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
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.

Their use has interfered with school, work, family and relationships.
POLITICS OF POT!
Schedule 1 Drug:

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

Retail Sales begin January 2018!

The minimum age of a “purchasing patient” is 21-years-old. The rules then state that if you’re 18 or younger, you can only enter a licensed dispensary with a doctors recommendation and your parent, legal guardian or primary caregiver.

Who is enforcing this?
CA ADULT USE - 2016

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.
Marijuana use is allowed only on private property, not in parks or on sidewalks or “anywhere where smoking is banned”.

Medical marijuana patients would continue to be allowed to cultivate up to 100 square feet of pot plants.

*For medical use a minor (under 18 years of age) can apply as a patient or caregiver under certain conditions.
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 public consumption allowed!

No consumption allowed while driving or in vehicles.
Drug Free Work Place:

Prop. 64 also states that employers remain free to test workers for marijuana use before hiring them, or at any point during their careers. And if workers test positive, the law says companies can choose to let them go – even if there’s no indication they were actually high on the job.

The majority of states with medical marijuana laws, however, do not specifically address the employment context. In these states, employees typically are not protected from being terminated for legal medical marijuana use. Courts in California, Colorado, Oregon, and Washington have upheld an employer’s right to terminate a current employee who tests positive for marijuana, even when the employee had a valid prescription and only used marijuana while off duty. In arriving at this decision, many state courts relied on the fact that marijuana is still illegal under federal law.
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%)
POT “FACTS” & “MEDICAL USE”

INDICA VS SATIVA
MARIJUANA SPECIES

- Indica strains - generally contain higher CBD levels.

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

- Ruderalis strains – little THC content.
THC is the plant's 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.
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 (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.
- 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 (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" 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.

Introducing foreign cannabinoids causes the human body to limit the production of endocannabinoids.

Limiting the pathways and connections from forming properly.
Executive function describes the activity of a system that manages other cognitive systems:

- Reason
- Logic
- Problem solving
- Planning
- Memory

The prefrontal cortex plays a significant part in directing attention, developing and pursuing goals, and inhibiting counterproductive impulses.
Heavy Marijuana use appears to have a significant effect on adolescents’ brain structure and development.

Use is associated with:

- Attention & Motivation
- Memory
- Planning
- Slower brain-processing power

Increased use may interfere with sleep patterns, increase anxiety/paranoia and depression.


Local Data
Marijuana is addictive!

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

- Higher use rate than alcohol for this age group.

- Treatment providers observing higher level THC ratios in drug tests.
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
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).
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).1 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).2 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 1. Cannabis-related San Diego County Emergency Department Discharges by Year

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ER Discharges</td>
<td>573,858</td>
<td>601,102</td>
<td>612,310</td>
<td>643,091</td>
<td>635,302</td>
<td>671,815</td>
<td>698,303</td>
<td>727,510</td>
<td>781,289</td>
</tr>
<tr>
<td>Primary Cannabis-related Diagnosis Only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Cannabis-related Discharges</td>
<td>86</td>
<td>107</td>
<td>77</td>
<td>111</td>
<td>136</td>
<td>188</td>
<td>205</td>
<td>171</td>
<td>232</td>
</tr>
<tr>
<td>Primary Cannabis-related Discharge Rate* by Total ER Discharges</td>
<td>15.0</td>
<td>17.8</td>
<td>12.6</td>
<td>17.3</td>
<td>21.4</td>
<td>28.0</td>
<td>29.4</td>
<td>23.5</td>
<td>29.7</td>
</tr>
<tr>
<td>Primary Cannabis-related Discharge Rate* by County Population</td>
<td>2.9</td>
<td>3.5</td>
<td>2.5</td>
<td>3.6</td>
<td>4.4</td>
<td>6.0</td>
<td>6.5</td>
<td>5.4</td>
<td>7.2</td>
</tr>
<tr>
<td>All Cannabis-related Diagnosis (Primary &amp; Secondary Diagnosis Combined)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Cannabis-related Discharges</td>
<td>1,120</td>
<td>1,734</td>
<td>1,851</td>
<td>2,362</td>
<td>3,722</td>
<td>4,300</td>
<td>5,311</td>
<td>7,254</td>
<td>10,302</td>
</tr>
<tr>
<td>Cannabis-related Discharge Rate* by Total ER Discharges</td>
<td>193.0</td>
<td>288.5</td>
<td>302.3</td>
<td>367.3</td>
<td>585.9</td>
<td>640.0</td>
<td>760.6</td>
<td>1011.4</td>
<td>1318.6</td>
</tr>
<tr>
<td>Cannabis-related Discharge Rate* by County Population</td>
<td>37.1</td>
<td>57.5</td>
<td>60.7</td>
<td>76.7</td>
<td>119.6</td>
<td>137.2</td>
<td>168.0</td>
<td>231.0</td>
<td>320.5</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
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
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.”
EDIBLES
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
EDIBLE EFFECTS

- 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.
MENTAL HEALTH
There is no current scientific evidence that marijuana is in any way beneficial for the treatment of any psychiatric disorder. In contrast, current evidence supports, at minimum, a strong association of cannabis use with the onset of psychiatric disorders.
Marijuana use and schizophrenia: New evidence suggests link

Written by Yvete 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.

