1. Medical condition proposed:

Rheumatoid Arthritis

2. Provide justification for why this medical condition should be included as a qualifying debilitating medical condition for the use of medical marihuana. Be specific as to why medical marihuana should be used for this condition.

Arkansas lists severe arthritis as a qualifying condition.
California lists arthritis as a qualifying condition.
Connecticut lists psoriatic arthritis as a qualifying condition.
Illinois lists rheumatoid arthritis and Lupus as qualifying conditions.
Hawaii lists rheumatoid arthritis and Lupus as qualifying conditions.
New Hampshire lists Lupus as a qualifying condition.
New Mexico lists inflammatory autoimmune-mediated arthritis as a qualifying condition.

http://health.hawaii.gov/medicalcannabisregistry/providers/debilitating-medical-conditions/
https://medicalmarijuana.procon.org/view.resource.php?resourceID=000881

The US Department Of Health And Human Services has determined through thorough medical research and analysis that the cannabinoids including THC and CBD specifically from the marijuana plant can be used safely to treat disease caused by oxidative stress.

> A method of treating diseases caused by oxidative stress, comprising administering a therapeutically effective amount of a cannabinoid that has substantially no binding to the NMDA receptor to a subject who has a disease caused by oxidative stress.
>
> ***Oxidative associated diseases include, without limitation****, free radical associated diseases, such as ischemia, ischemic reperfusion injury, inflammatory diseases, systemic lupus* erythematosis*, myocardial ischemia or infarction, cerebrovascular accidents (such as a thromboembolic or hemorrhagic stroke) that can lead to ischemia or an infarct in the brain, operative ischemia, traumatic hemorrhage (for example a hypovolemic stroke that can lead to CNS hypoxia or anoxia), spinal cord trauma, Down's syndrome, Crohn's disease,* ***autoimmune diseases*** *(e.g.* ***rheumatoid arthritis*** *or diabetes), cataract formation, uveitis, emphysema, gastric ulcers, oxygen toxicity, neoplasia, undesired cellular apoptosis, radiation sickness, and others.*
>
> *As used herein, a "cannabinoid" is a chemical compound (such as cannabinol, THC or cannabidiol) that is found in the plant species Cannabis sativa (marijuana)*

http://www.google.com/patents/US6630507

Prescription Arthritis medications are not safe compared to non-toxic medical marijuana.

> Arava is linked to 22 deaths in its first three years of approval, according to FDA data obtained by the watchdog group Public Citizen. Twelve of the deaths appear directly due to liver damage from the drug. And that's just the tip of the iceberg -- the deaths were among 130 severe liver reactions, including 56 hospitalizations.

http://www.webmd.com/rheumatoid-arthritis/news/20020329/arthritis-drug-too-dangerous-group-says

> Rheumatoid arthritis medications to avoid during pregnancy and breast-feeding include:
>
> - **Methotrexate (Trexall).** One of the most commonly used medications to treat rheumatoid arthritis, methotrexate can induce miscarriage early in pregnancy. Taken later in pregnancy, it can cause birth defects affecting the brain and bones.
> - **Leflunomide (Arava).** Doctors recommend avoiding this drug even before conception because it can remain in the body for a long time. Taking cholestyramine (Prevalite) can help speed the elimination of leflunomide from your body.
> - **Biologic response modifiers.** Because there is limited information about the safety of this class of drugs during pregnancy, doctors typically recommend avoidance if you're planning to conceive. Examples include anakinra (Kineret), rituximab (Rituxin), abatacept (Orencia), tocilizumab (Actemra) and tofacitinib (Xeljanz).

http://www.mayoclinic.org/diseases-conditions/rheumatoid-arthritis/in-depth/rheumatoid-arthritis-pregnancy/art-20091856

Arthritis medications CAUSE CANCER AND INFECTIONS:

> Rheumatoid arthritis patients taking **Humira or Remicade** face triple the risk of developing several kinds of cancer and double the risk of getting serious infections, a study led by the Mayo Clinic found.

http://www.nbcnews.com/id/12820531/ns/health-arthritis/t/two-arthritis-drugs-linked-several-cancers/

Medical Marijuana is non-toxic, has anti-cancer properties in many different cancers including breast cancer, has no pregnancy/miscarriage/birth defects risk, and does not increase infection rates.

https://www.cancer.gov/about-cancer/treatment/cam/hp/cannabis-pdq
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4171598/

Arthritis medications are generally not localized treatments, for example medical marijuana can be a topical solution applied directly to the specific location.

