



Ed Shemelya

The Legalization of Marijuana
A National Perspective

Key takeaway messages



Impacts of legalization of marijuana (1 of 3)

- Public Health Issues
- Potency
 - THC has risen from 4% (1995) to 99% (2018)
- Usage rates
 - Marijuana is the most widely used drug according to SAMHSA data. In 2017, 15% of Americans over 12 years old had used marijuana.
 - Since 2007, past year marijuana use has increased 37%
 - Nearly one in three people using marijuana in 2016 reported using at least 200 days in the past year
- Treatment



Impacts of legalization of marijuana (2 of 3)

- **Hemp**

- Round 1 – 2014 Farm Bill

- Defined industrial hemp

- 7606 (b)(2) -INDUSTRIAL HEMP –The term “industrial hemp” means the plant Cannabis sativa L. and any part of such plant, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more that 0.3 percent on a dry weight basis.

- Round 2 – 2018 Farm Bill

- Allows for

- Hemp to be viewed separate from marijuana
- The broad cultivation of “commercial” Hemp
- Transportation across interstate lines
- The sale/possession/transportation of “hemp-derived” products
- Shared state and federal regulatory involvement
- Removal of “hemp derived products” from Sch. I status
- Now under USDA guidance

- Issues

- Police cannot distinguish between hemp and marijuana because the plants look identical
- Marijuana is being hidden in what are supposed to be large hemp-only agricultural grows



Impacts of legalization of marijuana (3 of 3)

- Wrapping up...
 - Use impacts experienced “there” as predictive tool
 - Messaging can work in both directions
 - Be objective and seek answers
 - Combat misinformation with facts
 - This is new territory ...
 - We need time and valid research to have good answers to questions
 - Marijuana is having local impacts in other states with
 - Use rates
 - Treatment rates
 - Public safety and traffic issues
- Has there been anything 100% positive about legalizing marijuana?
 - Yes – It is causing people to ask questions and seek valid answers through research





Libby Stuyt, MD

Marijuana and Addiction
A Disorder of the Learning and Memory System

Key takeaway messages



Introduction to Addiction

- First time use of substances is a choice driven by personal and social factors
 - Curiosity, familial use, peer pressure, advertising
- Continued use occurs when the memory and learning areas of the brain are compromised and substance use no longer becomes a choice
 - Possible causes
 - Rewarding properties of addictive drugs – in the “reward pathway”
 - Genetic vulnerability
 - Prior sensitization by nicotine or other drugs as a child/adolescent
 - Prior sensitization by trauma



Dopamine and Long-Term Potentiation

- Dopamine

- Upon substance use dopamine release rewards the user, promoting learning and encouraging the behavior

Communication between the nucleus accumbens, amygdala, hippocampus and prefrontal motor cortex via glutamate begin to “hard wire” the behavior

Increase in AMPA to NMDA ratio

- Not everyone becomes “addicted”
- Dopamine is activated by both natural processes and drugs
 - Marijuana and other drugs can raise dopamine levels higher than natural processes
- Dopamine D2 receptors are lower in addicted brains

- Stress

- In mice, stress alone can induce increased AMPA:NMDA ratios in VTA cells within 24 hours
- This suggests a priming mechanism – that someone who has experienced stress may be more vulnerable to addiction



Learning – Priming the brain

- Animal studies show that animals exposed to substances in their adolescence show greater sensitization to the substance as adults.
 - Exposure as a child can prime the brain and is a risk factor – but this doesn't have to result in addiction
 - Addiction occurs when the person makes the choice to use – engaging the prefrontal motor cortex
 - The person can be addicted from the first use and the behavior is then “hard wired” in the brain
- Behavioral factors relating to substance abuse in adolescents
 - Brains have lots of glutamate and dopamine (go, go, go signal) and little GABA and serotonin (put on the brakes signal)
 - Decrease in parental monitoring
 - Increase in peer affiliation



THC Concentration

- Increase in THC concentration is contributing to addiction
 - THC concentration has increased over time
 - 212% increase over the past 20 years
 - The most popular marijuana plant strains have THC concentrations upwards of 20%
 - Comparing milligram doses
 - In a typical joint you receive 60 – 115 mg THC
 - Marijuana Sativex oral mucosal spray has 2.7 mg THC and 2.5 mg CBD



