

Consideration of Medical Marijuana Inclusion in Life Care Planning: Implications and Challenges

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Abstract

This article provides background information on medical marijuana, cannabinoids and cannabis terminology to discuss the challenges and implications related to inclusion of cannabis in life care plans. The article will discuss cannabis-specific recommendations and prescription options based on the types of medical diagnoses that a life care plan may address. There will be solutions described for the consideration of cannabis inclusion in life care planning. This article includes references which may be suggested to support the life care planning process, should medical marijuana be a life care planning option.

A life care plan is a “dynamic document” and as such, reflects changes in trends in medicine and healthcare practices. In the 30+ years that life care plans have been developed and utilized, items included in plans have certainly changed. For example, with technology, life care plans may now regularly include items such as a smart house or robotic prosthetics, that 30 years ago, were not regularly available. Additionally, with the opioid epidemic, pain management plans now likely involve more frequent medical monitoring and urine drug screening services than were required even five years ago. To this end, the changing landscape of regulated and lawful use of cannabis-related products requires an exploration of the types of goods available for consideration in a life care plan.

In the past decade, cannabis-related products began to be legalized for medical use in many states across the United States. Now, the trend follows that cannabis-related products are becoming legal, even for recreational use, across the nation. More and more individuals with pain or injuries are finding that these cannabis-products are assisting them with pain management, anxiety-control, sleep disturbances, and other symptoms. Life care planners are finding that their evaluatees are replacing many of the typical prescription medications that have historically been included in life care plans with cannabis-related products. It is now time that each life care planner must decide whether or not to include these alternative treatments in their reports. It is imperative that life care planners have the knowledge base to make informed decisions in this regard and to be able to defend their inclusion, or exclusion, of cannabis-products in their life care plans.

In order to have a full understanding of this field, an

understanding of the nomenclature is required.

Definitions

Cannabis is the botanical genus name for the plant known as hemp, pot, marijuana, ganja, weed, dope, Mary Jane, etc. Cannabis is classified into three distinct species: Cannabis sativa, Cannabis indica, and Cannabis ruderalis. Cannabinoids are the natural chemical compounds produced from the resin of the cannabis plant, referred to as phytocannabinoids.

Cannabis sativa, when grown for industrial, non-drug purposes, is also called hemp. There are many uses for hemp, including textiles, paper products, plastics, body care products, construction, livestock feed, livestock bedding, fuel, nutritional supplements and essential oils. When cannabis sativa is grown for medicinal uses, it has higher concentrations of THC. (Tetrahydrocannabinol), but generally has poor fiber quality; therefore, it is not used industrially.

Marijuana is the name for the cannabis plant, or more specifically, the drug preparation from the plant. The term marijuana originated from Mexican-based Spanish and has been used to stigmatize cannabis as foreign or as a racist meme to characterize social deviancy in minorities (Gettman, 2015). The definition of marijuana varies by jurisdiction. Marijuana may mean the entire cannabis plant, any part of the cannabis plant, distinctive strains of the cannabis plant, or a portion of the cannabis plant which contains high levels of THC. For purposes of this article, medical marijuana refers to cannabis available by prescription and which is used to treat a variety of medical conditions or the associated symptoms.

There are 113 known **cannabinoids**, although the most substantial body of research has been completed on THC (Tetrahydrocannabinol), CBD (Cannabidiol) and CBN (Cannabinol). The major difference between cannabinoids is the extent to which they are psychologically active. Non-psychoactive cannabinoids include Cannabidiol (CBD), Cannabigerol (CBG), Cannabichromene (CBC), Cannabicyclol (CBL) and Cannabielsoin (CBE). Cannabidiol (CBD), which is more widely used than the other products, is extracted from the Cannabis sativa plant or hemp (fiber of cannabis plant). The chemical makeup of hemp is primarily CBD with a THC content of less than 0.3%.

