

AGING

AND

MEDICAL MARIJUANA



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. This brochure is intended to help doctors, patients and policymakers better understand how marijuana—or "cannabis" as it is more properly called—may be used as a treatment for people with serious medical conditions. This booklet contains information about using cannabis as medicine. In it you'll find information on:

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We recognize that information about using cannabis as medicine has been difficult to obtain. The federal prohibition on cannabis has meant that modern clinical research has been limited, to the detriment of medical science and the wellness of patients. But the documented history of the safe, medical use of cannabis dates to 2700 B.C. Cannabis was part of the American pharmacopoeia until 1942 and is currently available by prescription in the Netherlands and Canada.

Testimonials from both doctors and patients reveal valuable information on the use of cannabis therapies, and supporting statements from professional health organizations and leading medical journals support its legitimacy as a medicine. In the last few years, clinical trials in Great Britain, Canada, Spain, Israel, and elsewhere have shown great promise for new medical applications.

This brochure is intended to be a starting point for the consideration of applying cannabis therapies to specific conditions; it is not intended to replace the training and expertise of physicians with regard to medicine, or attorneys with regard to the law. But as patients, doctors and advocates who have been working intimately with these issues for many years, Americans for Safe Access has seen firsthand how helpful cannabis can be for a wide variety of indications. We know doctors want the freedom to practice medicine and patients the freedom to make decisions about their healthcare.

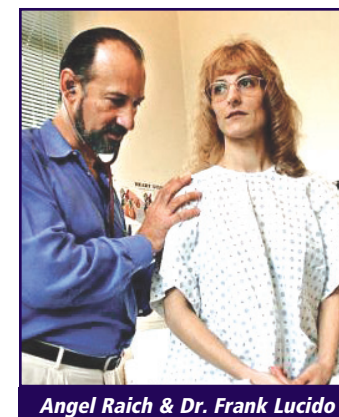
For more information about ASA and the work we do, please see our website at **AmericansForSafeAccess.org** or call **1-888-929-4367**.

Is Cannabis Legal to Recommend?

In 2004, the United States Supreme Court upheld earlier federal court decisions that doctors have a fundamental Constitutional right to recommend cannabis to their patients.

The history. Within weeks of California voters legalizing medical cannabis in 1996, federal officials had threatened to revoke the prescribing privileges of any physicians who recommended cannabis to their patients for medical use.¹ In response, a group of doctors and patients led by AIDS specialist Dr. Marcus Conant filed suit against the government, contending that such a policy violates the First Amendment.² The federal courts agreed at first the district level,³ then all the way through appeals to the Ninth Circuit and then the Supreme Court.

What doctors may and may not do. In *Conant v. Walters*,⁴ 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.⁵ But it remains illegal for a doctor to "aid and abet" a patient in obtaining cannabis.⁶ This means a physician may discuss the pros and cons of medical cannabis with any patient, and issue a written or oral recommendation to use cannabis without fear of legal reprisal.⁷ This is true regardless of whether the physician anticipates that the patient will, in turn, use this recommendation to obtain cannabis.⁸ What physicians may not do is actually prescribe or dispense cannabis to a patient⁹ or tell patients how to use a written recommendation to procure it from a cannabis club or dispensary.¹⁰ Doctors can tell patients they may be helped by cannabis. They can put that in writing. They just can't help patients obtain the cannabis itself.



Angel Raich & Dr. Frank Lucido

Patients protected under state, not federal, law. In June 2005, the U.S. Supreme Court overturned the *Raich v. Ashcroft* Ninth Circuit Court of Appeals decision. In reversing the lower court's ruling, *Gonzales v. Raich* established that it is legal under federal law to prosecute patients who possess, grow, or consume medical cannabis in medical cannabis states. However, this Supreme Court decision does not overturn or supersede the laws in states with medical cannabis programs.

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

Scientific Research Supports Medical Cannabis

Between 1840 and 1900, European and American medical journals published more than 100 articles on the therapeutic use of the drug known then as Cannabis Indica (or Indian hemp) and now simply as cannabis. Today, new studies are being published in peer-reviewed journals that demonstrate cannabis has medical value in treating patients with serious illnesses such as AIDS, glaucoma, cancer, multiple sclerosis, epilepsy, and chronic pain.

The safety of the drug has been attested to by numerous studies and reports, including the *LaGuardia Report* of 1944, the *Schafer Commission Report* of 1972, a 1997 study conducted by the British House of Lords, 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.

Recent published research on CD4 immunity in AIDS patients found no compromise to the immune systems of patients undergoing cannabis therapy in clinical trials.¹¹

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*.

Recent Research Advances

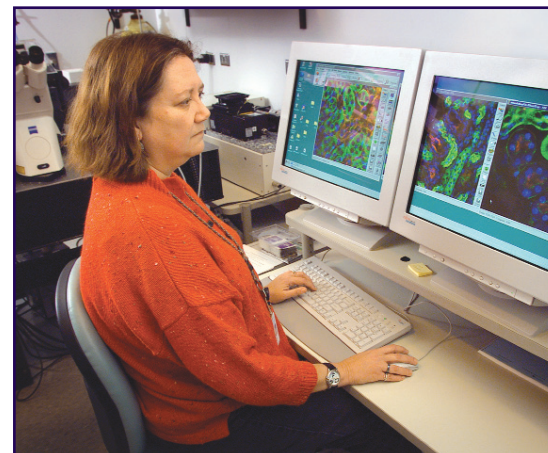
While research has until recently been sharply limited by federal prohibition, the last few years have seen rapid change. The International Cannabinoid Research Society was formally incorporated as a scientific research organization in 1991. Membership in the Society has more than tripled from about 50 members in the first year to over 300 in 2005. The International Association for Cannabis as Medicine (IACM) was founded in March 2000. It publishes a bi-weekly newsletter and the IACM-Bulletin, and holds a bi-annual symposium to highlight emerging research in cannabis therapeutics. The University of California established the Center for Medicinal Cannabis Research in 2001. As of June 2006, the CMCR has 17 approved studies, including research on cancer pain, nausea control in chemotherapy, general analgesia and a proposed study on refractory cancer pain.

In the United Kingdom, GW Pharmaceuticals has been granted a clinical trial exemption certificate by the Medicines Control Agency to conduct clinical studies with cannabis-based medicines. The exemption includes investigations in the relief of pain of neurological origin and defects of neurological function in the following indications: multiple sclerosis (MS), spinal cord injury, peripheral nerve injury, central nervous system damage, neuroinva-

sive cancer, dystonias, cerebral vascular accident and spina bifida, as well as for the relief of pain and inflammation in rheumatoid arthritis and also pain relief in brachial plexus injury.

GW has completed Phase III studies in patients with MS neuropathic pain and spasticity, and Phase II trials on perioperative pain, rheumatoid arthritis, peripheral neuropathy secondary to diabetes mellitus or AIDS, and patients with neurogenic symptoms.

These trials have provided positive results and confirmed an excellent safety profile for cannabis-based medicines. In 2002, GW conducted five Phase III trials of its cannabis derivatives, including a double-blind, placebo-controlled trial with a sublingual spray containing THC in more than 100 patients with cancer pain. In total, more than 1,000 patients are currently involved in phase III trials in the UK.



In 2002 GW Pharmaceuticals received an IND approval to commence phase II clinical trials in Canada in patients with chronic pain, multiple sclerosis and spinal cord injury, and in April 2005 GW received regulatory approval to distribute Sativex in Canada for the relief of neuropathic pain in adults with Multiple Sclerosis. Following meetings with the FDA, DEA, the Office for National Drug Control Policy, and the National Institute for Drug Abuse, GW was granted an import license from the DEA and has imported its first cannabis extracts into the U.S., and in January of 2006 was granted permission to begin Phase III clinical trials into cancer pain.

CANNABIS AND AGING

Cannabis has been found to help many patients suffering from conditions that afflict older patients, including arthritis, chronic pain, cancer, Alzheimer's disease, diabetes, and spasticity associated with such diseases as Parkinson's.

Cannabis and Arthritis

More than 31 million Americans suffer from arthritis. There are two common types of arthritis, rheumatoid arthritis and osteoarthritis, but both affect the joints, causing pain and swelling, and limiting movement.

Rheumatoid arthritis is caused by a malfunction of the immune system. Instead of fighting off intruders such as bacteria or viruses, the body attacks the synovial membranes, which facilitate the movement of joints, eventually destroying cartilage and eroding bones. Rheumatoid arthritis is most

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*

common among the aged, whose immune systems are no longer as robust or efficient. Osteoarthritis, or arthritis of the bones, is also found primarily among the elderly, whose cartilage has been worn away through use. Arthritis may also manifest as chronic inflammation of the joints as the result of injuries.

