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Robert: It's exactly the top of the hour. I'd like to turn things over to our presenters today. Lisa McAndrew is a health science specialist at the New Jersey War Related Illness and Injury Study Center at the VA in New Jersey and also an assistant professor at the State University of New York University at Albany. But before that, her mentor, Drew Helmer, is going to do an introduction. Drew is the director of the New Jersey War Related Illness and Injury Study Center at New Jersey and also is at Rutgers University Department of Medicine. Drew, can I turn things over to you?

Dr. Drew Helmer: Yes. Thanks very much. So I've had the pleasure of knowing Lisa for many years and being her primary mentor on her Career Development Award and in her professional development, I guess, more generally. Lisa graduated from Rutgers University in 2008 with a PhD in clinical psychology. While she was there, she worked with Howard Leventhal, who is probably best known for developing the common sense model of self-regulation. And this model proposes that patients use their understanding of their health in order to determine how they're, what they're going to do to improve or manage their health. I think Lisa has really taken this model and applied it in her research activities and specifically to this area of chronic multi-symptom illness.

But before we get there, Lisa also completed her postdoctoral training at the WRIISC, as we pronounce the War Related Illness and Injury Study Center. She worked with Dr. Karen Quigley, who is now at the Bedford VA. And she transitioned to a faculty position at the WRIISC in 2011 and was soon thereafter awarded a Career Development Award from HSR&D and basically simultaneously a MERIT, which was a wonderful unusual circumstance to have to deal with.

I've worked very closely with Lisa since 2011 and I've always appreciated her thoughtful approach to research. And I think one of the things that stands out about Lisa is her approach to writing. She is so prolific and productive in her writing and has a very strong track record of publications to show that. Recently, I just have to share this, she and her team wrote, "a paper in a day" where they basically had done some of the prep work but sat down and really made this paper happen, and sure enough it was accepted for publication in pretty short order, so one of Lisa's great attributes.

Getting back to Lisa's research, she does explore how patients with complex chronic illness understand their health conditions, and she's using that information to develop intervention approaches that improve self-management. She's really focusing on the patients and the patient-centered approach to what patients can do to improve their own health.

As part of her Career Development Award she conducted research that documented the high prevalence and impact of physical symptoms for Veterans after deployment and also their beliefs about those physical symptoms. That's been really important in our work at the War Related Illness and Injury Study Center. She's also been working on two MERITs, including a multi-site observational study of how VA providers can talk with their Veterans about Gulf War Illness, an example of a chronic multi-symptom illness, and also a multi-site randomized controlled trial of problem solving treatments for Veterans with Gulf War Illness.

Looking forward, Lisa's research includes piloting additional non-pharmacologic interventions for Veterans with complex physical symptoms, developing interventions for Veterans with physical symptoms and comorbid suicidal ideation. She's also working to improve the implementation of these interventions into the VA through some innovative models of care delivery in using different technologies.

So Lisa, I hope that was enough time to get your computer back up or that you have access to the slide show. And Robert is going to work this for us to make sure that we're able to move forward.

Dr. Lisa McAndrew: Thank you, Drew, for that very nice introduction. I don't have access to my slides, but I have a printout of my slides. So Robert, if you could just forward them when I say next, I think we should be able to go. So you can go next, and I just want to acknowledge the generous funding from the VA which has allowed this work to happen.

Before we start our talk, we wanted to just understand better who is with me into the talk. So the first poll question is going to ask what is your primary role in the VA, and if you can just click what your primary role is: A student, clinician, researcher, administrator, or other.

Robert: Lisa, the poll is up now. Let me make sure that that's true. Yeah, it is, and people are giving their results, giving their answers. We have about 70-some percent voted. Usually it levels off at around 80%. And it does look like people have stopped, so I'm going to go ahead and close the poll and share those results. What we have is that 18% of your audience say that they are a student, trainee, or fellow; 25% say they are a clinician; 28% say that they are a researcher; and 13% say that they are administrator, manager, or a policymaker; and 18% say other. And audience members, if you want to give more detail on what other means, you can go ahead and use the questions pane to give us those answers. And now...

