WEBVTT

1 00:05:05.330 --> 00:05:07.160 David Fiellin: Everybody welcome.

2 00:05:07.780 --> 00:05:09.630 David Fiellin: Sorry to be a little bit late.

3 00:05:12.660 --> 00:05:16.430 David Fiellin: so why don't we go ahead and get started? Can you all hear me, Bob?

4 00:05:16.830 --> 00:05:17.850 Great

5 00:05:17.880 --> 00:05:27.920 David Fiellin: a pleasure to invite and to welcome everybody here today. This is part of an ongoing series that we've been in housing at the Empower you center

6 00:05:28.060 --> 00:05:31.659 David Fiellin: the empowered Use center is funded by the Nih.

7 00:05:31.690 --> 00:05:34.430 David Fiellin: the initiative, and is

8 00:05:34.550 --> 00:05:46.660 David Fiellin: in particular focused on individuals research that addresses individuals who have both chronic pain and either opioid misuse or opioid use disorder.

9 00:05:46.900 --> 00:05:58.240 David Fiellin: One of the challenges for those of us who do this type of research is to accurately assess complaints of pain, and think through the impact on

10 00:05:58.280 --> 00:06:02.059 patient and participant functioning. And so.

11 00:06:03.170 --> 00:06:22.989 David Fiellin: as a result, we thought it would be incredibly worthwhile to have our 2 speakers here today to address the concept of measuring pain and provide us an overview of self-report and the stimulation method so without further do i'll introduce our 2 speakers, and then have Dr. Curtains take it up to take off.

12 00:06:23.000 --> 00:06:30.429 David Fiellin: Dr. Robert Kearns is a professor of psychiatry, neurology, and psychology. Here at Yale.

13 00:06:30.470 --> 00:06:38.550 David Fiellin: He is the core multiple pi on for the Empower, you partner engagement core.

14 00:06:38.620 --> 00:06:55.449 David Fiellin: and he is also the director, one of the directors of the Nih Dodba Pain management collaboratory. He's had lots of experience working with groups over the years, trying to measure self assessment of pain.

15 00:06:55.900 --> 00:06:58.159 David Fiellin: Our second speaker will be

16 00:06:58.250 --> 00:07:00.079 David Fiellin: jail. The

17 00:07:00.190 --> 00:07:13.830 David Fiellin: Jp. Is an assistant professor of Psychiatry, also here at Yale. He is the chief of the clinical Neuroscience research unit here at Yale, and he is one of our pilot.

18 00:07:13.840 --> 00:07:23.610 David Fiellin: awardees, and is actively using the methods that he's going to describe today. So with that as a brief introduction, I'll let Bob take it off. Thank you very much, Bob and Jen.

19 00:07:26.930 --> 00:07:31.760 Bob Kerns: Great welcome, everybody, let's see. Shall I share my screen?

20 00:07:33.140 --> 00:07:34.600 Yes, I think so, thank you.

21 00:07:36.810 --> 00:07:38.050 and we can see it

22 00:07:39.520 --> 00:07:40.160 and

23 00:07:40.180 --> 00:07:41.100 start from.

24 00:07:43.130 --> 00:07:56.989 Bob Kerns: So thank you, David. Thanks for this opportunity, everybody. I'm going to jump right in for for sake of time, and i'm going to go pretty quickly. But I hope that these slides will be available folks, because I've embedded a lot of links to

25 00:07:57.120 --> 00:07:59.860 Bob Kerns: the source documents

26 00:07:59.900 --> 00:08:01.470 Bob Kerns: from which i'll be speaking

27 00:08:01.870 --> 00:08:06.600 Bob Kerns: so i'll focus first on patient-reported measures. Next slide.

28 00:08:08.560 --> 00:08:09.140 Bob Kerns: Oh.

29 00:08:10.690 --> 00:08:11.740 how do I?

30 00:08:13.810 --> 00:08:22.120 Bob Kerns: There we go. No particular conflicts of interest tells my research support, and a few other disclosures

31 00:08:22.160 --> 00:08:29.430 Bob Kerns: move on. My objectives are to briefly describe definitions of pain and related constructs.

32 00:08:29.810 --> 00:08:33.840 Bob Kerns: Put this all in a bio Psychosocial and multi-dimensional framework.

33 00:08:34.070 --> 00:08:53.739 Bob Kerns: talk about core domains and measures of those key domains, focusing a little bit, zooming in a little on the construct of pain interference, and then quickly go through recommendations from consensus groups, mostly just letting you know about them and providing some links for your follow up.

34 00:08:54.380 --> 00:09:04.329 Bob Kerns: This is a really important slide. This was came from the International Association for the Study of Pain, the most important international pain

35 00:09:04.350 --> 00:09:09.599 Bob Kerns: Community and the world. In 2,020. They revised their

36 00:09:09.660 --> 00:09:22.700 Bob Kerns: definition of pain, and you see it on the upper right, an unpleasant century and emotional experience, associated with, or resembling that associated with, actual or potential tissue damage.

37 00:09:22.920 --> 00:09:24.110 Bob Kerns: Note that

38 00:09:24.250 --> 00:09:32.949 Bob Kerns: clear separation of the experience of pain from underlying pathology or tissue, or to

39 00:09:33.070 --> 00:09:42.499 Bob Kerns: I really want to highlight the bottom part of this slide on the right, which are the notes that give you a little more elaboration on this definition.

40 00:09:42.920 --> 00:09:52.169 Bob Kerns: First, of all pain should always be understood as a personal experience. A subjective experience that has multiple bio-o-social influences.

41 00:09:52.310 --> 00:09:55.060 Bob Kerns: Pain and no perception are different phenomena

42 00:09:55.520 --> 00:10:03.839 Bob Kerns: pain. No perception might be thought about as a century experience. Pain is a subjective perceptual experience

43 00:10:04.100 --> 00:10:21.489 Bob Kerns: through their life experiences individuals learn the concept of pain that is, like other health concepts and health behaviors. We understand this within a a social learning framework, and in particular I would emphasize that once I I ideas a pain.

44 00:10:23.680 --> 00:10:29.590 Bob Kerns: emerge very early in life, and continue to evolve and mature throughout a lifetime.

45 00:10:30.580 --> 00:10:36.290 Bob Kerns: So we all all should think about paying in a developmental or

46 00:10:36.360 --> 00:10:38.260 Bob Kerns: dynamic frame

47 00:10:38.420 --> 00:10:42.630 Bob Kerns: persons that reported the experience of pain should be respected. This is critical.

48 00:10:42.690 --> 00:10:51.590 Bob Kerns: Whether you're a clinician, a primary care provider, or a a research assistant in a clinical research study.

49 00:10:51.650 --> 00:10:54.029 Bob Kerns: It's important to

50 00:10:54.760 --> 00:10:58.999 Bob Kerns: try to show respect and validate. A person's experience of hey.

51 00:10:59.460 --> 00:11:01.809 Bob Kerns: Pain is what a person says it is

52 00:11:02.000 --> 00:11:07.209 Bob Kerns: rather, and we should focus on the person with pain rather than pain. Person.

53 00:11:07.760 --> 00:11:16.080 Bob Kerns: although pain usually serves an adaptive role, and they have adverse effects on function, social and psychological. Well being, as is the case for many.

54 00:11:16.150 --> 00:11:18.830 Bob Kerns: but probably still a minority of people with

55 00:11:18.870 --> 00:11:21.090 Bob Kerns: who experience persistent pain

56 00:11:21.180 --> 00:11:39.000 Bob Kerns: and verbal description, is only one of several behaviors to express pain. We can talk about non verbal and pair of verbal expressions of pain, like groaning, groaning, and grimacing, and what we might refer to as even pain behaviors holding an affected body, part using a cane

57 00:11:39.010 --> 00:11:49.030 Bob Kerns: for assistance. These are all outward signs of pain, and they therefore they are as as subject to observation. They are subject to that measurement.

58 00:11:50.520 --> 00:12:03.590 Bob Kerns: I want to really zoom in on having to find pain. The concept of chronic pain and high impact. Chronic pain is the presence of pain. On most months, most days over the past 3 or 6 months.

