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Presenter: Robin Masheb, Steve Luther

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Robin Masheb: Good morning everyone. This is Robin Masheb, Director of Education at the PRIME Center and I will be hosting our monthly pain call entitled “Spotlight on Pain Management.” Today’s session is “Pain Care Quality and Integrated and Complementary Health Approaches.”

I would like to introduce our presenter for today, Dr. Steve Luther. Dr. Luther is a Health Services and Informatics Researcher and Assistant Director at the Tampa HSR&D Center of Innovation on Disability and Rehabilitation Research. He is also and Associate Professor at the University of South Florida, College of Public Health, Department of Health Policy and Management. His research interests focus on outcomes, measurement of veteran populations, particularly those with disabilities in chronic condition.

We will be holding questions for the end of the talk. If anyone is interested in downloading the slides from today, like Molly mentioned previously, you will see in your reminder email a link that you can get to the PowerPoint presentation. Immediately following today’s session, you will receive a very brief feedback form, please complete this as it is critically important to help us provide you with great programming.

And now, I am going to turn this over to our presenter, Dr. Luther.

Stephen Luther: Thank you very much. I hope everyone can see the slides.

Unidentified Female: We can, thank you.

Stephen Luther: Great. So, I want to start with a little bit of a disclaimer. I was asked if I would participate in this presentation a month or so ago and I said, “I would be delighted to.” And I assumed, and then later was confirmed, that I was going to talk about our study, “Pain Care Quality and Integrated and Complementary Health Approaches” and last week as I was putting the slides together, it was clear to me we probably put a colon, ongoing study or something. I hope that folks do not feel a little bit bait and switch here. If that is the case, it was a sin of omission not commission on my part in trying to put this to slides. But, what I am going to do is talk a little bit about a study that we have ongoing. Bob Kerns is the PI and Cindy Brandt and I are co-PIs on this study. The title which… And this is an interesting study. It is jointly funded by the NIH and the VA and funded by the National Center for Complementary and Integrative Health and by VA HSR&D and so, in that regard, it is a five-year study and really an exciting opportunity for us to sort of build on some of these areas. I am going to be talking a little bit about, just about the study mostly.

So, the goals of my presentation today are to go over the background and rationale for the study, tell you what the research questions/hypotheses are, design and methods, our study progress to this point and then next steps.

The study background and rationale are such that there is limited availability of reliable Pain Care Quality indicators and metrics. And so, efforts to improve these hinge on our ability to reliably…to identify and reliably quantify indicators and then to promote these indicators in a system-wide use of all of the improvement efforts.

The VHA’s National Pain Management Strategy can benefit from these automated approaches to measure in a number of ways. And in this case, leveraging the power of the electronic health record and to begin to use this powerful tool to investigate relationships between new measures of quality of pain and the utilization of complementary and integrative care.

Key dimensions of pain care quality have evolved in the VA over the last ten years or so and there are sort of two energies that this study brings together and one is the idea of the key dimensions of pain care quality, which relates to timely and appropriate comprehensive pain assessment and then pain treatment plan, a reassessment of the effectiveness of the plan and then the patient and family education. These are all components that have been identified as measures of good quality care and in this study, particularly, we are interested, the VA is also interested in how complementary and integrated health approaches can be sort of tailored and whether those complementary approaches can be, are associated with the broader measures of quality of care. We sort of, in this study, we are sort of linking those two energies.

There are really sort of two lines of research that this study brings together. The first line has to do with prior chart review study that looked at pain care quality indicators in a random sample of 200 primary care providers of 200 patients at two facilities. This was Bob Kerns and his colleagues did this study and the results suggested that there was good documentation across the various components of pain care quality and that those documentations with chart review could be reliably identified. So, we have, again, the pieces, the presence of pain, the source, the sensation, the consistency that triggers pain medications, pain consults, diagnoses, etcetera.

In the same time, the other sort of energy that has evolved, particularly here in Tampa, we have been on of the sites in the VA that has been doing work on extraction of information from texts through the electronic health record. We have been fortunate to have a series of studies funded over the last eight or nine years that look at a variety of topics. The two I have highlighted here, first is the Consortium for Healthcare Informatics Research, which was a large multi-site study in which we began to work with Dr. Brandt and her team in West Haven in Yale to work on, actually, PTSD outcomes and from that we evolved this study on pain care quality implementation. So, this work really sort of begins to take, “Can we take what we have learned about extracting text information and apply it to the important quality measure related to pain?”