Marijuana

- Marijuana use disorder
 - Studies indicate addiction is more likely when users start young and use often
 - Treatment admissions have increased on pace with the increase in potency
 - Marijuana withdrawal is considered a syndrome because of the numerous symptoms
- Suicide
 - Multiple studies have documented a relationship between cannabis use and suicidality
 - Colorado suicide rates have increased since legalization
 - Number one cause of death for ages 10 – 24
 - Veterans suffering from marijuana use disorder much more likely to have suicide ideation or have attempted suicide
- Link to opioids
 - Prenatal exposure of marijuana alters opioid gene function in humans
 - Prenatal marijuana exposure increases heroin seeking in adult rats
 - Numerous data show a link between marijuana use and opioid use abuse
- NASEM, WHO, and CDPHE reports all found evidence of a statistical association between cannabis use and the development of substance dependence and/or substance abuse disorder for substances including alcohol, tobacco, and other illicit drugs



Solutions

- Educate, educate, educate, increase prevention efforts
- “Medical” MJ should come from pharmacies and go through FDA testing as all Rx drugs
- Limit THC concentrations to <10%
- Increase funding and availability of treatment
- Increase research on CBD and lower doses of THC
- Strong ban on any advertising that appears to be directed toward youth – for all drugs including marijuana, tobacco, and alcohol





Joanna Jacobus, PhD

Adolescent Brain Cognitive Development
Teen Brains. Today's Science. Brighter Future.

Key take away messages



Study Overview

- A longitudinal study of 11, 875 children from ages 9-10 through early adulthood to assess factors that influence individual brain development trajectories and functional outcomes
- Objectives
 - Identification of individual developmental trajectories (e.g., brain, cognitive, emotional, academic)
 - Development of national standards of normal brain development
 - The role of genetic vs. environmental factors on development, enriched by comparisons of twin participants (800 pairs).
 - The effects of physical activity, sleep, screen time, as well as sports and other injuries on brain development and outcomes.
 - The onset and progression of mental disorders, factors that influence their course or severity, and the relationship between mental disorders and substance use.
 - How exposure to different substances like alcohol, marijuana, nicotine, caffeine, and others, individually or in combination, affect various developmental outcomes and vice versa.



Study Overview continued

- Population-based, demographically diverse sample of youth
- 50% of the sample identified as high risk for early marijuana use based on screening protocols
- 99.52% retention rate
- Implemented community liaison boards to answer questions and provide updates
- Baseline evaluation given at recruitment
 - Regular assessments given until age 21 evaluate the following
 - Substance use
 - Neurocognition
 - Mental health and health
 - Culture and environment
 - Biospecimens
 - Mobile technologies



First data set released

- The vast majority of youth in the sample endorsed having heard of alcohol (96.3%), cigarettes (93.4%), cannabis (55.6%)
- Vast majority have not tried any substance (74%)
- Those that had tried substances
 - 22.5% reported sipping alcohol
 - Fewer than 1% puffed a nicotine device or used cannabis
 - Majority who used cannabis also sipped alcohol
- Better cognitive abilities associated with less report of
 - Stress
 - Externalizing symptoms
 - Internalizing symptoms
 - Best among children who
 - Slept 9 -11 hours
 - <2 hours recreational screen time
 - At least an hour of exercise daily



The Brain and Substance Use

- Studies indicate brain volume differences in adolescents predict cannabis and other substance use by age 22.
- Decreased inhibitory control is seen with more lifetime cannabis use
- Numerous studies indicate cannabis has negative effects on the developing brain
- Family history of depression linked to different brain architecture
- More research needs to be done to determine the extent that individual traits and early exposure contribute to developing substance use disorder



Cynthia Burke, Ph.D.

Marijuana Use Among the Arrestee Population in San Diego County

Key take away messages



Background

- Interviews with adults and juveniles booked into local detention facilities provides insight into drug use
 - Urinalysis identifies recent drug use
 - Funded by National Institute of Justice
- 467 adults
 - 303 males, 164 females
 - Average age 37.2 (range 18-79)
 - 49% White, 32% Hispanic, 15% Black, 3% other
 - 36% drug, 28% violent, 23% other, 12% property
- 105 juveniles
 - 81 males, 24 females
 - Average age 15.8 (range 12-19)
 - 60% Hispanic, 17% White, 16% Black, 7% other
 - 43% other, 42% violent, 10% property, 6% drug



