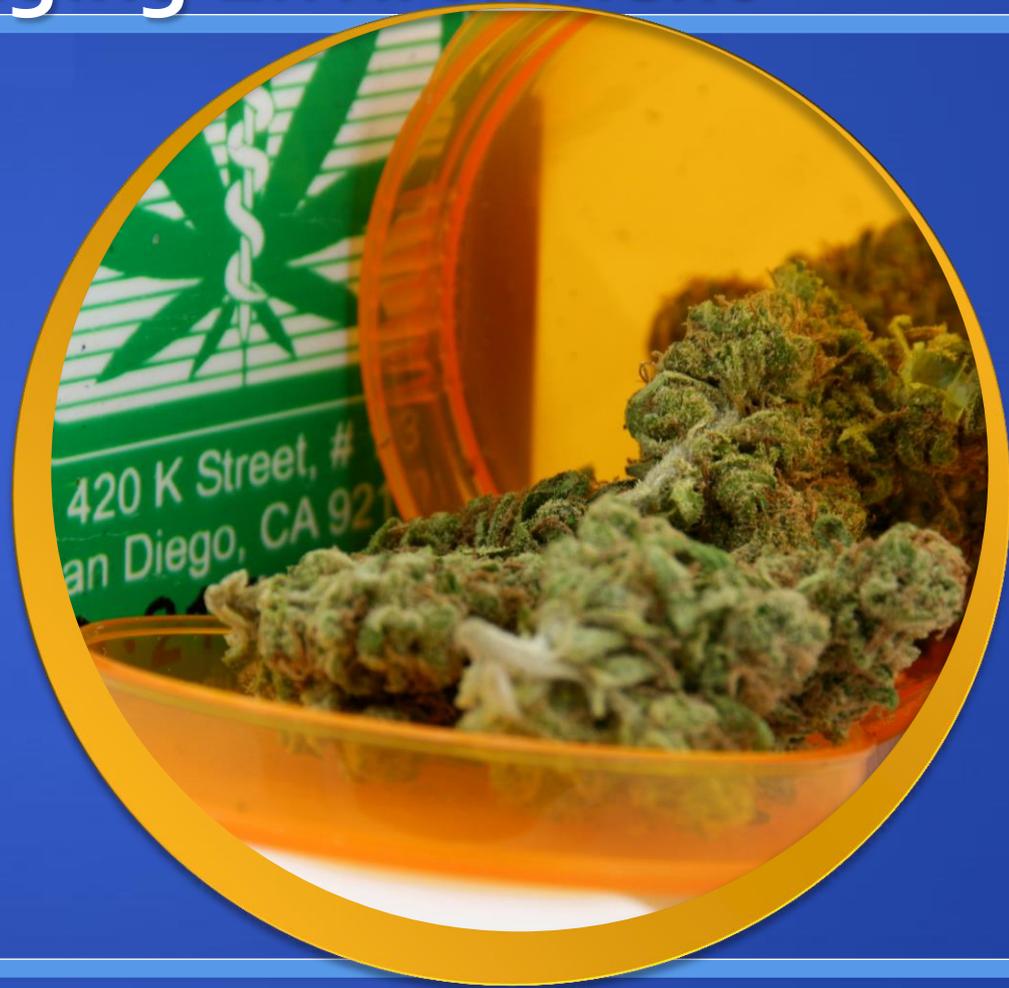


# Marijuana Prevention on College Campuses in a Changing Environment

James Lange, Ph.D.  
Coordinator of AOD Initiatives  
San Diego State University

Webinar for the Illinois Higher  
Education Center for Alcohol, Other  
Drug, and Violence Prevention  
March 27, 2013,



# Is this déjà vu?

DEPARTMENT OF THE INTERIOR  
BUREAU OF REVENUE

**PRESCRIPTION BLANK**  
**NATIONAL PROHIBITION ACT**

BOOK NO. **D333299** BLANK NO. **45** PERMIT NO. **3795**

Rx *Brandy OT*  
*300-10-00*

DATE *July 18* 192*8*

FOR *Jas. S. Smith*  
GIVEN FULL NAME OF PATIENT

*1001 N. 1st St.*  
STREET AND NO.

*Phila Pa.*  
CITY STATE

FOR USE OF DRUGGIST OR PHARMACIST ONLY

PERMIT NO. *Pa-2246*

CANCELLED *July 18* 192*8*  
DATE OF CANCELLATION

*Alexander Cupitt*  
GIVEN FULL NAME AS ON PERMIT

*2101 N. 13th St.*  
STREET AND NO.

*Phila Pa.*  
CITY STATE

THIS PRESCRIPTION MUST NOT BE REFILLED

*Alfred J. King* M. D.  
GIVEN FULL NAME

*1001 N. 1st St.*  
STREET AND NO.

*Phila Pa.*  
CITY STATE

SEE REGULATIONS FOR PENALTIES IMPOSED

FORM NO. 4003 REVISED FEB. 1922

# Infant's Relief



Visit Brian's Page of Antique Weirdness  
<http://www.teleport.com/~gumball/weird.html>

# You're Not Alone

## United States



- Conditional  Decriminalized  DUID  Hemp  Legalization  Mandatory  Medical  
 Tax Stamps

Select to show which states have these types of laws

# More than just medical use



# What is the legal environment?

- Changing
  - More states adding medical use
  - Two states with legal non-medical use
  - Substantial Federal crackdown on dispensaries
  - Gradual acceptance of medical benefits
  - Possible Federal legislation freeing states
- Staying the same
  - Drug Free Schools and Community Act

# Already Decriminalized

California Example – An 18 Year Old

Holding < 1 oz Marijuana	Holding a Can of Beer
Infraction Citation	Misdemeanor
\$100 Fine (no record)	\$250 First Offense \$500 Second
DMV Action Unclear	Loss of Drivers License for 1 year

Consequences: Youth Arrests for Marijuana down by 61% from 2010 - 2011

# Motivation for “Card” persists



Interview with *Workaholics* creators: Adam DeVine, Kyle Newacheck

--Hughes, M. (2012, July). Weekday Warriors. *High Times*, (No. 438), 27–28.