Dr. Lisa McAndrew: So a very nice diverse group. Robert, can you go to the next poll question? We want to understand what the level of expertise the audience has in chronic multi-symptom illness, or CMI, so expert, high knowledge, some knowledge, low knowledge, or no knowledge.

Robert: That poll is up and answers are streaming in. We're at about 70%, so we'll give people a few more moments to give their answers. It does look like things have leveled off, so I'm going to go ahead and close the poll and share out the results to the audience members. Lisa, I'll tell you that 5% say that they are experts, 10% say they have high knowledge, 41% say some knowledge, 33% low knowledge, and 10% no knowledge. And now we're back on slides.

Dr. Lisa McAndrew: Thank you. So the level of expertise of our audience is actually almost exactly consistent with what we find when we ask VA providers about their level of knowledge about CMI, so we find somewhere about 40, 45% of VA providers feel they have no or low knowledge of CMI. And so you can go to the next slide. Hopefully at the end of this talk, people will feel they have more knowledge of CMI. Today what we're going to talk about is what is chronic multi-symptom illness. We're going to talk about how the experience of chronic multi-symptom illness is exasperated [sic] by poor healthcare. And then we're going to talk about what is patient-centered care of CMI.

Hopefully by the end of the talk I will have convinced you that CMI is a prevalent, disabling, and poorly understood post-deployment health condition. It's also a presumptive illness of Operation Desert Shield, Desert Storm, and Operation Iraqi Freedom, so the VA has an obligation to improve care for these Veterans. Currently, Veterans with CMI are unsatisfied with VA care, and we think that's because there's a discordance between what Veterans think CMI is and what providers think the goals, nature, and cause of CMI is.

Finally, we are going to talk about what is patient-centered care and we're going to argue that patient-centered care for CMI has to be consistent with Veterans' views of CMI and that using this approach we've developed non-pharmaceutical treatment that has high adherence and high satisfaction among Veterans with CMI. So next.

So the first thing we're going to talk about is what is chronic multi-symptom illness. Next.

CMI is an umbrella term that refers to persistent physical condition, persistent physical symptoms. So examples of this include fibromyalgia, chronic fatigue syndrome, Gulf War Illness, irritable bowel syndrome. CMI is a term used primarily in the VA, though outside of the VA you may hear functional somatic syndrome, medically unexplained symptoms or syndrome, somatization disorder, and lately this term persistent physical symptoms. All of these terms generally refer to these conditions that are characterized by physical symptoms. And there's a little understanding of the underlying pathophysiology. So there's no biomarker to test for CMI. Next.

CMI is relevant for Veterans. There has been increase in physical symptoms after every war since at least the U.S. Civil War. And in a parallel study in Europe, they found an increase in physical symptom reporting after every war since the Boer War. So CMI is a post-deployment health condition that affects many of our Veterans. Next.

This was most readily seen after Operation Desert Shield and Operation Desert Storm. So after this first Persian Gulf War, about 30% of Gulf War Veterans came back with chronic fatigue, chronic pain, irritable bowel symptoms, which collectively have been, known now to be called Gulf War Illness. Gulf War Illness causes disability levels that is as severe as other chronic conditions such as cancer or lung disease, and it's been over 25 years since the war and Veterans still have the same prevalence in levels of disability as they did immediately after the war. Next.

So led by Dr. Karen Quigley, we worked on a prospective observational study that followed Operation Iraqi Freedom and Operation Enduring Freedom soldiers from pre-deployment to one year post-deployment. This was called the Heroes Project. And what we found was over 50% of military personnel returning from OEF/OIF were reporting symptoms consistent with CMI. Since then, we've followed up and looked into the VA medical record of OEF/OIF Veterans to see how many are being diagnosed with CMI, and we find 5% of OEF/OIF Veterans are diagnosed with CMI. Next.

An enduring question is what is the overlap of CMI to PTSD? I don't think I've ever spoken with a Veteran with CMI who hasn't told me that at one point or another they weren't told that they didn't have CMI, it was just PTSD or another mental health disorder. So this is data from the Heroes Project. And what we can see by looking at this in diagram is that CMI and PTSD have high overlap. They're highly comorbid, but they're not the same thing. Not everybody with CMI also has PTSD. And this is consistent with what we find in the literature. So there was a meta-analysis that looked at the relationship of CMI to mental health disorders and concluded that while there is high overlap, these are not the same thing. They're separate conditions and they both need to be treated for patients with CMI. Next.