Findings

- Most arrestees have tried marijuana
- Juveniles more likely to report marijuana as first drug they tried
- Marijuana use starts early and recent use is frequent (for both adults and juveniles)
- Those who have tried other drugs more likely to have tried marijuana also
- More adult males and juveniles positive for marijuana in 2018
- Adults positive for marijuana most likely positive for something else
- Only about 1 in 10 juveniles perceive marijuana as harmful to users
 - Perceiving less harm of marijuana over time
 - 2007 – 42%
 - 2018 – 11%
- More juveniles reporting marijuana is “very easy” to obtain
 - 2007 – 37%
 - 2018 – 69%
- Fewer adult arrestees report currently having a medical marijuana card
 - 2015 – 57%
 - 2018 – 33%
- More arrestees reported having visited the ER for an issue related to marijuana



Findings continued

- Recreational dispensaries and on the street almost equally preferred by arrestees
 - Convenience most often cited across distribution types as driving preference
- Approximately 2 in 3 say they are more likely to use marijuana after legalization
- Adults more likely than juveniles to say their marijuana use is beneficial
 - Adults claim marijuana is beneficial because it helps with pain
 - Juveniles claim marijuana is beneficial because it helps with anxiety
 - Both claim marijuana is beneficial because it helps with sleep
- Dabbing and vaping THC increased for both adults and juveniles
 - Between 2017 and 2018
 - Adults dabbing THC increased from 55% to 59%
 - Youth dabbing THC increased from 70% to 72%
 - Adults vaping THC increased from 53% to 61%
 - Youth vaping THC increased from 66% to 70%
- There has been a decrease in the percent of arrestees that reported having ever grown marijuana, from 37% in 2016 to 22% in 2018
 - The number one reason most arrestees still report growing marijuana is for personal use (88%) while a smaller percentage report growing marijuana to sell it (32%) and a still smaller percentage report growing marijuana to supply a dispensary (11%).
- Most adults say marijuana potency has increased since they started using it



Takeaways

- Juvenile perception and youth in this population appears to be correlated with legal changes
- Marijuana is a drug that is often used before other drugs and adults in the justice system are often polydrug users
- Individuals in the justice system are continuing to use illicit markets
- Alternative measures of use, driving under the influence, and risks of increased potency deserve continued attention



William J. Lynch Jr.

The Natural Progression of vaping to marijuana to opiate abuse: A recipe for disaster

Key take away messages



Electronic Nicotine Delivery Systems (ENDS)

- There are at least 450 brands on the market
 - Currently on fifth generation
 - Evolved from look-a-like cigarettes to devices capable of aerosolizing salt-based nicotine
- JUUL and Pax
 - Inexpensive devices used to aerosolize nicotine (JUUL) and marijuana oil (Pax)
 - Very sleek and portable
 - YouTube videos teach how to ‘hack’ a JUUL pod so it can be used for vaping oils
 - The amount of nicotine in one JUUL pod is equal to the amount of nicotine in pack of cigarettes



Data on Youth and Vaping

- Middle and high school vaping-device use is on the rise

Year	High School Use	Middle School Use
2011	Less than 5%	Approximately 25%
2018	Less than 5%	Approximately 20%

Percentage of middle and high school students who currently use e-cigarettes

- Most teens believe the liquid in the vaping device is just flavoring, not nicotine.
- According to National Youth Tobacco Survey (2016) the most common reasons for use:
 - Used by family or friend (39%)
 - Availability of flavors (31%)
 - Belief that they are less harmful than cigarettes (17%)
- The American Association of Poison Control Centers reports an almost 80% increase in liquid nicotine and e-cigarette poisonings from 2017 - 2019



Dangers of Vaping

- The flavorings are generally regarded as safe for ingestion but not for inhalation
- Flavoring is linked to permanent scarring of the airways in the lungs
 - The flavoring component, diacetyl, is linked to bronchitis obliterans
- According to the FDA
 - "Seizures or convulsions are known potential side effects of nicotine toxicity"
 - "Seizures have been reported as occurring after a few puffs or up to one day after use"
- Explosions and burns
 - Electronic cigarette (e-cigarette) battery failure can result in explosions and burn injuries.
 - Results From 2015 to 2017, there were an estimated 2035 e-cigarette explosion and burn injuries presenting to US hospital emergency departments



