



## **CMDA Statement on Recreational Marijuana**

The Christian Medical & Dental Associations (CMDA) has developed this policy on “recreational marijuana” with both an inherent belief that the Bible is the Word of God—that it speaks into our time and culture and that God gave us His creation to use to its fullest potential—and with the incorporation of scientific evidence which provides a window into the truths about God’s creation.

### **Executive Summary**

The term “recreational marijuana” refers to any form of marijuana, its derivatives, or synthetic derivatives used for recreational, non-medical purposes. Marijuana has been in the news constantly as American states and countries around the world have been asked to make important decisions about the decriminalization, legalization, and regulation of recreational marijuana.

The Bible is our final authority for faith and practice which speaks to the creation mandate, promotion of the good, the role of authority, and being good stewards of the environment. The Bible does not solve every question of policy, but it does provide insight into the use of recreational marijuana.

The two main cannabinoids, or active ingredients, in marijuana are tetrahydrocannabinol, also called THC, and cannabidiol, or CBD. Cannabis-derived products (dried flowers, resin, oil, sprays, creams, foods, capsules) may be delivered via smoking, inhaling, vaporizing, eating or drinking food products or beverages, topical applications, and suppositories. THC is the euphoria-producing component sought by recreational users and levels have been steadily rising in marijuana plants and products. Recreational marijuana is federally illegal and is neither FDA-approved nor regulated.

Recreational marijuana use and legalization have profound social implications, including associated increases in the following: accidents and death, access to marijuana for minors, crime, drug use and abuse, black market activity, and environmental problems. Low income populations may be affected at a higher incidence than others. The cost to society of recreational marijuana legalization is greater than tax revenues produced from its sales.

Because marijuana has been illegal in the United States until its recent, selective legalization in multiple states, and because it remains illegal federally, high-quality research regarding the safety or risks associated with current recreationally-used marijuana products (especially those containing high levels of THC) is sparse. However, a lack of studies on such products does not mean risk is absent. On the contrary, there is moderate to substantial evidence of health hazards with marijuana use, including associations with respiratory problems (when smoked), motor vehicle crashes, mental or psychosocial problems, increased incidence of schizophrenia and other mental health problems, and addiction. Maternal marijuana smoking

is also associated with complications for unborn children. Future research on higher level THC products has the potential to demonstrate even more harm.

For these reasons, CMDA does not support the legalization or use of recreational marijuana. CMDA maintains that healthcare professionals should abstain and strongly advise against the use of recreational marijuana.

## **A. Biological**

1. Cannabinoids: The genus *Cannabis* contains cultivars that are commonly referred to as “marijuana.” Although over 100 different cannabinoids as well as other compounds have been found in cannabis species, the two main cannabinoids, or active ingredients, are tetrahydrocannabinol (THC) and cannabidiol (CBD).<sup>1</sup> THC is the “psychoactive” ingredient, responsible for the euphoria or “high” that comes from marijuana due to its partial agonist activity on type-1 cannabinoid receptors (CB<sub>1</sub>). CB<sub>1</sub> receptors are found in the brain in high concentrations as well as other non-neural tissues such as the gastrointestinal tract and skeletal muscle. A small number of CB<sub>2</sub> receptors are also in the brain.<sup>1</sup> THC’s chemical structure is similar to the endogenous cannabinoids (specifically anandamide) which are neurotransmitters that bind to CB receptors.<sup>2</sup> CBD has low affinity for CB<sub>1</sub> and CB<sub>2</sub> receptors and is not psychoactive; it is an agonist of the serotonin 5-HT<sub>1A</sub> receptor and appears to have anti-inflammatory, antioxidant, and neuroprotective properties.<sup>1</sup> There are THC-type, CBD-type, and hybrid cannabis plants which have predominantly THC, CBD, or a mixture of both cannabinoids, respectively.<sup>1</sup>
2. Marijuana products: Cannabis-derived products (dried flowers, resin, oil, sprays, creams, foods, capsules) may be delivered via smoking, inhaling, vaporizing, eating or drinking food products or beverages, topical applications, and suppositories. These products may contain THC alone, CBD alone, or some combination of both.<sup>1</sup> Often the products produced for “medical” use are the same as those used recreationally, with the exception that recreational products always contain THC, which produces the “high.” These products are neither FDA-approved nor regulated for consistency in the amount of active compounds or safe processing; they may contain potentially hazardous contaminants or adulterants such as degradation products, microbes, heavy metals, pesticides, fertilizers, glass beads, lead, tobacco, cholinergic compounds, and solvents.<sup>1</sup>
3. Rising THC Levels: The natural levels of THC and CBD in Cannabis are under 1%.<sup>3</sup> Using powerful lights, selective breeding, hydration, chemical fertilizers and special soils, the industry has created a new and more potent marijuana plant than the one of the 1960s and 1970s. The average THC content in the “new” marijuana exceeded 12% nationwide in 2014.<sup>2,3</sup> Marijuana concentrates may contain 75% or more THC;<sup>2</sup> associations of the use of such substances with addictive highs, psychosis, and other effects led one author who works in drug treatment programs to claim they are deserving of the label “hard drug,”<sup>3</sup> like heroin and LSD. Although not yet implemented, recommendations have been made to

revise the Netherlands Opium Act to place cannabis containing more than 15% THC in List 1 (hard drugs).<sup>4</sup>

