Medical Marijuana

By: Christine Schnitzer

Marijuana (cannabis) is a natural substance that has been around for thousands of years and used for many different purposes, including treating a wide variety of ailments. Until 1937, marijuana was legal in the United States. Now, legalizing or licensing marijuana for medicinal use is a controversial issue due to widespread illegal use of marijuana as a recreational drug. Marijuana use for medicinal value has an extensive timeline that dates back to B.C. and remains in the forefront of an ethically motivated political debate. The debate concerns the legalization of marijuana for medical use; the FDA has not approved marijuana for medical use in the United States. Despite its status as an unapproved new drug, there is considerable interest in use of marijuana for the treatment of a number of conditions, including glaucoma, AIDS wasting, chronic pain, treatment of spasticity associated with multiple sclerosis, prevention of epileptic seizures, and chemotherapy-induced nausea. Studies to evaluate the safety and efficacy of marijuana for medical use have been conducted; positive and negative studies have been published and the debate continues. There are many opinions and individual stories regarding the use of marijuana as a medicinal product that fuel the controversial issue.

For thousands of years the *cannabis sativa*, *cannabis indica* and other strains of cannabis provided a natural source of food, medicine, oil, and hemp fibre for textiles and paper making. The medicinal use of marijuana has been documented throughout history. By the early 1920’s recreational smoking of marijuana was introduced to the United States. Prohibition was based on fear generated by anti-marijuana propaganda and failed to acknowledge the potential medicinal value of marijuana. These events can be followed along an extensive timeline.

2727 B.C. Use of cannabis as medicine is first recorded in Chinese pharmacopoeia of Shen Nung, one of the fathers of Chinese medicine.

1200-800 B.C. Cannabis is mentioned in the Hindu sacred text Atharvaveda as one of five sacred plants of India, used medicinally and ritually as an offering to Shiva.

550 B.C. Zoroaster, the Persian prophet, writes the Zend-Avesta, a sacred text which lists more than 10,000 medicinal plants and hemp is at the top of the list.

100 B.C. The newly compiled herbal Pen Ts’ao Ching mentions the psychotropic properties of cannabis.

70 A.D. Dioscorides mentions the use of cannabis as a Roman medicament.

170 A.D. Galen (Roman) alludes to the psychoactivity of cannabis seed confections.

200 A.D. In China marijuana is mixed with wine and used for anesthetic properties.

500-600 A.D. The Jewish Talmud mentions the euphoriant properties of cannabis.

1155-1221 Sufi master Sheik Haidar writes about the Persian legend of Khorasan’s personal discovery of the inebriating powers of cannabis and it’s subsequent spread to Iraq, Bahrain, Egypt and Syria.
13th Century The oldest monograph on hashish, Zahr al’arish fi tahrîm al-hashish, is written. Ibn al-Baytar of Spain provides a description of psychoactive cannabis.

1484 Pope Innocent VIII issues a papal ban on cannabis medicines, labeling cannabis as an unholy sacrament of the Satanic mass.

1840 Cannabis base medicinal preparations are available in America.

December 1840: Abraham Lincoln writes, “Prohibition... goes beyond the bounds of reason in that it attempts to control a man's appetite by legislation and makes a crime out of things that are not crimes... A prohibition law strikes a blow at the very principles upon which our government was founded.”

1845: Dr. Jean-Jacques Moreau de Tours initiates the science of psycho-pharmacology in France, using cannabis to treat the insane and depressed.

1890 Queen Victoria’s personal physician, Sir Russell Reynolds, prescribes cannabis for menstrual cramps. In the first issue of The Lancet Sir Russell Reynolds writes, “When pure and administered carefully, [cannabis] one of the most valuable medicines we possess.”

1895 The Indian Hemp Drug Commission concludes that cannabis has some medical uses, numerous positive emotional and social benefits, and no addictive properties.

1906 The Pure Food and Drug requires labeling of any cannabis contained in over-the-counter remedies.

1914 Harrison Narcotics Act passed by Congress is the first attempt to control recreational use of drugs.

By early 1920's Mexican laborers introduced the smoking of marijuana to the United States, it spread across the south, established in New Orleans, and confined primarily among the poor and minority groups.

1930 The Federal Bureau of Narcotics is created.

By 1931 Twenty-nine states had outlawed marijuana.