Another important question is how disabling is CMI? So because CMI doesn't have a biomarker or something that we can test for, sometimes questions arise of how important is this condition or how serious is this. And one way we can assess that is by looking at the disability levels of our Veterans with CMI. So this, again, is from the Heroes study, so this is only one year after deployment.

We looked at the relationship between screening positive for CMI and scores on the SF-36. So the SF-36 assesses physical health function and mental health function, so problems in daily activities and social participation due to physical health problems and mental health problems. The population mean of the SF-36 was 50, with a standard deviation of 10. What we can see with this data is that for Veterans without CMI, the mean levels of health function are similar to a population mean. We see increasing deficits in health function, with increasing levels of CMI. And if you look at the comparison between Veterans without CMI to Veterans with CMI, we see over a standard deviation difference. So standard deviation is 10 points, so over a standard deviation difference between those without CMI and those with severe CMI. Generally with SF-36, around a two- to three-point difference is considered clinically significant. So we see a big impact of CMI on Veterans' health functioning and disability. Next.

CMI is particularly relevant to the VA because it's a presumptive illness of Operation Desert Shield/Desert Storm, and Operation Iraqi Freedom. So the VA has an obligation to provide quality care for these Veterans. The National Academy of Medicine has written 10 volumes on CMI for Veterans, which strongly urge the VA to improve research and the quality of care for these Veterans. Next.

So in conclusion, what we've seen is that CMI is a prevalent, disabling, and poorly understood post-deployment health problem and that it's a presumptive illness of Operation Desert Shield/Desert Storm, and OIF. Next.

The experience of CMI is exasperated [sic] by poor healthcare. Next.

So if we look at civilians with CMI, what we see is that civilians with CMI have about double the healthcare utilization as patients with other chronic conditions. Further, around 30% of civilians with CMI are prescribed opioids, which is counter-indicated for CMI. So we did some of the first work looking at the VA medical record to see about the prevalence of healthcare utilization of Veterans with CMI. And what we find actually very closely mirrors what we see in civilians, which is Veterans with CMI have twice the healthcare utilization of Veterans without CMI in the VA. Further, because we know that CMI increases after deployment, we can actually look at changes in healthcare utilization as CMI is developing. When we do that, we see immediate increases in healthcare utilization for these Veterans. Finally, we also find that about 30% of Veterans with CMI are prescribed long-term opioids. Next.

So it's not just the quantity of healthcare that's a problem for Veterans with CMI. It's also the quality of healthcare. So providers report that CMI is the most difficult condition that they treat. They describe patients with CMI as difficult or heart sink. They don't feel equipped that they have enough knowledge and skill to effectively treat patients with CMI. Patients with CMI similarly are disappointed with the healthcare they receive. Over 60% of patients, civilians with CMI report being dissatisfied with the care they receive. They report poor coordination between primary care and specialty care. They're disappointed in the primary care and also in their mental health care. Next.

So we did some of the first work looking at what is the level of satisfaction of Veterans with CMI. So we surveyed 200 Veterans with CMI and we asked them on a scale of one to five what is your level of satisfaction with your healthcare. These are all Veterans receiving care in the VA. What we find is on a scale of one to five, their mean level of satisfaction is 3.39. So if we compare that to Veteran satisfaction in the VA, we can see that this is lower. So the VA contracted with an independent assessor who assessed for satisfaction levels of Veterans throughout the VA. And they find about 80%, they find scores of 80 on a scale of one to 100. So if we scale that to one to five scale, we see the average Veteran has a 4.1 level of satisfaction.

To say this in another way, we can look at what's called a top box score for satisfaction. So a top box score looks at just the Veterans who report that there's a highest level of satisfaction on the Likert Scale, so very satisfied with the care they received. And across the VA, we see about 60% of Veterans have that top box score, so they are the most satisfied with their VA care. In comparison, we find around 20% of Veterans with CMI have that top box score of satisfaction. So this suggests that these Veterans are less satisfied with their care as compared to other Veterans, who in general Veterans are very satisfied with VA care. Next.