59 00:12:03.620 --> 00:12:12.860 Bob Kerns: We've only recently, in the last 10 years started to incorporate the concept of high impact chronic pain. We might understand that many people

60 00:12:12.920 --> 00:12:31.350 Bob Kerns: experience persistent or even daily pain. But it doesn't necessarily interfere with their work or life activities. However, when it does, we might describe this as high impact from pain that is, presence of pain that interferes with work or life activities on most or all days in the past 6 months.

61 00:12:31.360 --> 00:12:42.560 Bob Kerns: And on the right side of this slide. I don't have time to get into it, but you see some estimates from it a very important Cdc report, using 2,016 natural national health interviews. Survey data

62 00:12:43.110 --> 00:12:47.669 Bob Kerns: provides estimates of the prevalence of chronic pain and high impact chronic pain.

63 00:12:47.860 --> 00:13:00.169 Bob Kerns: and also the differences between different groups in terms of the prevalence of rates of prevalence, rates of chronic path, pain or high impact, chronic pain.

64 00:13:00.230 --> 00:13:02.400 Bob Kerns: So the usual

65 00:13:02.690 --> 00:13:17.790 Bob Kerns: subject suspects in terms of vulnerable populations are known to have higher prevalence rates of both chronic pain. And I in that chronic pain i'd note though the One important difference is that non-hispanic whites

66 00:13:17.850 --> 00:13:34.030 Bob Kerns: our haven't provide evidence of having higher rates of chronic pain, not high impact, and also veterans. Many of us work with veterans. Veterans have higher rates of chronic pain, but not necessarily higher privilege rates of high impact.

67 00:13:35.740 --> 00:13:53.560 Bob Kerns: I'd like to put all of this in a bio. Psychosocial framework on the left should be a familiar diagram to many of you. This articulates just a few of the many variables or factors that might be associated to might be thought to contribute to the experience of pain and chronic pain in particular.

68 00:13:53.570 --> 00:13:58.330 Bob Kerns: And then, on the right side of the slide, everybody should have at least the gives a talk like this should have one

69 00:13:58.510 --> 00:14:18.439 Bob Kerns: at least one totally unintelligible slide. This is mine. We developed this figure many years ago as a diaphragm to represent a diocese stress framework for understanding chronic pain. On the left side we might think about prior strengths and vulnerabilities, but the individual that interact with the challenges of pain

70 00:14:18.450 --> 00:14:21.400 Bob Kerns: to lead to

71 00:14:21.600 --> 00:14:30.829 Bob Kerns: various aspects of the you know, multi-dimensional experience of chronic pain, articulated in this slide as as domains, such as pain itself.

72 00:14:30.930 --> 00:14:37.739 Bob Kerns: emotional distress, and functional disability. Importantly, in this conceptualization, as I've already emphasized.

73 00:14:37.900 --> 00:14:38.650 Bob Kerns: Yeah.

74 00:14:39.180 --> 00:14:58.560 Bob Kerns: Chronic pain evolves over time and changes over time. This means that some of the factors that may have been important in the initiation of pain 30 years ago, are not necessarily the factors that are maintained at a later point in time, and as a social learning person. I place all of this in the context of a

75 00:14:58.570 --> 00:15:03.320 Bob Kerns: social learning environment, and my my research is focused particularly on the family.

76 00:15:05.180 --> 00:15:06.280 Bob Kerns: This is a really

77 00:15:06.470 --> 00:15:14.870 Bob Kerns: wonderful infographic, recently released by Cms and Cdc. The collaboration. This really emphasizes the context in which

78 00:15:14.960 --> 00:15:18.149 Bob Kerns: pain occurs in and particularly highlights

79 00:15:18.350 --> 00:15:29.839 Bob Kerns: interactions between the person with pain and the health care environment, including providers, but also challenges related in this case to the insurance

80 00:15:29.940 --> 00:15:41.020 Bob Kerns: coverage and payment for accessing optimal paying. Here. I don't have time to get into the details, but I do encourage you to take a look at this. So very well.

81 00:15:41.210 --> 00:15:50.970 Bob Kerns: Thought out conceptualized kind of diagram, and I think it tells a lot, speaks a lot and speaks to really the challenges.

82 00:15:51.430 --> 00:15:58.089 Bob Kerns: Probably most of the people on this call experience when they're working clinically with people with pain and chronic pain.

83 00:15:59.620 --> 00:16:12.640 Bob Kerns: Of course the selection of measures varies in any kind of study for research which we're going to focus on today varies quite a bit related to the aims and objectives of the study. But many other considerations, and i'd highlight.

84 00:16:12.750 --> 00:16:22.869 Bob Kerns: for example, as we move as I move my research from more efficacy and explanatory trials into the Pragmatic clinical trial domain, it's important to take

85 00:16:22.930 --> 00:16:24.960 Bob Kerns: into account the fact that

86 00:16:24.980 --> 00:16:42.030 Bob Kerns: we may be interested in measures that are particularly meaningful to patients, but also those that are more easily extractable from the electronic health record, for example, or have minimal response burn in terms of patients. But of course there are many other factors.

87 00:16:42.040 --> 00:16:56.779 Bob Kerns: including, of course, psychometric properties. The setting in which the data may be collected. The method of data collection. We need to take into consideration now a movement toward automated tools for data, collapse, capture, and registration.

88 00:16:56.890 --> 00:17:14.909 Bob Kerns: I've already mentioned response and respondent burden, and I also would mention the interest of sponsors. If you're writing a grant to the Nih, you really want to pay particular attention to the huge investment that Nih is made in developing a a toolkit pain or patient reported outcome measures.

89 00:17:15.170 --> 00:17:15.890 Bob Kerns: Next.

90 00:17:16.170 --> 00:17:21.760 Bob Kerns: there we go as early as 2,000 a very important.

91 00:17:24.119 --> 00:17:38.299 Bob Kerns: The group began to get organized, funded through a part private public partnership with the FDA and Academia and industry called the initiative for the on methods, veteran and pain, assessment and clinical trials or impact.

92 00:17:38.570 --> 00:17:45.240 Bob Kerns: This group meets yearly, really relatively, on a regular basis every year.

93 00:17:45.250 --> 00:18:02.790 Bob Kerns: In this early meeting, in 2,002. There was a consensus meeting involving experts in the field that identified or came to a consensus about the core outcome domains for paying clinical trials, and on the left of this slide you see those domains, pain, intensity, and other pain, pain, qualities.

94 00:18:02.800 --> 00:18:17.670 Bob Kerns: physical functioning, emotional functioning, participant ratings of global improvement and so forth. The key here is that by as early as 2,003 we have really shifted, I think, at least in terms of the experts in the field for thinking about pain, intensity itself

95 00:18:17.880 --> 00:18:25.389 Bob Kerns: as a as the core primary outcome to understanding the importance of assessing physical functioning emotional function.

96 00:18:25.490 --> 00:18:27.880 Bob Kerns: co-current conditions and so forth.

97 00:18:27.930 --> 00:18:40.910 Bob Kerns: and putting that all in the context of a by a psychosocial perspective on the right hand of the See slide, you see other kind of secondary measures that were recommended or domains. Excuse me, recommended by that

98 00:18:41.870 --> 00:18:52.439 Bob Kerns: back to pain, intensity, though even there there are many different pain, intensity, measures here, just a few of the most common. There are many decades of research using these measures.

99 00:18:52.450 --> 00:19:10.450 Bob Kerns: and and so we have a large body of of experience and and investigation to help inform the choice of a measure of pain, intensity, and any kind of clinical pain research. I would say that what's important to acknowledge here is that even on among the 3

100 00:19:10.550 --> 00:19:27.529 Bob Kerns: more common measures on the left, the simple visual analog scale and verbal descriptive scale, the numeric rating scale, their second metric properties across multiple patient populations in setting settings and contexts are very similar. Having said that reviews

101 00:19:27.550 --> 00:19:30.620 Bob Kerns: pretty routinely suggest that

102 00:19:30.770 --> 00:19:36.889 Bob Kerns: the edge goes to the 0 to 10 numeric grading scale. That, of course, was adopted in clinical practice.

103 00:19:36.960 --> 00:19:47.150 Bob Kerns: literally to back over 2 decades ago, and continues to be the most commonly measure of pain, intensity across multiple clinical research studies.

