MDH Minnesota Department *of* Health

Minnesota Medical Cannabis Program
Petition to Add a Qualifying Medical Condition

Making your petition

- ☐ Any person may petition the Minnesota Department of Health ("the department" or "MDH") to add a qualifying medical condition to those listed in subdivision 14 of Minnesota Statutes section 152.22.

Petitions are accepted only between June 1 and July 31, each year. Petitions received outside of these dates will not be reviewed.

Petitions must be sent by certified U.S. mail to:

Minnesota Department of Health
Office of Medical Cannabis
P.O. Box 64882
St. Paul, MN 55164-0882

- ☐ You must mail the original copy of the petition with an original signature.
- ☐ Complete each section of this petition and attach all supporting documents. Clearly indicate which section of the petition an attachment is for.
- ☐ Each petition is limited to one proposed qualifying medical condition.
- ☐ If a petition does not meet the standards for submission, it will be dismissed without being considered.
- ☐ If the petition is accepted for consideration, MDH will send the petition documents to the Medical Cannabis Review Panel ("Review Panel"). MDH staff will also provide information to the Review Panel about the proposed qualifying condition, its prevalence, and the effectiveness of current treatments.

Petition review process

- ☐ The Review Panel meets at least once a year to review all eligible petitions.
- ☐ MDH will post notice of the public hearing on its medical cannabis website.
- ☐ After the public meeting and by November 1, the Review Panel will provide the Commissioner of Health its written report of findings.
- ☐ The Commissioner will approve or deny the petition by December 1 of the year the petition is accepted for consideration.

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☐ You may withdraw the petition before the Review Panel's first public meeting of the year by submitting a written statement to the Department stating that you wish to withdraw it.

Section A: Petitioner's Information

Name (First, Middle, Last): Maren Joyce Schroeder			
Home Address (including Apartment or Suite #): [redacted]			
City: [redacted]		State: MN	Zip Code: [redacted]
Telephone Number: [redacted]	Email Address: maren@sensible.mn		

Section B: Medical Condition You Are Requesting Be Added

Please specify the name and provide a brief description of the proposed qualifying medical condition. Be as precise as possible in identifying the condition. **Optional:** Include diagnostic code(s), citing the associated ICD-9 or ICD-10 code(s), if you know them. *Attach additional pages as needed.*

Post-Traumatic Stress Disorder, ICD-10-CM diagnosis code F43.1
Post-Traumatic Stress Disorder - unspecified, ICD-10-CM diagnosis code F43.10
Post-Traumatic Stress Disorder – acute, ICD-10-CM diagnosis code F43.11
Post-Traumatic Stress Disorder – chronic, ICD-10-CM diagnosis code F43.12

Post-Traumatic Stress Disorder (referred to throughout as "PTSD") is a class of traumatic stress disorders with symptoms lasting one month or more. Various forms of PTSD exist, based on the onset and duration of stress symptoms. Specific PTSD diagnoses are made based on the onset and duration of symptoms. PTSD is a reaction to traumatic events such as military combat, domestic violence, sexual assault, or natural disaster.

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Section C: Symptoms of the Proposed Medical Condition and/or Its Treatment

Describe the extent to which the proposed qualifying medical condition or the treatments cause suffering and impair a person's daily life. *Attach additional pages if needed.*

See attached addendum, Section C.

Section D. Availability of conventional medical therapies

Describe conventional medical therapies available and the degree to which they ease the suffering caused by the proposed qualifying medical condition or its treatment. *Attach additional pages if needed.*

See attached addendum, Section D.

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Section E: Anticipated benefits from Medical Cannabis

Describe the anticipated benefits from the medical use of cannabis specific to the proposed qualifying medical condition. *Attach additional pages if needed.*

See attached addendum, Section E.

Section F (optional): Scientific Evidence of Support for Medical Cannabis Treatment

It will strengthen your petition to include evidence generally accepted by the medical community and other experts supporting the use of medical cannabis to alleviate suffering caused by the proposed medical disease or its treatment. This includes but is not limited to full text, peer-reviewed published journals or other completed medical studies. Please attach complete copies of any article or reference, not abstracts.

☒ ***I have attached relevant articles.*** *(check box if you have attached scientific articles or studies)*

Section G (optional): Letters in Support of Adding the Medical Condition

Attach letters of support for the use of medical cannabis from persons knowledgeable about the proposed qualifying medical condition, such as a licensed health care professional.

☒ ***I have attached letters of support.*** *(check box if you have attached letters of support)*

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Section H: Acknowledgement and Signature

Please Note: Any individually identifiable health information relating to any past, present, or future health condition or health care contained in this Petition is classified as a health record under Minnesota Statutes §144.291, and is not subject to public disclosure.

I certify that the information provided in this petition is true and accurate to the best of my knowledge.

SIGNATURE	DATE (mm/dd/yyyy)
[signature]	07-29-2016

To obtain this information in a different format, call:
(651) 201-5598 in the Metro area and (844) 879-3381 in the Non-metro.

Section A: Petitioner's Information

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Brandan Borgos o/b/o Sensible Minnesota

[redacted]

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Section C: Symptoms of the Proposed Medical Condition and/or Its Treatment

Symptoms of PTSD

PTSD causes clinically significant distress or impairment in the individuals' social interactions, capacity to work or other important areas of functioning.[1] It is not the physiological result of another medical condition, medication, drugs or alcohol.[2]

PTSD patients typically have persistent frightening thoughts and memories of their ordeal and feel emotionally numb, especially with people they were once close to.[3] Most people with PTSD repeatedly re-live the trauma in the form of nightmares and disturbing recollections during the day. The nightmares and recollections may come and go, and a person may be free of them for weeks at a time, and then they experience them daily for no particular reason.[3]

Patients may also experience sleep problems, depressions, feelings of detachment, or being easily startled.[3] They may lose interest in things they used to enjoy and have trouble feeling affectionate.[3] They may be irritable, more aggressive than before, or even violent.[3] Seeing things that remind them of the incident may be very distressing, leading them to avoid certain places or situations that bring back those memories.[3]

In severe cases of PTSD, patients may have trouble working or socializing.[3] Symptoms tend to be worse of the event that triggered the PTSD was initiated by a person – such as domestic violence, sexual assault, or witnessing a murder.[3] Events in the patients' life may serve as reminders of the trauma and trigger flashbacks or intrusive images.[3] These flashbacks may cause the person to lose touch with reality and reenact the event for a period of seconds or hours, or, in rare cases, days.[3] Flashbacks may come in the form of images, sounds, smells, or feelings, and the patient usually believes the traumatic event is happening all over again.[3]

According to Staggs the Diagnostic and Statistical Manual of Mental Disorders (DSM) includes four sets of symptom clusters and two subtypes, as well as requirements around duration of symptoms, how it impacts one's functioning, and ruling our substance use and medical illnesses.[1] Criterion A is a "Traumatic Event" in which trauma survivors must have previous exposure, actual or threatened, to: death, serious injury, or sexual violence.[1] (2015). This exposure may be direct, witnessed, indirect (such as hearing of a relative or close friend experiencing the event – indirectly experienced death must be accidental or violent, and/or repeated or extreme indirect exposure to qualifying events, usually by professionals – except that non-professional exposure by media.[1]

Criterion B is "Intrusion or Re-experiencing" in which patients re-experience the event through intrusive thoughts or memories, nightmares related to the traumatic event, flashbacks and the feeling that the event is happening again, and/or psychological and physical reactivity to reminders of the traumatic event – such as an anniversary.[1]

Criterion C is "Avoidant Symptoms" which describe the ways someone may attempt avoidance of memories of the event.[1] Criterion C must include avoiding thoughts or feelings connected to the traumatic event, or the patient avoiding people or situations connected to the traumatic event.[1]

Criterion D, "Negative alterations in mood or cognitions" is new but captures many symptoms long observed by PTSD patients and clinicians.[1] A decline in someone's mood or through patterns that can include: memory problems exclusive to the event, negative thoughts or beliefs about one's self or the world, distorted sense of blame for one's self or others related to the event, being stuck in severe emotions (horror, shame, sadness) related to the trauma, severely reduced interest in pre-trauma activities, and/or feeling detached, isolated, or disconnected from other people.[1]

Criterion E, "Increased arousal symptoms" describes ways the brain remains wary and watchful of further threats.[1] Symptoms include difficulty concentrating, irritability and/or increased temper or anger, difficulty falling or staying asleep, hypervigilance, and being easily startled.[1]

Criterion F, G, and H all describe the severity of the symptoms of Criterion A through E.[1] Essentially, symptoms must last at least a month, seriously affect one's ability to function, and are not a result of substance use, medical illness, or anything except the event itself.[1]

Post-traumatic stress disorder may also manifest in dissociation, a subtype of PTSD; although there are several types of dissociation, two are included in the DSM: depersonalization or feeling disconnected from oneself and de-realization or a sense that one's surroundings aren't real.[1]

Conventional Therapy Side Effects

According to the Food and Drug Administration, antidepressants come with Medication guides that provide approved information for patients, families, and caregivers that could help improve monitoring a drug's side effects.[4] Side effects from antidepressants may include: headache, night sweats, nausea, agitation, sexual problems, dry mouth, and constipation. (2009). There are more serious risks such as: suicidal thinking, mania, birth defects, and high blood pressure associated with antidepressant use.[4]

Side effects of Citalopram (Celexa), a commonly prescribed SSRI, include decrease in sexual desire or ability and sleepiness or unusual drowsiness.[5] Less common side effects include: agitation; blurred vision; confusion; fever; increase in the frequency of urination or amount of urine produced; lack of emotion; loss of memory; menstrual changes; skin rash or itching; trouble breathing; body aches or pain; change in sense of taste; gas; severe and throbbing headache; heartburn; increased sweating; increased yawning; loss of voice; pain in the muscles or joints; sneezing; stuffy or runny nose; tingling, burning, or prickly feelings on the skin; tooth grinding; unusual increase or decrease in weight; and watering of the mouth.[5] Rare side effects include behavior change similar to drunkenness; bleeding gums; breast tenderness or

enlargement or unusual secretion of milk (in females); chills; convulsions or seizures; diarrhea; difficulty concentrating; dizziness or fainting; drowsiness; creased hunger; increased thirst; irregular heartbeat; lack of energy; lethargy; nosebleed; overactive reflexes; painful urination; poor coordination; purple or red spots on the skin; rapid weight gain; red or irritated eyes; redness, tenderness, itching, burning, or peeling of the skin; shivering; slow or irregular heartbeat; sore throat; stupor; sweating; swelling of the face, ankles, or hands; talking or acting with excitement you cannot control; trembling, shaking, or twitching; trouble with holding or releasing urine; unusual or sudden body or facial movements or postures; and unusual tiredness or weakness.[5]

According to the Mayo Clinic, Clonazepam (Klonopin) commonly causes: body aches or pain, chills, cough, difficulty with breathing, discouragement, dizziness, ear congestion, feeling sad or empty, fever, headache, irritability, lack of appetite, loss of interest or pleasure, loss of voice, nasal congestion, poor coordination, runny nose, shakiness or unsteady walk, sleepiness or unusual drowsiness, sneezing, sore throat, tiredness, trouble with concentrating, trouble with sleeping, unsteadiness, trembling, or other problems with control or coordination, unusual tiredness or weakness. Less common side effects including being forgetful, bladder pain, bloody or cloudy urine, changes in patterns and rhythms of speech, diarrhea, difficult, burning, or painful urination, frequent urge to urinate, general feeling of discomfort or illness, joint pain, loss of appetite, lower back or side pain, mood or mental changes, muscle aches and pains, nausea, nervousness, problems in urination or increase in the amount of urine, shivering, slurred speech, sore throat, sweating, trouble with speaking, and vomiting. Although rare, additional side effects include chest pain or discomfort, cold sweats, confusion, difficulty with sleeping, excessive dreaming, fast,, irregular, pounding, or racing heartbeat or pulse, feeling made, severe and throbbing headache, lack of feeling or emotion, lack or loss of self-control, nightmares, partial or slight paralysis, sense of detachment from self or body, shortness of breath, sleeplessness, suicidal thoughts, and vision changes – among others.[6] Other benzodiazepines, such as Valium and Ativan, come with their own set of side-effects, which are generally the same or similar to the above.

According to Landry et al., physicians are like to encounter three primary clinical syndromes for benzodiazepine withdrawal. Acute-sedative-hypnotic type benzodiazepine withdrawal side effects include anxiety, insomnia, tremors, agitation, nightmares, anorexia, and seizures.[7] Less frequent symptoms include nausea and vomiting, hallucinations, depersonalized feelings, delirium, and hypersensitivity to visual and auditory stimuli.[7] With abrupt cessation of high doses, patients could even experience a psychotic episode, grand mal seizures or death.[7] Subacute, prolonged benzodiazepine withdrawal symptoms include anxiety and insomnia, as well as possible tachycardia, increased blood pressure, muscle spasms, paresthesia, and (rarely) psychosis.[7] Anxiety reemergence, or return of symptoms treated with benzodiazepines is also seen in withdrawal.[7]

Prazosin, used for insomnia or recurrent nightmares, may case dizziness or lightheadedness, fainting, loss of bladder control, pounding heartbeat, swelling of the feet or lower legs, chest pain, and trouble breathing according to Mayo Clinic.[8] Additional side effects, usually not

requiring medical attention, include: perceptual disturbances, depersonalization, hallucinations, and distortion of body image.[8]

