History and Policy of Clinical Cannabis versus Medical Marijuana: U.S. History and Policy

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Abstract

Despite extensive biomedical and social science research on cannabis, stereotypes and fears are often substituted for scientific fact. Moreover, a limited amount of research is presented to the general public so the public discourse on this topic is quite limited. Policy makers need accurate background on cannabis whereas general knowledge derived from mass media outlets may be biased toward only the most recent policy changes to have made the news or the most recent sensationalized research results. This paper reviews the socio-historical context of US marijuana policy along with a broader review of historical milestones and recent biomedical discoveries. The goal is to provide a factual wide-ranging overview for understanding drug effects, drug development and drug policy with regard to cannabis.

Introduction

Contemporary dialogue and policies regarding marijuana belie a rich history of the relatively benign and certainly therapeutic cannabis plant. Clearly, this and other drug debates and policies do not correspond directly with the nature nor knowledge of the drug itself. Rather, the debate over marijuana reflects "a complex process of interaction between social power and the properties of drugs" (Dingelstad et al., 1996, p. 1829). This paper provides a review of the rich intersection of drug properties, social history and public policies of the cannabis plant.

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This paper is particularly oriented toward contextualizing the modern policies that re-medicalize cannabis and/or cannabinoid compounds including FDA approved synthetic derivatives by providing a socio-historical perspective.

'Marijuana' is well-established North American slang for the parts of the plant generally smoked for psychoactive and/or medical effects. Due the regional and slang status of "marijuana", the more formal plant name "cannabis" will be used in this paper except where used in a formal name of a policy or document. Furthermore, it is recommended that "cannabis" should be used when attempting to develop clear, bias-free language in news media, policy or social science.

Earliest Use of Cannabis as Medicine

Humans have been cultivating *cannabis sativa* for 10,000 years or more (Abel, 1943/1980). It may in fact be humanity's first psychoactive discovery, although it has many other uses. The oldest confirmed medical use is around 3750 B.C. in China, under Emperor Shen Nung a philosopher farmer and early hemp enthusiast (see for example Conrad, 1997). He taught the people to plant and harvest cannabis for it's fiber, nutritious seeds, and medicinal value. Many medical historians acknowledge one of his lasting contributions was the first written pharmacopeia – an encyclopedia of medicinal substances and their applications. His entries came from the Chinese healing traditions passed on by the previous generations through ritual and folklore as well as his own discoveries including his invention of "tea". Shen Nung preferred the female hemp plant's 'yin' energy for malaria, dysentery, constipation, rheumatic pains, 'absentmindedness', and 'female disorders.'

Today we know that the flowers from the female plant yield the highest concentration of the medically active ingredient in cannabis; the class of compounds called cannabinoids. THC (tetrahydrocannabinol) is a subset of potent and plentiful cannabinoids. At present, "hemp" generally refers to varieties of the cannabis plant that have only trace amounts of cannabinoids, and are therefore only useful for their industrial and nutritional purposes. In other contexts, hemp, or 'Indian Hemp' might refer to all varieties or parts of the cannabis plant.

From archeological and written records, we know that cannabis was also cultivated for various purposes in Southeast Asia, India, The Middle East, Africa, South Africa, and South America for millennia. Dioscorides, private physician to Nero, listed it as *Cannabis sativa*, the botanical name it still bears. He and other Greek and Roman physicians praised the plant for it's medical and other uses. For extensive early history see Abel (1943/1980), *Marihuana: The First 12,000 Years*. Conrad (1997), also provides some history right up to the modern "patients/buyers club" movement. Conrad also provides some of the practical input we expect from self-help type publications in his *Hemp for Health: Medicinal and Nutritional uses of Cannabis Sativa*. There are many thorough excellent book-length overviews of the scientific research literature as well, and two that are quite readable are the IOM and Iverson's (2000) *The Science of Marijuana*. It seems a requirement for any book on cannabis to include a section providing some historical perspective on it's use usually with an emphasis on the medical aspect of usage. Although there is rich early history on this topic, the last few hundred years shows cannabis has been an often utilized even if poorly understood medicine.

