



# **MULTIPLE SCLEROSIS**

**AND**

# **MEDICAL CANNABIS**



AmericansFor  
SafeAccess

Advancing Legal Medical Marijuana Therapeutics and Research

# A Note from Americans for Safe Access

We are committed to ensuring safe, legal availability of marijuana for medical uses. Today over one million Americans are legally using medical marijuana—or "cannabis," as it is more properly called—under the care of their medical professional, and nearly half the country lives in a state where this treatment is an option. This publication series is intended to help medical professionals, patients and policymakers better understand how cannabis may be used safely and effectively as a treatment for many medical conditions. You will find information on:

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While the federal prohibition of cannabis has limited modern clinical research and resulted in considerable misinformation, a scientific consensus on its therapeutic value has emerged, based on a growing body of successful clinical trials and preclinical research. The experience of patients, medical professionals and research has revealed that cannabis can safely treat a remarkably broad range of medical conditions, often more effectively than conventional pharmaceutical drugs. For some of the most difficult to treat conditions, such as multiple sclerosis and neuropathic pain, cannabis often works when nothing else does.

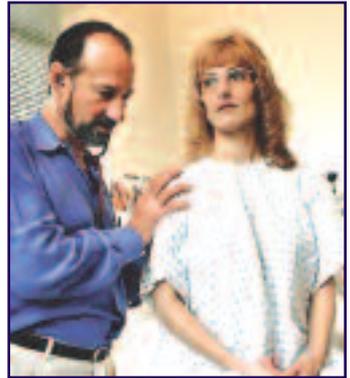
Many of its therapeutic uses are well known and documented, and medical researchers are learning more each day. Cannabis and its constituent components show potential to fight tumors, autoimmune disorders, and serious neurological conditions for which treatment options are limited. As of July 2015, 23 states and the District of Columbia have laws allowing its use under a doctor’s supervision, and cannabis or a dose-controlled whole-plant extract of it is available by prescription in 11 countries and approved for 13 more.

This publication is only a starting point for the consideration of applying cannabis therapies to specific conditions; it is not intended to replace the training and expertise of medical professionals with regard to medicine, or attorneys with regard to the law. But as advocates for the hundreds of thousands of patients who have found relief with cannabis, we know there are millions more for whom it may be the best medicine. For more information, see **AmericansForSafeAccess.org** or call **1-888-929-4367..**

## Why Cannabis is Legal to Recommend

Medical professionals have a legal right to recommend cannabis as a treatment in any state, as protected by the First Amendment. That was established by a 2004 United States Supreme Court decision to uphold earlier federal court rulings that doctors and their patients have a fundamental Constitutional right to freely discuss treatment options. State rules for qualifying an individual patient for legal protections when using medical cannabis differ as to who may make the recommendation and for what conditions, as well as how that recommendation is communicated to state authorities. Medical professionals and patients should familiarize themselves with the laws and regulations in their state. ASA provides state-by-state resources at: [AmericansForSafeAccess.org/state\\_by\\_state\\_recommending\\_cannabis](http://AmericansForSafeAccess.org/state_by_state_recommending_cannabis).

Under federal law, cannabis may not be prescribed, but its therapeutic use can be recommended without any legal jeopardy. The court rulings that protect medical professionals stem from a lawsuit brought by a group of doctors and patients led by AIDS specialist Dr. Marcus Conant. The suit was filed in response to federal officials who, within weeks of California voters legalizing medical cannabis in 1996, had threatened to revoke the prescribing privileges of any physicians who recommended cannabis to their patients for medical use.<sup>1</sup> Dr. Conant contended that such a policy would violate the First Amendment, and the federal courts agreed.<sup>2,3</sup>



**Angel Raich & Dr. Frank Lucido**

**What doctors may and may not do.** In *Conant v. Walters*,<sup>4</sup> the Ninth Circuit Court of Appeals held that the federal government could neither punish nor threaten a doctor merely for recommending the use of cannabis to a patient.<sup>5</sup> But it remains illegal for a doctor to "aid and abet" a patient in obtaining cannabis.<sup>6</sup> This means physicians and other medical professionals may discuss the pros and cons of medical cannabis with any patient, and recommend its use whenever appropriate. They may put that in writing or otherwise participate in state medical cannabis programs without fear of legal reprisal.<sup>7</sup> This is true even when the recommending medical professional knows the patient will use the recommendation to obtain cannabis through a state program.<sup>8</sup> What physicians may not do is prescribe or provide cannabis directly to a patient<sup>9</sup> or say where or how to obtain it.<sup>10</sup>

**Patients protected under state law, not federal.** As of July 2014, 23 states and the District of Columbia provide legal protections for qualified individuals participating in their state medical cannabis program. However, all use of cannabis remains illegal under federal law, and in June 2005, the U.S. Supreme Court in *Gonzales v. Raich* ruled that state medical cannabis laws do not provide protections for patients and providers from federal prosecution.<sup>11</sup> Under the Obama Administration, the Department of Justice has

issued three memos providing guidance to federal prosecutors, each indicating that individual patients and caregivers should not be federal enforcement priorities. The latest memo indicates enforcement should be left to states so long as they have effective regulations in place for use and distribution. An analysis by ASA of existing state laws and local regulations found that all reflect the same general enforcement priorities as the 2013 federal guidelines.<sup>12</sup>

For assistance with determining how best to write or obtain a legal recommendation for cannabis, please contact ASA at 1-888-929-4367.

## **Medical Professionals Say Cannabis is Medicine**

Thousands of studies published in peer-reviewed journals indicate cannabis has medical value in treating patients with such serious conditions as AIDS, glaucoma, cancer, epilepsy, and chronic pain, as well as a variety of such neurological disorders as multiple sclerosis, Parkinsonism, and ALS.

A 2013 poll conducted by the *New England Journal of Medicine* found that three out of four clinicians would recommend the use of medical cannabis for a hypothetical cancer patient.<sup>13</sup> The use of medical cannabis has been endorsed by numerous professional organizations, including the American Academy of Family Physicians, the American Public Health Association, and the American Nurses Association. Its use is supported by such leading medical publications as *The New England Journal of Medicine* and *The Lancet*. The International Cannabinoid Research Society was formally incorporated as a scientific research organization in 1991 with 50 members; as of 2014, there are nearly 500 around the world. The International Association for Cannabinoid Medicines (IACM), founded in 2000, publishes a bi-weekly bulletin and holds international symposia to highlight emerging research in cannabis therapeutics.

