Slide1) I'm Grace Dammann and I'm the medical director of the Pain Clinic at Laguna Honda Hospital and I'm here wih our team to talk about my about what does and does not work in the treatment of chronic pain. I'm going to talk for about 20 minutes abot my experiences both as a patient and and provider and then team members, all gifted practitioners, will come up describe and demonstrate the various non-pharmacologic complementary medicine modalities used, for about five minutes each. Following the demonstration, we will have about ½ hr. for Q&A.

We work as a team, a practice critical for me, other team members, and patients and we want to give you of some feeling of what it's like to actually to deal with chronic pain from the team perspective, which is non-opiate-based. I will touch very briefly on the science of pain because, that, in the end, informs our current medical knowledge of why these alternative methods may be working. You will have to look at the notes to decide for yourself, and also at the Cochrane reviews listed in the bibliography, etc., to see the state of research on complementary forms of treatment for chronic pain. Mostly here, we want to give you a brief experience of team power, complementary treatments, why the combination works so well for true healing to occur.

Slide 2) I'd been a doctor for years until I fell in love with the Golden Gate Bridge (just kidding). I did my medical school and residency training right here in San Francisco. I was a Family Practitioner mostly doing AIDS care. The day was like any other day in that I was driving my child back across the bridge. We lived at Green Gulch Farm, a Buddhist community. It was also like any other day in that I was running late (for a dental appointmennt) but unlike every other day, I drove in what's called the “suicide lane”, you know, the one closest to the oncoming traffic.

Slide 3) Since the bridge opened in 1937, there been almost 2 billion crossings with only 36 fatalities, 17 of which came from head on collisions. The odds of a head on collision are about 0. Nonetheless...

Slides 4,5) I was hit by an car driven by a young man who gone into atrial fibrillation and passed out at the wheel, crossing over three lanes of traffic, hitting me head on in the driver’s side door. My daughter and her service dog were in the front seat and in the well area and, fortunately, they were both fine.

Slide6) What happened to me medically, emotionally, cognitively, and professionally?

Slide 7) I spent 45 days in a coma, got 48 units of packed red blood cells on day 1, roughly five times my blood volume. I had three major brain bleeds, extensive DAI, and was trached for about two months, and J-tube fed. I had 13 operations in those first three days and five major operations later, and 2 later TBI's, and spent 13 continuous months in the hospital. That caused emotional havoc and the need to retool when ready to go back to work.

Slide 8) In the middle of all of that I turned to Buddhism. I'ld been lucky enough to be living at Green Gulch, which made it possible for me to do the AIDS work that I've been doing for years. Buddhism deals with what are called the four Noble truths-- truth of suffering(old age, sickness and death), the truth of the origin of suffering(graspinng at what we want and refusing to accept reality when it is something we don't like), the cessation of suffering and the truth of the path.

Slide 9) Why Buddhism? I think because I'd spent enough time in that community, founded by Suzuki Roshi, to realize that I'd learned everything that I needed to learn by sitting every morning, which I did from 5-7 AM. I had received the best education money could buy, but I really knew nothing about the power of our own minds to create what we think of as. "reality" until I

moved to Green Gulch. We do long sittings, in which we stay in the same spot, eating and sitting, for 7 days, from 5am to 9 pm. On day 4, everybody's in hell. I was no exception. But it passes, everything passes, moment to moment,
everything changes.

Slide 10) …and I had the good fortune to experience what felt like “true reality” which says: “wake up life is transitory, swiftly passing, be aware of the great matter, do not waste time” and “in your sitting posture your mind and body have great power to accept things as they are, whether agreeable or disagreeable”.

Slide11) I had the good fortune to meet his Holiness the Dalai Lama and I must say I met my hero. If he could have such equanimity in the middle of such national and tribal suffering, and exude such great joy, practice (meaning looking at the contents of your own mind and their impact on the world around you) really must mean something. Practice, and its ability to transform our behavior, is necessarily worth the effort.