In fact, consultations with Veterans with CMI have been referred to as a tug of war where the provider and Veteran are each struggling to bring the complication into their area of expertise. So for the Veteran, that is their experience with CMI, their suffering of having CMI. And for the provider, that's their view inside the patient's body, their knowledge of the science behind it and so this discordance, this disagreement about what is CMI, what is the nature behind it. If we ask experts, so a systematic review of experts' opinions found that most experts agree that this disagreement is one of the key aspects of poor care for patients with CMI. And metaphysicists of qualitative research with providers and with patients all find the same theme, that patients and providers and experts all report disagreement between patients and providers about CMI as driving poor satisfaction and poor quality care. So next.

So why is this disagreement so important? Right? There's so many factors that go into quality care. Why would this one aspect of disagreeing about CMI be thought to be the key to improving care with patients with CMI? Well, it's because most of the management of CMI happens outside the medical encounter, so similar to many other chronic conditions. Veterans with CMI have to change their activity levels. They may have to use stress reduction. They may have to change their diet. They have to remember to take their prescription. And all of these things require the patient agreeing with the treatment recommendation and then actually putting effort into making those changes. And what drives the patient management of CMI is their belief about CMI. So a Veteran who thinks that CMI is caused by stress is going to work on reducing stress through relaxation exercises or seeing a mental health provider, while a Veteran who feels it's a physical health condition may be really good about taking their medication or going to see their primary care provider.

Providers use a different approach. So we assess the Veterans and we try to understand what is underlying these symptoms. We come up with a medical diagnosis, and that diagnosis leads to what we recommend for treatment. And when Veterans and providers don't agree, then you have low satisfaction and low adherence. So if a Veteran feels my CMI is a very serious physical condition that is killing me and the provider feels there's nothing showing up as wrong in any of my assessments and so therefore this is not a serious physical condition, it's stress related. Then the Veteran is going to view the provider as being dismissive and having low expertise in this area, not really understanding what's happening. Next.

That's exactly what we see. So we did qualitative interviews with 30 Veterans with CMI. What we heard over and over again is Veterans telling us that they are told their CMI is all in their head. It's PTSD, that it's depression, or that it's just simply something that's not real. And this leads to Veterans being unsatisfied, unadherent [sic], not wanting to talk about CMI with their providers, and in the worst case situations just leaving medical care altogether. Next.

The other thing we heard is Veterans asking where are the experts? Veterans come to the VA because they view the VA as having experts in exposures, in military exposures and military experiences, and the healthcare problems that arise from their combat deployment. And yet Veterans feel that providers often don't ask them about their military exposures or their combat experiences, and that makes them feel really frustrated. Who is the experts that we can turn to who can help us understand this health condition that's resulting from my combat deployment? Next.

We've also done some research to understand quantitatively how impactful is this having incongruent beliefs between patients and providers, those that really drive poor satisfaction. What we can see here, this was a survey of 200 Veterans with CMI, that when the Veteran thinks they agree with their provider, thinks them and their provider are on the same page about what is CMI, close to 50% are satisfied. So that's really exciting because that's getting close to what we see across the whole VA with the top box score of satisfaction levels. In comparison, Veterans who disagree with their provider, only about 12% are very satisfied with their VA care. Next.

Another way of asking this is to ask the Veterans what do you think basically is causing your CMI and what do you think your provider thinks is causing your CMI? Then we can graph that in three dimensions and look at every combination of patients' beliefs about CMI and patients' beliefs about providers' beliefs about CMI and the level of satisfaction. That's what this graph is. So we asked patients do you think there's a biological cause to your CMI and do you think your provider thinks there's a biological cause to your CMI? And what we get is this rainbow shape. At the bottom you can see this dotted line moving backwards. And that's the line of congruence. So that's the line where patients and providers both agree, so they either both agree that CMI is caused by a biological cause or they both agree that it's not caused by a biological cause. So they're both in agreement regardless of if they think there's a biological cause or not. And if we follow that line up, we can see that's the highest point of that rainbow is exactly along that line of congruence, and that's the highest level of satisfaction.