So, this is the research questions and hypotheses for the study. I will briefly go through these. What I am going to talk about today is mostly Aim 1, which is where we are right now, but I will just go over all of them. I want to talk about how this is going to evolve into a larger study as we go.

So, the Overall Aim is to develop a method to assess quality, state-of-the-art pain care, quality in integrated health systems by employing the Stepped Care Model of pain. Basically, we are looking at the VA system and seeing if we can measure the pain care quality in the electronic medical records and how does it relate to the integrated health system. And Aim 1 is really the important piece that we are going to talk about today is to identify and quantify empirically-derived, key dimensions of pain care quality in veterans with musculoskeletal pain. So, we focus here on musculoskeletal pain.

Once we can identify and quantify those measures in a large cohort, we then have two other aims that we want to do. The first one relates to taking a large, nationally representative sample of veterans. New veterans receiving complementary health and integrative health approaches they will be significantly more likely to have these higher quality of pain care quality measures. So, is there an association between receiving better quality care and use of complementary and integrative health. And also, we want to look at whether comorbid mental health and substance abuse has an impact on the key dimensions of pain care quality.

Again, here the idea is that we are beginning to generate information from the large data to really look into some of these important issues.

This is just a slide that I stole from Bob’s talk that is about the Stepped Care Model. I am sure the people on this, listening in, you know a great deal about the Stepped Care Model, which has been implemented in the VA. Most of our work in this study will relate to the work that happens in the primary care, but I put that up just to remind you of what it is because it relates to our third Aim, which is whether VHA facilities that have adopted the Stepped Care Model also provide higher pain care quality. So, the idea is that we would… We have these measures of pain care quality at the facility-level that… Are new patients that are in the facilities that have adopted the Stepped Care Model more quickly, are they more likely to have higher pain care quality and also, does this relate to complementary medicine?

So, what we are doing now is we are building the building-blocks of the further studies that we are going to do later in this study; the analysis we are going to do later in this study.

So, now, we are going to into some of the design and methods of the study. It is obvious it is a secondary database study on the VHA electronic health record. A lot of the information we are going to pull out will be in available structured data; ICD codes, etcetera. And those methods will be used that are similar to other secondary data studies; we will extract, we will clean, we will analyze using common methods, statistical methods for secondary data. The part that may be a little new or unique to this audience is that we are also going to try to extract and validate the information from the text data using natural language processing or machine-learning methods. Once we do that, we are going to be, hopefully be able to take the structured data and the text data and combine it into these analyses.

So, just a little bit about natural language processing. To do natural language processing what we start with to support the analysis is we develop a reference standard set of documents. The idea would be that we want to do a large document sample and we in Tampa, try to typically do around two thousand for national studies. And then we are going to do on that, a specialized chart review or annotation, that is done by two independent reviewers and then a third expert adjudicates the results. So, our goal is to have two thousand or more documents at the end of this from the whole, across the VA, that show how the documentation is done in various places and exactly the types of places they are and where they can be found.

When we do this, we put a lot of effort into the validation of the reference set. we develop a detailed annotation schema and then we test it and we literally, iteratively see how it is doing compared to expert review, back and forth, and that takes several months typically. Once we have the data sets, though, the NLP systems can be trained and iteratively find on those two thousand or so document data sets and then applied up to the larger cohort and combined with structured data and get to our Aims, or hypotheses and Aims 2 and 3.

So, just before I move into something… Just to give you an idea of what this work is kind of about, if you see on the slide… This is, I call this sort of a data hierarchy. We are all pretty familiar that we have facilities and we have patients nested within facilities, then typically we have visits, multiple visits nested within the patient depending on the time. If these are outpatient visits there often is at least one document, sometimes two or three documents, associated with that visit. And then structured data… If these are hospitals, it may be hundreds of documents, but here were are talking mostly about outpatient. So, we have the structured data…and then what you have to think is that these pain quality concepts, the pain quality care concepts are nested within the document. So, what we are trying to do, is we are trying to reliably extract those and then assign them to this visit, compare them with structured data or combine them with structured data, then go to the patient, then the facility, such that we are expanding sort of the hierarchy that we normally have to deal with; the nested data we would deal with and there is a lot of… The building-block, though, is getting these concepts correct at the bottom.