Psychoactive cannabinoids include Delta-9-

Tetrahydrocannabinol (Δ -9-THC), Cannabinol (CBN) and Delta-8-Tetrahydrocannabinol (Δ -8-THC). Δ -9-THC is the major active ingredient in cannabis plant extracts and is primarily responsible for the psychoactive effects of cannabis. These effects include alterations in memory, movement, mood, perception and cognition, and producing the euphoric sensation or 'high.' Δ -8-THC has antiemetic, anxiolytic, appetite-stimulating, analgesic and neuroprotective properties. There are also cannabinoids for which psychoactive function is unknown, such as Cannabitrilol (CBT). Studies are needed to evaluate whether or not there are adverse effects with long term medicinal cannabis (Bridgeman & Abazia, 2017).

Both THC and CBD have side effects. The side effects associated with THC are memory impairment, slower reaction times, increased heart rate, coordination problems, dry mouth and red eyes. The reported side effects of CBD include dry mouth, low blood pressure, light headedness and drowsiness.

Pharmacology of Cannabinoids and The Endocannabinoid System

Phytocannabinoids, such as THC, CBD, and CBN were identified first and isolated from the plant as described earlier. In 1988, while scientists were investigating how THC exerted its effects, the endocannabinoid system was discovered within our bodies (Pacher, Batkai, & Kunos, 2006). Dronabinol (Delta 9-tetrahydrocannabinol, THC), the main source of the pharmacological effects caused by the use of cannabis, is an agonist to both the CB1 and the CB2 subtype of cannabinoid receptors. Cannabinoid receptors are distributed in the central nervous system and many peripheral tissues, including the spleen, leukocytes, reproductive, urinary and gastrointestinal tracts, endocrine glands, arteries, and heart (Hawaiian Ethos, 2019).

Cannabis medications are thought to work because of the endocannabinoid (EC) system, present in all humans. The endocannabinoid system can impact a person's physiological processes, including, pain, inflammation, energy regulation, learning, memory and emotional regulation. This system consists of a series of receptors that are configured to accept cannabinoids, especially THC and CBD. The endocannabinoid system, an integral part of our physiologies, was discovered in the mid-1990s by Israeli researcher Dr. Ralph Mechoulam, who also identified THC as the main active ingredient in cannabis in the early 1960s. Dr. Mechoulam's world-changing research discovered two main receptors, cannabinoid 1 (CB1) and cannabinoid 2 (CB2), that are key to both the endocannabinoids that our body naturally produces and phytocannabinoids (plant-based) like THC and CBD (Fine, Eisenberg, & Vulfsons, 2013). Our bodies actually produce the ECs similar to how our body produces narcotic-like endorphins. Synthetic cannabinoids, like the ones found in Marinol, also fit the receptor sites, but don't work as efficiently as the natural ones.

Cannibidoil (CBD) and THC share the same chemical composition, molecular formula and molecular weight, but the anatomic arrangements of the two cannabinoids differ slightly. CBD has an open ring with a hydroxyl and alkene group while THC has a closed ring with an ester group. It is this slight difference in atom arrangement that dramatically affects CBD and THC's interactions with endocannabinoid receptors, as shown in Figure 1 (Gaoni, 1964).

Figure 1
THC and CBD Molecule

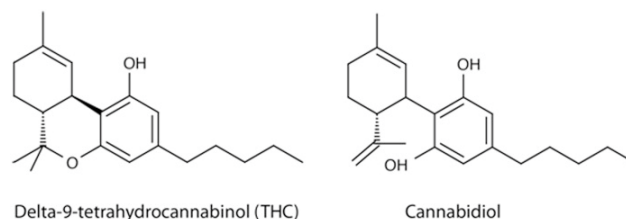


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THC binds directly with CB1 and CB2 receptors with higher affinity for CB1 receptors. CB1 binds primarily in the brain, spinal cord and nerve endings, whereas, CB2 receptors bind primarily in the peripheral nervous system and is especially concentrated in immune cells (Gaoni, 1964).

Cannabinoids: Indications for Use

There are many medical diagnoses for which individuals seek out the use of medical cannabis. This list includes, but is not limited to, the following: Multiple sclerosis; spasticity; Crohn's disease and ulcerative colitis; attention deficit hyperactivity disorder; seizure disorders, such as epilepsy; post-traumatic stress disorder; depression; anxiety; insomnia; nausea and vomiting; glaucoma; headaches and migraines; cancer; HIV and AIDS; Parkinson's disease; chronic pain, including fibromyalgia; arthritis; neuropathy and phantom pain (Bridgeman & Abazia, 2017).