Risperdal, an atypical antipsychotic used in the treatment of PTSD, may cause: aggressive behavior, agitation, anxiety, changes in vision, difficulty concentrating, difficulty speaking or swallowing, inability to move the eyes, increase in the amount of urine, loss of balance control, mask-like face, memory problems, muscle spasms of the face, neck, and back, problems with urination, severe restlessness, shuffling walk, skin rash or itching, stiffness or weakness of the arms or legs, tic-like or twitching movements, trembling and shaking of the fingers and hands, trouble sleeping, and twisting body movements.[9] Other more common side effects include constipation, cough, diarrhea, dry mouth, headache, heartburn, increased dream activity, increased length of sleep, nausea, sleepiness or unusual drowsiness, sore throat, stuffy or runny nose, unusual tiredness or weakness, and weight gain.[9] Less common side effects of Risperdal include back pain, chest pain, speech or vision problems, sudden weakness or numbness in the face, arms, or legs; absent, missed, or irregular menstrual periods; body aches or pain; breast swelling or soreness; chills; dandruff; darkening of skin color; decreased interest in sexual intercourse; dry skin; ear congestion; fever; inability to have or keep an erection; increase in body movements; increased watering of the mouth; joint pain; loss in sexual ability, desire, drive, or performance; loss of voice; oily skin; pain or tenderness around the eyes and cheekbones; shortness of breath or troubled breathing; sneezing; stomach pain; stopping of menstrual bleeding; tightness of the chest or wheezing; toothache; unusual breast milk production; vomiting; and weight loss.[9] Rare side effects include confusion; dizziness; drowsiness; extreme thirst; fast, shallow breathing; fast, weak heartbeat; headache; increased thirst; lip smacking or puckering; loss of appetite; muscle cramps; pale, clammy skin; poor coordination; prolonged, painful, inappropriate erection of the penis; puffing of the cheeks; rapid or worm-like movements of the tongue; shivering; taking, feeling, and acting with excitement and activity that cannot be controlled; uncontrolled chewing movements; uncontrolled twisting movements of neck, trunk, arms, or legs; unusual bleeding or bruising; and unusual facial expressions or body positions.[9]

Lamotrigine (Lamictal), a mood stabilizer used in the treatment of PTSD, may cause: blurred vision; changes in vision; clumsiness or unsteadiness; double vision; poor coordination; skin rash; dizziness; drowsiness; headache; nausea; and vomiting.[10] Less common side effects include anxiety; chest pain; confusion; continuous, uncontrolled back and forth or rolling eye movements; depression; increase in seizures; infection; irritability; diarrhea; indigestion; loss of strength; menstrual pain; pain; runny nose; trembling or shaking; trouble with sleeping; and unusual weight loss.[10] Rare side effects include: blistering, peeling, or loosening of the skin; chills; dark-colored urine; fever; flu-like symptoms; itching; memory loss; muscle cramps, pain, or weakness; red or irritated eyes; small red or purple spots on the skin; sore throat; sores, ulcers, or white spots on the lips or in the mouth; swelling of the face, mouth, hands, or feet; swollen lymph nodes; trouble breathing; unusual bleeding or bruising; unusual tiredness or weakness; and yellow eyes or skin.[10]

The medications chosen above are commonly prescribed medications from within the various categories of medications used to treat PTSD. This is not an exhaustive list of side effects, but rather an example of the side effects faced by patients currently treated by these types of medications.

Section D: Availability of Conventional Medical Therapies

PTSD is treated primarily with psychotherapy, although medication may also help patients experiencing depression, anxiety, or misuse of alcohol or drugs.[11] Various types of psychotherapy may be used in treatment, including cognitive, exposure, and eye movement desensitization and reprocessing (EMDR) therapies.[11] Cognitive therapy helps patients recognize cognitive patterns such as negative or inaccurate ways a patient perceives normal situations.[11] Exposure therapy helps patients safely face their fear to learn effective coping techniques.[11] Often, cognitive and exposure therapies are used together.[11] EMDR therapy combines exposure therapy with a series of guided eye movements to process traumatic memories and change the patient's response to those memories.[11]

According to Mayo Clinic, several types of medications may assist in improving the symptoms of PTSD.[11] Selective serotonin reuptake inhibitor (SSRI) medications are approved by the Food and Drug Administration for PTSD treatment.[11] These medications may help symptoms of depression and anxiety, and they may also improve sleep problems and concentration.[11] These medications typically take six to eight weeks to work and many patients don't respond to the first type of antidepressant tried.[12] These medications are more useful in patients also suffering from depression or where there is a history of alcohol or substance abuse.[12]

Anti-anxiety medications may improve feelings of anxiety and stress, but these medications are typically not used for long-term treatment because of their potential for abuse.[11] These benzodiazepines, referred to as minor tranquilizers, sleeping tablets, or anti-anxiety medications, can provide rapid relief of anxiety.[12] According to Cohen, there is even a small amount of data that indicates long term exacerbation of PTSD.[12]

Prazosin (Minipress) may also be used for insomnia or recurrent nightmare symptoms.[11] Prazosin treatment is not FDA-approved for PTSD treatment, but may reduce or suppress nightmares in patients with PTSD.**Error! Bookmark not defined.**

Atypical antipsychotics such as risperidone (Risperdal), olanzapine (Zyprexa), and quetiapine (Seroquel) may also reduce symptoms of PTSD and are an alternative to antidepressants.[12] These are used to treat patients suffering from agitation, dissociation, hypervigilance, paranoia, or brief psychotic reactions.

Mood stabilizers, such as lamotrigine (Lamictal), tiagabine (Gabitril), and divalproex sodium (Depakote) are less effective but still potentially helpful for managing PTSD.[12] Medications such as clonidine (Catapres), guaneficine (Tenex), and propranolol may also help to decrease the physical symptoms of PTSD.[12]

Section E: Anticipated Benefits from Medical Cannabis

As discussed below, research suggests cannabis provides several benefits for patients with PTSD. Patients using cannabis experience relief from anxiety, flashbacks, and nightmares. Although research is not conclusive, there is evidence that cannabinoids have a physiological effect on memory processing, which has shown beneficial for patients suffering from the condition. PTSD patients that may suffer from other tangential symptoms such as pain, depression, and substance abuse may find benefit from cannabis as a safer alternative to street drugs and pharmaceuticals.

PTSD and Cannabis-Related Coping Among Recent Veterans in New York City

A 2015 study conducted on veterans in New York City brought reports of symptom alleviation from cannabis use.[13] Most participants reported cannabis mitigating stress and anxiety.[13] Elliot, et al. argue that cannabis' effects may form a potential avoidant coping that is grounded in physiological release and cannabis' purported anti-anxiogenic effects.[13] The study also found that cannabis relieves PTSD related pain for patients.[13] Cannabis contained anti-depressant qualities and distancing of psychological distress for one focus group participant.[13]

Interviewees also suggested cannabis effective in preventing unwanted dissociative reactions (flashbacks) and cannabis as a buffer against disruptive memories and suggestive stimuli.[13] Patients found cannabis prevented intrusion episodes.[13] Elliot et al. conclude that the accounts related to PTSD's intrusion symptoms suggest a more important symptomatological coping role for calming and relaxation.[13] The interviewees report that their cannabis use leads to a state of calm by reducing their stress reactivity and susceptibility to triggers.[13] Interviewees described managing a stream of unending thoughts and hyperactive arousal as one of the main challenges of living with PTSD.[13] Elliot et al. conclude the relaxation/calming effect of cannabis is of greater significance in the alleviation of PTSD symptoms than "simply providing a helpful distraction."[13]

PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program

A study released in 2014 from data collected through New Mexico's medical cannabis program showed a 75% reduction in PTSD symptoms for patients using cannabis; symptoms such as re-experiencing, avoidance, and hyperarousal were analyzed.[14] Greer et al. evaluated a highly select group of eighty pre-screened patients.[14] Patients had sought entry into New Mexico's medical cannabis program to find relief from PTSD symptoms, and to avoid criminal penalties for cannabis possession.[14] Preclinical studies have found a correlation between the endocannabinoid system and the regulation of emotional memory, consistent with this study.[14] According to Greer, it is possible that the marked reduction in PTSD symptoms was due to facilitated extinction of fear memories; a hypothesis based on extensive scientific evidence of cannabinoids facilitating extinction of aversive memories.[14] Greer states that "the amount of reported symptom relief is noteworthy" and the data supports a conclusion that cannabis is associated with PTSD symptom reduction in some patients.[14]

The Role of Cannabinoids in Modulating Emotional and Non-Emotional Memory Processes in the Hippocampus

An Israeli study by researcher Irit Akirav concluded that the cannabinoid system has diverse effects on hippocampal memory and plasticity dependent on variables such as the nature of the task, the memory stage under investigation, and the areas of the brain involved.[15] CB_1 receptors, essential for the extinction of conditioned fear associations, indicate an essential role for this receptor in neuronal emotional learning and memory.[15] Akirav's review concludes that cannabinoids have diverse effects on hippocampal memory and plasticity not categorized into an impairing or enhancing effect.[15] These variations may depend on the function of dose, route of administration, and the specific cannabinoid drug used.[15]

Positive Posttraumatic Stress Disorder Screens Among First-Time Medical Cannabis Patients: Prevalence and Association with Other Substance Use

A study on medical cannabis patients in Michigan looked at patients qualified for conditions other than PTSD that tested positive for PTSD. The study took place prior to the amendment to include PTSD as a qualifying condition in Michigan's medical cannabis program. One of the initial findings of the study was that the group screening positive for PTSD had significantly higher percentages of prescription opioid, cocaine, prescription sedative, and street opioid use when compared to the negative PTSD group.[16] Almost 30% of PTSD patients reported recent prescription sedative use, significantly lower than the negative PTSD group at 5%.[16] Bohnert et al. highlight that although recommendations that caution against the prescribing of sedative medications to treat symptoms of PTSD (e.g., respiratory depression), sedative medications are commonly prescribed to relieve symptoms of PTSD.[16] Bohnert also mentions a cross study in California by Reinanman et al. that surmised 38% of patients reported using cannabis to relieve anxiety (a common symptom associated with PTSD) with no data specific to PTSD.[16] Bohnert et al. concluded that while patients with PTSD are potentially using cannabis to find relief from symptoms in prevalence, longitudinal research, like that performed in Minnesota's medical cannabis program, is needed to better understand potential relationships between medical cannabis use and PTSD symptoms.[16]

The Treatment of Post-Traumatic Stress Disorder Utilizing Cannabis Sativa as an Adjunctive Pharmacological Agent

Johnston describes the findings of previous research on PTSD and its treatment with cannabis in his clinical research project in an effort to explore his primary hypothesis: Should cannabis be considered an efficacious, adjunctive, treatment for PTSD in combination with talk therapy?[17] Cannabis' short timeframe to reach clinical doses is reduced, as most patients experience the effects of the drug within minutes following the first dose.[17] Another benefit of cannabis as a therapy is that it does not need to be titrated down to stop use because it does not stay active in the system after a few hours.[17] Johnston argues that cannabis may allow the patient to be

fully present in therapy sessions, allowing for full integration of therapeutic material – theoretically leading to a faster recovery time.[17]

Elevated Brain Cannabinoid CB_1 Receptor Availability in Post-Traumatic Stress Disorder: A Positron Emission Tomography Study

Neumeister et al. found that PTSD causes changes in brain chemistry that indicate a greater CB_1 availability in patients with PTSD.[18] This receptor availability, may result from a combination of both receptor upregulation and low receptor occupancy by anandamide.[18] The elevated rates of cannabis abuse/dependence among individuals with PTSD, together with the reduced peripheral anandamide levels and compensatory upregulation of CB_1 receptors in PTSD (suggesting a lower anandamide tone in PTSD) substantiate evidence that synthetic cannabinoid receptor agonists or plant-derived cannabinoids (such as marijuana) may possess benefits in individuals with PTSD by helping relieve haunting nightmares and other symptoms of PTSD.[18] The said findings do not conclude that self-medication should be recommended,[18] further pressing the need for legal and safe access to cannabis as a treatment for PTSD.

The Endocannabinoid System as a Possible Target to Treat Both the Cognitive and Emotional Features of Post-Traumatic Stress Disorder

Trezza and Campolongo identify that there is a wide body of research indicating correlation between cannabis dependence and PTSD as a net-negative, but hypothesize that it is possible that PTSD patients self-medicate with cannabis.[19] Data about the effects of cannabinoids in memory retrieval and extinction are fairly consistent and suggest these compounds may facilitate PTSD recovery.[19] Trezza and Campolongo conclude that further research into the role of endocannabinoid neurotransmission in emotional memory processing is needed to shed light on the neurobiological basis for PTSD.[19]

Plasma Concentrations of Endocannabinoids and Related Primary Fatty Acid Amides in Patients with Post-Traumatic Stress Disorder

This German study documented that patients with PTSD show measurable variations in concentrations of plasma endocannabinoids (ECs) and related N-acyl-ethonalamides (NAEs).[20] Generally, higher plasma levels of ECs/NAEs were present among individuals with PTSD.[20] ECs and NAEs binding areas are located in the central and peripheral nervous system (predominately in the brain and immune system), and play an important role in the stress response regulation in anxiety and traumatic memories.[20] Variables such as whether a patient was depressed or taking antidepressants was taken in to account, and no significant effects were measured in ECs and NAEs plasma levels.[20] The study noted that systemic and intracranial injection exposure to cannabinoids (derived from marijuana) resulted in an increase in ECs reactivity and a reduced response to intense stress from animal PTSD models.[20] It is suggested that the activation of EC levels in humans increases stress tolerance and needs to be verified in future studies.[20]

Exposure to Marijuana Smoke Impairs Memory Retrieval in Mice

As previously discussed, reliving the memory of trauma is a symptom of PTSD. This study investigated the effects of injected Δ9-THC and marijuana smoke-inhalation on acquisition (learning or developing a skill) versus memory retrieval in a mouse repeated acquisition Morris water-maze task.[21] Neither form of cannabis impaired performance in a cued or visible task.[21] No disruption in cognition was observed in mice that inhaled marijuana smoke.[21] Impaired memory retrieval was suggested by the mice's inability to return to a location where a platform was previously located, after 30 minutes of initial exposure to marijuana smoke (same dose used in cued or visible tasks); the mice were given training on the initial location of the platform for four trials a day over eight days.[21] CB_1 receptor mechanism of action was represented by the way in which rimonabant, an inverse agonist on the CB_1 receptors, blocked the effects of marijuana on memory retrieval.[21] The study notes that the presence of other cannabinoids in higher concentrations (available in Minnesota's medical cannabis program, THC/CBD) than what is in the plant material needs to be thoroughly evaluated in the effects on the cognitive process.[21] In conclusion, the study found that marijuana smoke as well as the active ingredient Δ9-THC impairs the retrieval of recent memory individually from its effects on initial learning, sensorimotor performance, or motivation.[21]

Cannabinoids Prevent the Development of Behavioral and Endocrine Alterations in a Rat Model of Intense Stress