The safety and efficacy of cannabis has been attested to by numerous government studies and reports issued over the past 70 years. These include the 1944 LaGuardia Report, the Schafer Commission Report in 1972, a review commissioned by the British House of Lords in 1997, the Institutes of Medicine report of 1999, research sponsored by Health Canada, and numerous studies conducted in the Netherlands, where cannabis has been quasi-legal since 1976 and is currently available from pharmacies by prescription.

## **Scientific Research Advances**

While modern research has until recently been sharply limited by federal prohibition, the last few decades have seen rapid change. More than 15,000 modern peer-reviewed scientific articles on the chemistry and pharmacology of cannabis and cannabinoids have been published, as well as more than 2,000 articles on the body's natural cannabinoids and the

receptors they attach to.<sup>14</sup> The discovery of the endocannabinoid system (ECS) opened a door to new understandings of how the body regulates internal systems and how the phytocannabinoids found in the cannabis plant interact with it. Endocannabinoids are crucial to bioregulation, and evidence suggests they play a role in inflammation, insulin sensitivity, and fat and energy metabolism, as well as chronic neurologic and immune conditions. The cannabinoid receptors CB1 and CB2 are identified targets for treating a remarkable variety of serious medical conditions.<sup>15-18</sup>

A 2009 review of controlled clinical studies with medical cannabis conducted over a 38-year period found that “nearly

all of the 33 published controlled clinical trials conducted in the United States have shown significant and measurable benefits in subjects receiving the treatment.”<sup>19</sup> The review's authors note that the more than 100 different cannabinoids in cannabis have the capacity for analgesia through neuromodulation in ascending and descending pain pathways, neuroprotection, and anti-inflammatory mechanisms. Research into the therapeutic potential of cannabis and cannabinoids has expanded considerably in the past decade. As of May 2014, the Center for Medicinal Cannabis Research, a state-funded \$8.7-million research effort at University of California campuses, had completed 13 approved studies. Of those, seven published double-blind, placebo-controlled studies examined pain relief, and each showed cannabis to be effective.<sup>20</sup>

No adverse health effects related to medical cannabis use have been reported, even among the most seriously ill and immune-compromised patients. Research on CD4 immunity in AIDS patients found no negative effects to the immune systems of patients undergoing cannabis therapy in clinical trials.<sup>21</sup> A complete health assessment in 2002 of four of the patients enrolled in the U.S. Investigational New Drug program who had used cannabis daily for between 11 and 27 years found cannabis to be clinically effective for each with no negative health consequences.<sup>22</sup>

In the United Kingdom, GW Pharmaceuticals has been conducting clinical trials for more than a decade with its cannabis medicine, Sativex® Oromucosal Spray, a controlled-dose whole-plant extract. GW's Phase II and Phase III trials show positive results for the relief of neurological pain related to: multiple sclerosis (MS), spinal cord injury, peripheral nerve

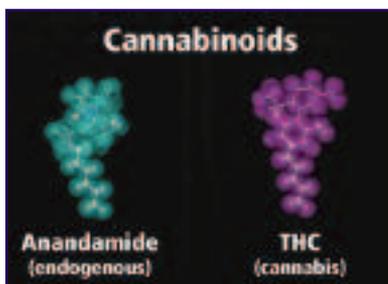
## INSTITUTE OF MEDICINE

**“Nausea, appetite loss, pain and anxiety . . . all can be mitigated by marijuana.... For patients, such as those with AIDS or undergoing chemotherapy, who suffer simultaneously from severe pain, nausea, and appetite loss, cannabinoid drugs might offer broad spectrum relief not found in any other single medication.”**

**Marijuana and Medicine:  
Assessing the Science Base, 1999**

injury (including peripheral neuropathy secondary to diabetes mellitus or AIDS), central nervous system damage, neuroinvasive cancer, dystonias, cerebral vascular accident, and spina bifida. They have also shown cannabinoids to be effective in clinical trials for the relief of pain and inflammation in rheumatoid arthritis and also pain relief in brachial plexus injury.<sup>23-26</sup>

Sativex® was approved in Canada for symptomatic relief of neuropathic pain in 2005, in 2007 for patients with advanced cancer whose pain is not fully alleviated by opiates, and in 2010 for spasticity related to multiple sclerosis. As of 2014, Sativex has been made available or approved for named patient prescription use in 24 countries, including the UK, Spain, Italy and Germany.



In the US, GW was granted an import license for Sativex® by the DEA following meetings in 2005 with the FDA, DEA, the Office for National Drug Control Policy, and the National Institute for Drug Abuse. Sativex® is currently an investigational drug in FDA-approved clinical trials as an

adjunctive analgesic treatment for patients with advanced cancer whose pain is not relieved by opioids. In 2013, GW Pharmaceuticals received FDA approval to test a highly purified cannabinoid extract (cannabidiol or CBD) named Epidiolex® on a limited number of US children with seizure disorders. As of January 2014, seven US pediatric epilepsy specialists have been approved to treat 125 children with Dravet syndrome, Lennox-Gastaut syndrome, and other pediatric epilepsy syndromes.

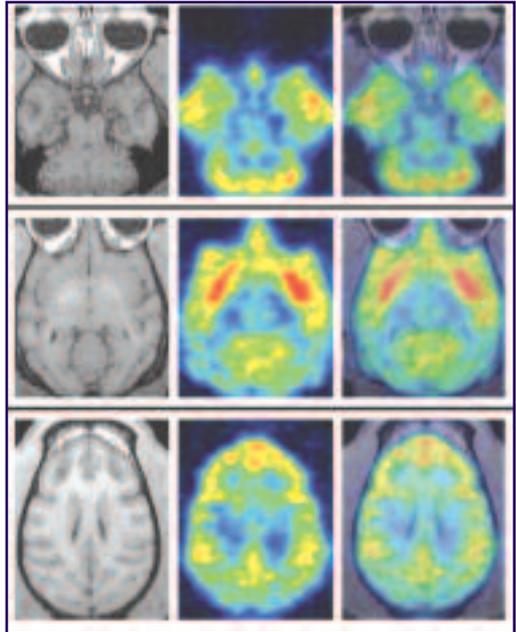
## Multiple Sclerosis and Cannabis

An estimated 350,000 people in the United States are living with multiple sclerosis (MS), a debilitating and sometimes fatal disorder of the central nervous system. Because physicians are not required to report new cases, and because symptoms can go undetected for some time, the prevalence and incidence rate of MS can only be estimated. Nonetheless, MS is the most common debilitating neurological disease of young people, typically appearing between the ages of 20 and 40, affecting approximately twice as many women as men. Veterans appear to be significantly more likely to develop MS than the general population.