1931: DuPont's financial backer Andrew Mellon, President Hoover's Secretary of the Treasury, appointed Harry Anslinger (his nephew-in-law) to be the head of the Bureau of Narcotics. DuPont is researching and developing synthetic Nylon, and hemp fibre from the cannabis plant is a natural rival. Through William R. Hearst's vast newspaper network, Hearst and Anslinger protected Mellon and DuPont's interests, by spreading fear and lies revolving around smoking of cannabis by blacks, Mexicans and entertainers.

1936 The anti-marijuana propaganda film Reefer Madness, directed by Louis Gasnier, is released. The plot revolves around high school students tempted by pushers to use marijuana and the resulting tragic events; a killing, a suicide, and madness. 11

Prior to 1937 Cannabis Sativa is officially in the United States Pharmacopoeia, 28 legal preparations, recommended for a wide variety of disorders.

April 14, 1937: The Marijuana Tax Bill is secretly introduced by the Treasury Department through the House Ways and Means Committee; the only committee that can send its bills directly to the House floor without debate within other committees and
bypass more appropriate venues. Committee chairman Robert L. Doughton, a key Congressional ally of DuPont, rubber-stamps the bill.

**Spring 1937:** Congress holds hearings on the Marijuana Tax Act that was prepared in secret for two years. The only opponent to the bill is a representative of the American Medical Association, who testifies that prohibition of marijuana could deny the world a potential medicine.

**December 1937** The Marijuana Tax Act is signed into law. The statute criminalizes marijuana; restricting possession of the drug to individuals who pay an excise tax for certain authorized medical and industrial uses.

1937-1939 The Federal Bureau of Narcotics, directed by Commissioner Harry Anslinger, prosecutes 3,000 doctors for illegally prescribing cannabis-derived medications. The American Medical Association established an agreement with Anslinger, and only three doctors are prosecuted over the following decade.

1941 Removed from the National Formulary and U.S. Pharmacopoeia.

1944 New York Mayor LaGuardia’s Marijuana Commission concludes that marijuana has beneficial effects and that there is no link between cannabis and violence. Anslinger threatens doctors with prison terms if independent research is initiated.

1950-1960’s No research.

1951-1956 Stricter sentencing laws are enacted through federal laws (Boggs Act, 1952; Narcotics Control Act, 1956) that set mandatory sentences for drug related offenses, including marijuana.

1962 Harry Anslinger is forced into retirement by President John F. Kennedy; after attempting to censor the work of Professor Alfred Lindsmith, author of The Addict and the Law.

1964 Dr. Mechoulam of the University of Tel Aviv isolates the primary active ingredient in cannabis, $\Delta^9$-tetrahydrocannabinol ($\Delta^9$-THC); one of at least 60 compounds found to have therapeutic value.

1968 The Federal Bureau of Narcotics and the Bureau of Dangerous Drugs of the Food and Drug Administration merges to create the Bureau of Narcotics and Dangerous Drugs.

1970 National Organization for the Reform of Marijuana Laws (NORML) is founded. A nonprofit, public-interest lobby supports decriminalization and legalization of marijuana for recreational and medicinal use.\textsuperscript{12}

**October 27, 1970** The Comprehensive Drug Abuse Prevention and Control Act is passed. Part II of this Act, The Controlled Substance Act (CSA), defines a scheduling system for drugs and places all illicit and prescription drugs into five schedules depending upon their approved medical use and abuse potential. Marijuana is placed in Schedule I that defines marijuana as having a very high potential for abuse, no currently accepted medical use in treatment in the United States, and a lack of accepted safety for use under medical supervision.

1971 Reports by Medical World News that, “Marijuana… is probably the most potent anti-epileptic known to medicine today.
1972 Nixon rejects recommendations from the bipartisan Shafer Commission, appointed by President Nixon at the direction of Congress. The Shafer Commission considered the laws regarding marijuana and recommends personal use of marijuana should be decriminalized.

1973 The Bureau of Narcotics and Dangerous Drugs and the Office of Drug Abuse Law Enforcement merges to create the U.S. Drug Enforcement Agency (DEA).

1974 Dr. Heath conducts the government-funded Rhesus monkey study at Tulane University; the results are portrayed as evidence that marijuana causes brain damage. The monkeys were strapped into a chair and an airtight gas mask was placed on the monkeys then subjected to the equivalent of 63 Columbian-strength joints over the course of five minutes. The monkeys suffered brain damage, probably from suffocation and carbon monoxide poisoning and not from exposure to marijuana.

1975 FDA establishes the Investigational New Drug Compassionate Use program for medical marijuana, enabling some patients to receive marijuana from the government.

