Youth Marijuana Use: Emerging Research & Public Health Challenges

Service Provider Training

Funded by the County of San Diego, Health and Human Services Agency, Behavioral Health Services
EVERYONE REACTS DIFFERENTLY

- Metabolism - Your Body
- Family History! Genetics
- Environment
CHRONIC USERS

Teens who use between 10 – 20 times a day.

They will openly admit they need it.

They have a schedule of use.

They will use when nervous, anxious or can’t sleep.

There use has interfered with school, work, family and relationships.
NATIONAL POLITICS OF POT!
AT THE FEDERAL LEVEL
POT REMAINS SCHEDULE (1)

Schedule 1 Drug:

- No medical value
- High propensity for abuse and addiction.

This means Hemp products, CBD oil all of it!
Figure 107. Current State-Approved Marijuana Status, August 2017.
Bureau of Marijuana Control – lead agency in developing regulations for medical and adult use and responsible for licensing retailers, distributors, testing labs and micro businesses.

CA Dept. of Public Health – Office of Manufactured Cannabis Safety regulating manufacturers of edibles for both medical and non-medical use.

CalCannabis Cultivation Licensing, a branch of the CA Dept. of Food and Agriculture – develop regulations to license cultivators for both medical and non, track and trace program to record seed to sale through distribution.
Retails sales and licensing of marijuana begin in some cities including the City of San Diego January 2018.

CA will be the world’s biggest marijuana market.

Californians can't smoke pot anywhere they can't smoke a cigarette.

Edible products cannot be shaped like a human, animal, insect, or fruit.
Allowable Recreational Use:

- 28.5 grams of marijuana in non concentrated form.
- 8 grams concentrated

Medical:

- Under Prop. 215, patients are entitled to whatever amount of marijuana is necessary for their personal medical use. However, patients can be arrested if they exceed reasonable amounts and they can be cited or fined for exceeding local laws.
Medical marijuana patients would continue to be allowed to cultivate up to 100 square feet of pot plants.

Most violations of the pot laws are an infraction.

*For medical use a minor (under 18 years of age) can apply as a patient or caregiver under certain conditions.
THINGS THAT WILL NOT CHANGE!

No marijuana use either medical or non-medical allowed on school property. (including the bus!)

Employers can still drug test and terminate an employee that fails a mandatory drug screen.

No consumption allowed while driving or in vehicles.
MARIJUANA ON SCHOOL CAMPUS

If it is not FDA approved, it should not be on campus.

As laws change and access to marijuana products increase, the topic of school staff storing or administering non FDA approved Schedule (1) marijuana to students may be an issue California educators, staff, nurses will have to address. Proposition 64 took effect November 2016, allowing adults 21 and over the ability to possess and grow certain amounts for personal use. No public consumption is allowed. Any recent changes to marijuana policy will have no affect regarding use on campus both medically and recreationally. Here is why!

<table>
<thead>
<tr>
<th>Items to Consider?</th>
<th>Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>What were the protocols on campus post prop. 215 – 1996 CA Compassionate Use Act?</td>
<td>1- Most Schools are Federal Property and receive Federal funds. Marijuana is classified federally as a Schedule (1) drug meaning “it has no medical value and high propensity for abuse”. Therefore there should be no product stored or dispensed on school property. FDA approved marijuana medicines do exist - see line 3. These may be allowed. Federal law supersedes State law.</td>
</tr>
<tr>
<td>Were you trained to administer marijuana/products in medical school?</td>
<td>2- Non FDA approved dispensary marijuana (wax, oils, edibles, CBD oil) are recommended not prescribed; and are a Schedule (1) drug.</td>
</tr>
<tr>
<td>Where did the products come from and who tested it for safety?</td>
<td>3- Marijuana derived medicines are in pill or spray form and prescribed they are Schedule (3) drugs and are FDA approved (dronabinol, sativex, nabilone, marinol etc.)</td>
</tr>
<tr>
<td>Are they prescribed by a doctor, where is the</td>
<td></td>
</tr>
</tbody>
</table>
Evolving Product
POT TODAY IS MUCH MORE POTENT!