104 00:19:47.920 --> 00:19:52.909 Bob Kerns: Having said that I've already brought into the focus of the concept of pain interference.

105 00:19:52.980 --> 00:20:10.980 Bob Kerns: This is a a construct that. I was particularly interested early in my career, and published the first measure of pain interference in a measure called the West David Yale multi-dimensional

pain in the Tory we validated a large sample of veterans with chronic pain and heterogeneous sample.

106 00:20:11.010 --> 00:20:13.790 Bob Kerns: The bottom line was, I thought, about this

107 00:20:13.910 --> 00:20:19.019 Bob Kerns: construct as being similar to Lewinson's behavioral model of depression.

108 00:20:19.090 --> 00:20:24.649 Bob Kerns: where depression is a function of a decline in response contingent positive reinforcement.

109 00:20:24.770 --> 00:20:29.479 Bob Kerns: If we take that and think about that in relation to pain. We might think about 2

110 00:20:29.530 --> 00:20:35.960 Bob Kerns: related but several buckets, if you will. One is to the extent to which pain interferes with

111 00:20:36.070 --> 00:20:40.709 Bob Kerns: engagement in important social role and other activities.

112 00:20:40.810 --> 00:20:45.529 Bob Kerns: and a separable domain of a decline in

113 00:20:45.600 --> 00:21:01.179 Bob Kerns: satisfaction or reward reinforcement, if you will, from participating in those activities, so we can think about pain, interference as a comp compilation of items that measure the construct of actual decline in activity.

114 00:21:01.190 --> 00:21:16.119 Bob Kerns: and a decline in satisfaction or reinforcement from those activities. In fact, in our earliest work, these 2 con. The items capturing these 2 constructs were highly related, and we incorporated them into a single measure, and you'll see that that

115 00:21:16.130 --> 00:21:29.049 Bob Kerns: kind of approaches to the test of time. Although increasingly more in in recent efforts. There's a little bit of a focus on trying to separate those 2 main a little bit more.

116 00:21:30.020 --> 00:21:45.730 Bob Kerns: I've noticed note that the West David, you know, multi-dimensional pain inventory pain interference scale has applications well beyond specifically pain research in the context of the veteran aging co-work study led by Amy, Justice and and others

117 00:21:45.740 --> 00:22:02.539 Bob Kerns: and a group that's been working now for several years Jen, Edelman, and and Will Becker leading the way of a work group focused on opioid related harms. We found in multiple studies that this construct and the measure from the Ympi Pain interference.

118 00:22:02.750 --> 00:22:09.149 Bob Kerns: My mediated escalating dose of opioid therapy among those prescribed prescription opioids.

119 00:22:09.430 --> 00:22:23.959 Bob Kerns: It mediates the transition to non medical use of prescription opioids, and it mediates the transition from non

medical use of prescription opioids to heroin. So you see the potential usefulness of this measure, even in in context outside

120 00:22:23.990 --> 00:22:26.270 Bob Kerns: the context of pain treatment.

121 00:22:26.850 --> 00:22:30.670 Bob Kerns: This is a much more commonly used measure of pain.

122 00:22:30.860 --> 00:22:48.290 Bob Kerns: intensity, and interference, now called the brief Pain Interior Inventory was developed originally by Charlie Cleveland, and for and validated in cancer patients. But since then has been the subject of a a lot of research that's helped help us

123 00:22:49.110 --> 00:22:53.820 Bob Kerns: understand it, Strong psychometric properties. Again, in a broad array of

124 00:22:53.890 --> 00:23:03.190 Bob Kerns: painful medical conditions and and chronic pain conditions in particular. Without going into the details, it incorporates items

125 00:23:03.230 --> 00:23:22.160 Bob Kerns: capturing pain, intensity, including not only the most common way of measuring, which is your current measure, pain, intensity, or your average pain, intensity, but worst and least pain intensity. Those different variations may be particularly relevant, depending on the clinical population or setting or subject to the study.

126 00:23:22.170 --> 00:23:36.839 Bob Kerns: It also has 7 pain interference items, and that you see on the right side, and it. And it does include this one item on enjoyment of life which can mimics the Ympi pain interference, scale

127 00:23:37.700 --> 00:23:40.950 Bob Kerns: in 2,005 back to impact.

128 00:23:42.170 --> 00:23:58.700 Bob Kerns: The group met again and identified through consensus, right building core recommendations for specific measures of the core domains that we published in 2,003, and you see the list of the measures here. Note: under physical functioning well.

129 00:23:58.710 --> 00:24:07.220 Bob Kerns: not under pain intensity. The 11 point numeric rating scale was measured was recommended physical functioning. Either the pain, interference, scale from the

130 00:24:07.260 --> 00:24:14.799 Bob Kerns: Y Api or the brief paint inventory were recommended, and then recommend recommendations for

131 00:24:15.060 --> 00:24:24.279 Bob Kerns: capturing a move, or, in this case, particularly depression, symptoms, severity as well as patient-reported global global impression of change.

132 00:24:25.420 --> 00:24:31.619 Bob Kerns: I do want to take a minute. I can't get into this in detail, this back to this concept of high impact chronic pain.

133 00:24:31.640 --> 00:24:51.010 Bob Kerns: I was recently involved in another collaborative effort to build a revised tool for discriminating or identifying people with experiencing or reporting chronic pain, and those reporting high impact, chronic pain and a continuum from

134 00:24:51.020 --> 00:24:55.149 Bob Kerns: mild to bothersome to high impact chronic pain.

135 00:24:55.180 --> 00:25:06.589 Bob Kerns: You'll notice among the 5 items are to the capture the definition of chronic pain, and I, that chronic pain. And then 3 items that capture this concept, the pain, intensity, and pain interference

136 00:25:07.790 --> 00:25:27.270 Bob Kerns: interesting. Those 3 3 last items actually are the same items that comprise another recently developed a measure that has caught a lot of People's attention because of its brevity and strong psychometric properties. This is something called the pay developed by Aaron Krebs, at University of Minnesota, Minneapolis, Va.

137 00:25:27.280 --> 00:25:34.229 Bob Kerns: And her colleagues. And you see here it's those simply these 3 items. So there's a lot to encourage this measure now

138 00:25:34.290 --> 00:25:50.910 Bob Kerns: as an alternative to a single item, numeric grading scale for for routine, screening, for the presence of an intensity of pain in the clinical setting, but also for its use in a clinical pain. Research may be particularly pragmatic clinical trials.

139 00:25:51.440 --> 00:26:06.500 Bob Kerns: From that from those 5 I 5 items one can gray people in terms of their experience of chronic pain from absent to mile to bothersome. And then, again, this construct it easily captures in 5 items

140 00:26:06.520 --> 00:26:24.859 Bob Kerns: those that might be defined as having high impact chronic pain. And on the right hand side of this slide this is data from 2 health systems in the Northwest United States over a 1,000 respondents, and you see, some of the prevalence estimates here importantly

141 00:26:24.970 --> 00:26:43.560 Bob Kerns: and back to this idea that you know chronic pain for many people is, is not a problem that significantly interferes with one's life in this case, and in other samples, including a recent study of a veteran sample, there really are no distinguishing features in terms of activity and health indicators

142 00:26:43.570 --> 00:26:48.240 Bob Kerns: between those having no chronic pain and those having mild chronic pain.

143 00:26:49.720 --> 00:26:56.700 Bob Kerns: In just a few years ago the Va. Health Services, Research and Development

144 00:26:57.880 --> 00:27:05.280 Bob Kerns: Service Director, David Atkins, commissioned a work group headed by Kirk Cronke, who many of you will know

from

145 00:27:05.330 --> 00:27:07.310 Indiana University.

146 00:27:07.450 --> 00:27:11.300 Bob Kerns: and they reach the Strife Institute. He

147 00:27:11.380 --> 00:27:20.530 Bob Kerns: led a work group on which I was privileged to serve, that made built consensus recommendations for measures of pain, intensity and pain interference

148 00:27:20.550 --> 00:27:27.639 Bob Kerns: in clinical pain research, particularly clinical trials being funded by the Va. Health Services.

149 00:27:27.740 --> 00:27:42.059 Bob Kerns: Research and Development Service. You see, the recommendations were for the numer great pain rating scale the single item on pain right now, and the 7 item, brief pain, inventory, and then there were secondary domains, as you see listed. Here.