**What do you think of the pot scene in California?**  
ADAM: It’s great.  
KYLE: I just got my card, and I’m pretty amped about it. I feel like I just unlocked the treasures of Los Angeles.  
ADAM: I need to get mine. I don’t know why I haven’t.  
KYLE: It’s just the most amazing thing in the world to go into a fucking store and buy weed with your debit card. I was like ... I couldn’t believe it.  
ADAM: I actually got caught with pot a few years ago, me and Blake. And so I had to do 10 Marijuana Anonymous classes, and I went to these

Kyle  
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**There**  
**movie**  
**film**  
DERS:  
on it  
going  
**Is it a**  
DERS:

# Varying Medical Marijuana Controls



## Spectrum of controls

- California does not require patient registration, list of conditions based upon physician judgment.
- Arizona's new law more specific list of conditions, and requires patient registration.

**FREE!**

# MOT Magazine

Premier Issue

# Pick your condition

## Conditions That Can Be Treated By Medical Marijuana



Bipolar Disorder  
 Autism/Aspergers  
 Anxiety Disorder  
 Panic Disorder  
 Agoraphobia  
 Genital Herpes  
 Herpetic infection  
 AIDS Related Illness  
 Post W.E. Ecephalitis  
 Chemotherapy Convales  
 Shingles (Herpes Zoster)  
 Radiation Therapy  
 Viral B Hepatitis, chronic  
 Viral C Hepatitis, chronic  
 Other arthropod borne dis  
 Lyme Disease  
 Reiters Syndrome  
 Post Polio Syndrome  
 Malignant Melanoma  
 Other Skin Cancer  
 Prostate Cancer  
 Testicular Cancer  
 Adrenal Cortical Cancer  
 Brain malignant tumor  
 Glioblastoma Multiforme  
 Cancer, site unspecified  
 Lympho & reticular ca  
 Myeloid leukemia  
 Uterine cancer  
 Lymphoma  
 Graves Disease  
 Acquired hypothyroidsm  
 Thyroiditis  
 Diabetes Adult Onset  
 Diabetes insulln Depend.  
 Diabetes Adult Ons Unctrl  
 Diabetic Renal Disease  
 Diabetic Ophthalmic Dis  
 Diabetic Neuropathy  
 Diabetic PeripheralVascD

Hypoglycemia(s)  
 Lipomatosis  
 Arthropathy, gout  
 Mucopolysaccharoidosis  
 Porphyria  
 Amyloidosis  
 Obesity, exogenous  
 Obesity, morbid  
 Autoimmune disease  
 Hemophilia A  
 Henoch-Schoelein Purpur  
 Senile Dementia  
 Delerium Tremens  
 Schizophrenia(s)  
 Schizoaffective Disorder  
 Mania  
 Major Depression, Sgl Epi  
 Major Depression, Recurr  
 Obsessive Compulsive Disorder  
 Dysthymic Disorder  
 Neurasthenia  
 Writers' Cramp  
 Impotence, Psychogenic  
 Alcoholism  
 Opiate Dependence  
 Sedative Dependence  
 Cocaine Dependence  
 Amphetamine Depend  
 Alcohol Abuse  
 Tobacco Dependence  
 Psychogenic Hyperhidrosi  
 Psychogenic Pylorospas  
 Psychogenic Dysuria  
 Bruxism  
 Stuttering  
 Anorexia Nervosa  
 Tic disorder unspec  
 Tourette's Syndrome  
 Persistent Insomnia  
 Nightmares  
 Bulemia  
 Tension Headache

Psychogenic Pain  
 Post Traumatic Stress Dis.  
 Org. Mental Dis.hd Inj  
 Post Concussion Syndrome  
 Nonpsychotic Org Bra Dis.  
 Brain Trauma  
 Intermittent Explosive Dis  
 Trichotillomania  
 ADD w/o hyperactivity  
 ADD w hyperactivity  
 ADD other  
 Pechogenic PAT  
 Parkinsons Disease  
 Huntingtons Disease  
 Restless legs syndrome  
 Friedreich's Ataxia  
 Cerebellar Ataxia  
 Spinal mm atrophy II  
 Amytrophic Lateral Sclero  
 Other spinal cord disease  
 Syringomyella  
 Reflex Sympath Dystroph  
 Multiple Sclerosis  
 Other CNS demyelinating  
 Hemiparesis/plegia  
 Cerebral Palsy  
 Quadriplegia(s)  
 Paraplegia(s)  
 Paralysis, unspecified  
 Epilepsy(les)  
 Grand Mal Seizures  
 Limbic Rage Syndrome  
 Jacksonian Epilepsy  
 Migraine(s)  
 Migraine, Classical  
 Cluster Headaches  
 Compression of Brain  
 Tic Doloroux  
 Bell's palsy  
 Thoracic Outlet Synd  
 Carpal Tunnel Syndrome  
 Mononeuritis lower limb