- Cross breeding
- Improved gardening techniques
- Genetic modification
- Extraction methods
- Consumption methods (edibles, vaping)
CONCENTRATES - WAX, BUTANE HASH OIL, EDIBLES
(BUD CONTAINING – 26% THC, CONCENTRATES MAY CONTAIN 30 - 99%)
EXTRACTION PROCESS
POT “FACTS” & “MEDICAL USE”

INDICA VS SATIVA
THC is the plants chemical defense mechanism against consumption by herbivores. (Self defense for the plant to keep from being consumed)

Individuals may build up a tolerance to weed, the same amount that used to get you “high” may no longer be enough.

THC can stay in your system and be detected in a drug test longer than most other drugs.
**Indica strains** - generally contain higher CBD levels.

**Sativa strains** - known for higher THC and “psychoactive” effect.

**Ruderalis strains** – little THC content.
IF YOU NEED MEDICAL ADVICE GO TO YOUR PRIMARY CARE PHYSICIAN!
The pot/cannabis plant has over 400 chemicals. A little over 100 in the cannabinoid family.

Tetrahydrocannabinol or THC is the chemical responsible for marijuana's high. (psychoactive effect)

FDA approved prescriptions for pot derived medicines are available they are Schedule (2,3) medicines you can pick up at a licensed pharmacy and are in pill or spray form.

- Dronabinol
- Marinol
- Nabilone
- Sativex
Many of the beneficial health effects from marijuana are from the chemical - Cannabidiol or CBD not THC.

CBD is not psychoactive. THC is!

CBD interferes with the “high” caused from the THC.

CBD is non-psychoactive because it does not act on the same pathways (receptors) as THC.

Many of today's strains contain low doses of CBD.

New CBD based FDA approved epilepsy medicine “coming soon”.

MEDICAL BENEFITS
Unproven Claims – Combats tumor and cancer cells;

“CBD makes cancer cells commit ‘suicide’ without killing other cells;”

“CBD ... [has] anti-proliferative properties that inhibit cell division in certain types of cancer.

“Non-psychoactive cannabinoids in pot may be effective in treating breast cancer.”
YOU NEED A DOCTOR!
Only recommendations are given for dispensary marijuana.

No difference in the product marijuana and medical marijuana.

Marijuana derived FDA medicines are prescribed and are Schedule (2 or 3) drugs approved by the FDA!

There are “no” consistent protocols or standards for marijuana products/edibles/resins from pot shop to pot shop.

Use at your own risk!
Youth:
“Age Related Risk”
Critical growth phases take place at the following times in our life:

- In Utero
- 0-5 years
- Adolescence (12-25) – The pre frontal Cortex is established.
“The body’s own cannabinoid system works throughout the human body and is responsible for connections and pathways being made to developing parts of the brain.

**Endocannabinoids** – Produced in the human body.

**Phytocannabinoids** – Produced from marijuana. THC, CBD etc.

The Endocannabinoid System (ECS) is involved in regulating a variety of physiological processes including:
- Appetite
- Pain and pleasure sensation
- Immune system
- Mood and memory
WHAT IS THE PREFRONTAL CORTEX?

The prefrontal cortex modulates and manages other cognitive systems in the brain:

- Reason
- Logic
- Problem solving
- Planning
- Memory

The prefrontal cortex plays a significant part in directing attention, developing and pursuing goals, and inhibiting counterproductive impulses.


Marijuana is addictive!

- Marijuana is the primary drug of choice for youth ages (12-17) in SD County funded drug treatment.

- Higher use rate than alcohol for this age group.