Members of the US military who served in the Gulf War era have one of the highest incidence rates of MS ever found (between 9.6 per 100,000 per year), according to a 2012 study of all military medical records from the time period. Researchers discovered that those who served in the Air Force and Army have double the rate of those who served in the Marines,

and women in all services have more than triple the rate of their male counterparts.<sup>27</sup>

Another 2012 study of US military medical records from 2000-2009 found an even higher incidence rate of MS among service members of 12.9 per 100,000 person-years, the highest disease rate ever reported for MS. Researchers note that the increase incidence of MS among military personnel have manifested over the past two to three generations, speculating that "there may be unique environmental exposures within the military that increase ones risk for multiple sclerosis above that of the general population."<sup>28</sup>



**Cannabinoid receptors in the brain**

MS is a disease of the central nervous system (CNS) that manifests due to the immune system attacking the myelin, the protective covering around nerve fibers such as neurons and dendrites. As the disease progresses, normal neurotransmission is inhibited and additional symptoms develop, such as pain, spasms, muscle spasticity, limb tremor, fatigue, and incontinence. All of the disease symptoms have a large negative impact on the quality of life of MS patients. MS most frequently presents at onset as a relapsing and remitting disorder, where symptoms come and go.

MS exacerbations appear to result from abnormal immune activity that causes inflammation and the destruction of myelin in the brain or spinal cord. After repeated attack from the immune system, nerves lose plasticity, which creates stress in nerve tissue. This stress leaves nerve tissue vulnerable to progressive damage and death.

Current treatment of MS is primarily symptomatic, focusing on such problems as spasticity, pain, fatigue, bladder problems and depression. Although symptom-specific treatments exist, these are often associated with adverse side effects. This has prompted many people who suffer from MS to seek alternative therapies. Cannabinoids, the active ingredients in cannabis, have demonstrated the ability to control aspects of MS disease progression

Anecdotal reports on the self medication of cannabis to treat the symptoms of MS are supported by recent advances in the understanding of the biology of cannabis and the cannabinoid receptors.<sup>29-31</sup> Controlled studies have found that cannabis and cannabinoids can help manage such symptoms as pain, spasms, spasticity, and incontinence.

The leading effects of prolonged neurodegeneration in MS cause permanent disabilities. This neurodegeneration has yet to be effectively treated. Initial neurodegeneration occurs with inflammation, and cannabis and cannabinoids have been shown to have neuroprotective effects during immune attacks on the CNS.<sup>32-36</sup>

## **Surveys and Clinical Research on Cannabis Use for MS**

Numerous case studies, surveys and double-blind studies have reported improvement in patients treated with cannabinoids for symptoms including spasticity, chronic pain, tremor, sexual dysfunction, bowel and bladder dysfunctions, vision dimness, dysfunctions of walking and balance (ataxia), and memory loss.<sup>37-49</sup>

A 1998 House of Lords report concludes, "We have seen enough evidence to convince us that a doctor might legitimately want to prescribe cannabis to relieve...the symptoms of multiple sclerosis and that the criminal law ought not to stand in the way." Many of those who testified for that report shared the British Medical Association's view that "[a] high priority should be given to carefully controlled trials of cannabinoids in patients with chronic spastic disorders."<sup>50</sup> The British Medical Association has requested that the synthetic cannabinoids Nabilone and Dronabinol be officially licensed for use in MS and other spastic disorders.

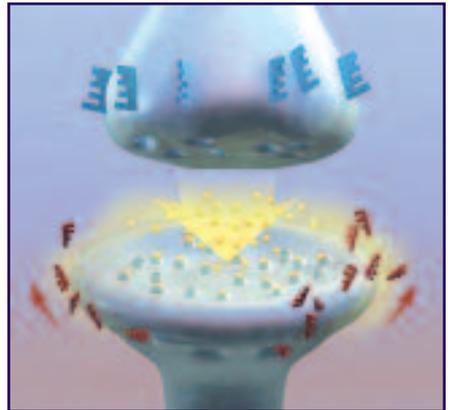
A 2005 survey of MS patients in the UK found that 43 percent of respondents used cannabis therapeutically. Among them, nearly three quarters said that cannabis mitigated their spasms, and more than half said it alleviated their pain.<sup>51</sup> A Canadian survey published in August 2003 in the Canadian Journal of Neurological Sciences reported that 96 percent of MS patients believe that cannabis is therapeutically useful for treating the disease. Of those who admitted using cannabis medicinally, the majority found it to be beneficial, particularly in the treatment of chronic pain, spasticity, and depression.<sup>52</sup> The accompanying editorial states, "This is an exciting time for cannabinoid research. There is a growing amount of data to suggest that cannabis (marijuana) can alleviate symptoms like muscle spasticity and pain in patients with MS."<sup>53</sup>

The published results of a number of GW Pharmaceuticals Phase III studies show that pain relief was significantly superior to placebo and there were subjective improvements in spasm frequency, bladder control, spasticity and sleep. The authors of one such trial concluded that "the results of this study suggest that Sativex® is an effective treatment for spasticity

associated with MS." In April 2005, GW announced that it had received approval to distribute Sativex in Canada for the symptomatic relief of neuropathic pain in adults with Multiple Sclerosis.<sup>54</sup>

A U.K. study published in the journal *Lancet* looked at 630 multiple sclerosis patients after 15 weeks of orally delivered treatment. Fifty-seven percent of the patients taking a whole cannabis extract said their pain had eased, compared with 50 percent who took capsules containing THC and 37 percent who were given placebo capsules. Patients also reported improved sleep and fewer or less intense muscle spasms and stiffness. Those who could walk were significantly more mobile as measured by a walking test. The investigators also noted there were fewer relapses in the treatment groups; however, the study was not designed to investigate impact on relapses.<sup>55</sup> An accompanying editorial suggests that current data supporting the benefit of cannabinoid treatment of spasticity in MS is now as strong as for any available pharmaceutical agent.<sup>56</sup>

Pain is a common problem in MS, and many patients who report using cannabis say it helps.<sup>57,58</sup> In clinical trials, an oral cannabis extract was not initially shown not to be effective; however, pain relief became evident after long-term treatment. This may be due to the neuroprotective effects of plant cannabinoids that promote the repair of damaged pathways.



**CB1 receptor**

Studies have described the role of CB1 and CB2 cannabinoid receptors in regulating CNS autoimmune inflammation and other factors that can contribute to MS symptoms.<sup>59,60</sup> Researchers have an animal model for MS, called experimental allergic encephalomyelitis (EAE), that allows testing for symptom suppression and disease progression. Animal studies in transgenic mice without cannabinoid receptors has shown that the cannabinoid system play an important role in MS. Mice lacking the CB1 receptor, experience rapid neurodegeneration in a model of MS. Pre-clinical reports have found that cannabinoids lessened both tremor and spasticity in mice with EAE. The CB2 receptor also influences inflammatory events in animal models. Mice lacking the CB2 receptor exhibit increased severity of MS compared to normal mice.<sup>61</sup> It is thought the CB2 receptor may control the production of inflammatory signals and immune cell migration into tissue that are part of MS. These studies of animal models of MS have greatly expanded our understanding of MS and cannabinoid biology. Emerging

research suggests that cannabinoids have the potential to measurably lessen MS symptoms and may also slow the progression of the disease.