A University of Haifa, Israel, 2012 study conducted by Eti Ganon-Elazar and Irit Akirav sought to examine the potential benefits that cannabinoids have in treating post-trauma stress, and the effects trauma-related stress has in the development of behavioral & neuroendocrine measures in rat PTSD models.[22] This study took into account the timeframe between trauma experiences and the introduction of cannabinoids to alleviate anxiety symptoms of trauma-related stress. Akira and Ganon-Elazar found that the sooner a synthetic cannabinoid was administered, the more relief from trauma-related anxiety was exhibited in rat PTSD models.[22] After 48 hours from the time of stress exposure, it was noted that while not all anxiety symptoms were erased after synthetic cannabinoid exposure (after 48 hours), two main symptoms of PTSD: acute stress reactions (ASR) and hypothalamus-pituitary-adrenal axis (HPA) negative feedback were diminished in rat PTSD models.[22] The amygdala, located in the brain, plays a role in regulating emotional and autonomic responses to stress. The findings in this study suggest that there is therapeutic potential in utilizing cannabinoids in alleviating PTSD symptoms because of the cannabinoid receptor activation displayed in the basolateral amygdala (BLA) using the $CB_{1/2}$ receptor agonist (synthetic cannabinoid) WIN55, 212-2 (WIN).[22] It is mentioned that in a previous study, administered WIN has shown to prevent the stress-induced enhancement of inhibitory avoidance (IA) conditioning as well as the stress-induced disruption of IA extinction.[23]

Mitigation of Post-Traumatic Stress Symptoms by Cannabis Resin: A Review of the Clinical and Neurobiological Evidence

Passie et al. examined a case in which a 19-year-old male experiencing severe PTSD symptoms, such as: intense flashbacks, panic attacks, and self-mutilation, claimed that smoking cannabis significantly reduced his major symptoms.[24] This study sought to understand pre and post clinical and neurobiological evidence that cannabis interacts in the body in a way that alleviates symptoms of PTSD such as, anxiety, insomnia, and depression. A reviewed clinical study claims that the patient was able to slow the intensity and course of traumatic flashbacks with smoking cannabis, and was able to sustain control of cognition while the cannabis assisted the patient in examining his experience from an "inner screen" from a distance; empowering the patient to cope with and ease severe symptoms of PTSD.[24] The patient's therapist concluded that there was no need for the treatment of self-mutilation, during/after episodes of reliving trauma, after he had begun using cannabis.[24] This study states that the endocannabinoid system regulates stress responses, and has been found to be imbalanced in patients with PTSD.[24] It was found that cannabinoids decrease corticotrophin-releasing hormone (CHR) levels in the amygdala, associated with decrease in negative symptoms of stress responses in animals.[24] In patients with PTSD, the hyperactivity of the amygdala is contributed to symptoms of anxiety, depression, and insomnia.[24] It was concluded that cannabis may be an important tool in relieving said symptoms of PTSD.[24]

Cannabinoid Receptor Activation in the Basolateral Amygdala Blocks the Effects of Stress on the Conditioning and Extinction of Inhibitory Avoidance

Studies continue to consistently show the relationship that the endocannabinoid system has in regulating stress response induced anxiety and other symptoms relating to experienced trauma. Eti Ganon-Elazar and Irit Akirav examined whether cannabinoid activation would reverse the effects of stress on the memory processes of inhibitory avoidance (IA) conditioning and extinction, in relation to the involvement of the cannabinoid CB_1 receptor in the basolateral amygdala (BLA).[23] The $CB_{1/2}$ receptor agonist (synthetic cannabinoid) WIN55212-2 (WIN) was utilized in this study.[23] It is determined that there is a high concentration of CB_1 receptors found in the BLA, suggesting an important regulatory role of CB_1 receptors through the transmission of the endocannabinoid system.[23] Eti Ganon-Elazar and Irit Akirav found that cannabinoids have a therapeutic potential to alleviate symptoms of reliving traumatic memories, such as symptoms of PTSD, and that dosage of cannabis should be in consideration.[23] Patients work closely with trained pharmacists in Minnesota's medical cannabis program to determine the appropriate dosage.

Role of the Endocannabinoid System in Anxiety and Stress Related Disorders

Irit Akirav seeks a preclinical understanding of how the endocannabinoid (eCB) system may be a therapeutic target in treating stress-related disorders, such as PTSD.[25] It is mentioned that the current treatments for PTSD, such as antidepressants, will continue to be used in treatment, despite their *mostly* limited efficacy in treating PTSD symptoms, until a better treatment option

will become available.[25] Akirav indicates that the endocannabinoid system is connected to emotional learning (i.e. extinction of fear-learning), and has a large role in regulating anxiety. Neuroimaging has shown that the eCB participates in multiple brain circuits and that the circuits are active in patients that have smoked cannabis.[25] Some heavy cannabis users experience increased feelings of anxiety and panic due to using overly, excessive doses of cannabis.[25] Patients in Minnesota's medical cannabis program work with their doctors and cannabis-as-medicine-trained pharmacists to determine the appropriate dosage. Potential side effects unique to each patient are recorded in a patient survey each time the patient refills a cannabis prescription. In Minnesota, all patients are recommended to begin with a low dose, pending their tolerance to the medicine in line with current and past cannabis use. Akirav states that changes in mood and anxiety are related to the presence of CB_1 receptors in the brain.[25] Akirav claims that moderately enhancing the eCB system is an exceptional route to the treatment of anxiety-related disorders "whereas dysregulation of the eCB system in the brain may result in anxiety and stress-related disorders."[25] As mentioned in previous studies, the amygdala (BLA) is connected to the eCB system, and has an important role in mediating autonomic and emotional stress responses.[25] In patients with PTSD, the BLA has been shown to be dysregulated and hyperactive, which may result in increased fear-responses and reliving traumatic memories.[25] In animal models of PTSD, it has been repeatedly confirmed that the inhibition of eCB transmission increases fear, while moderate activation of eCB signaling decreases fear.[25] While animal models don't depict the exact models of psychiatric disorders, results from the studies can be clearly predicted in clinical settings.[25] The eCB system evidently has a role in extinction (fear-memories), and it has been concluded that symptoms of PTSD, and other anxiety or stress-induced disorders, are to be treated by inducing extinction.[25] Akirav mentions that in previous studies the intra-BLA administration of WIN 55,2122 (WIN), an eCB agonist/ synthetic cannabinoid, increases corticosterone (an adrenal hormone secreted in times of stress/trauma) levels in inexperienced rats (rats with no WIN tolerance previously induced), but is able to reduce the stress-induced increases in corticosterone levels.[23] It is summarized that there is a general consensus that the effects of the eCB agonist (WIN) in moderate doses have been effective in regulating stress, anxiety, and conditioned fear, while excessive doses of the drug WIN have been ineffective.[25] In humans, it is understood that cannabis can create a euphoric effect, thus providing relief from anxiety and panic attacks, depending on the patients and their emotional state before the use of cannabis.[25] Other factors that affect changes in mood and anxiety-related symptoms in humans include: differences in absorption of cannabis, methods of consumption, dosage, previous history, anxiety level, and environmental context.[25] Also, there are many compounds within the cannabis flower that have potential synergistic activity with the eCB system in providing relief from PTSD symptoms.[25] Higher amounts of THC alone have shown to have an increase in anxiogenic (increases in anxiety) effects, while cannabidiol (CBD) has anxiolytic (inhibits anxiety) effects.[25] Akirav claims that positive effects of cannabis use have been more commonly experienced in humans than in negative experiences.[25] Cannabis use alone has not been determined as a risk for developing long-term anxiety.[25] With the appropriate dosage and further observations of synergistic cannabis compounds (commonly referred to as the "entourage effect"), cannabis has been examined as a safe and useful tool in potentially providing patients living with PTSD relief from their symptoms.

High on Life? Medical Marijuana Laws and Suicide

Anderson et al. examines the correlation between legalized medical marijuana (LMM) and a decrease in suicide rates.[26] State-level data was observed over a period of 17 years.[26] While a majority of people who have mental illnesses don't act in suicide, 90% of people who act on suicide have a mental illness or chemical dependency. According to the National Institute of Mental Health (2010), suicide is the tenth leading cause of death in the United States.[26] Data drawn from the Centers for Disease Control estimated a 5% reduction in suicide rates with the passage of medical marijuana laws.[26] The Anderson et al. study concludes that a 10.8% decrease in suicide rates among males 20-29 years old, and a 9.4% decrease among males ages 30-39 years old is present in LMM states.[26] In LMM states there is a 10.4% decrease in suicide rates among females ages 30-39 years old.[26] Anderson et al. mention that in states with LMM such as, Arizona, Colorado, and Montana, most medical marijuana patients are male and under the age of 40.[26] It should be clarified that not all patients with Posttraumatic Stress Disorder are male. Estimations of suicide rates among females under the age of 30 was less precise and subject to functional form (linear data).[26] Although, females are more likely to suffer from depression and attempted suicides, males are four times more likely to complete suicide.[26]

It was concluded that LMM improves the psychological well-being of young adult males resulting in fewer suicide rates.[26] From examining prior studies, it is understood that some patients with PTSD are self-medicating with other substances. According to Anderson et al, alcoholism is more common among individuals with major depression, demonstrated in numerous studies.[26] Alcoholism has been associated with an increase with suicidal ideation and attempted or completed suicides.[26] Using data from the Fatal Accident Report System (FARS) between 1990 and 2009, Anderson et al. found a large reduction in fatal traffic accidents involving alcohol. During the same period of data collection from FARS, data from the Behavioral Risk Factor Surveillance System found that LMM led to a 25 percent reduction in self-reported alcohol consumption among 20-29 year-olds.[26] Anderson et al claims there is evidence that suicide among adolescents and young adults is often triggered by stressful life events; exemplified in patients with PTSD (experiencing stressful life events and reliving of trauma).[26] Researchers have concluded that symptoms of depression mediate the relationship between stressful life events and suicidal behavior.[26] Patients living with PTSD may experience depression, and PTSD symptoms are often treated with antidepressants, as mentioned in previous reviews. It is also well known that some side effects of antidepressants may increase depressive thoughts and suicidal ideation in patients. Anderson et al mentions that the majority of epidemiological evidence has shown a positive correlation with marijuana use in relieving depression and suicidal ideation.[26] Anderson et al. state that the exact mechanism for the reduction in suicide rates remains a topic for future studies.[26] As seen in LMM states and in observations with multiple studies, patients and communities seemingly benefit from safe and legal access to medical marijuana.

Conclusions

This is a simple sampling of the research indicating positive correlations between cannabis use and PTSD. In summary, the endocannabinoid system plays a major role in our emotional and memory functions and cannabis is showing to be a proven pharmacological treatment for patients with PTSD. In addition to the beneficial interaction between cannabis and memory processes, there is correlation evidence that cannabis treatment reduces the nightmares, anxiety, depression, and distancing of psychological stressed caused by PTSD. Additionally, with high rates of suicide amongst PTSD patients, especially veterans who commit suicide at a rate of over twenty per day, suicides have reduced in states with access to legal medical cannabis. Finally, despite the body of research that discusses cannabis use and abuse in PTSD patients, Trezza and Campolongo summarized it well in their hypothesis: it is possible (and argued in this petition) that PTSD patients are actually using cannabis to self-medicate for relief of symptoms.

Section F: Scientific Evidence of Support for Medical Cannabis Treatment

The following scientific literature is enclosed:

Elliott, L., Golub, A., Bennett, A., & Guarino, H. (2015). PTSD and Cannabis-Related Coping Among Recent Veterans in New York City. Contemporary Drug Problems, 42(1), 60-76. doi:10.1177/0091450915570309

Greer, G. R., Grob, C. S., & Halberstadt, A. L. (2014). PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program. Journal of Psychoactive Drugs, 46(1), 73-77. doi:10.1080/02791072.2013.873843

Akirav, I. (2011). The role of cannabinoids in modulating emotional and non-emotional memory processes in the hippocampus. *Frontiers in behavioral neuroscience*, 5, 34. http://doi.org/10.3389/fnbeh.2011.00034

Bohnert, K. M., Perron, B. E., Ashrafioun, L., Kleinberg, F., Jannausch, M., & Ilgen, M. A. (2014). Positive posttraumatic stress disorder screens among first-time medical cannabis patients: Prevalence and association with other substance use. Addictive Behaviors, 39(10), 1414-1417. doi:10.1016/j.addbeh.2014.05.022

Johnston, T., 2010. The treatment of post traumatic stress disorder utilizing cannabis sativa as an adjunctive pharmacological agent. Retrieved June 18, 2016 from https://www.researchgate.net/publication/215757449_The_Treatment_of_Post_Traumatic_Stress_Disorder_Utilizing_Cannabis_Sativa_as_an_Adjunctive_Pharmacological_Agent

Neumeister, A., Normandin, M. D., Pietrzak, R. H., Piomelli, D., Zheng, M. Q., Gujarro-Anton, A., . . . Huang, Y. (2013). Elevated brain cannabinoid CB1 receptor availability in

post-traumatic stress disorder: A positron emission tomography study. *Molecular Psychiatry Mol Psychiatry, 18*(9), 1034-1040. doi:10.1038/mp.2013.61

Trezza, V., & Campolongo, P. (2013). The endocannabinoid system as a possible target to treat both the cognitive and emotional features of post-traumatic stress disorder (PTSD). Front. Behav. Neurosci. Frontiers in Behavioral Neuroscience, 7. doi:10.3389/fnbeh.2013.00100

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Niyuhire, F., Varvel, S. A., Martin, B. R., & Lichtman, A. H. (2007). Exposure to Marijuana Smoke Impairs Memory Retrieval in Mice. *Journal of Pharmacology and Experimental Therapeutics, 322*(3), 1067-1075. doi:10.1124/jpet.107.119594

Ganon-Elazar, E., & Akirav, I. (2012). Cannabinoids Prevent the Development of Behavioral and Endocrine Alterations in a Rat Model of Intense Stress. *Neuropsychopharmacology*, 37(2), 456-466. doi:10.1038/npp.2011.204

Ganon-Elazar, E., & Akirav, I. (2009). Cannabinoid Receptor Activation in the Basolateral Amygdala Blocks the Effects of Stress on the Conditioning and Extinction of Inhibitory Avoidance. Journal of Neuroscience, 29(36), 11078-11088. doi:10.1523/jneurosci.1223-09.2009

Passie, T., Emrich, H. M., Karst, M., Brandt, S. D., & Halpern, J. H. (2012). Mitigation of post-traumatic stress symptoms by Cannabis resin: A review of the clinical and neurobiological evidence. Drug Test. Analysis Drug Testing and Analysis, 4(7-8), 649-659. doi:10.1002/dta.1377

Akirav, I. (2011). Role of the Endocannabinoid System in Anxiety and Stress-Related Disorders. Anxiety Disorders. doi:10.5772/18405

Anderson, M.D., Rees, D.I., Sabia, J.J., 2012. High on life? Medical marijuana laws and suicide. *The Institute for the Study of Labor*. Retrieved July 21, 2016 from http://ftp.iza.org/dp6280.pdf

Section G: Letters in Support of Adding the Medical Condition

Letters of support are included from the following individuals:

[redacted], Patient
[redacted], Patient and Veterans Advocate

[redacted], Patient
[redacted], Patient
[redacted], Patient
[redacted], Patient
[redacted], U.S. Army Retired, Patient
[redacted], Patient
Dr. Jacob Mirman
W.C. Kleis, M.S., L.P.
Dr. Sue Sisley
Dr. George Greer
Brandan Borgos, Sensible Minnesota
Maggie Ellinger-Locke, Marijuana Policy Project

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[25] Akirav, I. (2011). Role of the Endocannabinoid System in Anxiety and Stress-Related Disorders. Anxiety Disorders. doi:10.5772/18405

[26] Anderson, M.D., Rees, D.I., Sabia, J.J., 2012. High on life? Medical marijuana laws and suicide. *The Institute for the Study of Labor*. Retrieved July 21, 2016 from http://ftp.iza.org/dp6280.pdf

Section F:
Scientific Evidence of Support for Medical Cannabis Treatment

Attachments

Section G:
Letters in Support of Adding the Medical Condition

Attachments

Section G

Commissioner Dr. Edward Ehlinger
Minnesota Department of Health
Office of Medical Cannabis
PO Box 64882
St. Paul, MN 55164-0882

Re: Petition to add Post-Traumatic Stress Disorder as a Qualifying Condition

Dear Dr. Ehlinger,

In 2008, I met a man who I would date for two and a half years. During that two and a half years, I experienced a level domestic abuse that is typically only talked about in movies and television shows. This man controlled my friends, my outside contacts, attempted to control where and when I worked, and physically assaulted me on numerous occasions. We lived together, I was isolated from my support system, and knocked out cold repeatedly.