Recent research is accumulating evidence that cannabis therapies are effective for arthritis and the other rheumatic and degenerative hip,

joint and connective tissue disorders. Since these are frequently extremely painful conditions, the ability of cannabis to combat chronic pain makes it useful for that aspect, both on its own and as an adjunct therapy that enhances the efficacy of opioid painkillers. The use of cannabis as a treatment for musculo-skeletal pain in western medicine dates to the 1700s.¹²⁻¹³

But cannabis has also been shown to have powerful immune-modulation and anti-inflammatory properties,¹⁴⁻¹⁷ indicating it may treat chronic inflammatory diseases directly. In fact one of the earliest records of medical use of cannabis—a Chinese text dating from ca. 2000 BC—notes that cannabis is effective in treating rheumatism, suggesting that ancient societies long ago recognized its anti-inflammatory and analgesic properties.¹⁸

Modern research on cannabidiol (CBD)—one of the non-psychoactive components of cannabis—has found that it suppresses the immune response in mice and rats that is responsible for a disease resembling arthritis, protecting them from severe damage to their joints, and markedly improving their condition.¹⁹⁻²⁰

Human studies have shown cannabis to be an effective treatment for rheumatoid arthritis, and it is one of the recognized conditions for which many states allow legal medical use. Cannabis has a demonstrated ability to improve mobility and reduce morning stiffness and inflammation. Research has also shown that patients are able to reduce their usage of potentially harmful Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) when using cannabis as an adjunct therapy.²¹⁻²²

Medical researchers investigating Cannabidiol at Hebrew University in Jerusalem discovered an acid with potent anti-inflammatory action compa-

able to the drug indomethacin, but without the considerable gastrointestinal side effects associated with that drug.²³

In addition, when the body metabolizes tetrahydrocannabinol (THC, one of the primary components of cannabis) it produces a number of related chemicals. At least one of these metabolites has anti-inflammatory and pain-relieving effects. By modifying this metabolite, researchers at the University of Massachusetts Medical Center have produced a synthetic carboxylic acid known as CT-3 (also called DMH-11C, chemical name dimethyl-heptyl-THC-11 oic acid), which is more powerful than the natural metabolite and can be given in smaller doses. Animal tests found CT-3 effective against both chronic and acute inflammation; it also prevented destruction of joint tissue from chronic inflammation. The long safety record of marijuana (no one has ever died of an overdose) and the discovery that a metabolite with the desired anti-inflammatory effect is produced in the body when marijuana is used, strongly suggest that safe and effective anti-inflammatory drugs may be developed from cannabinoids.²⁴

In addition, CT3 has demonstrated analgesic effects in animals. In some cases, the dose-dependent effect of THC was equivalent to morphine, but with a much greater duration of action.²⁵⁻²⁶ In contrast to the NSAIDs commonly prescribed arthritis sufferers, CT3 did not cause ulcers at therapeutically relevant doses. Moreover, it does not depress respiration, produce dependence, induce body weight loss or cause mutations. Studies on its mechanism of action are currently underway, and cytokine synthesis is one of the pathways being investigated.²⁷

Cannabis may also help combat rheumatoid arthritis by way of its established immune-modulation properties.²⁸ Rheumatoid arthritis is characterized by dysregulation of the immune system in response to an initial infection or trauma. Over-activity of the immune system's B-cells causes antibodies to attack and destroy the synovial tissues located in the joint.

The immuno-modulatory properties of a group of fats found in cannabis, known as sterols and sterolins, have been used as natural alternatives to conventional rheumatoid arthritis treatments, which typically employ highly toxic drugs to either suppress the entire immune response of the body or to palliate pain and the inflammatory process without correcting the underlying immune dysfunction.

Cytokines play a role in either fueling or suppressing the inflammation that causes damage in rheumatoid arthritis and some other diseases. The release of selected cytokines is impaired by cannabis, but the findings differ by cell type, experimental conditions, and especially the concentration of the cannabinoids examined.²⁹⁻³² A sterol/sterolin combination has been experimentally demonstrated to reduce the secretion of the pro-inflammatory cytokines controlled by the TH2 helper cells and to increase the number of TH helper cells that regulate the secretion of antibodies from the B cells. This selective activation and inhibition of the immune system is effective in controlling the dysfunctional auto-immune response.

Similarly, another non-psychoactive cannabinoid, ajulemic acid, has been found by UMass Medical Center researchers to reduce joint tissue damage in rats with adjuvant arthritis.³³ Tests on human tissue done in vitro showed a 50% suppression of one of the body chemicals (interleukin-1beta) central to the progression of inflammation and joint tissue injury in patients with rheumatoid arthritis.³⁴

Cannabis and Chronic Pain

Many older patients suffer from persistent and disabling pain, which can have numerous and sometimes multiple causes. These include cancer; arthritis and other rheumatic and degenerative hip, joint and connective tissue disorders; diabetes; AIDS; sickle cell anemia; multiple sclerosis; defects or injuries to the back, neck and spinal cord; and severe burns. Pain is not a primary condition or injury, but is rather a severe, frequently intolerable symptom that varies in frequency, duration, and severity according to the individual. The underlying condition determines the appropriate curative approach, but does not determine the proper symptom management. It is the character, severity, location and duration of the pain that determines the range of appropriate therapies.

For patients in pain, the goal is to function as fully as possible by reducing their pain as much as possible, while minimizing the often debilitating side effects of the pain therapies. Failure to adequately treat severe and/or chronic pain can have tragic consequences. Not infrequently, people in unrelieved pain want to die. Despair can also cause patients to discontinue potentially life-saving procedures (e.g., chemotherapy or surgery), which themselves cause severe suffering. In such dire cases, anything that helps to alleviate the pain will prolong these patients' lives.

Cannabis can serve at least two important roles in safe, effective pain management. It can provide relief from the pain itself (either alone or in combination with other analgesics), and it can control the nausea associated with taking opioid drugs, as well as the nausea, vomiting and dizziness that often accompany severe, prolonged pain.

Opioid therapy is often an effective treatment for severe pain, but all opiates have the potential to induce nausea. The intensity and duration of this nausea can cause enormous discomfort and additional suffering and lead to malnourishment, anorexia, wasting, and a severe decline in a patient's health. Some patients find the nausea so intolerable that they are inclined to discontinue the primary pain treatment, rather than endure the nausea.

Inhaled cannabis provides almost immediate relief for this, with significantly fewer adverse effects than orally ingested Marinol. Inhalation allows the active compounds in cannabis to be absorbed into the blood stream with greater speed and efficiency. It is for this reason that inhalation is an increasingly common, and often preferable, route of administration for many medications. Cannabis may also be more effective than Marinol

because it contains many more cannabinoids than just the THC that is Marinol's active ingredient. The additional cannabinoids may well have additional and complementary antiemetic qualities. They have been conclusively shown to have better pain-control properties when taken in combination than THC alone.

Research on cannabis and pain management

Cannabis has historically been used as an analgesic,³⁵⁻³⁶ and patients often report significant pain relief from marijuana.³⁷⁻⁴² Some of the most encouraging clinical data on the effects of cannabinoids on chronic pain are from studies of intractable cancer pain and hard-to-treat neuropathic pain.⁴³⁻⁴⁴

After reviewing a series of trials in 1997, the U.S. Society for Neuroscience concluded that "substances similar to or derived from marijuana could benefit the more than 97 million Americans who experience some form of pain each year."⁴⁵

A 1999 study commissioned by the White House and conducted by the Institute of Medicine recognizes the role that cannabis can play in treating chronic pain. "After nausea and vomiting, chronic pain was the condition cited most often to the IOM study team as a medicinal use for marijuana."⁴⁶



The study found that "basic biology indicates a role for cannabinoids in pain and control of movement, which is consistent with a possible therapeutic role in these areas. The evidence is relatively strong for the treatment of pain and intriguingly, although less well established, for movement disorder." According to the report, a number of brain areas that have an established role in sensing and processing pain respond to the analgesic effect of cannabis, such that cannabinoids have been used successfully to treat cancer pain, which is often resistant to treatment with opiates.

The Report further notes that cannabinoids serve as an anti-inflammatory agent, and so have therapeutic potential in preventing and reducing pain caused by the swelling of body tissues (such as arthritis).