In addition to studying the potential role of marijuana and its derivatives in the treatment of MS-related symptoms, scientists are exploring the potential of cannabinoids to inhibit neurodegeneration. A study that the American MS Society called "interesting and potentially exciting" demonstrated that cannabinoids were able to slow the disease process in mice by offering neuroprotection against EAE. After analyzing the findings, authors at London's Institute of Neurology concluded, "In addition to symptom management, cannabis may also slow down the neurodegenerative processes that ultimately lead to chronic disability in multiple sclerosis and probably other diseases."<sup>62</sup>

## **Efficacy and side effects: how cannabis compares**

A recent review of all available medications for MS concluded that "forthcoming information relating to the use of cannabinoids in MS may result in there being better evidence of the effectiveness of new treatments than of any of the currently used drugs."<sup>63</sup>

Over 40 medicines are listed by the Multiple Sclerosis Society as commonly used by MS patients. Symptoms and medications prescribed include "acute exacerbations" (Decadron, Solu-Medrol); depression (Effexor, Paxil, Prozac, Wellbutrin, Zoloft); erectile dysfunction (Papaverine, Levitra, MUSE, Prostin VR, Viagra); fatigue (Amantadine, Cylert, Provigil, Prozac); itching (Atarax); nausea (Antivert); pain (Aventyl, Dilantin, Elavil, Neurontin, Gabapentin, Pamelor, Tegretol); urinary tract infections (Bactrim, Cipro, Hiprex, Macrodantin, Nitrofurantoin, Pyridium); and urinary frequency or bladder dysfunction (DDAVP, Ditropan, Oxytrol, Pro-Banthine, Tofranil). Interferon-based medicines are also prescribed as "disease-modifying agents."

Drugs commonly prescribed for muscle spasticity and tremor include Klonopin, Dantrium, Baclofen, Zanaflex and Valium. Klonopin (Clonazepam) and Valium (diazepam) are both **benzodiazepines**, central nervous system (CNS) depressants manufactured by Roche. Overdoses of these medications, especially when taken with alcohol, may lead to unconsciousness and death. They frequently cause people to become drowsy, dizzy, lightheaded, clumsy, or unsteady. Other common side effects include slurred speech; abdominal cramps or pain; blurred vision or other changes in vision; changes in sexual drive or performance; gastrointestinal changes, including constipation or diarrhea; dryness of mouth; fast or pounding heartbeat; muscle spasm; trouble with urination; trembling. Studies in animals have shown that clonazepam and diazepam can cause birth defects or other problems, including death of the animal

fetus. Overuse of clonazepam during pregnancy may cause the baby to become dependent on it, and it may pass into breast milk and cause drowsiness, slow heartbeat, shortness of breath, or troubled breathing in nursing babies.

**Dantrium** is a muscle relaxant manufactured by Proctor & Gamble. It has been shown to cause cancer and non-cancerous tumors in animals, can cause liver damage, and should not be taken with alcohol. Common side effects include diarrhea, dizziness, drowsiness, weakness, nausea, unusual tiredness, abdominal cramps, blurred or double vision, chills and fever, constipation, frequent urination, headache, loss of appetite, speech difficulties, sleep difficulties, and nervousness.

**Baclofen** may be administered orally or with a surgically implanted pump in the spine. Its side effects include high fever, altered mental status, spasticity that is worse than was experienced prior to starting ITB Therapy, and muscle rigidity. Symptoms of overdose include shortness of breath or troubled breathing, vomiting, seizures, loss of consciousness, and coma. Abruptly stopping implanted baclofen has been fatal.

**Cannabis:** By comparison, the side effects associated with cannabis are typically mild and are classified as "low risk." Euphoric mood changes are among the most frequent side effects. Cannabinoids can exacerbate schizophrenic psychosis in predisposed persons. Cannabinoids impede cognitive and psychomotor performance, resulting in temporary impairment. Chronic use can lead to the development of tolerance. Tachycardia and hypotension are frequently documented as adverse events in the cardiovascular system. A few cases of myocardial ischemia have been reported in young and previously healthy patients. Inhaling the smoke of cannabis cigarettes induces side effects on the respiratory system. Cannabinoids are contraindicated for patients with a history of cardiac ischemias. In summary, a low risk profile is evident from the literature available. Serious complications are very rare and are not usually reported during the use of cannabinoids for medical indications.

## **Is cannabis safe to recommend?**

"The smoking of cannabis, even long term, is not harmful to health...." So began a 1995 editorial statement of Great Britain's leading medical journal, *The Lancet*. The long history of human use of cannabis also attests to its safety—nearly 5,000 years of documented use without a single death. In the same year as the *Lancet* editorial, Dr. Lester Grinspoon, a professor emeritus at Harvard Medical School who has published many influential books and articles on medical use of cannabis, had this to say in a 1995 article in the *Journal of the American Medical Association*:

One of marijuana's greatest advantages as a medicine is its remark-

able safety. It has little effect on major physiological functions. There is no known case of a lethal overdose; on the basis of animal models, the ratio of lethal to effective dose is estimated as 40,000 to 1. By

comparison, the ratio is between 3 and 50 to 1 for secobarbital and between 4 and 10 to 1 for ethanol. Marihuana is also far less addictive and far less subject to abuse than many drugs now used as muscle relaxants, hypnotics, and analgesics. The chief legitimate concern is the effect of smoking on the lungs. Cannabis smoke carries even more tars and other particulate matter than

**FEDERATION OF AMERICAN SCIENTISTS**

**"Based on much evidence, from patients and doctors alike, on the superior effectiveness and safety of whole cannabis compared to other medications,... the President should instruct the NIH and the FDA to make efforts to enroll seriously ill patients whose physicians believe that whole cannabis would be helpful to their conditions in clinical trials"**

**FAS Petition on Medical Marijuana, 1994**

tobacco smoke. But the amount smoked is much less, especially in medical use, and once marihuana is an openly recognized medicine, solutions may be found; ultimately a technology for the inhalation of cannabinoid vapors could be developed."<sup>64</sup>