Clinical Cannabis Comes to the West

Cannabis also became highly valued in Europe but little mention of it is found until well after trade with the East was established. Grinspoon and Bakalar (1997) provide a few snapshots of how cannabis was viewed in 17th and 18th century United Kingdom. The English Clergyman, Robert Burton suggested cannabis as a treatment for depression in "The Anatomy of Melancholy" published in 1621. The New English Dispensatory of 1764 recommended applying 'hemp roots' to the skin to reduce inflammation. The 1794 New Edinburgh Dispensatory had a longer entry for hemp including using the oil for coughs, venereal disease and urinary incontinence.

Mikuriya's (1972) Marijuana Medical Papers 1839-1972 which revised original papers is a significant and lasting contribtion. Many claim the first physician from the West to make a formal and systematic inquiry into cannabis therapeutics and safety was the British W.B. O'Shaughnessy. He had observed it's use in India while working at the Medical College of Calcutta. He first tested cannabis in animals for safety, and then found it useful for treating humans with rabies, rheumatism, a case of infantile convulsions, cholera, tetanus, and for delerium tremens of alcohol withdrawal.

In 1839, O'Shaughnessy published a lengthy overview of his seven years of research in the paper, "On the Preparation of the Indian Hemp, or Gunjah." (also reprinted in Mikuriya, 1972 and easily found on-line). He later edited and updated the paper in the 1850s and published it in a British journal.

O'Shaughnessy's (1839) seminal medical report on cannabis identified the three main forms and potencies of Indian hemp; bhang, gunjah, and churras. Bhang refers to the leaves which are low in cannabinoid potency. In India, bhang is not smoked, but rather the cannabinoid resin is extracted into water, milk, oil or butter, and then drank or eaten or applied topically. Gunjah, refers to the higher potency flowers, or buds, of the female plant which are dried and smoked (combusted and inhaled). Churras is a resinous concentrate from various parts of the plant (also known as hashhish, or "hash") and it is usually smoked. O'Shaughnessy gives recipes for drinks, tonic, and baked goods. He also provides detailed descriptions of his own experiences including that 'intoxication ensues almost immediately' after smoking gunjah or churras. O'Shaughnessy also provides a brief but throrough review of the international medical literature on hemp considering the scarcity of formal reports.

Cannabis was first listed in the US Dispensatory in 1854, and included the warning that large doses were dangerous and that it was a powerful narcotic – meaning it would put you to sleep, not kill you. Some pharmacists carried and sold as much as 10 pounds of hashish at the 1876 World's Fair in Philadelphia. In 1890, physician J.R. Reynolds (reprinted in Mikuriya, 1972) reviewed 30 years of cannabis research in an article published in the esteemed British medical journal *Lancet.* The article also included case reports focusing on hemp's effectiveness in treating senile insomnia, neuralgia, and migraine headaches. In 1891, American J.B. Mattison (reprinted in Mikuriya, 1972) also noted similar benefits, his only concern in this article was that benign cannabis therapy was being replaced by an increasing reliance on opium.

Grinspoon and Bakalar (1997) also provide some nearly forgotten medical history from the early 20th century. Often described as the father of holistic medicine, Canadian physician William Osler wrote in the 8th edition (1913) of his famous *The Principles and Practice of Medicine* that cannabis was 'probably the most satisfactory remedy' for migraine headache syndromes. Hare's (1922) *Practical Therapeutics* includes cannabis as treatment of choice for several conditions.

In the early to mid 20th century, Parke-Davis, Eli Lilly and other major U.S. drug companies developed various non-smoked cannabinoid medicines (see for example documentation and labels reproduced in Mikuriya, 1972 and elswhere). But in the 20th century, new drugs and new technology were rapidly replacing cannabis in daily medical practice. The hypodermic needle allowed rapid delivery of opiate painkillers, but not cannabis-based medicine, because it is not soluble in water nor blood.