So this is important because for a long time we thought if we could just convince Veterans that there's a stress component to their CMI, we can improve their care. What this data suggests is it's not important if Veterans think there is a biological cause or don't think there's a biological cause. As long as they feel like they are in agreement with their provider, they will have high levels of satisfaction.

We can also see this same exact phenomena if we ask about psychological cause of CMI. So again, this is a Veteran saying how much do you think there's a psychological cause and how much do you think your provider thinks there's a psychological cause? And again we see this rainbow shape where the top of the rainbow is the highest level of satisfaction, and that's exactly where Veterans and providers are in agreement - from the Veterans' point of view. Either they both agree it's psychological or they both agree it's not. So regardless of what they think is happening, if there's agreement, the Veteran is satisfied. Next.

So this data has really led us to believe that the key to improving the satisfaction of Veterans with CMI is for Veterans and providers to have shared beliefs about the cause, recommendations, and nature of CMI. Next.

So in conclusion, what our data is suggesting is that Veterans with CMI are unsatisfied with VA care and that this discordant belief about CMI is really pulling that poor satisfaction. Next.

So what is patient-centered care for CMI? Next.

So our data so far has suggested that patients and providers need to have shared beliefs about CMI. So if we want to think about developing shared beliefs, an important question is what are the beliefs of Veterans with CMI? What do they think is causing CMI? And previous research on this with civilians and Veterans has suggested that patients with CMI primarily think their CMI is a physical health condition. And this research has come to a conclusion by often asking patients is your CMI physical or psychological or environmental or another factor, what is primarily driving your CMI? We really got interested, after talking with Veterans, to see do Veterans have a more complex understanding of their CMI?

So we wanted to ask in a different way. So what we did is we gave Veterans a list of 15 symptoms, so this is off of the PHQ-15, which is a screener for persistent physical symptoms that's often used. We just asked which of these symptoms do you have and have had in the past month, and what do you think are causing those symptoms? And what we found was this lovely rainbow pie of different explanations and understandings that Veterans had about their symptoms. So they didn't just think physical causes cause their symptoms. They recognized that when they were stressed, their heart rate was faster and they had stomach distress. They recognized that their diet and their physical activity influenced their symptoms. They also recognized that their medications were leading to symptoms and that their better understood health conditions, like asthma or diabetes, were also contributing to their symptoms. They also had symptoms they didn't have an explanation for.

And finally, they had, they in general did believe that their condition was a physical one but that many factors influenced it. So this is really consistent with a biopsychosocial model of CMI, which is consistent with how the medical field is currently viewing it, that it's a physical condition that's influenced, like all physical conditions, by a variety of factors. Next.

What we also heard is that Veterans want to improve their quality of life. Next.

Eighty-one percent of Veterans with CMI feel that is has major consequences on their life. Next.

When we asked Veterans with CMI what are your goals, what do you want help with, what we hear is that Veterans with CMI want help improving the things that we all want to improve. They want to improve the relationships with friends and family. They want careers and vocations that are meaningful to them. They want to build houses. They want to retire. They want to enjoy their life. And they also, they do want to improve their health. But it's not the only thing that they, that's not their only goal. They're not solely focused on just making their symptoms go away. They have a really, a whole health view of how they want to improve their quality of life. Next.

So we also asked Veterans what's the most helpful thing a provider has said to you regarding your CMI? So we asked this of Gulf War Veterans with Gulf War Illness, so 200 Gulf War Veterans with Gulf War Illness because they have been dealing with CMI for over two decades now and have had many healthcare experiences. If we can understand which of them were most helpful, then we can develop patient-centered treatments that address what they find to be most helpful.

So what we found is that about a third of Veterans told us that nothing they have heard from a healthcare provider is helpful. So this is consistent with the previous literature suggesting that often Veterans with CMI are unsatisfied with the care that they are receiving. But we were really happy to see that about two-thirds of Veterans with Gulf War Illness were able to identify something that was helpful that their provider said. So we went through and coded the responses of Veterans with CMI, and what we saw were two main themes. So Veterans felt, about a third of Veterans felt the most helpful thing a provider had told them regarding their CMI was acknowledgement and validation. So your health condition is real. It's causing a lot of suffering. It is not just in your head. This is a major problem and we need to help you solve it.