Cannabis use disorder, a cannabis-related disorder coded as 305.20 for mild or 304.30 for moderate or severe, is defined by DSM-5 as the following:

- A problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least 2 of the following, occurring within a 12-month period:
  - Cannabis is often taken in larger amounts or over a longer period than was intended.
  - There is a persistent desire or unsuccessful efforts to cut down or control cannabis use.
  - A great deal of time is spent in activities necessary to obtain cannabis, use cannabis, or recover from its effects.
  - Craving, or a strong desire or urge to use cannabis.
  - Recurrent cannabis use resulting in a failure to fulfill major role obligations at work, school, or home.
  - Continued cannabis use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis.
  - Important social, occupational, or recreational activities are given up or reduced because of cannabis use.
  - Recurrent cannabis use in situations in which it is physically hazardous.
  - Cannabis use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis.
  - Tolerance, as defined by either a (1) need for markedly increased cannabis to achieve intoxication or desired effect or (2) markedly diminished effect with continued use of the same amount of the substance.
  - Withdrawal, as manifested by either (1) the characteristic withdrawal syndrome for cannabis or (2) cannabis is taken to relieve or avoid withdrawal symptoms.
No one should be seeking 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 rapid heart rate

New study finds children in Colorado are increasingly being exposed to marijuana

Accidental exposure to marijuana in Colorado jumps 150 percent over last two years

In Colorado, where marijuana has been legal since 2012, the rate of children being accidentally exposed to marijuana has skyrocketed, a new study says.

The study, published in JAMA Pediatrics, reported that the rate of young children exposed to marijuana has increased 150 percent in the last two years in Colorado, usually via marijuana-infused baked goods and sweets children consume believing they are regular candy or treats.

Young children who consume the sweets can lose balance, vomit or become sluggish; the researchers found only a handful of cases with more severe reactions.

Researchers said the study was neither for or against legalization, but did note that packaging and dosage of edible marijuana products should be evaluated and regulated further to prevent children from accidental consumption or getting sick. Almost half of U.S. states have legalized medical marijuana usage, and a handful of others also passed laws legalizing or decriminalizing recreational use.
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
DRUGGED DRIVING CAMPAIGN KICK OFF JUNE 11, 2015
“No one should be driving under the influence of any substance that can impair your driving ability.”
Cannabis has a definite effect on driving similar to other RX, with swerving effects at the highest levels 3 hours after consumption of fairly low cannabis dose.

Key Findings:

- Slower breaking times
- Impaired ability to judge speed and distance
- Poor lane maintenance

The CMCR is allowed to study up to 12% THC in driving simulators. NIDA caps the amount at 12%. We know that dispensaries are advertising THC products ranging from 20% - 90%.
VAPING
VAPING DEVICES

- Dry Herb Vape

- Hash Oil & Wax Vape

- Wax Vape - Dabbing
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!
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)
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."
The U.S. Food and Drug Administration, started regulating e-cigarettes in May 2016.

FDA has identified about 66 explosions in 2015 and early 2016, after recording a total of 92 explosions from 2009 to September 2015.

A California, attorney, won a nearly $2 million judgment in a product liability lawsuit for a woman burned by an e-cigarette last year. He said he has a growing list of similar cases, most of which involve batteries and other components manufactured in China that have been subject to little safety oversight.
Man catches fire after e-cigarette explodes in his pocket at petrol station - video

LAWSUITS

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 hit my kid's face on fire, bashed 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."

E-cigarette explosions prompt three lawsuits in California

Vicente Garza
October 16, 2015

- Severe injuries to his mouth, tongue, and left index finger
- 7 day hospitalization
- Two surgeries on his tongue
- Two surgeries on his left index finger, including amputation at the knuckle
- Ongoing treatment at the Grossman Burn Center
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.
FALSE CONTAINERS AND ITEMS THAT HAVE OTHER MEANING!
POPULAR BUTANE PRODUCTS
Wax can be dabbed using paper clips, dental tools, small screw drivers and pens.

Grinders and blunts, bongs.
PUBLIC HEALTH AND AWARENESS
PUBLIC HEALTH MESSAGING
JUST FACTS!

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

No gimmicks!
If it is not FDA approved, it should not be on campus.

**MARIJUANA ON SCHOOL CAMPUS**

---

**Administration of Marijuana On School Property**

As laws change and access to marijuana products increase, the topic of school staff storing or administering non FDA approved Schedule (I) 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>
CHECK SOCIAL MEDIA!

Youth post everything!
Use Restrictions on your iPhone, iPad, and iPod touch

You can use Restrictions, also known as parental controls, to block or limit specific apps and features on your iPhone, iPad, or iPod touch.

Turn on Restrictions

1. Tap Settings > General > Restrictions.

Adult content - access restricted

Please confirm that you're over 18 or leave the website

I'm over 18  Exit
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.

THC can stay in the body 30-40 days.
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 on marijuana
- 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?