So, what are we doing? For our reference standard sets, we started with a large cohort, there is over almost three million in musculoskeletal registry, and from there we have extracted over three hundred thousand, almost three hundred and ten thousand patients that have pain intensity scores of greater than four over a three-year period, and that becomes the cohort we are going to apply the big statistical analyzes to. But for that, for the purpose of the NLP, we need to find a sample that we can do chart review on. So, as part of that, what we have done is we have gone to look at the hundred and thirty facilities in the CDW, the corporate facilities, and we have taken a random sample of 64 males and 13 females, an oversample a little bit of females on the proportion of patients, and we have brought those down and we created a cohort of eight thousand two hundred males and about sixteen hundred females and this represents almost four hundred thousand documents written about these patients in the period we are involved with. The thing from our standpoint is, there are, in the whole cohort of documents, about twenty one hundred different note titles and we realized that many of these note titles are things that have nothing to do with the targets we are looking for in this study, so one of the things we do is we begin to narrow it. We narrow it by taking out notes related to x-rays or dentistry and that kind of thing and we also narrow it by looking for documents that are rich with the terms we are focused on. In this case, we narrowed it to primary care provider notes, which dropped it down to about ninety-nine thousand documents and a hundred and one unique titles. That is the group from which we take our samples of two thousand.

Now, because there are so many rich numbers of concepts that we are targeting for this study, because there is sort of a wide number of concepts we want to try to extract from the text, we actually have divided it into two passes. If you have very long lists of concepts that you ask a reviewer to go through and a chart review, it can be a lot of heavy cognitive burden. So, what we did was we broke it into two passes of approximately two thousand documents that we have been involved with and so that is what we are doing right now.

This is a little small. I do not know how well it projects to you up there, but you can download these slides and I think see it, but this I think will give you an idea of how we took these concepts from the pain care quality measures and then split them in to the two passes. In the first pass, we focused on pain mention, assessment and reassessment and we looked for different attributes associated with assessment; aggravators, intensity, etcetera. And then also looked for diagnostic etiology mentioned and pain site. At the bottom, we did, we looked for some preliminary things on treatment, but really pass two focused primarily on treatment. We sort of gave ourselves a leg up for pass two.

I would also just mention to you, on both pass one and pass two, there is a set of targets called assertions and what this lets us do, is it lets us capture information that will help build the NLP system to sort of ignore things that are not really what we are looking for. This is the difference between extensive NOP work and simple word search. For example, if the patient said, “Well, I used to have pain, but I no longer do,” that would be considered historical comment and we would link that, we would show that in our annotation process and then build our models to try to ignore the historical. Or if the patient said, “My wife has really been in a lot of pain lately and I have had to take her somewhere,” we might, we would like that to be in a reference not to the patient.

If we look over at the treatments, we can see that there are a lot of different treatments that we are working on and then also consult and kinds of physical diagnosis, side effects, etcetera, to try to build in these… see how well we can build these concepts. In the middle there, you can see that we are going to also try to pull information about CAM. We are going to look for CAM in the structured data, but we are also going to look for CAM in the text.

Just before we go, this is not from this proposal, it is from a different proposal, but it is just a screenshot to give you an idea of the software we use to actually do the annotation process and what happens is that the concept that you are looking for becomes sort of the links over here and you click on that and you click on a word and you click on that color and it becomes linked to that color and to that concept. And then you can see how there is this little line that gets associated with it. Well, if we were talking about historical pain we might say pain before and we would link to that. the important thing, again, to see that what we do is our output from this effort is not only just what you would consider in a traditional chart review sort of a table that says, “Patient A has X and patient B has Y,” but rather within the document, the terms are actually used that mean the concept and where they exist and how they are linked to other words. That allows us to build NOP pipelines that are precise and specific enough to begin to generate the pain care quality concept.

