernible] and the problem with kidneys to. Getting rid of toxins in your body getting things moving through your body. Myself personally I had a lot of those issues.

Elimination pathways. We talked about detox pathways and nutrition strategies. Now a nation pathways blood, urine, stool, sweat all of those. Those are ways that your body gets rid of metabolic rate on products, heavy metals, you need to have elimination pathways working well. Staying hydrated is one of the easiest things to do. If you do not have daily bowel movements you may not have enough water activity or fiber and we know MRI-based, I forgot what I was going to say, MRAs and low fiber can be an issue perhaps supplementing with higher fiber to supplements that you brought with you.

Next one. I think we are about halfway through. Guys, feel free to put comments in the chat box along the way, in the questions we will try to knock out as we go.

Range hygiene. Geoff talked about the exposure that you bring home. It is not the lead, obviously do not eat the pate.

It is everything. When you go to a range everything that has been there, most of the time those ranges have been there for 20, 30 years and then you touch and handle your equipment, your clothing, everything you take from that environment back to your home is contaminated. What you

want to do is leave all of your equipment at work, you store it in an area away from your workspace. You take your uniform off to keep them at work.

All of that equipment your body armor, all of your gear, keep that in a closed box if you do take it home and stays in a garage in the close box and then put bags and if you can. Once you cross that it is almost impossible to get out without professional abatement. No eating on their range. A lot of people bite their fingernails, they put tobacco in, eat out of the range. They will set in the [Indiscernible] and eat because I was the only place we had shade. We would take naps on the furniture that we used to explicitly bleach around. We would be soaking in this environment all day. My head was pounding all the time and I had bowel problems. These are the things you do every day use wet wipes and decontaminate and wear gloves to not touch those things. Minimize areas. If you're aware of it, do not put yourself in that [Indiscernible], don't do any of that stuff if you do not have to. If you have PPE that you can wear like the respirators when you clean the house and move the furniture, use those things. You cannot fix a problem if you do not identify the problem. If you are not aware of these things you will not take preventative action.

I love what Geoff highlighted what right can look like and what he does and then what [Indiscernible] looks like. Eating there and biting fingernails. He painted very vivid pictures of what happened in the past saying he would put his gear, you just painted a picture of it of basically someone staying in the same closing staying in the same gear and then putting back here and closing in their truck where they went to go pick up your daughter at day care or whatnot and bring her home.

The kids touch everything and then put their hands in their mouth. Like I said, it is trace amounts and that can do damage. You come home and you hug the family and engage them and then you take off your clothing dear the new wash all that with the kids close. Just smarter decisions that minimize exposure for the family. Especially if you have someone pregnant or if you want your wife to become pregnant you have all that stuff on you passing that to her that will add complications.

We know that metals and toxins store in the fat, so it does not always leave the body.

Home hygiene, that is 13 right there. Clean yourself before hugging your family and cross-contamination in the washing machine. Next. Last meal before fasting window starts. Rotation and a variety of veggies, fibers. High fibers. Notice some trends there. Complex carbs and healthy fat. Healthy protein fats and fibers stabilize blood sugar. Right before you go into your fasting window or overnight period to stabilize your blood sugar throughout the night, just remove one factor that can create disruptive sleep. If you have your meal so early before dinner that you are getting tips in your blood sugar throughout the nighttime that can create a stress on your body that your body is now spending time and energy to respond. It increases stress hormones in relation to the thing blood sugar. If you want to stabilize blood sugar and go within a reasonable timeframe before bed to where your blood sugar is stabilized throughout the evening time.

That is unless you have [Indiscernible] or acid reflux don't go to bed with a full stomach. Typically, two hours before bed. It does not have to be a full meal. I will say what if you had for dinner save a small portion and eat a small portion of that just before bedtime. Something protein-containing and something veggie. Definitely not pizza or a six pack.

Testing for heavy metals for spouses, good question.

I cannot think of any, I do not know if any have been done. I can't speak to it.

We are doing some stories right now we are doing swipes off of equipment to see if there is cross-contamination from people bringing that stuff home and what the home environment looks like. When that information comes out that will be published and we will push it out. >>Great question.

You go from connecting room to your garage and you bring those boots in, that is where we see stuff stored. When that door opens and the wind blows the dust and particles through the doorway so we can do swipes and the floorboards from back at high levels from people who store gear at home.

