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August 26, 2009 by Tracy Miller · 9 Comments
Filed under: Prescription Drugs, Proposed Legislation, State Initiatives
[Ed. note: mpp.org: "On February 23, the New Jersey Senate voted 22-16 to pass S119, also known as the New Jersey Compassionate Use Medical Marijuana Act. The Assembly health committee voted 8-1 to pass an amended version of the bill on June 4. It must now pass the full Assembly [If the amended bill clears the Assembly, it would return to the Senate for a second vote because of the changes] before it goes to Gov. Jon Corzine (D), who has said that he will sign the bill if it makes it to his desk."]

Seton Hall University School of Law
Center for Health & Pharmaceutical Law & Policy
Statement In Support of the "New Jersey Compassionate Use Medical Marijuana Act"

The Center for Health & Pharmaceutical Law & Policy supports the passage of the New Jersey Compassionate Use Medical Marijuana Act (the "Act") because the legislation has been carefully drafted to allow New Jersey residents with debilitating medical conditions access to marijuana to ease their suffering without creating an undue risk of abuse or diversion.

■Medical Evidence. Available medical evidence supports the use of marijuana to treat each of the debilitating medical conditions set forth in the Act: AIDS/HIV; cachexia (wasting syndrome); cancer; glaucoma; severe and persistent muscle spasms; severe nausea; severe or chronic pain; and seizures.

■Need for Access to Marijuana Despite Availability of Cesamet and Marinol Pills. While smoking carries with it certain health risks, smoked marijuana has meaningful advantages over the Cesamet and Marinol pills, which contain synthetic compounds that mimic marijuana's primary active ingredient. Smoked marijuana is faster-acting, allows for more reliable dosing, and has fewer psychoactive side effects than the pills. In addition, smoked marijuana can be the only option for patients who can not swallow pills due to severe nausea and vomiting as a result, for example, of treatment for cancer.

■Abuse and Diversion. No state that has passed a medical marijuana law has subsequently experienced an increase in recreational marijuana use among its children and youth. The Act's multiple safeguards against abuse and diversion of medical marijuana provide further reassurance. If passed, the Act would be among the most restrictive of all the states' medical marijuana laws.
Below please find a brief position paper setting forth the medical evidence and policy arguments in support of the Act.

Seton Hall University School of Law
Center for Health & Pharmaceutical Law & Policy
Position Paper In Support of the "New Jersey Compassionate Use Medical Marijuana Act"

Medical Evidence

Medical evidence supports the use of marijuana to relieve symptoms or ameliorate the side effects of primary treatments of each of the debilitating medical conditions set forth in the Act: AIDS/HIV; cachexia (wasting syndrome); cancer; glaucoma; severe and persistent muscle spasms; severe nausea; severe or chronic pain; and seizures. While conventional treatments are available for some of these conditions for some patients, smoked marijuana has the potential to help those individuals who do not benefit from, or can not tolerate, currently available therapies.[1]

AIDS/HIV and Cachexia (Wasting Syndrome)

Marijuana is an effective treatment for cachexia, also known as wasting syndrome, an involuntary loss of appetite and weight linked to disease progression and death in patients with AIDS/HIV. The American College of Physicians has concluded that abundant support exists for the use of the cannabinoid delta-9-tetrahydrocannabinol ("THC"), one of the primary active ingredients in marijuana, as an appetite stimulant.[2] The FDA concurs, as evidenced by its approval of Marinol, a pill containing a synthetic version of THC, to treat "anorexia associated with weight loss in patients with AIDS."[3]