Vaping and Cannabis Use Studies

- Numerous studies reporting students who vape are also vaping cannabis
 - Meta analysis of 21 studies that must include the following
 - compared rates of marijuana use with vs without history of electronic nicotine delivery system (ENDS)
 - Youth had to be 10 – 24 years old
 - Study must provide actual or calculable adjusted odds ratios of the association between ENDS use and co-occurring marijuana use or subsequent marijuana use
 - All 21 studies were observational studies with 3 studies being longitudinal. A total of 113,863 total patients were represented.
 - Results
 - ENDS use is associated with an increased risk of marijuana use from pooled data
 - ENDS use is associated with a significantly increased risk of marijuana use from subgroup analysis
 - Stronger association between ENDS and marijuana use in studies with participants with a mean/median age under 18 years old compared to a mean/median age over 18 years old
 - Stronger association between ENDS and marijuana use in youth with dual use compared to single use from subgroup analysis
 - Stronger association between ENDS and marijuana use in studies after 2017 compared to studies before 2017
 - Chadi N, Schroeder R, Jensen JW, Levy S. Association Between Electronic Cigarette Use and Marijuana Use Among Adolescents and Young Adults: A Systematic Review and Meta-analysis. JAMA Pediatr. 2019;e192574. <https://www.ncbi.nlm.nih.gov/pubmed/31403684>



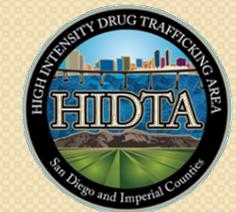
Vaping and Cannabis Use Studies

- Some studies evaluate smoking cannabis vs vaping
 - On all performance measures, those who vaporized cannabis has worse performance than those who smoked cannabis
 - The study specifically notes that the highest concentration of cannabis used is 13.4% which is substantially lower than that in most prerolled cannabis cigarettes in dispensaries
 - Spindle TR, Cone EJ, Schlien NJ, et al. Acute Effects of Smoked and Vaporized Cannabis in Healthy Adults Who Infrequently Use Cannabis: A Crossover Trial. JAMA Netw Open. 2018;1(7):e184841. Published 2018 Nov 2. doi:10.1001/jamanetworkopen.2018.4841 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6324384/>
- EVALI Outbreak associated with the use of e-cigarette or vaping products
 - As of October 29th, 2019, 1888 confirmed cases of lung injury associated with the use of e-cigarette products have been reported to CDC from 49 states, DC and 1 U.S. territory (all except Alaska)
 - 37 deaths have been confirmed in 24 states
 - Median age of deceased: 53
 - Age Range of deceased: 17 to 75
 - Among 867 patients with information on substances used in e-cigarette, or vaping, products in the 3 months prior to symptom onset (as of 10/15/19):
 - 86% reported using THC-containing products
 - 34% reported exclusive use of THC-containing products
 - 64% reported using nicotine-containing products
 - 11% reported exclusive use of nicotine-containing products



EVALI

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 - 34% reported exclusive use of THC-containing products
 - 64% reported using nicotine-containing products
 - 11% reported exclusive use of nicotine-containing products
- Data shared on patients from Illinois and Wisconsin with pulmonary illness related to e-cig use
 - Layden JE, Ghinai I, Pray I, et al. Pulmonary Illness Related to ECigarette Use in Illinois and Wisconsin - Preliminary Report. N Engl J Med. 2019; doi: 10.1056/NEJMoa1911614. <https://www.nejm.org/doi/full/10.1056/NEJMoa1911614>
 - Extensive patient backgrounds taken
 - Demographics
 - Usage history
 - Patient presentation
 - Patient outcomes
 - Patient radiographs
 - Microbial testing



Public Health Data Related to Vaping

- The National Academies of Sciences • Engineering • Medicine released a consensus report on the consequences of e-cigarettes
 - Numerous data driven conclusions were reached on the physical and environmental dangers of e-cigarette use
 - National Academies of Sciences, Engineering, and Medicine. 2018. Public health consequences of e-cigarettes. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24952>. <http://nap.edu/24952>
- Vaping leads to heart disease
 - Several research facilities evaluating the effect of e-cigarette aerosols and flavoring liquids
 - Studies support that both e-cigarette aerosols and liquids cause cardiovascular risk factors such as apoptosis, oxidative stress, and inflammation



Vaping Terminology

- Vaping Daily The Voice of Vaping
 - Atomizer – Also called “atty” for short, this is the part of an e-cig that houses the coil and wick that is heated to produce vapor from e-liquid
 - Drip Tip – An accessory used to replace the stock mouthpieces of atomizers with a large hole to allow dripping without their removal
 - Juice – A shorthand term for e-liquid
 - Steeping – A term used by DIY e-juice makers to describe the act of letting newly mixed e-juice sit open to the air for at least six hours to let the ingredients settle
 - Tailpiping – Direct dripping and inhaling without a drip tip
 - Throat Hit – The sensation after vapor hits the throat. Many vapers look to simulate the harsh throat hit of cigarettes, while some prefer a smoother throat hit
 - Toot – A slang term for a draw from an electronic cigarette
 - Vaper’s Tongue – A sensation felt when a user uses too much of one flavor, causing the tongue to become desensitized. It can also refer to the tickling sensation on the tongue after a long vape session