Let's keep rolling. Nutritional support magnesium, protein. We talked about stabilizing blood sugar, magnesium is a critical nutrient. If magnesium is not right [Indiscernible] may not get right. Magnesium is lower in the diet than it used to be. The foods used to be very high in magnesium are not as high. It definitely checks the box, and it can be helpful in calming down your routine and rhythm. Once again magnesium is the process where glutamate -- is to a combing neural chemical. If you are low, you may not be able to calm down as good as you would have.

Magnesium versions. There are ideal versions that are better absorbed. There is a list in the handout here. We will move onto the next one. Routine and rhythm to prepare for bed. We talked about before bedtime. Sleep hygiene, making it cold, dark, consider light sources and some people even look at EMF exposure and turn off Wi-Fi, I have never done that I just know –

I do it and turn my Wi-Fi off.

Biorhythms. Routine and rhythm is critical even on the weekend trying to maintain this lien same sleep and wake cycle allows your body to adjust to make sure that you are producing hormones and regulating hormones and chemicals at the right time.

Next one, which magnesium should we order [Indiscernible] or regular magnesium? I have done both. I think magnesium [Indiscernible] is part of our standard lab request you would have to do a quest lab order to get magnesium red blood cell. That is a good question, but what is readily available is regular magnesium.

Garrison setting, we are moving into Garrison setting. This is not a training environment or deployed environment. The general thing is, alcohol, we need to consume it, consume it responsibly when in the presence of others. Use it as part of your social outings and shared experiences with others. I say here as socially morally and metabolically acceptable.

Tracking lifestyle wearable data. See the impact that it has on sleep quality and HIV levels throughout the nighttime while sleeping. They will make better decisions especially when they know they have something that is high performance the next day. They will make better decisions if they see their numbers.

Next one, prioritize time with loved ones and outdoors.

Unplug. Being mindfully present to enjoy nature and outdoors. There is some interesting data I think it was [Indiscernible] where they pulled them away from their home environment and put them on the nature trip for two days. They took baseline levels of information and the immune system biomarkers and cell levels. They looked at information and immune system biomarkers before, at one day, at two days in nature and then one week and a month after the today exposure to nature. The levels of inflammation significantly went down incrementally for each day and they actually met lower levels one month out compared to baseline. The inverse was true for [Indiscernible] biomarkers for immune system activity. Two days in nature led to higher intake

immediately and then one week and one month out. We know it can reduce inflammation and improve function especially in innate immune system functions.

Yield community. If we define community as a group of individuals bound together by a shared stories and experience, then you understand how to build it. Sharing stories and experiences to build and foster community and their connection to others and stay connected.

You are not going to fix anything putting yourself in a room. An example that I use a guy writes his bike every Tuesday we have a trail anywhere between 10-20 people who show up, mostly because it is mostly active-duty veterans. It is a chance for people when they are riding they can only focus on one thing at a time and they forget about all the problems. They are with a group of like-minded people. It is very therapeutic for a lot of people who come. People [Indiscernible] I was watching Facebook arguing with my friends online miserable and not sleeping and now I am exercising and losing all this weight. I don't have all these aches and pains and while we are out there we talk about all of these things. That whole lifestyle changes people and they become multipliers and take what they have learned. Our group keeps growing.

Exponential [Indiscernible] is what happens when you get people [Indiscernible] will improve their health and when they start sharing that information with those around them.

Recommendations for wearable sleep [Indiscernible]. We use ready band. I can push the information on the link from that in the next break. They are 96% accuracy compared to a sleep study and the new Garman CX five and the pulse ox built into them. It is about 90% accurate towards a sleep study. It is phenomenal and we are using those for the program here in special operations.

I'm going to make a [Indiscernible]. I would love to spend more time on this and get through the 30 not at arrest pays with the role-play scenarios at the end we will do a full roll scenario and then gently touch on [Indiscernible].

Is the TBI CPG accessible [Indiscernible].

You can download the CPG they have all the points of contact on that.

We can put the link up there for you if you need it.

We will keep rolling. 19 is built community. Staying connected, Geoff talk about that. If you are on Fort Bragg riding bikes and you want to meet up they have a weekly. Maintain hobbies you are passionate about. Identifying and staying connected to your sources of passion and joy. Prioritizing that. Putting it on the calendar for once a week. Something to look forward to changes your mentality as you slug through, you might see an unmanageable open helpless stressor throughout the day really giving yourself -- Building hot rods, that's what kept me alive going through my stuff doing something constructive to do when I was not working. That was my outlet. It kept me focused and connected to my community definitely having a passion besides work keeps you cash grounded.