A safety profile of Medical Marijuana can be found in the first year report of the Minnesota medical marijuana program. The Minnesota Department of Health surveyed 1500+ patients enrolled in the program.

http://www.health.state.mn.us/topics/cannabis/about/firstyearreport.html

> Adverse Side Effects: At this point, the safety profile of the medical cannabis products available through the Minnesota program seems quite favorable. Approximately 20-25% of enrolled patients report negative physical or mental side effects of some kind, with the majority – around 60% - reporting only one and 90% reporting three or fewer. The vast majority of adverse side effects, around 90%, are mild to moderate in severity. An assessment of the 30 patients reporting severe side effects, meaning “interrupts usual daily activities,” found no apparent pattern of patient age, medical condition, or type of medical cannabis used. The most common adverse side effects are dry mouth, drowsiness, and fatigue. Fortunately, up to the present no serious adverse events (life threatening or requiring hospitalization) have been reported.

Medical Marijuana's mild to moderate side effects of dry mouth, drowsiness and fatigue are easily tolerated by the vast majority of patients.

The Mayo Clinic website has assembled dosage information on Medical Marijuana.
http://www.mayoclinic.org/drugs-supplements/marijuana/dosing/hrb-20059701

NIDA finds it difficult to put the words together, but finally, begrudgingly, admits there is no gateway theory of marijuana use.

https://www.drugabuse.gov/publications/research-reports/marijuana/marijuana-gateway-drug

> These findings are consistent with the idea of marijuana as a "gateway drug." However, the majority of people who use marijuana do not go on to use other, "harder" substances.

As evidenced by the included medical marijuana patient surveys in other states and countries, adults are using medical marijuana to treat these diseases. Patients will continue to use medical marijuana to treat symptoms whether or not you approve these conditions. Approving these conditions to add them to the list of Qualifying Conditions in the MMMA has the only effect of protecting sick people from arrest or penalty, who are currently breaking the law by using a safe and non-toxic plant that they can grow themselves versus prescriptions that cost thousands of dollars per month and poison and kill people each year.

More studies on Arthritis and medical marijuana or synthetic cannabinoids:

Science and Research
1973 - Study ~ ANTI-EDEMA AND ANALGESIC PROPERTIES OF Δ9-TETRAHYDROCANNABINOL (THC).
1988 - Study - ANALGESIC AND ANTIINFLAMMATORY ACTIVITY OF CONSTITUENTS OF CANNABIS SATIVA L.
2000 - Study - US Patent 6132762 - Transcutaneous application of marijuana.
2000 - Study - Immunoactive cannabinoids: Therapeutic prospects for marijuana constituents.
2001 - Study ~ Anandamide activates peripheral nociceptors in normal and arthritic rat knee joints.
2002 - Study - The nonpsychoactive cannabis constituent cannabidiol is an oral anti-arthritic therapeutic in murine collagen-induced arthritis.
2003 - Study ~ Cannabidiol-transdermal delivery and anti-inflammatory effect in a murine model.
2004 - Study ~ A novel synthetic, nonpsychoactive cannabinoid acid (HU-320) with antiinflammatory properties in murine collagen-induced arthritis.
2005 - Study ~ Ajulemic acid (IP-751): Synthesis, proof of principle, toxicity studies, and clinical trials.
2006 - Study - The Cannabinergic System as a Target for Anti-inflammatory Therapies.
2006 - Study - Preliminary assessment of the efficacy, tolerability and safety of a cannabis-based medicine (Sativex) in the treatment of pain caused by rheumatoid arthritis.