## **B. Biblical**

1. The Bible as our final authority for faith and practice: We believe the Bible speaks directly into every social, cultural, and political issue. The Bible does not solve every question of policy or ethics, but it provides insights into the use of recreational marijuana.
2. The Creation mandate: Genesis relates that God gave humans dominion over all the earth with instructions to subdue it.<sup>5</sup> We have a mandate to use everything our Creator has given us to its fullest potential and greatest good—to God’s glory. But the fall<sup>6</sup> caused mankind to begin using creation for selfish and sinful purposes. The marijuana plant has potential good medicinal use for humanity. However, it also has the potential to harm individuals, society, and the environment.
3. Promotion of the Good: We believe Scripture clearly communicates God’s will that people everywhere—in all circumstances—be treated with love, humility, kindness, compassion, and self-control. This means doing good and promoting the good to our neighbors – not evil.<sup>7</sup> Society should not condone harmful behaviors including the promotion and use of hallucinogenic, potentially addicting drugs, like marijuana. Scripture cautions us to not be mastered by anything,<sup>8</sup> for when anything or person other than God is master, we are guilty of idolatry<sup>9</sup> in not loving God with all of our heart, mind, body, and soul.<sup>10</sup>
4. Biblical admonitions against an altered state of mind: Multiple passages label drunkenness as sin and an undesirable behavior.<sup>11</sup> Because an altered state of mind is intrinsic to marijuana use, it should not be used for recreational purposes.<sup>12</sup>
5. Role of authority: We believe Scripture calls Christians to be submissive to governments and authorities.<sup>13</sup> Since no government or authority is perfect or flawless, there clearly are limits to this submissiveness when the authorities and Biblical commands are in conflict.<sup>14</sup> Leaders and teachers must give an account and are judged more strictly;<sup>15</sup> physicians fill both roles and must be careful never to abuse that authority. Christians, in general, are to “set an example for the believers in speech, in conduct, in love, in faith and in purity.”<sup>16</sup> Whether or not recreational marijuana is legal in a particular jurisdiction, its use is a poor Christian witness.
6. Good stewardship of the environment according to the creation mandate:<sup>17</sup> The widespread growth of the marijuana industry, according to scientists, will have a deleterious impact on the environment due to deforestation (when grown on natural land) and excessive demands for water, power, pesticides, and fertilizers.<sup>18</sup>

## **C. Social**

1. General: Citizens of a country should consider the known and potential harmful effects of recreational marijuana on individuals and society. Experiences with the harms associated with opioids, alcohol, and tobacco are relevant to the consideration of legalization of recreational marijuana use.
2. Low-income areas may suffer disproportionately with marijuana legalization: Recreational marijuana became available in licensed stores in Colorado in 2014.<sup>19</sup> The vast majority of marijuana businesses in Denver service low-income minority neighborhoods.<sup>20</sup> In Colorado, 20 percent of people with incomes under \$25,000 consumed marijuana or THC products in 2014, while only 11 percent of those earning over \$50,000 consumed the same products.<sup>21</sup>
3. Increased accidents and deaths: Between 2013 and 2016 in Colorado, the number of drivers involved in fatal crashes increased 40 percent, and the number of drivers who tested positive for marijuana use increased 145 percent. The prevalence of testing drivers for marijuana use did not change significantly during that time.<sup>22</sup> According to the Colorado Department of Transportation, the number of fatalities with drivers testing positive for 5ng or greater THC decreased from 2016 to 2017.<sup>23</sup> However, state law does not require coroners to test deceased drivers for THC, and not all perform the test. In addition, many police agencies do not test surviving drivers for THC if he or she has already failed a simpler alcohol breath test, thus failing to document drivers who are impaired by both THC and alcohol.<sup>22</sup> Marijuana deaths and injuries have increased in Colorado as marijuana was named as the culprit in fatal fires, explosions, and suicides.<sup>21</sup>
4. Legalization leads to increased use and abuse, including among minors: All states with legal recreational marijuana had prior legalization of medical marijuana except for South Dakota (see Table at the end of the statement).<sup>24</sup> Evidence suggests that overall availability (whether from medical or recreational marijuana legalization) may lead to an increase in recreational usage among adults and minors. Examples:
  - a. One nationwide study found that medical marijuana laws are associated with “increased prevalence of illicit cannabis use and cannabis use disorders” among adults.<sup>25</sup> Marijuana use among those aged 18 to 25 is increasing in states where marijuana is legal.<sup>21</sup>
  - b. States with legal marijuana have youth rates that surpass those in states that do not.<sup>21</sup> Colorado’s first-time marijuana use among youth leads the nation, with a 65 percent increase since legalization.<sup>21</sup>
  - c. Communities with marijuana businesses have greater marijuana use rates among minors. One study from Oregon suggest that communities with a greater number of medical marijuana patients and licensed growers was associated with a higher prevalence of marijuana use among youth from 2006 to 2015. The authors suggest that changing community attitudes in these areas could be influential in teen behavior as well.<sup>26</sup> There is some evidence that 11<sup>th</sup> graders, but not 8<sup>th</sup> graders, in Oregon have a

higher marijuana use rate in communities without retail bans than in communities with bans.<sup>27</sup>

