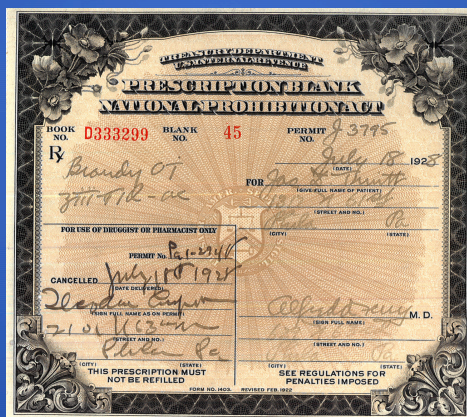# Medical Marijuana and the College Student

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

Presented at the American College Health Association Meeting, Boston, MA
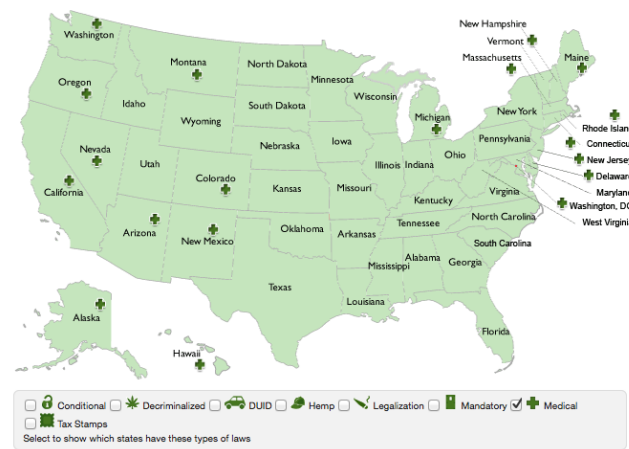May 31, 2013

Is this déjà vu?

Infant's Relief

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

You're Not Alone

State Info. Retrieved March 25, 2013, from http://norml.org/states

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

Some things to watch right now

- Legislation
  - CA:
    - AB 473 (Ammiano) "Medical marijuana: state regulation and enforcement."
  - Fed:
    - H.B. 1523 "Respect State Marijuana Laws Act of 2013"
    - H.R. 499 "Ending Federal Marijuana Prohibition Act of 2013"
    - H.B. 689 States' Medical Marijuana Patient Protection 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

8

Motivation for "Card" persists

High Times July 2012

"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."

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

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

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

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.

10

The Medical User

- Reinarman 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

Reinarman, 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

Not just newspaper ads

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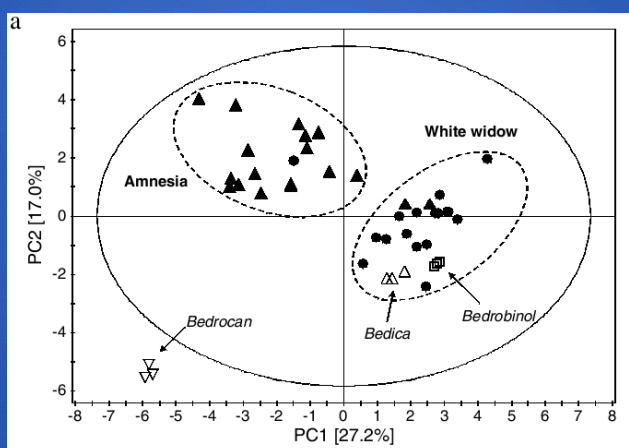
- Hazekamp, A., & Fischedick, J. T. (2012). Cannabis - from cultivar to chemovar. *Drug Testing and Analysis*, 4(7-8), 660–667

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 legal environment affect prevention?