The technology Dr. Grinspoon imagined in 1995 now exists in the form of "vaporizers," (which are widely available through stores and by mail-order) and recent research attests to their efficacy and safety.<sup>65</sup> Additionally, pharmaceutical companies have developed sublingual sprays and capsule forms of the drug. Patients and doctors have found other ways to avoid the potential problems associated with smoking, though long-term studies of even the heaviest users in Jamaica, Turkey and the U.S. have not found increased incidence of lung disease or other respiratory problems. A decade-long study of 65,000 Kaiser-Permanente patients comparing cancer rates among non-smokers, tobacco smokers, and cannabis smokers found that those who used only cannabis had a slightly lower risk of lung and other cancers as compared to non-smokers.<sup>66</sup> Similarly, a study comparing 1,200 patients with lung, head and neck cancers to a matched group with no cancer found that even those cannabis smokers who had consumed in excess of 20,000 joints had no increased risk of cancer.<sup>67</sup>

Dr. Grinspoon notes, "the greatest danger in medical use of marihuana is its illegality, which imposes much anxiety and expense on suffering people, forces them to bargain with illicit drug dealers, and exposes them to the threat of criminal prosecution." This was also the conclusion reached by the House of Lords, which recommended rescheduling and decrimi-

nalization.

In January 2013, the American Herbal Products Association (AHPA), which has a 30-year history of developing standards for the herbal products industry, issued recommendations for effectively regulating all aspects of cannabis distribution for patients. The regulatory recommendations, developed over two years by the AHPA Cannabis Committee address guidelines for cultivation, quality-assurance, analytics, cannabis product manufacture and labeling, storefront and delivery services, and personnel training.

In December 2013, the American Herbal Pharmacopeia released a monograph identifying cannabis as a botanical medicine. Written and reviewed by the world's leading experts on cannabis, the monograph provides a full scientific understanding of the plant, its constituent components, and its biologic effects. It also establishes comprehensive standards for the plant's identity, purity, quality, and botanical properties.

Following the release of the monograph, ASA launched Patient Focused Certification, the first non-profit, third-party certification program based on the AHPA regulatory recommendations and the AHP standards. Patient Focused Certification (PFC) audits cultivators, distributors, manufacturers and laboratories to verify compliance with best-practice standards. PFC includes employee training, compliance inspections, ongoing monitoring, and an independent complaint process for customers, as well as comprehensive reviews of formulations and materials, independent testing, and facility inspections.

## **Cannabis or Marinol?**

Those committed to the prohibition on cannabis frequently cite Marinol, a Schedule III drug, as the legal means to obtain the benefits of cannabis. However, Marinol, which is a synthetic form of THC, does not deliver the same therapeutic benefits as the natural herb, which contains more than 100 cannabinoids in addition to THC, as well as biologically active terpenes—all of which act together to create an “entourage effect” that increases the efficacy of cannabis. Recent research conducted by GW Pharmaceuticals in Great Britain has shown that Marinol is simply not as effective for pain management as the whole plant; a balance of cannabinoids, specifically CBC and CBD with THC, is what helps patients most. In fact, Marinol is not labeled as a treatment for pain, only appetite stimulation and nausea control. THC and other cannabinoids have been shown to be effective in controlling nausea,<sup>68-72</sup> but many severely nauseated patients experience difficulty in swallowing and keeping a pill down, a problem avoided by use of inhaled cannabis, which decades of studies have shown to be highly effective for treating nausea.<sup>73,74</sup>

Clinical research on Marinol vs. cannabis has been limited by federal restrictions, but a review of state clinical trials conducted in the 70's and 80's published in 2001 reports that "...the data reviewed here suggested that the inhalation of THC appears to be more effective than the oral route... Patients who smoked marijuana experienced 70-100 percent relief from nausea and vomiting, while those who used THC capsules experienced 76-88 percent relief."<sup>75</sup> Additionally, patients frequently have difficulty getting the right dose with Marinol, while inhaled cannabis allows

for easier titration and avoids the negative side effects many report with Marinol.<sup>76,77</sup> As the House of Lords states, "Some users of both find cannabis itself more effective."<sup>78</sup> That is at least in part because the various cannabinoids and terpenes found in cannabis work in concert with one

#### **AMERICAN ACADEMY OF FAMILY PHYSICIANS**

**"The American Academy of Family Physicians [supports] the use of marijuana ... under medical supervision and control for specific medical indications."**

**1996-1997 AAFP Reference Manual**

another to create an "entourage effect" that provides enhanced therapeutic efficacy.<sup>79</sup>

## **THE EXPERIENCE OF PATIENTS**

### **Greg Paufler**

Some days I would be semi-ambulatory. Most days I was completely bedridden. My eyesight became very blurred, and I lost all ability to focus. Unable to walk, read, or be with my family, I became very depressed.... One evening some old friends came to visit and we smoked several joints. When my friends got up to leave, I stood up to say goodbye. Everybody in the room suddenly stopped talking and stared at me. At first I could not understand what was wrong. Then I realized I was standing, I had spontaneously stood up, unassisted, as if standing up was a perfectly natural.

I quickly discovered that when I did not smoke marijuana my condition worsened, I suffered more frequent spasms, and the spasms were more intense. When I smoked marijuana my condition stabilized, then dramatically improved. After smoking marijuana my spasms were much more controlled and less severe. Marijuana caused me to feel better. I regained control over my limbs and could walk totally unaided. My vision, often blurred and unfocused, [now] improved. . . .

I do not like breaking the law. I do not like being forced to pay terribly inflated prices for an unregulated, uncontrolled product. I do not like having to purchase marijuana from drug dealers and I do not like having to

use marijuana without medical supervision. However, I do like to walk, talk, read, and see. Marijuana allows me to do these simple, human things by controlling the symptoms of my MS. If I am forced to choose between maintaining my health with an illegal drug or obeying the law, I would choose to maintain my health.

—Greg Paufler, May 11, 1987, Testimony submitted to the DEA In the Matter of Marijuana Rescheduling and in Idaho v. Hastings.

## **B.D.**

I was diagnosed with multiple sclerosis in 1988. Prior to that, I was an active person with ballet and swimming. I now have a swimming pool, so I swim each and every day, and smoke marijuana. The government has given me the marijuana to smoke. Each month I pick up a can filled with the marijuana cigarettes rolled by the government.

At one time I weighed 85 lb. and I now weigh 105. Twenty pounds is quite a bit to put on. I could not walk. I did not have the appetite. I use a scooter now for distance. I can get around the house. I have a standard poodle who is kind of like an assistant dog. She is good at it. She helps me.

When I found out that there was a program to get marijuana from the government, I decided that was the answer. I was not a marijuana smoker before that. In fact, I used to consider the people I knew who smoked the marijuana as undesirables. Now, I myself am an undesirable.