- Treatment providers observing higher level THC ratios in drug tests.
State and County: Substance Abuse Treatment Admissions at Publicly-Funded Facilities for TAY (ages 16-25) Reporting Marijuana as their Primary Drug of Choice

*Findings for San Diego County in 2013 includes ages 18-25

Sources: ¹California Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS) for 2013-2015.  
https://wwwdasis.samhsa.gov/webt/tedsweb/tab_year.choose_year_web_table?t_state=CA  
²County of San Diego, Behavioral Health Services, Alcohol and Drug Services Databooks for 2013-2015.
IF YOU EVER USED MARIJUANA, WHERE DID YOU GET IT FROM?

Top 3 mentions, by grade:

**9th**
- 15% - Friend, relative or family member
- 6% - Drug dealer
- 4% Someone you just met or didn’t know

**11th**
- 27% - Friend, relative or family member
- 11% - Drug dealer
- 7% - Someone you just met or didn’t know

**NT**
- 48% - Friend, relative or family member
- 32% - Drug dealer
- 20% - Medical marijuana dispensary/Pot Shop
POISON CONTROL 2011-15

- Increase in the number of marijuana exposure cases from 2011 - 2015

Number of Marijuana Human Exposure Cases for San Diego County: 2011-2015*

*Timeframe for 2011-2014 is from January-December; timeframe for 2015 is from January-November.
Source: California Poison Control Center, personal communication (March 2015).
EMERGENCY DEPT. DISCHARGE DATA

Marijuana-Related Emergency Department Discharge Data
San Diego County 2006-2014

This fact sheet summarizes data obtained from the Office of Statewide Health Planning and Development, Emergency Department Discharge Database on County of San Diego Emergency Department visits related to cannabis use over a nine-year time frame (i.e., 2006-2014). Table 1 provides data on discharges in which cannabis use was (1) the primary diagnosis or (2) either the primary or secondary diagnosis upon discharge (i.e., all diagnoses that included coding for cannabis). For most secondary cases, individuals came into the Emergency Department for something else (e.g., broken arm, injury, flu, etc.) and cannabis use was added as a secondary diagnosis. In these cases, the drug use may or may not have contributed to the reason for the Emergency Department visit.

<table>
<thead>
<tr>
<th>Table 1. Cannabis-related San Diego County Emergency Department Discharges by Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Total ER Discharges</td>
</tr>
<tr>
<td>Primary Cannabis-related Diagnosis Only</td>
</tr>
<tr>
<td>Primary Cannabis-related Discharge Rate* by Total ER Discharges</td>
</tr>
<tr>
<td>Primary Cannabis-related Discharge Rate* by County Population</td>
</tr>
<tr>
<td>All Cannabis-related Diagnosis (Primary &amp; Secondary Diagnosis Combined)</td>
</tr>
<tr>
<td>Cannabis-related Discharge Rate* by Total ER Discharges</td>
</tr>
<tr>
<td>Cannabis-related Discharge Rate* by County Population</td>
</tr>
</tbody>
</table>

*Rate per 100,000 people

2 A primary or secondary cannabis-related diagnosis is assigned an ICD-9 code of 304.3 or 305.3 following a positive blood test for the presence of THC or the patient’s self-disclosure of use.

Funded by the San Diego County Health and Human Services Agency, Behavioral Health Services
TOP (3) REASONS FOR ER VISITS

The most common reasons of seeing marijuana poisoning in the ER:

1. Cannabinoid Hyperemesis (CH)

2. Psychosis

3. Chest pain
Cannabinoid hyperemesis should be considered in younger patients with long-term cannabis use and symptoms such as:

1) Recurrent nausea
2) Vomiting or (Scromiting)
3) Abdominal pain
4) Desire to take “Hot” showers!

Lack of awareness of the disease may lead to invasive and costly diagnostic tests, as well as patient and physician frustration.
New treatment guidelines published here: https://escholarship.org/uc/item/59z5q826

Treatment should focus on symptom relief and education on the need for cannabis cessation.

Capsaicin is a readily available topical preparation that is reasonable to use as first-line treatment.

Emergency physicians should avoid opioids if the diagnosis of CHS is certain and educate patients that cannabis cessation is the only intervention that will provide complete symptom relief.
STORAGE AND PRODUCT SAFETY

- Store in glass jar in cool dark place.
- Be aware of insects (spider mites love marijuana).
- Green or yellow dots may be a sign of bacteria or fungi.