150 00:27:43.540 --> 00:27:52.379 Bob Kerns: I'd like to highlight our pay management laboratory, the David mentioned. This is a very large tri-government agency partnership between the Nih.

151 00:27:52.580 --> 00:27:54.610 Bob Kerns: particularly Ncc I H.

152 00:27:54.770 --> 00:28:05.539 Bob Kerns: With support from many other institutes and centers, the Dod and the Va. Health Services Research Center. Here at Yale we have the coordinating center.

153 00:28:05.630 --> 00:28:21.090 Bob Kerns: the coordinating center. It supports 11 separately funded, now 12 separately funded. Pragmatic clinical trials of non pharmacologic approaches to management of pain and co-occurring conditions in veteran and military health systems.

154 00:28:21.320 --> 00:28:37.619 Bob Kerns: One of the work groups of this laboratory is one focused on phenotypes and outcomes that's chaired by 2 experts. Faculty level experts in the field and comprise that of members or representatives of each of the 12 pragmatic trials.

155 00:28:38.000 --> 00:28:48.530 Bob Kerns: And we've done a lot of work through that work, group and other venues to develop a group of harmonized measures that the trialists have agreed

156 00:28:48.540 --> 00:28:59.809 Bob Kerns: to pursue or incorporate in the context of the conduct of their trial. We've developed a standards for measuring pain, chronicity, and severity as thresholds for eligibility.

157 00:28:59.880 --> 00:29:14.200 Bob Kerns: We've done a lot of work on harmonizing around baseline or phenotyping measures including this construct of high-impact chronic pain, but also co-trained traditions, lectures, alcohol use and depressive symptoms severity.

158 00:29:14.320 --> 00:29:28.309 Bob Kerns: The outcome measures we were delighted that there was agreement across all one of the trials to incorporate the peg as a common outcome measure. And we've also developed work developing a an algorithm for capturing

159 00:29:28.330 --> 00:29:45.210 Bob Kerns: health care utilization from the electronic health record, and then you see a few more outcome and covariant measures listed below at the bottom. But note that we did work early on and developed a Covid survey for patients. And we're

160 00:29:45.220 --> 00:29:54.810 Bob Kerns: looking at these data across multiple trials to look at their the impacts of Covid on pain reports that Baseline and then ultimately outcomes.

161 00:29:55.960 --> 00:30:05.210 Bob Kerns: The and Nih, of course, has been very active in developing recommendations or for similar kinds of core measurement approaches

162 00:30:05.240 --> 00:30:18.210 Bob Kerns: in in pain. Research, particularly clinical pain research funded by the Nih. I've already mentioned promise measure development. There are measures for pain, intensity, pain, interference, pain, behavior, paying quality.

163 00:30:18.220 --> 00:30:36.399 Bob Kerns: It's important to note that these measures all were developed, using item response theory as opposed to classical test theory, and they can be administered using computer adaptive testing with larger pools of items to then really tailor, the outcome or the measure

164 00:30:36.410 --> 00:30:38.610 Bob Kerns: to the individuals reports

165 00:30:38.680 --> 00:30:50.430 Bob Kerns: there. But mostly, I would have to say, in clinical in real practice most mostly the very brief version. Static measures of these promise measures are used

166 00:30:50.490 --> 00:31:08.479 Bob Kerns: just like other legacy measures, so pain, intensity, pain, interference, and so. And then you see a list of of other recommendations starting with an nih low back pain task force several years ago that did a great job in developing a comprehensive set of research standards

167 00:31:08.490 --> 00:31:17.650 Bob Kerns: for all clinical research related to chronic back pain. Of course the most common pain condition. And then, in the context of the helping and addiction, long-term

168 00:31:17.750 --> 00:31:34.250 Bob Kerns: initiative. You know, multimillion dollar initiative with multiple subgroups of projects. Heal itself is developed or recommendations around common data elements and then other groups, including our integrated management of chronic pain and opioid use

169 00:31:34.390 --> 00:31:36.880 for whole recovery. The power.

170 00:31:36.970 --> 00:31:38.440 Bob Kerns: A research network

171 00:31:38.480 --> 00:31:52.039 Bob Kerns: has published its own set of recommendations. These recommendations across these various groups are very similar, but with subtle nuance differences that are important for researchers in these areas to consider.

172 00:31:52.490 --> 00:32:08.369 Bob Kerns: I would be remiss if I didn't acknowledge a broader, much broader array of psychological constructs of interest i'd highlight here, 2 of to a particular interest in importance, paying catastrophe and fear avoidance. They're related, but separate constructs.

173 00:32:08.400 --> 00:32:19.740 Bob Kerns: and he you can read here or follow up forsake of time. I won't get into it. But these are have emerged. That's really important. Theoretically, the theoretically important and empirically important

174 00:32:19.890 --> 00:32:36.099 Bob Kerns: by constructs, and the measures that it mature based on these perspectives have been found to have strong psychometric properties, and are commonly used even in clinical trials, not just even psychological clinical drugs, because they seem to have

175 00:32:36.320 --> 00:32:37.130 Bob Kerns: but

176 00:32:37.180 --> 00:32:47.900 Bob Kerns: value in understanding mechanisms of change or mediators of change and improvement over the course of of treatment, such as psychological and other complementary integrative health

177 00:32:47.920 --> 00:32:56.439 Bob Kerns: approaches. But even in Analgesic drug, and I think that's it for me, for now, and I look forward to some discussion and questions. Thank you.

178 00:32:58.790 --> 00:33:01.090 David Fiellin: Thank you, Bob. That was

179 00:33:01.130 --> 00:33:15.740 David Fiellin: a whirlwind tour sort of a appetizer for folks. We're hoping to stimulate your interest. And now we'll switch to Dr. Dequino, who will talk to us about stimulation methods. Kp.

180 00:33:26.700 --> 00:33:29.329 Good afternoon, everyone. Thank you again for your invitation.

181 00:33:30.550 --> 00:33:56.280 Joao De Aquino: So yeah, in this part of talk we'll talk about laboratory, pain or stimulation methods. And I came to this area as a behavioral from ecologist as an addiction psychiatrist. I've had the chance to rotate with people like Willbacker and the opioid reassessment clinic and realize how pain is an important outcome in the treatment of not not only people with typing, but also people with opioids disorder. And as I've been here from ourcologist, I I wanted way to manipulate

182 00:33:56.380 --> 00:33:58.780 that contract in the laboratory.

183 00:34:00.760 --> 00:34:19.069 Joao De Aquino: I do receive brands from Nita, a couple of private foundations, and support medication only for clinical trial from jazz pharmaceuticals, and of course they empower you funding pilot funding. I will be talking about some ways to assess pain, and there are pictures

of devices, but I don't get any financial support from any pain Assessment Device company.

184 00:34:20.020 --> 00:34:38.769 Joao De Aquino: So I I think I made very clear in the first part of talk that pain is a a complex multi-dimensional experience with several components that are very much intertwined. So you have sensory you have physical sensation. You have the emotional experience of pain. You have thoughts and beliefs, and you have action and responses to the pain

185 00:34:38.780 --> 00:34:46.989 Joao De Aquino: and understanding. This interplay between these components is important to the to develop better and more effective pay management strategies.

186 00:34:47.480 --> 00:35:00.629 Joao De Aquino: And this is one of the reasons why we, I think, is important to study pain in the lab. There's only so much control the clinical studies can afford. There's variables there. There are variables like this severity, this duration that

187 00:35:00.650 --> 00:35:01.979 Joao De Aquino: on

188 00:35:02.000 --> 00:35:12.260 Joao De Aquino: are are difficult to account for. And so we're just. That is just very easy treatment which are increasingly recognized as a as a remarkable influence on on pain responses

189 00:35:12.420 --> 00:35:15.260 Joao De Aquino: by providing precise stimuli.

190 00:35:15.350 --> 00:35:19.309 Joao De Aquino: We reproduce using reproducible methods, we can

191 00:35:19.360 --> 00:35:29.220 Joao De Aquino: do what we call a deep phenotype. You have the pain, experience, and that can help us understand thing. Mechanisms improve diagnosis in certain conditions and developing developmental therapeutics.