Adverse Effects of Recreational Cannabis Use

- Research from the past 20 years has shown that cannabis use leads to many adverse outcomes, especially for those under 25 years old.
 - What has research over the past two decades revealed about the adverse health effects of recreational cannabis use? Hall, Wayne. Society for the Study of Addiction. Addiction doi:10.1111/add.12703 10.7.2014 <https://www.ncbi.nlm.nih.gov/pubmed/25287883>
- American Academy of Pediatrics counsels parents on the dangers of marijuana use in youth
 - Parents and Teens About Marijuana Use in the Era of Legalization of Marijuana. Pediatrics. March 2017;139(3):e20164069 DOI: 10.1542/PEDS2016-4069 <http://pediatrics.aappublications.org/content/pediatrics/139/3/e20164069.full.pdf>
- Teen cannabis use (even occasional use) tied to harmful substance use later in life
 - Conclusion: One-fifth of the adolescents in our sample followed a pattern of occasional or regular cannabis use, and these young people were more likely to progress to harmful substance use behaviours in early adulthood.
 - Taylor M, Collin SM, Munafò MR, et al. Patterns of cannabis use during adolescence and their association with harmful substance use behaviour: findings from a UK birth cohort . J Epidemiol Community Health Published Online First: 07 June 2017 doi: 10.1136/jech-2016-208503
- Prenatal cannabis exposure increases heroin seeking in adult rats
 - Sapano et al. Biol Psychiatry 2007;61:554-56
- Prenatal exposure of cannabis alters opioid gene function in humans
 - Using aborted fetus brains, researchers discovered impaired opioid-related genes in distinct brain circuits
 - Wang et al. Pharmacogenomics J, 2006;6:255-264



Cannabis and Opioid Use Disorder

- Cannabis use appears to increase rather than decrease the risk of developing nonmedical prescription opioid use and opioid use disorder.
 - Cannabis Use and Risk of Prescription Opioid Use Disorder in the United States. Olfson, Mark M.D. et al. AJP in Advance (doi:10.1176/appi.ajp.2017.17040413)
- Across all age levels, opioid use is linked to level of marijuana use
- Patients using Naltrexone were less likely to self-administer cannabis
- Drugs of abuse, including nicotine and marijuana, increase dopamine (by varying amounts) in the brain which is believed to trigger brain chemistry changes leading to addiction.
- Heroin addiction
 - People who are addicted to
 - Alcohol are twice as likely to be addicted to heroin
 - Marijuana are three times as likely to be addicted to heroin
 - Cocaine are fifteen times more likely to be addicted to heroin
 - Prescription drugs are forty times more likely to be addicted to heroin
 - Heroin is the third leading cause of treatment admissions for all ages (2016 and 2017)
- Opioid overdose deaths in Colorado have steadily increased since marijuana was legalized in 2012
- Association Between Medical Cannabis Laws and Opioid Overdose Mortality Has Reversed Over Time
 - Shover CL, Davis CS, Gordon SC, Humphreys K. Association between medical cannabis laws and opioid overdose mortality has reversed over time. Proc Natl Acad Sci USA. 2019;116(26):12624-12626. <https://www.ncbi.nlm.nih.gov/pubmed/31182592>
- In 2013, 135 patients 21 years of age or younger tested positive for opioid addiction or dependency every day in EDs across the country
 - Allareddy, V. et al. Opioid Abuse in Children: An Emerging Public Health Crisis. American Academy of Pediatrics 2017 National Conference. 9/15/17



Issue Brief: Pain In The Nation

- Millennial generational mortality. Data from 2007 - 2017 for 18 – 34-year-olds
 - 108% percent increase in drug related deaths
 - 69% percent increase in alcohol induced deaths
 - 35% increase in suicide deaths
 - This data compel us to build a resilience strategy to avoid the devastating impact of alcohol, drug misuse, and suicide



Darrin T. Grondel

Traffic Safety

Key take away messages



Traffic Safety

- Target Zero
 - Washington State has adopted Target Zero, a goal to reduce traffic fatalities and serious injuries on Washington's roadways by 2030.
- DUI given for 5 ng/ml THC
- Poly drug use and driving
 - 58% of traffic deaths involve impairment
 - 25% of all deadly crashes involve a poly drug driver
 - The number of THC-Positive + Alcohol drivers involved in fatal crashes steadily increased from 2012 - 2016
- THC positive drivers
 - In 2012 the 988 THC DUIs made up 19.6% of total DUIs. As of 2018 the frequency has increased to 3,700 and the percentage to 36.5% (with a few outstanding cases).
- Impairment is involved in 50% of traffic fatalities
 - Alcohol impaired or drug positive driver
 - The number of drug positive driver is increasing
 - The number of cannabinoid-positive drivers involved in fatal crashes is increasing



