

**WRITTEN TESTIMONY IN SUPPORT OF SB 556:
A BILL TO ESTABLISH "DEFENSE TO PROSECUTION" FOR
MEDICAL MARIJUANA PATIENTS IN KANSAS,
BEFORE THE SENATE COMMITTEE ON HEALTH CARE
STRATEGIES**

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I applaud the members of the Kansas Committee on Health Care Strategies for holding this hearing regarding SB 556, which seeks to allow for a "defense to prosecution" for select medical marijuana patients who possess a written authorization from a state-licensed physician.

Specifically, this bill would allow state judges and juries to consider a patient's use of medical cannabis as a mitigating factor at trial. This common sense and humane proposal will ensure patients charged with minor marijuana offenses will be able to present evidence at trial regarding their therapeutic use of cannabis to treat a serious medical condition. This bill would not alter existing laws prohibiting the possession and use of marijuana for recreational purposes.

I have examined the science surrounding the medicinal use of cannabis and its active compounds (known as cannabinoids) for fourteen years. During this time, I have published more than 500 articles and white papers on the subject in numerous journals, anthologies, and college textbooks.

I also have work experience as a consultant for London's biotechnology firm GW Pharmaceuticals (<http://www.gwpharm.com>) – the only company legally licensed in the world to cultivate medical cannabis and perform clinical trials on various preparations of oral spray cannabis extracts. These extracts are legally available by prescription in Canada as well as on a limited basis in Spain and the United Kingdom under the trade name Sativex. Clinical trials assessing the efficacy of Sativex on cancer pain are ongoing in North America under the guidance Dr. Russel K. Portenoy, Chairman of the Department of Pain Medicine and Palliative Care at Beth Israel Medical Center in New York City.

Most recently, I authored the booklet, *Emerging Clinical Applications for Cannabis and Cannabinoids: A Review of the Recent Scientific Literature* (2008, NORML Foundation), which critically reviews the efficacy of cannabis or cannabinoids in the treatment of 17 clinical indications, including HIV, Alzheimer's disease, cancer, fibromyalgia, multiple sclerosis, osteoporosis, rheumatoid arthritis, and Tourette's syndrome.

I profiled these conditions because patients from around the nation write me inquiring about the use cannabis therapy to treat these debilitating illnesses. Many of them seek guidance not only for themselves, but also for their physicians, so they can begin to engage in an open dialogue regarding their medicinal use of marijuana.

While researching this book, I discovered that many of the conditions profiled in it – such as HIV and multiple sclerosis – could be successfully moderated by cannabis therapy. In several cases, cannabinoids may halt the progression of these diseases in a more efficacious manner than available pharmaceuticals. In virtually all cases, my report is the most thorough and comprehensive review of the recent scientific literature regarding the therapeutic use of cannabis and cannabinoids. An online edition of this booklet is available for review by members of the Committee at: http://www.norml.org/index.cfm?Group_ID=7002.

While writing this booklet, I reviewed more than 150 clinical and preclinical studies assessing the therapeutic value of cannabis and its active compounds. The findings of many of these studies have significant public policy implications.

For example, 2006 paper published by the National Institutes of Health (NIH) and the National Institute on Alcohol Abuse and Alcoholism concludes that cannabinoids “hold therapeutic promise in a wide range of disparate diseases and pathological conditions, ranging from mood and anxiety disorders, movement disorders such as Parkinson's and Huntington's disease, neuropathic pain, multiple sclerosis and spinal cord injury, to cancer, atherosclerosis, myocardial infarction, stroke, hypertension, glaucoma, obesity/metabolic syndrome, and osteoporosis.”¹

Though impressive, this list of clinical conditions that may be improved by cannabis is far from exhaustive. For instance, investigators at The Scripps Research Institute in California in 2006 reported that THC inhibits the enzyme responsible for the aggregation of amyloid plaque — the primary marker for Alzheimer's disease — in a manner “considerably superior” to

¹ Pacher et al. 2006. The endocannabinoid system as an emerging target of pharmacotherapy. *Pharmacological Reviews* 58: 389-462.

approved Alzheimer's drugs such as donepezil and tacrine. "Our results provide a mechanism whereby the THC molecule can directly impact Alzheimer's disease pathology," researchers concluded. "THC and its analogues may provide an improved therapeutic [option] for Alzheimer's disease [by]... simultaneously treating both the symptoms and the progression of [the] disease."²