The other thing we heard was that Veterans told us specific recommendations were the most helpful. So recommendations they got from providers that were actionable, changes to their diet, a medication, advice to seek mental health treatment, specific actionable things that they could do to change their CMI. Next.

So far, in thinking about solving patient-centered care, our data suggested that Veterans had a pretty comprehensive view of the factors that influenced their CMI, they wanted to improve their quality of care, they wanted treatment that was acknowledged and validated their experience and also provided specific recommendations. Now clinical practice guidelines for CMI suggest non-pharmaceutical approaches are used first. Specifically cognitive behavioral therapy is often recommended. But it's not clear how receptive Veterans are to those types of recommendations.

So we did a national study and we asked Veterans with symptoms consistent with CMI are you interested in these non-pharmaceutical treatments that are often delivered in the mental health setting. What we found was that over 60% of Veterans reported that they were interested in cognitive behavioral therapy, that they were interested in mindfulness, that they would like to receive health coaching. We did provide a description of each of these interventions when we were asking them. We also found that most Veterans didn't feel their providers were recommending these treatments, but when they did recommend them the Veterans were more likely to say that they wanted to receive them. So Veterans were listening to their providers and that led them to be more interested in these types of treatments. Next.

Okay, so if we're thinking about developing patient-centered care for chronic multi-symptom illness, it's important to look at what has been the effect of non-pharmaceutical approaches of CMI and other studies. And what we find is that there's relatively low adherence to psychological treatments for CMI. So we did a telephone treatment of cognitive behavioral therapy for CMI. And what we found was around 60% of Veterans completed 60% of the sessions. Another trial of in-person cognitive behavioral therapy, more of an effectiveness trial, found a little less than 40% of Veterans with CMI completed 66% of treatments. And the most recent study of a mindfulness study found 70% of Veterans with CMI completed at least 44% of the treatment. So our goal was to develop a patient-centered treatment that would address what we found to be Veterans with CMI beliefs about CMI and that may, would increase adherence and satisfaction over levels that we've seen in other trials. Next.

So we developed a problem solving treatment. So this was 12 sessions delivered over the phone, and our goal was to listen to the Veterans, understand their experience, and teach them specific skills to improve their quality of life. Next.

So the next two slides are pictures straight from our manual. In developing our manual, what we wanted to do is really address what we were hearing from Veterans. So what we were hearing anecdotally from Veterans is that chronic multi-symptom illness causes brain fog, and that makes it really hard for them to manage their CMI and have a good quality of life. So that is exactly how we approached problem-solving therapy. We described their brain fog like sand in a funnel and it made it really hard for them to have clear thoughts to improve their quality of life. Next.

This is really important for CMI, for all of us having brain fog or not being able to think clearly, impacts our ability to do the things that we want to do. For Veterans with CMI, this is particularly important because they don't just have to do the stuff we all have to do, they also have to manage their CMI. So they can't just jump in a car and drive to D.C. to go to a conference. They have to think through, do they need to leave a day early to give themselves a day to rest? They need to plan so that there is food available for them that will not cause them to have irritable bowel symptoms. They may need to make sure that their hotel room is close to where the meeting is being held so that they can take breaks in between, so all of these things require problem solving and being able to think through. When you're having brain fog and when you're not able to think through and problem solve all these steps, it makes it very hard to manage your CMI, which can increase your disability.

So our treatment framed this around the brain fog they were having and then taught them specific skills to improve their problem solving treatment so they could address the problems they were experiencing in everyday life and also address the problems that they were having managing their CMI. Next.

So what we found, we have randomized 268 Gulf War Veterans with Gulf War Illness to our treatment and half of them received out telephone delivered problem-solving treatment. What we have found was that 85% of Veterans who have received this treatment complete all 12 sessions, so 100% of the sessions are attending. We also see that if we look at 60% of sessions, which is an active treatment dose, we get over 90% of Veterans who are randomized to problem-solving treatment completing 60% of the treatment. Some of our high adherence is due to the fact that we're delivering it over the phone, right? Which is easier for the Veterans to receive. But we previously delivered telephone treatments to Veterans with CMI and not seen this high level of adherence. Next.