Charcot-Marie-Tooth  
 Neuropathy  
 Muscular dystrophies  
 Macular Degeneration  
 Glaucoma  
 Dyslexic Amblyopia  
 Color Blindness  
 Conjunctivitis  
 Drusen of Optic Nerve  
 Optic neuritis  
 Strabismus & other binoc  
 Nystagmus, Congenital  
 Meniere's Disease  
 Tinnitus  
 Hypertension  
 Ischemic Heart Disease  
 Angina pectoris  
 Arteriosclerotic Heart Dis  
 Cardiac conduction disord  
 Paroxysmal Atrial Tach  
 Post Cardiotomy Syndrom  
 Raynaud's Disease  
 Thromboangiitis Obliteran  
 Polyarteritis Nodosa  
 Acute Sinusitis  
 Chronic Sinusitis  
 Chronic Obst Pulmo Dis  
 Emphysema  
 Asthma, unspecified  
 Pneumothorax, Spontaneo  
 Pulmonary Fibrosis  
 Cystic Fibrosis  
 Dentofacial anomaly pain  
 T.M.J Syndrome  
 GastroEsophgeal Rfix Dis  
 Acute Gastritis  
 Gastritis  
 Peptic Ulcer/Dyspepsia  
 Colitis, Ulcerative  
 Pylorospasm Reflux  
 Regional Enteri & Crohns  
 Colitis  
 Colon diverticulitis  
 Constipation  
 Irritable Bowel Synd.  
 Dumping SydroPost Sur  
 Peritoneal pain

Hepatitis-non-viral  
 Pancreatitis  
 Nephritis/nephropathy  
 Ureter spasm calculus  
 Urethritis/Cystitis  
 Prostatitis  
 Epididymitis  
 Testicular torsion  
 Pelvic Inflammatory Dis  
 Endometriosis  
 Premenstrual Syndrome  
 Pain, Vaginal  
 Menopausal syndrome  
 Sturge-Weber Disease  
 Eczema  
 Pemphigus  
 Epidermolysis Bullosa  
 Erythma Multiforma  
 Rosacea  
 Psoriatic Arthritis  
 Psoriasis  
 Pruritus, pruritic  
 Atrophy Blanche  
 Alopecia  
 Lupus  
 Scleroderma  
 Dermatomyositis  
 Eosinophilia-Myalgia Syn.  
 Arthritis, Rheumatoid  
 Felty's Syndrome  
 Arthritis, Degenerative  
 Arthritis, post traumatic  
 Arthropathy, Degenerat  
 Patellar chondromalacia  
 Ankylosis  
 Multiple joints pain  
 Intervertebral Disk Diseas  
 L-S disk dis sciatic N irrit  
 IVDD Cerv w Myelopathy  
 Cervical Disk Disease  
 Cervicobrachial Syndrome  
 Lumbosacral Back Diseas  
 Spinal Stenosis  
 Lower Back Pain  
 Peripheral enthesopathies  
 Tenosynovitis  
 Dupuytens Contracture

Muscle Spasm  
 Fibromyagia/Fibrositis  
 Osgood-Schlatter  
 Tietze's Syndrome  
 Melorheostosis  
 Spondylolisthesis  
 Cerebral Aneurism  
 Scoliosis  
 Spina Bifida Occulta  
 Osteogenesis imperfecta  
 Ehlers Danlos Syndrom  
 Nail patella syndrome  
 Peutz-Jehgers Syndrme  
 Mastocytosis  
 Darler's Disease  
 Marfan syndrome  
 Sturge-Weber Eye Syn  
 Insomnia  
 Sleep Apnea  
 Chronic Fatigue Synd  
 Tremor/Invol Movements  
 Myofacial Pain Syndrme  
 Anorexia  
 Hyperventilation  
 Cough  
 Hiccups  
 Vomiting  
 Nausea  
 Diarrhea  
 Pain, Ureter  
 Cachexia  
 Vertebral disloc unspec  
 Whiplash  
 Back Sprain  
 Shoulder Injury Unspec  
 Fore Arm/Wrist/Hand  
 Hip, Knee, ankle  
 & foot injury  
 Motion Sickness  
 Anaphylactic or Reaction  
 Trachoria Growths



Issue 1, Sept 2010

# The Medical User

- Reinerman et al (2011) – Survey of patients at medical marijuana assessment clinics.
  - Mostly male, white, 44 and under.
  - 27.1% had some college
  - Overrepresentation of Males African Americans, Native Americans, and Employed
  - Therapeutic Goals
    - Pain 82.6%
    - Improve sleep 70.7%
    - Relaxation 55.1%
    - Muscle Spasms 41.1%
    - Headaches 40.7%
    - Anxiety 37.8%
    - Appetite 37.7%
    - Nausea 27.7%
- Top Three Diagnostic Codes:
  - Back/spine/neck pain
  - Sleep disorders
  - Anxiety/Depression

Reinerman, C., Nunberg, H., Lanthier, F., & Heddleston, T. (2011). Who are medical marijuana patients? Population characteristics from nine California assessment clinics. *Journal of Psychoactive Drugs*, 43(2), 128–135.

# The Student Medical User

- Survey of 729 undergraduates

- 4.8% report some doctor recommended use of marijuana in past 12 months
- 3.5% report having a current valid recommendation

## Past 12 Month Marijuana Smokers

- 11.4% have valid recommendation
- 33.3% 50+ smokers have valid recommendation

## Card Holders

- 94.2% have had card for 3 or fewer years
- Of 19 students who reported medical reasons:
  - 86.9% for anxiety, PTSD, depression, insomnia or ADD
  - 50% Pain management or nausea
- 50% purchase marijuana weekly, 66.7% report smoking before noon, and 84.8% smoke daily or almost daily.
- 24% used alcohol concurrently with their marijuana the last time they smoked.
- 58.9% drove while under the influence of marijuana in the past month
- 60.8% began using marijuana at age 16 or younger.

# Indirect Measure: Analysis of National Ads

- Sampled 100 of 335 ads placed in major weekly newspapers from all states with medical marijuana laws as of June 2010.
- Coded them using a variety of methods: Trained coders and Amazon Mechanical Turk
- Found three main themes:
  - Traditional medicine (15.6%)
  - Holistic/alternative medicine (30.8%)
  - Counterculture/recreation (16.8%)
  - Mixed (36.8%)
- Varies substantially by state.