In addition to its analgesic properties, the Report indicates that cannabis, like its synthetic cousin Marinol, can help treat the nausea often induced by

opiate therapy, especially when other antiemetics prove ineffective. In short, the IOM Report recognizes the potential benefits of cannabis for certain patients, including:

- Chemotherapy patients, especially those being treated for mucositis, nausea, and anorexia.
- Postoperative pain patients (using cannabinoids as an opioid adjunct to reduce the nausea and vomiting).
- Patients with spinal cord injury, peripheral neuropathic pain, or central post-stroke pain.
- Patients with chronic pain and insomnia.
- AIDS patients with cachexia, AIDS neuropathy, or any significant pain problem.

Britain's House of Lords reached similar conclusions and called for legalized cannabis by prescription.⁴⁷

Several studies have found that cannabinoids have analgesic effects in animal models, sometimes equivalent to codeine.⁴⁸⁻⁵² Cannabinoids also seem to synergize with opioids, which often lose their effectiveness as patients build up tolerance. One study in rats found morphine was 15 times more active with the addition of a small dose of THC. Codeine was enhanced on the order of 900 fold.⁵³

In 1990, researchers conducted a double-blind study comparing the antispasmodic and analgesic effects of THC, oral Codeine, and a placebo on a single patient suffering from a spinal cord injury.⁵⁴ Their findings confirmed the analgesic effects of THC being "equivalent to codeine." A 1997 study made similar findings related to morphine.⁵⁵

A 1999 article reviewing the body of scientific animal research concerning the analgesic effects of marijuana concludes that "[t]here is now unequivocal evidence that cannabinoids are antinociceptive [capable of blocking the appreciation or transmission of pain] in animal models of acute pain."⁵⁶

In 2001, British researchers reported that cannabis extract sprayed under the tongue was effective in reducing pain in 18 of 23 patients who were suffering from intractable neuropathic pain.⁵⁷

CANNABIS and CANCER

Cannabis has been found to help cancer patients with pain and nausea, and recent research indicates it has tumor-reducing and anti-carcinogenic properties as well. It has proven highly effective at controlling the nausea associated with chemotherapy, and its appetite-stimulation properties help com-

bat wasting. Cannabis can also help control the pain associated with some cancers, as well as that resulting from radiation and chemotherapy treatment.

Cannabis and chemotherapy side effects

One of the most widely studied therapeutic applications for cannabis and the pharmaceutical drugs derived from cannabinoids is in the treatment of nausea and vomiting associated with cancer chemotherapy. Numerous clinical studies have reported that the use of cannabis reduces nausea and vomiting and stimulates appetite, thereby reducing the severity of cachexia, or wasting syndrome, in patients receiving chemotherapy treatment.

The 1999 Institutes of Medicine report concluded: "In patients already experiencing severe nausea or vomiting, pills are generally ineffective, because of the difficulty in swallowing or keeping a pill down, and slow onset of the drug effect. Thus an inhalation (but, preferably not smoking) cannabinoid drug delivery system would be advantageous for treating chemotherapy-induced nausea."⁵⁸

A 1997 inquiry by the British Medical Association found cannabis more effective than Marinol, and a 1998 review by the House of Lords Science &

Technology Select Committee concluded that "cannabinoids are undoubtedly effective as anti-emetic agents in vomiting induced by anti-cancer drugs. Some users of both find cannabis itself more effective."^{59, 60}

In the last three years, there have been major advances in both cannabinoid pharmacology and in understanding of the cancer disease process. In particular, research has demonstrated the presence of numerous cannabinoid receptors in the nucleus of the solitary tract, a brain center important in control of vomiting.

Although other recently developed anti-emetics are as effective or more effective than oral THC, nabilone or smoked cannabis, for certain individuals unresponsive to conventional anti-emetic drugs, the use of smoked cannabis can provide relief more effectively than oral preparations which may be difficult to swallow or be vomited before taking effect, as the IOM report notes.

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**

The psychoactive euphoriant effects of THC or inhaled cannabis may also provide an improvement in mood. By contrast, several conventional medications commonly prescribed for cancer patients, e.g. phenothiazines such as haloperidol (known as "major tranquilizers"), may produce unwanted side effects such as excessive sedation, flattening of mood, and/or distressing



physical "extrapyramidal" symptoms such as uncontrolled or compulsive movements.

While clinical research on using cannabis medicinally has been severely limited by federal prohibition, the accumulated data speaks strongly in favor of considering it as an option for most cancer patients, and many oncologists do. Survey data from a Harvard Medical School study in 1990, before any states had approved medical use, shows that 44% of oncologists were then recommending cannabis to at least some of their patients. Nearly half said they would do so if the laws were changed. According to the American Cancer Society's 2003 data, more than 1,300,000 Americans are diagnosed with cancer each year.⁶¹ At

least 300,000 of them will undergo chemotherapy, meaning as many as 132,000 patients annually may have cannabis recommended to them to help fight the side effects of conventional treatments.

As the Institutes of Medicine report concluded, "nausea, appetite loss, pain and anxiety ... all can be mitigated by marijuana."

Research on cannabis and chemotherapy

Cannabis is used to combat pain caused by various cancers and nausea induced by chemotherapy agents. Over 30 human clinical trials have examined the effects of cannabis or synthetic cannabinoids on nausea, not including several U.S. state trials that took place between 1978 and 1986.⁶² In reviewing this literature, Hall et al. concluded that "... THC [delta-9-tetrahydrocannabinol] is superior to placebo, and equivalent in effectiveness to other widely-used anti-emetic drugs, in its capacity to reduce the nausea and vomiting caused by some chemotherapy regimens in some cancer patients."⁶³ A 2003 study found "Cannabinoids—the active components of Cannabis sativa and their derivatives—exert palliative effects in cancer patients by preventing nausea, vomiting and pain and by stimulating appetite. In addition, these compounds have been shown to inhibit the growth of tumor cells in culture and animal models by modulating key cell-signaling pathways. Cannabinoids are usually well tolerated, and do not

produce the generalized toxic effects of conventional chemotherapies."⁶⁴ Authors of the Institute of Medicine report, "Marijuana and Medicine: Assessing the Science Base," found that there are many cancer patients for whom cannabis should be a valid medical option.⁶⁵

A random-sample anonymous survey conducted in the spring of 1990 measured the attitudes and experiences of oncologists concerning the antiemetic use of cannabis in cancer chemotherapy patients. Of the respondents expressing an opinion, a majority (54%) thought cannabis should be available by prescription.⁶⁶

Cancer-fighting properties of cannabis

Recent scientific advances in the study of cannabinoid receptors and endocannabinoids have produced exciting new leads in the search for anti-cancer treatments. More than twenty major studies published between 2001 and 2006 have shown that the chemicals in cannabis known as cannabinoids have a significant effect fighting cancer cells. We now know cannabinoids arrest many kinds of cancer growths (brain, breast, leukemic, melanoma, pheochromocytoma, etc.) through promotion of apoptosis (programmed cell death) that is lost in tumors, and by arresting angiogenesis (increased blood vessel production).

There is growing evidence of direct anti-tumor activity of cannabinoids, specifically CB1 and CB2 agonists, in a range of cancer types including brain (gliomas), skin, pituitary, prostate and bowel. The anti-tumor activity has led in laboratory animals and in-vitro human tissues to regression of tumors, reductions in vascularisation (blood supply) and metastases (secondary tumors), as well as the direct destruction of cancer cells (apoptosis). Indeed, research on the complex interactions of endogenous cannabinoids and receptors is leading to greater scientific understanding of the basic mechanisms by which cancers develop.

The findings of these studies are borne out by the anecdotal reports of such patients as Steve Kubby, whose cannabis use is credited with keeping rare, terminal cancers in a state of remission for decades beyond conventional expectations.

Research on Tumor Reduction

Although cannabis smoke has been shown to have precancerous-causing effects in animal tissue, epidemiological studies have failed to link cannabis smoking with cancer.⁶⁷⁻⁶⁸ If smoke inhalation is a concern, cannabis can be used with a vaporizer, orally in baked goods, and topically as a tincture or a suppository.