1976 Independent research and research by federal health programs on the use of natural cannabis derivatives for medicine was banned by the Ford Administration. No high, limited research by private pharmaceutical corporations is allowed, using only Δ⁹-THC ignoring other potential medicinally beneficial derivatives of cannabis.

1985 The FDA approved dronabinol (Marinol®), for treatment of nausea and vomiting associated with cancer chemotherapy in patients who have not responded to conventional antiemetic therapy. In 1999, in consensus with the scientific and medical evaluation and recommendations of the Health and Human Services (HHS) the DEA lowered Marinol® to a Schedule III drug, reducing prescribing and distribution restrictions and record-keeping.

1986 President Ronald Reagan signed the Anti-Drug Abuse Act, requiring mandatory sentences for drug related crimes, that raises federal penalties for marijuana possession and dealing, basing the penalties on the amount of the drug involved. The Anti-Drug Abuse Act was later amended and established a three strikes and you're out policy, requiring life sentences for repeat drug offenders and the death penalty for drug kingpins.

1988 After 16 years of hearings, the DEA’s chief administrative law Judge Francis L. Young determines that marijuana has clearly established medical use and recommends that marijuana be rescheduled as a prescriptive drug. “Marijuana is the safest therapeutically active substance known to man. . . safer than many foods we commonly consume,” Judge Francis L. Young; DEA Administrative Law Judge, September 1988.

1988-90 The St. Louis Medical University conducts a government-funded study and identifies specific receptor site for cannabinoids in the brains of laboratory rats, to which no other known compounds will bind.

1989 In a nationally televised speech President George Bush declares a new War on Drugs.

1992 The George W. Bush administration closes the Compassionate Use program; the program remains in operation only for the seven surviving, previously approved patients. The chemical substance, a neurotransmitter, anandamide is identified and determined to
be an endogenous cannabinoid produced by the body which reacts with the identified cannabinoid receptor sites.

**February 18, 1994** Marijuana remains a Schedule I after the U.S. Court of Appeals rules that the DEA is allowed to reject Judge Francis L Young’s ruling and set its own criteria.

**1996** California voters pass Proposition 215 legalizing medical use of marijuana for patients with AIDS, cancer, and other serious and painful diseases and allowing for the sale of marijuana. This is contradictory of Federal laws prohibiting possession of marijuana.

**March 17, 1999** The Institute of Medicine (IOM) publishes results from the government-funded study initiated in January 1997. Drug Czar Barry McCaffery, director of the White House Office of National Drug Control Policy, commissioned the IOM to conduct a review of the scientific evidence to determine the potential health benefits and risks of marijuana and its constituent cannabinoids. For symptoms such as pain relief, control of nausea and vomiting, and appetite stimulation investigators reported a potential medicinal value for cannabinoid drugs. The report states, “Until a non-smoked, rapid-onset cannabinoid drug delivery system becomes available, we acknowledge that there is no clear alternative for people suffering from chronic conditions that might be relieved by smoking marijuana, such as pain or AIDS wasting.”

There have been hundreds of studies on the medical uses of cannabis since its introduction to western medicine in the early nineteenth century. During the 1970s and 1980s pioneering studies were conducted on the use of medical marijuana, including six studies conducted by state health departments of the United States. These studies on efficacy took place in New Mexico, New York, Tennessee, California, Michigan, and Georgia. These studies analyzed the efficacy of marijuana as an antiemetic, utilizing oral THC or smoked marijuana, in patients who had failed control with antiemetic therapy. The results of these studies found that oral and smoked marijuana are effective at reducing emesis.

A peer review of thirty-eight scientific studies of marijuana between 1990 and 2005 illustrates the efficacy of marijuana for medical use. The results of the review are recorded as Pro, Neutral, or Con as determined by the published results of the studies concerning marijuana use. Compounding the results shows that the Pro argument for medical use of marijuana has more evidence-based support, 42.1%, than the Con argument 18.4% (Table 1). The studies compared within the peer review were not classified based on the scientific information evaluated. The double-blind human studies evaluated the efficacy of marijuana in treating symptoms of multiple sclerosis and
Table 1. Peer-Reviewed Scientific Studies Involving Cannabis (1990 – 2005)

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<td>studies</td>
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<td>studies</td>
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</tr>
<tr>
<td>I. Double-Blind Human Studies</td>
<td>2</td>
<td>50%</td>
<td>1</td>
<td>25%</td>
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<tr>
<td>II. Human Studies</td>
<td>10</td>
<td>33.30%</td>
<td>14</td>
<td>46.70%</td>
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<tr>
<td>III. Animal Studies</td>
<td>4</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
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<tr>
<td>TOTALS*</td>
<td>16</td>
<td>42.10%</td>
<td>15</td>
<td>39.50%</td>
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* Classifications of Pro, Neutral or Con may sometimes be judgment calls as to whether or not the study supports current medical use of marijuana by human adults.