192 00:35:29.730 --> 00:35:33.740 Joao De Aquino: A lot of you remember from your physiology graph classes that

193 00:35:34.040 --> 00:35:36.249 Joao De Aquino: how how the the pain

194 00:35:36.710 --> 00:35:42.609 Joao De Aquino: processes and and senses and and and react to things. So there are small.

195 00:35:43.000 --> 00:35:53.020 Joao De Aquino: largely on myelinated fibers that are responsible for nosyceptive or processing, and they they tend to be pretty conserved across species. So they're highly specialized.

196 00:35:53.050 --> 00:36:09.659 Joao De Aquino: And while that might make sense from an evolutionary perspective, you want the body to create the slower activation and and and prolonged transmission of things, signals that creates a problem. If you want to assess the function of those fibers, so it's hard to do. For example, nerve conduction studies.

197 00:36:09.830 --> 00:36:11.419 So

198 00:36:11.590 --> 00:36:18.629 Joao De Aquino: you do that for for for when people have a myopathy, but it's hard to do that when people have a sensory and a rob a fee.

199 00:36:19.260 --> 00:36:20.290 Joao De Aquino: and

200 00:36:20.330 --> 00:36:22.879 Joao De Aquino: I want it to. The sensory. Testing is an alternative

201 00:36:23.010 --> 00:36:34.789 Joao De Aquino: in those circumstances. So what it is is a technique. It's a psychophysical technique that means studying a relationship between physical phenomena or physical stimuli and psychological phenomena. In this case pain

202 00:36:34.800 --> 00:36:45.420 Joao De Aquino: to assess someone, since we're a function, and many clinicians you already do Qst. In your deal, you know, in your day to day work. For example, when you use the tuning fork and you're

203 00:36:45.490 --> 00:36:51.449 Joao De Aquino: you're measuring a vibration detection threshold. You're doing quantities for testing.

204 00:36:51.490 --> 00:36:57.189 Joao De Aquino: When you do qs to your pain, you you use a well-defined controlled stimuli.

205 00:36:57.290 --> 00:37:03.770 Joao De Aquino: and then you measure a pain. Perception. You imagine behavior or subjective pain response. So on the day, the subjective experience.

206 00:37:05.120 --> 00:37:14.889 Joao De Aquino: there are many ways to many stimulation methods. Each modality has specific advantages and limitations, and the choice depends on the clinical research question being addressed.

207 00:37:16.270 --> 00:37:30.980 Joao De Aquino: and the properties of each stimulus. So, as you see here, it's hard to satisfy all those categories. But an ideal stimulus will have. We have a rapid onset or rapid offset. It will stimulate selective efforts, and it will be clinically relevant. So for example.

208 00:37:30.990 --> 00:37:48.590 Joao De Aquino: and it'll be natural. So if you look at electrical stimulation, it may be objective, because you can look at, for example, reflex, but it doesn't occur in the natural natural world unless you are electrician. If if you use thermal stimulation. On the other hand, you will have very selective that it's like generally a delta, in C fibers.

209 00:37:48.660 --> 00:37:54.910 Joao De Aquino: So each each method has its trade offs, and and that's why most studies tend to do multi- modality assessments.

210 00:37:57.630 --> 00:38:04.469 Joao De Aquino: This is a very brief talk. And are we talking very briefly about

211 00:38:04.580 --> 00:38:19.139 Joao De Aquino: commonly use Qsd methods? I want to make the distinction between static or single point measures and dynamic measures. Static Usd. Is performed at a fixed point in time, and the results provide information about the sensitivity of the nervous system at that particular moment

212 00:38:19.430 --> 00:38:25.489 Joao De Aquino: Dynamic, Usd. On the other hand, measure the same changes since our perception over time.

213 00:38:25.590 --> 00:38:34.299 Joao De Aquino: so it it it it tend, it's, it's better to providing sighting to hubs and source system adapts to repeated stimuli or variation in stimuli.

214 00:38:34.430 --> 00:38:38.419 Joao De Aquino: But but both methods provide valid information about the functioning of the system.

215 00:38:38.460 --> 00:38:41.870 Joao De Aquino: and it depends on again the clinical or the research question

216 00:38:42.500 --> 00:38:44.780 Joao De Aquino: before we do.

217 00:38:44.930 --> 00:38:54.289 Joao De Aquino: One of the first things we do is and and the Sq. Us. In in qst methodology, and this will be familiar to a lot of you as well is sensation detection.

218 00:38:54.580 --> 00:38:56.740 Joao De Aquino: So these are vol-fry filaments.

219 00:38:56.920 --> 00:39:06.880 Joao De Aquino: They were originally developed in the nineteenth century. They used to be human hair or horse hair. So this guy called von Fry found out that by applying pressure

220 00:39:07.240 --> 00:39:19.570 Joao De Aquino: the only the only variables that matter were the the thickness and the stiffness of the hair. Once the the the hair vents the for supply to the skin no longer changes.

221 00:39:19.720 --> 00:39:33.100 Joao De Aquino: Nowadays we don't use human hair course here anymore. Use n island or fiber optic, and those are materials that are less sensitive to variation in temperature, for example. But this is used, for example, in people with diabetic neuropathy

222 00:39:33.110 --> 00:39:49.770 Joao De Aquino: in in, you know, in in lower extremity. So if you want to detect hypoistesia more or reduce sensation, the reduced detection or high prestige, or allodenia right, which is a a pain for response to non-people stimuli.

223 00:39:49.780 --> 00:39:59.409 Joao De Aquino: So so these are used clinically, and generally we we do this assessment before reply. Other methods, just to make sure that area is, has no sense story of Normally.

224 00:39:59.910 --> 00:40:03.980 Joao De Aquino: I want to use a method is pressure paying quantities. That's for testing.

225 00:40:04.110 --> 00:40:19.209 Joao De Aquino: And what you see here is a computer. I'm sorry what you see here's a computerized pressure. So this device is applied with a constant pressure to the skin, could be a muscle, or it can be attendant. It depends on the protocol.

226 00:40:19.440 --> 00:40:37.080 Joao De Aquino: It has a response unit, and we give the specific instructions to the the the patient, or the research participants, and we tell the person, for example, to let us know when the the sensation changes, for from pressure to discomfort, or burning, or tingling, or pain. That's what we call the pressure being threshold.

227 00:40:37.370 --> 00:40:38.549 And then.

228 00:40:38.690 --> 00:40:52.990 Joao De Aquino: and this process of the rate of increasing pressure can be automated. So that's what you see here in the screen to reduce inner radar variability, the the the pressure, pain, tolerance, is the moment where in the participant presses the button

229 00:40:53.030 --> 00:40:55.239 Joao De Aquino: and and then the test stops.

230 00:40:55.530 --> 00:41:00.220 Joao De Aquino: The the device will register the pressure in Kilo and past caliber. Kilo Pascal.

231 00:41:00.860 --> 00:41:07.049 Joao De Aquino: So this is a way to standardize, and and it's a pretty safe method, so it's not invasive.

232 00:41:09.200 --> 00:41:10.960 Joao De Aquino: This is a thermal

233 00:41:10.970 --> 00:41:34.410 Joao De Aquino: to Qsd. And this is one of the state of the or methods to do thermal assessments. There are other ways to do it. What you see here is a device that uses this principle called the Pell Tier principle, which is a technology that's used to coly on computers or or cars. And what it what it can do is there's a electrical current that presses through these

234 00:41:34.420 --> 00:41:51.840 Joao De Aquino: semiconductors, and it generates a very, very rapid heat exchange. So this thermal is applied to the person's skin, and we can tell. Using the computer, we can tell the machine to either increase or decrease it. Prep the temperature at the rate that we want, and with the destination temperature that we want.

235 00:41:51.850 --> 00:41:54.450 Joao De Aquino: and this can be very slow, like

236 00:41:54.530 --> 00:42:05.240 Joao De Aquino: 30 degrees far high per second up to, you know, over a 100 degrees for highs per second, using this the different thermodynamics.