The first couple of physical assaults were minor – a single hit, a push against the wall, or a physical restraint. Soon, the violence evolved to being shoved eight feet across my living room and getting knocked out from the fall. This incident left me with a concussion and a Domestic Abuse No Contact Order, but that was not enough to keep him away. He convinced me he changed, so I let him back in. I was in a bad psychological state without access to therapists, doctors, medications, or support. The abuse continued until the final physical assault which involved 30+ blows to my face and head after he had a psychotic break. I couldn't leave the house for almost a week and was too afraid to seek medical treatment. My head and face were covered in colorful contusions and several blood vessels in my eyes had ruptured. It was after this that I left my well-paying job in the Twin Cities, moved home, and filed and was granted an Order for Protection.

The abuse continued. He would call me, text me, and even show up at my workplace. I didn't call law enforcement because he had convinced me that I was to blame – this was my fault. It wasn't until he called me in a delusional state, describing all of the dead women he found in the woods, that I finally reported to law enforcement. Due to the extreme nature of his mental illness and the physical and psychological terror I experienced, he was put under a Civil Commitment by the Courts. To this day, he remains under Civil Commitment, because that is how extreme his behaviors are.

I write about this because I think it's important for you to understand what caused my PTSD – a long and drawn out abusive relationship where I experienced significant psychological, emotional, and physical abuse.

I began recovery for my PTSD in late 2010 or early 2011 by working with a psychologist recommended by the Mayo Clinic, and a cocktail of different medications from several different providers. During this time, I began self-medicating with cannabis. Prior to beginning treatment with cannabis, I experienced night terrors, extreme anxiety, and a level of paranoia I didn't

know existed. I didn't sleep, I either ate too much or not enough, I withdrew further from friends and family, and struggled with commitments.

My life changed when I met a doctor who provided an accurate dual diagnosis (Bi-Polar II and PTSD). She understood my use of cannabis and had done a significant amount of research on the use of cannabis for the treatment of PTSD. With the cannabis, I could go to sleep, felt more social, and was able to tolerate the level of anxiety I experienced without just locking myself in my home. This was used in combination with other medicinal therapies including Lamictal, Ativan, Klonopin, Wellbutrin, and a myriad of SSRI's. At one time, I was taking close to ten different prescription psychiatric drugs – just to get to sleep and out of bed again in the morning. I struggled with work and social commitments, and experience bouts of uncontrolled anxiety and mania. This caused me to lose my job and become completely disabled for almost two years.

With the help of my psychologist, I worked through many of the feelings associated with the PTSD, he considers me in remission now, but I'm not so sure. I've been able to get off all prescription medications except Lamictal and Neurontin. The Lamictal treats my Bi-Polar and the Neurontin treats my lingering insomnia, but it is cannabis that continues to treat my PTSD related anxiety, flashbacks, and nightmares. Over the past few years, I have had experiences with my abuser that have triggered me and exacerbated my PTSD. It is only cannabis that has stabilized me and allowed me to be a functioning part of society.

I recently switched my psychiatric care back to the Mayo Clinic to my primary provider. At the time, I was prescribed two different benzodiazepines for sleep, anxiety, and mood. I was honest with the two doctors I saw about my use of cannabis and its therapeutic effects for me as a patient. Both my primary care doctor and the consulting psychiatrist gave me an ultimatum: cannabis or benzodiazepines. Last November (2015) I was weaned off benzodiazepines, experiencing debilitating withdrawal symptoms that I do not wish on anyone. Once these drugs had cleared my system, I felt like a fog lifted, I felt great, and I continued to use cannabis in a therapeutic manner. I still struggle with insomnia and sleep, as my only method for cannabis consumption is smoked flower – which only has an efficacy of 4-6 hours. This means that often times I wake up in the middle of the night, unable to go back to sleep. A few times, I have been able to obtain cannabis that can be orally ingested – this was the only treatment that has allowed me to sleep a full night since coming out of the benzodiazepine fog, but unfortunately, I do not have safe or consistent access.

As I continue through my recovery, I have become a voice in Minnesota for the use of cannabis as a therapeutic option for individuals with various conditions. I now work part-time from home, sit on the board of directors for a state-wide professional association, am a national coordinator for regulation of my profession, and co-founded and run a Minnesota non-profit that advocates for the use of cannabis as a safer alternative. I also volunteer heavily in my community, including over 500 hours a year working a crisis line for victims of sexual assault, domestic violence, and other crimes.

There are stories out there far worse than mine, patients with far worse PTSD, and we deserve cannabis as a safe and legal option for medicinal therapy. I strongly urge you to add Post-Traumatic Stress Disorder as a qualifying condition for medical cannabis in Minnesota.

Best Regards,

[redacted]

Section G

Commissioner Dr. Edward Ehlinger
Minnesota Department of Health
Office of Medical Cannabis
PO Box 64882
St. Paul, MN 55164-0882

Re: Petition to add Post-Traumatic Stress Disorder as a Qualifying Condition

Dear Commissioner,

I write you today as a Minnesotan and U.S. Army Veteran in order to urge you to consider adding PTSD as a qualifying condition for Minnesota's medicinal cannabis program on behalf of all Minnesotan Veterans suffering from this condition.

In 2008, I joined the United State's Army. I deployed to Afghanistan with the 101st Airborne Division from 2009 - 2010 in support of Operation Enduring Freedom X. My taskforce consisted of rotary aircraft (combat aviation.) I was stationed on an FOB (Forward Operating Base), which included an airfield, in Tarin Kowt Afghanistan, Kandahar Province. My mission was to provide COMMS (communications) support to aircraft and ground force units, as well as base operations, maintaining COMMS for the taskforce TOC (tactical operations center.)

During my deployment, on countless occasions, sometimes as frequently as 3-5 times per week, we took IDF (indirect fire) from enemy combatants. IDF entails the use of mortar rounds, rockets / missiles, or artillery. A typical encounter would begin with a mortar round or rocket being launched at our base from an unknown position of origin and exploding somewhere within (sometimes close to our position, sometimes distanced.) We would hear the explosions followed by the alarm sirens. Reactionary procedures for such an attack dictated that all soldiers "gear up" with "full battle rattle" (flak jacket, Kevlar, rifle and full basic load of ammunition) while taking cover in concrete bunkers and maintaining firing positions (in case of subsequent direct contact.) After all soldiers were accounted for, we would wait, waiting for the "all clear" signaling that the attack had ended.

During this time, more times than not, additional mortar rounds or rockets would be launched at the base. The insurgents outside of the base would communicate with infiltrators within the FOB ("spotters,") whom would relay trajectory information back to those launching the rounds, so they could adjust fire accordingly. The result of this we called "walking them in." Every round seemed to land closer than the last.

The closest I ever had an explosion occur was maybe 15 meters from my position in the bunker. After the explosion we heard shrapnel hit the side of the bunker and saw sparks of some sort above us. At that point, you think to yourself: one more round, just a few meters closer and this is it. Nothing makes you appreciate life more than having it on the line.

The result of these experiences left me with a mild form of PTSD. I was able to overcome my own condition through various traditional treatment methods not including medication, but to this day tornado sirens give me pause and I don't like fireworks. Others are not as fortunate as I.

Operating in a support role, whereas soldiers / veterans whom I consider amongst the closest of my friends operated in combat roles, I recognize a difference in my experience and theirs, which directly correlates to the severity of and susceptibility to PTSD and other associated conditions.

I write today advocating on behalf of my fellow veterans suffering from PTSD. Minnesota veterans suffering from PTSD deserve to have every treatment option available available to them and I urge the commissioner to include this condition as a qualifying condition for Minnesota's medicinal cannabis program.

We fought for this country overseas Sir, we are asking you to fight for us here at home. I appreciate your consideration.

Very Respectfully,

[redacted]

Section G

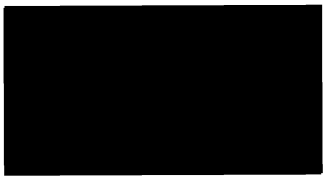
To Whom It May Concern:

I'm writing in support of the petition to include Posttraumatic Stress Disorder as a qualifying condition in Minnesota's medical cannabis program.

I am currently enrolled as a medical cannabis patient and have been for nearly a year, now. My qualifying condition is HIV, but I also struggle with anxiety disorders with symptoms of PTSD. I believe that I have greatly benefited from utilizing cannabis as a tool for combating symptoms. When I am able to afford the cannabis medicine, my survey scores have consistently been marked as "0" for depression and "0-1" for anxiety symptom relief; "0" meaning symptom not present. I believe it is important for more forms and delivery methods of cannabis to be made available, so that all patients can have access and find what works best for them.

I am a current student and use cannabis daily. I am prescribed Marinol (synthetic THC) for when I can't afford the medicine from MN's medical cannabis program. I work with a team of doctors at Hennepin County Medical Center. I have maintained a 4.0 GPA since returning to school after becoming ill, and I truly believe cannabis has helped me do so. I am able to function normally when using cannabis. I have not experienced any negative side effects from cannabis. I'm prescribed Klonopin and Nortriptyline for anxiety and depression/peripheral neuropathy, and have found both drugs to be addictive and limited in their efficacy compared with cannabis. Cannabis has also helped me find relief from pain, insomnia, nausea, and has also been an appetite stimulant. I believe everyone has the right to have safe and affordable access to an important tool which provides a multitude of symptom relief, as experienced with cannabis. Many symptoms I experience are in line with those experienced from PTSD. I urge you to find compassion/empathy for patients and understanding of cannabis as a safe medicine, and include PTSD as a qualifying condition. Thank you.

Sincerely,



Section G

Commissioner Dr. Edward Ehlinger
Minnesota Department of Health
Office of Medical Cannabis
PO Box 64882
St. Paul, MN 55164-0882

Re: Petition to add Post-Traumatic Stress Disorder as a Qualifying Condition

Dear Dr. Ehlinger,

Thank you for your time in hearing why I feel it is important for PTSD to be added for helping those who need it via medical cannabis. I would like to explain a bit of a back story if I may?

I am a parent of 3 children and in 2011 my youngest daughter was born. It was a very traumatizing birth. She was born about 2 weeks past my due date. It was uncomfortable and worse than my first two births initially. The night of though I suddenly had contractions so close together literally seconds apart all while they instantaneously reached a pain scale of 20 from a 1-10 range. (Again this was my third childbirth as a comparison.) I could hardly breath and almost passed out from feeling like my insides were being torn out. How my husband got me in the car and to the hospital in time I don't remember during the short drive since we lived blocks away.

Later, after she was born several hours, I was to find out that I had a partial placental abruption and this resulted in my daughter being oxygen starved. I do not know from what or how this happen. The doctors thought it was due to my placenta being in the front and with her being past her due date so long. What I do know is that the pain was the worst out of three births that I had ever experienced resulting in having an unscheduled emergency c-section for her and my safety. As a result they had informed me that she had some meconium in her lungs and needed to be kept for observation after going through a painful, emotional and physically exhausting experience.

After I had been in my recovery room for an hour or more roughly, the doctors called me to inform me that my newborn daughter was having seizures. When they checked the machines, they found that her brain gas levels were elevated and that she was having brain swelling. They called me and said that they had to do a procedure that would slow down and hopefully stop the swelling in her head. She had to be put into a medically induced coma in order to cool her whole body and have her internal temperature lowered several degrees and then if all turned out well on the EKG she could slowly be revived. They told me that I might lose my baby but that this would hopefully help her as it was a procedure done on adults who have had strokes.

I agreed to the procedure and they assured me that they would be in touch. I didn't know what to think after I hung up the phone. I could barely roll around or move up in bed from my C-section let alone deal with what was happening to my baby. I was not able to see her until the next day since I was trying to work on moving and sitting up for the next 12 hours or so. It is an eerie, terrifying, and heart breaking thing to be in a maternity recovery ward when everyone else has their child and you don't have yours to take care of.

When I was able to finally move enough and see her the next day I scrubbed up, signed in and went into the NICU (Neonatal Intensive Care Unit). I walked into a room of about 30+ preemies in incubators. Each had their own curtain for privacy had diligent nurses and doctors hooked

up to various machines 24/7. My daughter was hooked up to many machines as well, looked pale blueish, sleeping , with a feeding tube going into her nose, and with amazing nursing staff taking care of her for me. I got to touch her hand at least.

I didn't know what else to do but pump breast milk during the next few days, go visit her and wait to hear how her progress went with the Doctors. It is still a blur but I remember feeling how breathing was hard, how panicked I was when seeing her like that even while knowing she was in good hands. It was terrifying to go to the NICU knowing it was a place that felt like a world between life and death with so many precious young innocent lives just trying to make it. My daughter was a part of that.