2006 - Study ~ Arthritis and cannabinoids: HU-210 and Win-55,212-2 prevent IL-1alpha-induced matrix degradation in bovine articular chondrocytes in-vitro.
2006 - Study ~ SAFETY AND TOLERABILITY OF LONG-TERM TREATMENT WITH A CANNABIS-BASED MEDICINE (SATIVEX) IN PATIENTS WITH RHEUMATOID ARTHRITIS.
2006 - Letter ~ The use of a cannabis-based medicine (Sativex) in the treatment of pain caused by rheumatoid arthritis.
2007 - Study - Suppression of fibroblast metalloproteinases by ajulemic acid, a nonpsychoactive cannabinoid acid.
2007 - Study - The antinociceptive effect of Delta9-tetrahydrocannabinol in the arthritic rat involves the CB(2) cannabinoid receptor.
2007 - Study - Synergy between Delta(9)-tetrahydrocannabinol and morphine in the arthritic rat.
2007 - Study - In vivo effects of CB2 receptor-selective cannabinoids on the vasculature of normal and arthritic rat knee joints.
2007 - Study ~ Arthritis and pain. Future targets to control osteoarthritis pain.
2007 - Study ~ INHIBITORY EFFECT OF CANNABINOID AGONISTS ON CYTOKINE PRODUCTION IN HUMAN OSTEOARTRITHIC AND RHEUMATOID FIBROBLAST-LIKE SYNOVIOCYTES.
2008 - Study ~ Characterisation of the cannabinoid receptor system in synovial tissue and fluid in patients with osteoarthritis and rheumatoid arthritis.
2008 - Study ~ In vivo effects of CB2 receptor-selective cannabinoids on the vasculature of normal and arthritic rat knee joints.
2008 - Study ~ Cannabinoid-mediated antinociception is enhanced in rat osteoarthritic knees.
2008 - Study ~ CB2 cannabinoid receptor agonist JWH-015 modulates human monocyte migration through defined intracellular signaling pathways.
2008 - Study ~ Suppression of human macrophage interleukin-6 by a nonpsychoactive cannabinoid acid.
2008 - Study ~ Ajulemic acid, a nonpsychoactive cannabinoid acid, suppresses osteoclastogenesis in mononuclear precursor cells and induces apoptosis in mature osteoclast-like cells.
2009 - Study ~ Ajulemic acid, a synthetic cannabinoid, increases formation of the endogenous proresolving and anti-inflammatory eicosanoid, lipoxin A4.
2009 - Study ~ Cannabinoids as novel anti-inflammatory drugs.
2010 - Study ~ Tissue Engineering of Cartilage; Can Cannabinoids Help?

2010 - Study ~ Cannabinoid-induced apoptosis in immune cells as a pathway to immunosuppression.
2010 - Study ~ Tonic modulation of spinal hyperexcitability by the endocannabinoid receptor system in a rat model of osteoarthritis pain.
2010 - Study ~ Local application of the endocannabinoid hydrolysis inhibitor URB597 reduces nociception in spontaneous and chemically induced models of osteoarthritis.
2010 - Study ~ Paradoxical effects of the cannabinoid CB2 receptor agonist GW405833 on rat osteoarthritic knee joint pain.
2011 - Study ~ Cannabinoids for Treatment of Chronic Non-Cancer Pain; a Systematic Review of Randomized Trials.
2011 - Study ~ Cannabidiol as an emergent therapeutic strategy for lessening the impact of inflammation on oxidative stress.
2011 - Study ~ The abnormal cannabidiol analogue O-1602 reduces nociception in a rat model of acute arthritis via the putative cannabinoid receptor GPR55.
2011 - Study ~ Fatty acid amide hydrolase blockade attenuates the development of collagen-induced arthritis and related thermal hyperalgesia in mice.
2012 - Study ~ Platelet-rich plasma loaded hydrogel scaffold enhances chondrogenic differentiation and maturation with up-regulation of CB1 and CB2.
2012 - Study ~ Effects of Peptide and Lipid Endocannabinoids on Arthritic Pain at Spinal Level.
2012 - Study ~ Lack of effect of chronic pre-treatment with the FAAH inhibitor URB597 on inflammatory pain behaviour: evidence for plastic changes in the endocannabinoid system.
2012 - Study ~ Cannabinoids: novel therapies for arthritis?
2012 - Study ~ The effects of peptide and lipid endocannabinoids on arthritic pain at the spinal level.
2012 - Study ~ Dynamic changes to the endocannabinoid system in models of chronic pain
2012 - Study ~ Cortisol-mediated adhesion of synovial fibroblasts is dependent on the degradation of anandamide and activation of the endocannabinoid system

2012 - Study ~ Role of CB1 and CB2 cannabinoid receptors in the development of joint pain induced by monosodium iodoacetate.