# CA Marijuana Advertising

Sexualized images  
Happy Hour Specials

**H+**  
PATIENTS ASSOCIATION

4 | .com  
San Diego, CA, 92120  
619.

**Your Leader In  
Compassionately  
Priced Medicine**

**\$55**  
CAP  
ON ALL  
TOP SHELF  
We  
are your  
One Stop  
Shop

CLONES  
CONCENTRATES  
NEW MEMBER GIFTS  
REFERRAL GIFTS  
HAPPY HOUR 1-5 DAILY

Sat. Oct. 8th

**\$25**  
1/8's  
\$1 From Every  
Donation Goes To  
Susan G. Komen  
for the Cure

Limited Strains!  
Limit 1 Per Member  
WHILE SUPPLIES LAST  
\*Only 1 Discount Applies  
Per Transaction\*

**GO G (213)**

**Top Shelf Kushes**

\$20-\$45 1/8ths  
\$10-\$23 half 1/8ths

**No Ounce  
over \$320**

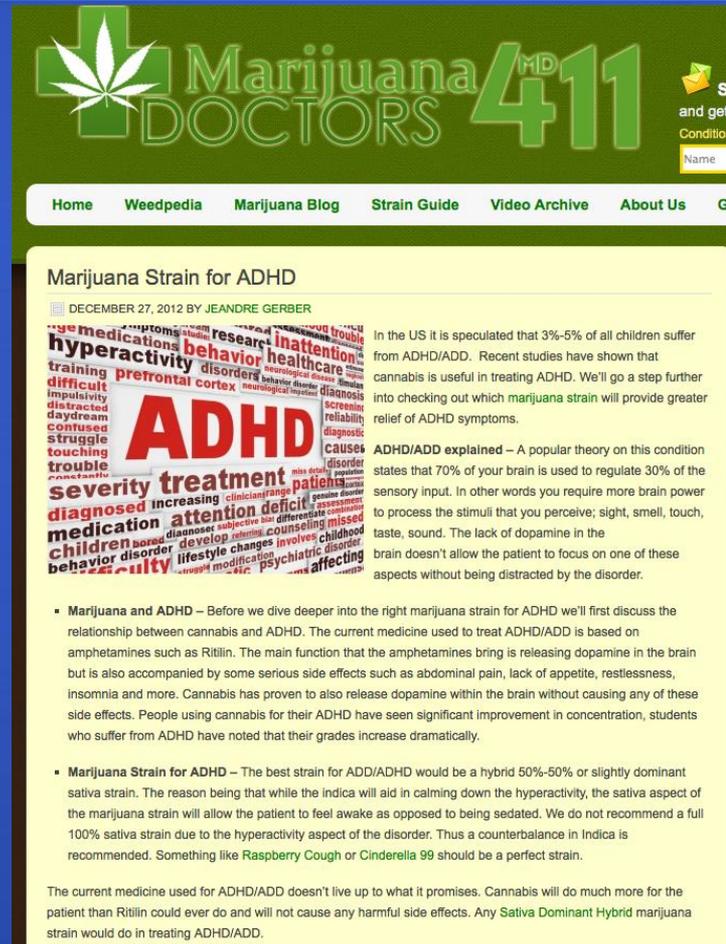
OPEN DAILY  
from 11am-9pm

We are located in Downtown LA  
Directly off HWY 10  
Free Private Parking

ATM

909. 915@gmail.com

# Not just newspaper ads



The screenshot shows the website 'Marijuana Doctors 411'. The header includes a green navigation bar with links for Home, Weedpedia, Marijuana Blog, Strain Guide, Video Archive, About Us, and Gre. The article is dated December 27, 2012, by Jeandre Gerber. It features a word cloud on the left with terms like 'ADHD', 'hyperactivity', 'behavior', 'inattention', 'disorders', 'medications', 'research', 'healthcare', 'prefrontal cortex', 'neurological disorder', 'diagnosis', 'reliability', 'diagnostic', 'cause', 'disorder', 'treatment', 'patients', 'diagnosed', 'increasing', 'clinicians', 'range', 'assessment', 'medication', 'attention deficit', 'subjective', 'differences', 'missed', 'children', 'disorder', 'development', 'involves', 'childhood', 'behavior', 'disorder', 'lifestyle changes', 'psychiatric', 'affecting', 'trouble', 'impulsivity', 'distracted', 'daydream', 'confused', 'struggle', 'touching', 'trouble', 'severity', 'treatment', 'patients', 'diagnosed', 'increasing', 'clinicians', 'range', 'assessment', 'medication', 'attention deficit', 'subjective', 'differences', 'missed', 'children', 'disorder', 'development', 'involves', 'childhood', 'behavior', 'disorder', 'lifestyle changes', 'psychiatric', 'affecting'.

## Marijuana Strain for ADHD

DECEMBER 27, 2012 BY JEANDRE GERBER

In the US it is speculated that 3%-5% of all children suffer from ADHD/ADD. Recent studies have shown that cannabis is useful in treating ADHD. We'll go a step further into checking out which marijuana strain will provide greater relief of ADHD symptoms.

**ADHD/ADD explained** – A popular theory on this condition states that 70% of your brain is used to regulate 30% of the sensory input. In other words you require more brain power to process the stimuli that you perceive; sight, smell, touch, taste, sound. The lack of dopamine in the brain doesn't allow the patient to focus on one of these aspects without being distracted by the disorder.