Marijuana is also an effective treatment for AIDS/HIV-associated sensory neuropathy, a condition characterized by excruciating pain in the nerve endings that afflicts over a third of patients with AIDS/HIV.[4] In the past two years, three placebo-controlled, randomized, double-blind clinical trials published in the medical literature have demonstrated that smoked marijuana is effective against neuropathic pain, including for patients who have tried the available conventional treatments and are still in pain.[5] The available treatments for AIDS/HIV-associated neuropathic pain fail to help large numbers of those who suffer from it. Neither aspirin-like drugs nor anti-depressants help, and even opioids are of limited efficacy.[6] Anti-convulsant drugs have been found effective in treating the condition, but some patients do not respond to them and others can not tolerate them.[7] For these reasons, marijuana, which does not increase HIV viral load or decrease CD4 cell counts, could be an important addition to the pharmaceutical armamentarium for treating the chronic neuropathic pain of patients with AIDS/HIV.[8]

Cancer and Severe Nausea

Marijuana is also an effective treatment for the severe nausea and vomiting that can accompany cancer treatment. A 2008 review published in the European Journal of Cancer Care analyzed 30 clinical studies and concluded that cannabinoid drugs were more effective than standard antinausea drugs in alleviating the nausea and vomiting that accompanies chemotherapy.[9] In addition, the FDA has approved both the Marinol and Cesamet pills, which contain synthetic chemical compounds equivalent or similar to THC, to treat nausea and vomiting associated with cancer chemotherapy for patients who have not responded adequately to conventional antiemetic treatments.[10]

Glaucoma

Intraocular pressure (fluid pressure in the eyes) is the most important risk factor for glaucoma, a leading cause of blindness. Scientists have long known that smoking marijuana lowers intraocular pressure in glaucoma patients.[11] Marijuana is not generally recommended as a treatment for glaucoma, because the available conventional treatments are both longer-acting and have fewer side effects.[12] Marijuana

may provide relief to some glaucoma patients for whom conventional treatments are ineffective or intolerable, however.[13]

Severe and Persistent Muscle Spasms

Many multiple sclerosis ("MS") patients suffer from painful muscle spasms which have a major negative influence on their quality of life.[14] A prospective, randomized, placebo-controlled crossover trial in adults with MS established smoked marijuana's superiority to placebo in reducing spasticity and pain.[15] In March 2009, the manufacturer of Sativex, an oral spray containing THC and cannabidiol, another cannabinoid extracted from marijuana, announced highly statistically-significant preliminary positive results from a placebo-controlled, randomized, double-blind trial of Sativex for the treatment of spasticity in MS patients for whom existing therapies have not produced relief.[16] Previous studies of Sativex provide additional support for its effectiveness as a treatment for spasticity and other symptoms of MS.[17]

A large, randomized, placebo-controlled clinical trial showed a small, non-statistically-significant improvement in spasticity, as measured by the Ashworth Spasticity Scale, in MS patients who took pills containing either cannabis extract or THC.[18] Study participants who took cannabis extract or THC pills also experienced objective improvement in mobility and reported subjective improvement in pain, sleep quality, and spasms and spasticity.[19] A year-long follow-up clinical trial of patients who chose to recommence taking their study medication showed a small, statistically-significant improvement in spasticity as measured by the Ashworth Scale in those who took pills containing THC.[20]

Severe or Chronic Pain

In addition to the evidence discussed above supporting the use of marijuana as a treatment for neuropathic pain, recent studies show that cannabinoids are an effective treatment for other forms of severe or chronic pain including cancer pain, multiple sclerosis pain, and rheumatoid arthritis pain.[21] In 2003, the authors of an article in The Lancet concluded that cannabinoids "inhibit pain in virtually every experimental pain paradigm … in supra-spinal, spinal, or peripheral regions depending on the type of nociceptive pathway being studied."[22] The Mayo Clinic concludes that THC may work as well as the opiate drug codeine in treating cancer pain.[23] Opiates, such as codeine and morphine, are not consistently effective against chronic pain, in part because tolerance occurs in some patients (meaning that they need an ever-increasing dose to get the same therapeutic effect).[24] Opiates can also have undesirable side effects including nausea and sedation.[25] Notably, cannabinoids appear to enhance the effects of opiate pain medications, enabling patients to obtain relief at lower dosages and thereby minimize side effects.[26]