Thankfully after several days her brain stopped swelling and a few more after that the EKG had good results. Then they slowly warmed her back up over the next few days. By day 10 she was thankfully back to normal with her brain not swelling and that there was no seizure activity. I went in during all of those days to sit by her side and read to her, touch her hand and hope. I was so thankful for this day. A day after this she was awake and they were going to try and tube feed her some of my breast milk. I was given the ok to hold her against my skin while she was connected to a lot of the tubes. When I finally held her for the first time it was amazing and made my day. There was a lot of commotion outside her room all of a sudden next door. Later, after several hours when I put her back, I found out that the baby next door had died and that the family was having a funeral. I started crying, panicking, experiencing shortness of breath and insisted on being by my daughters side all night feeling sorry for the family next door and guilty about how I hope my daughter keeps doing well. My heart still goes out to that family since that is the worst nightmare ever in my opinion to lose a child like that.

After a few more days they slowly took her off of more machines and she was starting eat and nurse resulting in her feeding tube being removed. I was so thankful she was going to be coming home soon if all kept going well. By day 20 she was unhooked and we were given the ok to bring her home. I experienced nightmares that night and had a really hard time sleeping and not just from the usual tired parent bringing their child home kind of way. The lack of sleep over the next few days was affecting my bi polar since I was already on zoloft and lamictal at the time. I saw my therapist a lot during those next couple of months.
Thankfully she was doing well developmentally and nursing well. Until one night about 3 months later she was not breathing well from what looked like a cold at first. When I checked her temperature she had a fever so I called the nurse line and they suggested her being brought into the ER. I was already worried about her but when I walked up to the ER doors, which are close to the building with the NICU, my heart really started pounding and I was breathing harder. The doctors and nursing staff looked [redacted]over and told me they had to do a spinal tap on her and check to make sure it was not meningitis. I understand and support what they had to do but watching my 3 month old go through a spinal tap and crying in pain while not being able to do anything to help her was terrifying.

Afterwards thankfully it came back negative but they decided to keep her admitted for a few days incase it was whatever was going around at that time due to her upper respiratory problems as a result of the virus she had. She was there for three days, on oxygen, and I stayed with her the whole time and slept when my husband came to the hospital to help. The first night she was there I had nightmares and had a hard time sleeping from the dread and fear of her being there. I kept having waking dreams and visions of her hooked up to tubes as a child as well as every time a machine would make noises and beep I would flashback to her in the induced coma. It felt like a freight train of images and emotions would hit me all at once resulting in me seeming to be "overly calm and quite" according to my husband. My therapist

said I was in a state of shock when I talked about it several months later. I was so thankful when we got to go home after that three day visit. Was so happy she was feeling better and could breath better.

I kept trying to self care with [redacted]'s needs, in addition to my other two daughters at home, while being the stay at home parent, and trying to work as an artist full time when my husband was away at his job. I don't think that first year after her birth I slept very much more than 3-5 hours each night and not in straight through spurts either. This lack of sleep affected my bipolar. My doctors had me on various sleep meds but they always made me feel too sluggish and lethargic the next several days later. Watching my infant and other children I could not afford to be like that. I tried practicing mindfulness and journalling in addition to seeing my therapist. One day at a time and it was hard.

Almost to the point of her first birthday at the time I thought things were finally better only to find that during her birthday I kept seeing flashbacks and images of when she was born. I don't tell my daughter any of this because I don't want to traumatize her. I keep a mask on that is happy but each time her birthday comes around I have to do a lot of self care before and after so as to cope with the flashbacks when they come. This is a known trigger but there are still odd times when certain beeping noises set them off. I have since learned coping skills but the physical symptoms are exhausting that I go through emotionally that it feels like my body has run a marathon. It takes me a few weeks to recover after a bad flashback or trigger sometimes a few days during the best of times.

As a parent I have to take good care especially of myself in addition to my children. I love them all dearly and would do anything for them. I can not take good care of them however, if I do not take good care of myself. The fact that my PTSD sets off a cascade for my bipolar is something that I have to take extra precaution with in maintaining. I feel like I am walking on eggshells a lot. Meds are important and I see them as an extra tool in my mental toolbox in trying to be as healthy as possible in life and functioning. If I had medical cannabis to help me sleep this would be so very vital to my needs in being healthy and take care of my children and calming down during a PTSD event during the daytime, especially if it does not make me feel so drowsy that it is hard to get out of bed at all like other meds that I have tried such as Celexa and Tramazole.

As a patient, I strongly urge you to add PTSD as a qualifying condition for medical cannabis in Minnesota.

Sincerely,

[redacted]

Section G

To Whom it may concern,

I am writing this letter to the Minnesota Department of Health in support of the addition of PTSD to be added to the Minnesota Medical Cannabis program.

I am currently a patient and am on the program. I have severe debilitating muscle spasms which interfere with my quality of life. I also am a Veteran of the Vietnam Era War and was diagnosed with service connected PTSD.

In August 2015 I received my first medical cannabis. I was terrified to begin using it because of the hype surrounding the "high" and the rhetoric that somehow cannabis had evolved into this monster drug with THC being the culprit of doom. My world had become smaller with each passing year. I was limited to leaving my home for doctor visits, and an occasional outing with family. I had no social life, no energy, no hope, and an incredible amount of pain. I have been a patient at the Veterans Administration for over 36 years, followed by both a Psychiatrist, and Psychologist, as well as a clinic. I have tried and received a plethora of medications over the years, most being added because of the side effects of another condition related to another medication. At one time, I believe I was receiving nearly 20 different medicines. In the 36 plus years in their care, I had never received any relief for most of my service connected disabilities. I believed simply that my lung disability would eventually kill me and that, is simply that. I looked at the bottle I had received from the dispensary, and figured I had nothing left to lose. I was only able to be up out of bed at that time, approximately 4 hours over a 24 hour period of time. My life had no gotton so small, I lived in a bedroom.

Nothing tragic happened to me the first time I used the medicine. It was like something had diminished the anxiety, fear, and underlying symptoms, I hadn't even known existed, but lived with constantly. Until I no long felt them, I didn't even acknowledge them. The things you know when you say "I feel better" That first month, I religiously used the pen vaporizer and my asthma, anxiety, sleeplessness, and other underlying issues associated with my PTSD improved. I was unable to continue for a couple of months due to financial costs associated with obtaining the medicine. I then switched manufacturers and started on the oil by syringe at the other dispensary.

Over the following 8 months I increased my dosage slowly and methodically, as I had received no discernable benefit that relieved the spasms I was using the cannabis for.

I have now been on the program for 11 months.

I have reduced my medications down to three.

I no longer need a psychiatrist due to the reduction of controlled substances (sleeping pills, and anxiety medications) have been removed from my medication list.

I have lost approximately 40 lbs, and no longer have to wear anti-embolism stockings 24/7,

I am no longer in bed 20 hours a day.

I am no longer experiencing extremely high blood pressures and am currently logging my results to see if It is medically feasible to reduce/and or remove the blood pressure medication I am currently on. My blood pressure has been at normal, and some low readings for the last four months.

Cannabis has reduced my PTSD daily symptoms tremendously. No, It is not a cure, but when you suffer from symptoms such as mine for years, any relief is a miracle. I am not cured, but I can live now knowing there is something that helps me. It is life changing for me, just to be able to get out of bed. I am able to sleep and wake up feeling better. Better then I have in years to be frank. I attribute it to the cannabis medication I use.

This month, after the increase, I experienced the first reduction of my debilitating back spasm frequency. I would be moving forward with the knowledge that I am going in the right direction. However, my certifying physician has moved, and no longer in the program. I have been unable to find another on this program. Because of this. My certification will soon expire and I will no longer be on the program.

I hope that PTSD is allowed by the Minnesota Program. Each person individually should have the opportunity to try and help themselves heal. Being a Veteran is both an honor to have served and a curse that there is nothing available in standard medication that is helpful or works. Nearly every month I get asked to "be a guinea pig" for the pharmaceutical companies that want veterans to vet their new latest/greatest chemical medications. I have participated in many of them over the last 30 years. None have ever helped. Even with all those clinical trials, the ONLY thing that has EVER helped my PTSD is the cannabis medication I began to receive last August. It continues to improve my life with each increase in dosage. I will continue to look for a doctor that will certify me, and follow my journey in this program, walking away is not an option,.

I also will state to you, that I do not and will not be going to the black market to buy cannabis after my certification expires if I am not able to find a certifying physician to follow me. I like the oil Leafline uses because it works and it's easy to use and its positive effects on my health since beginning the program. I am able to control precisely the dosage I need without having to have too much or too little as in pill form. I was not a recreational user of cannabis for over 40 years, and will not be when I am no longer certified. I do however understand why those who have continue to do so.

Sincerely

[redacted]

Section G

July 29, 2016

Minnesota Department of Health
Office of Medical Cannabis
PO Box 64882
St. Paul, MN 55164-0882

Re: Petition to add Post-Traumatic Stress Disorder as a qualifying condition

To whom it may concern:

I'm in support of cannabis being legalized for persons with Post Traumatic Stress Disorder. I myself have a diagnosis of Post-Traumatic Stress Disorder. I have a history of childhood & military related traumas.

I use cannabis about twice a week & it regulates my nervous system. Doing this the past few months has gotten me off of Xanax (which I was starting to abuse) & an antidepressant. I'm able to get out of my home more as I'm having less panic attacks, hypervigilance, & agoraphobia episodes & can enjoy doing things with my family again. I'm able to make it to events without being on Xanax. I was also able to quit drinking & smoking cigarettes. I'm exercising daily & taking better care of myself in general. I contribute a lot of that to cannabis because it calms me down and I'm using it as a maintenance medicine. I don't use it when I'm triggered. I use it a couple times a week in the evening so it calms my nervous system for a few days.

With the alarming veteran suicide rate of 22 veterans a day we need to do more for them than strictly having them on pharmaceutical medications, is in some cases making them worse. They deserve to have access to medicinal cannabis as do all people with PTSD.

Thanks,

[redacted]

Section G

Commissioner Dr. Edward Ehlinger
Minnesota Department of Health
Office of Medical Cannabis
PO Box 64882
St. Paul, MN 55164-0882

Re: Petition to add Post-Traumatic Stress Disorder as a Qualifying Condition

Dear Dr. Ehlinger,

Shortly after 9/11/2001, I quit college and enlisted in the military. After graduating from basic training, I had the opportunity to attend Airborne School and shortly thereafter graduated from Ranger school. I was fast tracked and quickly made rank as most of my peers were unwilling or unable to complete the training I received. When I deployed in 2006, I was an infantry squad leader, directly responsible for 8 men's lives. We were thrown in to the mix as soon as we got to Iraq. On our first patrol, multiple IED's welcomed us to the neighborhood. This was a sign of what was to come, and became a constant reminder of how fragile our existence really was.

We lost soldiers in a variety of ways, including an entire vehicle being disintegrated by an EFP, killing all 5 men in the truck. Friends of the dead mourned, while the rest of us calloused and worked to prevent this from happening in the future. I began shutting down my emotions as there was little time to deal with feelings when lives are on the line.

While on patrol in early 2007, I was leading a 4-man element attempting to identify an enemy mortar position in a small village in northern Iraq when we came under fire. Within seconds I had been shot multiple times. We quickly moved to cover and engaged the enemy, but were overwhelmed by superior numbers and had to fall back 50 yards to an irrigation ditch where we made our stand. I didn't realize the extent of my injuries until I tried to move and my entire left leg was unresponsive. I crawled on hands and knees while maintaining fire and trying to protect the soldier's lives that were entrusted to me. During our movement, an RPG was fired at our position; I yelled and pushed my RTO to the ground, covering him with my already injured body. Only a small amount of shrapnel struck me in the boot, causing only minor injuries to my remaining undamaged foot. When we made it to the irrigation ditch, we made our stand. I was unable to put pressure on my left leg, so I stood there like a flamingo and returned fire. The gentlemen who shot me was the first person to die that day, but wouldn't be the last. We were taking heavy fire from multiple directions. Help was several minutes away and I remember accepting the fact that I was going to die that day, which part of me did. If it weren't for my responsibility to the families of the men in my squad, and the desire to live up to my promise to them that I would bring their soldiers home, I likely would have perished that day. I threw a grenade towards the heaviest area of fire and to my amazement it slowed. We were able to pick off a few more and when our helicopter support came on station I thought we may have a chance. My PSG was moving the 2 kilometers toward me from the north and fellow squad leader with his team was moving to assist from the south. The enemy fire concluded, but then the friendly fire ensued. I was able to communicate with the other

ground elements in my unit, but coms with the helicopters were not being heard. Out of nowhere they began to engage us with .50 caliber machine guns mounted on the front. After a couple of runs, they pulled off station. My temporary relief was shaken by my realization that we had 500 pound bombs on station and when the birds left, an Air Force F-16 or F-18 was flying overhead making his acquisition run prior to dropping said bomb in my lap. I had 3 radios and remember pleading in all of them for them not to kill us but received no response. I learned later that despite my Commander's orders, the pilot refused to drop on our location because he was unable to identify our friendly position. As the fast movers exited the area, the helicopter support came back on. Unfortunately we were still unable to communicate with them and 1 bird took off after the 4 man element to the South of my position and the other began engaging my team. I contemplated shooting back at the helicopter, but figured even if I were to disable it, it would likely crash into me and my men. I opted to watch them kill me instead. My men were semi-spread out in the ditch, but I was stuck in the middle, facing the helicopter as it bore down on us. I remember watching the tracer rounds getting closer and closer and began waiving my hands in the air frantically to get the pilot's attention. The last tracer round landed directly in front of me about 8 feet. My team leader and machine gunner were off to the side, but no more than 6 feet from rounds that will rip a human in half. The fire stopped and the bird flew over the top of us and about 3 seconds later the medic was there asking me where I was hit. Luckily for me he popped a red smoke grenade across the street and the pilots were able to see it and pull off prior to killing us all. The team coming from the South was not so lucky and one of them was shot in the face and died instantly. Despite the fact that we had already killed all of the enemy combatants in the area that were willing to engage us, they would not send a medivac helicopter in as the area was too dangerous. We waited for ground support to arrive for about 30-45 minutes and after another hour or so it was deemed safe enough to send in the Blackhawk to extract myself and my fallen comrade. I returned to base where they performed a basic debridement and was sent via medivac to a trauma center at an Air Force base 20 miles away for my first surgeries. I was eventually airlifted to Germany where I spent nearly 2 weeks in the hospital at Landstuhl. When I was ready to return to the states, I was loaded in to a C141 on a gurney. We were stacked 3 high in 2 rows in the middle of the plane. There was an ICU near the front of the aircraft for the seriously injured soldiers and seats along the side for the walking wounded. There must have been nearly 200 of us on board. After overnight layovers in DC and Illinois, I eventually returned to my home duty station and was admitted to the hospital there. When I was release I was given 30 days of leave and returned to MN to be with my family. That is where my problems started.