- d. In Anchorage, where marijuana was legalized in 2015, school suspensions for cannabis use and possession have increased more than 141 percent from 2015 (when legalization was employed) to 2017.<sup>21</sup>
  - e. In both Washington and Oregon, recreational marijuana retailers have been cited for selling marijuana to minors.<sup>21</sup>
5. Commercialization and social media: Individuals, small businesses, and corporations who profit from marijuana sales are looking to increase its usage. To this end, a variety of advertising venues, including social media platforms, are being used; advertising distortions regarding the benefits of marijuana are not uncommon. When advertisements or staff at marijuana dispensaries or retail stores imply benefits and/or safety (that may not be realistic), people may be enticed to use it. For example, in one cross-sectional study in Colorado, almost 70% of contacted marijuana dispensaries recommended cannabis products to treat nausea during pregnancy,<sup>28</sup> in spite of data suggesting potential harm to fetuses.<sup>1,29-33</sup> Another study examined the website marketing practices of medical and recreational marijuana dispensaries across the U.S., finding that only a few advised about side effects and contraindications. 75% did not include age verification, making products available to youth with convenient online ordering.<sup>34</sup> Exposure to medical marijuana advertising has been associated with greater marijuana use in minors.<sup>35</sup> Physicians should warn their patients about false advertising and the hype on social media.
6. Opioid addiction: There has been much hype about marijuana legalization providing a safer replacement for opioid use, with the potential to reduce opioid addiction and overdoses. Evidence is conflicting as to whether this is, in fact, the case,<sup>36</sup> and caution must be used in looking at studies in this area because of bias,<sup>37</sup> unreliability of self-reported use of drugs, the uncertainty of inferring individual substitution behaviors from state-level data relating marijuana legislation and opioid death rates,<sup>38</sup> and other methodological problems. Because societal attitudes may have changed prior to either medical or recreational legalization<sup>26</sup> and because opioid addiction is a complex issue with multiple antecedents that might represent events coinciding with marijuana legalization, it is difficult to define the associations of legalization of marijuana and opioid use. Samples of research:
- a. There are reports that opioid use has increased, rather than decreased, in states legalizing marijuana. In Colorado, for example, opioid use more than doubled among 10 to 19 year-olds after recreational legalization of marijuana.<sup>21</sup>
  - b. Legalization of marijuana in Colorado is associated with short-term reductions in opioid-related deaths.<sup>39</sup>

- c. Medical legalization appears to be associated with “reductions in both prescriptions and dosages of Schedule III (but not Schedule II) opioids received by Medicaid enrollees.”<sup>40</sup>
  - d. A study that examined opioid use in patients following musculoskeletal trauma found that self-reported marijuana use during recovery was associated with an increased amount and duration of opioid use. However, many patients in this study had misperceptions that their marijuana use reduced both their pain and the amount of opioids used.<sup>41</sup>
  - e. Not only marijuana use but also use of alcohol, illegal methadone, and other opioids was found to increase in pregnant women after legalization of recreational marijuana in Washington State.<sup>42</sup> Cannabis use was associated with an increased risk of developing nonmedical prescription opioid use and opioid use disorder.<sup>43</sup>
7. Crime: Property crimes have increased in Colorado, Alaska, and Oregon since legalization of recreational marijuana.<sup>21</sup> Black market activity has also increased post-legalization, as documented in both Colorado and Oregon; legalization makes illegal marijuana crops easier to conceal. Some of the illegal operations have been found in national forests or other environmentally-protected areas, and damage has resulted in these areas.<sup>21</sup>
8. Profits over people: The emphasis on marijuana benefits in the form of excise taxes, job creation, and corporate profits represents a misguided effort to place profits over the well-being of society and individuals. In addition, the cost to society of state regulation, law enforcement, accidents, additional health care costs, high school dropouts, juvenile use, employer-related costs, and addiction programs will be substantial.<sup>21,44</sup> One report found that “for every dollar gained in tax revenue, Coloradans spend approximately \$4.50 to mitigate the effects of legalization.”<sup>44</sup>
9. Environmental problems: Commercial production of marijuana is fraught with environmental concerns. Marijuana requires a comparatively large amount of water<sup>45</sup> and nutrients. Its cultivation is associated with land clearing, erosion, surface water diversion, use of polluting pesticides and fertilizers, and wildlife poaching.<sup>18</sup> When grown indoors, marijuana requires large amounts of energy<sup>21</sup> with “potentially negative effects on climate.”<sup>18</sup> Growing marijuana consumed 1% of the nation’s electricity in 2012, which is six times the amount of power used by the entire U.S. pharmaceutical industry. Since then, marijuana cultivation has increased dramatically.<sup>21</sup> The marijuana industry produced almost 400,000 pounds of CO2 emissions in 2016.<sup>44</sup> A majority of the marijuana consumed in the United States is grown in California, primarily outdoors. There, illegal marijuana production thrives “in sensitive watersheds...which represent habitats for several rare state- and federally listed species,” and resulting environmental damage has been documented.<sup>18</sup>