Seizures

The results of the only controlled clinical trial of a cannabinoid for the treatment of epilepsy to be published in the medical literature suggest that oral cannabidiol has promise as a treatment for the 20-30% of epileptics whose symptoms are inadequately controlled by conventional medication.[27] Of the eight patients in the study who received oral cannabidiol, four were virtually seizure free and three others exhibited improvement. By comparison, six out of the seven patients who received the placebo treatment failed to improve. In addition, multiple anecdotal reports support the efficacy of smoked marijuana as a treatment for epilepsy.[28] These reports reveal that in individuals who smoke marijuana to control their epilepsy, stopping smoking leads to the reemergence of seizures.

Need for Access to Marijuana Despite Availability of Cesamet and Marinol Pills

Although smoking carries with it certain health risks, smoked marijuana has meaningful advantages over Cesamet and Marinol, the pills containing synthetic cannabinoids currently available in the United States, and over Sativex, the oral spray containing marijuana extracts which is not available in this country.

First, smoked marijuana is faster acting than either the pills or the spray.[29] Smoked cannabis reaches its peak level in a patient's blood within minutes; the pills can take from one to six hours to reach the same level.[30] Sativex spray has better pharmokinetics than the Cesamet and Marinol pills, but still does not compare favorably to smoked marijuana.[31]

Second, smoked marijuana allows for more reliable dosing than the pills.[32] With smoked marijuana, patients can take in as much as they need to achieve relief and no more; this is impossible with the pills. In addition, the pills' effectiveness varies, leaving patients without predictable relief from their symptoms.[33]

Third, the pills have more pronounced, much longer-lasting psychoactive side effects, including dysphoria, intoxication, and sedation, than smoked marijuana.[34] This is in part because patients who smoke marijuana are better able to adjust their dose to avoid side effects, but also because of the way that the orally-ingested pills are metabolized in the gastrointestinal tract.[35]

Finally, smoked marijuana may be the only viable option for patients who can not swallow pills due to severe nausea and vomiting, for example as a result of treatment for cancer.[36]

The Institute of Medicine (IOM), in its comprehensive 1999 report "Marijuana and Medicine: Assessing the Science Base," endorsed short-term use of smoked marijuana in cases in which all approved medications have failed and it is reasonably likely to be effective.[37] While the IOM declined to endorse long-term medical use of smoked marijuana because of the health risks associated with smoking, it conceded that for certain patients, such as the terminally ill or those with debilitating symptoms, the long-term risks are not of great concern.[38] Whether the advantages of smoked marijuana outweigh the health risks associated with smoking is a decision best made by those suffering from debilitating medical conditions and their physicians.[39]

Abuse and Diversion

Other states' experiences with medical marijuana laws can help quell any fear that passing the Act could lead to an increase in recreational marijuana use in New Jersey. As noted above, no state that has passed a medical marijuana law has subsequently experienced an increase in recreational marijuana use among its children and youth.[40] In California (which has the nation's most permissive medical marijuana law), a biennial survey conducted by the California Attorney General shows that marijuana use by young people declined markedly in the decade following passage of that law.[41] Providing further reassurance is the fact that the New Jersey Compassionate Use Medical Marijuana Act incorporates multiple safeguards to prevent abuse and diversion of medical marijuana. In fact, if passed, the Act would be among the most restrictive of all the states' medical marijuana laws.

To minimize the risk of abuse and diversion of medical marijuana, the Act requires every prospective patient to apply to the Department of Health and Senior Services ("DHSS") for a mandatory "registry

identification card." The card, which would include the patient's photograph, would provide proof of DHSS approval; without it, the statute would provide no protection. Before issuing a card, DHSS would be required to verify all of the information in a prospective patient's application.