Cannabinoids: Contraindications and Other Considerations

When considering the use of medical cannabis in a life care plan, some the contraindications for the use of cannabinoids, which need to be analyzed, include: Low blood pressure; vascular conditions (myocardial infarction, stroke); respiratory conditions; if the user is driving or operating machinery; if the user is immunosuppressed; or if the user is scheduled for sinus surgery (Bridgeman & Abazia, 2017).

Table 1 shows a list of potential interactions with other prescriptions that should be considered if medical marijuana is being considered in a life care plan:

Table 1

Medications with Potential Contraindications with Medical Marijuana use

Medication	Potential Contraindication
Warfarin	CBD reduces the enzymatic degradation of Warfarin, thereby increasing its duration of action and effect
Anti-seizure medications	Some epileptic patients have encountered issues with how CBD interacts with their medications, such as clobazam
Opioids	May amplify the side effects of drowsiness, depression and decreased respirations
Sedatives	May increase the potency of the sedatives
Antihistamines	May increase the side effect of drowsiness
Metformin	Cannabis has been shown to decrease the effectiveness of this blood sugar controlling medication
Theophyllines	These drugs are related to caffeine and Cannabis has been shown to increase the metabolism of these drugs; therefore, the dose or frequency of these medications may require adjustment when combined with Cannabis

In addition, there are published precautions and warnings that could bring into question the safety and efficacy of medical cannabis use. Marijuana is unsafe when taken by mouth or smoked during pregnancy as it passes through the placenta and can slow fetal brain development (Committee Opinion No. 722: Marijuana use during pregnancy and lactation, 2018). Using marijuana, either by mouth or by inhalation, is likely unsafe during breast-feeding (Committee Opinion No. 722: Marijuana use during pregnancy and lactation, 2018). The THC in marijuana passes into breast milk and extensive marijuana use during breast-feeding may result in slowed development in the baby (Results from the 2015 national survey on drug use and health: Detailed tables., 2015). Marijuana might cause rapid heartbeat and short-term high blood pressure, so should likely be avoided in individuals with heart disease. It may also increase the risk of a having heart attack. Cannabinoids in marijuana can weaken the immune system, making it more difficult for the body to fight infections, so those with immunosuppression should be made aware of this fact. Long-term use of marijuana can make lung problems worse in

those with lung disease (Bridgeman & Abazia, 2017). Regular, long-term marijuana use has been associated with lung cancer and also with several cases of an unusual type of emphysema, a lung disease. While often used for the indication of seizure disorders, Marijuana might make seizure disorders worse in some people; so should be used cautiously (Malyshevskaya, Aritake, Kaushik, & Uchiyama, 2017). Marijuana affects the central nervous system, and therefore, might slow the central nervous system too much when combined with anesthesia and other medications during and after surgery. Therefore, it is recommended to avoid marijuana use within 72 hours of any elective surgery (Huson, Granados, & Rasko, 2018).

Alternative Sources of Cannabidiol (CBD)

Cannabidiol (CBD) is also available from non-cannabis plant sources. Cannabidiols can be produced from a process that combines evergreen plant material with citrus under heat and pressure and sold in the form of chocolate bars and capsules. Table 2 demonstrates the CBD's from other plants:

Table 2

CBD's from other plants

Plant	Effects/ Potential Uses
Acmella oleracea (Electric Daisy)	Blocks pain receptors/used for pain and inflammation
Italian Strawflower (Helichrysum umbraculigerum)	Has mood-stabilizing, anti-depressant effects due to CBG (Cannabigerol)
Liverwort (Radula marginata)	Produces perrottetinene acid which is similar to THC and binds to CB1 receptors to treat bronchitis and alleviate gallbladder, liver and bladder problems
Black pepper (Piper nigrum)	Produces a common aroma molecule (terpene) which binds to CB2 receptors to reduce inflammation
Terpenes	May be useful for treatment of arthritis, osteoporosis and may increase the effectiveness of anti-cancer medications
Echinacea (Coneflower)	Has a cannabimimetic nature and acts on the endocannabinoid CB2 receptors to regulate the immune system, pain and inflammation

The non-psychoactive cannabidiol (CBD), some analogues of natural cannabinoids and their metabolites, antagonists at the cannabinoid receptors and modulators of the endogenous cannabinoid system are also promising candidates for clinical research and therapeutic uses.