Political Discourse and the creation of "Marijuana"

Moving into the modern era of regulation, terminology used in discourse became key components in moving toward eventual U.S. prohibition. The Marijuana Tax Act of 1937 (See Musto, 1970 reprinted in Mikuriya, 1972) was the first major policy toward removing cannabis from a valued and versatile role in medical therapeutics. The pre- Tax Act campaign is worth further examination as are it's consequences. Never again has cannabis been just a folk remedy nor a plant-derived medication. The U.S. cannabis prohibition has not only impeded scientists from answering both basic and applied research questions, it may also prevent them from even asking the questions in the first place. Sadly, cannabis prohibition seems to have been created by a few powerful individuals and small groups with interests conflicting with cannabis. These forces were able to create and sustain a campaign of negative political discourse designed to scare the public and obscure that the target of the prohibition, "marihuana" was actually cannabis.

Not long after alcohol prohibition was overturned in 1933, Henry Anslinger organized a new campaign under the Federal Bureau of Narcotics. The quasi-public health and safety campaign was designed to frighten the public into thinking that marihuana was highly addictive and lead to violence, crime, psychotic behavior and even death (e.g., Anslinger & Cooper, 1937). The film "Reefer Madness" was created as part a multi-media propaganda attack on cannabis that included giving it new names: "reefer" as contained in the film's title; probably to amplify the xenophobic response, the Mexican migrant worker slang term "Marihuana"; and the Americanized "Mary Jane". Radio shows and newspaper articles also warned of the dangers of this "evil weed." The campaign never used the proper scientific name (e.g., *cannabis sativa, cannabis indica*) nor the folk name, 'Indian Hemp.'

Isolated examples of harm from marijuana, or the arrest of "drug fiends," mostly black or Hispanic musicians and athletes were easily carried to the public by way of the printed news media dominated at the time by Randolph Hearst – a supporter of The Tax Act. Many stories were exaggerated and deaths were not directly attributed to cannabis. Some articles focused simply on the "festering problem of marihuana among our children" (e.g., Anslinger & Cooper, 1937; "Reefer Madness") or reported arrests for possession near a school or trafficking at the border.

Although not outright prohibition, The Marijuana Tax Act regulated all use and stigmatized personal remedy/non-medicalized use of cannabis with excessive fees. The Act placed a $1 per ounce tax on certain approved industrial and medical purposes and $100 per ounce tax for any other purposes. American physicians were unable to oppose this legislation because they were familiar with non-smoked forms of medicine from 'cannabis', not the Mexican slang term 'Marihuana.' Presumably, physicians also did not call it 'reefer' either as that was slang (e.g., "Champaign and Reefer" by Bill Morganfield, AKA "Muddy Waters"). The bird-seed industry was similarly unaware of this attack on their valued but non-psychoactive 'hemp seeds.' At the hearings, bird industry representatives and W.C. Woodward, physician-lawyer for the American Medical Association tried unsuccessfully to reduce the harshness of the attack and the amount of taxation. Both men commented in their testimonies that they were among the few members of their professions who had only recently learned exactly what The Act would mean to their business practices. The court refused requests for more time to notify their colleagues and to present more thoughtful and representative positions in the hearings (see portions of the proceedings reprinted in Grinspoon & Bakalar, 1997).

Due to growing prohibition and stigma, few physicians and scientists continued to use and study cannabis and research publications declined after the Tax Act. Allentuck and Bowman (1942; also reprinted in Mikuriya, 1972) published their work in the *American Journal of Psychiatry*, which included the findings that cannabis did not develop 'habituation' as did morphine, alcohol and tobacco; that is, less tolerance was developed and it was less habit forming. After media attacks on the study, the journal editors later defended the study as carefully conducted with valid results.

The Act and it's campaign was so effective in eradicating cannabis, the federal government had to launch a pro-hemp campaign to improve the public's perception of the industrial uses of the plant and get them to grow "Hemp for Victory" during World War II. Also in the 1940s, support for the safety and utility of cannabis as medicine was voiced by the AMA and in the LaGuardia Report of marijuana sponsored by the Mayor of New York City. There was very little published research on cannabis over the next decades (See Mikuriya, 1972, *Marijuana Medical Papers 1839-1972*).