Collected Data

- When asked, “When you used marijuana and drove, how you think it affected your driving?”
 - All age groups 20 – 55 believe that using marijuana did not make any difference in their driving.
 - A higher percent of 15 – 20-year-olds believe that using marijuana made their driving better, but this was not statistically significant from those who believe that marijuana made no difference in their driving.
 - A higher percent of 56+-year-olds believe that using marijuana made no difference in their driving, but this was not statistically significant from those who believe that marijuana made their driving better.
- Past 30-day use of marijuana
 - The number of adults who report using marijuana in the past 30 days is increasing (by 54% from 2014 – 2017), however the number of adults who drove after using marijuana in the past 12 months is decreasing.



Collected Data

- **Washington Healthy Youth Survey**
 - Data for 6th, 8th, 10th, and 12th graders
 - The percent of lifetime cannabis users is trending downward for all grades
 - The percent of 30-day cannabis users has declined for all but 12th graders (which have remained steady)
 - The percent of students reporting that cannabis is hard or very hard to get increased for all grades
 - Percent of students replying that regular use of cannabis is harmful or very harmful is decreasing
- **Marijuana use by adults over aged 65 in Washington**
 - There has been a 184% increase in marijuana use among adults aged 65+ since 2014



Roadside Strategies

- Electronic DUI packet
- Electronic search warrants
 - One of 10 states that has electronic warrants
- Forensic phlebotomy
 - The number of blood sample submissions for DUI investigation has steadily increased from 2009 – 2017
 - The percent of samples testing positive for THC has increased from 18.2% in 2009 to 33.7% in 2017.



Greta Wengert, MS, PhD

Are we out of the woods yet?
Trends of environmental threats from marijuana
cultivation in our public forests

Key take away messages



Illegal, outdoor marijuana grow sites create numerous problems (1 of 2)

Researchers estimate over 1.4 million pounds of fertilizers and toxicants are used annually at outdoor marijuana grow sites in California

- The use of anticoagulant rodenticides at outdoor marijuana grows sites kills wildlife
 - 82% of sites in California tested positive for Carbofuran or some other restricted pesticide
 - Carbofuran is manufactured in the U.S. but banned due to its toxicity.
 - Toxicity persists throughout the food web.
 - Carbofuran found at grow sites is smuggled in from Mexico.
- Growers poach native wildlife for food
 - Outdoor marijuana grow sites consume an estimated 29.4 million gallons of water per year
 - New research estimates each plant needs 900 gallons of water per plant per season
 - Water is diverted from its natural course, drying up native streams



Illegal, outdoor marijuana grow sites create numerous problems (2 of 2)

- Strategies to offset environmental impacts
 - Interdiction (preventing establishment of sites)
 - Enforcement (disrupting sites)
 - Development of Cannabis Identification Modeling Project
 - Technology that predicts grow sites – detected 19 positive grow sites and 85 possible sites
 - Multiagency collaboration
 - Removal (removing sites)
 - 24 tons of trash removed from 205 grow sites
 - 31 miles of plastic tubing to reroute water from natural sources
- Clearcutting of native vegetation leads to deforestation and fragmentation



Seth Cimino

Cannabis Update

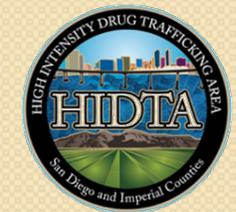
Concentrated Cannabis Labs and Explosions

Key take away messages



Butane Hash Oil Labs

- Concentrates
 - Highly concentrated THC that may create a psychedelic experience
- Types of extraction
 - Wax vs shatter
 - If it is see through it is called shatter and if the BHO was agitated it is called wax
- BHO labs
 - Butane hash oil lab
 - Illegal labs created to remove all but the THC oil
 - Butane used to separate concentrate which can create an explosive environment
 - If lab is outdoors, a breeze will disperse the butane and reduce the explosion risk
 - Reviewed supplies needed and extraction process
 - BHO is \$10,000 to \$15,000 per pound
 - Can also used alcohol extraction or distillation
- Explosions
 - A standard butane container can fill a 1,452 sq ft house
 - What does it take to start an explosion
 - Open flame
 - Static electricity
 - Electricity
 - Taser turning on
 - Gunfire
- Explosions can rip apart houses and cause burns to people and property