#### **D. Medical**



1. Studies: Because marijuana has been illegal in the United States until its recent, selective legalization in multiple states, and because it remains illegal federally, high-quality research regarding the safety or risks associated with current recreationally-used marijuana products (especially those containing high levels of THC) is sparse. Studies of recreational products are largely limited to self-reported use and surveys of behaviors. There are large gaps in current knowledge regarding potential risks, and most of the information is in the form of correlations without a clear understanding of causation. It is uncertain whether the potential harms are a function of THC dose or levels in the body and/or of the amounts of other plant compounds or contaminants. In spite of these difficulties, useful information about recreational use of marijuana can be gleaned from research into medical uses as well as from self-report-type studies of recreational use. Prior to presenting such findings, an outline of problems with the research in this area includes:
  - a. Poor reliability: The research itself has significant problems which limit its reliability. These include factors such as heterogeneity in the active ingredients and contaminants, lack of standard dosing, inadequate research into effects of highly potent types, and variability in the route of consuming marijuana. As an example of the latter, alterations in the number of puffs or volume inhaled may change with the potency of THC in the marijuana being smoked.<sup>46</sup> It is important to note the nature of marijuana derivatives used in any studies—the THC level, delivery method, and quantity. For example, self-reported amount of smoking provides poor data compared to use of FDA-approved standard-dose pharmaceuticals. Conclusive studies can only be done with FDA-regulated medications or pharmaceutical-grade compounds, but such products are less commonly used recreationally.
  - b. Insufficient data: There is a lack of studies on the safety, efficacy, and short-term and long-term effects of marijuana, especially the high potency forms. There are also insufficient studies on the potential drug interactions between cannabis compounds and prescription and non-prescription medications.
  - c. Impediments: Researcher bias; difficulty with achieving double-blinded studies; and obtaining properly controlled, adequately-sized, representative samples are among the methodological problems that may be anticipated in this research area.
  - d. Ethical issues: Adverse health effects of marijuana, especially use of high potency variants and smoking as the means of consumption, highlight ethical problems in exposing research subjects to harm when trying to document the safety or harm of specific consumer products.
  - e. Caution: Weak or absent evidence about harmful effects of marijuana does not mean they do not exist; caution should be used when even limited evidence suggests a possibility of harm.

2. Medical complications of marijuana use: Despite the problems with research in this area, some of the short-term and long-term effects of marijuana use are being uncovered. In all associations of marijuana use and health complications listed below, the quality of the evidence behind the conclusions is included when available. In the face of insufficient good quality data and conflicting data for some consequences of marijuana use, there may be harmful sequelae that exist but will not be fully elucidated until further research (especially long-term studies) is completed. The lack of current quality research on commonly used recreational marijuana products, especially highly potent THC substances, does not mean risk is absent. On the contrary, there is moderate to substantial evidence of health hazards with marijuana use, as listed below. Future research will be needed to provide more definitive answers to questions about effects of recreational marijuana use, and there is potential to find even more harm associated with higher level THC products.
  - a. Cancer: There is limited evidence of a statistical association between current, frequent, or chronic cannabis smoking and one type of testicular tumor, but not current sufficient evidence of associations between marijuana use and other cancer types in adults. There is minimal evidence that cannabis use during pregnancy is associated with a greater risk of cancer in offspring.<sup>1</sup>
  - b. Respiratory diseases: There is substantial evidence of an association between chronic marijuana smoking and chronic bronchitis and worsening respiratory symptoms.<sup>47</sup> There is more limited evidence of an association with chronic obstructive pulmonary disease (COPD).<sup>1</sup>
  - c. Injury and death: Substantial evidence correlates cannabis use and increased risk of motor vehicle crashes.<sup>1</sup> Among pediatric populations where cannabis use is legal, there is moderate evidence of increased risk of overdose injuries and respiratory distress.<sup>1</sup>
  - d. Pre-and perinatal exposure to maternal cannabis use: Use of marijuana during pregnancy increased in Washington State after legalization,<sup>42</sup> and is on the rise nationally.<sup>29</sup> Marijuana has potentially serious effects on the developing fetus.<sup>29,30,33</sup> A recent study documented that prenatal THC exposure adversely affects infant neurobehavior and child development up through the teen years,<sup>32</sup> but other researchers feel data is lacking to draw conclusions about long-term effects.<sup>1</sup> Overall review of current studies suggests a substantial association between maternal smoking of marijuana with lower birth weight babies and more limited evidence of a correlation with pregnancy complications for the mother and admission of the newborn to intensive care.<sup>1</sup>
  - e. Teen use: Heavy marijuana use may damage brain development in youth ages 13 to 18. There is evidence of an association between cannabis use and loss of concentration and memory, jumbled thinking, schizophrenia, and early onset paranoid psychosis.<sup>48,49</sup> The



Surgeon General issued an advisory,<sup>50</sup> noting that marijuana use is common in adolescents, second only to alcohol use. The increase in legalization of adult marijuana use may be impacting teens' declining perception of the harm from regular marijuana use during the past decade. This advisory states that frequent marijuana use during adolescence is associated with:

- 1) Alterations in portions of the brain involving "attention, memory, decision-making, and motivation." Some of these changes persist following a month of abstinence.
- 2) Impaired learning. Chronic use is correlated with a drop in IQ, lower "life satisfaction," and declining school performance that "jeopardizes professional and social achievements."
- 3) Increased school absence and drop-out, suicide attempts, and other substance use, including misuse of opioids.