Parkinson’s disease. The human studies analyzed a multitude of endpoints; including studies concerning statistics, defined treatment indications for disease states, and side effects of marijuana. The animal studies involved in the analysis were designed to determine the biochemistry of marijuana use. Although the data compared is incongruent, the results indicate that marijuana for medicinal use shows a potential trend toward a positive benefit.

Russo et al. published; Chronic Cannabis Use in the Compassionate Investigational New Drug Program: An Examination of Benefits and Adverse Effects of Legal Clinical Cannabis, a study proposed to investigate the therapeutic benefits and adverse effects of prolonged use of medical marijuana in a cohort of seriously ill patients. The aim of this study is to examine the overall health status of four of the seven surviving patients in the Compassionate Use program. The patients have used a known dosage of a standardized, heat-sterilized quality-controlled supply of low-grade marijuana provided by the government for 11 to 27 years. Results demonstrate clinical effectiveness in these patients in treating glaucoma, chronic musculoskeletal pain, spasm and nausea, and spasticity of multiple sclerosis. All four patients are taking fewer standard medications than previously and are stable with respect to their chronic conditions.

The issue remains divided among medical doctors, experts, health and medical organizations, politicians, and between the state and federal levels of government. When asked the question if marijuana should be a medical option, there are conflicting opinions among physicians. For example Jesse L. Steinfield, a retired United States Surgeon General stated, “It should be an option for patients who have it recommended by knowledgeable physicians. I don't recommend it [marijuana] for recreational use.” On the other hand, Bill Frist, M.D., opposing marijuana stated, “As a physician I have sympathy for patients suffering from pain and other medical conditions. Although I understand many believe marijuana is the most effective drug in combating their medical ailments, I would caution against this assumption due to the lack of consistent, repeatable scientific data available to prove marijuana's benefits. Based on current evidence, I believe that marijuana is a dangerous drug and that there are less dangerous medicines offering the same relief from pain and other medical symptoms.” Answering the same question, some examples of health associations that support marijuana as medicine are: American Association For Health Freedom, American Public Health Association, British Medical Association, plus several more. There are also medical organizations that
oppose legalization, including the American Medical Association, American Academy of Ophthalmology, and the National Multiple Sclerosis Society to name a few.\textsuperscript{14}

Politicians generally support the view of their party. Republicans are primarily opposed to medical marijuana and most Democrats support legalization for medical use as deemed appropriate by a competent medical physician. Eleven states have laws legalizing or decriminalizing medical marijuana use, and one state limits penalties.\textsuperscript{16} Oregon, Washington, Montana, Colorado, Nevada, California, Alaska, Hawaii, Vermont, Maine, and Arizona have passed referendum, allowing the use of marijuana in controlled situations for medical reasons. The state of Maryland reduces the fine if the patient can prove medical use. As a result of state legislation, the DEA began to confiscate the drug from users because marijuana remains illegal under federal law.

California residents Raich and Monson sought an injunction against confiscation and other enforcement actions. On June 7, 2005, the Supreme Court majority ruled in Gonzales vs. Raich that Congress's constitutional authority to regulate the interstate market in drugs, legal or illegal, extends to small, homegrown quantities of doctor-recommended marijuana.\textsuperscript{16} The ruling does not overturn laws in California and ten other states that permit medical use of marijuana. However, the ruling does mean that those who try to use marijuana as a medical treatment risk legal action by the DEA or other federal agencies and that the state laws provide no defense. On November 23, 2005, Raich renewed her legal fight by filing a brief in the Federal 9th Circuit Court of Appeals arguing that federal efforts to restrict medicinal marijuana violate her rights to take the only medication that allows her to avoid intolerable pain and death.\textsuperscript{17}

A young artist named Renee Boje worked on marijuana literature and activism with Todd McCormick, a medical marijuana advocate. In 1997, Renee Boje was arrested during a bust at Todd McCormick's medical marijuana research facility in California.\textsuperscript{14} Boje has sought political refuge in Canada and continues her fight to avoid extradition to the United States on charges of cultivation, conspiracy to manufacture marijuana and possession.\textsuperscript{18} The United States federal authorities want to imprison Boje for a ten-year mandatory minimum to life sentence in a federal prison for medical marijuana charges. On June 17, 2005 the Canadian Minister of Justice, Irwin Cotler, ordered Renee Boje surrender to the United States authorities.\textsuperscript{19} Renee surrendered into custody and was released on bail pending an appeal that she and her lawyer entered to the Canadian Court of Appeals.