I was on several medications for pain, but was having difficulty sleeping. I would wake up in cold sweats and eventually avoided sleep altogether. When my leave was over, I returned to my duty station and underwent more surgery, PT, and psychological evaluations. I was given pills to help me wake up in the morning, anti-anxiety pills, and several iterations of sleep medication, none of which seemed to work. I took the sleeping pills earlier and earlier in the day, but still found myself up until 2-3 in the morning until I would pass out from alcohol and exhaustion. My ex-wife was unable to handle my mood and attitude and was afraid to approach me on the rare instances that I was asleep due to my aggressive behavior when being woke up. I never remembered doing anything to her, but I know on at least 1 occasion I tried to

choke her and another I almost hit her before coming to my senses. It took 2 years for me to be discharged from the Army and my wife and I went our separate ways during that time.

When I returned home I was lost. I had no idea how to be a normal person in a liberal society. I was top priority at the VA, but had difficulty getting appointments to see anyone who wasn't a resident or trainee. I eventually found a counselor and a psychologist that I trusted and was going to therapy on a regular basis. I was still taking pain medication as well as sleeping pills, anti-anxiety meds, and depression medication. In the fall of 2009, my parents got scared of my behavior and called the police to take me in to hospital. I was placed on a 72 hour hold and locked up against my will. I was court ordered to attend an inpatient program, which didn't start for 20 days so I was held in a mental health lock up in St. Cloud VA until my spot opened up. They increased the dosage of all of my medications as well as adding a couple more. I was a complete zombie. Morning pills, pills every 4 hours for this, pills every 6 hours for that, emergency pills for panic attacks, and of course those sleeping pills. When I was in the treatment program I was monitored to ensure that I was not taking any elicit substances and to ensure I was taking my prescriptions. When I was released, I realized that I didn't want to live a life like the one I was. I frequently thought about killing myself, but was unwilling to seek further treatment at the VA because there is no such thing as doctor patient privilege there, and they used the information I was telling them to essentially lock me up. I quit talking to my family and further ostracized most of my friends.

After months of being in a (prescription) drug induced haze, I had enough. I quit taking all of my medications, including pain meds, at the same time and began smoking marijuana several times a day. It prevented me from experiencing severe anxiety symptoms when I used it proactively, but it also provided fast relief when I was experiencing a serious panic attack. My mood mellowed and my desire to harm others subsided. I enrolled in college and despite my daily issues, was able to be normal enough to attend and succeed in school. I had a 4.0 my first semester and graduated Summa Cum Laude with a 3.96 overall GPA in my business management program, all while smoking marijuana 5-10 times per day. I wasn't cured, but my ability to cope with my issues increased daily.

Upon graduation, I found it difficult to obtain employment due to the negative stigma of marijuana use. It is hard to explain to an employer that you use an illegal substance and expect them to hire you. I didn't want to lie or mislead anyone so I didn't apply for jobs that I was qualified for because they required a drug test. No one cared that I was on 10 different medications at one point, most of them heavy narcotics with serious side effects. They only see illegal drug user. I live in constant fear that I will be found out and that people will judge me based on the legality of the medication that I use, not the whole picture of my experience. I also have to deal with trying to obtain consistent quality product that suits the needs of my condition. There are certain types of marijuana that encourage sleep and others that allow you to be wakeful and energetic during the day. Unfortunately, because there is no legal way of obtaining marijuana, I am at the mercy of the parties willing to risk incarceration to provide this to me and it becomes a take it or leave it transaction. This means that I may have to use the bedtime product to prevent my anxiety during the day, causing me to be tired and groggy, or

take the wake you up kind at night making sleep more difficult. As time passes, I have needed less and less "medication" in order to maintain my life. I am very aware of my mind and body and know when and how much to use to prevent problems. I have experienced very minor side effects with energy and motivation, but those were far more serious problems prior to me starting to smoke marijuana so it is hard for me to blame it on that.

I am looking for normalcy in my life. Having legal access to a product that alleviates my symptoms would greatly increase my ability to do so. Had I continued down the traditional drug path, I likely would have ended my own life several years ago. I don't want to become a statistic. I strongly urge you to add Post-Traumatic Stress Disorder as a qualifying condition for medical cannabis in Minnesota.

Sincerely,

[redacted]
U.S. Army Retired

Section G

[redacted]

07/26/2016

Dear Minnesota's Department of Health,

I'm petitioning to expand Minnesota's Medical Cannabis Law to add the diagnosis of "Post Traumatic Stress Disorder" to the list Qualifying Medical Conditions.

PTSD affects the lives of many Minnesotans and there are many traumatic causes for each patient. Every patient in Minnesota who suffers from any cause of PTSD could possibly medical benefit and keep themselves alive with Minnesota's Medical Cannabis program.

Minnesota Patients who suffer from PTSD shouldn't be abandoned to suffer alone needlessly and be further victimized by being shamed and labeled criminals or drug addicts because treating with Cannabis is the only option PTSD patients can maintain peace in their daily lives.

I have suffered from the effects of PTSD due to lifelong battles of physical, verbal abuse and betrayal. My use of Cannabis has been a successful treatment option for my PTSD and has returned a sense of normalcy to my daily life. Every PTSD patient has a right to have the option to medically treat with Cannabis and I'm asking Minnesota's Department of Health to add "Post Traumatic Stress Disorder" as a Qualifying Condition to Minnesota's Medical Cannabis Law.

Thanks for your time,

[redacted]

LIFE MEDICAL, PA

4201 Excelsior BLVD, Saint Louis Park, MN 55416
Tel. 952-933-8900 Fax 952-945-9536
www.LifeMedical.US

Section G

7-10-16

Michelle Larson, MPA
Director
Office of Medical Cannabis
Minnesota Department of Health
Golden Rule Building
85 E. 7th Place, Suite 220
PO Box 64882
St. Paul, MN 55164-0882

RE: Adding PTSD to the list of conditions qualified for medical cannabis in Minnesota

Dear Ms. Larson,

I support inclusion of Post-Traumatic Stress Disorder in the list of conditions qualified for medical cannabis in Minnesota. Multiple encounters with people using cannabis for medical reasons in my clinic confirm that PTSD symptoms often respond well to cannabis. These patients often indicate reduced need for antidepressants and anti-anxiety agents to treat their symptoms if they have cannabis. Many of them prefer cannabis because it provides them with better symptoms relief with fewer side effects than the conventional drugs.

Sincerely,

Jacob Mirman, MD

Section G

WC Kleis, MS, LP, LLC
1610 14th ST NW, Ste 201
Rochester, MN 55901
wckleis@gmail.com
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July 2016

CANNIBAS AS A TREATMENT ALTERNATIVE FOR PTSD

I have been a licensed psychologist since 1993. I have no personal experience with using cannabis, so all my thoughts are based upon what I have seen and heard and read in my years of practice. I have a few premises, so I would encourage anyone reading this to stop if you disagree with any of them.

-Anxiety is a symptom of some unresolved fear.
-It makes sense to treat symptoms instead of just DSM diagnoses.
-Ultimately, the cause of the symptoms must be resolved.
-Addiction is a serious concern for extended prescriptions for anxiety and pain today.
-Cannabis takes motivation away from immature users in proportion to its frequency of use.

Given these premises, I believe cannabis could be a valid prescription alternative for treatment of PTSD (Posttraumatic Stress Disorder) if it is monitored properly. Most often today, the person prescribing the medication is not the person helping resolve the anxiety, i.e., making the underlying problem become historical or without emoting debilitating anxiety. This suggests better communication between the prescriber and the therapist than is generally present today. If there is no improvement toward remission and consequently a better family, personal, and business life, it wouldn't make sense to continue with this prescription. And if there was improvement, it would make sense to terminate the prescription as soon as the PTSD is in remission.

I like the phrase: "That was then, and this is now." It is amazing how quickly soldiers are expected to re-enter a "normal" life in the United States these days after a tour of duty. If anyone is suffering from PTSD today, it would be reasonable to prescribe cannabis. It would be normal to then determine if the individual was making progress with remission of the acute aspects of PTSD and remaining motivated to overcome the trauma and resume life as it was for him or her before the onset of this illness.

Ideally, cannabis would have the THC component removed and still be effective. I do not know if that is possible based upon statements I have read from both sides of the issue. To the extent it is not possible, cannabis would still be less addictive than the most of the benzodiazepines generally prescribed today.

Sincerely,

WC Kleis, MS, LP

July 27, 2016 **Section G**

Minnesota Department of Health
Office of Medical Cannabis
P.O. Box 64882
St. Paul, MN 55164-0882

To Whom It May Concern:

I was a practicing Arizona Physician for 14 years in internal medicine and psychiatry. I served as clinical faculty at St. Joseph's Hospital internal medicine clinic and also worked at the University of Arizona, College of Medicine. As a board certified psychiatrist, I have a long-standing interest in psychiatry and substance abuse. My practice is filled with many combat veterans and first responders with treatment resistant PTSD. That is why I now serve as principal investigator of an FDA-approved randomized controlled trial looking at the safety and efficacy of marijuana in treating PTSD.

I mention all of this as there are so many conflicting opinions, so much misinformation, so many vested interests, that it is important to consider the source when evaluating what you hear or read. And, on my part, when I read medical articles and studies I look for solid, peer reviewed studies, by reputable researchers from unimpeachable institutions. Examples would include studies from the our own government's National Institute of Mental Health, articles from our top medical schools, like the University of California, New York University, the University of Arizona and the Mayo Clinic.

I have no financial ties to the medical marijuana industry. I am not a dispensary owner nor a certifying physician. I do not use medical marijuana nor recreational marijuana.
I have never even tried it. Not once. But from my scientific background and clinical experience, I do believe that medical marijuana, for some patients, and for some conditions, may be the best and most effective form of treatment.

As one that cares for combat vets, I have had several patients that were killed or injured in various conflicts over the years.

Of those that came home, several have suffered from PTSD, hence my strong interest in today's subject.

But while that is my personal motivation, it is important to remember that military service members, or firemen, or policemen, are not the only people that suffer from PTSD. Any traumatic life event or loss can trigger PTSD, and more women than men suffer from PTSD.

Post Traumatic Stress Disorder (PTSD)
About 50% of all American adults will encounter a severely stressful event at least once in their lives. This could be combat, a bad accident, a beating, sexual abuse, rape, an

earthquake, fire, a severe health issue, or other similar happening. A person may experience it directly or they may see a friend or loved one as the victim of such event.

When faced by such a traumatic or life threatening situation, our bodies immediately go into a fight or flight response. Our bodies focus totally on survival. Nothing else matters. We have a heightened awareness, our heart beats fast, our blood flows to our muscles, our hormones surge. We are ready for the fight of our lives.

Now, if that person survives that severely stressful encounter, over the next few hours the physical responses will return to normal. And in a few days, weeks or months our memory, and emotional response to that stress will fade.

But for some people, about 15% of those exposed to such major stress, memory and emotions don't fade and adapt. Instead they continue to react as if the original event was reoccurring, time and time again. The reaction that served them well during the original stressful event now becomes a problem in their everyday life. This abnormal, or delayed, reaction may last for years. And the initial re-occurrence of the stress reaction may occur years after the initial stress.

Heart beating out of your chest, muscles tense, epinephrine cascading through your body, eyes dilated, ready to fight...all good if you are confronted by maximum danger...a snarling tiger...but not so good if just reacting to the family cat plopping on your lap. This is PTSD. Abnormal reactions to everyday stimuli, as if a person is experiencing the original event.

How Common is PTSD?

Of those Americans that do encounter, and survive, a major stressful happening, most adapt normally with eventual fading of the memory and emotions. But for about 15% of those people this does not occur. These are people with PTSD. About 7% of all adult Americans will suffer PTSD at some time in their life. And in any one year almost 3% of adult Americans will suffer with PTSD. That is around 6,000,000 adults.

So, PTSD is pretty common. It can also affect children and teens. And, even though we often think of wars and combat veterans when we think of PTSD, there are actually more women suffering from PTSD than men. But, for those who have served in combat, both the frequency and toxicity of PTSD is increased.

What is PTSD?

It is the failure to adapt to the original stress. Victims re-experience the original stress time after time. In memories, flashbacks and dreams. They try to avoid situations and stimuli that might trigger such memories. The have heightened arousal, have difficulty sleeping, can't concentrate and may be irritable. They are hyper vigilant and fearful. They are feeling danger. What's around that corner?

What does PTSD lead to?

Individuals with PTSD suffer a decreased quality of life. Anxiety increases along with depression. They are at increased risk of poor health. Relationships suffer, divorce rates increase, success in school fades and many become unemployed. At this moment, over 100,000 veterans, many with PTSD, are homeless.

PTSD leads to an increased risk of suicide. Combat related PTSD is particularly severe and difficult to treat. Every day in the USA, 22 veterans commit suicide. That is a shocking number.

Is there good current therapy for PTSD?
Not really. The current uses of SSRI type anti-depressants and anti-anxiety medications, as the mainstay of treatment, are of limited value for many patients. Either they don't work well or the side effects, such as obesity, grogginess, or decreased sexual function, cause many patients to discontinue therapy. Psychotherapy may be helpful for some, but is of limited availability. An additional pharmacological agent to treat PTSD could be very beneficial for many patients.

What is the role of medical marijuana in treating PTSD?
A review of the current medical literature demonstrates many recent articles on PTSD. They share a common theme. Current therapy is not adequate for many patients. And in particular SSRIs do not treat, or help extinguish, toxic memories, the core problem of PTSD.

Here is a typical quote. It appears in an article by Drs. Trezza and Campolongo in *Frontiers in Behavioral Neuroscience* (FBN), August 2013: "Although SSRIs emerge as the first line treatment to treat the anxiety symptoms of PTSD, a large proportion of those patients fail to respond to those medications. Furthermore, no treatment is currently available to treat the mal-adaptive cognitive features of PTSD... Studies point to the endo-cannabinoid system as a possible ideal therapeutic target to treat both the emotional and cognitive dysfunction characterizing PTSD."

