

**TESTIMONY IN OPPOSITION TO EFFORTS TO LEGALIZE MARIJUANA IN CONNECTICUT
SB 1014 AND SB 1015, AND IN SUPPORT OF HB 6174.**

**Judiciary Committee
LOB Room 2500
300 Capitol Avenue
Hartford, CT 06106**

Chairman Eric Coleman, Chairman Gerald Fox, Ranking Member John Kissel, Ranking Member John Hetherington and other distinguished Members of the Judiciary Committee.

Legalizing Marijuana Reflects an Indifference to Public Health

by Bertha K. Madras, PhD

**I STRONGLY OPPOSE THE EFFORT TO LEGALIZE MARIJUANA IN CONNECTICUT SB
1014 AND SB 1015, AND IN SUPPORT OF HB 6174 AT THE PUBLIC HEARING**

**RESTRICTIVE MARIJUANA LAWS ARE DRIVEN PRIMARILY BY PERSONAL AND PUBLIC
HEALTH CONSIDERATIONS.**

Maintaining restrictions on marijuana are more compelling than ever, as marijuana potency and availability soar, in parallel with increasing scientific evidence of marijuana's adverse consequences.

A. Why is Marijuana a Concern?

- 1. Acute effects of marijuana on brain function.** Unlike opioids, marijuana is not likely to cause death by overdose but it resides in Schedule I because of its high abuse liability, and no medical indications – essentially because it adversely disturbs brain function and biology. A Saturday night marijuana binge is intoxicating in the short term, but it can also produce residual cognitive deficits (on learning and memory) for several days. (Marijuana research protocols generally wait at least 5-30 days for marijuana to clear, before measuring long term residual cognitive effects). These deficits are readily quantified, are exaggerated in schizophrenics.
- 2. Marijuana compromises the lives of the most vulnerable.** Who is compromised by marijuana? The student in class who can't focus, the construction worker at risk for injury, the unemployed who is less likely to find work, the poor, the high school drop-out. It is unacceptable for soldiers, airline pilots, nuclear power plant operators, federal workers to test positive for marijuana. Should it be acceptable for teachers, day care providers, construction workers, students, machine operators, miners, parents, or drivers?

3. **Marijuana driving.** A 2009 National Highway Traffic Safety Administration (NHTSA) report showed that more people are driving on weekend nights under the influence of marijuana (8.3%) than alcohol (2.2%). A different study found that about 34% of motor vehicle crash victims admitted to a Maryland trauma center tested positive for "drugs only". Studies conducted in several localities have found that approximately 4 to 14% of drivers who sustained injury or died in traffic accidents tested positive for THC, the active ingredient in marijuana.
4. **Marijuana and health care costs.** Emergency department mentions of marijuana in the US have increased from 281,619 to 374,435 during 2004-2008, in parallel with linear increases in marijuana potency and marijuana addiction.
5. **Marijuana is addictive.** Marijuana is addictive in 9-10% of users. Progression to addiction reportedly is more rapid than progression to nicotine addiction. Abstinence in the heavily addicted unmasks physical and psychological neuroadaptation, manifest by an unnerving withdrawal syndrome. Nation-wide, more people harbor a medical (DSM-IV) diagnosis of marijuana abuse/addiction than any other illicit drug. More youth are DSM-IV positive for marijuana than for alcohol, as a percentage of users. Extrapolating from national statistics, an average cost for addiction treatment is \$4,000 for ambulatory care and at least four times that amount for residential care. This can add billions of dollars for marijuana treatment needs nationally.
6. **Young marijuana users become addicted at 6 times the rate of adult users.** The prevalence of addiction to marijuana is 6-fold higher, if youth initiate marijuana use at age 14 or younger. Early onset of marijuana use is also associated with addiction to other drugs in adulthood, including alcohol and heroin. Some have speculated that genetics, cigarettes smoking, social environment, poverty, child abuse, psychiatric conditions confer this higher risk in the young. But how to explain that adolescent rats exposed to the most active constituent of marijuana, delta-9-tetrahydrocannabinol or THC, *only during adolescence*, seek heroin at higher rates after they mature into adults, compared with unexposed rats, and display fundamental changes in brain opioid systems long after their last dose? Social, environmental, poverty, child abuse, psychiatric conditions do not apply to inbred rats – the drug alone alters the trajectory of brain and behavioral development. There is no reasonable evidence that marijuana sold for adults will prevent diversion to young adolescents. Our abysmal failure at preventing youth cigarette smoking or alcohol consumption should be our intuitive guide. Youthful users of marijuana are at particular risk.
7. **Marijuana use and neuropsychiatric disorders.** In nine population studies of more than 75,000 people from seven different countries, early marijuana use was found to be associated with an average two-fold higher risk for later-onset psychosis and schizophrenia. The influential medical journal Lancet, which declared in 1995 that "The smoking of cannabis, even long term, is not harmful to health." changed this conclusion in 2007, by stating that "Research published since 1995, including

[the] systematic review in this issue, leads us now to conclude that cannabis use could increase the risk of psychotic illness... governments would do well to invest in sustained and effective education campaigns on the risks to health of taking cannabis." A current debate is being waged on whether to revise comparative risk assessment in the Global Burden of Disease (GBD) to include the attribution of psychosis to marijuana use. Degenhardt et al argue that the risk assessment should be included because the evidence is as good as that for many other risk factors in the GBD. Some scientists have estimated that marijuana contributes about 8% to new cases of schizophrenia. If this estimate is accurate, unfettered marijuana access in, for example, California conceivably would add 25,000+ cases of schizophrenia, with an estimated cost of caring for this cohort for 30 years in excess of \$6 billion (based on a low estimate of \$8,000/per patient/year).

8. **Long term heavy marijuana use.** Heavy daily marijuana use across protracted periods can exert harmful effects on brain tissue and mental health. Brain imaging of *long-term heavy marijuana* users has shown exposure-related structural abnormalities in brain regions critical for learning, memory and emotional responses, and these brain changes correlate with impaired verbal memory and other symptoms. *Abnormal brain size and brain circuitry of adolescent marijuana users* have also been recently documented. Compromised academic performance, school drop-out, and a host of other adverse consequences are elevated in high school or college students who use marijuana. Accurate price tags for these lost educational and employment opportunities don't exist, but at the very least, they should weigh heavily on the citizens' conscience.
9. **Peripheral health is affected by marijuana.** Marijuana use is associated with increased risks for bronchitis, compromised pulmonary function, precancerous lung changes, cardiovascular events, problematic pregnancies, teratogenic and hormonal effects.

B. Marijuana use is increasing.

Despite this evidence, 2009 was a banner year for marijuana use in our nation. Compared with 2008, 1.5 million more marijuana users were added to the ranks in 2009. The steady decline in marijuana use among youth over the past 6 years was reversed in 2009. Marijuana use among 12-17 year olds increased by over 7%, with a 14% increase among boys, and a 13% increase among college students. Expanding acceptance of medical marijuana and proliferating availability conceivably are driving reduced perception of harm and a pivotal rise in use.

C. Authors' Biography: Bertha K. Madras is a Professor of Psychobiology in the Department of Psychiatry at Harvard Medical School and former Deputy Director for Demand Reduction in the White House Office of National Drug Control Policy. She is author of over 130 scientific manuscripts, senior editor of a book: "The Cell Biology of Addiction", and holds 19 patents with collaborators. She directed the creation of a Museum of Science, Boston exhibit on how drugs affect the brain, and also developed a CD titled "Changing Your Mind: Drugs in the Brain", which was licensed by the Disney Corp. in 2006.