Following the publication of this study, investigators writing in the *British Journal of Pharmacology*, stated, "[C]annabinoids offer a multi-faceted approach for the treatment of Alzheimer's disease by providing neuroprotection and reducing neuroinflammation, whilst simultaneously supporting the brain's intrinsic repair mechanisms by augmenting neurotrophin expression and enhancing neurogenesis. ... Manipulation of the cannabinoid pathway offers a pharmacological approach for the treatment of AD that may be efficacious than current treatment regimens."³

Recent scientific studies also indicate that cannabis can effectively and safely treat symptoms of HIV as well as the side effects of various antiretroviral medications. Last February, investigators at San Francisco General Hospital and the University of California's Pain Clinical Research Center assessed the efficacy of inhaled cannabis as a treatment for HIV-associated sensory neuropathy. Writing in the journal *Neurology*, researchers reported that patients who smoked low-grade cannabis three times daily experienced, on average, a 34 percent reduction in pain.⁴

Investigators at Columbia University also published clinical trial data in 2007 reporting that HIV/AIDS patients who inhaled cannabis four times daily experienced "substantial ... increases in food intake ... with little evidence of discomfort and no impairment of cognitive performance." They concluded, "Smoked marijuana ... has a clear medical benefit in HIV-positive [subjects]."⁵ As a result, many experts now believe that "marijuana represents another treatment option in [the] health management" of patients with HIV/AIDS.⁶

² Eubanks et al. 2006. A molecular link between the active component of marijuana and Alzheimer's disease pathology. *Molecular Pharmaceutics* 3: 773-777.

³ Campbell and Gowran. 2007. Alzheimer's disease; taking the edge off with cannabinoids? *British Journal of Pharmacology* 152: 655-662.

⁴ Abrams et al. 2007. Cannabis in painful HIV-associated sensory neuropathy: a randomized placebo-controlled trial. *Neurology* 68: 515-521.

⁵ Haney et al. 2007. Dronabinol and marijuana in HIV-positive marijuana smokers: caloric intake, mood, and sleep. *Journal of Acquired Immune Deficiency Syndromes* 45: 545-554.

⁶ Fogarty et al. 2007. Marijuana as therapy for people living with HIV/AIDS: social and health aspects *AIDS Care* 19: 295-301.

Recent clinical and preclinical studies also suggest that cannabinoids may inhibit the progression of multiple sclerosis. Writing in the journal *Brain*, investigators at the University College of London's Institute of Neurology recently reported, “[C]annabis may also slow the neurodegenerative processes that ultimately lead to chronic disability in multiple sclerosis and probably other disease.”⁷

Clinical data reported in 2006 from an extended open-label study of 167 multiple sclerosis patients found that use of whole plant cannabinoid extracts relieved symptoms of pain, spasticity, and bladder incontinence for an extended period of treatment (mean duration of study participants was 434 days) without requiring subjects to increase their dose.⁸

Results from a separate two-year open label extension trial in 2007 also reported that the administration of cannabinoids was associated with long-term reductions in neuropathic pain in select MS patients. On average, patients in the study required fewer daily doses of the drug and reported lower median pain scores the longer they took it.⁹ These results would be unlikely in patients suffering from a progressive disease like MS unless the cannabinoid therapy was halting its progression.

Finally, a growing body of scientific evidence now indicates that compounds in cannabis may actually halt the proliferation of various forms of cancer, including brain cancer, prostate cancer, breast cancer, lung cancer, skin cancer, pancreatic cancer, and lymphoma.¹⁰

It is unconscionable to think that under current state law, a patient who uses cannabis to effectively treat these and other serious, potentially lethal disease faces up to 10 years in jail for simply possessing or growing a plant that can alleviate their suffering. Passage of SB 556 would help to protect select patients so that they would no longer have to.

State law already allows for the medical use of many controlled substances, such as cocaine and morphine, which can be abused in a non-medical setting. Likewise, Kansas law should also properly differentiate between medicinal

⁷ Pryce et al. 2003. Cannabinoids inhibit neurodegeneration in models of Multiple Sclerosis. *Brain* 126: 2191-2202.

⁸ Wade et al. 2006. Long-term use of a cannabis-based medicine in the treatment of spasticity and other symptoms of multiple sclerosis. *Multiple Sclerosis* 12: 639-645.

⁹ Rog et al. 2007. Oromucosal delta-9-tetrahydrocannabinol/cannabidiol for neuropathic pain associated with multiple sclerosis: an uncontrolled, open-label, 2-year extension trial. *Clinical Therapeutics* 29: 2068-2079.

¹⁰ Sarfarez et al. 2008. Cannabinoids for cancer treatment: progress and promise. *Cancer Research* 68: 339-342,

cannabis and other controlled substances. Please support SB 556 and help protect Kansas' patient community.