Cannabinoids, the active components of cannabis, have been shown to exhibit anti-tumor properties. Multiple studies published between 2001 and 2003 found that cannabinoids inhibit tumor growth in laboratory animals.⁶⁹⁻

⁷³ In another study, injections of synthetic THC eradicated malignant brain tumors in one-third of treated rats, and prolonged life in another third by as much as six weeks.⁷⁴ Other journals have also reported on cannabinoids' antitumoral potential.⁷⁵⁻⁸¹ Italian research teams reported in 1998 and 2001 that the endocannabinoid anandamide, which binds to the same brain receptors as cannabis, "potently and selectively inhibits the proliferation of human breast cancer cells in vitro" by interfering with their DNA production cycle.⁸²⁻⁸⁴ Cannabis has been shown in recent studies to inhibit the growth of thyroid, prostate and colorectal cancer cells.⁸⁵⁻⁸⁷ THC has been found to cause the death of glioma cells.⁸⁸⁻⁸⁹ And research on pituitary cancers shows cannabinoids are key to regulating human pituitary hormone secretion.⁹⁰⁻⁹³

In 2004 an Italian research team demonstrated that the administration of the non-psychoactive cannabinoid cannabidiol (CBD) to nude mice significantly inhibited the growth of subcutaneously implanted U87 human glioma cells. The authors of the study concluded that "... CBD was able to produce a significant antitumor activity both in vitro and in vivo, thus suggesting a possible application of CBD as an antineoplastic agent (an agent that inhibits the growth of malignant cells.)"⁹⁴

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

More recently, investigators at the California Pacific Medical Center Research Institute reported that the administration of THC on human glioblastoma multiforme cell lines decreased the proliferation of malignant cells and induced apoptosis (programmed cell death) more rapidly than did the administration of an alternative synthetic cannabis receptor agonist.⁹⁵

Cannabis and Movement Disorders

Movement disorders and neuro-degenerative diseases, which are sometimes interlinked, are among the conditions cannabis is particularly well suited to treat.

The therapeutic use of cannabis for treating muscle problems and movement disorders has been known to western medicine for nearly two centuries. In 1839, Dr. William B. O'Shaughnessy noted the plant's muscle relaxant and anti-convulsant properties, writing that doctors had "gained an anti-convulsive remedy of the greatest value."⁹⁶ In 1890 Dr. J. Russell Reynolds, physician to Queen Victoria, noted in an article in *The Lancet* that

for "organic disease of a gross character in the nervous centers . . . India hemp (cannabis) is the most useful agent with which I am acquainted."⁹⁷

Muscular spasticity is a common condition, affecting millions of people in the United States. It afflicts individuals who have suffered strokes, as well as those with multiple sclerosis, cerebral palsy, paraplegia, quadriplegia, and spinal cord injuries. Conventional medical therapy offers little help for spasticity problems. Phenobarbital and diazepam (Valium) are commonly prescribed, but they rarely provide complete relief, and many patients develop a tolerance, become addicted, or complain of heavy sedation. These drugs also cause weakness, drowsiness and other side effects that patients find intolerable.

Extensive modern studies in animals and various clinical states have shown that cannabis can treat movement disorders affecting older patients, such as tremors and spasticity, because cannabis has antispasticity, analgesic, antitremor, and antiataxia actions.⁹⁸⁻¹¹⁰

In the federal court brief they filed in support of physicians' right to recommend cannabis, the American Public Health Association stated that "Marijuana is effective in treating muscle spasticity." They point out that the government's own Institutes of Medicine report on medical use of cannabis found that "current treatments for painful muscle spasms . . . have only limited effectiveness and their use is complicated by various adverse side effects." They go on to note that "a survey of British and American MS patients reports that after ingesting marijuana a significant majority experienced substantial improvements in controlling muscle spasticity and pain. An extensive neurological study found that herbal cannabis provided relief from both muscle spasms and ataxia (loss of coordination), a multiple benefit not achieved by any currently available medications" (amicus brief in *Conant v. McCaffrey*, 2001 filing).

Cannabis also has enormous potential for protecting the brain and central nervous system from the damage that creates various movement disorders. Researchers have found that cannabinoids fight the effects of strokes, as well as brain trauma, spinal cord injury, and multiple sclerosis. More than 100 research articles have been published on how cannabinoids act as neuroprotective agents to slow the progression of such neurodegenerative diseases as Huntington's, Alzheimer's and particularly Parkinson's, which affects more than 52% of people over the age of 85.

The contemporary understanding of the actions of cannabis was spurred by the discovery of an endogenous cannabinoid system in the human body. This system appears to be intricately involved in normal physiology, specifically in the control of movement.¹¹¹⁻¹¹⁵ Central cannabinoid receptors are densely located in the basal ganglia, the area of the brain that regulates body movement. Endogenous cannabinoids also appear to play a role in the manipulation of other transmitter systems within the basal ganglia—increasing transmission of certain chemicals, inhibiting the release of oth-

ers, and affecting how still others are absorbed. Most movement disorders are caused by a dysfunction of the chemical loops in this part of the brain. Research suggests that an endo-genous cannabinoid tone participates in the control of movements.¹¹⁶⁻¹²⁰

Endocannabinoids have paradoxical effects on the mammalian nervous system: Sometimes they block neuronal excitability and other times they augment it. As scientists are developing a better understanding of the physiological role of those natural cannabinoids, or endocannabinoids, it is becoming clear that these chemicals may be involved in the pathology of several neurological diseases. Researchers are identifying an array of potential therapeutic targets within the human nervous system. They have determined that various cannabinoids found in the cannabis plant interrupt the synthesis, uptake or metabolism of the endocannabinoids that drive the progression of Huntington's disease, Parkinson's disease, and tremor.¹²¹⁻¹²²

Parkinson's disease has been linked to dysfunction in the body's dopamine system, specifically the production of too much of the neurotransmitter glutamate and oxidative damage to dopaminergic neurons. Studies have found a tight association between cannabinoids and dopamine, and recent research has produced anatomical, biochemical and pharmacological evidence supporting a role for the endogenous cannabinoid system in the modulation of dopaminergic transmission. Cannabinoid receptors switch between blocking and enhancing dopamine signaling. Cannabinoids neuro-protective action appears to result from their ability to inhibit reactive oxygen species, glutamate and tumour necrosis factor.

Cannabis and Alzheimer's Disease

Alzheimer's disease is another neuro-degenerative condition for which cannabis and cannabinoid therapies show promise, both for treating the symptoms and the underlying disease.

Alzheimer's disease is widely held to be associated with oxidative stress due, in part, to the membrane action of beta-amyloid peptide aggregates. A laboratory study published in 2004 indicates that one of the cannabis plant's primary components, cannabidiol (CBD), exerts a combination of neuroprotective, anti-oxidative and anti-apoptotic effects by inhibiting the release of the toxic beta-amyloid peptide.¹²³

Another cannabinoid, THC, has also has been shown to reduce the agitation common to Alzheimer's sufferers, according to findings presented in 2003 at the American Society of Consultant Pharmacists' 34th annual meeting.¹²⁴ Agitation is the most common behavioral management problem in patients with Alzheimer's and affects an estimated 75 percent of people with the disease. It may lead to a variety of symptoms ranging from physical and/or verbal abusive postures, physically non-aggressive conduct including pacing and restlessness, as well as verbally disturbed behaviors such as screaming and repetitive requests for attention.

This study and the Institutes of Medicine report also show THC to be effective in combating the anorexia or wasting syndrome common to Alzheimer's sufferers, since food refusal is a common problem in patients who suffer from Alzheimer's-type dementia. The appetite-stimulation properties of cannabis are some of the most well established in clinical research.¹²⁵

This new research on cannabis and Alzheimer's disease, coupled with the extensive work done on other neuroprotective qualities of cannabis and its components, indicates that cannabis may become the source of the most effective treatments for battling the Central Nervous System diseases that afflict millions of elderly Americans.



HOW CANNABIS COMPARES TO OTHER TREATMENTS

Arthritis Medications

Nearly 100 medications are listed by the Arthritis Foundation website for use with arthritis or other related conditions, such as fibromyalgia, psoriasis, osteoporosis and gout. These medicines include aspirin, ibuprofen and other oral and topical analgesics that dull pain. The most commonly used analgesic, **acetaminophen** (aspirin-free Anacin, Excedrin, Panadol, Tylenol) is usually not associated with side effects, though long-term use of acetaminophen is thought to be one of the common causes of end-stage renal disease. To effectively control arthritis, **aspirin** must be taken in large, continuous doses (1000-5400 mg daily), which can cause stomach pain or damage; it is believed to cause more than 1,000 deaths annually in the United States. For that reason, some doctors prescribe one of several chemical variations referred to as nonacetylated salicylates, such as CMT, Tricosal, and Trilisate, which can cause deafness or ringing in the ears in large doses.

Much stronger analgesics are also prescribed for arthritis, sometimes along with acetaminophen. These are: **codeine** (Dolacet, Hydrocet, Lorcet, Lortab, Vicodin); **morphine** (Avinza, Oramorph); **oxycodone** (Oxycontin, Roxicodone); **propoxyphene** (Percocet, Darvon, Darvocet) and **tramadol** (Ultram, Ultracet). These medicines can cause psychological and physical

dependence, as well as constipation, dizziness, lightheadedness, mood changes, nausea, sedation, shortness of breath and vomiting. Taking high doses or mixing with alcohol can slow down breathing, a potentially fatal condition.