But it works. It takes away the backache. With multiple sclerosis, you can get spasms, and your leg will just go straight out, and you cannot stop that leg. You may have danced all of your life and put the leg where you wanted it to be, but the MS takes that from you. So I use the swimming pool, and that helps a lot. The kicks are much less when I have smoked a marijuana cigarette.

Since 1991, I've smoked 10 cigarettes a day. I do not take any other drugs. Marijuana seems to have been my helper. At one time, I did not think much of the people who smoke it. But when it comes to your health, it makes a big difference.

—B.D. was one of the patients legally allowed to use cannabis as part of the Compassionate IND program.

## **Nathaniel**

I am a patient suffering from multiple sclerosis, and have found amazing amounts of relief from marijuana. I have been through Rebif, Amantadine, Baclofen, Ultram, Provigil, Soma, and Prednisone. All of these medications either provided little or no relief, or had very undesir-

able side effects for me.

Before learning that I had MS, I had used marijuana maybe 10 times in my whole life. I started using it more regularly, and noticed that I was feeling much better all around when smoking marijuana. I could get around better, I felt better, I was in a better mood, and I ate (something that is often very difficult for me).

Marijuana is now the only medication I am using to treat my condition, and I would be so much less functional without it that I don't know what I would do (or COULD do, for that matter). Being a California resident, I obtained a doctor's recommendation, and am now legal to use medical cannabis in California.

## **Missi**

I had done much research into the helpful benefits of the medicinal use of marijuana, but I did have my doubts since I felt that maybe many of the people who claimed its benefits just really wanted to get 'high'. Well, as God as my witness, (something I don't ever say lightly because I am a born-again Christian), I was totally amazed at the results.

Everyone around me had witnessed my daily life. They had finally seen firsthand that I had problems just walking across the room. Well, anyway, I smoked a joint with my relative and I am telling you, I was up and about walking everywhere. She has a 3000sq ft house and I walked around it like I was an Olympic athlete. OK, maybe not that great but that is what I felt like. I was happy, moving all over the place, and most importantly I did not need to take my next dosage of Oxycontin! I had no pain at all or any of the associated problems. Not only was I able to go with out that dosage but the next morning dosage as well and I did not experience any withdrawal symptoms either.

I really could not believe it. I had hoped to receive some help but I honestly did not think it would be THAT helpful THAT fast. I was very happy that I had witnesses to this seemingly miraculous recovery. But the sad thing is that I am not using it now and cannot get it. I asked my military Neurologist about medical marijuana and was surprised to hear him say (he is very strict) that if he were not a military doctor that is what he would have me on now. It is safer by far than the other meds I am currently on.

## **Anonymous**

This is just another letter from a fellow MS sufferer vouching for how effective I find cannabis in relieving some of the unpleasant symptoms of MS. I was first told of the diagnosis of MS in 1991 (on my 35th birthday)

this was just a few weeks following an unbelievably acrimonious divorce, my wife having thrown me out claiming that she was sick of me being tired all the time, and then telling her solicitor that I was a heroin addict, a totally fabricated claim which I, staggering and slurring my speech like a vaudeville drunk, did a very poor job of denying.

Realising that the vicious cycle of anger and frustration in which I found myself caught, was exacerbating my symptoms I decided to try smoking some pot, after a three year period of abstinence, as to quote Ken Kesey, "it makes you feel pretty philosophical about most things".

I was totally unprepared for the way in which the sensation of 'tight bands and writhing rats' in my legs vanished for the first time in months, as did the pain in my face. Though it did not stop the vertigo, it totally removed the nausea and 'sea sickness' which accompanies it.

For the first time in months I slept like a baby, without having to get up and empty my bladder every 2 hours. Though I would not go so far as to say that this was the beginning of my recovery, I would certainly say that it marked the end of my decline!

## **Anonymous**

I was diagnosed as having MS five years ago, when I was 45, and was informed that in my case it would probably just get steadily worse. The forecast proved correct. I had to give up work 2 years ago, and am now confined to a wheelchair. I suffer violent muscle spasms from the waist down, which lock my legs together like magnets, causing increasing pain and discomfort, and I feel as if I have flu permanently.

A year ago a friend showed me an article from the Daily Mail about an MS sufferer who obtained considerable relief from the most distressing symptoms using cannabis, and about her fight to become 'legal' by being prescribed Nabilone. Despite an in built aversion to banned substances, I bowed to family pressure, and have been using it ever since. I find the effects not exactly euphoric, but I can (with concentration) stretch my legs out straight, either sitting on the floor or lying in bed. I can watch TV for a couple of hours without frightening company by snapping myself into a knot while shrieking in pain. I can go on a car journey without fretting about my bladder. I can actually get 3 or 4 hours unbroken sleep sometimes, and more importantly so can my wife. Smoking cannabis is not a

## **AMERICAN NURSES ASSOCIATION**

**In 2003 the American Nurses Association passed a resolution that supports those health care providers who recommend medicinal use, recognizes "the right of patients to have safe access to therapeutic marijuana/cannabis," and calls for more research and education, as well as a rescheduling of marijuana for medical use.**

problem for me as I roll my own anyway. The main thing is, it works—as a muscle relaxant, a tranquilliser, whatever.

## John E. Precup

I was diagnosed with secondary-progressive multiple sclerosis in 1986, after waking up on the morning of April 5th with the worst case of the "bed spins" imaginable. I was unable to keep anything down, even water. On April 6th I was admitted to the hospital for a seven-day stay during which the 'spinning' continued for six days straight.

### NEW ENGLAND JOURNAL OF MEDICINE

**"A federal policy that prohibits physicians from alleviating suffering by prescribing marijuana to seriously ill patients is misguided, heavy-handed, and inhumane.... It is also hypocritical to forbid physicians to prescribe marijuana while permitting them to prescribe morphine and meperidine to relieve extreme dyspnea and pain...there is no risk of death from smoking marijuana.... To demand evidence of therapeutic efficacy is equally hypocritical"**

**Jerome P. Kassirer, MD, editor  
N Engl J Med 336:366-367, 1997**

When I was sent home, the dizziness had subsided a little, but I still could not function well at all. My neurologist prescribed the drugs Compazine and Antivert. They had little affect on the nausea and no affect on the appetite, even after the dosage was doubled. After a couple of weeks of feeling sick and not eating, I had lost 15 pounds and no medication was helping. I was truly in fear for my life. It was then

that I decided to try smoking Cannabis/Marijuana.