Another thing that we are going to do with this, and as we do the second pass, we are looking for how complementary and alternative medicines are documented in the chart, but we wanted to get something to start with so we have gone to some publications from the VA and we have gone to websites and we have actually begun to build a vocabulary that has terms. This is just some of several hundred terms we have come up with and what we are going to do is take this vocabulary, and it will be a sort of a look-up table, but we are going to add the things we find from the extensive chart review and one of the products of this paper or this study, outside of the specific aims, will be developing methods to look for these kinds of things that can be used by other research.

As we continue, we are just about finished with the first, both the annotation and adjudication of the first wave of annotations and then we are going to begin to develop natural language processing systems with that. Particularly, I thought there would be a number of people on the call today who are not familiar with natural language processing type systems, so I just put this up here. It is a little schematic diagram that shows the kind of steps and the way we typically think of a natural language processing system is it includes the analysis of the text in a series of steps.

Excuse me.

You can see the… Typically, there will be a sentence detector and a tokenizer and that actually picks little chunks of words and puts them together, or letters and then you try to attach parts of speech and try to identify phrases and then… You may want to look at certain sections of the document in its own way and map up the concepts and that is where you would have vocabulary and try to map it, negation, etcetera. And so, again, there is a lot of work in developing these reference standards, which we have been involved with for over a year now. What they do is they give us the kind of detail about the way the documentation is made that allows us to begin to build these robust models and move forward on answering the important questions.

So, this is the same slide I had before, but it goes back and you can see we are building complexity, but through our efforts we hope to be able to synthesize and generate sort of valid data at the patient and facility level to do our statistical models, but as you can imagine, it is going to be, as with any big secondary database study, there is going to be very complex statistical models that will followup after the efforts of the NLP.

Our colleagues at West Haven and Yale have been, while we have been working in Tampa sort off spearheading the NOP extraction piece, our colleagues have been working on developing statistical models that may help us in sorting out what is going on with this once we get our new expanded data.

Particularly, Ling Han has been working on developing new propensity scores for models where he took the whole three hundred thousand person cohort and if you just looked at people that had CIH versus those that did not, there might be some selection bias kinds of things and one way to get about that is look at propensity score models and he is beginning to do this built on the structured data, using acupuncture, massage, chiropracty and he is doing things that will allow us to look more validly at these comparisons as we evolve. I will admit that he is kind enough to share much of this work with me and I tell him how great it is, but sometimes it is… I would refer you to him if you have specific things about the details, the math behind all of it.

So, I am a little… I guess I was supposed to go a little longer, but I am sort of short and I do not know whether anybody is still left out there, but I want to thank you for having the opportunity to do this presentation. We have made a lot of progress on this study, but as you can see, we still have miles to go before we rest. I think that if I have not scared people off too much with the detail of this, I think we are in position in a year or so to come back and start to show some of the output that is related to this foundation work we are doing now. We think it will be exciting, we hope so and we are excited about the opportunity to do this. So, thank you very much.

Robin Masheb: Oh, sorry Molly. This is Robin.

Molly: Yeah, no problem. I was just going to remind people how to type in a question. If you have one, on the control panel down at the bottom of the section, click the plus sign next to the words ‘Questions’, that will expand the dialog box and you can submit your questions or comments there.

Go ahead Robin.

Robin Masheb: Great. Thank you Molly. I just wanted to thank you, Dr. Luther, for a great presentation. Please keep the questions coming in and we do have one. I also wanted to mention that I have Dr. Bob Kerns in my office with me, so he will be here to also take questions and make some comments.

Let me start with this first question that we have from attendees.

How has clinical insight helped you with the natural language processing component of the project?

Stephen Luther: Yeah, it is a key component… First of all, we started with… And I will let Bob talk about this, but from my standpoint, it is so great to have already started with a project that had already done a successful natural language or chart review using traditional methods. And then, as we developed the guidelines of what we are looking for, we feed that to our clinical colleagues and Dr. Kerns in it iterative process and sometimes we have to probably narrow a little bit. NLP cannot do some of the detail humans can do, but working with Dr. Kerns, from our standpoint, is a way to do that.