Slide 12) What is it that I learned as a patient in all that time in the hospital: I remember that the most important thing for my own healing was to be around happy people. Whenever I felt somebody depressed outside my door, I’d pull the covers up.

Technical skill is important, but not sufficient. Figure out what you need to do to be happy at work and just do it. Help other members of your team be happy. We have no business being caregivers if we are not enjoying what we do, meaning our patients, our teammates, and our sense of purpose. Remember that the most important member of the team for the patient is probably the CNA (if in hospital), the receptionist(in an outpatient setting)..whoever it is who lights up when they see that person. Finally take a long view on the time and meaning of recovery. It doesn't mean returning to life "as it was". It does mean living a full and meaningful life with whatever the physical and emotional and cognitive realities/possibilities may be.

Slide 13) What is helpful for patients are tools to deal with a pain, identity crises, not knowing, appreciating the smallest things and constant change. Medicine, alone, is woefully unprepared to teach these skills. And, when stressed, we often forget our innermost intention. We need to remember why we came into this AND we need to figure out what mistakes we make and develop checklists to protect ourselves and others from making the same mistakes…In other words, "do no harm", and transmit, to the next generation of practitioners our joy in doing what we do, thus "teaching them well".

I needed a purpose. I wanted to go back to work, which I'd loved... and I had a lot of experience with pain; so, when they asked me to set up a pain clinic in the Laguna Honda Hospital, I thought "no", initially, then "how can I make this tolerable.?" I hated pain. I was still on some narcotics and I was well past the acute phase of pain. The opiates were not working, made me constipated, and slightly groggy. This was 3 years after my accident. But everybody thought I deserved pain medication. I was beginning to have a slight inkling the probably I was up regulating my pain receptors, and I was so bored...and missed doing what I loved, having a place in the world; so, I said "I'll do it if only I can do it as part of a team." I wanted to join forces with Dan, my partner in setting up the Aids step down unit at Laguna Honda Hospital from 5A at San Francisco General Hospital. So we began the Pain Clinic in 2011.

Slide 14) Pain is always subjective and because it's also unpleasant there is always an emotional component. Biological, psychological and social factors influence how pain is experienced.

Slide 15-20) we view the various phases in pain propagation and eventually behavior. You can look at them on-line

Slide 21) shows the cycle of chronic non-malignant pain…

Slide 22-24) Biological, psychological, and social factors influence how pain is experienced. The Neuromatrix Theory, which I happen to still like even though it's gone somewhat out of vogue, states that pain is produced by the output of a widely distributed neural network that is genetically determined and by sensory experience throughout life. Pain is the output of this neural network and not a response to sensory input following tissue injury etc. Chronic pain syndromes do not need to have obvious causes but are associated with changes in the nervous system. Most importantly, the brain is not a fixed system rather it is neoplastic and can and does change.

Slide 25) Because pain affected more than hundred million Americans, the Institute of Medicine put out a great report called: *Relieving pain in America blueprint for transforming...* This was the beginning of the pendulum shift and pain began to be taken seriously, especially chronic pain, meaning pain which exists for longer than three months or beyond the point at which it should by definition have been relieved because by the acute phase of obvious tissue injury is over. In response to the pendulum's shifting, a lot more prescriptions were written for opiate medications and you guys will learn

about this or have learned about this in previous/coming lectures.

Slide 26) Medicine focused primarily on intervening pharmacologically and it is so unfortunately clear why more opiate prescriptions were being written. Opiates, after all, are listed in 3 out of 4 mechanistic sites of control. What is not listed are alternative treatments that may disrupt pain propagation at the same sites.

Slide 27) shows where opiate prescriptions were written most--heavy purple right here also the purple crosshatched states are the areas of greatest prescription writing. More than one prescription for opiates was written per every person/per year in those states.

Slide 28) shows the three waves in the rise of overdose deaths, and Danny Cicerone is talking to you about this. Anyway, we were right in the middle of the second wave when we started the Pain Clinic.

Slide 29) shows the national overdose deaths in 2017 reached 70,000. I think when we began the clinic it was right around 40,000.