2012 - Study ~ CB1 and CB2 contribute to antinociceptive and anti-inflammatory effects of
electroacupuncture on experimental arthritis of the rat temporomandibular joint.
2012 - Study ~ Neuromodulators for pain management in rheumatoid arthritis

2013 - Study ~ Electroacupuncture inhibition of hyperalgesia in rats with adjuvant arthritis: involvement of cannabinoid receptor 1 and dopamine receptor subtypes in striatum.

2013 - Study ~ Cannabinoid CB2 Receptors Regulate Central Sensitization and Pain Responses Associated with Osteoarthritis of the Knee Joint.

2013 - Study ~ Palmitoylethanolamide and luteolin ameliorate development of arthritis caused by injection of collagen type II in mice

2013 - Study ~ Selective Cannabinoid Receptor Type 2 (CB2) Agonists: Optimization of a Series of Purines Leading to the Identification of a Clinical Candidate for the Treatment of Osteoarthritic Pain.

2013 - Study ~ Osteoarthritis pain mechanisms: basic studies in animal models.

2013 - Study ~ Cannabinoid WIN-55,212-2 Mesylate Inhibits Interleukin-1β Induced Matrix Metalloproteinase and Tissue Inhibitor of Matrix Metalloproteinase Expression in Human Chondrocytes.

2013 - Study ~ Honokiol, a low molecular weight natural product, prevents inflammatory response and cartilage matrix degradation in human osteoarthritis chondrocytes

2014 - Study ~ Expression of cannabinoid receptor 2 and its inhibitory effects on synovial fibroblasts in rheumatoid arthritis.

2014 - Study ~ Involvement of the endocannabinoid system in osteoarthritis pain.

2014 - Study ~ Clue to role of cannabinoid receptors in RA

2014 - Study ~ Drugs Related to Cannabis Have Pain-Relieving Potential for Osteoarthritis

2014 - Study ~ Synthetic cannabinoid molecule created for osteoarthritis

3. Provide a summary of the evidence that the use of medical marihuana will provide palliative or therapeutic benefit for this medical condition or is a treatment for this condition.

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3998228/
Ninety-seven per cent of respondents used cannabis primarily for chronic pain. Average pain improvement on a 0–10 pain scale was 5.0 (from 7.8 to 2.8), which translates to a 64% relative decrease in average pain. Half of all respondents also noted relief from stress/anxiety, and nearly half (45%) reported relief from insomnia. Most patients (71%) reported no adverse effects, while 6% reported a cough or throat irritation and 5% feared arrest even though medical cannabis is legal in Hawai‘i. No serious adverse effects were reported.

These results suggest that Cannabis is an extremely safe and effective medication for many chronic pain patients. Cannabis appears to alleviate pain, insomnia, and may be helpful in relieving anxiety. Cannabis has shown extreme promise in the treatment of numerous medical problems and deserves to be released from the current Schedule I federal prohibition against research and prescription.

2. 10.1002/cbdv.200790150
In a Phase-II double-blind, randomized placebo-controlled five-week study of 56 rheumatoid arthritis patients with Sativex by Blake et al. , employing nocturnal treatment only, subjects received a maximum of 6 sprays each evening (16.2 mg THCþ 15 mg CBD). In the final treatment week, many study measures favored Sativex over placebo: morning pain on movement, morning pain at rest , 28- joint disease activity score, and Short Form McGill Pain Questionnaire (SF-MPQ) pain at present. Sleep quality favored Sativex over placebo.

3. https://harmreductionjournal.biomedcentral.com/articles/10.1186/1477-7517-2-18
Data were available for 128 participants. Long term and regular medical cannabis use was frequently reported for multiple medical conditions including chronic pain (57%), depression (56%), *arthritis (35%)*, persistent nausea (27%) and weight loss (26%). *Cannabis was perceived to provide "great relief" overall (86%), and substantial relief of specific symptoms such as pain,* nausea and insomnia. It was also typically perceived as superior to other medications in terms of undesirable effects, and the extent of relief provided.

4. 10.1111/j.1742-1241.2004.00271.x
Medicinal cannabis use was reported by patients with chronic pain (25%), multiple sclerosis and depression (22% each), *arthritis (21%)* and neuropathy (19%).

5. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3673028/
In general, chronic pain disorders were the most common diagnoses made by physicians, with nearly 60 percent (58.2%) of applicants being diagnosed with some sort of musculoskeletal or neuropathic chronic pain condition. Low back pain was diagnosed for over one quarter (26.2%) of patients seen during this three month period, with lumbar and cervical degenerative disc disease (together 21.8%) and arthritis (18%) the next most common diagnoses in the chronic pain group.
Non-prescription therapies tried by applicants seeking medicinal marijuana allowances included physical therapy (48.6%), chiropractic services (37.2%), surgery (21.9%), psychological counseling (20.7%), and acupuncture (19.6%). Thus, these data do not suggest that applicants immediately seek marijuana recommendations as the first strategy to deal with their symptoms. In many cases, these individuals tried more traditional forms of medicine.

6. 10.1016/j.ejphar.2007.04.010

In summary, the synergistic interaction of Δ9 -THC and morphine in arthritic rats, as well as the potency of Δ9 -THC in the CFA chronic pain condition, points to the possibility of the use of the combination, or to the use of a Δ9 -THC analog, to treat chronic pain conditions for which opioids alone are ineffective.

7. https://www.ncbi.nlm.nih.gov/pubmed/16282192
In the first ever controlled trial of a CBM in RA, a significant analgesic effect was observed and disease activity was significantly suppressed following Sativex treatment.

8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3728280/
A recent review of the clinical trials conducted with Sativex® and other cannabis extracts in various types of pain observed a benefit in a range of conditions, including MS, cancer, irritative urinary symptoms, neuropathy, peripheral nerve injury and spinal cord injury. The only condition where benefit was not noted was post-herpetic neuralgia . THC has analgesic and other beneficial effects in fibromyalgia and *rheumatoid arthritis* as well

9. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4851925/
These data indicate that topical CBD application has therapeutic potential for relief of arthritis pain-related behaviours and inflammation without evident side-effects.

10.
http://arthritis.ca/getmedia/99682fb5-3992-4924-895a-d5f03d16f151/Medical-Cannabis-2015-a-Guide-to-Access.pdf
In fact, *65 per cent of Canadians authorized to possess medicinal cannabis do so because of a diagnosis of "severe arthritis.*
* Reference: June 2013 Access to Information Act request, reported by Health Canada
** Office of the Information Commissioner of Canada. Information request (ATI 2013-00282) under the Access to Information Act. 2013.

11. https://www.ncbi.nlm.nih.gov/pubmed/26317379
367 medical marijuana patients in Arizona were surveyed.
90 patients reported using medical marijuana for Arthritis and 39 patients for Osteoarthritis.
General relief from Arthritis symptoms was 63.3% and 61.5% for Osteoarthritis,
Relief by medical marijuana compared to other medications was 68.3% for Arthritis and 66.6% for Osteoarthritis.
Less frequent use of other medications was 81.2% for Arthritis and 84% for Osteoarthritis.

15 patients reported using medical marijuana for treatment of Carpal Tunnel.
General relief from Carpal Tunnel symptoms was 40%.
Relief by medical marijuana compared to other medications was 80%

Less frequent use of other medications was 100%

12. https://www.ncbi.nlm.nih.gov/pubmed/28189912
In regards to conditions, pain-related conditions were the most common, reported by 53% of participants (n = 144; chronic pain 36%; (n = 98), *arthritis 12% (n = 32)*, headache 5% (n = 14)). The second most prominent class was mental health (eating disorder, PTSD & psychiatric disorder), reported by 15% (n = 41). Other prominent conditions included gastrointestinal l disorders (11%, n = 29), insomnia (7%, n = 18) and multiple sclerosis (4%, n = 11).