Analgesics don't treat the inflammation that can cause severe arthritis pain. For inflammation, steroids, nonsteroidal anti-inflammatory drugs (NSAIDs) and newer COX-2 inhibitors are prescribed.

Corticosteroids (Cortisone), prednisone and related medications

can cause bruising, cataracts, elevated blood sugar, hypertension, increased appetite, indigestion, insomnia, mood swings, muscle weakness, nervousness or restlessness, osteoporosis, susceptibility to infection and thin skin.

Twenty NSAIDs are available with a doctor's prescription, with three of those also available over the counter. They are **diclofenac** (Arthrotec, Cataflam, Voltaren); **diflunisal** (Dolobid); **etodolac** (Lodine); **fenoprofen calcium** (Nalfon); **flurbiprofen** (Ansaid); **ibuprofen** (Advil, Motrin IB, Nuprin); **indomethacin** (Indocin); **ketoprofen** (Orudis); **meclofenamate sodium** (Meclomen); **mefenamic acid** (Ponstel); **meloxicam** (Mobic); **nabumetone** (Relafen); **naproxen** (Naprosyn, Naprelan); **naproxen sodium** (Anaprox, Aleve); **oxaprozin** (Daypro); **piroxicam** (Feldene); **sulindac** (Clinoril); and **tolmetin sodium** (Tolectin).

Side effects of NSAIDs include abdominal or stomach cramps, edema (swelling of the feet), pain or discomfort, diarrhea, dizziness, drowsiness or lightheadedness, headache, heartburn or indigestion, nausea or vomiting, gastric ulcers, stomach irritation, bleeding, fluid retention, and decreased kidney function. This is because NSAIDs act on arthritis by inhibiting prostaglandins, which protect the stomach lining, promote clotting of the blood, regulate salt and fluid balance, and maintain blood flow to the kidneys. The gastrointestinal complications of NSAIDs are the most commonly reported serious adverse drug reaction, though NSAIDs cause more than 7,600 annual deaths and 70,000 hospitalizations.

The newer group of arthritis drugs is known as cyclo-oxygenase-2 inhibitors (COX-2), which include **Celebrex**, **Bextra** and **Vioxx**. These medications have the same side effects as NSAIDs, except they are less likely to cause bleeding stomach ulcers and susceptibility to bruising or bleeding.

Non-selective NSAIDs have been associated with an increased risk of con-

gestive heart failure. Less is known or has been concluded about the cardiovascular effects of COX-2 inhibitors, though a retrospective analysis of the risk of hospital admission for heart failure done by the Institute for Clinical Evaluative Sciences in Toronto, Canada suggests some may have serious side effects. The study of 130,000 older patients found that those using Vioxx had an 80% increased risk of hospital admission for congestive heart failure. Those using non-selective NSAIDs had a 40% increased risk, and those using Celebrex had the same rate of heart failure as people who had never used NSAIDs.

Antipyretic and anti-inflammatory effects of NSAIDs can mask the signs and symptoms of infection. Their use can interfere with the pharmacologic control of hypertension and cardiac failure in patients who take beta-adrenergic antagonists, angiotensin-converting enzyme inhibitors, or diuretics. Long-term use may damage chondrocyte (cartilage) function.

Only about 60% of patients will respond to any single NSAID. Approximately 10% of rheumatoid arthritis patients will not respond to any NSAID.

Biologic response modifiers such as **adalimumab** (Humira); **etanercept** (Enbrel); **infliximab** (Remicade), and **anakinra** (Kineret) are prescribed to either inhibit or the supplement the immune system components called cytokines. Rare reports of lupus (with symptoms such as rash, fever and pleurisy) have been linked to treatment with adalimumab, etanercept and infliximab. Lupus symptoms resolve when the medication is stopped. Multiple sclerosis has rarely developed in patients receiving biologic response modifiers. Seizures have been reported with etanercept.

Chronic Pain Medications

According to the Institute of Medicine, "All of the currently available analgesic (pain-relieving) drugs have limited efficacy for some types of pain. Some are limited by dose-related side effects and some by the development of tolerance or dependence."

The opioid analgesics commonly used to combat pain include **codeine** (Dolacet, Hydrocet, Lorcet, Lortab); **morphine** (Avinza, Oramorph); **oxycodone** (Vicodin, Oxycontin, Roxicodone, Percocet, Roxicet); **propoxyphene** (Darvon, Darvocet) and **tramadol** (Ultram, Ultracet). These medicines can cause psychological and physical dependence, as well as constipation, dizziness, lightheadedness, mood changes, nausea, sedation, shortness of breath and vomiting. Taking high doses or mixing with alcohol can slow down breathing, a potentially fatal condition.

In addition, patients in pain are often prescribed muscle relaxants such as Robaxin and Flexeril; anti-anxiety agents such as Valium, Sinequan, Vistaril, Ativan and Xanax; hypnotics such as Halcion, Restoril, Chloralhydrate, Dalmane and Doral and anti-emetics such as Zofran, Compazine, Phenergan, Tigan and Marinol.

Robaxin's side effects include abnormal taste, amnesia, blurred vision, confusion, dizziness, drop in blood pressure and fainting, drowsiness, fever, flushing, headache, hives, indigestion, insomnia, itching, light-headedness, nasal congestion, nausea, pinkeye, poor coordination, rash, seizures, slowed heartbeat, uncontrolled eye movement, vertigo, vomiting and yellow eyes and skin.

Flexeril can cause abnormal heartbeats, aggressive behavior, agitation, anxiety, bloated feeling, blurred vision, confusion, constipation, convulsions, decreased appetite, depressed mood, diarrhea, difficulty falling or staying asleep, difficulty speaking, disorientation, double vision, excitement, fainting, fatigue, fluid retention, gas, hallucinations, headache, heartburn, hepatitis, hives, increased heart rate, indigestion, inflammation of the stomach, itching, lack of coordination, liver diseases, loss of sense of taste, low blood pressure, muscle twitching,

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

nausea, nervousness, palpitations, paranoia, rash, ringing in the ears, severe allergic reaction, stomach and intestinal pain, sweating, swelling of the tongue or face, thirst, tingling in hands or feet, tremors, unpleasant taste in the mouth, urinating more or less than usual, vague feeling of bodily discomfort, vertigo, vomiting, weakness, and yellow eyes and skin

The newer antiemetics, **Anzamet**, **Kytril** and **Zofran**, are serotonin antagonists, blocking the neurotransmitter that sends a vomiting signal to the brain. Rare side effects of these drugs include fever, fatigue, bone pain, muscle aches, constipation, loss of appetite, inflammation of the pancreas, changes in electrical activity of heart, vivid dreams, sleep problems, confusion, anxiety and facial swelling.

Reglan, a substituted benzamide, increases emptying of the stomach, thus decreasing the chance of developing nausea and vomiting due to food remaining in the stomach. When given at high doses, it blocks the messages to the part of the brain responsible for nausea and vomiting. Side effects include sleepiness, restlessness, diarrhea and dry mouth. Rarer side effects are rash, hives and decreased blood pressure

Haldol and **Inapsine** are tranquilizers that block messages to the part of the brain responsible for nausea and vomiting. Possible side effects include decreased breathing rate, increased heart rate, decrease in blood pressure when changing position and, rarely, change in electrical activity of the heart.

Compazine and **Torecan** are phenothiazines, the first major anti-nausea drugs. Both have tranquilizing effects. Common side effects include dry mouth and constipation. Less common effects are blurred vision, restlessness, involuntary muscle movements, tremors, increased appetite, weight gain, increased heart rate and changes in electrical activity of heart. Rare side effects include jaundice, rash, hives and increased sensitivity to sunlight.

Benadryl, an antihistamine, is given along with Reglan, Haldol, Inapsine, Compazine and Torecan to counter side effects of restlessness, tongue protrusion and involuntary movements. Its side effects include sedation, drowsiness, dry mouth, dizziness, confusion, excitability and decreased blood pressure.

Benzodiazepine drugs **Ativan** and **Xanax** are prescribed to combat the anxiety associated with chronic pain. Ativan causes amnesia. Abruptly stopping the drug can cause anxiety, dizziness, nausea and vomiting, and tiredness. It can cause drowsiness, confusion, weakness and headache when first starting the drug. Nausea, vomiting, dry mouth, changes in heart rate and blood pressure and palpitations are possible side effects.