So we also find that Gulf War Veterans with Gulf War Illness are very satisfied with our treatments. So if we look at the top box scores for quality treatment, if they'd refer a friend, how satisfied they are, we find well over 60% of the Veterans who were randomized for problem-solving treatment are reporting the top box score. This was really exciting because it was consistent with what we see with Veterans across the VA. And if we look at the top two-box score, so very satisfied or mostly satisfied, I would definitely refer a friend or likely to refer a friend, what we find is 93 to 97% of Veterans who were randomized to problem-solving treatment were very satisfied with the treatment and would refer a friend. Next.

We also conducted qualitative interviews with Gulf War Veterans after they received our problem-solving treatment. And what Veterans describe is that this addressed the needs they had and made them feel more like they felt before they came down with Gulf War Illness. It helped them to better problem solve and think through the problems in their daily life. Next.

So throughout this talk I've describe what is chronic multi-symptom illness and argued that CMI is a prevalent, disabling, and poorly understood post-deployment health condition, and it's also a presumptive illness of Operation Desert Shield, Desert Storm, and Operation Iraqi Freedom. Our research suggests that Veterans are dissatisfied, Veterans with CMI are unsatisfied with VA care, and that discordance of beliefs between the Veteran and providers is really driving this poor satisfaction with care. When we're thinking about developing patient-centered care for Veterans with CMI, we want to make sure that our treatments address Veterans views of CMI and provide specific treatment recommendations that are actionable, and that using this approach we created a behavioral intervention for CMI that has high satisfaction and high adherence among Veterans with CMI. Next.

So I want to thank you and turn it over to questions.

Robert: Thank you, Dr. McAndrew. We do have one question that just popped up. Audience members, if you'd like to ask a question, please go ahead and use that questions pane in the GoToWebinar dashboard or control panel, type it in, and I'll ask the question. From a data perspective, how can patients with CMI be identified in the CDW?

Dr. Lisa McAndrew: Oh, that's a very good question. Are you, my follow-up question to whoever asked that question is are you thinking of for research or recruitment because I think there's a different answer depending on what your question is. So for recruitment, what we do is we've created an algorithm working with VINCI because there's not a great way to capture CMI in the medical record as this question is alluding to. And we want to make sure that we are capturing not just Veterans who are diagnosed with CMI because we think most Veterans with CMI actually don't get a diagnosis but any Veteran with CMI. So we've created an algorithm that works pretty well with capturing Veterans with CMI, and I'm happy to share it if you want to contact me offline, that looks at patients with chronic pain, patients who have a CMI diagnosis among other things.

If you're looking at it from a research point of view or you want to do a surveillance, there are codes, ICD-10 codes, for fibromyalgia, chronic fatigue syndrome, irritable bowel, and so looking at those Veterans is the clearest way to get a population that pretty clearly has CMI, with an understanding it's probably an underestimate of the true position.

Robert: Lisa, this person answered that they're interested in operational research. I think you answered the question.

Dr. Lisa McAndrew: Yeah. Drew, do you have anything you wanted to add to that?

Dr. Drew Helmer: No. I think that's right. I mean some of the details about the algorithm that you've developed for recruiting purposes has to do with there is, there are periods of service flags and even deployment flags that are not necessarily complete but are potentially available. You can also use age cutoffs. I think you've also looked at some of the pain ICD codes in order to narrow the field a little bit. But I think it's a little bit of an art to identify people in the CDW. I think there are some ongoing, we're involved with some ongoing activities to try to use some natural language processing to perhaps construct a case definition that would be able to be applied in the CDW that would be validated with self-reported symptoms. Stay tuned for that. There may be more in the next 18 to 24 months about whether that's going to be a viable option for identifying people with CMI. But I think right now what you've described is really the state of the art.