Be physically active with others. We talked about building a fostering community and shared gifts, stories and experiences. Really taking that opportunity of shared experience and physical activity with others is multiple births of the same stone. You are getting all of those hormones going and we know the [Indiscernible] is a response to physical activity especially cardiovascular type exercises. One more thing on the covert context. Cardiovascular exercise increases your [Indiscernible] super oxide [Indiscernible]. Basically, a protein that goes up with cardiovascular exercise and not strength. Cardiovascular exercise increases your body's ability for [Indiscernible] stress. That

circulating protein specifically protects organs of the lungs, liver, heart, kidneys which are all organs that are damaged with some of this covert persistent symptoms. >>Covert protection there.

There is a podcast where it is [Indiscernible]. Who is very much into lifestyle integrated approaches to wellness. She jumps in to heat shock therapy as well as cold shock therapy. I listen to her podcast talking about hot saunas and heat shock protein responses and the physiologic response to a specific dose of at least 20 minutes at 160 degrees or higher 2-5 times weekly. There are bodies evidence around these [Indiscernible] in a dose where there is cardiovascular benefits and there is some metabolic benefits there. They equate that physiologic stress to cardiovascular exercise.

I talked to people who have a lot of arthritis or metabolic syndrome and say if you cannot exercise, can you get to a sauna? When you're talking about guys were out of commission for injuries and unable to exercise, this is an option to try to get some the vascular benefit to adapt to those stressors is an option.

Moving on. [Indiscernible] we know that growth hormone and testosterone activities, there are some studies that show the increased level of growth hormone and growth factors around the time of being [Indiscernible] high-power output. You have [Indiscernible] mimicking food strategies for athletes and powerlifters. This is an opportunity something to learn more about. Keeping bodies in general present and can buffer some lactic acid that they can help manage a buffer that pH that can lead to fatigue for the muscles.

High-quality probiotics along with antimalarial. Antibiotic exposure as microbiota disrupting events. We look towards the bodies of literature around mitigating microbiologists events with concurrent use or subsequent use of [Indiscernible]. There is enough evidence for us to offer probiotics concurrently for a two-week period antibiotic exposure to a dose of 10 billion CFU per day. I would pause as something that I have not been -- I have not seen recommended for our war fighters but it is something that has been --. When you incorporate friendly fungi component of this program specifically with things like [Indiscernible] in the probiotic exposure, that is actually going to create a more resistant imbalance, a more resilient micro biome state when you have included a fungus component. Once again [Indiscernible] two weeks following, smart use of probiotics, if you're asking for an ideal source, [Indiscernible] fermented foods plus supplement, [Indiscernible] on the bottle, 10 billion CFU per day is what you are aiming for and diversity of sources. We know density and diversity matter and using them to mitigate a microbiota disrupting event which can be -- and viral illness picture. We have a few more.

We are moving into a diploid setting. Keep an eye on the time. Take extra doses of vitamin C and [Indiscernible] add modified [Indiscernible] and consider seaweed snacks and eliminate toxins. We are talking about [Indiscernible] strategies, things that we can do and eat to help eliminate, find and eliminate toxins. I think we are good on that. We will keep moving here. Avoid local water and meat. We talked about that already and how fat-soluble toxins and neurotoxins and organic pollutants can accumulate in the animals. Eating local animal products and meat may expose you to --

Heavy metals are the least dangerous thing. Infectious disease pathogens and other categories -- Bringing home parasites and travelers that you did not intend to bring back. Avoid exposure to burn pits if possible. If not get a letter from command documenting exposure, location and frequency. If you can't avoid the exposure get it documented.

Then we talked about range hygiene related to munitions exposure. Led will wipes and maintaining equipment. This is a practice that can be reinforced both in training and downrange. Drink filtered water. Filtering devices have [Indiscernible] a day. Once again having enough water to support

illumination pathways through urine, breath and stool. But then making sure that water source is not carrying additional exposure and additional toxins. Maintain time restricted fasting practices if possible. There is therapeutic benefit to incorporating fasting and mimicking ways of eating which would qualify as modified [Indiscernible] ways of eating.

It is all mission dependent. If you're in a high [Indiscernible] operation cycle. Being sensitive to the fact that there is a right time to do it and a wrong time to do it. If it is challenging to maintain or if it is not resulting in optimal performance, find out the right diet. Definitely being sensitive to when you need to be in optimal performance, maybe we are doing it for a different [Indiscernible].