History of Cannabis Legislation in the United States and Canada

The medicinal use of cannabis has been described for thousands of years. Third millennium BC Chinese texts describe cannabis for pain relief. The benefits of ingested marijuana for relieving anxiety were recorded in ancient India more than 3000 years ago. Cannabis was introduced into Western medicine in 1839 by W.B. O'Shaughnessy (Cannabis and Cannabinoids: Health Professional Version, 2018). While working in India, Dr. O'Shaughnessy learned about the analgesic, sedative, anti-inflammatory, antispasmodic, and anticonvulsant effects of cannabis. Cannabis extracts gained widespread use for medicinal purposes in America until 1937, when opinions shifted and the dangers of abuse prevailed (Cannabis and Cannabinoids: Health Professional Version, 2018). The Marihuana (original spelling) Tax Act of 1937 imposed a tax on medicinal and nonmedicinal use of Cannabis sativa products (Rough, 2017).

The American Medical Association was opposed to this act because physicians were taxed for prescribing cannabis, forced to use special order forms to procure cannabis and required to keep specialized records. Physicians argued for cannabis to be added to the Harrison Narcotics Tax Act, which regulated and taxed production, importation and distribution of opiates (Rough, 2017). In 1942, cannabis was removed from the U.S. Pharmacopoeia due to concerns about its 'potential' to cause harm (Bridgeman & Abazia, 2017). The 1951 Boggs Act officially outlawed cannabis for any use, including medical usage (H.R. 3490 (82nd): An Act to amend the penalty provisions applicable to persons convicted of violating certain narcotic laws, and for other purposes, 1951). The Compassionate Use Investigational New Drug Program of 1978 allowed distribution of cannabis on a case-by-case basis outside clinical trials for people with life threatening conditions (Cannabis and Cannabinoids: Health Professional Version, 2018). In 1992 this program was closed to new patients.

Currently, the legality of cannabinoid products in the US is dependent upon its concentration and source. Marijuana and THC are classified as Schedule 1 agents and prohibited under the US Controlled Substances (Mead, 2017). Schedule One drugs are defined as having a high potential for abuse

and having no accepted medical use. The US Food and Drug Administration has not approved cannabinoid products as treatment for any medical condition. Only synthetic cannabinoids, namely Dronabinol (Marinol) and Nabilone (Cesamet), are commercially available and approved for treatment of cancer-related side effects (Throckmorton, 2016).

Various states are currently working towards legalizing and regulating cannabis, whether for medical or recreational purposes. However, the federal government has yet to jump on board. This is in spite of the fact that legalization is even in place in the District of Columbia. For decades, this subject was not supported by the majority of politicians in Washington DC, however, over the last two years, there has definitely been a change in views.

On April 11, 2018, former House Speaker, John Boehner (R-Ohio), announced that he had joined the board of a top cannabis corporation (Acreage Holdings) to promote the use of medical marijuana, which was a shift from his once-adamant opposition to legalization of the substance (Gstalter, 2018). He and Massachusetts Governor Bill Weld (Libertarian), in a joint statement, stated, that “They are hoping to de-schedule cannabis from a Class 1 drug at the federal level so it can be used for medical purposes” (Gstalter, 2018).

In June 2018, Time Magazine published a Special Edition of their magazine entitled *Marijuana the Medical Movement*. Within this publication, there is discussion of how the Obama administration sent out memos that provided individuals in the industry some assurance that if they abided by their state laws in marketing and selling marijuana, there was only a small risk of federal prosecution. However, in January 2018, former Attorney General Jeff Sessions rescinded those memos, allowing federal prosecutors to enforce federal marijuana laws.

On August 22, 2018, Senator Elizabeth Warren (D-MA) stated to Jen Rogers, on Yahoo Finance’s closing bell show, The Final Round, that the federal government should “back off” while an increasing number of US states legalize marijuana for various reasons. She went on to suggest that states should be allowed to do their job and enforce their own laws (Belmonte, 2018).

In August of 2016, Canada legalized medical marijuana through a program called Access to Cannabis for Medical Purposes, however, as of October of 2018, this country has now also legalized consumption and possession in limited amounts for recreational use (Cannabis Laws and Regulations, 2018).