Bob, do you have comments?

Robert Kerns: Sure. Can you hear me?

Stephen Luther: Yeah.

Robert Kerns: Okay, great. So terrific job Steve.

Yeah, this has been a very interesting project for us, I think. We are learning about each other and the work that we do. I can say that, and I imagine there are plenty of people on the call that are considerably interested in this idea. We know the limitations of the structured data in the electronic health records, so there is lots of promise, if you will, about being able to extract information from primary care, in this case, primary care provider Progress Notes. We talk richness of these notes, we also can easily talk about how, maybe unreliable or all the problems related to them, but the bottom line is that working iteratively as we have, between me and the subject matter experts here at VA Connecticut who have put a lot of work into developing a manual chart extraction tool, and then with the informatics colleagues to use machine- learning and natural language process, it has been a learning for both of us. I think we are moving forward with NLP solution, but in the meantime, even on the kind of clinician side or the developing or further refining our manual, we are being pressed by our informatics colleagues to be even more precise and it is only improved our manual and pointed out some holes, where we have actually had to work to improve our integrator agreement and operational definitions of key constructs.

This is not easy work, but the promise is so great and I think, in particular in the area of pain, because we have such limited information in the electronic health record as it stands now other than pain intensity or things like prescription meds or encounters, ICD codes, we really do not have a lot of information. In particular, I would highlight information about, for example, functioning. To the extent that we can develop a reliable tool that measures these key constructs to our field that we called them, branded them dimensions of pain care quality. I am here, actually with Robin Masheb, who actually came up with that brand, that label and that term. Ultimately, if we can develop a reliable solution, you can see the opportunity to be able to use this back in the context of performance improvement, efforts, educational initiatives, with our primary care providers, other colleagues to help them get better at understanding these constructs and improve their documentation so that they can be more clear in communicating what they are observing. Their clinical impressions and improve the documentation of some of these key constructs like patients’ functioning or pain relevant interference.

To me, this has just been a great learning experience and I will just say one more thing. It seems feasible, even at this point… We are plugging away at it. I am optimistic that we will get a solution for this. this will only encourage me to think about other opportunities, for example, looking into Progress Notes for other aspects of pain management. Early signs of things going south in terms of a patients us of long-term opioid therapy. So, not… Maybe early signals that are being picked up by the clinician, documented in the record. If we can learn to extract these kind of more subtle construct, it may be able to be useful in early prevention efforts, for example, in that domain as well.

So, I am just truly excited about this. I imagine many of you can pick it up in my voice. The opportunity is great. We are working side-by-side. In this case, the partnership kind of between pain, people with pain expertise and the informatics experts, I think, is really very promising and I continue to be excited about.

Robin Masheb: Thank you Bob.

I am going to go back to some questions that we have from our audience. One I was particularly really interested in was about how you came up with the list of alternative therapies. Bob and I were actually together looking at the list and thinking, “What are some of these things?” And so, one of our listeners gave us the example that equine facilitated therapy was not mentioned, but therapeutic riding was. So, could you talk a little bit more, Dr. Luther, about the suggest list, how it came together, things like that.

Stephen Luther: Yeah, this is not supposed to be a final list, it was a beginning list. It sort of… We wanted to try to look for documents that might have things related to… It is sort of a chicken and egg. We wanted to try to look for documents might have some information in them about alternative therapies and there was not a published list. The National Library of Medicine has some big published medi thesaurus that has list that we can use and we did not find anything for that. So, literally, our investigator here, who really does the heavy lifting and all this work, went to… The VA has this document about complementary medicine and there was a list of terms there. And then we found some lists of terms on the web. Our goal will be to use the terms we actually find through the chart review to become the real list, but this was a starting point and so we just… I think that one of the things that this work will do is it will begin to develop those kinds of lists. I know we have some other colleagues in the VA that have done some of this and we are going to try to work with them too. So, it is a beginning process.

Robert Kerns: Yeah, this is Bob…

Stephen Luther: I cut some from the A-Es and then some from the N. There were like three hundred, so there was not any kind off a sample other than it was the beginning and end of long list.