Patients would need to demonstrate to DHHS that they qualify for the Act's protection by producing medical records or the recommendation of a physician with whom they have a bona-fide physician-patient relationship. The physician would have to sign a statement attesting to his or her professional opinion that the patient has one of the debilitating medical conditions set forth in the Act, that recognized drugs or treatments are not or would not be effective, and that the potential benefits of marijuana use likely outweigh the risks. Notably, there is no catchall category of debilitating medical conditions, as there is, for example, in California's Proposition 215, which allows for the use of medical marijuana to treat "any other illness for which marijuana provides relief."[42] The New Jersey Act's protections are limited to patients suffering from one of the enumerated conditions.[43]

The Act also places limits on patients' ability to obtain assistance with their possession and use of marijuana from a caregiver. Prospective patients would be required to designate in a written document on file with DHSS a single primary caregiver to possess marijuana on their behalf. The person designated as primary caregiver must be an adult who has never been convicted of a felony drug offense and who has agreed to assist with the patient's use of marijuana. A primary caregiver can only serve one patient at a time and can not also be that patient's physician. Those under 18 can only be approved to use marijuana if their parent consents and agrees to serve as their primary caregiver and to control the patients' acquisition and use of marijuana.

In addition, the Act restricts New Jersey residents' ability to produce marijuana for medical use. The Act would establish a mechanism for "medical marijuana alternative treatment centers" to seek and obtain authorization from DHSS to produce marijuana for medical purposes. DHSS would be provided with, among other information, (i) the names of the individuals operating a prospective center, (ii) the names of its employees and volunteers, (iii) the location of the center, and (iv) the registration card number of each patient whom the center will serve. Centers would be required to report a change in any of this information to DHSS within 10 days. Individuals convicted of possession or sale of a controlled dangerous substance (other than medical marijuana) would not be eligible to establish or work at an alternative treatment center. As with prospective patients, DHSS would subject prospective centers to intensive vetting, verifying the information in every permit application prior to approval.

Finally, the Act strictly limits the amount of marijuana possessed by a patient, his or her caregiver, and his or her alternative treatment center to a small total of just six plants and one ounce of usable marijuana per patient.

Conclusion

The Seton Hall Law School Center for Health & Pharmaceutical Law & Policy recommends passage of the New Jersey Compassionate Use Medical Marijuana Act because the Act includes multiple measures designed to reduce the risk of abuse or diversion and because the medical literature supports the conclusion that smoked marijuana can provide relief to patients suffering from debilitating medical conditions for whom conventional treatments have failed. While further research is needed to fully explore marijuana's medicinal potential, New Jersey residents, in consultation with their physicians, should have access to the relief from suffering that the Act would afford now.
[Ed. Note: See Update, 12/3/09 here.]

References

[1] Institute of Medicine, "Marijuana and Medicine: Assessing the Science Base," Washington, DC: National Academy Press (1999) at 3 (noting that patients' responses to medications vary and there is likely to be a subset of patients who do not respond well to available conventional medicines).

[2] American College of Physicians, "Supporting Research into the Therapeutic Role of Marijuana," Position Paper (2008) at 2.

[3] Marinol Prescribing and Safety Information at 6.

[4] Scott R. Evans, et al., "Simplification of the Research Diagnosis of HIV-Associated Sensory Neuropathy," HIV Clinical Trials, Vol. 9, No. 6 (2008): 434-439.