Another 2013 article, by Dr. Akirav in *FBN*, September 2013, states "The endo-cannabinoid enhancers may be the ideal pharmacologic treatment for PTSD by blocking the pathological over-consolidation and continuous retrieval of the traumatic event on the one hand, and enhancing its extinction and reducing the anxiety symptoms on the other hand. These effects fit well with the concept of reducing fear memory."

In 2012 Drs. Emrich et al, in Drug Test Analytics, July-August 2012 writes "This review shows that recent studies provided supporting evidence that PTSD patients may be able to cope with their symptoms by using cannabis products. Cannabis may dampen the strength or emotional impact of traumatic memories through synergistic mechanisms that might make it easier for people with PTSD to rest or sleep and feel less anxious and less involved with flashback memories."

Recent research with functional MRIs and PET scanners demonstrate that PTSD is more than just an emotional or psychological condition. It is a process that affects both neuro-hormones and functional neuroanatomy.

Dr. Rabinak, of the University of Michigan, reports a human study, using functional MRI, in *Neuro-biological Learning*, September 2013. It states, "This study provides the first evidence that pre-extinction administration of THC modulates the prefrontal-limbic circuits during fear extinction in humans."

Good, double-blind prospective research studies on the effectiveness of medical marijuana are very difficult to perform in the United States due to the well known opposition to these studies by NIDA and the DEA.

But, we have a very good retrospective study from the State of New Mexico Medical Advisory Board. New Mexico was the first state to approve PTSD as a qualifying condition for treatment under their medical cannabis program.

The study is known as "PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program." It is attached for review.

This study was approved for study by the Institutional Review Board of UCLA. It states, "The Clinician Administered Post-traumatic Scale (CAPS) was administered retrospectively and symptom scores were collected and compared in a chart review of the first 80 patients evaluated.

"Results: Greater than 75% reduction in CAPS symptom scores were reported when patients were using cannabis than when they were not... There is extensive evidence that cannabinoids may facilitate extinction of aversive memories." The New Mexico report concludes, "There are currently 3350 patients enrolled in the PTSD program. To date, there have been no incidents or adverse events."

Briefly, on the subject of adverse events and risk factors, it appears that medical marijuana is rather safe when used under informed medical supervision. The NYU Institute of Human Development states, "While marijuana is not physically addicting it is habit forming. Regular users sometimes experience withdrawal symptoms such as grogginess, irritability, nausea, insomnia and agitation. These generally wear off in one to two days." It also states, "It is nearly impossible to overdose on marijuana."

It should be noted that marijuana does become habit forming in about 9% of users. Youth are at an increased risk for habituation and proper caution should be observed. Also note the rate of habit formation is much lower than for tobacco and alcohol.

To conclude:
PTSD is a common but serious disorder, which affects almost 6,000,000 Americans each year. It is a disabling condition leading to a poor quality of life, and many patients become depressed and are at increased risk of suicide.

Combat related PTSD is particularly toxic and hard to treat, and tragically, 18 US veterans commit suicide every day.

Unfortunately, conventional treatments are of limited value.

New research is showing the value of medical marijuana, not only in treating symptoms, but possibly treating the root cause of PTSD — the inability of some people to extinguish traumatic memories.

Writing in the *Mayo Clinic Proceedings*, February 2012, Dr. Raphael Mechoulam, the Israeli scientist that first synthesized THC, and who led the team that discovered the endo-cannabinoid system in humans, said "I believe that medical marijuana as a therapeutic entity is here to stay. It is being used in numerous medical conditions, at times with considerable success. Are we entitled to neglect such a valuable drug?"

I strongly encourage approval of PTSD as a qualifying medical condition under the Minnesota's Medical Cannabis Program.

Thank you

Sue Sisley MD

Enclosure:
G. Greer, C. Grob, A Halberstadt, "PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program," Journal of Psychoactive Drugs, May 11, 2014

Section G

George Greer, M.D.
1 Casa del Oro Way
Santa Fe, NM 87508-8290
(505) 982-0312

July 26, 2016

Minnesota Department of Health
Office of Medical Cannabis
P.O. Box 64882
St. Paul, MN 55164-0882

To Whom It May Concern:

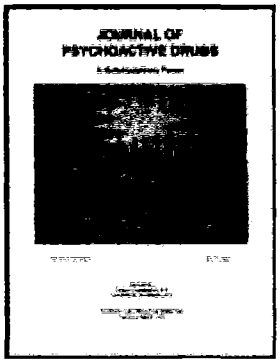
Please see the attached scientific publication, "PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program." This reports on the therapeutic benefits of cannabis in treating the symptoms of PTSD, which were reported to be reduced by about 75% of patients.

Please let me know if you have any questions.

Sincerely,

George Greer MD

George Greer, M.D.
Distinguished Life Fellow, American Psychiatric Association
Past-President, New Mexico Psychiatric Medical Association



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PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program

George R. Greer M.D.[a], Charles S. Grob M.D.[b] & Adam L. Halberstadt Ph.D.[c]

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(THC) and less than 1% cannabidiol was administered to 29 male Israeli combat veterans with PTSD, with instructions to smoke it daily (Mashiah 2012). The baseline score on the Clinician Administered Posttraumatic Scale for DSM-IV (CAPS) was 98 for the entire group, and post-treatment scores in three subgroups after four to 11 months of treatment ranged from 54 to 60.

Soon after the New Mexico PTSD regulation went into effect, one of the authors [GG] began receiving unsolicited phone calls in his private practice from people asking to be evaluated as part of their application to the Program. In order to avoid evaluating patients who would be unlikely to qualify, telephone screening was conducted to determine whether they met the following criteria by self-report: (1) the experience of and emotional response to a trauma that met the DSM-IV Criterion A for PTSD; (2) the presence of several of the major symptoms in Criteria B, C, and D (reexperiencing, avoidance, and hyperarousal) of PTSD when not using cannabis; (3) significant relief of several major PTSD symptoms when using cannabis; and (4) lack of any harm or problems in functioning resulting from cannabis use. All patients who met these screening criteria were evaluated.

The CAPS was utilized during the evaluation to quantify the patients' symptoms retrospectively with and without cannabis use. The CAPS is a frequently used instrument in PTSD research that was developed by the National Center for PTSD and two Veterans Affairs medical centers (Blake et al. 1995). The instrument asks questions about the presence of traumatic experiences and the immediate emotional response to them described in DSM-IV Criterion A for PTSD, and asks for a rating of the frequency and intensity of all 17 symptoms in Criteria B, C, and D on a scale of 0 to 4. On the CAPS scoring form, the frequency and intensity scores are added to create a total score for that symptom; then a total score for all the symptoms within each criterion, and for all symptom criteria, are calculated.

During the evaluation, patients were asked to answer the symptom questions for Criteria B, C, and D retrospectively for a time period when they were not using cannabis, and for a period when they were using it, and scores were recorded for each period. No urine drug screens were collected to verify recent cannabis use.

After conducting over 80 such evaluations between mid-2009 and the end of 2011, all with adults over age 18, CAPS scores were analyzed to assess differences in PTSD symptoms with vs without cannabis use. The null hypothesis was that there would be no significant difference in CAPS scores between the cannabis and no-cannabis conditions.

MATERIALS AND METHODS

Study procedures were approved by the Institutional Review Board (IRB) of the Los Angeles BioMedical Research Institute at Harbor-UCLA Medical Center. Retrospective chart review procedures were conducted for the first 80 patients evaluated by GG for participation in the New Mexico Department of Health's Medical Cannabis Program for PTSD. The data collection procedure began with GG scanning each of the CAPS scoring forms for Criteria B, C, and D to a file in .pdf format. The .pdf files and spreadsheet were then sent to the two other investigators, CG and AH. Per IRB rules, no identifying information was extracted from patient records, or seen or retained by any of the investigators.

CAPS symptom cluster (re-experiencing, avoidance, and arousal) scores were analyzed using two-way analysis of variance (ANOVA) with time period (no-cannabis vs. cannabis) as a within-subject factor. When the two-way ANOVA detected significant main effects of time period or interactions between time period and symptom cluster, post-hoc pairwise comparisons were performed by one-way ANOVA. CAPS scores in patients using cannabis were also analyzed as %baseline (no-cannabis) scores using two-tailed one-sample t-tests. Statistical significance was demonstrated by surpassing an α level of .01.

In addition to statistically analyzing the Criteria B, C, and D symptom scores, the initial plan was to record whether the patient met diagnostic criteria for PTSD with and without cannabis use. However, no single scoring rule or method of the nine suggested by the CAPS Manual (Weathers, Ruscio & Keane 1999) was appropriate for this study. Determining whether someone has or does not have a PTSD diagnosis based solely on any of the nine CAPS scoring methods would exaggerate the perception of a difference that did not reflect the clinical condition of the person, because the frequency and intensity of all the symptoms exist on a continuum. Therefore, a patient who barely qualified for the diagnosis according to one of the scoring rules/methods would not be very different from someone who almost qualified.

RESULTS

CAPS scores for the no-cannabis and cannabis conditions are shown in Figure 1. Within-subject analysis showed that there was a significant reduction of total CAPS scores ($F(1,79) = 1119.55$, $p < 0.0001$) when patients were using cannabis (22.5 ± 16.9 (mean ± S.D.)) compared with the no-cannabis condition (98.8 ± 17.6). There were also significant reductions in CAPS symptom cluster scores (Cannabis × Cluster: $F(2,158) = 39.87$, $p < 0.0001$) in patients using cannabis. Post-hoc analysis confirmed that scores were reduced during cannabis use for Criterion B (core symptom cluster of re-experiencing), which decreased from 29.5 ± 6.4 to 7.3 ± 5.9 ($F(1,79) = 734.98$, $p < 0.0001$); Criterion C (numbing and avoidance), which decreased from 38.2 ± 8.4 to 8.7 ± 8.0 ($F(1,79) = 783.73$, $p < 0.0001$); and Criterion D (hyperarousal), which

Another factor is that some patients may have reported their no-cannabis PTSD symptoms when they were also experiencing a cannabis-withdrawal syndrome. Nightmares, anger, and insomnia have been reported as common symptoms of cannabis withdrawal (Allsop et al. 2011). Those three symptoms are among the 17 symptoms of PTSD, and so could have resulted in higher no-cannabis CAPS scores for those symptoms. However, in this retrospective chart review, no information was collected on the length of the time periods without cannabis use. Therefore, there is no valid way to quantify the degree to which cannabis-withdrawal symptoms may have increased the CAPS scores for those three PTSD symptoms. However, even with the above confounding variables, the amount of reported symptom relief is noteworthy.

Furthermore, the variability in scores with cannabis use was relatively high, with the standard deviation being almost equal to the mean total scores and the scores of the three symptom clusters. If patients had consistently reported frequent and severe symptoms without cannabis and almost no symptoms with cannabis in order to make sure they qualified for the Program, one would expect less variability in the cannabis scores. Finally, the relatively consistent reporting of low or "0" scores on Criterion C3 without cannabis (see Table 1) is another indication that most patients were not malingering by exaggerating their no-cannabis scores for every single symptom in order to qualify for the program. In fact, their reporting low scores for this symptom is consistent with psychometric literature on the CAPS: "Finally, with the exception of amnesia, the prevalence of each of the 17 core PTSD symptoms on the CAPS was significantly greater in participants with PTSD than in those without PTSD, indicating robust discrimination between the two groups" (Weathers, Keane & Davidson, 2001).

Because only patients who reported benefit from cannabis in reducing their PTSD were studied, no conclusions can be drawn as to what proportion or type of PTSD patients would benefit from treatment with cannabis or its constituents. The reported anxiolytic properties of cannabidiol may partly explain the reported benefit, though the cannabis in the Israeli study reportedly contained almost no cannabidiol (Mashiah 2012). That small, open-label prospective study comes closer to showing a benefit, at least for people with combat-related PTSD. It has also been reported that the synthetic cannabinoid nabilone can reduce the incidence and severity of nightmares in PTSD patients (Fraser 2009).

The finding that use of cannabis can reduce symptoms of PTSD is consistent with preclinical evidence showing that the endocannabinoid system is involved in the regulation of emotional memory. There is extensive evidence that cannabinoids may facilitate extinction of aversive memories (de Bitencourt, Pamplona & Takahashi 2013). For example, in rodents, the full CB1 receptor agonist WIN 55,212-2 (Pamplona et al. 2006; Pamplona, Bitencourt & Takahashi 2008) and the fatty acid amide hydrolase inhibitor AM404 (Pamplona et al. 2006; Chhatwal et al. 2005) facilitate extinction of conditioned fear. Given the role that the endocannabinoid system plays in fear extinction, it is possible that the marked reduction in PTSD symptomatology reported with cannabis use in the present study was due to facilitated extinction of fear memories. Additional studies are necessary to identify the specific mechanism by which cannabis use attenuates the symptoms of PTSD.

CONCLUSION

Though currently there is no substantial proof of the efficacy of cannabis in PTSD treatment, the data reviewed here supports a conclusion that cannabis is associated with PTSD symptom reduction in some patients, and that a prospective, placebo-controlled study of cannabis or its constituents for treatment of PTSD is warranted.

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603 Reichel Circle NE
Stewartville, MN 55976

Sensible policies, safer communities.

Sensible Minnesota

Section G

July 26, 2016

Commissioner Dr. Edward Ehlinger
Minnesota Department of Health
Office of Medical Cannabis
PO Box 64882
St. Paul, MN 55164-0882

Re: Petition to add Post-Traumatic Stress Disorder as a qualifying condition

Dear Dr. Ehlinger,

Sensible Minnesota supports the addition of Post-Traumatic Stress Disorder as a qualifying condition for the medical cannabis program. An extensive literature review by our organization supports this assertion, and we believe you will come to the same conclusion.

Post-traumatic Stress Disorder (PTSD) affects over five million people in the United States. These patients come from all walks of life and experience PTSD following a variety of traumatic experiences. It is well-known that 22 veterans commit suicide each day, many of whom suffer from this condition. There are also other PTSD patients who experienced trauma such as rape, domestic violence, automobile or workplace accidents, medical emergencies, and other significant life events.