- **Marijuana and ADHD** – Before we dive deeper into the right marijuana strain for ADHD we'll first discuss the relationship between cannabis and ADHD. The current medicine used to treat ADHD/ADD is based on amphetamines such as Ritalin. The main function that the amphetamines bring is releasing dopamine in the brain but is also accompanied by some serious side effects such as abdominal pain, lack of appetite, restlessness, insomnia and more. Cannabis has proven to also release dopamine within the brain without causing any of these side effects. People using cannabis for their ADHD have seen significant improvement in concentration, students who suffer from ADHD have noted that their grades increase dramatically.
- **Marijuana Strain for ADHD** – The best strain for ADD/ADHD would be a hybrid 50%-50% or slightly dominant sativa strain. The reason being that while the indica will aid in calming down the hyperactivity, the sativa aspect of the marijuana strain will allow the patient to feel awake as opposed to being sedated. We do not recommend a full 100% sativa strain due to the hyperactivity aspect of the disorder. Thus a counterbalance in Indica is recommended. Something like [Raspberry Cough](#) or [Cinderella 99](#) should be a perfect strain.

The current medicine used for ADHD/ADD doesn't live up to what it promises. Cannabis will do much more for the patient than Ritalin could ever do and will not cause any harmful side effects. Any [Sativa Dominant Hybrid](#) marijuana strain would do in treating ADHD/ADD.

# Changing Environment: Advertising

## Crackdown effects

- Dispensaries are just about gone
- Ads for Delivery Service persist
- Physician ads persist

## Persisting questions

- College newspaper perspectives
- Are these ads reflective, persuasive, neither or both

# Issues that complicate medical use:

## Research Issues

- Definitions of medical vs. recreational use: The Viagra problem
- Determining “legitimate” recommendations
- Mixed use

## Campus Policy Issues

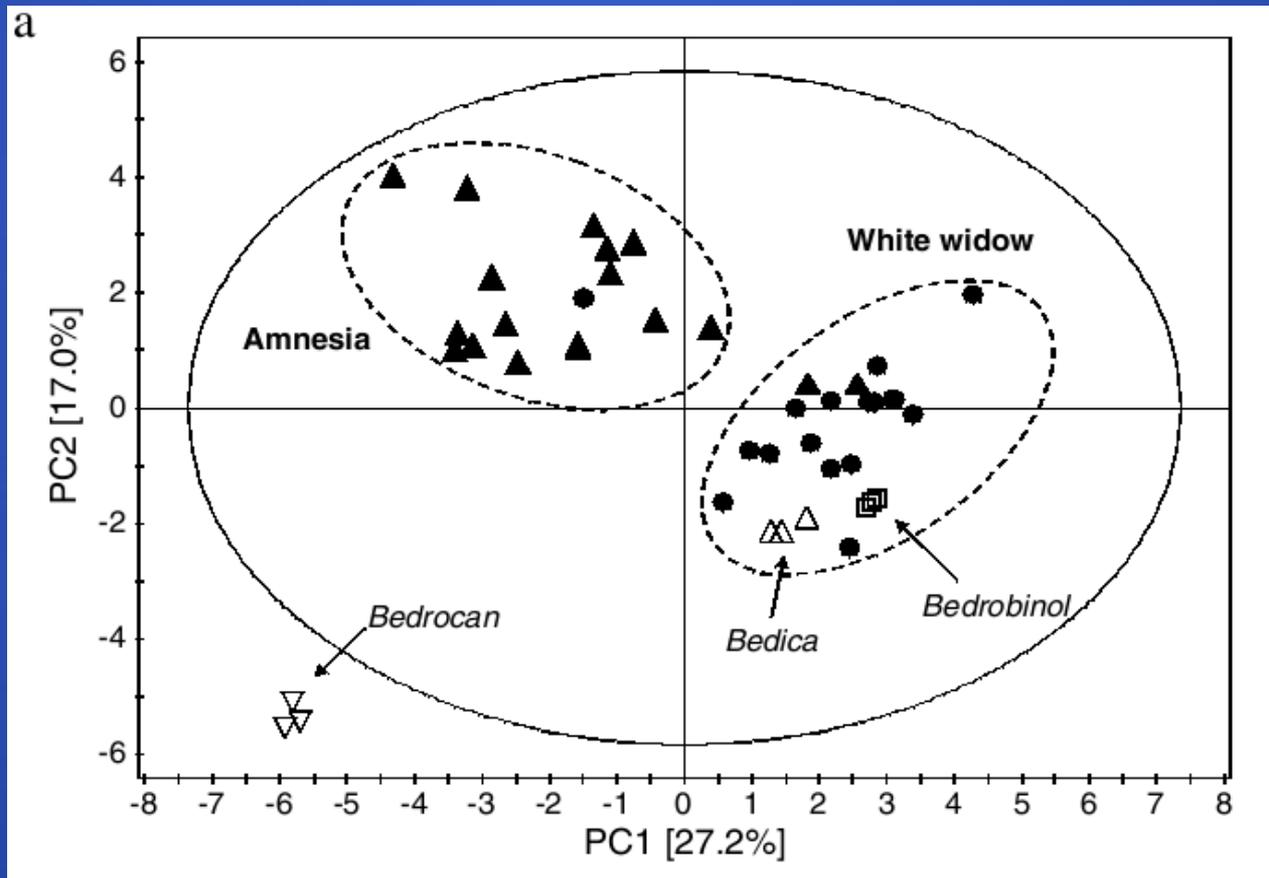
- Court decisions can change compliance requirements:
  - ADA-type concerns
  - Legislative actions both federal and state
  - NCAA testing

# Standardization: Medical

“Cannabis as an herbal medicine poses serious challenges to modern medicine, which operates according to the ‘single compound, single target’ paradigm of pharmacology” (p. 660).