237 00:42:05.350 --> 00:42:06.899 And

238 00:42:07.430 --> 00:42:13.679 Joao De Aquino: so we tell the so what you see here, each. It's a little small to figure, but each one of those

239 00:42:14.240 --> 00:42:20.619 Joao De Aquino: increases it it what we call a trial. So when you, when you test a thermal

240 00:42:20.920 --> 00:42:29.330 Joao De Aquino: paying threshold and thermo paying tolerance, you want a very slow increase in temperature or decrease. If you're if you're doing cold stimulation.

241 00:42:29.740 --> 00:42:40.430 Joao De Aquino: same as the the with with pressure, pain your T. Us, you give specific instruction to the participant, and and you tell them to press the button as soon as the sensation is no longer warm.

242 00:42:40.480 --> 00:42:53.140 Joao De Aquino: but but tingling, or or or painful, or burning the very first pain, and then you may also measure intolerable pain. And this machine has a a building mechanism. So if the person has a really really high

243 00:42:53.320 --> 00:42:56.470 Joao De Aquino: paying tolerance, it will automatically stop to test

244 00:42:57.820 --> 00:43:01.639 Joao De Aquino: an older but also effective way to measure.

245 00:43:01.750 --> 00:43:09.539 Joao De Aquino: To do a static thermo qst is a goalpressor test which was originally developed as a methodology to assess a cardiovascular responses to stress.

246 00:43:09.640 --> 00:43:18.129 Joao De Aquino: And briefly, it involves immersing the person's hand in a cold water bath typically at 4°C, or around 39 Fahrenheit.

247 00:43:18.570 --> 00:43:37.170 Joao De Aquino: Sorry, 50 around 55, and the first pain is when the person reports the first paint and the tolerance is when the person unambiguously removes the hand from a cold water bath, and this method has been used to develop bears and ofesic medications, such as gaba, pentenoids, and opioids.

248 00:43:37.180 --> 00:43:43.660 Joao De Aquino: and people with who are receiving chronic opioid therapy appear to be particularly sensitive to this test. It is very uncomfortable.

249 00:43:45.580 --> 00:43:55.109 Joao De Aquino: Another method it this one, is not as frequently used, but it it has some advantage that tends to correlate well with the severity of ongoing chronic pain.

250 00:43:55.140 --> 00:44:14.300 Joao De Aquino: It's a it's a scheme. It's so. The reason why it's not used a lot is, as you imagine. If you include an extremity, there's a lot of structures there right that you're interrupting blood flow to, not just the skin but periosity and muscle. So it's not super pacific, you know, subcontaneous tissue, but it

251 00:44:14.310 --> 00:44:22.430 Joao De Aquino: it it it has as uses. You know it. It appears to be very sensitive, for example, to the influence of sex

hormones that any of the research paradigm it might make sense to do it.

252 00:44:22.880 --> 00:44:24.899 Joao De Aquino: So All these methods I

253 00:44:25.070 --> 00:44:40.090 Joao De Aquino: briefly spoke about our static Usd methods. But as Bob me very clear, the first part of the talk pain is very dynamic right, and it's subjected to the influence of physiological processes, psychological processes.

254 00:44:40.120 --> 00:44:41.560 Joao De Aquino: and

255 00:44:41.730 --> 00:44:44.850 Joao De Aquino: And we can. We can apply to us to study.

256 00:44:44.930 --> 00:44:53.859 Joao De Aquino: to studying pain modulation. So, for example, when you, when you include a limb with a schematic paradigm, there's the accumulation of allogenic substances.

257 00:44:54.070 --> 00:45:11.660 Joao De Aquino: or if the person is doing deep breathing exercise. You do have the release of endorphins. There are certain medications that make pay more tolerable primarily by recruiting top down anti-nosceptive pathways from the brain. Opioids are one example so.

258 00:45:12.140 --> 00:45:18.380 Joao De Aquino: and we can use Qs, for example, to use the to, to to study the phenomenon of central sensitization, which is.

259 00:45:18.540 --> 00:45:22.229 Joao De Aquino: when the cns becomes more sensitive to paying signals

260 00:45:22.530 --> 00:45:27.509 Joao De Aquino: leading to even sometimes responding to non-paying standards

261 00:45:28.150 --> 00:45:34.220 Joao De Aquino: the 2 most common paradigms. There are other paradigms that we won't have time to cover. Here

262 00:45:34.440 --> 00:45:36.580 Joao De Aquino: the 2 most common are

263 00:45:36.720 --> 00:45:50.869 Joao De Aquino: but temporal summation of paint, which is believed to be an index of, say, for civilization or facilitation of of paying from the periphery to the spinal cord in the brain and in top down. Modulation. And one example is a condition, pay, modulation.

264 00:45:51.570 --> 00:45:59.489 Joao De Aquino: and depending on how efficient those 2 prophes are you? You can generate a an, a, not aceptive profile.

265 00:45:59.890 --> 00:46:16.949 Joao De Aquino: So in certain chronic pain conditions there there is a state in which that favors heightened ping response and and and and and there's some, even a variation in healthy people, people without chronic pain.

266 00:46:19.110 --> 00:46:36.829 Joao De Aquino: So summation of thing. Briefly, it's a progressive, increasing pay intensity over time with either con-

stant or repetitive simulation. In the example. Here on the left, temporal summation means the same level simulation applied rapidly over time will lead to a heightened pain. Response.

267 00:46:36.950 --> 00:46:40.420 Joao De Aquino: and spatial summation just means

268 00:46:40.450 --> 00:46:50.920 Joao De Aquino: a larger area, and a constant rate will lead to a more robusting response. For example, I I mentioned the cold press, or earlier generally, if you do, the cold press, or you in the whole, are

269 00:46:51.020 --> 00:46:53.569 Joao De Aquino: that will lead to a more robust pain, response

270 00:46:53.980 --> 00:47:13.859 Joao De Aquino: and temporal. So here you see the the what's happening at the near biological level. So you have the second order neuron that starts to fire, and with with more frequent stimulation from this presynaptic neuron, so that this is believed to be an index of central sensitization.

271 00:47:16.000 --> 00:47:22.450 Joao De Aquino: The way we measure it in our group is in in one of the empower you funded studies

272 00:47:22.530 --> 00:47:34.489 Joao De Aquino: is using a poultry of thermal, so it's applied to usually the the ventral surface of the arm or the the palm of the hand. That depends on on the protocol. And we use a computerized visual log scale.

273 00:47:34.500 --> 00:47:52.139 Joao De Aquino: and that has a couple of advantages. So this is a variation of what vision I don't know what scale that was shown in the first part of the talk, and it it has. It's align with continuous endpoints that have 2 verbal anchors, and on nature extremity, and the patient, the or the registrar spin can slide

274 00:47:52.170 --> 00:48:04.020 Joao De Aquino: back and forth that in real time depending on the the level of pain so so you can use. You can look at, for example, the the peak tain, or a peak or a deer difference. You can look at area under the curve.

275 00:48:04.030 --> 00:48:13.660 Joao De Aquino: It's a nonverbal method. Aside from the verbal anchors, it it tends to reduce the cognitive load because it's just lighting, and there's little

276 00:48:13.720 --> 00:48:15.680 Joao De Aquino: participant examiner interaction.

277 00:48:15.800 --> 00:48:26.839 Joao De Aquino: So it is a very good method to look at the tempor association between stimulus and pain responses. And you can see here, for example, at the same level, stimulation in

278 00:48:27.160 --> 00:48:33.859 Joao De Aquino: in in red or pink is leading to a heightened pain response over time. So that's what you call temporal

summation.

279 00:48:35.180 --> 00:48:49.510 Joao De Aquino: And this is one example. So in this, of of temporal summation being applied in in research. In this example people who had an analogous response to academy or 30%, a reduction in clinical pain tended to have

280 00:48:49.850 --> 00:49:07.360 Joao De Aquino: temporal, more type of summation at Baseline, and they also measured dynamic connectivity of of, of of of super spinal structure. So for academy to the zortic effects you needed to have temporal summation, and you needed the brain to be able to observe pain modulation from the top. Now

281 00:49:09.060 --> 00:49:15.529 Joao De Aquino: we can also do temporalization of mechanical thing. This is similar to bon, for I filmed, but it's heavier. They're called pinprick.