On a separate not, though, I did also want to just let the audience know that the WRIISC has developed e-learning modules with VA employee education services, so these are synchronous online fully accredited continuing education courses. The first three are in how to do an exposure assessment, airborne hazards. The third one is actually on Gulf War Illness, that kind of related to what Lisa is talking about here. The fourth one will probably be released in February. It's almost complete. Then it has to go through 50A compliance and a little bit of processing, but the topic is chronic multi-symptom illness. Dr. McAndrew was instrumental as a subject matter expert in the creation and development of that product. These e-learning modules are available through TMS and also through a platform called train outside of the VA. So if you know people who want to learn more about of these topics, but particularly Gulf War Illness or chronic multi-symptom illness, Gulf War Illness module is available and the chronic multi-symptom illness module will be available hopefully in February of 2019.

Robert: Thank you. We don't have any more questions queued up at the moment. Personally, I'd like to thank you both for your work in this field. I think it's particularly poignant on this day so close to Veterans Day, just a personal note. Audience members, if you have any more questions, please go ahead and you can use the questions pane in the GoToWebinar dashboard. Lisa, maybe you have some closing comments that you'd like to make at this time.

Dr. Lisa McAndrew: Oh, well I will say I really appreciate the audience calling in to this and giving us an opportunity to talk with you about something that we think is really important and poorly understood. And I'll echo Drew's comments that there are trainings and also the WRIISC has a website that has webinars and other information about CMI that can add additional information that I think people find helpful. I think that sums up my closing statement.

Robert: That website, it'll be difficult to put it up on the screen right now, but maybe if you could give an explanation as to how people can find that, it's W-R-I-I-S-C.

Dr. Drew Helmer: Actually the main WRIISC website is www.warrelatedillness, all one word, dot VA dot gov. So warrelatedillness.va.gov, and then from there you can see our education offerings and also some of the research activities that we have ongoing and a description of our clinical programs as well.

Robert: Wonderful. Thank you. Dr. Helmer, I don't know, I think you already made pretty much closing comments, but I'd like to give you an opportunity just the same.

Dr. Drew Helmer: Thank you for this opportunity. Lisa, I think you did a great job. It's very great. It's wonderful to see you in this role as a subject matter expert at the end of your Career Development Award or toward the end of your Career Development Award, and a very nice summary of your work to date. Thank you.

Dr. Lisa McAndrew: Thank you.

Robert: Wonderful. Thank you both again for your work in this field and for preparing and presenting today, especially you, Dr. McAndrew, for your presentation. We never did get any more questions, so I'm going to go ahead and close the session. Audience members, when I do so, please do stick around and fill out the survey, it's very short, that comes up. It's only a few questions, and we really do count on your answers to continue to bring you high-quality Cyberseminars such as this one. I'm going to go ahead and close the session. Once again, Drs. McAndrew and Helmer, thank you. Oh, we just had something pop up. Somebody would like us to provide contact information for follow-on questions.

Dr. Lisa McAndrew: Sure.

Robert: Would you pick this up for me, put that up? If we could, do you have a slide, Lisa? I don't think you do that has [inaudible 53:05].

Dr. Lisa McAndrew: Yes. My slides [audio hiccup 53:06] up, at least I can add my...

Robert: Well, they're being shown from my screen.

Dr. Lisa McAndrew: I just typed in the chat box the...

Robert: Oh, okay.

Dr. Lisa McAndrew: ...my email address. Did it pop up?

Robert: Hold on a second. Let me see if I can grab it. No, I don't see it. Let me [inaudible 53:29].

Dr. Lisa McAndrew: So my email address is...

Robert: Yes, it's Lisa.McAndrew@va.gov. That's probably the best way to get that across to everybody.

Dr. Drew Helmer: Right. And mine is Drew.Helmer@va.gov. D-R-E-W dot H-E-L-M-E-R at VA dot gov.

Robert: Well, I just sent out Lisa's email address to everybody to the answers to the questions, and it's Lisa.McAndrew@va.gov and Drew dot Helmer, H-E-L-M-E-R at VA dot gov. Thanks again doctors, and everybody have a good day.

Dr. Drew Helmer: Thanks.

Dr. Lisa McAndrew: Yes.

[ END OF AUDIO ]