- Removes the legal argument against use

- Possibly also removes some public support for prevention

- Exposes holes in research

- Changes perception of harms

- Changes is use patterns and contexts

- Changes paths to treatment
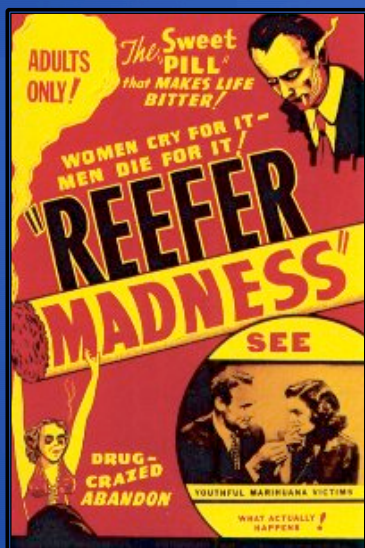
Reefer Madness

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

24

Beyond Arguing

- We must acknowledge that many of the moral and even public health oriented arguments against marijuana use are fraught with shaky foundations
  - Lung health: Cigarette analogy fails both on research-based harms and legal grounds. It also does not address other forms of consumption.
  - "Medical" vs. *Recreational* distinction fails on epistemological grounds-See lifestyle drug discussion of birth control and Viagra. It also oversimplifies the potential pharmacological action of marijuana
  - Both Gateway Drug and Amotivational Syndrome have failed to be confirmed
  - Risk of dependence true, but legal and use guidelines are inconsistent with other drugs
  - Impaired driving is true, but legal and use guidelines are inconsistent with other drugs
  - THC-level inflations: Partially true, but public health implications have not been documented. Synthetic cannabinoids are not a model for informing this debate due to their action on CB1 and also the lack of countervailing chemicals such as CBD.

Fallback arguments may be counterproductive:

- Data-less statements
  - Smoking analogies
  - THC Levels
  - Chemical Soup
  - Gateway drug
  - Amotivational Syndrome
- 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 is 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 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 CB1 receptor and lack CBD and other possible countervailing cannabinoids

THC in the Blood
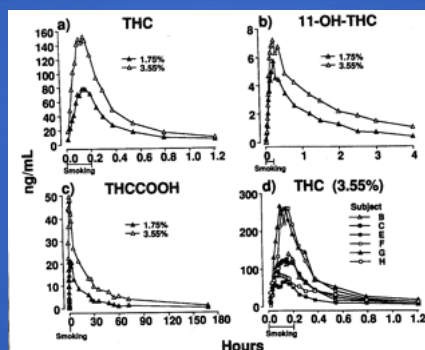
Figure 1. Plasma levels of (a) mean THC, (b) mean 11-OH-THC, (c) mean THCCOOH, and (d) individual THC levels for six subjects during and after smoking a single marijuana cigarette (1.75 or 3.55% THC). The paced smoking protocol consisted of eight evenly spaced inhalations (2-second puff and 10-second hold period) during an 11.2-min time period.

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.

29

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.

- Jason Kilmer's and colleagues' MI approach: The Good and the Not So Good effects.

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 of Use
– Research is both limited and inconsistent

- Issues of quantity, frequency, and delivery

- Mode of THC administration
  - Hash
  - Hash Oil
  - Blunts
  - Straight Smoke
  - Vaporizers
  - Eating

Context of Use

- 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.

35

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.

- Impaired Driving Estimates
  - 7.4% positive for marijuana
  - 7.3% positive for alcohol
  - 11% of marijuana-experienced drivers believed it *harmed* their driving. Many (1/3 of those admitting any effect) believed it *improved* their driving.
  - 2/3 of recent marijuana smokers reported that they smoked every day for past month.
  - 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 at this time involve THC.
  - Advise users to wait 3 (though some say 3-5) hours before driving.
  - Drivers should not mix even low amounts of alcohol with cannabis.