The advisory concluded that "marijuana's increasingly widespread availability in multiple and highly potent forms, coupled with a false and dangerous perception of safety among youth, merits a nationwide call to action."<sup>50</sup>

- f. Psychosocial impairment: Moderate evidence correlates acute cannabis use with impaired learning, memory, and attention, and more limited evidence suggests that such impairments may be neurotoxic in that effects are sustained even after prolonged abstinence from cannabis use.<sup>1,51,52</sup> More limited associations exist between cannabis use and impaired academic achievement and outcomes, higher unemployment, lower income, and impaired social functioning.<sup>1</sup> Neurocognitive effects also include a decline in IQ, memory problems, and attentional impairments.<sup>51,52</sup>
- g. Mental health: There is substantial evidence of statistical association between cannabis use and the development of schizophrenia and other psychoses,<sup>49</sup> with greater risk occurring among more frequent users.<sup>1</sup> In two studies of patients with drug-induced psychosis (most or all being cannabis as the inciting drug), one-third to one-half of the patients later developed a schizophrenia-spectrum disorder.<sup>53,54</sup> Those with drug-induced psychosis were equally as violent as schizophrenia patients who misused drugs.<sup>53</sup> Moderate evidence associates cannabis use with increased incidence of developing depression; suicidal ideation, attempts, and completion; and social anxiety disorder. More limited evidence links cannabis use with certain increased symptoms (e.g. hallucinations) in psychotic disorders, development of bipolar disorder, the development and/or increased symptoms of anxiety disorders, and increased symptoms of posttraumatic stress disorder.<sup>1</sup>
- h. High doses or use of some high potency and/or synthetic cannabis derivatives have produced the following effects: psychosis, mood alterations, panic attacks, cognitive impairment, dizziness, cardiovascular effects (tachycardia, hypertension, palpitations), nausea, appetite changes, and others.<sup>2</sup> Mental impairment and distressing emotional

states, such as paranoia, hallucinations, and psychosis, have caused people to harm themselves and others.<sup>53,55,56</sup>

- i. Addiction: Use of marijuana can become problematic (marijuana use disorder) which may progress to addiction in some cases; when a person cannot stop using the drug despite interference with many aspects of daily life, use disorder is classified as addiction.<sup>2</sup> A 2015 study suggests that “30 percent of those who use marijuana may have some degree of marijuana use disorder.”<sup>2</sup> Marijuana use disorder is frequently “associated with dependence—in which a person feels withdrawal symptoms when not taking the drug.”<sup>2</sup> A user may be dependent but not be addicted. Studies estimate that 9 percent of adults<sup>57</sup> and 17 percent of teens who use marijuana will become dependent on it.<sup>2</sup> In 2015 roughly 4 million people in the US were found to have a marijuana use disorder, and 138,000 sought treatment.<sup>2</sup> In the same year in the Netherlands, more first-time entrants and more people overall entered treatment programs for cannabis use than for any other drug.<sup>4</sup> Although modulation of smoking technique may partially blunt the effect of use of high potency cannabis,<sup>46</sup> there is evidence that higher potency marijuana use is associated with increased severity of cannabis dependence.<sup>58</sup> There is moderate evidence of an association between cannabis use and the development of substance dependence and/ or a substance abuse disorder for other substances, including tobacco, alcohol, and illegal drugs.<sup>1,59</sup>
- j. Delivery method: Smoked substances contain carcinogens and other harmful materials which are known to produce adverse effects on the lungs and other tissues. Marijuana joints may contain “particulate matter, toxic gases, reactive oxygen species, and polycyclic aromatic hydrocarbons at a concentration possibly 20 times that of tobacco smoke.”<sup>60</sup> Histopathologic changes in bronchial inflammation that are similar to changes seen with smoking tobacco have been found in marijuana smokers.<sup>60</sup> Delivery of substances via vaping may also have harmful effects. Among sickness and deaths from vaping-related lung illnesses, many individuals have used products containing tetrahydrocannabinol (THC).<sup>61</sup>

## **E. Legal**

When recreational marijuana is legally allowed, the state has usually agreed to decriminalize,<sup>62</sup> legalize, and regulate the sale of marijuana. In most states, this means that a limited amount of marijuana (intended for personal use) can be purchased at a regulated dispensary by anyone who is 21 years or older with valid government-issued identification. A common limit to the amount of marijuana that can be purchased in states that have legalized marijuana is one ounce.<sup>63</sup> This “small” amount of marijuana is actually enough to make over 50 “joints” and represents an amount a dealer may carry.<sup>64,65</sup> Fifteen states and the District of Columbia have approved recreational marijuana (see Table below), although the United States still classifies marijuana in the same category as heroin, as a Schedule I Drug, which has “no currently accepted medical use and a high potential for abuse.”<sup>66</sup>



**F. CMDA Recommendations for the Christian Healthcare Professional**

1. Because of the health hazards and social ramifications of recreational marijuana use, CMDA does not support its legalization.
2. Because of the adverse health ramifications of marijuana use, and to provide a role model for the community that respects the Biblical principles in section B, healthcare professionals should abstain from using recreational marijuana. They should strongly advise their patients against the use of recreational marijuana, especially minors and pregnant women, due to potential harmful effects.