Contaminated medical marijuana believed to have killed cancer patient

A rare fungal infection has killed a California man undergoing cancer treatment and it's believed he got it from medical marijuana, CBS Los Angeles reports.

The treatment left the man's immune system compromised, but his death still surprised doctors because he was relatively young and his cancer was beatable. He was using medical marijuana to fend off the treatment’s effects. After his death, testing of 20 medical marijuana samples from across the state found the vast majority were contaminated with dangerous bacteria and fungi.
EDIBLES

SO TELL ME ABOUT THIS MAGIC COOKIE

YOU ATE FROM A COMPLETE STRANGER
Oil can be whipped into a *budder* and cooked into products like brownies, cookies, etc.

- Sprayed onto generic candies
- Vaped in vape pens
- Made into drops known as tinctures
May not feel anything for **30 to 60 minutes** (on a full stomach may take nearly two hours to feel full effects).

- The high can last **4 to 8 hours** while the effects from smoking can wear off in an hour or less.
A cookie or candy may be meant for multiple doses.
Edible doses are processed by the liver before entering the bloodstream, THC consumed as edibles produce high levels of 11-OH-THC (active metabolite), while smoked cannabis, which goes directly from the lungs to the brain via the bloodstream and does not enter the liver, produces lower levels.
College student ate an entire marijuana cookie that had been purchased from a licensed and legal pot shop in Colorado, despite the clerk having advised that it be split up and consumed in small portions.

Soon after he began to exhibit what witnesses described as erratic behavior, then, the Denver coroner’s report, “The decedent eventually reportedly jumped out of bed, went outside the hotel room and jumped over the balcony railing.”

The coroner acknowledged at the time that marijuana intoxication was a contributing factor.
Marijuana brownies sicken Crawford High students


SAN DIEGO — Five students got sick at Crawford High School Friday after eating marijuana-laced brownies, a school district official said.

All five were taken to Rady Children’s Hospital for treatment. They were reported to be in stable condition.

The students at the school in the El Cerrito neighborhood reported to staff that they had eaten the brownies, then felt ill, said San Diego Unified School District spokeswoman Linda Zintz.

School staff called for paramedics about 12:30 p.m. and school district police began an investigation.

Zintz said she had no information about where the teens got the brownies and whether they were eaten on or off campus.

School Principal Richard Lawrence sent recorded voice messages to parents Friday afternoon, saying five students taken to the hospital as a precaution after ingesting marijuana brownies were in stable condition and were expected to be released from the hospital in the evening.

“Please take the time to speak to your son or daughter about ingesting food from other people,” Lawrence said in the message. “Students should not take nor eat food from others regardless of how it may appear. Drugs are ingested in different ways and forms, and there’s also concerns about unknown allergies. We must be proactive in protecting our students.”

One arrested after marijuana gummy bears sicken Chula Vista students

BY: Jessica Chen, Mark Saunders
POSTED: 2:25 PM, Apr 27, 2017
UPDATED: 12:03 PM, Apr 28, 2017

One student was arrested after marijuana gummy bears were discovered at Chula Vista High School.

Employees at the school on Thursday afternoon found a box of marijuana gummy bears in a classroom. The vice principal called the police, who took the gummies to the drug enforcement division.

One 16-year-old student was arrested for possession of marijuana and is being held in Juvenile Hall. He will appear in Juvenile Court on Monday and face possible charges.

Assistant principal迴 Doreen Martinez said the gummy bears were completely edible, and there was no risk to other students.

Chula Vista High School is on high alert after marijuana gummy bears were found on campus. The school is on high alert after marijuana gummy bears were found on campus.

Assistant principal Doreen Martinez said the gummy bears were completely edible, and there was no risk to other students.