Cannabis and cannabinoids in the Modern Era

Despite prohibition, or perhaps because of it, in the 1960s, large numbers of people began to experiment with cannabis recreationally. The medicinal effects of the plant were now secondary, and often passed on through anecdotes shared among fellow users, or in magazines catering to this emerging youth culture. Naturopaths, or holistic healers and other seekers rediscovered the dormant literature. Andrew Weil and colleagues (1968) published their report "Clinical and Psychological Effects of Marijuana in Man" in the prestigious journal *Science*. They found little adverse effects in the nine male subjects in whom they observed acute intoxication with smoked cannabis. In fact, experienced users seemed to perform as well or better on cognitive tests while high on cannabis. Remarkably, this was one of the last srudies for a long time to report on the effects of acute cannabis usage on humans in a controlled trial.

In 1970, another more restrictive set of rules against cannabis were created when the Controlled Substances Act (CSA) was passed. Marijuana was placed on Schedule I, the most restrictive class of 'controlled substances.' These are 'highly dangerous with no known medical value' (see for example, Leavitt, 1995). This now made marijuana nearly impossible to study in medical and scientific research leading to it's deepest underground era. The National Organization for the Reformation of Marijuana Law (NORML) was born in response to the CSA in 1970 and petitioned to reschedule cannabis to Schedule II. After much delay, the DEA finally held a hearing in 1986. After nearly two years of testimony and thousands of pages of evidence, the conclusion of DEA Judge Francis L. Young was that cannabis should be Schedule II. Specifically he stated, "marijuana, in it's natural form, may be one of the safest therapeutically active substances known to man.... One must reasonably conclude that there is accepted safety for medical use of marijuana under medical supervision.

To conclude otherwise, on the record, would be unreasonable, arbitrary, and capricious." (Young's conclusions and his criteria for them may be found in Grinspoon & Bakalar, 1997, p. 16.)

In 1979 New Mexico became the first state to pass a law designed to make cannabis available for medical use after the CSA of 1970. Technically, before year 2000, 36 states had passed such laws (Schmitz & Thomas, 2001). The laws were difficult to implement under the federal laws, and most were abandoned and some have been repealed or expired. California's proposition 215, passed in 1996 was the first to gain any real public support and establish implementation (See Appendix A; Text Box). Prop 215 is often named as the first state to pass such a law whereas it is more accurate to say California was the first voter referendum-based "medical marijuana" law to be passed and implemented. Also, a careful study of state laws and legislative records sponsored by the Marijuana Policy Project revealed that only 16 states have never had a law that allows for the medical necessity for use of marijuana. However, few have been implemented because of the CSA of 1970 creates conflict with the federal government. Often the only outcome following these laws was to allow a medical necessity defense in the courts which due to low visibility are rarely used and when used not likely reported in the news media.

By 2000, a number of other states passed similar voter referendums, and Hawaii state officials drafted and passed their own act. Also in 2000, Washington DC voters cast their vote on a similar bill but the counting of the ballots on that issue was blocked by an injunction from the US Congress. In 2003, the Republican governor of Maryland, Robert Ehrlich, sponsored and signed a medical marijuana law. As of 2013, approximately 20 states plus Washington D.C. now have medical use legislation of cannabis and Washington state and Colorado have created state-wide recreational use legislation allwogin for sales to adults. Many local municipalities or states are decriminalizing possession of personal amounts of cannabis.

Modern Era Marijuana Research, Therapeutics and Policy

A key development for cannabis therapeutics was the accidental glaucoma therapy discovery at UCLA (i.e., Hepler & Frank, 1971; for a historical narrative, see pp. 46-47 Grinspoon & Bakalar, 1997). Adding glaucoma, AIDs and cancer to the conditions treated with cannabis made this ancient folk remedy more relevant.

The dialectic between scientific inquiry and public policy came into promising but strained congruence in 1976 when Robert Randall won a federal suit to gain legal access to cannabis to glaucoma. His court victory meant that he was to become the first patient allowed cannabis by the federal authorities under the 'investigational new drug' (IND) Program administered by the FDA. The Feds allowed very few citizens into the program and had to provide the patients free "Government weed".