The politics of medical and recreational marijuana is changing rapidly. As life care planners proceed with consideration of medical marijuana in their reports, it is recommended that new research be conducted frequently to assure that the available information on regulations have not changed.

The Current Legality of Medical Cannabis at a State Level

Here in the United States, there are now 46 states that have legalized medical cannabis to some degree (Belmonte, 2018). This means that in approximately 90% of the country, politicians and voters have decided that they are on board with seeing the medical benefits of cannabis. In addition, nine states that legalized marijuana for recreational use.

VA Policy for Military Veterans

In December of 2017, the Veteran’s Administration (VA) issued a Medical Marijuana Policy for Military Veterans (Angell, 2017). Physicians within the VA were told that that they could not recommend medical marijuana, but they were encouraged to talk more about it with military veterans. The directive urged government doctors to “discuss with the Veteran marijuana use, due to its clinical relevance to patient care, and discuss marijuana use with any Veterans requesting information about marijuana” (Angell, 2017). However, the policy reiterated the department’s long-held position “comply with Federal laws such as the Controlled Substances Act” and prohibited providers from completing forms or registering Veterans for participation in a State-approved marijuana program (Angell, 2017).

Life Care Planning Implications

Considering inclusion of cannabinoids in a life care plan inherently presents challenges. State laws change and require research and monitoring of the legal status of medical cannabis. Additionally, Federal law prohibits a person from possessing cannabis if crossing a state border or flying, which has implications when an evaluatee travels for work or vacation. Use of prescribed cannabis with psychoactive components impacts the ability to drive and/or operate machinery. This may impact employment if security clearances, background checks or employer-mandated drug testing is required. People with gun permits or concealed weapon permits may be in jeopardy also due to the security clearance component as marijuana remains illegal under federal law. Another issue is that product types vary between dispensaries and even over time in one dispensary. Consideration of bias is also required; for example, there may be a lack of support by prescribing physicians and bias may impact the life care planner or retaining attorney. Additionally, the credibility of the life care plan (or the evaluatee) may be at issue to the judge or jury when providing testimony about such items.

Solutions

If cannabis is being evaluated, the life care planner must consider each challenge and apply it to the individual for whom the life care plan is being written. Evaluating the risk/benefit ratio can assist in determining and documenting how an injured or chronically ill individual’s clinical status has been impacted by cannabis. For example; has the

individual reduced or discontinued opioid use due to successful treatment with cannabis? When the evaluatee travels across state lines or travels by air, collaboration with the prescribing physician should be completed to explore alternative treatment options when cannabis is not available. Careful consideration of the impact of cannabis use on the evaluatee's employment should be accounted for and accommodated. The potential interaction between medication and cannabis, as well as medical contraindications for cannabis use, should be evaluated by the life care planner.

The life care planner must use a consistent methodology for inclusion of or lack of inclusion of cannabis in the life care plan. Obtaining assurance from collaborating

professionals and treating providers is suggested to confirm their level of comfort with cannabis utilization as a treatment modality. Discussing this issue with the retaining attorney allows consideration of whether or not the legal strategy may be impacted. Despite adhering to these suggestions, the credibility of the life care plan may be impacted with inclusion of CBD's as a treatment modality.

Life Care Plan Sample Report

Below is an excerpt from a life care plan that included cannabis. Included in Figure 2 is the treatment modality and cost as well as medical foundation citations, which are footnoted.

Figure 2

Sample Life Care Plan Excerpt

Treatment Modality	Year Initiated	Year Suspended	Frequency	Cost	Comments
CBD hemp based extract	5/2018	8/2018	25 mg 2/day	\$200.00/ month	Pain and spasm management secondary to spinal cord injury. ^{1,2,3,4,5,6}
CBD non-hemp based extract	9/2018	LE	10 mg/serving 7-10 servings per day (70-100 mg per day)	\$410.00- \$485.00/ Month	Updated prescription upon transition to non-hemp based extract. ⁷ Current utilization 70-100 mg/day. Utilization and CBD extract may change over time as dose-response titration adjusted.

1. 5-5-18 _____ MD, progress note: Approve participation in CBD research protocol for pain management and spasms.
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