Chula Vista High School is on high alert after marijuana gummy bears were found on campus. The school is on high alert after marijuana gummy bears were found on campus.
MENTAL HEALTH
Marijuana use and schizophrenia: New evidence suggests link

Written by Yvette Brazier

Published: Monday 26 December 2016

A new study, published in *Psychological Medicine*, has added to the body of evidence pointing to a link between schizophrenia and the use of cannabis.

Recent research suggests that not only are people who are prone to schizophrenia more likely to try cannabis, but that cannabis may also increase the risk of developing symptoms.

Studies show that cannabis use is more common among people with psychosis than in the general population, and that it may also increase the risk of psychotic symptoms.

Its use has been linked to symptoms of psychosis, such as paranoia and delusional thinking, in up to 40 percent of users.

Earlier this year, scientists warned that young people who use cannabis could be putting themselves at risk of psychotic disorders. People with schizophrenia appear to have a higher chance of experiencing psychosis if they use cannabis.

Previous warnings had voiced concerns regarding the particularly powerful strains of cannabis, such as "skunk," currently circulating among young people.
DSM-5. Diagnostic and Statistical Manual of Mental Disorders (DSM) is the standard classification of mental disorders used in the U.S. by mental health professionals.

Recently added “cannabis withdrawal”.

Marijuana users build up a tolerance to the drug, they either have to increase the amount or switch to harder drugs.
The study looked at evidence from 47,000 veterans dealing with PTSD from 1992 to 2011.

The observational study of veterans found an increase in participants who experienced a heightening of their PTSD symptoms when using marijuana.
Do not seek medical advice from non-medically trained dispensary staff.

If you have a pre-existing mental health issue consult a licensed physician/psychiatrist before using anything.

Do not take yourself off Doctor prescribed mental health medication and substitute with pot.

Do not use other peoples medication.
PEDIATRIC EXPOSURES
Nationally almost 4 percent of mothers-to-be said they had used marijuana in the past month in 2014, compared with 2.4 percent in 2002.

Research suggests: THC can potentially harm brain development, cognition and birth weight. THC can also be present in breast milk.

Children exposed to THC can have serious side effects!

Exposure symptoms:

- Vomiting
- Seizures
- Low blood pressure and tachycardia or rapid heart rate
In Colorado, THC were found in one in six infants and toddlers admitted to Children’s Hospital (CHC) for coughing, wheezing, and other symptoms of bronchiolitis.

As with secondhand tobacco smoke, children can be exposed to the chemicals in marijuana when it is smoked by someone nearby.
At what level of exposure do child welfare agencies intercede, what about mandated reporters?

“There is an urgent need for further research using study designs that control for concomitant drug use during pregnancy and lactation, the overall health status of women who use marijuana, and the frequency of its use. Current commercially available marijuana has significantly higher concentrations of THC than those used in previous studies.”

Source: Academic Journal of Pediatrics and Neonatology - 2016
VAPES
The devices burn so hot they create formaldehyde.

E-liquid is a neuro toxin (risk from ingestions of small amounts).

You can vape, dab, a variety of substances with virtually no odor.

Hard to test the device for verification of substance.

Explosion risks! (lithium-ion battery)
In May 2016 – New Rules were adopted for the e-cig industry which brought federal oversight for the first time.

“In a shift vigorously opposed by the industry, manufacturers must seek federal permission to continue marketing all e-cigarettes launched since 2007, making up the vast majority of the market”.

FDA ACTIONS!
JEWEL VAPE
Vaper Severely Injured When His E-Cigarette Blows Up In His Face, Creating A New Hole In His Mouth

BY BRANDON WENERD - 09.10.15

There's a lot of fuss about whether or not vaping is safer than smoking. We've posted like four articles on the subject in the past year here at BroBible (here, here, here, and here). It's a contentious subject with no clear answers. The only conclusion is that both have their inherent risks that all users should be aware of.

The story of 23-year-old James Lauria is an awful one, however. According to Fox 5 DC, he was casually vaping when his e-cigarette device exploded in his face.