We made it through the 30. I appreciate you guys expressing your interest, I do not have a visual on the platform, the Internet is being weird. We can roll right into a scenario. Can you guys hear me okay?

We can hear you fine. Would you like me to read questions?

Please. Let's do that for about five minutes and then we will do 10 minutes for one scenario and then wrap up. >>Sounds good.

We have one question here that says are you aware of any research regarding the long-term safety of testosterone replacement or studies looking at natural testosterone pattern following replacement. Lot of these guys look pretty young to start TRT.

I can speak on that. I have been on TRT since 2013. I put it off, I did not want to be on testosterone because I knew the implications. Depending on the unit and area of operations you have to have [Indiscernible] to deploy, especially with testosterone. What we see in the younger crowd is that they can bounce back better by trying to do the natural supplementation to optimize their conditions to get the body to produce on its own. What we have seen in the older population like over 32-42 years old is not responding to the environment and not responding well to the environment and having the supplementation and most likely it will be [Indiscernible]. What we have to work on, I can tell you first-hand experience is it is the delivery. They used to give out [Indiscernible] and there is no accurate measurement and no monitoring after you got put on it to see how your body was responding. I can see the dangers in that [Indiscernible] through my own healthcare. I went outside the military to people who knew how to do this for professional athletes in a [Indiscernible] setting and not diploid setting using more frequency unless dosage minimize the effects of jamming a bunch of testosterone into somebody and not being able to regularly check on them. What we do in our work is keep people off unless it is detrimental without being supplemented. [Indiscernible].

There is that risk reward and providers are being very smart about that and how they are putting people on testosterone, it is not an easy task and we have a CPG at our work and it makes it impossible that we can get on testosterone and that leaves leads into people self-medicating and that is way more dangerous. If they are still navigating that terrain it is dependent on how people follow the CPG and what type of protocols will be implementing. The problem is well known within the operational ranks and the medical ranks of what is going on and it is people getting frustrated. Providers have their lane and they have their guidelines that they have to follow and the service members, the man says I want to kill myself if I don't get this fixed. It is fine balancing. There's a lot of going into what it looks like and what kind of systems could we use if we have to use this [Indiscernible].

Long-term effects I can tell you speaking on my own experience being on it for over seven years, I am on 50 milligrams every five days, 5-7. Low dose and I have to watch my estrogen metabolites and make sure all is good, and I do a CBC and metabolic profile every three months and every six months I do a narrow endocrine workup checking thyroid, cortisol, testosterone and yearly prostate

antibodies and then looking at all of my cancer markers for CBC and metabolic profile and make sure I am not getting resistance or any other problems. That type of profile that I have been using was adopted into a screening process. We are seeing a lot of [Indiscernible] from guys in their 20s. What we see is some people that are subclinical there right at the reference range and some of them have no symptoms at all and then we have some that are showing mid-and above the lower threshold that are symptoms that are told your testosterone is in the normal range, but they have every symptom listed and what we see in another subcategory is people have endocrine failure. Basically, HPA shutdown. Testosterone between 20 and 30, that is total and like low cortisol, thyroid problems and just complete shutdown and then we find out they have some type of tumor. We are starting to get those patterns of what it means looking at the [Indiscernible] and correlating that with the symptoms and the function of the body. It is in the process now. Meet speaking personally I [Indiscernible] without fixing the problem. It has one of the biggest impact on my health psychologically and physically getting put on the testosterone.

Do you guys see the comments?

I can see some of the comments. What are the resources to access heat and cold shock treatment? Once again, the podcast provides a great deep dive into the literature and a good summary of the literature that often talks about evidence informed and evidence based way of incorporating it into health practices is found my fitness. I forget her name. She talks to guys about heat shock treatments and cold shock treatments. There was another question about -- where did it go?

Our computers locking up.

There's a question about labs.

Functional labs outside of the [Indiscernible] and things that are local to us. I just encourage you to look towards Genova labs, great planes labs, there is definitely -- just to understand some of the labs that are very credible and a lot of [Indiscernible] individuals that incorporate specifically from Genova they have nutra eval, you have G.I. effects profile.

Comprehensive diagnostics analysis.