Public opinion on the medical value of marijuana is consistently divided. The Mason-Dixon Poll conducted in June 2005, shows the results of a recent national poll of public opinion of medical marijuana (Table 2).\textsuperscript{14} The results show that in the population polled the majority of respondents are not opposed to the medical use of marijuana. Over fifty percent of respondents to every vote or poll on medical marijuana documented since 1975 were Pro medical marijuana.\textsuperscript{14} Opinions appear to be pulled in two directions: that the use of cannabis is an extreme social, moral, and health danger that must be stamped out, or that it is a harmless, pleasant pastime that should be legalized. The current debate over the medical use of marijuana is essentially a debate over the value of its medicinal properties relative to the risk posed by its use.
Table 2. Voting/Polling on Medical Marijuana National Poll¹⁴

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<thead>
<tr>
<th>Description of Voting or Polling Question</th>
<th>Vote or Polled by</th>
<th>Date</th>
<th>Results</th>
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<td>Pro to Medical MJ</td>
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<td>68%</td>
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<td>1. MPP National Poll - A. &quot;Should the federal government prosecute medical marijuana patients now that it has been given the okay to do so by the U.S. Supreme Court?&quot;</td>
<td>Mason-Dixon Polling</td>
<td>2005, June</td>
<td>65%</td>
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<td>B. &quot;Do you think adults should be allowed to legally use marijuana for medical purposes if their doctor recommends it, or do you think that marijuana should remain illegal even for medical purposes?&quot;</td>
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<td>N=732 registered voters nationwide, in a random sample interviewed by telephone on June 8-11, 2005. MoE+/-3.7%</td>
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Opponents feel that there is still little proof that marijuana has any medicinal value, maintaining that patients have other alternatives and that legalizing marijuana sets a dangerous precedent. The argument is based on the safety of marijuana or cannabinoid drugs for medical use; concerning the toxicity of the delivery system, the use of plant material of uncertain composition, and the side effects of cannabinoid drugs. There is also the broad social concern that legalizing the medical use of marijuana might lead to an increase in its recreational use among the general population. Many believe that there is little future for or benefit from smoked marijuana as a medically approved medication.

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. People vary in their responses to medications, and there is potentially a subpopulation of patients who do not respond well to a medication. Marijuana is an alternative treatment that has shown efficacy among patients who have tried traditional therapeutic regimens. The combination of cannabinoid drug effects: anxiety reduction, appetite stimulation, nausea reduction, and pain relief suggests that cannabinoids may be effective for certain conditions, such as chemotherapy-induced nausea and vomiting and AIDS wasting.
Marijuana is not a completely benign substance; it is a powerful drug with a variety of effects. Marijuana plants contain a variable mixture of biologically active compounds and cannot be expected to provide a precisely defined drug effect. The real concerns of using marijuana medically are regarding the toxicity of smoked marijuana. Although marijuana smoke delivers THC and other cannabinoids to the body, it also delivers harmful substances. Because of the health risks associated with smoking, smoked marijuana should generally not be recommended for long-term medical use. The IOM report emphasized that smoked marijuana is a crude drug delivery system that exposes patients to a significant number of harmful substances, and recommends that clinical trials should be conducted with the goal of developing safe delivery systems. The IOM report indicates that the isolated components, the cannabinoids and their synthetic derivatives, are the direction of future potential options for marijuana as a medicine.

In many different cultures documentation exists of the use of marijuana to treat various medical conditions, from ancient times to present. If marijuana can alleviate symptoms of the sick or dying, it should be given to them. Debates over the legalization of marijuana are likely to continue. The United States should do more to encourage legal and open exploration of marijuana's potential, especially among researchers and physicians. Reliable double-blind studies designed to test how effective marijuana really is as a legitimate medication are not available. To date, it is effectively impossible to do the sort of large-scale, extremely costly trials required for FDA approval. Moving marijuana from Schedule I to Schedule II would continue strict control but also would enable doctors to legally prescribe marijuana, just as they do with the Schedule II drugs morphine and cocaine. The legalization of marijuana would make it easier to fund and conduct these studies. It would open the doors to widespread research and development of safe alternatives to smoking. Science and medicine should determine the ethical debate of whether marijuana has any legitimate medicinal value.

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