At first I felt worse, but after the effects of the smoke were gone I began to relax and get an appetite. I could finally eat again. Since that time, I have used cannabis to maintain a healthy body weight and a decent standard of living. For years I left my prescription drugs setting on the counter, as Cannabis was more effective. By November 1993, the disease had progressed to the point that I needed to use a cane and a wheelchair. The damage to the nerves that control the lower part of my body and legs caused my legs to be spastic and ache. Again, I saw a real benefit from using Cannabis, it allowed my muscles to relax. I was given a prescription for the drug Bacoflen in 1993 to help control muscle spasms. I experienced little benefit from the drug, it didn't alleviate the pain in my legs. However with cannabis I got relief and, without the spasms, I could get a good night's sleep.

I briefly discussed the benefits I had been getting from the cannabis with my neurologist, Dr. Vilnius S. Ciemins, upon my initial office visit with him in 1986. After learning of Ohio's medical marijuana defense law in

December of 1996, I decided to talk him again about my use of the drug and the short-lived law. Dr. Ciemins, agreed that Cannabis is useful in the treatment of my condition. He provided me with a handwritten recommendation that states: "Told patient that marijuana may relive nausea, realizing that as yet the drug is still illegal." I feel the reason for the prohibition of cannabis is misinformation and the stigma that surrounds this medicine. So I have become active getting people informed and involved.

Today I weigh 155 lbs. and use a wheelchair most of the time. Cannabis has, no doubt, given me a better life than I would have had without it. I didn't ask for this. I would gladly give up using Cannabis and all the other drugs that are prescribed for me if I were miraculously cured. I don't consider myself a criminal just for using the only thing I know that works to try to maintain what quality of life I have left.

## **Josie Chaplin**

I have had three major MS attacks. Each time I have deteriorated more. I had tried smoking pot over the years, but not on many occasions. Last Christmas, I was given a joint to smoke as a present. I had dragged myself, with help, out for Christmas dinner. After a lot of frustration, fretting and struggling, I was installed in my daughter's home. I smoked the joint after my dinner, and for a few hours, I got the old me back again, as I remember me! I have been smoking it on and off since, when things get impossible. It helps with spasticity, sleep, pain and bladder dysfunction. It just helps make life bearable for me. I gave up smoking, as I have Hodgkins, and thought I should do the right thing, then I started again because it helps my MS, so if they legalize cannabis or even better prescribe it in drug form, a lot of people would benefit from it.

How many of us have to convince the world that it helps, and it's not just a drug to get high on! We know what helps our condition, because the people that this is about, are the ones that are suffering. Try walking in my shoes if you can, because sometimes even I can't walk in them! I hope one day soon we will get what we want and not feel like criminals.

## **THE EXPERIENCE OF DOCTORS**

### **Denis Petro, M.D**

As a practicing neurologist, I saw many patients for whom uncontrollable spasticity was a major problem. Unfortunately, there are very few drugs specifically designed to treat spasticity. Moreover, these drugs often cause very serious side effects... Dantrium or dantrolene sodium carries a boxed warning in the Physician's Desk Reference because of its very high toxicity... The adverse effects associated with Lioresal Baclofen are somewhat

less severe, but include possibly lethal consequences, even when the drug is properly prescribed and taken as directed. . . Unfortunately, neither Dantrium nor Lioresal are very effective spasm control drugs. Their marginal medical utility, high toxicity, and potential for serious adverse effects, make these drugs difficult to use in spasticity therapy.

As a result, many physicians routinely prescribe tranquilizers, muscle relaxants, mood elevators, and sedatives to patients experiencing spasticity. While these drugs do not directly reduce spasticity, they may weaken the patient's muscle tone, thus making the spasms less noticeable. Alternatively, they may induce sleep or so tranquilize the patient that normal mental and physical functions are impossible.

[Dr. Petro then related his experience with a twenty-seven year-old MS patient who reported he was smoking marijuana for his symptoms. Dr. Petro and colleagues examined the patient and then asked him to refrain from smoking for six weeks. He continues:]

After six weeks he returned for another examination. At this time, he reported an increase in his symptoms to the point where he had leg pains, increased clonic activity, and uncontrolled leg spasms every night. More disturbing to him was urinary incontinence, which occurred on two occasions during leg spasms.

On objective examination. . . in layman's terms, this patient's spasticity had increased dramatically in six weeks. This spasticity made his legs extremely rigid, he was finding it increasingly difficult to walk or sleep, and he was losing bladder control. Following our examination, and at the patient's request, he left the clinic then returned one hour later to be examined for a second time. This second examination was remarkable. The earlier findings of moderate to severe spasticity could not be elicited. Deep tendon reflexes were brisk, but without spread, ankle clonus was absent, and the plantar response was flexor on the left and equivocal on the right.

In short, this patient had undergone a stunning transformation. Moreover, this unmistakable improvement had occurred in an incredibly brief period of time-less than an hour separated the two examinations. On questioning, the patient informed us he had smoked part of one marijuana cigarette in the interval between examinations.

*- Denis Petro, M.D., former FDA Review Officer and principal investigator on spasticity and cannabis studies, in testimony submitted before the DEA In the Matter of Marijuana Rescheduling, October 18, 1987.*

## **THE HISTORY OF CANNABIS AS MEDICINE**

While the federal government has resisted restoring cannabis to its

place in the US Pharmacopeia, its own research studies acknowledge that the “use of cannabis for purposes of healing predates recorded history” and that it was included in “the 15th century BC Chinese Pharmacopeia, the Rh-Ya.”<sup>80</sup> Ancient Egypt, India and Persia all made medical use of it more than 2,000 years ago. British herbalists in the 17th century noted its medicinal properties, but it did not become widely used in British medicine until the mid-nineteenth century. In 1890, Queen Victoria's personal physician, Sir Russell Reynolds, wrote in the first issue of *The Lancet*, “When pure and administered carefully, [it is] one of the most valuable medicines we possess.”<sup>81</sup>

William O’Shaughnessy, a British East Indian Company surgeon who studied its use while posted in India, expanded western understanding of its range of applications and championed its use upon his return to Britain in 1841 and election to the Royal Society, the scientific advisory body to the British government. Between 1840 and 1900, European and American medical journals published more than 100 articles on the therapeutic applications of cannabis, known then as Cannabis Indica or Indian hemp. Common indications for its use in the nineteenth century included “muscle spasms, menstrual cramps, rheumatism, and the convulsions of tetanus, rabies and epilepsy; it was also used to promote uterine contractions in childbirth, and as a sedative to induce sleep.”<sup>82</sup>



The American Medical Association in an article on the first federal law restricting legal access to cannabis noted that “No evidence has been produced to show the existence of addiction to cannabis arising out of the medicinal use of the drug.”<sup>83</sup> The AMA’s lobbyist, Dr. William C. Woodward, testified to Congress that “The American Medical Association knows of no evidence that marihuana is a dangerous drug,” and that any prohibition “loses sight of the fact that future investigation may show that there are substantial medical uses for Cannabis.”