13. 10.1111/j.1742-1241.2004.00271.x
Medicinal cannabis use was reported by patients with chronic pain(25%), multiple sclerosis and depression (22% each), *arthritis (21%)* and neuropathy (19%)
The mean age of the 2969 subjects was 52.7 years (SD 12.7), of whom 1805 (60.7%) were female. MS was the most common disease, reported by 1753 subjects (59%), while 1280 reported neuropathy (43%), 1125 reported chronic pain (33%) and *777 reported arthritis* (26%). There was considerable overlap among these conditions.
Overall Effectiveness. Of 948 reported users, 648 (68%) reported that cannabis made their symptoms overall much better, 256 (27%) said a little better, 36 (4%) said no difference and eight subjects said a little worse (four subjects) or much worse (four subjects).
Effectiveness Compared to Other Medications. When asked how cannabis compared to other medications overall, 412 of 916 subjects (45%) said it worked much better than prescribed medications, 261 (28%) said it was somewhat better and 45 (5%) said it was about the same; only 27 subjects said that prescription medicines worked better than cannabis (18 somewhat better and nine much better). One hundred and seventy-one (19%) subjects said it was impossible to tell.
Side Effects Compared to other Medications. When asked to compare the undesirable effects of cannabis to those of prescribed medicines, 872 subjects responded, of whom six found that cannabis produced much worse side effects, 23 found somewhat worse side effects and 54 said the side effects were about the same. Two hundred and sixty-four (30%) subjects stated that side effects of prescribed medicines were somewhat worse and 294 (34%) said they were much worse.

Two hundred and thirty-one (26%) stated that it was impossible to tell.
Effects on Other Medication Use. Of the 909 subjects responding to this question, 374 stated that their use of cannabis had changed their use of other medications, while 521 said it had not. Fourteen were not coded.
Return of Symptoms on Stopping. Of the 876 subjects responding, 673 said their symptoms returned or got worse when they stopped using cannabis, and 203 denied any worsening on stopping cannabis.

14. 10.1111/dar.12323
Participants presented with the range of conditions that is generally consistent with surveys of CTP users, the most prominent conditions being pain (32%), mood (i.e. anxiety and depression; 18%), arthritis (15%), HIV (10%), gastrointestinal disorder (7%)
The high rate of substitution for prescribed substances, particularly among patients with pain-related conditions, suggests that further research into cannabis/ cannabinoids as a potentially safer substitute for or adjunct to opiates is justified, and adds to research suggesting this phenomenon is robust across samples [6,20].
We created a dichotomous pain condition variable by aggregating respondents who identified the primary condition treated with CTP as spinal pain, non-spinal pain, or arthritis (n = 220), and comparing these participants to an aggregation of all other conditions (n = 241). A large contingent of these non-pain respondents nonetheless endorsed pain among the symptoms for which they used CTP (71%, n = 171), therefore, we conducted supplementary analyses comparing those who endorsed treating pain with CTP among a list of symptoms (83%, n = 390) with those who did not endorse treating pain with CTP (17%, n = 82).

15. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3552517/
A systematic review of 11 randomized or quasi-randomized controlled trials comparing opioids with placebo or an active analgesic agent concluded there was weak evidence for use of weak opioids (codeine, dextropropoxyphene, pentazosine, tilidine, tramadol) for *RA patients* [43]. However, side effects, such as constipation, dizziness, nausea, and vomiting, were common. The risk ratio for study withdrawal because of side effects was 2.7 among participants taking opioids compared with those on placebo. In addition to these adverse effects, opioid use may also lead to opioid-induced hyperalgesia, which is associated with heightened pain sensitivity and increased clinical pain intensity. *Given these effects, it is generally recommended that long-term opioid prescriptions be minimized and, when opioids are necessary, use should be regularly and judiciously monitored.*

16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1262744/

This exploratory study examined the patterns of medicinal cannabis use among a sample of 128 Australian adults who responded to media stories about this issue.
45 patients reported using medical marijuana for Arthritis.
More than one in ten (14%) specified that while cannabis could ease their symptoms and enabled them to cope, they realised that it could not cure their underlying condition.
Approximately three quarters of participants (71%) claimed to have experienced a return of their symptoms or condition on stopping cannabis, especially: pain (53% of those who claimed a return of symptoms), depression or anxiety (30%), insomnia (11%), spasm (10%) and nausea/vomiting or lack of appetite (9%).

Almost two thirds (62%) of respondents claimed that they decreased or discontinued their use of other medicines when they started using cannabis medicinally. This was more common in males (65% vs. 58% of females) and older participants (aged 50 years +) (70% vs. 59% among younger participants). For some people this was a substantial change, representing a shift away from chronic, high-dose medication use.