[5] Ronald J. Ellis, et al.,"Smoked Medicinal Cannabis for Neuropathic Pain in HIV: A Randomized, Crossover Clinical Trial," Neuropsychopharmacology, Vol. 34, No. 3 (2008): 672-680 (finding that smoked cannabis was a well-tolerated and effective pain reliever in patients with HIV-associated distal, sensory predominant polyneuropathy who failed to respond to other pain-killing drugs); Barth Wilsey, et al., "A Randomized, Placebo-Controlled, Crossover Trial of Cannabis Cigarettes in Neuropathic Pain," The Journal of Pain, Vol. 9, No. 6 (2008): 506-521 (finding an analgesic response to smoked cannabis in patients with central and peripheral neuropathic pain); Donald I. Abrams, et al., "Cannabis in Painful HIV-Associated Sensory Neuropathy: A Randomized Placebo-Controlled Trial," Neurology, Vol. 68 (2007): 515-521 (finding that smoked cannabis was a well-tolerated and effective pain reliever in patients with chronic neuropathic pain due to HIV-associated sensory neuropathy). See also Turo J. Nurmikko, et al., "Sativex Successfully Treats Neuropathic Pain Characterized by Allodynia: A Randomised, Double-Blind, Placebo-Controlled Clinical Trial," Pain, Vol. 133, No. 1-3 (2007):210-220 (finding that Sativex, an oral spray containing THC and cannabidiol, another cannabinoid extracted from marijuana, was a well-tolerated and effective pain reliever in patients with chronic neuropathic pain that failed to respond to other pain-killing drugs).

[6] Abrams, supra note 5; Ellis, supra note 5; Thuong Vo, et al., "Non-Steroidal Anti-Inflammatory Drugs for Neuropathic Pain: How Do We Explain Continued Widespread Use?" Pain, Vol. 143 (2009):169-171.

[7] Abrams, supra note 5.

[8] Donald I. Abrams, et al., "Short Term Effects of Cannabinoids on Patients with HIV-1 Infection," Annals of Internal Medicine, Vol. 139, No. 4 (2003): 258-266.

[9] F.C. Machado Rocha, et al., "Therapeutic Use of Cannabis Sativa on Chemotherapy-Induced Nausea and Vomiting Among Cancer Patients: Systematic Review and Meta-Analysis," European Journal of Cancer Care, Vol. 17, No. 5 (2008): 431-443.

[10] Cesamet Prescribing and Safety Information at 3; Marinol Prescribing and Safety Information at 6.

[11] Natalya M. Kogan and Raphael Mechoulam, "Cannabinoids in Health and Disease," Dialogues in Clinical Neuroscience, Vol. 9, No. 4 (2007): 413-430.

[12] Because patient compliance with prescribed drug treatment is an important factor in slowing glaucoma's progress, the fact that marijuana's effect on intraocular pressure only lasts for three to four hours limits its usefulness as a glaucoma treatment. Institute of Medicine, "Marijuana and Medicine: Assessing the Science Base," supra note 1 at 176. In addition, marijuana's side effects are particularly problematic because glaucoma is a chronic condition which predominantly affects the elderly. AMA Council on Scientific Affairs, "Featured Report: Medical Marijuana," http://www.ama-assn.org (June 2001).

[13] An open-label study of the Marinol pill in nine glaucoma patients whose intraocular pressure was uncontrolled by their current medication showed a significant decrease in intraocular pressure in all nine, with four of the nine meeting the investigator's therapeutic goal. Susan Corey, "Recent Developments in the Therapeutic Potential of Cannabinoids," Puerto Rico Health Sciences Journal, Vol. 24, No. 1 (2005) (reviewing A.J. Flach, "Delta-9-tetrahydrocannabinol (THC) in the Treatment of End-Stage Open-Angle Glaucoma," Transactions of the American Ophthalmological Society, Vol. 100 (2002): 215-222). The patients in the study developed tolerance to Marinol's therapeutic effect, though, and all chose to discontinue treatment after one to nine months. Id. There is also anecdotal support for the use of marijuana as a treatment for glaucoma. A glaucoma patient who was provided with marijuana through the federal government's compassionate use program beginning in 1988 continued to benefit nearly a decade later. AMA Council on Scientific Affairs, "Featured Report: Medical Marijuana," supra note 12.

[14] C. Vaney, et al., "Efficacy, Safety and Tolerability of an Orally Administered Cannbis Extract in the Treatment of Spasticity in Patients with Multiple Sclerosis: A Randomized, Double-Blind, Placebo-Controlled, Crossover Study," Multiple Sclerosis, Vol. 10, No. 4 (2004): 417-424.