The first state medical cannabis law was passed in 1996 by California voter initiative. Since then, 23 states and the District of Columbia have removed criminal penalties for their citizens who use cannabis on the advice of a physician and established legal means of obtaining it. Ten of those states plus the District of Columbia established their medical cannabis laws through voter ballot initiative, while the legislatures in 13 others have enacted similar bills. Currently, nearly 50 percent of the U.S. population resides in a state that permits medical use, and medical cannabis legislation is introduced in more states every year.

## **Federal Policy is Contradictory**

Federal policy on medical cannabis is filled with contradictions. Cannabis was widely prescribed until the turn of the century, and an estimated one

## PROFESSIONAL ORGANIZATION ENDORSEMENTS

AIDS Action Council	French Ministry of Health
Alaska Nurses Association	Hawaii Nurses Association
American Academy of Family Physicians	Health Canada
American Medical Student Association	Kaiser Permanente
American Nurses Association	Lymphoma Foundation of America
American Preventive Medical Association	Mississippi Nurses Association
American Public Health Association	Multiple Sclerosis Society (Canada)
American Society of Addiction Medicine	National Acad. of Sciences Inst. of Medicine
Arthritis Research Campaign (UK)	National Association for Public Health Policy
Australian Medical Association	National Nurses Society on Addictions
Australian National Task Force on Cannabis	Netherlands Ministry of Health
Belgian Ministry of Health	New Jersey State Nurses Association
British House of Lords Select Committee	New Mexico Medical Society
British Medical Association	New Mexico Nurses Association
California Academy of Family Physicians	New York State Nurses Association
California Nurses Association	North Carolina Nurses Association
California Pharmacists Association	San Francisco Mayor's Summit on AIDS
Colorado Nurses Association	San Francisco Medical Society
Federation of American Scientists	Virginia Nurses Association
Florida Governor's Red Ribbon Panel on AIDS	Whitman-Walker Clinic
Florida Medical Association	Wisconsin Nurses Association

million Americans currently use it under medical supervision. Congress in 1970 classified cannabis as a Schedule I drug, defined as having no medicinal value and a high potential for abuse, yet its most psychoactive component, THC, is legally available as Marinol and is classified as Schedule III. The U.S. federal government also grows and provides free cannabis for a small number of patients today as part of an Investigational New Drug (IND) compassionate access research program created by court order in 1976. Though the program provided up to nine pounds of cannabis a year to these patients, and all reported being substantially helped by it, the application process was extremely complicated, and few physicians became involved. In the first twelve years, the government accepted only a handful of patients. But in 1989 the FDA was deluged with new applications from people living with AIDS, and 34 patients were approved within a year. In June 1991, the Public Health Service announced that the program would be suspended because it undercut the administration's opposition to the use of illegal drugs. The program was discontinued in March 1992 and the remaining patients had to sue the federal government on the basis of

medical necessity to retain access to their medicine. Today, four surviving patients still receive medical cannabis from the federal government.

Despite this successful federal program, thousands of scientific articles, and dozens of successful clinical trials, as well as an unparalleled safety record, cannabis remains classified as a Schedule I substance. Healthcare advocates have tried to resolve this contradiction through legal and administrative channels. In 1972, a petition was submitted to reschedule cannabis in order to remove barriers to medical research and patient access. The DEA stalled hearings for 16 years, but after exhaustive hearings in 1988 their chief administrative law judge, Francis L. Young, ruled that “marijuana, in its natural form, is one of the safest therapeutically active substances known... It would be unreasonable, arbitrary and capricious for the DEA to continue to stand between those sufferers and the benefits of this substance.” The DEA refused to implement this ruling based on a procedural technicality and continues to insist cannabis is a substance with no medical use. In 2009 the American Medical Association, the nation’s largest organization for physicians with a quarter million members, joined the chorus of professional medical groups calling on the federal government to reconsider the classification of cannabis and urging comprehensive clinical trials.

## **Widespread support, state laws passed, new policy issued**

Public opinion is strongly in favor of ending the prohibition of medical cannabis and has been for some time, with every national poll conducted over the past two decades showing a substantial majority in support. A CBS News national poll in January 2014 found that 86 percent of Americans think doctors should be allowed to prescribe cannabis for patients suffering from serious illnesses. In 2004, the 35 million-member American Association of Retired Persons (AARP) released a national poll of older Americans showing 72 percent of seniors agreed that “adults should be allowed to legally use marijuana for medical purposes if a physician recommends it.” Every national poll for more than a decade has found similar super-majorities of support.

The refusal of the federal government to act on this widespread public support has meant that advocates have had to turn to the states for action. Currently, laws that effectively remove state-level criminal penalties for growing and/or possessing medical cannabis are in place in: Alaska, Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, Washington, the District of Columbia, and Guam. Another 15 states have established limited laws that allow the legal med-

ical use of a cannabis plant extract. Thirty-six states have symbolic medical cannabis laws (laws that support access to medical cannabis but do not provide patients with legal protection under state law).

On August 29, 2013, the U.S. Department of Justice issued new guidance to federal prosecutors, telling them medical cannabis dispensaries should no longer automatically be considered targets for prosecution. The memo from Deputy Attorney General James M. Cole to all U.S. Attorneys reverses previous federal policy on prosecuting medical cannabis providers and businesses. The new guidance says state and local officials can avoid federal interference in their medical cannabis programs if they “implement strong and effective regulatory and enforcement systems” that reflect eight federal enforcement priorities. The memo does not change federal law, nor does it preclude prosecution of any individual or business, as the U.S. Attorneys’ offices are autonomous, and federal prosecutors make independent decisions about which cases to pursue.

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4. 309 F.3d 629 (9th Cir. 2002).
5. *Id.* at 634-36.
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## DEA CHIEF ADMINISTRATIVE LAW JUDGE

*Marijuana, in its natural form, is one of the safest therapeutically active substances known... It would be unreasonable, arbitrary and capricious for the DEA to continue to stand between those sufferers and the benefits of this substance.*

The Honorable Francis L. Young,  
Ruling on DEA rescheduling hearings, 1988

## ADDITIONAL RESOURCES

Americans for Safe Access maintains a website with additional resources for doctors and patients. There you will find the latest information on legal and legislative developments, new medical research, and what you can do to help protect the rights of patients and doctors.

With more than 45,000 active members and chapters and affiliates in all 50 states, ASA is the largest national member-based organization of patients, medical professionals, scientists, and concerned citizens promoting safe and legal access to cannabis for therapeutic uses and research.



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