The treatments available for PTSD are limited to pharmaceuticals that may or may not positively affect patients. When combined with counseling and therapy, patients may be able to work through their trauma and enter remission, but not all patients respond to these traditional treatments. Research shows PTSD, and the physiological memory recall of the traumatic event, is connected to the endocannabinoid system. Most studies indicate the need for additional research into the treatment of PTSD with cannabis. Minnesota's research-based program provides an important opportunity to collect research data while allowing PTSD patients safe and legal access to medical cannabis.

In your decision to add intractable pain as a qualifying condition, you cited the physicians' Hippocratic Oath, which in part states "first, do no harm." Allowing access to medical cannabis for PTSD patients will do no harm, rather it will provide another tool for patients seeking to recover from their traumatizing experiences.

Sincerely,

Brandan Borgos
President, Sensible Minnesota

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"We change laws."

Section G

July 28, 2016

Minnesota Department of Health
Office of Medical Cannabis
P.O. Box 64882
St. Paul, MN 55164-0882

Re: Petition to add PTSD as a qualifying condition to Minnesota's medical cannabis program

To the Office of Medical Cannabis Review Panel:

We at the Marijuana Policy Project have worked closely with Minnesota patients to bring a compassionate medical cannabis program to the state for more than a decade. While we are grateful for the health department's diligent implementation of the law, and its decision to include patients suffering from intractable pain, we are disappointed that so many other patients who could benefit from medical cannabis continue to be left behind. We encourage you to follow the lead of most other medical cannabis states by adding post-traumatic stress disorder, or PTSD, as a qualifying condition.

PTSD is a serious condition that affects millions of Americans during the course of their lives.[1] Individuals who are exposed to traumatic events, such as war or serious accidents, and individuals who are victims of violent or sexual crimes, can all suffer from PTSD.[2] It can lead to severe depression, anxiety, insomnia, nightmares, flashbacks, anger, or other symptoms.[3] PTSD can rob people of the means to earn a living, manage daily needs, and even the ability to enjoy life.[4] In many respects, it can kick a person when he or she is already down.

Veterans who have returned home from places like Iraq and Afghanistan are particularly vulnerable to the effects of PTSD in their lives.[5] According to the Department of Veteran's

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[1] Kessler RC, Chiu WT, Demler O, Walters EE. "Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R)." *Archives of General Psychiatry*, 2005 Jun; 62(6): 617-27.

[2] National Center for PTSD, U.S. Department of Veterans Affairs. "What is posttraumatic stress disorder (PTSD)?" http://www.ncptsd.va.gov/ncmain/ncdocs/fact_shts/fs_what_is_ptsd.html.

[3] National Center for PTSD, U.S. Department of Veteran's Affairs, *Information on Trauma and PTSD, Veterans and the General Public and Family*. http://www.ptsd.va.gov/public/pages/symptoms_of_ptsd.asp

[4] *Id.*

[5] T. Tanielian, L. Jaycox. "Invisible Wounds of War, Psychological and Cognitive Injuries, Their Consequences and Services to Assist Recovery," RAND Center for Military Health Policy Research, 2008. http://www.rand.org/content/dam/rand/pubs/monographs/2008/RAND_MG720.pdf

Affairs, women generally suffer from PTSD at twice the rate of men following traumatic events.[6] These victims deserve our attention and help.

Thousands of patients across the country have turned to medical marijuana for help. Sixteen of the states with active medical marijuana programs allow doctors to recommend medical marijuana to patients suffering from PTSD.[7] In two of those states — Arizona and Illinois — courts ordered the state to approve PTSD as a qualifying condition after the department initially rejected it.[8]

Pharmaceutical drugs such as antipsychotics and antidepressants are often used to treat PTSD;[9] however, according to researchers, such medications can be ineffective[10] or even harmful.[11,12] *The New York Times* summarized the results of the largest study on antipsychotics' use in treating PTSD, saying, "Drugs widely prescribed to treat severe post-traumatic stress symptoms for veterans are no more effective than placebos and come with serious side effects.... "[13] Meanwhile, numerous PTSD patients have found relief from the medical use of marijuana, without the side effects.

Research Hindered by Federal Government

Medical marijuana's therapeutic effects in treating the symptoms of PTSD have gotten the interest of members of the medical community, and the FDA has approved clinical trials to study it further. Unfortunately, there has been limited research on whole plant marijuana and PTSD, including due to the U.S. federal government significantly delaying research efforts by initially refusing to provide marijuana to an FDA-approved and institutional review board-approved study.

In April 2011, the FDA approved a first-of-its-kind study to test whether marijuana can ease the symptoms of PTSD in combat veterans, but a Health and Human Services Department committee refused to provide the researchers with the government-grown

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[6] U.S. Department of Veteran's Affairs, National Center for PTSD, Information on Trauma and PTSD, *Issues Specific to Women*, 2007. http://www.ptsd.va.gov/public/pages/fslist-specific-women.asp

[7] The states are listed here: https://www.mpp.org/wp-content/uploads/2016/07/MMJ-PTSD-State-Chart.pdf

[8] "Arizona judge rules pot can be used for PTSD," Associated Press, June 7, 2014; Robert McCoppinm "Judge orders Illinois to authorize medical marijuana for PTSD," Chicago Tribune, June 28, 2016.

[9] Mayo Clinic Staff, "Post Traumatic Stress Disorder, Treatment and Drugs," Mayo Clinic. http://www.mayoclinic.com/health/post-traumatic-stress-disorder/DS00246/DSECTION=treatments-and-drugs

[10] B. Carey. "Drugs Found Ineffective for Veteran's Stress," *New York Times*, August 2, 2011. http://www.nytimes.com/2011/08/03/health/research/03psych.html

[11] Press Release, *Opioids drive continued increase in drug overdose deaths*, Centers for Disease Control and Prevention, Feb. 20, 2013. http://www.cdc.gov/media/releases/2013/p0220_drug_overdose_deaths.html

[12] J. Lloyd. "CDC: Antidepressant Use Skyrockets 400% in Past 20 Years," *USA Today*, Oct. 20, 2011. http://usatoday30.usatoday.com/news/health/story/health/story/2011-10-19/CDC-Antidepressant-use-skyrockets-400-in-past-20-years/50826442/1

[13] Carey, Benedict. "Drugs Found Ineffective for Veterans' Stress," *The New York Times*, August 2, 2011.

marijuana necessary to conduct the study.[14] The researchers were able to modify and resubmit the study, and were eventually granted access to medical cannabis. However, the federal obstruction has caused lengthy delays meaning the clinical trial is only now beginning to recruit participants.[15]

The federal government has also failed to fund medical cannabis research at any significant level, despite half of Americans living in medical cannabis states. However, at least one state is stepping forward, The Colorado Department of Public Health and the Environment decided on December 17, 2014 to provide $7.6 million for eight medical marijuana studies, including the above-mentioned study, which has not yet begun due to years-long delays in federal agencies granting the necessary approvals.[16]

Research has been conducted outside the U.S., including clinical trials ongoing in Israel, where a 2012 open pilot study in the Abarbanel Mental Hospital found that "medical cannabis was associated with a reduction in PTSD symptoms."[17] In addition, other human and animal evidence supports the therapeutic potential of cannabis and cannabinoids in treating PTSD symptoms.

Science, Studies, and Research

Several studies support marijuana's effectiveness in mitigating the symptoms of PTSD. Another recent study in Israel, conducted by Eti Ganon-Elaza and Irit Akirav and published in *Neuropsychopharmacology* in 2012, found that the active ingredients in medical marijuana — cannabinoids — "could serve as a pharmacological treatment of stress- and trauma-related disorder." In this study, synthetic marijuana was given to rats after a traumatic event. It was able to block symptoms of PTSD after the rodents were exposed to extreme stress. All of the rats experienced anxiety, but symptoms of PTSD disappeared in the group given marijuana within the two or 24-hour time frame.[18]

Another study conducted by Canadian researcher Dr. George Fraser involved administering naboline — a prescription drug made of a synthetic cannabinoid (component of marijuana) to patients who had PTSD with treatment-resistant nightmares. Fraser reported, "The majority of patients (72%) receiving naboline experienced either cessation of nightmares or a significant reduction in nightmare intensity. Subjective improvement in sleep time, the quality of sleep, and the reduction of day-time flashbacks and nightsweats were also noted

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[14] Vastag, Brian. "Marijuana study of traumatized veterans stuck in regulatory limbo," *The Washington Post*, October 1, 2011.
[15] Patricia Kime, "DEA approves PTSD marijuana study," *Military Times*, April 23, 2016. http://www.militarytimes.com/story/veterans/2016/04/21/dea-approves-ptsd-marijuana-study/83356604/
[16] Patricia Kime, "Colorado funds study on marijuana for PTSD," *Military Times*, January 11, 2015. http://www.militarytimes.com/story/veterans/2015/01/11/marijuana-colorado-ptsd-study/21449413/
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by some patients."[19]

In another investigation, Dr. Alexander Neumeister, director of the molecular imaging program in the departments of psychiatry and radiology at NYU School of Medicine, helped conduct a study using brain-imaging technology to highlight a connection between the number of cannabinoid receptors in the brain and PTSD. Fraser stated that "we know very well that people with PTSD who use marijuana — a potent cannabinoid — often experience more relief from their symptoms than they do from antidepressants and other psychiatric medications."[20]

In a case report of a 19-year-old patient who had severe PTSD, including panic attacks, flashbacks, and self-mutilation, the patient discovered that smoking cannabis resin dramatically reduced his major symptoms. After smoking the cannabis resin, the patient reported that he was better able to maintain cognitive control, and he noted that his urge for self-mutilation was also reduced when he smoked cannabis immediately after experiencing flashbacks. As the abstract explains, "The major part of this review is concerned with the clinical and preclinical neurobiological evidence in order to offer a potential explanation of these effects on symptom reduction in PTSD." It noted, "Evidence is increasingly accumulating that cannabinoids might play a role in fear extinction and antidepressive effects."[21]

Another recent study was published by researchers at NYU Langone Medical Center in May of 2013. Researchers examined the connection between the quantity of cannabinoid receptors in the human brain, known as CB1 receptors, and post-traumatic stress disorder.[22] The principal author of the study noted that:

> We know very well that people with PTSD who use marijuana—a potent cannabinoid—often experience more relief from their symptoms than they do from antidepressants and other psychiatric medications.[23]

Anecdotal Reports

In addition to scientific research, the life experience of thousands of veterans and other

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[19] Fraser, George. "The Use of a Synthetic Cannabinoid in the Management of Treatment-Resistant Nightmares in Posttraumatic Stress Disorder (PTSD)," *CNS Neuroscience & Therapeutics* 15, no 1. (2009): 84-88.
[20] A Neumeister, M D Normandin, R H Pietrzak, D Piomelli, M Q Zheng, A Gujarro-Anton, M N Potenza, C R Bailey, S F Lin, S Najafzadeh, J Ropchan, S Henry, S Corsi-Travali, R E Carson, Y Huang. "Elevated brain cannabinoid CB1 receptor availability in post-traumatic stress disorder: a positron emission tomography study," *Molecular Psychiatry*, 2013; DOI: 10.1038/mp.2013.61
[21] Passie T, Emrich H, Karst M, Brandt, Halpern J. "Mitigation of post-traumatic stress symptom by Cannabis resin: A review of the clinical and neurobiological evidence," *Drug Testing and Analysis* (2012) 649-659.
[22] A. Neumeister M.D. Normandin, R. H. Pietrzak, et al., Elevated brain cannabinoid CB1 receptor availability in post-traumatic stress disorder: a positron emission tomography study, Molecular Psychiatry, May 14, 2013. http://www.nature.com/mp/journal/v18/n9/abs/mp201361a.html.
[23] NYU Langone Medical Center Press Release, Brain-Imaging Study Links Cannabinoid Receptors to Post-Traumatic Stress Disorder, May 14, 2013, http://communications.med.nyu.edu/media-relations/news/brain-imaging-study-links-cannabinoid-receptors-post-traumatic-stress-disorder.

victims of trauma has demonstrated that medical marijuana can be a safe and effective treatment for PTSD.

One example is Tom McMullen, who is featured in the medical marijuana documentary, *In Pot We Trust.*[24] Tom has experienced a kind of double whammy of PTSD, having witnessed his father shooting and killing his mother at age seven, and then going on to be a marine combat veteran. Tom credits marijuana with saving his life, relieving his nightmares and allowing him to forget the vivid details of the traumatic events he has witnessed in his life.

Another story is that of Army Sgt. Jamey Raines, who talked openly in the military newspaper *Stars and Stripes* about how he had used marijuana to treat PTSD triggered by heavy combat duty in Iraq. Marijuana was not just helpful, Raines said — it was the only substance he found effective.[25]

Paul Culkin, a 32-year-old Army veteran living in Albuquerque, also found small daily doses of marijuana effective in providing relief from sleepless nights and high anxiety. Culkin suffered neck injuries when a car bomb exploded 30 feet from him in Kosovo. When Culkin returned home, he had "really bad nightmares and insomnia, lots of cold sweats," he said. He also rarely left the house. Since Culkin lives in New Mexico, a state allowing the use of medical marijuana for PTSD, he is approved by the state to use the medicine that works best for him. According to Culkin, "It really gets rid of your nightmares if you smoke before you go to bed. You feel like you got some rest finally."[26]

Minnesota Should Add PTSD to its Medical Cannabis Program

Minnesota patients are paying excessive prices for cannabis, in part because the pool of qualifying patients is smaller than most of other medical cannabis states. By expanding access through the addition of PTSD as a qualifying condition, these costs go down, as the fixed costs are shared by more patients. While more study needs to be conducted and will hopefully be underway soon, medical marijuana is already consumed by many who suffer from the effects of PTSD, to great effect. The decision over whether or not medical marijuana should be made available to a particular patient should be a decision left to a physician and the patient in his or her care.

We hope that you will see the wisdom in grating this petition by adding PTSD as a qualifying condition to your medical cannabis program. It is the right choice for patients, and the right choice for Minnesota.

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[24] Available at http://www.youtube.com/watch?v=mXxICDP0GP8.

[25] Bill Murphy, Jr. "Former platoon sergeant says marijuana was 'the only thing' that controlled his PTSD," *Stars and Stripes*, September 1, 2011. http://www.stripes.com/news/former-platoon-sergeant-says-marijuana-was-the-only-thing-that-controlled-his-ptsd-1.153876.

[26] Vastag, Brian. "Marijuana study of traumatized veterans stuck in regulatory limbo," *The Washington Post*, October 1, 2011.

Sincerely,

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