[15] Jody Corey-Bloom, et al., "Short-Term Effects of Medicinal Cannabis on Spasticity in Multiple Sclerosis," http://www.cmcr.ucsd.edu/geninfo/jcb_aan_poster.pdf (accessed May 27, 2009).

[16] The study supports the manufacturer's application for approval of Sativex in Europe as a treatment for spasticity due to multiple sclerosis. GW Pharmaceuticals, "GW Files Sativex Regulatory Submission," Press Release (May 20, 2009); GW Pharmaceuticals, "GW Reports Highly Statistically Significant Results in Sativex Pivotal Phase III Study in MS Spasticity," Press Release (March 11, 2009). In the United States, the manufacturer plans to seek FDA approval of Sativex as a treatment for patients with advanced cancer whose pain has not been adequately relieved by optimized treatment with strong opioid medications. See http://www.gwpharm.com/states.asp (accessed May 15, 2009).

[17] See, e.g,, Derick T. Wade, et al., "Long-Term Use of a Cannabis-Based Medicine in the Treatment of Spasticity and Other Symptoms in Multiple Sclerosis," Multiple Sclerosis, Vol. 12, No. 5 (2006): 639-645.

[18] John Zajicek, et al., "Cannabinoids for Treatment of Spasticity and Other Symptoms Related to Multiple Sclerosis (CAMS Study): Multicentre Randomised Placebo-Controlled Trial," The Lancet, Vol. 362, No. 9395 (2003): 1517-1526.

[19] Id.

[20] John Zajicek, et al., "Cannabinoids in Multiple Sclerosis (CAMS) Study: Safety and Efficacy Data for 12 Months Follow Up," Journal of Neurology, Neurosurgery, and Psychiatry Vol. 76, No. 12 (2005): 1664-1669.

[21] Ethan B. Russo, "Cannabinoids in the Management of Difficult to Treat Pain," Therapeutics and Clinical Risk Management, Vol. 4, No. 1 (2008): 245-259; Michael Iskedjian, et al., "Meta-Analysis of Cannabis Based Treatments for Neuropathic and Multiple Sclerosis-Related Pain," Current Medical Research and Opinion, Vol. 23, No. 1 (2007): 17-24; D.R. Blake, et al., "Preliminary Assessment of the Efficacy, Tolerability and Safety of a Cannabis-Based Medicine (Sativex) in the Treatment of Pain Caused by Rheumatoid Arthritis," Rheumatology, Vol. 45, No. 1 (2006): 50-52; Mary E. Lynch, et al., "A Case Series of Patients Using Medicinal Marihuana for Management of Chronic Pain Under the Canadian Marihuana Medical Access Regulations," Journal of Pain and Symptom Management, Vol 32, No. 5 (2006): 497-501. Sativex is approved in Canada for cancer pain and MS neuropathic pain. GW Pharmaceuticals, "GW Files Sativex Regulatory Submission," Press Release (May 20, 2009).

[22] David Baker, et al., "The Therapeutic Potential of Cannabis," The Lancet Neurology, Vol. 2, No. 5 (2003).

[23] Mayo Clinic, "Marijuana as Medicine: Consider the Pros and Cons," http://www.mayoclinic.com (August 25, 2006).

[24] Institute of Medicine, "Marijuana and Medicine: Assessing the Science Base," supra note 1 at 140. See also Nathalie Do Quang-Cantagtrel, et al., "Opioid Substitution to Improve the Effectiveness of Chronic Noncancer Pain Control: A Chart Review," Anesthesia & Analgesia, Vol. 90 (2000): 933-937 (finding that a significant minority (19%) of patients with chronic pain are not able to achieve a satisfactory balance between pain relief and side effects with opioid medications).

[25] Institute of Medicine, "Marijuana and Medicine: Assessing the Science Base," supra note 1 at 140.

[26] Mayo Clinic, "Marijuana as Medicine: Consider the Pros and Cons," supra note 23.