Dana Stevens

Using Local Control to Push Back on the Marijuana Industry

Key take away messages



Local Control

- Summary: If your state has already or is leaning toward marijuana commercialization there are strategies to prevent the impact at the neighborhood, city and regional level. Understanding how local control policies work means you can advocate from a position of strength. The workshop provided specific examples of local control language and negotiating tactics/strategies for community advocates, including:
- Why local control matters: one-size does not fit all, considerations include:
 - Community readiness
 - Political will
 - Data to support the policy
 - Stakeholders/leaders who care
 - A movement of concerned citizens
- Policy options by category:
 - Commercial activities
 - Using zoning to regulate
 - Signage & advertising
 - Age restrictions
- Zoning: not all businesses should be near housing – but some should, zoning helps define the relationship between different land uses and prioritizes how the city's lands should be used
 - Buffer zones for sensitive use areas (recommend 1,000 ft) – residential use, childcare, drug treatment/recovery, parks, churches, other youth-oriented uses



Local Control

- Signage & Advertising:
 - No outdoor or indoor with outward facing
 - No pot leaves or green crosses
 - No sandwich-board signage
 - No sign-twirlers
 - Cultivation sites should have no signage at all – should be nondescript
- Odor control: Regulations must be spelled out for retail, cultivation and manufacturing. If not, neighboring businesses will have serious on-going nuisance with no recourse but to move.
- Delivery: Require delivery/mobile services be linked to a licensed “brick & mortar” store and that records be kept of age verification & available on demand by law enforcement.
 - All deliveries made by an individual person to an individual person
 - No deliveries made through use of an unmanned vehicle
 - Delivery not to be made to any public or private school, day care center, treatment facility, youth center, youth-oriented business, public park or private park.
 - In some states, delivery services cannot be prohibited from passing through a jurisdiction to reach a destination outside of a jurisdiction that does not allow delivery services.



Local Control

- Cultivation:
 - Plants must be grown in area out of view from neighbors.
 - Plant must be grown in a secured/locked enclosure.
 - Restrictions can be made to the total number of plants per household regardless of the number of individuals living in a residence.
 - Landlords/property managers, can be prohibit renters from growing and using marijuana at rental properties; including apartment complexes and individual rental units.
 - Restrictions on minimum age can be applied
- Messaging: Pick youth top 5 messages (reasons to opt-out/opt-in)
 - Source your data whenever possible
 - Make them statements you can say without stumbling
 - Make sure your coalition agrees with them
 - USE them every chance you can:
 - Testimony at council
 - Speaking opportunities
 - Media: social, print, radio, TV
 - Keep them simple, not hysterical
- Don't give up: Have a seat on the "committee" that is advising the elected leaders, speak to your elected officials at public meetings, planning boards, community workshops and school boards. Get organized.



Chelsey Clark

Colorado...7 years later State Updates

Key take away messages



Colorado State Update

- Number of statewide traffic deaths
 - FARS data shows deaths are trending upward since commercialization and more sharply since legalization
 - Since commercialization in 2006, there has been a 206% increase in traffic deaths related to marijuana when a driver tested positive for marijuana.
- Current Marijuana Use, 12 years and older
 - Use is 1.78 times higher than the national average
- Added revenue generated through taxation
 - Estimated at nine tenths of one percent as a portion of Colorado's total statewide budget
- HIDTA information
 - From 2016 – 2018 there have been increases in
 - Total number of investigations
 - Total pounds of bulk marijuana seized
 - Total number of plants seized
 - Total number of edibles and concentrates seized
 - From 2016 – 2018 there have been decreases in
 - Felony arrests
 - Number of different states to which marijuana was destined
- Parcels containing marijuana from CO destined for another state
 - A steady trend upwards from 0 parcels in 2009 to 1,009 parcels in 2017