Cancer Medications

The American Cancer Society lists 269 medicines currently prescribed to treat cancer and its symptoms, and to treat the side effects of other cancer drugs. Some drugs are prescribed for pain caused by cancer, and cancer patients report pain relief with cannabis therapy. Many chemotherapy agents cause severe nausea and 13 drugs are currently prescribed to treat nausea, including Marinol, a synthetic form of delta-9-THC, one of the active ingredients in cannabis.

Antiemetic medications used for treating nausea, and medications such as antihistamines that are sometimes prescribed in combination with antiemetics, are all discussed above, under pain medications.

Decadron (dexamethasone), a corticosteroid, is given with other chemotherapy drugs as an adjunct medication. Common side effects include increased appetite, irritation of stomach, euphoria, difficulty sleeping, mood changes, flushing, increased blood sugar, decreased blood potassium level. Possible side effects upon discontinuing the drug include adrenal insufficiency, weakness, aches, fever, dizziness, lowering of blood pressure when changing position, difficulty breathing, and low blood sugar.

Benzodiazepine drugs **Ativan** and **Xanax** are also prescribed to combat the effects of chemotherapy. Ativan causes amnesia. Abruptly stopping the drug can cause anxiety, dizziness, nausea and vomiting, and tiredness. It can cause drowsiness, confusion, weakness, and headache when first starting the drug. Nausea, vomiting, dry mouth, changes in heart rate and blood

pressure, and palpitations are possible side effects.

In addition, in April 2003 the FDA approved the drug **Emend** (aprepitant) to help control delayed-onset nausea. It is given along with two other anti-nausea drugs. A regimen of three pills costs \$250. The most common side effects with Emend are fatigue, nausea, loss of appetite, constipation and diarrhea.

Spasticity And Movement Medications

Benzodiazepines, baclofen, dantrolene sodium, and tizanidine are the most widely used agents for reduction of spasticity. At high dosages, oral medications can cause unwanted side effects that include sedation, as well as changes in mood and cognition.

Benzodiazepines, which include Diazepam (Valium) and Clonazepam (Klonopin, Rivotril) are centrally acting agents that increase the affinity of GABA to its receptor. Diazepam is the oldest and most frequently used oral agent for managing spasticity. Benzodiazepine side effects include sedation, weakness, hypotension, GI symptoms, memory impairment, incoordination, confusion, depression and ataxia. Tolerance and dependency may occur and withdrawal on cessation. Tolerance may also lead to unacceptable dosage escalation.

Baclofen (Lioresal) has been widely used for spasticity since 1967. It is a GABA agonist. Tolerance to the medication may develop. Baclofen must be slowly weaned to prevent withdrawal effects such as seizures, hallucinations and increased spasticity. It must be used with care in patients with renal insufficiency as its clearance is primarily renal. Side effects are predominantly from central depressant properties including sedation, ataxia, weakness and fatigue. May cause depression when combined with tizanidine or benzodiazepines.

Dantrolene Sodium (Dantrium) acts peripherally at the level of the muscle fiber and works best for cerebral palsy and traumatic brain injury. Because the action of dantrolene sodium is not selective for spastic muscles, it may cause generalized weakness, including weakness of the respiratory muscles. The side effects include drowsiness, dizziness, weakness, fatigue and diarrhea. In addition, hepatotoxicity (liver damage) occurs in < 1% of patients who take dantrolene sodium.

Tizanidine (Zanaflex) facilitates short-term vibratory inhibition of the H-reflex. Tizanidine in conjunction with baclofen or benzodiazepines has potential additive effects, including sedation and the possibility of liver toxicity. Dry mouth, somnolence, asthenia and dizziness are the most common side effects. Liver function problems and hallucinations may also occur.

Cannabis vs. Other Medications

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 an article in the *Journal of the American Medical Association* (1995):

"One of marihuana's greatest advantages as a medicine is its remarkable 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 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."

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.³⁵ Additionally, pharmaceutical companies have developed sublingual sprays and tablet 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. As Dr. Grinspoon



Angel Raich using a vaporizer in the hospital

goes on to say, "the greatest danger in medical use of marijuana 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 the same conclusion reached by the House of Lords report, which recommended resched-

uling and decriminalization, both of which were enacted in Great Britain in 2004.

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 at least another 60 cannabinoids in addition to THC.

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 for pain, only appetite stimulation and nausea control. But studies have found that many severely nauseated patients experience difficulty in getting and keeping a pill down, a problem avoided by use of inhaled cannabis.

Clinical research on Marinol vs. cannabis has been limited by federal restrictions, but a New Mexico state research program conducted from 1978 to 1986 provided cannabis or Marinol to about 250 cancer patients for whom conventional medications had failed to control the nausea and vomiting associated with chemotherapy.

At a DEA hearing, a physician with the program testified that cannabis was clearly superior to both Chlorpromazine and Marinol for these patients. 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. As the House of Lords report states, "Some users of both find cannabis itself more effective."

THE EXPERIENCE OF PATIENTS

Dorothy Gibbs

In 1911, at the age of one, I contracted the polio virus.. The early onset of polio caused permanent damage in my legs, spine, and back, resulting in significant weakness and atrophy in my legs. As a result, I have never been able to walk without the assistance of crutches and braces or a wheelchair. Approximately 30 years ago, my condition began to deteriorate. I began to suffer from increasing levels of pain and weakness in my legs and back as well as severe osteoarthritis in my hands, arms, and joints. Over time, my deteriorating medical condition has been exacerbated by my pain, leaving me increasingly immobilized..

By May, 1996, my physician [Dr. Arnold Leff, M.D.] had tried various prescription medications to relieve my pain, including: Tylenol #3, Ultram, Daypro, Tegretol, Soma, Valium, steroid injections into the trigger point, Dilantin, Duragesic, Zofran and Comapazine for the nausea caused by the opioid pain relievers, and Doloboid and Lodine as nonsteroids. Nothing seemed to work, and the pain persisted. I was growing increasingly depressed by the inability of anything to relieve my pain.

During this period it was clear to me, my caretaker and my physician that nothing was working to combat my pain. My caretaker, Pat, had heard of the success some people experience with the medicinal use of marijuana for pain management. Sometime during the end of 1997, she obtained a sample for me. Although I had never used marijuana in my previous eighty-seven years of life, I was willing to try anything that could alleviate even part of the pain.

The relief I experienced from medical marijuana was almost immediate. I was so pleased with the result that I wrote to Dr. Leff about my use of medical marijuana and we talked about the benefits of the medicine. Dr. Leff examined me and noted that medical marijuana helped me experience less chronic pain and nausea, leading him to recommend medical marijuana as part of my daily pain care regimen....

I strongly feel that I should have the right to use anything that may relieve any or some of my pain, and my last days should not be spent suffering. . . .

Ever since trying medical marijuana, my life has drastically improved. Although chronic pain, related to my post-polio syndrome will always be a part of my life, medical marijuana had helped me manage this pain by providing fast and effective relief for my muscle spasms, acute pains, and arthritis..

Since I began using medical marijuana, my pain is no longer persistent or debilitating. When I do suffer from pain, I am usually able to "get ahead of it" by using medical marijuana and make it manageable..

Judith Cushner

In 1989, I was diagnosed with breast cancer. After a brief period of recovery from the surgeries, I was placed on an aggressive protocol of chemotherapy, which lasted for eight months. That protocol was referred to as "CMF," because it consisted of heavy doses of Cytosan, methotrexate, and 5 fluorouracil.

The treatment caused severe and persistent side effects which were thoroughly disabling: chronic nausea, joint pain and weakness; a debilitating lack of energy and motivation; loss of appetite and a resulting unwanted weight loss; sleep disruption; and eventually my withdrawal from social situations and interpersonal relationships. The cumulative effect of these symptoms often rendered it impossible (or painfully difficult) to take the huge number of medications essential to my treatment regimen.

Right from the start, I was given Compazine as part of my chemotherapy protocol. I took it both orally (in pill form) and intravenously, but it too caused severe adverse side effects, including neuropathy. Moreover, the Compazine provided little, if any, relief from the nausea that had persisted since my treatment began. Hoping for better results, my doctor discontinued the Compazine and prescribed Reglan. That, too, had no effect on the nausea and we decided to discontinue it after a fairly short time.

By then, I had developed chronic mouth sores (also from the chemotherapy), which made it extremely painful to take pills or swallow anything. Rather than providing relief, the Reglan increased my discomfort and pain.

Yet another drug I tried was Marinol, which gave me no relief from the unrelenting nausea. If anything, taking yet another pill increased my discomfort. The pills themselves irritated the sores in my mouth. It also made me quite groggy, yet my sleep disturbance persisted, in part because my nausea and anxiety were so distracting.