Robert Kerns: I will just mention that we also, of course, did not try to separate those that are supported by evidence versus others. We really wanted to capture the broadest array of mentions of any kind of approach that could be considered complementary and integrative approaches, integrative health approaches. Starting with published list from the NCIH website or the VA’s list that has been used, for example, in the Health Analysis Information Group survey was just the tip of the iceberg. As you can see from the list that Steve presented, there is a large and growing number of mentions of these approaches. So, our first stab is to just try to capture any mention and then we will be able to do, essentially count, if you will. This may actually be very informative for VA’s efforts to build its capacity now by law, our capacity for these kinds of approaches and their availability for veterans.

Stephen Luther: So, one of the other things, and I will just say from an NLP standpoint, there are lots of acronyms and abbreviations to the KER and a lot of what NLP work is finding examples of those acronyms and abbreviations and so, that is the kind of thing that we will be discovering as part of our process.

Robin Masheb: Thank you. we have another question about the Progress Notes and exactly whose notes were screened or going to be screened. So, you mentioned that these were primary care providers notes. Are most of them MDs? Will nurses be included? Will you be doing analyses with breakdowns depending on the type of provider?

Stephen Luther: I think we… We have talked about that. I think we are probably going to focus on MDs and other providers including nurse practitioners. I think that is what we talked about, Bob, is that not?

Robert Kerns: Yeah and PAs. So, people that have the status, credentials as primary care providers are included. I will just jump in and say that our hypotheses in the original grant did not go into, Are there differences in the documentation, the quality by different professionals, but ultimately I think we will probably have the capacity to do that, although that is really not our priority. To go back to our Aims, really it is about really integrated these data with some data from the HAIG survey to look at implementation of the Stepped Care Model and whether facilities that are further along in implementing the Stepped Care Model have evidence of greater pain care quality. And then there are certain patient characteristics that we are interested in, those with mental health concerns are going to be looked at specifically. And then, of course, we have a specific interest from our funder, the National Center for Complementary and Integrative Health and VA, to look at the role that CIH play in that context. So, the answer is no, we are not intending to look at that, but it is possible that we could eventually.

Robin Masheb: Terrific. Will you also be able to do something like comparing CIH therapies that the VA refers the patients to versus ones that patients self-refer or get on their own or are referred by outside providers?

Stephen Luther: Our hope I to be able to differentiate where the CIH… If a patient says, “Oh, I am taking this supplement.” We are going to try to capture that and then we would identify that that was a patient-generated versus some other… The more specifics of that… That is our hope. Whether there are detail in the chart reliably to do that is part of what we are exploring. So, we for sure want to try to list all of them. We also want to try to identify the source or at least when it is explicitly stated that it is self-initiated or provider, but how reliably that is documented and whether we can capture it is something we will have to tell next time we come back.

Robert Kerns: I can add that… Sorry, Steve, for jumping in.

Thinking back to the real goal here is to really measure something about the quality of care that the provider who is writing the note is delivering and so we see it as evidence of good quality. If they are prescribing or recommending these things or if they are documenting that the patient is receiving it outside the VA. It is an interesting question whether it is happening in the VA versus outside the VA, but I think from the point of view of a provider… A provider, I hope most everyone would agree, is doing a better job if they are listing information about care that the person is receiving outside the VA and documenting that so that that is showing some evidence that they are taking that into account, incorporating that into their own treatment plan, or considering that in terms of making other decisions about treatment recommendations, for example. So, that distinction may prove to be important, obviously in the context of choice, it is increasingly interesting and important, but again, it was not a specific focus of what we wanted to discover here, but I think the potential is there.

Robin Masheb: That is great. I have another question on… This might be a good question for you, Bob; kind of a down-the-road question. Is there something in mind to use this data to design a template for use when applying the CIH therapy so that you will be able to kind of more easily queue primary care providers and more easily analyze data like that?