Randall was 'experimented' on at UCLA and Johns Hopkins Wilmer Eye Institute in order to learn that his self-reports of cannabis benefits were true (his story pp 48-58 Grinspoon & Bakalar, 1997). Pot did in fact reduce the pressure within the eye that leads to progressive vision loss in glaucoma. For Randall, it was the only clinically effective treatment found in his extensive testing which included a number of toxic compounds. Until his death in 2001, Randall received 300 pre-rolled marijuana cigarettes each month, or about 6.5 pounds per year as did the other IND participants. Randall died of AIDS contracted from a blood transfusion but first wrote a powerful review of the research on him and others as well as a scathing analysis of U.S. drug policy in his (1991) book *Marijuana and AIDS: Pot, Politics and PWAs in America.*

The U.S. government continues to grow and distribute low potency cannabis for the seven patients still enrolled in this federal compassionate use program and for research on a farm administered by the University of Mississippi (Russo et al., 2002). Grinspoon and Bakalar (1997) recount how From 1978-1986 New Mexico cancer patients were able to apply to the state for compassionate use of cannabis and participate in a loosely controlled case series that amounted to a total of 250 patients. The study was designed to be random assignment to smoked FDA cannabis or oral THC under open label conditions and only for patients with untreatable nausea and vomiting.

Despite random assignment, some patients taking THC pills switched to smoking, and some patients assigned to smoking left the research program to obtain better cannabis from illegal sources. Despite this lack of control over specific cannabis source, and the lack on an untreated control group, over 90% of the 250 patients who remained in the program reported significant or total relief from either cannabis or synthetic THC after other medicines had failed to control their nausea and vomiting. Only three adverse effects were reported in the entire program.

All three adverse events among the 250 patiens were anxiety reactions that were easily treated with simple reassurance. Although not a formal clinical trial, it found medical benefits for bothsynthetic and natural compounds, but also showed the superiority of smoked cannabis for this application.

After some media coverage of this state program, in 1989 the FDA was flooded with IND applications from PWAs hoping to relieve nausea and AIDs wasting syndrome. In March, 1992 under pressure form the Bush Administration the FDA officially discontinued the Compassionate Use IND program after only 15 patients in total were actually allowed to receive cannabis from the US government and 7 survive and continue in the IND program (Russo et al., 2002).

Iverson (2000) and the Institute of Medicine report (1999) provide extensive reviews of research into specific therapeutic properties of cannabinoids. Discovery of receptors for THC molecule on neurons in human brain made the mechanism of action much more clear (Matsuda et al., 1990). Discovery of the brain's own endogenous chemical that binds to those receptors solved the issue of why our brains have receptors for a plant. The endogenous cannabinoid was named anandamide, after the Sanskrit word for 'bliss' (Devane et al., 1992). Recognition of the scientific progress on the plant and it's active ingredients changes the debate from "is cannabis a medicine" to "what are some sensible policies for this plant with medicinal value"?

FDA Approval of Cannabinoid Medication

Cannabis is easily grown and has more than 460 known compounds, making it incompatible with drug company practices of isolating, testing, and patenting single compounds (see text box on New Drug Development). Therefore, drug companies have focused on d9-THC, the most abundant, most psychoactive and a medically promising molecule of the plant-based cannabinoids. Synthetic cogeners (chemical relatives) have been developed and tested, and two compounds have passed FDA approval. Currently dronabinol, marketed by Eli Lilly as "Marinol", is approved for 1) nausea and vomiting associated with cancer chemotherapy, and 2) anorexia and weight loss in AIDS patients. Some doctors are also prescribing it "off label" for pain. A Schedule III drug, Marinol is less restricted than morphine, oxycontin or Adderall.

If findings from pre-clinical drug screening suggest benefits outweigh risks, a drug company might then design a clinical trial protocol for testing the drug on humans and must file an IND application to the FDA before beginning. By law, INDs should be reviewed in 6 months, but can take up to 31 months. Dronabinol took two years to receive IND approval. Animal testing often continues during clinical trials to study long-term effects and other potential uses of the drug because a lot of money has already been invested by this point. The average cost to per compound that reaches FDA approval is $100-200 million (Leavitt, 1995; see Appendix B: Text Box for steps involved in the three testing phases for developing new drugs).