During this time, a friend of mine (who happened to be a nurse) gave me a marijuana cigarette. She had seen my suffering and thought it might help. I took her advice and it worked. I took just a few puffs and within minutes, the nausea dissipated. For the first time in several months, I felt relief. I also felt hope. I smoked small amounts of marijuana for the remainder of my chemotherapy and radiation treatment. It was not a regular part of my day, nor did it become a habit. Each time I felt nausea coming on, I inhaled just two or three puffs and it subsided.

As my nausea decreased, my ability to eat and retain food increased. I saw a marked weight gain and my energy increased. As my general health improved, my sleeping habits also improved. In retrospect, one of the greatest benefits from the marijuana was that it decreased my use of other, more disabling and toxic medications, including the Compazine, Reglan and Lorazepam.

My cancer has been in remission now for just under a year. I lived to see my son's Bar Mitzvah, and I am proud to say that the risks I took to save my life, while technically illegal, have earned me the respect of both my children. They have learned the difference between therapeutic treatment and substance abuse, and (unlike many of their peers) that knowledge has helped them resist the temptations of recreational drugs. My decision to use marijuana and save my own life has educated many, including my rabbi and my congregation.

Sworn testimony by Judith Cushner in Conant v. McCaffrey, 2/14/1997

Jo Daly

In 1980, I was appointed by Dianne Feinstein, then Mayor of San Francisco, to serve as police commissioner for the city of San Francisco, an office which I held for six years. On May 24, 1988, I was diagnosed with Phase IV cancer of the colon. By the time it was diagnosed, it had already spread to my ovaries and lymph nodes. My oncologist at the UCSF Hospital prescribed an aggressive regimen of chemotherapy, which lasted six months. I was given large doses of the chemicals, four hours a day, five days a week in the first week of each month.

Each day, when I returned home from the hospital following treatment. . . . I was overcome by a sudden wave of intense nausea, like a nuclear implosion in my solar plexus, and I rushed desperately for the bathroom where I would remain for hours, clutching the toilet and retching my guts out. I had no appetite. I could not hold down what little food that I managed to swallow. And I could not sleep at night.

This intense nausea persisted for the two weeks following the treatment. By the third week after treatment, the side effects of the chemicals began to wear off, and I started to feel better. The next week, however, I had to return to the hospital where the chemicals were administered once more, beginning my hell all over again. To combat the nausea, I tried Marinol, a synthetic version of THC, one of the primary chemicals found in marijuana. However, I was often unable to swallow the Marinol capsule because of my severe nausea and retching. A friend then gave me a marijuana cigarette, suggesting that it might help quell my nausea.

I took three puffs from the cigarette. One-half hour later, I was calm, my nausea had disappeared, my appetite returned, and I slept that evening.

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.

I told my oncologist about how well marijuana quelled my nausea. My doctor was not surprised. In fact, he told me that many of his patients had made the same discovery. My doctor encouraged me to continue using marijuana if it worked. Although it occasionally produced a slight euphoria, it was not a painful sensation, and I was careful never to leave the house during those rare moments.

My use of medical marijuana had a secondary, though by no means minor benefit: I was able to drastically reduce my dependence on more powerful prescription drugs that I was prescribed for pain and nausea. With the help of medical marijuana, which I ingest only occasionally and in small amounts, I no longer need the Compazine, Lorazepam, Ativan and Halcion.

THE EXPERIENCE OF DOCTORS

Harvey L. Rose, M.D.

Both my research and my many years as a clinician have convinced me that marijuana can serve at least two important roles in safe and effective pain management. Ample anecdotal evidence and clinical observations, as well as significant research findings, strongly indicate that marijuana, for whatever reason, is often effective in relieving pain. This is true across a range of patient populations, including the elderly, the terminally ill seeking comfort in their final days, young adults stricken with life-threatening conditions, and cancer patients unable to tolerate the devastating effects of potentially life-saving therapies. Marijuana is also widely recognized as an antiemetic that reduces the nausea and vomiting often induced by powerful opioid analgesics prescribed for chronic, severe pain, as well as the nausea, vomiting and dizziness which often accompany severe and/or prolonged pain. I have had the benefit of consultations on this subject over many years with a range of treatment providers, including physicians, oncologists, pharmacologists, family practitioners, hospice workers, and pain specialists..

Specifically, I have found that cannabis can have an important opioid-sparing effect for pain patients. That is to say, that patients who are prescribed high doses of opioid analgesics can significantly reduce their reliance on these medications and improve their daily functioning by incorporating cannabis into their pain care regimen.

Marijuana not only has important analgesic properties but it also is an effective and important adjuvant therapy for patients suffering acute and/or chronic pain. No experienced and respected physician will deny that for such patients opioid therapy is central to palliative care. By the same token, the same experienced physicians will readily acknowledge that opioids often induce nausea and vomiting. For a number of pain patients, standard prescription antiemetics (e.g., Compazine, Zofran and Reglan) simply do not substantially reduce their nausea. For many, those medications are substantially less effective, or produce more debilitating side effects, than marijuana..

Quite simply, marijuana can serve much the same function for pain patients undergoing opiate therapy that it does for cancer patients undergoing chemotherapy: it suppresses the nausea and vomiting associated with treatment, and reduces the pain associated with prolonged nausea and retching, thereby increasing the chances that the patient will remain compliant with the primary treatment. With both chemotherapy and long-term pain management, failure to obtain and continue proper palliative and adjunct care can have dire, even fatal, consequences..

Finally, it is important to note that in my clinical experience observing patients who ingest cannabis for relief from pain and nausea and/or to stimulate appetite, I have witnessed no adverse complications. By contrast, many of the first-line pharmaceuticals used to combat cancer, HIV/AIDS, and pain associated with these and other illnesses can induce a variety of iatrogenic effects, including, in some instances, death. While patients may face serious legal implications related to their use of medical marijuana, as a physician I have yet to encounter a medical downside to their cannabinoid therapy. . . .

[A]gainst the backdrop of a growing body of scientific research, the reports of myriad pain patients, and the burgeoning clinical experience of physicians like myself, it is my considered opinion that cannabis can constitute an acceptable and sometimes necessary medicine to alleviate the immediate suffering of certain patients.

Dr. Rose served as a medical officer in the Air Force before entering private practice. During his 40-year career, he has taught at UC Davis School of Medicine, consulted with state legislative bodies, and received many awards.

Howard D. Maccabee, M.D.

In my practice, I commonly use radiation therapy to treat the whole spectrum of solid malignant tumors. Radiation therapy is often used after surgery or chemotherapy, as a second stage in treatment. Sometimes, however, radiation therapy is used concurrently with chemotherapy, or even as the first or only modality of treatment.

Because of the nature of some cancers, I must sometimes irradiate large portions of my patients' abdomens. Such patients often experience nausea, vomiting, and other side effects. Because of the severity of these side effects, some of my patients choose to discontinue treatment altogether, even when they know that ceasing treatment could lead to death.

During the 1980s, I participated in a state-sponsored study of the effects of marijuana and THC (an active ingredient in marijuana) on nausea. It was my observation during this time that some patients smoked marijuana while hospitalized, often with the tacit approval of physicians. I also observed that medical marijuana was clinically effective in treating the nausea of some patients.

During my career as a physician, I have witnessed cases where patients suffered from nausea or vomiting that could not be controlled by prescription anti-emetics. I frequently hear similar reports from colleagues treating cancer and AIDS patients. As a practical matter, some patients are unable to swallow pills because of the side effects of radiation therapy or chemotherapy, or because of the nature of the cancer (for instance, throat cancer). For these patients, medical marijuana can be an effective form of treatment.

Kate Scannell, M.D.

Because I was a cancer patient receiving chemotherapy at the same hospital where I worked, the elderly women with whom I shared the suite quickly surmised that I was also a doctor. The clues were obvious: the colleagues dropping by, the "doctor" salutations from co-workers and the odd coincidence that one of my suitemates was also one of my patients.

I braced myself for this woman's question, both wanting to make my-self available to her but also wishing that the world could forget that I was a doctor for the moment. After receiving my cancer diagnosis, dealing with surgery and chemo-therapy and grappling with insistent reminders of my mortality, I had no desire to think about medicine or to experience myself as a physician in that oncology suite. And besides, the chemotherapy, anti-nauseants, sleep medications and prednisone were hampering my ability to think clearly.