**G. CMDA Recommendations for the Christian Community**

1. Because of the health hazards and social ramifications of recreational marijuana use, CMDA does not support its legalization.
2. Because of the adverse health ramifications of marijuana use, and to provide a role model for the community that respects the Biblical principles in section B, Christians should abstain from using recreational marijuana.

**Table: State Recreational Marijuana Laws**

<b>States Legalizing Recreational Marijuana</b>	<b>Year passed</b>	<b>Year Medical Marijuana Legalized</b>
Alaska	2014	1998
Arizona	2020	2010
California	2016	2000
Colorado	2012 (Retail stores open 2014)	2000
District of Columbia	2014	1998
Illinois	2019	2013
Maine	2016 (Moratorium on implementing retail sales until 2018)	1999
Massachusetts	2016	2012
Michigan	2018	2008
Montana	2020	2004
Nevada	2016	2000
New Jersey	2020	2009
Oregon	2014	1998
South Dakota	2020	2020
Vermont	2018 (limited—no legal production or sales; only allows possession of up to 1 oz. Public consumption illegal)	2004
Washington	2012	1998
Guam	2019	2014

(adapted from: <http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx> and <http://www.ncsl.org/research/civil-and-criminal-justice/marijuana-overview.aspx>)

### **References and Endnotes**

1. National Academies of Sciences Engineering and Medicine. The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research. Washington, DC: The National Academies Press; 2017.
2. National Institute on Drug Abuse. Marijuana. June 2018. <https://d14rmgtrwzf5a.cloudfront.net/sites/default/files/1380-marijuana.pdf>.
3. Cort B. Weed, Inc. : The Truth About THC, The Pot Lobby, and the Commercial Marijuana Industry. Deerfield Beach, Florida: Health Communications, Inc.; 2017.
4. European Monitoring Centre for Drugs and Drug Addiction. Netherlands Country Drug Report 2017. Luxembourg: Publications Office of the European Union; 2017.
5. Genesis 1:28
6. Genesis 3
7. Matthew 22:36-40
8. 1 Cor. 6:12

9. Deut. 20:3
10. Mark 12:29-30
11. Galatians 5:19-21; 1 Timothy 3:3; Titus 1:7; Eph. 5:18
12. Opioids also may cause an altered state of mind, but relief of severe pain may still dictate their prescription for short term use. Studies are equivocal on marijuana use and pain; the discussion here is apropos to recreational use, not medical use.
13. Romans 13
14. Daniel 3
15. Hebrews 13:17 and James 3:1
16. 1 Timothy 4:12
17. Genesis 1:28
18. Carah JK, Howard JK, Thompson SE, et al. High Time for Conservation: Adding the Environment to the Debate on Marijuana Liberalization. *Bioscience* 2015; **65**(8): 822-9.
19. Ingold J. Colorado Marijuana Guide: 64 of your questions answered. Denver Post. Dec. 31, 2013; updated Feb. 16, 2016. <https://www.thecannabist.co/2013/12/31/colorado-marijuana-guide-64-answers-commonly-asked-questions/1673/>.
20. Migoya D, Baca R. Denver's pot businesses mostly in low-income, minority neighborhoods. The Denver Post. orig. pub. Jan. 2, 2016 updated Jan. 23, 2017.
21. Smart Approaches to Marijuana. Lessons Learned From Marijuana Legalization, 2018. <https://learnaboutsam.org/wp-content/uploads/2018/07/SAM-Lessons-Learned-From-Marijuana-Legalization-Digital-1.pdf>.
22. Migoya D. Exclusive: Traffic fatalities linked to marijuana are up sharply in Colorado. Is legalization to blame? The Denver Post. Orig. pub. Aug. 25, 2017 Updated Dec. 28, 2018.
23. Colorado Department of Transportation. Drugged Driving Statistics: Cannabis-Involved Fatalities in Colorado. <https://www.codot.gov/safety/algorithm-and-impaired-driving/druggeddriving/safety/algorithm-and-impaired-driving/druggeddriving/statistics> (accessed Jan. 9 2019).
24. National Conference of State Legislatures. State Medical Marijuana Laws. 1/23/2019. <http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx> (accessed Feb. 3 2019).
25. Hasin DS, Sarvet AL, Cerda M, et al. US Adult Illicit Cannabis Use, Cannabis Use Disorder, and Medical Marijuana Laws 1991-1992 to 2012-2013. *JAMA Psychiatry* 2017; **74**(6): 579-88.
26. Paschall MJ, Grube JW, Biglan A. Medical marijuana legalization and marijuana use among youth in Oregon. *The Journal of Primary Prevention* 2017; **38**(3): 329-41.
27. Hatch A. Researchers Tracking Public Health Impacts of Marijuana Legalization. April 14, 2017. <https://nursing.wsu.edu/2017/04/14/13255/> (accessed Feb. 10 2019).
28. Dickson B, Mansfield C, Guiahi M, et al. Recommendations From Cannabis Dispensaries About First-Trimester Cannabis Use. *Obstetrics & Gynecology* 2018; **131**(6): 1031-8.
29. Adashi EY. Brief Commentary: Marijuana Use During Gestation and Lactation—Harmful Until Proved SafeMarijuana Use During Gestation and Lactation. *Annals of Internal Medicine* 2019; **170**(2): 122-.