The G.I. effects does CBS and you have even mold panels, toxin panels, metal panels and that can be provoked or unprovoked. I would definitely say that not provoked heavy metal panels in somebody who has potential for permeability and [Indiscernible]. Leaky brain, you pull things out of storage, toxins out of storage and have them circulate until you [Indiscernible] and make good neighbors and make sure your barriers are intact and everything is good before you pull things out of storage to test them. You could be doing more harm than good if you provoke and pull out to test heavy metals if you have leaky gut, leaky brain.

I did 7 [Indiscernible], it was determined that my body was so high that the risk of keeping it in me was worse than pulling it out. They took the chance. I accepted the risk to doing it. I had a lot of success with it. A lot of symptoms, brain fog, fatigue and weight gain. I was packed full of lead, arsenic, mercury, and [Indiscernible] and [Indiscernible] from all of the MRIs I had overtime. That stuff was almost impossible to get out. I did DMSA, DMP S and [Indiscernible]. Three of them with different protocols. It was always determined that I had to optimize function. The first thing I had to do was fix the gut, optimize my systems biology and get my kidneys functioning properly before pulling the toxins out and pull it when I can do it. When I was deploying and working with the Rangers it was not a good idea to do [Indiscernible] therapy. I became a care coalition advocate and [Indiscernible] liaison and I did that for over year while I was doing my [Indiscernible]. They did stabilization and pulled it out of me one week and I would do a weaker stabilization then they would

push nutrients into me. Before they pull anything, they always put nutrients on board before they pulled took a very controlled environment. It was a qualified and certified practitioner and North Carolina. It was something that I helped to establish for soldiers to get the same type of treatment after. That was prescribed by the Cleveland Clinic.

Any other questions? We will make sure we get through the questions and give one brief example of a clear opportunity to address this clinically and see what a conversation like this looks like. Then we will wrap up.

It looks like there's a question from Nicole [Indiscernible]. Which one?

It was done through internal medicine. I got out to the Cleveland Clinic through role Mac here at Fort Bragg, got in active duty TRICARE referral to go to the Cleveland Clinic. At the Cleveland Clinic they did the extensive diagnostic testing. Some of the test we saw from [Indiscernible] that the Cleveland Clinic did on the. Dated unprovoked [Indiscernible] to see what I was carrying around without doing any provocation I was already over for acute mercury toxicity and blood and levels were elevated. Then they did the provocation testing to see what else I was carrying around and that is when my body burdened was 30 times over the range and lead was 20 times over. They do not do it upfront [Indiscernible] they wanted to see what I was carrying around first and that led to doing the provocation check to check for other metals. Good protocol, they were not just doing it to make money and pumped me full of supplements because they knew my environment based on what I told him and showed them my military testing and the arsenic and lead and mercury. They determined that and they said okay, your body burden is high you have metabolic dysfunction, you saw all those things that were there. We reassessed after and [Indiscernible] for seven months and we did the testing and the functioning significantly changed and my labs came back to normal. I still elevated and I had a little bit of mercury still because there is so much in me. When they did the first test on me the lab called me and said sir, we want to ask you before we accept these results if you were eating thermometers. They were asking why my mercury was so sorry high. I told him I came out of an area where there's a lot of mining and burning of waste and trash. They did have to call me and confirm to make sure my house was not contaminated. They wanted to see where I was. I had a lot of mercury in me. It was like aging overnight. That is one thing with mercury specific. I am an indicator. I am the canary in the coal mine. When I get mercury, I swell, and bleed and I get rashes on my back and then I start getting brittle nails and then tingling and mouth sores. You can feel it coming on. I can feel it coming on. Those things are there but we ignore them a lot of the times. That was happening while I was in Africa.

Can you put up a poll, please?

I just want to gage from you briefly, did you find this information helpful? We asked you guys to choose your adventure to get the deep dive, was the handout helpful and good information? Try to keep it actionable. My wife helped me with the handout, and she helped me organize.
We appreciate you guys. That is helpful. Overwhelming majority. No force or below.

We have a few minutes. I am going to summarize what these role-play scenarios would look like and make sure that you guys get the takeaways here. We have several scenarios that we planned out, basically when a patient comes off of deployment and is expressing concern about symptoms, energy levels or inflammatory symptoms or [Indiscernible] tied to inflammation. These are some patters that I will see is [Indiscernible] my gut is not right I have headaches, rashes, maybe you had this [Indiscernible], but I have been having skin rashes recently. Between the skin, headaches and got dysfunction knowing they came back from deployment there are couple of things to consider when is the antimalarial or antibiotic exposure. What antibiotics were you on, where were you deployed, what medications were you taking every day? Asking many ways to uncover that.