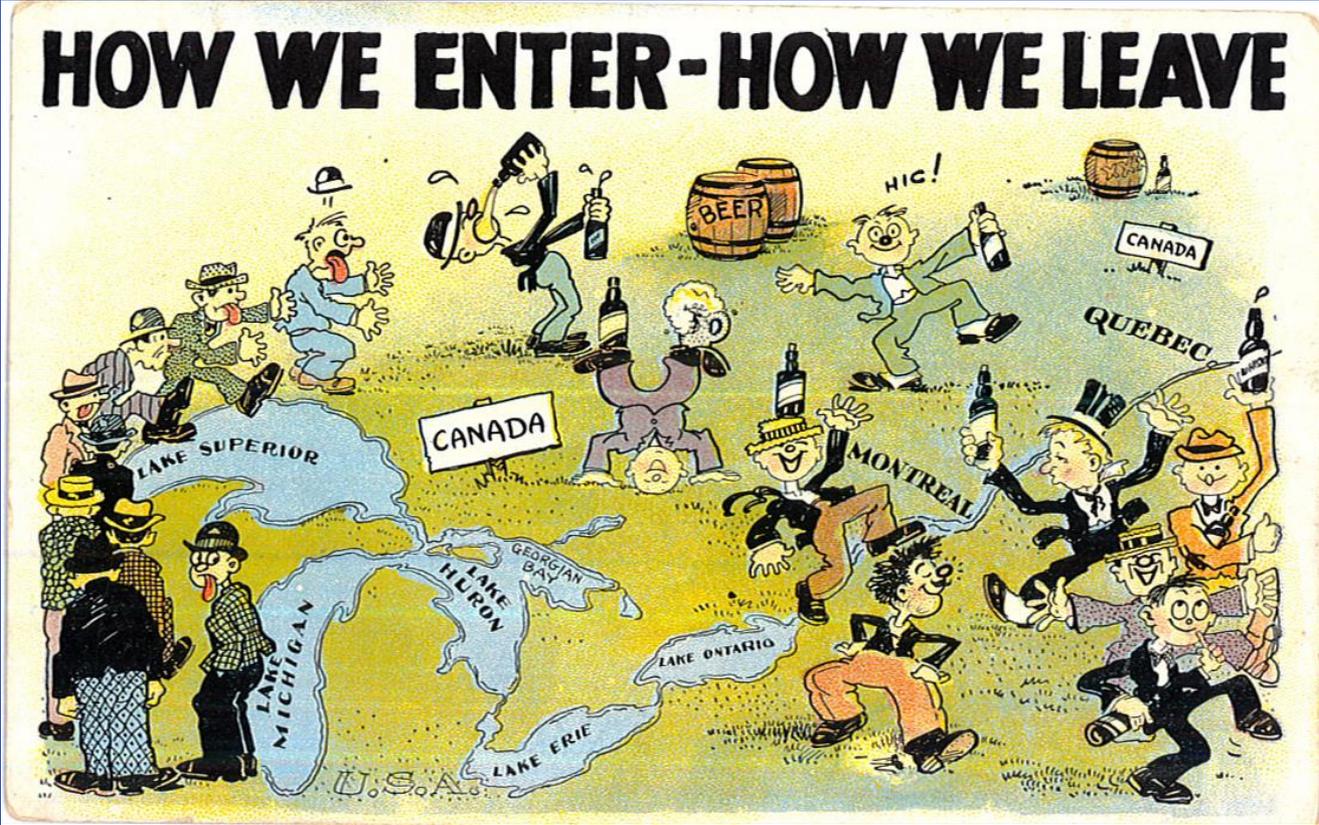
- Hazekamp, A., & Fishedick, J. T. (2012). Cannabis - from cultivar to chemovar. *Drug Testing and Analysis*, 4(7-8), 660–667

# Chemical profiles of cultivars – Clusters of 28 tested components: 2 Coffee Shop varieties, 3 pharmaceutical



- Hazekamp, A., & Fishedick, J. T. (2012). Cannabis - from cultivar to chemovar. *Drug Testing and Analysis*, 4(7-8), 660–667

# Standardization of Policy: Border Towns



# If you want to start taking action, know the players

- Politicians – Unpredictable
- Activists – Mostly *Pro*-side with money and clear objectives
- Business interests – Growing stronger every day
- Enforcement – Mixed objectives and interests
- Public Health – Struggling to be heard and sometimes actively marginalized