30. Grant KS, Petroff R, Isoherranen N, Stella N, Burbacher TM. Cannabis use during pregnancy: Pharmacokinetics and effects on child development. *Pharmacol Ther* 2018; **182**: 133-51.
31. Huizink AC. Prenatal cannabis exposure and infant outcomes: overview of studies. *Prog Neuropsychopharmacol Biol Psychiatry* 2014; **52**: 45-52.
32. Jansson LM, Jordan CJ, Velez ML. Perinatal Marijuana Use and the Developing Child. *JAMA: Journal of the American Medical Association* 2018; **320**(6): 545-6.
33. Volkow ND, Compton WM, Wargo EM. The Risks of Marijuana Use During Pregnancy. *JAMA* 2017; **317**(2): 129-30.
34. Cavazos-Rehg PA, Krauss MJ, Cahn E, et al. Marijuana Promotion Online: an Investigation of Dispensary Practices. *Prev Sci* 2018.
35. D'Amico EJ, Rodriguez A, Tucker JS, Pedersen ER, Shih RA, D'Amico EJ. Planting the seed for marijuana use: Changes in exposure to medical marijuana advertising and subsequent adolescent marijuana use, cognitions, and consequences over seven years. *Drug & Alcohol Dependence* 2018; **188**: 385-91.
36. National Institute on Drug Abuse. What is medical marijuana? June 2018 June 2018. <https://www.drugabuse.gov/publications/drugfacts/marijuana-medicine> (accessed February 5 2019).
37. Example of bias: An article by Lucas (Lucas P. Rationale for cannabis-based interventions in the opioid overdose crisis. *Harm Reduction Journal* 2017; 14: 1-6) advocated for medical and recreational legalization of marijuana as a way to reduce opioid addiction and overdoses. However, the Methods section did not reveal the mechanism of article selection nor any other methods, no conflicting data was mentioned at all, and the author's conflict of interest was noted in small print at the end of the article—he is VP and stockholder with a federally authorized medical cannabis production & research company in Canada.
38. Caputi TL, Sabet KA. Population-level analyses cannot tell us anything about individual-level marijuana-opioid substitution. *American Journal of Public Health* 2018; **108**(3): e12-e.
39. Livingston MD, Barnett TE, Delcher C, Wagenaar AC. Recreational Cannabis Legalization and Opioid-Related Deaths in Colorado, 2000-2015. *American Journal of Public Health* 2017; **107**(11): 1827-9.
40. Liang D, Bao Y, Wallace M, Grant I, Shi Y. Medical cannabis legalization and opioid prescriptions: evidence on US Medicaid enrollees during 1993-2014. *Addiction* 2018; **113**(11): 2060-70.
41. Bhashyam AR, Heng M, Harris MB, Vrahas MS, Weaver MJ. Self-Reported Marijuana Use Is Associated with Increased Use of Prescription Opioids Following Traumatic Musculoskeletal Injury. *J Bone Joint Surg Am* 2018; **100**(24): 2095-102.
42. Grant TM, Graham JC, Carlini BH, Ernst CC, Brown NN. Use of marijuana and other substances among pregnant and parenting women with substance use disorders: Changes in Washington state after marijuana legalization. *Journal of Studies on Alcohol and Drugs* 2018; **79**(1): 88-95.
43. Olfson M, Wall MM, Shang-Min L, Blanco C. Cannabis Use and Risk of Prescription Opioid Use Disorder in the United States. *American Journal of Psychiatry* 2018; **175**(1): 47-53.