282 00:49:15.720 --> 00:49:33.750 Joao De Aquino: and they're not dull. They don't vent. They're sharp and they're stiff. They have specific weights so you can, for example, do a train of sharp pain, stimulation, and you can look at what we call the wind operation, which is the rate of increase, or the difference between the peak pain and the first.

283 00:49:33.760 --> 00:49:41.990 Joao De Aquino: and the first stimulation. And then, you know, this is a central process. So in theory it shouldn't matter if you're doing thermo, or

284 00:49:42.040 --> 00:49:43.349 Joao De Aquino: or

285 00:49:43.910 --> 00:49:45.870 Joao De Aquino: or or mechanical pain.

286 00:49:47.050 --> 00:50:00.270 Joao De Aquino: And in this method, I think, is one of the most interesting, and a lot of you will have experienced this firsthand you if you ever had a pain. And suddenly you step on a nail, and you forgot about the previous thing. That's your brain inhibiting.

287 00:50:00.280 --> 00:50:12.530 Joao De Aquino: paying from the top down in animals that's called diffuse nox, inhibitory control. And in humans we call that condition ping modulation. So the way this is done. There are several ways to do it. I'll show you how we we do it in our group.

288 00:50:12.900 --> 00:50:16.900 but the idea is, you apply a not set the stimulus one side of the body.

289 00:50:16.970 --> 00:50:21.570 Joao De Aquino: and then you apply, and on our stimulus to usually the contralateral side.

290 00:50:21.670 --> 00:50:30.020 Joao De Aquino: and then you measured the difference in paying responses at Baseline, and after what we call the conditioning st most

291 00:50:30.240 --> 00:50:41.189 Joao De Aquino: this has proven, there's a lot of study showing that this measure may have prognostic value, for for example, from ecological interventions.

292 00:50:41.610 --> 00:50:57.920 Joao De Aquino: and this is what it looks like. So you measure painted baseline, and then you administer a test in it. Let's see a cold or heat stimulation. Then you apply the conditioning stimulus. It could be. The person's hand is inside a cold presser water bath, where it could be a firm mode.

293 00:50:59.130 --> 00:51:06.249 Joao De Aquino: mediated conditioning stimulus. And what you see here, for example, is, you know, we applied a

294 00:51:06.550 --> 00:51:17.099 Joao De Aquino: he's pain of 46.5 Celsius the person reported a 60% of in pain response. Then you apply to conditioning stimulus, and this case was hold.

295 00:51:17.190 --> 00:51:28.890 Joao De Aquino: and then there's a what we call a Cpm. Effect or Delta. There's a reduction in the response to the same standards that provoked a 60% increase now only for the 20% increase.

296 00:51:29.070 --> 00:51:33.680 Joao De Aquino: So that's a of the Cpm. And there's a and and people with certain chronic pain conditions.

297 00:51:33.700 --> 00:51:36.020 Joao De Aquino: This is a process it seems to be

298 00:51:37.880 --> 00:51:39.089 Joao De Aquino: less efficient.

299 00:51:39.420 --> 00:51:45.519 Joao De Aquino: This is one example of a Cpm in in in research practice. So this study looked at

300 00:51:45.530 --> 00:51:59.750 Joao De Aquino: the analgesic efficacy of the locks to 10 and one people with painful, diabetic neuropathy, and the people who tended to have an energetic response, a 30% reduction clinical pain, or the ones who had less efficient Cpm. And not only that, but the

301 00:51:59.840 --> 00:52:05.729 Joao De Aquino: the clinical efficiency efficiency correlated with an improvement in in Cpm. Efficiency.

302 00:52:07.080 --> 00:52:28.839 Joao De Aquino: There are several other applications of Qsc. Methods. I'm. Going to briefly mention a couple here. I'm happy to share papers with the specific examples. If people want to delve deeper so you can look at, for example, factors influencing P. Perception, such as there's so there are certain sleep Disruption studies where, usually with healthy people, where you look at pink thresholds and and in dynamic Qsd. As well.

303 00:52:28.870 --> 00:52:30.930 Joao De Aquino: After people

304 00:52:31.010 --> 00:52:32.660 Joao De Aquino: are sleep deprived.

305 00:52:32.740 --> 00:52:39.949 Joao De Aquino: you can improve the assessment of clinical pain. So there are specific protocols for diabetes to rob with

you, for example

306 00:52:40.030 --> 00:52:57.780 Joao De Aquino: which stimuli should be tested. What parts of the body you can predict the risk of you for being before surgery. There are certain studies looking at, for example, dynamic tost measures and functional outcomes, such as walking ability, or even opioid consumption.

307 00:52:57.960 --> 00:53:09.339 Joao De Aquino: You can subgroup patients with pain. This is early research, but there's some that are show pro using the queue that these methods can be applied to predicting the risk, for example, of developing. Will you reduce disorder?

308 00:53:09.700 --> 00:53:24.549 Joao De Aquino: You can assess and forecast for therapy outcomes. Give you a few examples. The the oxygen ketamine. There are many others, and you can measure up your induce Hyper Lesia, which is something that clinically is very challenging. You. You know we have a patient

309 00:53:24.590 --> 00:53:26.330 Joao De Aquino: who whose pain is

310 00:53:26.400 --> 00:53:37.789 Joao De Aquino: refractory. Is it tolerance? Is it open? This hypothesis? If we do this deep thing, you know, typing before the opioids, and and then during the opioid therapy, we will have valid, but that points to make clinical decisions.

311 00:53:38.160 --> 00:53:42.400 Joao De Aquino: and finally studying pain processes in the brain, using brain imaging and other techniques.

312 00:53:42.910 --> 00:54:02.860 Joao De Aquino: There are advantages in the of of this technique. So one advantage is the high, level, seamless control. For example, when you do a static usd, there are many normal data like Z scores to to compare body sites and even clinical populations with dynamic history. You can vary temporal parameters. You you can try to model real world pain.

313 00:54:02.870 --> 00:54:12.289 Joao De Aquino: It's flexible. You can address mechanistic questions, and you also clinical questions. You can compare people with pain without, and and people without pain.

314 00:54:13.330 --> 00:54:19.379 Joao De Aquino: and you can look at, for example, the risk-benefit ratio of energetic medications that also have a negative potential.

315 00:54:19.560 --> 00:54:34.929 Joao De Aquino: There's evidence supporting correlation with clinical pay for some of these measures, and and then, you know, they may support mechanism, based pain management. There are also some limitations. So it's altered by mood, sleep, and other factors. Pain is fundamentally subjective

316 00:54:35.040 --> 00:54:49.359 Joao De Aquino: and experimental. Pain is not real pain. It's transient. That's important. And in a lot of those studies, for example, some of these measures have a very large effect size, and then, in

subsequent studies the effect size tends not to be that large, just like you from ecological studies.

317 00:54:50.480 --> 00:55:01.290 Joao De Aquino: There are many opportunities, and i'm happy to talk to anyone about this. So, for example, the role of gender rates that this this is a a pretty open area, the need to combine

318 00:55:01.390 --> 00:55:15.509 Joao De Aquino: laboratory being with, we may pay, especially among people with low periods, disorder, measuring, assessing pain is so difficult. And now there are opportunities to apply consensus measures that tend to be brief from working groups.

319 00:55:15.720 --> 00:55:28.989 Joao De Aquino: and i'll mention one of them, which is the backpack. So here there are specific recommendations to use temporal summation to use pressure, being sensitivity and at specific body sites. These condition pay modulation. There are many other

320 00:55:29.190 --> 00:55:41.760 Joao De Aquino: measures. And if you compare this to, for example, a very comprehensive Qst battery, this these are. This is how you this is what reviewers would like to see. So this is a very, very good guide, and and worth looking at.

321 00:55:42.130 --> 00:55:49.680 Joao De Aquino: We, in with funding from the power you center are doing a study where we measure

322 00:55:50.000 --> 00:55:58.359 Joao De Aquino: that both static and dynamic. Qst: we, we assess, both dynamic and and and static, and we also look at

323 00:55:58.490 --> 00:56:04.949 Joao De Aquino: at brain imaging manager. So we're looking at paying from the bottom up with most ofceptive measures and from the top now.

