

# **Marijuana Harmfulness to Youth Wellness**

## **The Emperor's New Policies**

**APSAD November-2017**

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## **Disclosure**

- ◆ Dr. Kaminer is the recipient of federal research funding
- ◆ Dr. Kaminer receives royalties for professional books from Hazelden, Francis & Taylor and APPI

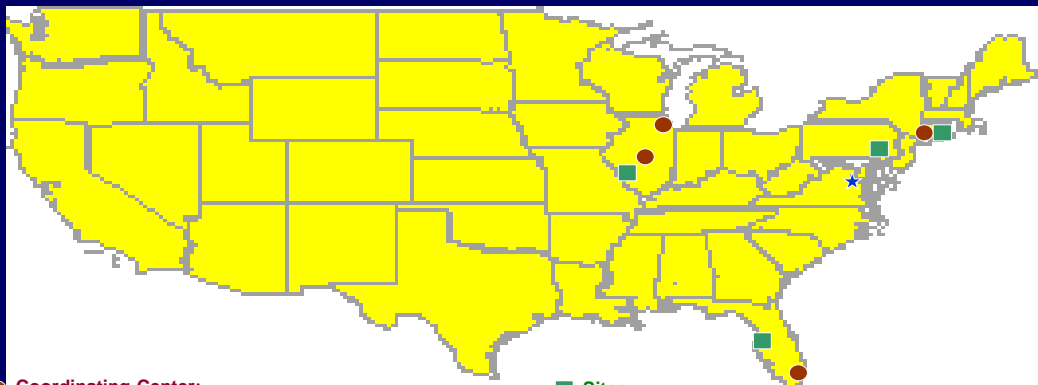
# Join us for the 2<sup>nd</sup> Annual Scientific Meeting of the Research Society on Marijuana (RSMj)!!!

**July 28-30, 2018**  
**Fort Collins, CO**  
**Call for Proposals:**  
**Opens January 15, 2018**  
**Reviewed on a rolling basis!**  
**Early Bird Registration:**  
**Ends May 1, 2018**

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# CYT

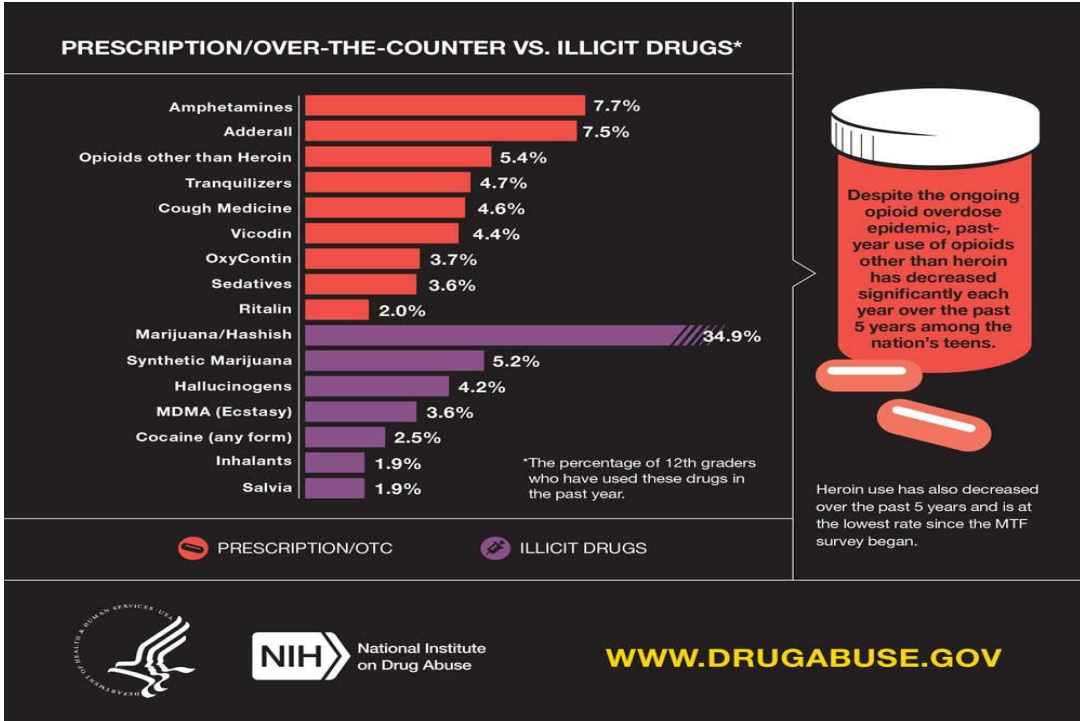
## Cannabis Youth Treatment Randomized Field Experiment