Successful evaluation through clinical testing required for FDA approval takes about 5 years; unsuccessful attempts may take longer. To date, four synthetic cannabinoids: dronabinol, nabilone, d8-THC, levonantrodol have received IND licensing and entered clinical trials. The first FDA approved cannabinoid compound was nabilone, although the second, dronabinol (Marinol). But in 1998, only 6% of cancer specialists prescribed it. The slow and variable absorption of digested cannabinoids and ensuing variations in effectiveness make it a less desirable treatment for nausea and vomiting in chemotherapy patients. An additional 5 years of Phase III testing was then done in AIDs patients leading to a second indication for Marinol around 1994. Before testing a drug for a new clinical application, drug companies must file a Supplementary New Drug Application (SNDA). SNDA approval for testing Marinol for AIDs wasting syndrome took 3 years.

When the Media Goes to Pot

Often, when reporting on the medical and political aspects of marijuana, the media presents overly simplified or incomplete versions of the cannabis-related event and it's 'back story.' Not surprisingly, a self-published report created by an influential private or governmental organization will get more media attention than peer-reviewed empirical articles or books written by biomedical experts. For example, a report from the British Lung Foundation (2002) titled "A Smoking Gun: The Impact of Cannabis Smoking on Respiratory Health" received extensive media coverage in the UK, the US and by on-line health and news information services. In many cases, the news reports focused more on the broad conclusions for protecting public health and cannabis prohibition rather than the actual recommendations made in the report.

One editorial describing the findings in The Globe (London, Nov 11 2002) had the provocative title, "They Don't Call it 'Getting Wasted' for Nothing." In the US, a story on WedMD reported the findings in a story titled "Pot as Tough on Lungs as Tobacco." Certainly a less sensational title, than the British version, the story listed a few vital findings, the leading item being that the cannabis smoked today is 15 times potency of cannabis in the 1960s. Such a finding defies logic; hashhish is very potent and has been used for 1000s of years.

O'Shaughnessey (1839) described the three tiers of potency that remain relevant today, so stronger varieties of cannabis products are nothing new. Also, increased potency may lead to consuming less overall smoke, which may be an indirect way to reduce the harm of cannabis use for either medical or non-medical use. The news or 'pseudo medical' reports on increased potency generally do not ask critical questions about what that means and the public is encouraged to simply fear this street drug that is getting stronger.

Perhaps more disappointing is the lack of coverage given to empirical studies, such as those reviewed in the Institute of Medicine (IOM) report, *Marijuana and Medicine: Assessing the Science Base*. This is one of a series of book-length reports from the IOM with the goal of creating comprehensive reviews of "Evidence-based medicine (derived from knowledge and experience informed by rigorous scientific analysis), as opposed to belief-based medicine (derived from judgment, intuition, and beliefs untested by rigorous science)" (1999, p. 2). The IOM report received little media attention, and one study published in 2002, the same year as the British Lung Foundation report had absolutely no media attention. The title of that Russo et al. (2002) study alone reveals that a program exists ('Compassionate Investigational New Drug Program') that allows for 'Legal Clinical Cannabis.' The article reports on a comprehensive assessment of four of the surviving seven patients in the IND program described earlier. They have stable medical conditions after smoking low-grade FDA cannabis cigarettes between 11 and 27 years. Remarkably, besides mild pulmonary changes in two patients, no significant findings were reported in a number of physiological dimensions and psychological testing. The authors conclude that cannabis can be a safe and effective medicine and could be provided to more patients.

Conclusion and Recommendations

Few mass media outlets are willing to take the space, time and effort to present a more complete or accurate story on cannabis or cannabis policy. Most government authorities or anti-drug activists simply claim that "marijuana" has no medical value and point to the CSA Schedule I status for support. While we have a number of excellent science writers working in journalism, past news articles seem intent on saving space or feeding stereotypes by using "pot" or 'reefer' in the headlines, so it not surprising that the articles themselves present incomplete summaries of complex findings in the science or social conditions of cannabis usage.