Slide 30) Drug overdose deaths, in 2016, were 64,000 deaths, suicide 44,000, car crashes only 40,000, murder 16,000, and gun deaths only 15,000.

Slide 31) This led to a comprehensive response, shown in the next slide, with the CDC to coming out with guidelines on the use of opiates to treat chronic pain. We all subscribe to those guidelines but, unfortunately, they are confusing and complex to implement as they were to write up. What have the guidelines taught us?

Slide 32). The evidence is insufficient for every clinical decision that a provider must make about the use of opioids for chronic pain. This is such an issue because opioids were the main stay of treatment.

Slide 33). So we began the Pain and Wellness Clinic in June, 2011. The team included at that time three massage therapists, a pharmacist, a volunteer Physician, an MD acupuncturist, an Advanced Practice Nurse, a Social Worker practicing Medical Qi Gong, a Music Therapist, a Psychiatrist, and volunteers. Patients were seen originally weekly for 8 weeks, biweekly for 8 visits, and then monthly, while they benefitted. We were and are trying to provide a safe space of therapeutic value using a team approach to create a sense of well-being while patients learn to live with pain. We've only

looked at the data from 2014-2015 and, at that point, we delivered 2476 treatments/calendar year for 89 patients with chronic nonmalignant pain for a total of 838 clinic visits. By contrast, we've had 829 clinic visits for this past calendar year, with far fewer staff.

Slide 34). Complementary Alternative Medicine services are broad-based and complex. There are many types of therapies-- body based, mind-body interventions, energy therapies, etc.
The picture on the right shows how complicated it becomes to comment on the interrelationship between emotion and cognition in pain.

Top-down mechanisms are those initiated by mental processing at the level of the cerebral cortex. In the case of clinical hypnosis, imagery, and meditation we are primarily referring to conscious and intentional mental activities although unconscious neural processes are also thought to be involved. In contrast, bottom up mechanisms are initiated by the stimulation of various somato, chemo and sensory receptors that influence central neural processing and mental activities via the ascending pain pathways from the periphery to the brainstem and cerebral cortex.

However, we also stress that this taxonomy is an oversimplification in that all body mind therapies actually

involve combination of top-down and bottom-up mechanisms. For example, progressive muscle relaxation involves bottom-up pathways activated by peripheral sensory afferents responding to various visceral activities e.g. reduce muscle tension and blood pressure. Top-down pathways are activated by focused attention and intention to relax.

Slide 36) Complementary Alternative Medicine is very attractive in that it mitigates risk. The liberal use of surgical interventions and drugs (in particular, opiates) have led the VA to now demand that body-based therapies be used first. Mind-body medicine can communicate between the various systems: cortex, limbic system, and hypo-pituitary adrenal axis influence output to the periphery…modulating mind, brain and body, ”psycho-neuroendocrine immunology”. The third item which makes it particularly appealing is the neural plasticity and what we have come to know about the ability of the brain and the nervous system to change themselves.

Complementary Alternative Medicine Treatments are cost-effective and effective in reducing pro-inflammatory states and most CAM strategies work to disrupt pain pathways much the same way that opiates do at the same or different receptor sites or intervals, as we saw earlier..

Slide 37) let's remember that threat response mechanisms lead to emotional responses in the body which result in cognitive responses in which bad trumps good. Bad emotions, parents, and feedback have more impact. That information is processed more thoroughly. Bad impressions are more resistant to change and quicker to form stereotypes.

Slide 37) threat response mechanisms lead to an emotional response characterized by flight or fright. We all learn this one. The area of greatest comfort and greatest performance is somewhere in the middle. Where one is in sympathetic and parasympathetic activation or balance. This leads us to be calmly focused and alert and is a state most of us prefer.

Slide 38) Pain is decreased by pleasant odors, pleasurable music, palatable food, and in expectation of relief and pleasure. This is the real focus of our clinic--inhibiting pain by increasing pleasure, using proven techniques which educate patients about their particular ability to decrease the experience of pain by top-down or bottom-up mechanisms of pain control. Bottom-up modalities consist of acupuncture, massage, Acutonics, touch, Rolfing, Reiki, and Medical Qi Gong. Top-down techniques we use of the clinic

include distraction, meditation, medical hypnosis, counseling, education, motion, prayer.