37

Marijuana Use Trajectories

Fig. 1. Marijuana use trajectories (N = 1253).
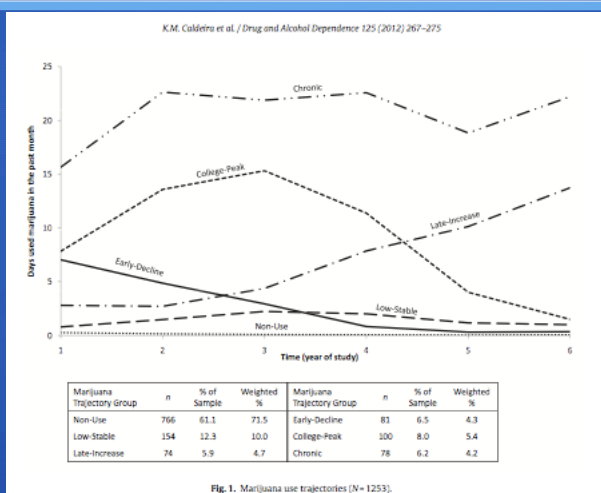
College success impact:

- Specifically, infrequent, increasing, and chronic/heavy marijuana use patterns were associated with significantly increased risk for discontinuous enrollment (adjusted odds ratio = 1.66, 1.74, and 1.99, respectively) compared with minimal use.

Arria, Amelia M, Laura M. Garnier-Dykstra, Kimberly M. Caldeira, Kathryn B. Vincent, Emily R. Winick, and Kevin E. O'Grady. "Drug Use Patterns and Continuous Enrollment in College: Results From a Longitudinal Study." *Journal Of Studies On Alcohol And Drugs* 74, no. 1 (2013): 71–83.

Prevention Strategies

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

40

Motivational Focus

- Motivational Interviewing approaches appear to reduce use and problems.

- Argumentative and counter marketing approaches are not appearing to reduce use. Also these often rely on abstinence-only approach that may not accept legalized environments.

- Information campaign to change the views on driving may be warranted.

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
    - Conditional Use Permits around campus.
    - Enhanced DUID enforcement efforts.

42

When should Public Health professionals get involved?

- It's now or never
  - We need to be at the table now before moneyed interests swamp the process.
- Pick your battles
  - Avoid the losing arguments
  - Focus on the harms you want to prevent

43

Is it already too late?

Assuming Legalization: Sensible Policy Objectives

- Restrict access to those 21+

- Limit daily use through cost barriers

- Enhance enforcement of DUID

- Enhance surveillance of DUID impact

- Restrictions on use and sales to limit underage use and driving risk

- Public awareness campaign regarding public health risks: youth use, impaired driving, dependence and pregnancy

Local Sales Restrictions: Is there a model yet?

- Perhaps consider these (Note that many would need a conditional use permit model for local restrictions; some apply now for medical use):
  - No on-premise use- *Since there is no unimpaired use level, on-premise responsible sales will necessarily lead to intoxication.*

Suggestions Cont.

- No single dose (joint) sales. Would apply also to eatables. *—Just as single serving drinks appeal to youth with little spending money, so too will single joint sales.*
- Advertising restrictions: Similar to tobacco restrictions. *Prohibit ads that appeal to youth and also highly sexualized, irresponsible behavior (Includes strain naming).*
  - Location restrictions to include college campuses.

Coupon

Beverly Hills Dollatella
Los Angeles, CA

New 2 Gram DOGO on select strains New low price DOGOS. FTP patients pick btw rice crispie, indi cream, or joint For 420 we will be giving out free gram of hash. NEW LOW Price on all concentrates

Strawberry Diesel Wax	23 .5g
Alien Space Fucker	23 .5g
Jupiter Dust	23 .5g
Batman (Dark Nights) Wax	23 .5g
Astalavista Gold Dust	23 .5g
Paris OG KIEF	4 .5g

Suggestions Cont.

- No concurrent alcohol sales-*Restricts the growth of industry. Also recognizes the synergistic effect on impairment*
- Tools for enforcement and data collection

Contact Me

- If you have local concerns or questions reach me at jlange@mail.sdsu.edu

- A copy of these slides can be found by visiting the Report Vault at www.iPrevention.com and also I believe through ACHA.