Robert Kerns: I can only say that I know there is great interest on the part of the Office of Cultural Transformation and whatever… I am sorry, I do not know the acronym. The bottom line is, of course, a great deal of interest in nonpharmacological approaches to pain management broadly speaking. Many of you know there is a state of the art conference being planned for this fall. There is now legislation specifically encouraging availability of these approaches for veterans. The fact o the matter is only a very small number of them are captured by specific CTT codes in the electronic health record instructor data field. Really, you can list them; acupuncture, massage, chiropractic. Many of you know, I am a CPT guy, we cannot, right now, distinguish whether somebody is getting an evidence-based psychological intervention for pain versus getting and evidence-based psychological intervention for a comorbidity of pain like depression or anxiety. We just do not have that capacity, so I think moving forward there is going to be great interest in trying to be better at able to capture these kinds of therapies reliably in the electronic health record, whether the AMA and those involved in developing CPT codes for more specific evidence-based complementary and integrative approaches or nonpharmacologic approaches more generally. I think there is great interest in trying to figure that out, but that is well beyond the scope of this project.

Robin Masheb: Maybe, Bob, you could talk a little bit more about some issues around the lack of funding for CIH therapies in VA and about patients being able to, on their own, \_\_\_\_\_ [00:48:18], I am sure that this is something you talked about and you will be talking about at the \_\_\_\_\_ [00:48:23] Conference.

Robert Kerns: So, yeah, and this goes well beyond Steve’s presentation. I am happy to take the question. I think… We know the capacity for nonpharmacological approaches and CIH in particular, is growing rapidly in VA. We know that from a variety of sources including being able to look at Health Analysis Information Group data from 2009, I think it was, to 2014; just an enormous amount of growth. And we know it in those areas where we can see it in terms of CPT codes. We know that chiropractic care is growing, acupuncture is growing and massage as well. I would expect those trends to continue. The issue really is, I think, at this point one key or at least one issue on the table is wanting to develop some more finite lists of those approaches that have, at least this is the concept, those approaches that have strong evidence to support their efficacy if not even effectiveness or cost-effectiveness and to, essentially… I do not know if it will be in policy or exactly how it will happen, but basically to try to encourage facilities, businesses and facilities to make sure that those therapies, a much smaller finite list, of evidence-based approaches are available and that veterans do have timely and equitable access to those therapies. I think we have seen that happen, for example, with chiropractic care and I think we are seeing that increasingly with others like acupuncture and maybe many others. We know the VA’s mental health services initiative around cognitive behavior therapy, for example, for chronic pain and the great uptake of that approach as well. So, I think that will be a first line. How VA will handle other approaches where there is less strong evidence or there is a lack of a particular evidence at this point in time, or even more challenging are approaches that have evidence that do not support their efficacy or effectiveness and how those will be managed in VA. I think time will tell, but I can tell you that there is a great deal of investment in VA about this, congress is paying attention, there was recent legislation that encourages the uptake of increased access to these approaches, so I think for a time, VA will absolutely be paying attention and trying to build this capacity. How it will evolve in terms of policy and payment, I think is yet to come.

Robin Masheb: Thank you, that is great. Thank you, Dr. Luther for such a wonderful presentation and to our audience for participating and writing in some great questions that generated a very interesting conversation that went beyond this talk. I just want to give everybody one more reminder to hold on for another minute or two for the feedback form. If anyone is interested in downloading the PowerPoint slides from today, please go to the reminder email you received this morning and you will be able to fund the tiny URL link, the presentation. If you are interested in downloading slides from any of our past sessions, simply do an internet search on VA Cyber Seminars Archive and you will be able to use filters to find previous seminars.

If you would like confirmation for your attendance today, please send an email to the Cyber Seminar mailbox immediately following the session.

Our next Cyber Seminar will be by Dr. Anthony Lisi. The title is “Innovation ad Nonpharmacologic Treatment Options for Musculoskeletal Pain, Studying the Implementation of VA’s Chiropractic Program.” It should be very interesting. This will be on Tuesday, October 4th and you will be receiving registration information around the 15th of the month.

I want to thank everyone again for joining us at this HSR&D Cyber Seminar and we hope to see you at a future session.

Molly: Excellent, thank you very much, Robin, for your continued efforts in organizing this series and, of course, thank you to Drs. Kerns and Luther for joining us today. This does conclude today’s HSR&D Cyber Seminar presentation so please do wait until the feedback survey populates on your screen and then take just a moment to fill out that survey and we will take a look at those responses. Thank you very much everyone. Have a great rest of the day.