Washington State Updates

Key take away messages



Washington State Update

- Both indoor and outdoor plant seizures have increased in the past year
- Past 30-day use for students
 - 6th grade and 12th grade use has remained steady from 2016 to 2018
 - 8th grade and 10th grade use slightly increased from 2016 – 2018
- Adult cannabis treatment admissions have declined 40% between 2014 - 2018
- Youth cannabis treatment admissions have declined 56% between 2014 – 2018
- Marijuana involved crashes 2015 – 2018
 - 392 crashes reported
 - 37 resulted in fatality
 - 22 caused serious injury
 - 110 resulted in minor injuries
 - Most involved two vehicles and occurred between 4 – 5 PM on Saturday
- Revenue projections
 - Actual revenue is well over projected totals
 - FY 2018 – \$363.2 million
 - Money promised to teen prevention is being put into general fund instead
- Other data
 - If a vote to legalize recreational cannabis were to be held again it would easily pass
 - Active users' cannabis use has remained steady or increased since legalizations
 - 14% of inactive users are willing to try cannabis in the next 12 months, but never users are highly unlikely to try it
 - Cannabis is seen as having many positives and more than half of WA state believes that cannabis should be legalized nationally



Detective Andrew Davis
Detective Todd Kloss

Oregon State Updates

Key take away messages



Oregon State Update

- Oregon first in the nation for past 30-day marijuana use
 - 19.2% of ages 12 or older responded they had used marijuana in the past 30-days (2016 – 2017 NSDUH data).
- Treatment
 - Calls for marijuana related treatment are on the rise after peaking in 2016
 - Biggest clinical effects seen (2017)
 - Lethargy/sleepiness
 - Tachycardia
 - Vomiting
 - Agitated/irritable
 - Dizziness/vertigo
- Marijuana related car crashes
 - 24% increase in THC presence in DUII drivers from 2013 – 2018
- Intent vs. Reality
 - METRC designed to track seed to sale



Oregon State Update

- Intent vs. Reality
 - METRC designed to track seed to sale
 - Not designed to track unusual activity
 - Currently have over 2 million pounds of marijuana in a state that uses 186,000 -372,000 pounds/yr
 - Legalization would free up law enforcement resources
 - OR has hemp and marijuana which is very confusing to both law enforcement and public
 - Several black market and cartel operations
 - Legalization would create new revenue source
 - Marijuana treatment is not getting the money it needs
 - Legalization would reduce black market
 - Since July 2018 they have seized 12,812 plants, 2884 pounds of marijuana, BHO weight of 128. 19 lbs., nine BHO labs, served 26 search warrants, seized cash and assets worth \$212,000, and seized assets worth \$1,581,979.
 - Legalization would provide safer access
 - Voters were misinformed, 2 THC vaping deaths purchased from licensed dispensary



Joe Eberstein

California State Updates

Key take away messages



California State Update

- Intent vs. reality
 - In 2018 CA marijuana revenue was \$2.5 billion
 - Lower than projected
 - 21 million will go back to prevention and education
 - We were promised local control
 - 24 cities suing the state over delivery services that are allowed into cities that don't want them
- Treatment Admissions
 - There has been a 61.6% decrease in treatment admissions from 2013 – 2019.
- Perception of Risk
 - The perception of risk has fallen slightly from 2011 – 2017
- Past month use
 - Past month use of marijuana by ages 12 and older has increased steadily from 2012 – 2018



SGT Rios

Nevada State Updates

Key take away messages



Nevada State Update

- Legalized in 2017
- Use rates/treatment
 - 67% increase in youth under the age of 14 seeking medical treatment for marijuana poisoning
 - 125% increase for adults aged 25 – 64 years
- Car crashes
 - Steady increase from 2015 to 2018
 - 2015 – 68 collisions
 - 2016 – 102 collisions
 - 2017 – 150 collisions
 - 2018 – 236 collisions
- Intent vs. reality
 - Change to legislation created a loophole where dispensaries do not have to designate which part of their inventory is medical vs retail which means they can choose a lower tax rate.
 - School district received a 4.59% increase in 2018 fiscal year
 - Of the \$69,779,865 collected, the schools received \$64,909,773.



Detective Matthew J. Shay

Nevada State Updates

Key take away messages



Arizona State Update

- Medical approved in 2010
- Intent vs. reality
 - Sold to voters as a necessary medicine for seriously ill patients
 - The number one qualifying condition to get an AMMA card is chronic pain
 - In 2018 other were over 173,000 patients with this condition, the next closest was cancer with 4,206
 - 18– 30 year-olds perennially turn in more applications
 - The number of dispensaries has doubled since 2015 and profits have skyrocketed
- Car Crashes
 - Steady increase from 29% positive in 2011 to 40% positive in 2018 (as a percent of total blood drug screens)
- Treatment admissions
 - Climbing steadily from 3,794 in 2013 to 5,630 in 2018
- Other
 - Interstate transportation is at an all time high
 - High grade THC oil for vapes has taken over the market
- Attempt to legalize in 2020