**Coordinating Center:**  
Chestnut Health Systems, Bloomington, IL,  
and Chicago, IL  
University of Miami, Miami, FL  
University of Conn. Health Center, Farmington, CT

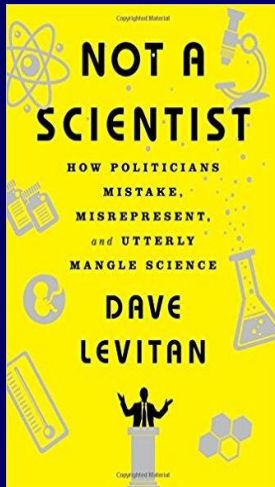
**Sites:**  
Univ. of Conn. Health Center, Farmington, CT  
Operation PAR, St. Petersburg, FL  
Chestnut Health Systems, Madison County, IL  
Children's Hosp. of Philadelphia, Phil., PA

☆ Sponsored by: Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services



## OUTLINE: Liberalization Cause & Effects

- ◆ There is a “debate” (honest/scientific/**misinformed?**) on the harmful/therapeutic properties of MJ between teens, parents, proponents of “medical” MJ (**approved already in 27 states-MN**) and **Legalization** (in 8 states **CO, WA, ME, MA-recreational pot markets, DC-possession**) research community, public health stake holders.
- ◆ What is the impact of the De-criminalization, (possession of <math>\frac{1}{2}</math>OZ results in a fine only) “Medicalization”, and **Legalization** of MJ use on perception of harmfulness, peer approval, availability and use?
- ◆ What are the short/ long-term outcomes of teen MJ use: Driving fatalities, drug dependence, psychosis/MH & educational problems
- ◆ What preventive and policy measures are necessary considering developmental **Best Interest** of youth and emerging adults  $\leq 25.Y.O.$



## The Legal Status of Cannabis: A Public Health Policy Dilemma

- ◆ Is medical marijuana an anathema to North American drug warriors, who see it as a Trojan Horse for drug legalization? *Hall W. (Addiction, 07)*
- ◆ In an environment where reducing one set of harms increases others which harms should we reduce? Ignore in favor of others? Compromise? Based on what principles?
- ◆ Decisions about what policy to adopt invariably come down to political (value) judgements about what risks, harms and benefits (I.e., outcomes) matter the most.
- ◆ Who would be harmed? Primarily: **Youth and drivers**
- ◆ Who will provide resources to pay the price: **Not the Government of the state you live in!**

## Does Liberalizing MJ Laws Increase Teen Use? Why is it so important?

- ◆ Decision to use MJ for the 1<sup>st</sup> time is sensitive to its legal status compared to a cont'd use.
- ◆ The effect of lifetime harm averted is larger than inducing a quit considering MJ effect on MH problems and lowering educational attainment

### ◆ YES

- ◆ “The impact of Decriminalization is concentrated among minors, who have a higher rate of uptake in the first 5 years following its introduction”.
- ◆ There is a “Trickle Down” effect: 1<sup>st</sup> time users age has been dropping. *Williams & Bretteville-Jensen (J Health Economics, 2014)*