# How does this changing environment affect prevention?

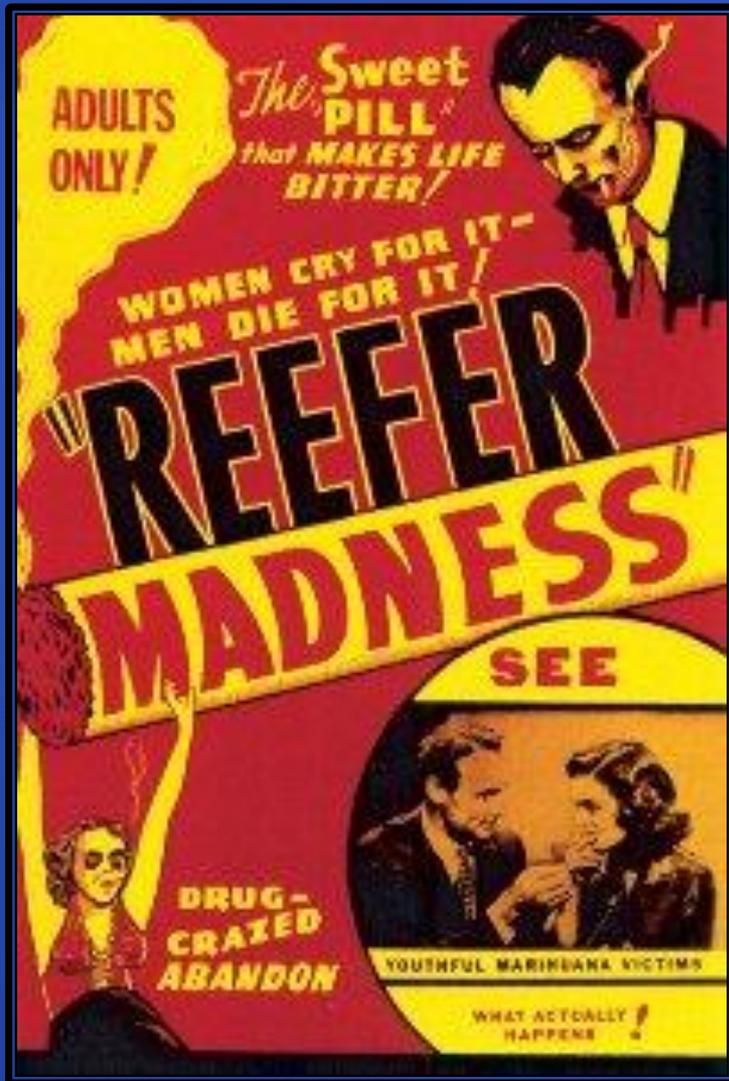
- Removes the legal argument against use
- Possibly also removes public support for prevention
- Exposes holes in research
- Changes perception of harms
- Changes paths to treatment

---

# Question Break

---

# Reefer Madness



The ghost of this movie still haunts the way health messages are heard regarding marijuana.

# Fallback arguments may be counterproductive:

- Data-less statements
  - Smoking analogies
  - THC Levels
  - Chemical Soup
  - Gateway drug
- Style points: Smirks, jokes and air-quotes

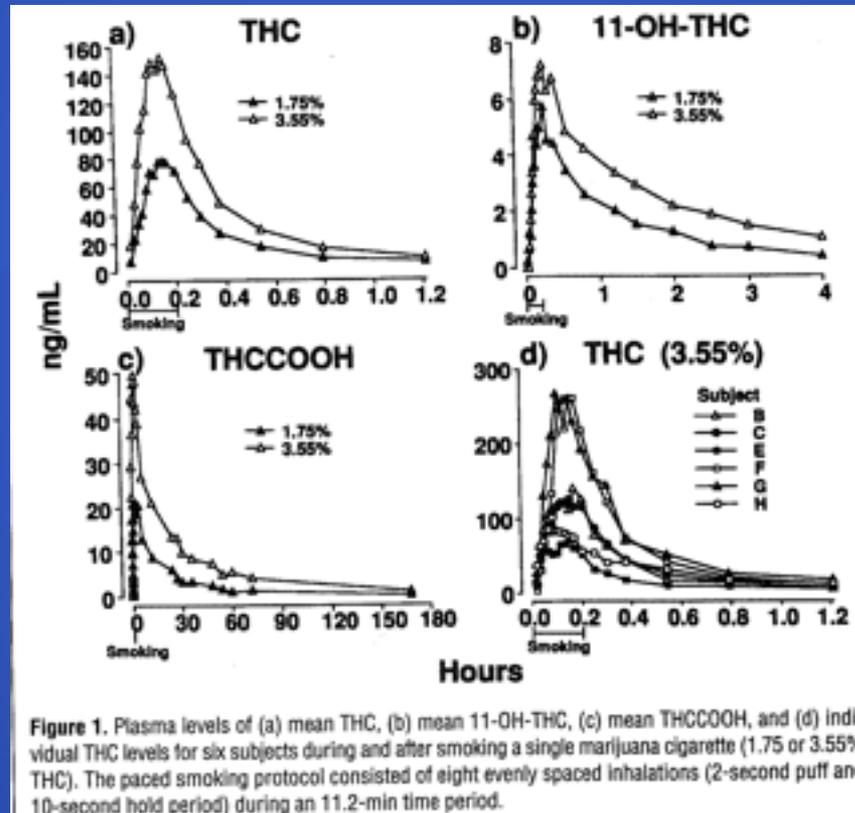
# Smoking anything must be bad

- Actually...Conflicting Evidence
  - Harms
  - Benign or Benefits
  - Definitions of use

# THC Levels: It's not your parent's marijuana

- First...Is it true that THC levels are up?
  - Yes, and “Sort of”
- Is THC the only factor?
  - No, there are countervailing cannabinoids (such as CBD) and proportion may be more critical
- Is it more worse?
  - See smoking concerns – be consistent
  - Overdose unlikely
  - Blood level THC curve not like alcohol
- What about synthetics, aren't they stronger too?
  - Yes but they are very different chemicals than THC with a different binding affinity to CB<sub>1</sub> receptor and lack CBD and other possible countervailing cannabinoids

# THC in the Blood



Huestis, M A, J E Henningfield, and E J Cone. "Blood Cannabinoids. I. Absorption of THC and Formation of 11-OH-THC and THCCOOH During and After Smoking Marijuana." *Journal Of Analytical Toxicology* 16, no. 5 (October 1992): 276–282.

# Chemical Soup

- There are XXXX hundred chemicals in marijuana smoke...
  - So? Some may be harmful, but are they in dangerous quantities; has research demonstrated negative effects? Finish the link to health effects.
  - How many chemicals are there in a cheeseburger?
  - Is alcohol better for you because it's just one chemical?
- We must avoid blatantly argumentative approaches because they just generate counter arguments; some of which are not easily rebutted from research.

# Style

---

- I've been accused of smirking when I say "medical"
- Remember that students are on guard to rebut any attempt to dissuade use. They'll see *Reefer Madness* hidden behind any negative health claim.