[27] Mohamed Ben Amar, "Cannabinoids in Medicine: A Review of Their Therapeutic Potential," Journal of Ethnopharmacology, Vol. 105, No. 1-2 (2006): 1-25 (citing Jomar M. Cunha, et al., "Chronic Administration of Cannabidiol to Healthy Volunteers and Epileptic Patients," Pharmacology, Vol. 21, No. 3 (1980): 175-185)). But see Instititute of Medicine, "Marijuana and Medicine: Assessing the Science Base," supra note 1 at 171-172 (discussing two unpublished studies which failed to show cannabidiol's effectiveness at reducing seizure frequency and noting that "[p]roving efficacy of anticonvulsants generally requires large numbers of patients followed for months because the frequency of seizures is highly variable and the response to therapy varies depending on seizure type.").

[28] Ben Amar, supra note 27 (citing P.F. Consroe, et al., "Anticonvulsant Nature of Marihuana Smoking," JAMA, Vol. 234, No. 3 (1975): 306-307; J.M. Ellison, et al., "Complex Partial Seizure Symptoms Affected by Marijuana Abuse," Journal of Clinical Psychiatry, Vol. 51, No. 10 (1990):439-440; L. Grinspoon and J.B. Bakalar, Marihuana. The Forbidden Medicine (Yale University Press 1997); and R.J. Gurley, et al., "Medicinal Marijuana: A Comprehensive Review," Journal of Psychoactive Drugs, Vol. 30, No. 2 (1998): 137-147).

[29] Mayo Clinic, "Marijuana as Medicine: Consider the Pros and Cons," supra note 23.

[30] Id.; AMA Council on Scientific Affairs, "Featured Report: Medical Marijuana," supra note 12.

[31] Medicines and Health Care Products Regulatory Agency, "Public Information Report on Sativex Oromucosal Spray," http://www.mhra.gov.uk/NewsCentre/CON2033380 (accessed May 15, 2009) (reporting that Sativex reaches its peak level within two to four hours).

[32] AMA Council on Scientific Affairs, "Featured Report: Medical Marijuana," supra note 12 (noting with approval the ability of patients using smoked marijuana to titrate their dosage according to need).

[33] Jill U. Adams, "Pro: Marijuana Use for Chronic Pain and Nausea," L.A. Times (August 18, 2008) (according to Dr. Igor Grant, the Director of California's Center for Medicinal Cannabis Research, Marinol's "absorption is highly variable and unpredictable and often delayed[.]").

[34] American College of Physicians, "Supporting Research into the Therapeutic Role of Marijuana" supra note 2 at 5.

[35] AMA Council on Scientific Affairs, "Featured Report: Medical Marijuana," supra note 12.

[36]American College of Physicians, "Supporting Research into the Therapeutic Role of Marijuana" supra note 2 at 6.

[37] Institute of Medicine, "Marijuana and Medicine: Assessing the Science Base" supra note 1 at 5 ("[E]xcept for the harms associated with smoking, adverse effects of marijuana use are within the range of effects tolerated for other medications.")

[38] Id.

[39] Patients may be able to reduce their risk through the use of a vaporizer device which heats marijuana to a temperature hot enough to vaporize the cannabinoids contained in the plant material without causing combustion with all of its toxic byproducts. Donald I. Abrams, et al., "Vaporization as a Smokeless Cannabis Delivery System: A Pilot Study," Clinical Pharmacology & Therapeutics, Vol. 82, No. 5 (2007): 572-578.

[40] Karen O'Keefe, et al., "Marijuana Use by Young People: The Impact of State Medical Marijuana Laws," Marijuana Policy Project Foundation (2008).

[41] Id. (citing California Office of the Attorney General, "Eighth Biennial California Student Survey," Tables 5 and 9; California Office of the Attorney General, "11th Biennial California Student Survey," Tables 2.1, 2.2, 2.3, 2.8, and 2.12).

[42] Cal. Health and Safety Code §11362.5 (b)(1)(A).

[43] Other medical conditions can only be added by DHSS regulation.