Also, just asking two brief questions can highlight whether we need to look for parasites and worms and do a brief stool test or if we can start a gut focus strategy of rebalancing or rehabbing your micro biome and fixing your gut first. Once again, probiotics for a two week regimen in 10 billion CFW, incorporating a friendly component. For us we have [Indiscernible]. I wish we had it for adults to because it will [Indiscernible].

That is just a picture of [Indiscernible] disrupting event got symptoms, inflammatory symptoms, headache, skin rashes and little things like that and there is an opportunity to identify a clear first step and addressing [Indiscernible] leaving the room. I want to emphasize [Indiscernible] virtual encounter set up a series of engagements, something like [Indiscernible] two weeks out I want to see you back and then one month out we will talk again on the phone. Really high touch right upfront maybe incorporate ancillary services and support services
[Indiscernible] with behavioral health provider and they can work on supporting that behavior change or doing [Indiscernible] if needed with dietitian and nutritionist and engage with the Army wellness center and other centers that you have access to. Some of them have health coaching and health education.

Any questions? None.

The check engine light that was going off would be around munition exposure, heavy metal exposure. This is a gentleman saying I just cannot get the sleep right in my mood, I have such a trigger I explode at little things and I cannot spend time. I go to the garage and [Indiscernible] or go back to the range and spend all my time at the range. We had a gentleman with a lot of handling of munitions even [Indiscernible]. Talking to them about the ongoing exposure, range hygiene, home hygiene, supporting detox pathways and elimination pathways and needing to optimize those. Some handouts that I create myself or I will try to incorporate those into care so when it comes off of the subject, I will say here is the information about what we will do with this ongoing exposure. Here is step one circle it's. This is what we will focus on I will call you and this is what we will talk about and now they have the full context. I reinforce the why and I support them leaving the room with a series of engagements. Establishing that practice. Those are the big takeaways.

Anything you want to touch on?

Let me summarize. It is a question of when and how much let's go look and see what we can find. Especially a population that will not self-identified [Indiscernible] you are going to get it just a question of how bad. I will point you back toward the handout that we did not do a deep dive, that is one tool that we can use to see the signs and symptoms or history or check into my.

And then it starts with self-care first. We have to empower the front-line. Help them understand what they do think and eat matters and changes the way the body meets this adversity share what you learn. Life depends on it careers depend on it as well.

We appreciate your time and energy. If there are any questions. We can feel those right now. If you think we have a couple of minutes to do that.

Anybody on the line that has questions?

Where can we learn more?

Amy, can you give us information about the training pathway? >>Yes.

If any of you are on [Indiscernible] it is SOS health awareness.
[Indiscernible] put NCR [Indiscernible] there are 6500 people on the page throughout the

community everyone from providers, practitioners, researchers, command leadership, everybody in the community, incredible feedback tool to get people how they do all these questions and also an incredible networking tool to get people to the right resources. That is SOS help awareness.

That is every research paper that comes out, everything goes out it is updated daily.

There are people from [Indiscernible] cancer center, so calm, people from everywhere on that page.

Can you type it in the chat?

Sure. Also, as Brian mentioned, basically we do have some opportunities for functional medicine for the applied functional medicine and clinical practice. I believe many of you have emailed me during the presentation to get on that interested list. The interested list was only for until we send out the application which will be in late October, beginning of November and we will need to fill out the application and send it back to us as soon as possible. It is available for anyone [Indiscernible] or military. Unfortunately we cannot [Indiscernible] who is a contractor or volunteer. But we definitely do have a versatile group of people that have [Indiscernible] the last three years and they have been very excited to attend. We worked with them to create a phase two which is implementing the information that you learned from them because it is a lot of information. Also as a heads up [Indiscernible] is that I think the [Indiscernible] course will be virtual again because it is normally in the March timeframe. I think that they were planning on a virtual training platform at this time. Just wanted to let everyone know. Thank you.

Thank you, Amy. >>No problem. Thank you for your time and energy. We appreciate your feedback. Thank you for your engagement and we wish you good luck for the next year.

I will put my email on if anyone wants to contact me.

No problem we teach these workshops in person. They are all tailored to different audiences that show up. We have ones that are tailored for providers and one that is tailored for the service.

We appreciate it.

I will leave the room open for a little bit just so people can access that information. >>Okay.

[Event Concluded]