Perhaps not surprisingly, cannabis was typically perceived as superior to other medications in terms of undesirable effects, and the extent of relief provided. Thus, cannabis was rated to produce equivalent (8%) or worse side effects (3%) by a minority of therapeutic users. *It was considered to work "a bit" or "much better" than other medicines, or to be the only source of relief, by more than three quarters (82%).*

17. https://www.ncbi.nlm.nih.gov/pubmed/11210205
1 patient reported using medical marijuana to treat arthritis.
However, cannabis was also used to treat menstrual cramps, anorexia, narcotic addiction, migraine, Tourette's Syndrome, lupus, Grave 's Disease, epilepsy, retinitis, chemotherapy-induced loss of appetite, Crohn 's Disease, arthritis and everyday aches, pains, stresses and sleeping difficulties.
Many reported benefits of cannabis were consistent with those reported elsewhere. Cannabis was typically used for its sedative, analgesic, antispasmodic, appetite stimulating, anticonvulsant and euphoric properties. These properties were well known in the past century when cannabis was used to treat conditions that required medications with these properties. Although scientific evidence in favor of medical cannabis is limited (Gurley, Aranow & Katz 1 998), self-treatment with cannabis could become popular as more users publicize their own experiences. This is especially so if the everyday aches and pains and psychological problems are promoted as medical reasons for using cannabis.

18. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4289380/
So this study is early; but very encouraging, providing yet more evidence[39] that the therapeutic potential of cannabis extracts, and its analogues are enormous.

19. https://www.ncbi.nlm.nih.gov/pubmed/12022357
Patients reported that a flare may last anywhere from a few days to a few weeks and relief from flare can be gained by analgesic injections (including opiates) from a doctor, relaxation, sleep, and cannabis (3 individuals).

20. https://www.ncbi.nlm.nih.gov/pubmed/22726074
Because MS and SPS share some neurological symptoms such as spasticity and rigidity, it is thought that THC-CBC can be an option for SPS patient. Our case report suggests that THC-CBD oromucosal spray is an alternative treatment for patients with refractory SPS, and further validation is appropriate.

21. https://www.ncbi.nlm.nih.gov/pubmed/24095000
80 patients reported using medical marijuana to treat arthritis symptoms.
Patients reported using cannabis to treat multiple symptoms, with sleep, pain, and anxiety being the most common. Cannabis was perceived to provide effective symptoms relief across medical conditions.

22. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3139381/
Animal studies suggest that future development of selective CB1R agonists may provide many additional drugs that will prove useful for treatment of epilepsy, inflammation, neurode-generation, cancer, anxiety, depression, and osteoporosis [reviewed in *(46)*].

23. https://www.ncbi.nlm.nih.gov/pubmed/19070683
These results indicate that CBD may be useful to control bone resorption during progression of experimental periodontitis in rats.

24. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1430341/
These studies show that the CB1 receptor plays a role in the regulation of bone mass and ovariectomy induced bone loss and that CB1 and CB2 selective cannabinoid receptor antagonists are a novel class of osteoclast inhibitors that may be of value in the treatment of osteoporosis and other bone diseases.

25. https://www.ncbi.nlm.nih.gov/pubmed/27734700
Selective CB1R/ CB2R-inverse agonists/antagonists and CB2R-inverse agonists/antagonists are candidates for prevention of bone mass loss and combined antiresorptive and anabolic therapy for osteoporosis.

26. https://www.ncbi.nlm.nih.gov/pubmed/28286929

A history of cannabis use, although highly prevalent and related to other risk factors for low BMD, was not independently associated with BMD in this cross-sectional study of American men and women.

27. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3001217/
This review summarises *in vitro* and *in vivo* findings relating to the influence of cannabinoid ligands on bone metabolism and argues in favour of the exploitation of cannabinoid receptors as targets for both anabolic and anti-resorptive therapy for treatment of complex multifaceted bone diseases such as osteoporosis.

28. https://www.ncbi.nlm.nih.gov/pubmed/19634029
Taken together, the reports on cannabinoid receptors in mice and humans pave the way for the development of 1) diagnostic measures to identify osteoporosis-susceptible polymorphisms in CNR2, and 2) cannabinoid drugs to combat osteoporosis.

4. Provide articles published in peer-reviewed scientific journals reporting the results of research on the effects of marihuana on the medical condition or treatment of the medical condition and supporting why the medical condition should be added to the list of debilitating medical conditions under the Medical Marihuana Act. Attach a copy of all articles that are discussed in this section. Please do not attach articles that are not discussed in this section.

See enclosed.