So, after a gentle disclaimer about my clinical capabilities, I said I'd do my best to answer her question. She shoved her IV line out of the way and, with great effort and discomfort, rolled on her side to face me. Her belly was a pendulous sack bloated with ovarian cancer cells, and her eyes were vacant of any light. She became short of breath from the task of turning toward me.

"Tell me," she managed, "Do you think marijuana could help me? I feel so sick."

I winced. I knew about her wretched pain, her constant nausea and all the prescription drugs that had failed her—some of which also made her more constipated, less alert and even more nauseous. I knew about the internal derangements of chemotherapy, the terrible feeling that a toxic swirl is invading your bones, destroying your gut and softening your brain. I knew this woman was dying a prolonged and miserable death. And, from years of clinical experience, I, like many other doctors, also knew that marijuana could actually help her. From working with AIDS and cancer patients, I repeatedly saw how marijuana could ameliorate a patient's debilitating fatigue, restore appetite, diminish pain, remedy nausea, cure vomiting and curtail down-to-the-bone weight loss. I could firmly attest to its benefits and wager the likelihood that it would decrease her suffering.

Still, federal law has forbidden doctors to ... prescribe marijuana to patients

[though doctors may legally recommend it.] In fact, in 1988 the Drug Enforcement Agency even rejected one of its own administrative law judge's conclusions supporting medicinal marijuana, after two full years of hearings on the issue.

Judge Francis Young recommended the change on grounds that "marijuana, in its natural form, is one of the safest therapeutically active substances known to man," and that it offered a "currently accepted medical use in treatment."

Doctors see all sorts of social injustices that are written on the human body, one person at a time. But this one—the rote denial of a palliative care drug like marijuana to people with serious illness—smacks of pure cruelty precisely because it is so easily remediable, precisely because it prioritizes service to a cold political agenda over the distressed lives and deaths of real human beings.

Washington bureaucrats—far removed from the troubled bedsides of sick and dying patients—are ignoring what patients and doctors and health care workers are telling them about real world suffering. The federal refusal to honor public referendums like California's voter-approved Medical Marijuana Initiative is bewildering. Its refusal to listen to doctors groups like the California Medical Association that support compassionate use of medical marijuana is chilling.

In a society that has witnessed extensive positive experiences with medicinal marijuana, as long as it is safe and not proven to be ineffective, why shouldn't seriously ill patients have access to it? Why should an old woman be made to die a horrible death for a hollow political symbol? (From an OpEd in San Francisco Chronicle 2/16/2003)

Kate Scannell, MD is a geriatric specialist and co-director of the Northern California Ethics Department of Kaiser-Permanente.

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 or 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.

[Dr. Petro then related his experience with a spasticity 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; testimony submitted before the DEA.

THE HISTORY OF CANNABIS AS MEDICINE

The history of the medical use of cannabis dates back to 2700 B.C. in the pharmacopoeia of Shen Nung, one of the fathers of Chinese medicine. In the west, it has been recognized as a valued, therapeutic herb for centuries. In 1823, Queen Victoria's personal physician, Sir Russell Reynolds, not only prescribed it to her for menstrual cramps but wrote in the first issue of *The Lancet*, "When pure and administered carefully, [it is] one of the of the most valuable medicines we possess." (*Lancet* 1; 1823).

The American Medical Association opposed the first federal law against cannabis with an article in its leading journal (108 J.A.M.A. 1543-44; 1937). Their representative, 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." Cannabis remained part of the American pharmacopoeia until 1942 and is currently available by prescription in the Netherlands and Canada.

Federal Policy is Contradictory

Federal policy on medical cannabis is filled with contradictions. Cannabis is a Schedule I drug, classified 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.

Even in America cannabis was widely prescribed until the turn of the century. Cannabis is now available by prescription in the Netherlands. Canada has been growing cannabis for patients there and plans to make it available in pharmacies as well. Ironically, the U.S. federal government also grows and provides cannabis for a small number of patients today.

In 1976 the federal government created the Investigational New Drug (IND) compassionate access research program to allow patients to receive medical cannabis from the government. The application process was extremely complicated, and few physicians became involved. In the first twelve years the government accepted about a half dozen patients. The federal government approved the distribution of up to nine pounds of cannabis a year to these patients, all of whom report being substantially helped by it.

In 1989 the FDA was deluged with new applications from people 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, eight surviving patients still receive medical cannabis from the federal government, grown under a doctor's supervision at the University of Mississippi and paid for by federal tax dollars.

Despite this successful medical program and centuries of documented safe use, cannabis is still classified in America 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 so that it could be prescribed to patients.

The DEA stalled hearings for 16 years, but 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 classify cannabis as a substance with no medical use.

Widespread public support; state laws passed

Public opinion is clearly in favor of ending the prohibition of medical cannabis. According to a CNN/Time poll in November 2002, 80% of

Americans support medical cannabis. The AARP, the national association whose 35 million members are over the age of fifty, released a national poll in December 2004 showing that nearly two-thirds of older Americans support legal access to medical marijuana. Support in the West, where most states that allow legal access are located, was strongest, at 82%, but at least 2 out of 3 everywhere agreed that "adults should be allowed to legally use marijuana for medical purposes if a physician recommends it."

The refusal of the federal government to act on this support has meant that patients have had to turn to the states for action. Since 1996, voters have passed favorable medical cannabis ballot initiatives in nine states plus such cities as Ann Arbor, Michigan and the District of Columbia, while the legislatures in Hawaii, Rhode Island, Vermont and Maryland have enacted similar bills. As of June 2006, medical cannabis legislation is under consideration in several states.

Currently, laws that effectively remove state-level criminal penalties for growing and/or possessing medical cannabis are in place in Alaska, California, Colorado, Hawaii, Maine, Maryland, Montana, Nevada, Oregon, Rhode Island, Vermont and Washington. Thirty-six states have symbolic medical cannabis laws (laws that support medical cannabis but do not provide patients with legal protection under state law).

2005 U.S. Supreme Court ruling

In June 2005, the U.S. Supreme Court overturned a decision by a U.S. appeals court (*Raich v. Ashcroft*) that had exempted medical marijuana from federal prohibition. The 2005 decision, now called *Gonzales v. Raich*, ruled that federal officials may prosecute medical marijuana patients for possessing, consuming, and cultivating medical cannabis. But according to numerous legal opinions, that ruling does not affect individual states' medical marijuana programs, and only applies to prosecution in federal, not state, court.

Petitions for legal prescriptions pending

The federal Department of Health and Human Services (HHS) and the FDA are currently reviewing two legal petitions with broad implications for medical marijuana. The first, brought by ASA under the Data Quality Act, says HHS must correct its statements that there is no medical use for marijuana to reflect the many studies which have found it helpful for many conditions. Acknowledging legitimate medical use would then force the agency to consider allowing the prescribing of marijuana as they do other drugs, based on its relative safety.

A separate petition, of which ASA is a co-signer, asks the Drug Enforcement Administration for a full, formal re-evaluation of marijuana's medical benefits, based on hundreds of recent medical research studies and two thousand years of documented human use.

Legal Citations

1. See "The Administration's Response to the Passage of California Proposition 215 and Arizona Proposition 200" (Dec. 30, 1996).
2. See *Conant v. McCaffrey*, 172 F.R.D. 681 (N.D. Cal. 1997).
3. See *id.*; *Conant v. McCaffrey*, 2000 WL 1281174 (N.D. Cal. 2000); *Conant v. Walters*, 309 F.3d 629 (9th Cir. 2002).
4. 309 F.3d 629 (9th Cir. 2002).
5. *Id.* at 634-36.
6. Criminal liability for aiding and abetting requires proof that the defendant "in some sort associate[d] himself with the venture, that he participate[d] in it as something that he wished to bring about, that he [sought] by his action to make it succeed." *Conant v. McCaffrey*, 172 F.R.D. 681, 700 (N.D. Cal. 1997) (quotation omitted). A conspiracy to obtain cannabis requires an agreement between two or more persons to do this, with both persons knowing this illegal objective and intending to help accomplish it. *Id.* at 700-01.
7. 309 F.3d at 634 & 636.
8. *Conant v. McCaffrey*, 2000 WL 1281174, at *16 (N.D. Cal. 2000).
9. 309 F.3d at 634.
10. See *id.* at 635; *Conant v. McCaffrey*, 172 F.R.D. 681, 700-01 (N.D. Cal. 1997).

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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 more 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.

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. ASA works in partnership with state, local, and national lawmakers to overcome barriers and create policies that improve access to cannabis for patients and researchers. We have more than 30,000 active members with chapters and affiliates in more than 40 states.

ASA provides medical information and legal training for patients, attorneys, health and medical professionals, and policymakers throughout the United States.



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