# So what should we worry about?

- If not long-term cancer and lung health, then what?
- There are immediate and near-term risks to marijuana.
  - As with almost everything, risk is related to *manner* and *context* of use.
  - Other than DSM-type problems, most of the immediate harms are associated with the impairing qualities of the drug.

# Manner – Research is both limited and inconsistent

- Issues of quantity and frequency
- Mode of THC administration
  - Hash
  - Hash Oil
  - Blunts
  - Straight Smoke
  - Vaporizers
  - Eating

# Context

- Individual Context:
  - Dependence Risk
  - Other health/mental health concerns
  - Other drug/alcohol use
  - Age
  - Use reasons
- Environmental Context
  - Work/School requirements
  - Social setting
  - Impairment risks

# Mixing with Alcohol

- Even very low levels of each can cause dramatic increases in impairment.
- THC level beginning to show impairment was 5 ng/mL dropped to 2.3 ng/mL when any alcohol was present.
- Grotenhermen et al. (2007) note that cannabis impaired automatic functions, while alcohol impaired cognitive functions. Thus the compensatory ability of marijuana users is impaired by even small amounts of alcohol.

# Hear about this one?: Myths on Campus

## Medical Marijuana Use Reduces Traffic Deaths, Acts As Substitute For Alcohol Consumption, Study Says



First Posted: 11/30/11 04:07 PM ET (Updated: 12/1/11 01:17 PM ET)

Read > [Amazing](#) [Inspiring](#) [Funny](#) [Scary](#) [Hot](#) [Crazy](#) [Important](#) [Weird](#)

Follow > [Medical Marijuana](#) , [Video](#) , [Driving Under The Influence Of Marijuana](#) , [Marijuana](#) , [Marijuana Driving Laws](#) , [Marijuana Traffic Studies](#) , [Traffic Deaths](#) , [Traffic Deaths Marijuana](#) , [San Francisco News](#)

A good deal of time, money, and energy has been spent on the issue of drinking and driving. For all the

# It looks like good science: But it's not!

estimating a model that includes both state and year fixed effects. Specifically, the baseline estimating equation is:

$$(1) \quad \ln(\text{Fatalities Total}_{st}) = \beta_0 + \beta_1 \text{MML}_{st} + \mathbf{X}_{st} \boldsymbol{\beta}_2 + v_s + w_t + \varepsilon_{st}$$

where  $s$  indexes states and  $t$  indexes years.<sup>21</sup> The variable  $\text{MML}_{st}$  indicates whether a MML was in effect in state  $s$  and year  $t$ , and  $\beta_1$ , the coefficient of interest, represents the marginal effect of legalizing medical marijuana. In alternative specifications we replace  $\text{Fatalities Total}_{st}$  with the remaining dependent variables listed in Table 5.

# Roadside Breath and Saliva Survey of Weekend Drivers in CA (N=1,314)

Lacey, John, Tara Kelley-Baker, Edmund Romano, Katharine Brainard, and Anthony Ramirez. *Results of the 2012 California Roadside Survey of Nighttime Weekend Drivers' Alcohol and Drug Use*. Calverton, MD: Pacific Institute for Research and Evaluation, November 13, 2012. [http://www.ots.ca.gov/Media\\_and\\_Research/Data\\_and\\_Statistics.asp](http://www.ots.ca.gov/Media_and_Research/Data_and_Statistics.asp).

1. Drug-positive drivers made up about 1 in 7 drivers, a third of those drivers tested positive for more than one drug.
2. The percent of drivers testing positive for marijuana (7.4%) was almost identical to the percent testing positive for alcohol (7.3%).
3. About a quarter of marijuana-positive drivers also tested positive for another drug; about 13.3% marijuana-positive were also positive for alcohol.
4. Of those who admitted to having used marijuana more than once, only 22.4% said it had an effect on their driving; and third of those believed it *improved* their driving. **Thus, only 11% of the marijuana-experienced drivers believed it harmed their driving.** 14.3% admitted to having driven within 2 hours of using marijuana in the past year.
5. There were more drivers (2.2% of the sample) who admitted to taking medication that they think affected their driving than there were drivers who tested at or above .08 BAC (1% of drivers).
6. Of those who had recently used marijuana, about two-thirds reported smoking every day.
7. 3.7% of drivers had a medical marijuana permit and most of those drivers (65.8%) had used their permit to buy marijuana.

# Recommendations for Driving

- *Still very much an open question:*
  - Some advocate zero tolerance
- Others look for an impairment *per se* level
  - *per se* limit set at 7-10 ng/mL. WA has set it at 5 ng/ml. Note that some talk of whole blood, others plasma. All *per se* discussions involve THC.
  - Advise users to wait 3 hours before driving.
  - Drivers should not mix even low amounts of alcohol with cannabis.

# Academic Contexts

- Academic harms:
  - Chronic/Heavy (15+ times per month through years 1-4) users were twice as likely to experience an “enrollment gap” compared against minimal users (Arria et al, 2013).
  - Heavy continual use with onset before age-18 possibly linked to IQ decline. (Meier et al, 2012)

# Prevention Strategies

- Comprehensive Strategy:
  - Motivational focus
  - Alternative focus
  - Access focus



# Access Focused

- Acknowledge DFSCA supremacy
- Most difficult to control in shifting environment.
- Consider advocating for sales and advertising restrictions instead of outright ban of medical marijuana. Search for ways to limit the development of commercial interests
- Community Action:
  - Examples are forming such as [www.butwhataboutthechildren.org](http://www.butwhataboutthechildren.org)
  - Conditional Use Permits around campus.
  - Enhanced DUID enforcement efforts.

# When should Public Health professionals get involved?

- It's now or never
- Pick your battles
  - Avoid the losing arguments
  - Focus on the harms you want to prevent