## Do you know a Teenager Struggling with MJ Use?

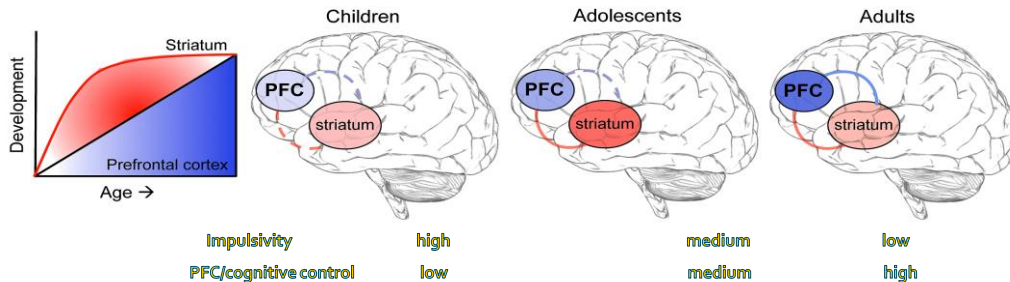
For more information, contact Rebecca @ 860-679-8478 or  
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Dr. Yifrah Kaminer, IRB#12-078-3



ATOM STUDIES @ UCONN Health Center  
Helping teenagers struggling with substance abuse for over 12 years!

## Vulnerability to SUD and Psychiatric Disorders



- Environment and activities during teenage years guide selective synapse elimination ("pruning") during critical period of adolescent development
- "what teens do during their adolescent years -- whether it's playing sports or playing video games -- can affect how their brains develop" *J Giedd*

Casey, 2010  
Safren et al 2005; Klingberg et al 2002

## Are Youth Especially Vulnerable to MJ Adverse effects

- ◆ Youth are disproportionately represented among cannabis users. 43% are under the age of 25 Y (*Ontario Ministry of Finance, 2014*)
- ◆ Dunedin Study-NZ cohort of 1400 newborns: those who started use of MJ during adolescence had a decrease (average 8 points) by age 38Y. Earlier and intensity of use were positively correlated with the results *Meier et al. (2009)*
- ◆ Recovery of cognitive functions post cessation of youth did not occur in those who began use early in adolescence
- ◆ These findings are consistent with studies showing that cannabinoids prevent mature synapse formation in maturing brain pathways involved in "executive functioning" *Kalant, (2014)*

## Cannabis Risk/benefit Debate

- ◆ National THC potency has risen from an average of 4% in 1995 to >17% in Colorado 2016
- ◆ New delivery methods E.g., (E-Cigs; Cannabis-Tobacco couse)
- ◆ Medications benefits and consumer safety have been highly regulated according to a multiphasic review process by the FDA
- ◆ FDA mandates define safe and effective doses, quality control and accuracy of product labeling
- ◆ Cannabis termed “Medical” has no equivalent approval
- ◆ No medicine approved in the USA is smoked
- ◆ Poorly informed and biased politicians approved MJ as a “medicine” for 20ish conditions Against professional advise of AMA, AAP, etc...

## The Netherlands

- ◆ Cannabis was decriminalized 40 years ago
- ◆ Cannabis was the primary drug problem for 48% of individuals entering drug Tx and for 58% of new entrants
- ◆ Rates of recovery from cannabis dependence are similar to those for alcohol

## Past 20 Years Cannabis Harmfulness Research Summary

- ◆ Driving under the influence (DUI) of MJ **doubles** car crash risk;
- ◆ Increase in MJ related ER referrals (460,000 annually)
- ◆ One in 11 regular user develop dependence (1 in 6 if early teen initiation) and increases the use of other illicit drugs incl. **Opioids**
- ◆ Early onset and regular use both double the risks of: psychosis (Bagot, Milin, Kaminer 2015), anxiety disorders, suicidal behavior & NSSI
- ◆ Increase of: cognitive, attention, memory and learning impairment.
- ◆ Doubles the risk for school dropout
- ◆ Cancer in male reproductive system (mainly testicular nonseminoma)
- ◆ **Recent reviews:** Hall W, (Addiction, 2015); Ammerman et al. (Pediatrics, 2015)