44. Centennial Institute. Economic and Social Costs of Legalized Marijuana: Colorado Christian University, 2018.
45. Marijuana requires more water for growth than many other plants. It takes about 22 liters of water a day per marijuana plant in northern CA. (Carah JK, Howard JK, Thompson SE, et al. High Time for Conservation: Adding the Environment to the Debate on Marijuana Liberalization. *Bioscience* 2015; 65(8): 822-9.) Another estimate for marijuana is 900 gallons of water per plant per season (<https://www.marijuanaventure.com/report-on-water-usage/>). Using estimates of 22,000 corn plants/acre, a yield of 130 bushels/acre, water requirements of 3000 gallons per bushel, and a growing season of 60 days (estimates to err on the side of the highest water needs per plant), a corn plant does not require more than 18 gallons of water per plant per season, or 1 liter per day. An average adult requires about 2.5 liters of water per day.
46. Pol P, Liebrechts N, Brunt T, et al. Cross-sectional and prospective relation of cannabis potency, dosing and smoking behaviour with cannabis dependence: an ecological study. *Addiction* 2014; **109**(7): 1101-9.
47. Tashkin DP. Marijuana and Lung Disease. *CHEST* 2018; **154**(3): 653-63.
48. Dr. Phil Tibbo, one of the leaders in the medical field and initiator of Nova Scotia's Weed Myths campaign targeting teens, has seen firsthand evidence of what heavy use can do as director of Nova Scotia's Early Psychosis Program. His brain research shows that regular marijuana use leads to an increased risk of developing psychosis and schizophrenia, effectively exploding popular and rather blasé notions that marijuana is "harmless" to teens and "recreational use" is simply "fun and healthy." Multiple researchers have all come to the same conclusion: the younger the brain, the worse the effects in both the short-term and long-term. (Tibbo P, Crocker CE, Lam RW, Meyer J, Sareen J, Aitchison KJ. Implications of Cannabis Legalization on Youth and Young Adults. *Canadian Journal of Psychiatry* 2018; 63(1): 65-71.)
49. Malone DT, Hill MN, Rubino T. Adolescent cannabis use and psychosis: epidemiology and neurodevelopmental models. *British Journal of Pharmacology* 2010; **160**(3): 511-22.
50. Adams J. U.S. Surgeon General's Advisory: Marijuana Use and the Developing Brain. August 29, 2019. <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html> (accessed Dec. 16, 2019).
51. Harvey PD. Smoking Cannabis and Acquired Impairments in Cognition: Starting Early Seems Like a Really Bad Idea. *Am J Psychiatry* 2019; **176**(2): 90-1.
52. Morin J-FG, Afzali MH, Bourque J, et al. A Population-Based Analysis of the Relationship Between Substance Use and Adolescent Cognitive Development. *American Journal of Psychiatry* 2019; **176**(2): 98-106.
53. Crebbin K, Mitford E, Paxton R, Turkington D. First-episode drug-induced psychosis: A medium term follow up study reveals a high-risk group. *Social Psychiatry and Psychiatric Epidemiology* 2009; **44**(9): 710-5.
54. Arendt M, Rosenberg R, Foldager L, Perto G, Munk-Jørgensen P. Cannabis-induced psychosis and subsequent schizophrenia-spectrum disorders: Follow-up study of 535 incident cases. *The British Journal of Psychiatry* 2005; **187**(6): 510-5.

55. Korkmaz Sshc, Turhan L, İzci F, Sağlam S, Atmaca M. Sociodemographic and clinical characteristics of patients with violence attempts with psychotic disorders. *European Journal of General Medicine* 2017; **14**(4): 94-8.
56. Douglas KS, Guy LS, Hart SD. Psychosis as a Risk Factor for Violence to Others: A Meta-Analysis. *Psychological Bulletin*; 2009. p. 679-706.
57. Lopez-Quintero C, Perez de los Cobos J, Hasin DS, et al. Probability and predictors of transition from first use to dependence on nicotine, alcohol, cannabis, and cocaine: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). *Drug and Alcohol Dependence* 2011; **115**(1-2): 120-30.
58. Freeman TP, Winstock AR. Examining the profile of high-potency cannabis and its association with severity of cannabis dependence. *Psychological Medicine* 2015; **45**(15): 3181-9.
59. Blanco C, Hasin DS, Wall MM, et al. Cannabis use and risk of psychiatric disorders: Prospective evidence from a US national longitudinal study. *JAMA Psychiatry* 2016; **73**(4): 388-95.
60. Caviedes I, Labarca G, Silva CF, Fernandez-Bussy S. Marijuana Use, Respiratory Symptoms, and Pulmonary Function. *Annals of Internal Medicine* 2019; **170**(2): 142-.
61. Centers for Disease Control and Prevention. Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products. December 12, 2019.  
[https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/severe-lung-disease.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html).
62. Twenty-two states and the District of Columbia have decriminalized small amounts of marijuana. (National Conference of State Legislatures. Marijuana Overview. Dec. 14, 2018. <http://www.ncsl.org/research/civil-and-criminal-justice/marijuana-overview.aspx> (accessed Feb. 10 2019).) This makes possession of a small amount of marijuana (usually an ounce) a civil, rather than criminal offense. The offender usually must pay a fine and sometimes is required to take a class on drug abuse. After multiple civil infractions, some states make possession a criminal offense. (Hill KP. Marijuana : The Unbiased Truth About the World's Most Popular Weed. Center City, Minnesota: Hazelden Publishing; 2015.)
63. Recreational Marijuana Laws by State--Updated. <https://usaweed.org/recreational-marijuana-laws-state/Feb>. 12, 2019).
64. Hill KP. Marijuana : The Unbiased Truth About the World's Most Popular Weed. Center City, Minnesota: Hazelden Publishing; 2015.
65. For more information on pros and cons of decriminalization, see: Hill KP. Marijuana : The Unbiased Truth About the World's Most Popular Weed. Center City, Minnesota: Hazelden Publishing; 2015.
66. DEA. Drug Scheduling. <https://www.dea.gov/drug-scheduling> (accessed Jan. 4, 2019 2019).