“It’s just a normal day,” explained James. “I’m at work and things quieted down and I stepped away for a second like I always do. Next thing I know, it exploded and I was on my way to a hospital in an ambulance, and that is the last thing I remember.”
LAWSUITS

Man catches fire after e-cigarette explodes in his pocket at petrol station – video

E-cigarette explosions prompt three lawsuits in California

A 16-Year-Old Teen Suffered Second Degree Burns When an E-Cigarette Exploded in His Face

E-cigarettes are all the rage these days, as the grim fates of chain smokers make traditional drugs increasingly unpopular. But as researchers continue to look into whether the e-cigarette presents the same risks as its predecessor, it would seem there’s another horrifying hazard e-cigs pose that cigarettes never did: explosions.

Such was the fate of 16-year-old Ty Greer, a teen in Alberta, Canada, who suffered second-degree burns and broken teeth after his e-cigarette spontaneously exploded just inches from his mouth while he was using it in his car.

"It lit my kid’s face on fire,烛ed two teeth out," Perry Greer, Ty’s father, told the Canadian Press. "It burned the back of his throat, burned his tongue very badly. If he wasn’t wearing glasses, he possibly could have lost his eyes. … He wanted to die. That is how much pain he was in.”
TRENDS
The potent opiate behind surging drug overdose deaths across the U.S. is now cropping up in the marijuana supply, according to officials in Ohio.

Pain medication with a rapid onset and short duration of action.

Often cut into other drugs.

Fentanyl is 50 to 100 times more potent than morphine.
Wax can be dabbed using paper clips, dental tools, small screw drivers and pens.

Grinders and blunts, bongs.
EROWID
DRUG “EXPERIENCE” LIBRARY

The issues surrounding the use of psychoactive drugs are complex. Prohibition discourages the spread of accurate information in favor of “Just Say No” rhetoric. But prohibition has failed and we need to move on to education. Information sources need to prioritize accuracy rather than maintaining politically driven anti-drug messages.

ERowid Center provides free, balanced, up-to-date information about psychoactive plants and drugs. We don’t convince users to abstain or legislators to pass particular laws. We provide the information necessary for people to make their own rational choices.
PUBLIC HEALTH AND AWARENESS
PUBLIC HEALTH MESSAGING
JUST FACTS!

- Youth exposure risk and 2\textsuperscript{nd} hand exposure.
- Edible Protocols and guidelines.
- Safe driving windows after use?
- Warnings! regarding pre-existing mental health issues & pregnancy.
- Addiction/Treatment risks.

No gimmicks!
Sample Documents:

- Post Prop. 64 - School District Notification Letter
- Lease Addendum
- “Social Host” Ordinance Language
- Drug Testing Policy
- Data points with Treatment Options
- Know the Facts!
Put Drugged Driving “On Your Radar”

DRUGGED DRIVING CAMPAIGN KICK OFF JUNE 11, 2015
SIGNS OF USE AND ABUSE
SUDDEN CHANGES

- Changes in sleep patterns and moods.
- Changes in grades.
- Relationships
- Sudden financial troubles
- Excessive yawning, drowsiness, cough.
MEMORIALIZING EVERYTHING!
Employers may drug test.

If your child is obtaining a driving permit, drug test.

There are over the counter drug tests available.

Synthetic drug testing is more expensive but available.

“Employers” Drug TEST!
NEED MORE RESEARCH!

- Studies using higher potency pot products.
- Studies on how pot products affect the body and mind. (vaping pot)
- Studies on how marijuana affects pregnant woman, newborns and fertility.
- Studies on driving and coordination.

NIDA caps the amount of THC allowed in studies at 12%.
Pot shops are currently advertising THC products ranging from 30% - 90%.
MPI RESOURCES AVAILABLE

MPI develops and disseminates data documents and educational materials

Examples:

- Informational Postcards, data, fact sheets
- Materials available in English and Spanish
- Trainings available for youth, parents, everyone!
- Check out our “NEW” - MPI Prevention TOOLKIT.

Materials can be downloaded from MPI website:

http://www.mpisdcountry.net/
QUESTIONS?