## Cannabis Use During Pregnancy

- ◆ Nearly 7% of women of childbearing age (15-44 years) reported last month use of Cannabis/Hashish (SAMHSA, 2006)
- ◆ Imbalance in **CBR1** Interferes with normal placentation leading to miscarriage, pre-eclampsia and preterm labor
- ◆ Reduced birth weight and head circumference for gestational age even when controlling for other drugs Hayatbakhsh MR et al. (2012)
- ◆ Prenatal exposure has subtle adverse effects on alterations in sleep pattern, and from Age 3 years on subsequent cognitive function, behavior, SA/MH in offspring Porath-Waller AJ, 2007)
- ◆ No consensus on effects due to breast feeding exposure
- ◆ Limitations: self-reporting bias, other drugs, psychosocial factors (Krishnamoorthy & Kaminer, under review)



## Cannabis: Pregnancy & Early Childhood

- ◆ Pregnant teens' (12-17 Y.O.) past month cannabis use X2 (14%Vs. 6.5%) as high as nonpregnant peers (NSDUH-Volkow N, *Ann Int Med*, 2017)
- ◆ Evidence on the effects of cannabis on prenatal development is limited . However, there are reasons for concerns when cannabis is used for recreational or anti nausea agent in pregnancy
- ◆ Public health prevention messages are limited and should become a higher priority.
- ◆ Further research to enhance present data and examine new info is a priority

## Cannabis and Cardiac Health in Youth

- ◆ Abnormal ECG findings including serious conduction and rhythm disturbances that require treatment, can be identified in youth under the influence of cannabis.
- ◆ An ECG should be performed on all youth with a positive urine drug screen for cannabis. Robinson JA et al. (*Cannabis*, 2018)

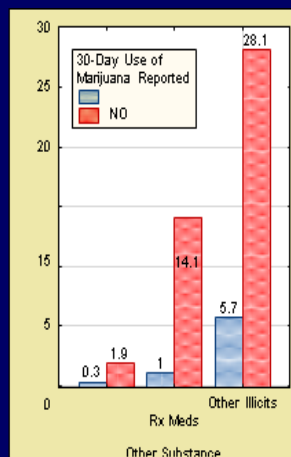
## Cannabis Use First Experience: Using Other Illicit Drugs

- ◆ Subjective feelings after 1<sup>st</sup> cannabis use amplify the association with OI
- ◆ Positive experiences increased the likelihood of using stimulants (cocaine, meth/amphetamines, ecstasy) and hallucinogens
- ◆ Negative experiences were more likely associated with heroin, ketamine, GHB and sniffed drugs (solvents, poppers)
- ◆ Associations of both experiences reached stats significance  $p < 0.05$

Baggio S. et al. ( J Substance use, 2015)

## Teen Cannabis users report X14 abuse of pain Meds -Swindell AC 2016

Figure 3.



## Cannabis use and Risk for Opioid Abuse

- ◆ Is cannabis use associated with an increased risk of nonmedical prescription opioid use and disorder?
- ◆ Among adults with pain cannabis use increased incident nonmedical prescription opioid use
- ◆ Cannabis use increased incident prescription opioid use disorder
- ◆ Cannabis use appears to increase the risk of developing nonmedical prescription opioid use and opioid use disorder also in adults without pain disorder. Olfson M (Am J Psychiatry, 2017)
- ◆

## Ideology Vs. Facts and Planning for PH Prevention

- ◆ Earlier age of initiation, psychopathology and other SU are associated with time to use disorder diagnosis in those using opioids nonmedically-(Schepis & Hakes, Subst Abuse, 2017)
- ◆ This is consistent with findings in those who use alcohol or cannabis in addition to lower educational achievement and SES
- ◆ Having AUD predicted more rapid Opioid UD

## Parents and Sibs MJ Use: The Future is Now

- ◆ Epigenetics may NOT result in a Happy genetics
- ◆ Over 40% of variance associated with the risk for CUD has been reported to be transmissible, that is, conveyed to children via conjointly genetic and parenting influences. [Hopfer C, et al. \(2013\)](#)
- ◆ We are made wise NOT by the recollection of our past, but by the responsibility of the future. [George Bernard Shaw](#)

◆ END OF BRIEF PRESENTATION