One easy way to reduce bias in discussing cannabis is to use that term – *cannabis*. Cannabis (or hemp) refers to the plant itself and not the specific uses or subjective meanings of the plant. While easy to use a low-bias term, it is more difficult to seek and find clear, accurate and complete information when researching cannabis, or any politically controversial topic. The scientific literature can be overwhelming even for scholars, but now with some specific news services and publications related to cannabis and drug policy, it is easier than ever to find unbiased and informed articles from and for the mass media. Several news and information services that have evolved to focus on drug policy, one of these is Drug Policy News, a service of the Drug Policy Alliance. (See Appendix C: Text Box for a listing of trustworthy sources for background on cannabis.)

A factor in the social construction of drug debates, is that the very questions scientists may ask and therefore study and publish are shaped by powerful social interests (Dingelstad et al., 1996). Therefore, even though the research literature on cannabis is rich, it remains stunted by those prohibitive policies spawned by the Marihuana Tax Act of 1937. The positions taken by social commentators and public policy makers are perhaps even more subdued on this issue because they cannot claim they are seeking knowledge as can scientists. In conclusion, our public discourse, science knowledge base and public policy on medicinal use of cannabis converge rarely and fleetingly.

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Appendix A: Text Box

California Proposition 215: The Compassionate Use Act. Passed in November, 1996:

(A) To ensure that seriously ill Californians HAVE THE RIGHT TO OBTAIN AND USE MARIJUANA FOR MEDICAL PURPOSES where that medical use is deemed appropriate and has been recommended by a physician who has determined that the person's health would benefit from the use of marijuana in the treatment of cancer, anorexia, AIDS, chronic pain, spasticity, glaucoma, arthritis, migraine, OR ANY OTHER ILLNESS FOR WHICH MARIJUANA PROVIDES RELIEF.
(B) To ensure that PATIENTS AND THEIR PRIMARY CAREGIVERS who obtain and use marijuana for medical purposes upon the recommendation of a physician are NOT SUBJECT TO CRIMINAL PROSECUTION OR SANCTION.
(emphasis added)

Appendix B: Text Box

New Drug Development and Testing*

I. Pre-Clinical Drug Screening Techniques: Goal is to screen potentially therapeutic compounds for signs of toxicity or benefit. Once discovered, a compound may spend 5-10 years in pre-clinical testing. But only 5 in 5,000 compounds passes this stage of testing which begins with *In Vitro* testing– studying effects on enzymes or cell cultures. Once a promising effect is found at a cellular level with no obviously deadly effects, animal testing begins with three main areas of inquiry; toxicity, behavioral effects and therapeutic potential in cells or systems.
II. "Clinical Drug Trials": Phase I -- *determine safety and dose range*. A small group of healthy volunteers take a range of doses in an 'open label trial' design. **Phase II** – *evaluate effectiveness, look for side effects*. Testing to ensure that the drug works in patients compared to placebo and doesn't cause toxicity nor uncomfortable side effects. 'Double blind clinical trial' design. About 33% pass rate.
Phase III – *confirm effectiveness & safety in larger sample of more typical patients*. Test the drug in a few thousand patients under open label in clinical settings and fewer restrictions. 20-25 % pass.

*Adapted from: Leavitt, Drugs & Behavior (3rd Ed., 1995) – *New Drug Development (pp. 87-100)*

Appendix C: Text Box

Recommended resources for getting rigorous, unbiased information on cannabis:

The IOM's (1999) *Marijuana and Medicine: Assessing the Science Base*
Available online: http://www.nap.edu/readingroom/books/marimed/
Center for Medicinal Cannabis Research – University of California, San Diego
Funded by SB 847: http://www.cmcr.ucsd.edu/
Some respected and peer reviewed disciplinary journals:
Journal of the American Medical Association
Journal of Cannabis Therapeutics
Journal of Clinical Pharmacology
Science (American Academy for the Advancement of Science)
Disciplinary databases indexing articles:
Med-Line (National Library of Medicine)
Psych-Info (clinical and experimental psychology research)
Sociological Abstracts
News and info services relevant for cannabis and drug policy:
Shaefer Drug Policy Library
Marijuana Policy Project http://www.mpp.org/
Media Awareness Project http://www.mapinc.org/
www.AlterNet.org (alternative news service, includes drugs and policy)