324 00:56:04.970 --> 00:56:16.179 Joao De Aquino: and we're also phenotyping the technology of pain, cognitive aspects. So what it will, this will provide a very rich data set to look at. Also the relationship between

325 00:56:16.270 --> 00:56:31.269 Joao De Aquino: a pain phenotype in the laboratory, and also real world pain. And these are patients with opioid disorder, with and without pain, before and after induction into ruin. Or so we'll have an opportunity to look at pilot data. But how how does we're been working? In fact, those measures

326 00:56:32.170 --> 00:56:37.830 Joao De Aquino: which I think will be really neat because we don't have a good way to Parse, who who should get what medication?

327 00:56:38.810 --> 00:56:50.400 Joao De Aquino: So in summary Qst is a useful technique in assessing and understanding pain between groups within groups over the same person over time. It's very a good to reassess being over time.

328 00:56:50.410 --> 00:56:59.959 Joao De Aquino: especially when part of a larger multi-modal assessment that incorporates clinical pain. It can be used to screen patients, for I know physic medications and and psychological interventions.

329 00:57:00.140 --> 00:57:04.330 Joao De Aquino: and to try to forecast and assess intervention efficacy.

330 00:57:05.240 --> 00:57:13.370 Joao De Aquino: and we hope that many of you will I that's David, sent this as a teaser, so we hope to contribute to

331 00:57:13.470 --> 00:57:17.240 Joao De Aquino: combining laboratory and and

332 00:57:17.270 --> 00:57:24.849 Joao De Aquino: and clinical pain, and this can be used as a platform to develop and other treatments. And thank you. Doing power. You center for for the invitation. Again.

333 00:57:26.280 --> 00:57:30.080 David Fiellin: thank you that with Thequino and Dr. Currents

334 00:57:30.270 --> 00:57:41.909 David Fiellin: we now have a little time for questions which is great. You guys covered a wide range of topics again, sort of a broad overview, and we're happy to come back

335 00:57:41.920 --> 00:57:59.250 David Fiellin: and subsequent sessions and deal deal more specifically in these areas. We do have one question in the chat, and I believe it's to you, Dr. To. You know how diverse where the study sample and these studies, such as the needle, ice path and pressure studies, so are we

336 00:57:59.260 --> 00:58:06.480 David Fiellin: getting adequate representative of your representation of diverse patient populations in these laboratory studies?

337 00:58:07.040 --> 00:58:13.840 Joao De Aquino: The short answer is, Take for the question, and the short answer is, the samples are not as diverse as they should be.

338 00:58:13.920 --> 00:58:29.049 Joao De Aquino: and it's an important question, because this is justified on multiple rounds. You could justify on biological reals and psychosocial grounds. So differences between men and women, race ethnicity. There are cultural factors.

339 00:58:29.240 --> 00:58:32.180 Joao De Aquino: and I mean we

340 00:58:32.230 --> 00:58:43.130 Joao De Aquino: in in our studies we we we try to recruit. We're based at the Va. But we we're recruiting for community samples as well to increase our presentation. So we have the short answer is we? There's a lot of work that needs to be done.

341 00:58:44.200 --> 00:58:47.660 David Fiellin: Thank you. And that's one of the areas that empower

342 00:58:47.690 --> 00:58:50.829 and the heel initiative is attempting to address

343 00:58:50.980 --> 00:59:06.909 Bob Kerns: Dr. Kerns, is it? I make 1 one additional comment that there are which you know Jp. Is emerging as one of these these folks. But there are leaders in the field that are using Qst and other laboratory based methods as well as clinical

344 00:59:07.020 --> 00:59:21.930 Bob Kerns: approaches specifically to study issues related to racial ethnic differences, gender differences, and and actually in it even progressing toward intersectionality. Among these

345 00:59:22.160 --> 00:59:23.470 Bob Kerns: subgroups

346 00:59:23.500 --> 00:59:29.459 Bob Kerns: in terms of both laboratory-based pain, but also implications for the experience of clinical.

347 00:59:29.700 --> 00:59:40.779 Bob Kerns: So there's there's a lot of work going that isn't exactly what Kercha was asking. But I I did want to emphasize. This is our area as as Jp. Mentioned. That's really

348 00:59:41.060 --> 00:59:43.760 Bob Kerns: emerging as a very important area.

349 00:59:43.790 --> 00:59:44.669 Bob Kerns: Science?

350 00:59:46.390 --> 00:59:47.859 David Fiellin: Excellent. Thank you.

351 00:59:48.560 --> 00:59:52.600 David Fiellin: Dr. Kern's question from Michelle Bonara.

352 00:59:52.620 --> 01:00:03.980 David Fiellin: Curious to learn about the process of recommending core pain outcomes specifically an initiative such as work, groups and impact, or the Vh. The a group.

353 01:00:04.090 --> 01:00:13.680 David Fiellin: What evidence is typically weighted, the heaviest in determining which measures are ultimately recommended, and whose perspectives are usually considered.

354 01:00:14.100 --> 01:00:17.080 Bob Kerns: So I think you're you're really

355 01:00:17.380 --> 01:00:21.469 Bob Kerns: hitting on the right a very important question which is, Who are these experts

356 01:00:21.520 --> 01:00:31.129 Bob Kerns: right? And how do you identify them? I think not. Enough attention has been made paid to issues that we were just talking about.

357 01:00:31.210 --> 01:00:32.990 Bob Kerns: related to diversity

358 01:00:33.100 --> 01:00:39.740 Bob Kerns: an inclusion of people representing typically underrepresented groups. They often are.

359 01:00:40.940 --> 01:00:50.550 Bob Kerns: For example, I'll just start with impact representatives from from the sponsoring organizations representatives from Academia.

360 01:00:50.990 --> 01:00:57.720 Bob Kerns: You know it's mostly who knows who is representatives from industry. It's who they put up.

361 01:00:57.860 --> 01:01:17.790 Bob Kerns: And so, I think fundamentally, there could be a concern about. You know the even that the process by which these recommendations emerge, having said that in terms of the but the evidence that's secured most often, for example, an impact. There is a a Commission literature review

362 01:01:17.800 --> 01:01:27.370 Bob Kerns: of the published empirical literature and theoretical or conceptual literature that's foundational to the discussion that

363 01:01:27.540 --> 01:01:29.169 Bob Kerns: is, in yeah.

364 01:01:29.450 --> 01:01:45.069 Bob Kerns: upon which the consensus recommendations emerge. And I think that's oftentimes the case. In other groups I mentioned the Dha Health Services Research group, headed by Kirkraine. It was informed by a very thorough literature review process

365 01:01:46.480 --> 01:01:47.410 Bob Kerns: as well.

366 01:01:47.530 --> 01:01:52.690 Bob Kerns: I I think the the group tries to attend the quality of the evidence

367 01:01:52.750 --> 01:01:56.149 Bob Kerns: in in building recommendations. But

368 01:01:56.350 --> 01:02:05.790 Bob Kerns: how explicit that is probably varies from group to group within the Nih. I can't say much about that. I think. Again, there's

369 01:02:06.030 --> 01:02:22.900 Bob Kerns: an effort to build representative groups that come to build these consensus recommendations. But again, they're mostly people that are, you know, in in these specific Nih efforts. It's people that are funded to be part of that particular community.

370 01:02:22.990 --> 01:02:28.509 Bob Kerns: whether they are really representative of the broader community. I'm not I. I really can't say.

371 01:02:28.910 --> 01:02:39.350 David Fiellin: Yeah, thank you. And and there's increasing attention is at least in the power and elsewhere to involving persons with lived experience in the organizations that they

372 01:02:39.430 --> 01:02:47.560 Bob Kerns: reflect. I want to thank everybody, I would say. Impact, for example, just on that all along, for 20 some years it's been a foundation.

373 01:02:47.720 --> 01:02:49.360 Bob Kerns: Prince. Sorry.

374 01:02:49.400 --> 01:02:51.550 David Fiellin: excellent thanks for that reminder, Bob.

375 01:02:51.600 --> 01:03:07.450 David Fiellin: please feel free to reach out to our speakers. If you have questions that Weren't addressed, this will be recorded, and I want to thank everybody for participating, and again thank our speakers for doing a wonderful job with a very complicated and challenging topic.

376 01:03:07.680 --> 01:03:08.919 David Fiellin: Good day, Everybody.