Slide 39) while this shows acupuncture, the same mechanism probably contributes for any kind of tactile treatment—massage, therapeutic touch Acu tonics. They each involve disrupting the pain pathway by activating C-fibers which inhibit the transmission within the spinal cord to the brain, of the pain pathway. The supra-spinal centers put out serotonin to act as an inhibitor in the dorsal horn primary neuron relay station. In other words, they down regulate the receptivity of the pain receptors to the pain impulse.

Slide 40) Jon Kabot- Zin found that mindfulness-based stress reduction reduced pain by parsing between the objective sensory dimension of pain and the more subjective judgment that we attach to the pain that constructs the way we experience it. fMRIs show that meditators (in a non-meditative state) have increased activation in areas associated with the actual sensory experience of pain (SI SII, insula, thalamus and mid-cingulate cortex). There is decreased activity in regions involved in emotion, memory and appraisal (including medial pre-frontal cortex, the orbitofrontal cortex, amygdala, caudate and hippocampus). Results indicated statistically significant reductions in measures of present/moment

pain, negative body image, inhibition of activity back pain, mood disturbance, and psychological symptomatology, including depression and anxiety. Pain drug utilization was also reduced.

Slide 41) shows how does meditation changes the brain and enhances cognitive functioning by improving working memory, sustained attention (the monitoring faculty to avoid mind wandering), perceptual abilities, problem solving, executive function and also slows age-related cognitive decline in animal.
It enhances emotional functioning by promoting prosocial behavior, self-awareness and emotional regulation. In a study that was performed at Harvard researchers took 16 subjects in an eight week mindfulness program to see if meditation over short period of time could create changes in lifestyle and in the brain. They gave them a 45 minute guided meditation exercise to be used once daily and they were encouraged to do various daily activities such as mindfulness when possible. What they found was that subjects performed about 27 minutes of mindfulness/day. One of the biggest things that happens when meditating is that we stop processing so much information. Beta waves generally indicate processing of information. Using magnetic resonance imaging MRI we can see where and how beta waves are decreasing the most. This is indicated by the color changes

above. What we see is a decrease in the frontal lobe, the most highly evolved part of the brain responsible for reasoning, planning, emotions, and self-conscious awareness. During meditation, the frontal lobe tends to go offline.

Slide 42) we did a study of our clinic patients and asked them, simply, how they felt when they came into the clinic and how they felt when they left the clinic. It's called the global impression of change. In our experience, the single best indicator for how well residents were able to benefit from various complementary treatments that the program offers was how much their global impression of change improved in any given clinic day. Virtually everyone receiving acupuncture, massage, music therapy, medical Qi Gong reported feeling better or much better after treatment compared with how they felt before treatment. In fact, as we see in the table, about 73% of those receiving any form of treatment felt better, and fewer than 4% felt the same or worse after treatment. There's a fairly large group for whom we have no information about 23%.

Slide 43) So what are the underpinnings of wellbeing. Sustained positive emotion recovery from negative emotion, empathy, altruism and prosocial behavior, mindfulness, less mind wandering, and all

pathways underlying the each of the four components all exhibit plasticity and thus can be transformed during experience and training.

Slide 44) What are my thoughts as a provider…virtually no one says I want to suffer. Staff included. Our job is to work on the positive, do no harm, with both patients and staff alike and recognize that we are all in this together. It always takes a village to achieve what is truly worthwhile.

Slide 45) I want to show you a slide of how what it looks like in the clinic so you have a real sense of it. After the film clip is done, my teammates will come forward, introduce themselves, briefly describe their modality, and demonstrate on one of us. We are going to work on each other to give you a sense of what it's like in our clinic for us as well as the patients. After the demonstration, we will answer questions. Jennifer Block will moderate the Q&A. session. Thank you!