Youth Marijuana Use: Emerging Research & Public Health Challenges

Service Provider Training - Nurses 2018

Funded by the County of San Diego, Health and Human Services Agency, Behavioral Health Services
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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.
Marijuana is a bunch of chemicals disguised as a plant!

- The pot/marijuana/cannabis plant has over 400 chemicals. A little over 100 in the cannabinoid family.

- THC is a cannabinoid chemical that is psychoactive.

- CBD is also a cannabinoid chemical that counter acts the THC high.
The last crucial phase of brain development happens in late adolescence. (Pre Frontal Cortex).

When you use pot as an adolescent you are introducing chemicals that closely mimic our own chemicals that are integral in creating connections to different brain regions.

Those chemicals are involved with wiring of different regions of the brain.

The introduction of chemicals similar to our own create and imbalance forcing our body to react by shutting down critical pathways to complete the development process.
EVOLVING PRODUCT
THE HERB IS EVOLVING!

Weed is getting stronger
Average THC percentage in federal seizures of imported marijuana, 1985 – 2013

WASHINGTONPOST.COM/WONKBLOG  Source: White House Office of Nat’l Drug Control Policy
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
90% 2\textsuperscript{nd} AND 3\textsuperscript{rd} DEGREE BURNS

Fully Involved Apt/Unit

Victim 90% 2\textsuperscript{nd} & 3\textsuperscript{rd} Burns

BHO Fire Injury
BUTANE GAS

Butane Gas/Solvent is used for household fuel, refrigeration, and propelling in aerosol cans. They are highly flammable, colorless and easily liquefied gases.

Butane is a very good solvent for hash oil extraction because it separates herb oils from most other useless plant/bud matter. This type of filtered oil is sometimes nicknamed “Hash or Honey Oil” because the results are like an amber honey.

Butane is colorless, odorless and heavier than air. The vapors can linger near the floor, often failing to dissipate and are easily ignited.
POPULAR BUTANE PRODUCTS
THE FINAL PRODUCT
- HIGH POTENCY CONCENTRATES -
POT “FACTS” & “MEDICAL USE”

INDICA VS SATIVA
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.
MARIJUANA SPECIES

- 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!
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
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.

CBD based FDA approved Cesamet or Nabilone.
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.”

-FDA ACTIONS-
Local Data:
### Top 3 mentions, by grade:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mention</th>
<th>9th</th>
<th>11th</th>
<th>NT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15% - Friend, relative or family member</td>
<td>15%</td>
<td>27%</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td>6% - Drug dealer</td>
<td>6%</td>
<td>11%</td>
<td>32%</td>
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<tr>
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<td>4% Someone you just met or didn’t know</td>
<td>4%</td>
<td>7%</td>
<td>20%</td>
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</tbody>
</table>

- **9th Grade**: 15% from friends, relatives, or family members, 6% from drug dealers, 4% from people they just met or didn’t know.
- **11th Grade**: 27% from friends, relatives, or family members, 11% from drug dealers, 7% from people they just met or didn’t know.
- **NT**: 48% from friends, relatives, or family members, 32% from drug dealers, 20% from 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).
Pot is associated with a range of side effects:

- Panic attacks
- Seizures
- Hallucinations
- Psychosis
- Sedation
- Dry mouth
- Heart palpitations
- Cognitive impairment and slower reaction times
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 1. Cannabis-related San Diego County Emergency Department Discharges by Year

<table>
<thead>
<tr>
<th>Year</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>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>1,108</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>7,354</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 305.2 following a positive blood test for the presence of THC or the patient’s self-disclosure of use.
The most common reasons of seeing marijuana poisoning in the ER:

1. Cannabinoid Hyperemesis (CH)
2. Psychosis
3. Chest pain
Cannabinoid Hyperemesis (CH) 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 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.
- 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.
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 and 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 the students were taken to the hospital as a precaution after ingesting marijuana brownies 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’s message said. “Students should not take nor eat food from others regardless of how it may appear. Drugs are available in different forms and formats and there’s also concerns about unknown allergens. We must be proactive in avoiding these situations.”
MENTAL HEALTH
Studies have shown that THC can awaken pre-existing mental health issues in people with a genetic history of mental health issues.

Specifically, psychosis related to schizophrenia.

Paranoia, anxiety, panic, hallucinations and delusions are some side effects.
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.

Regarding state initiatives to authorize the use of marijuana for medical purposes:

- Medical treatment should be evidence-based and determined by professional standards of care; it should not be authorized by ballot initiatives.
- No medication approved by the FDA is smoked. Marijuana that is dispensed under a state-authorized program is not a specific product with controlled dosages. The buyer has no way of knowing the strength or purity of the product, as cannabis lacks the quality control of FDA-approved medicines.
- Prescribers and patients should be aware that the dosage administered by smoking is related to the depth and duration of the inhalation, and therefore difficult to standardize. The content and potency of various cannabinoids contained in marijuana can also vary, making dose standardization a challenging task.
- Physicians who recommend use of smoked marijuana for “medical” purposes should be fully aware of the risks and liabilities inherent in doing so.

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Findings from the study of 1,200 people with schizophrenia. The investigation analyzed a wide range of genetic and environmental risk factors for developing the debilitating mental illness.

- People who had consumed pot before age 18 developed schizophrenia approximately 10 years earlier than others. The higher the frequency of use, the data indicated, the earlier the age of schizophrenia onset.

- Neither alcohol use nor genetics predicted an earlier time of inception, but pot did.

Source: World Psychiatric Association’s World Congress in Berlin on October 9, 2016, Hannelore Ehrenreich of the Max Planck Institute of Medicine.
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.
Do not seek medical advice from non-medically trained pot shop 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
Nationwide, 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
SPICE
Spice is a synthetic cannabinoid which is sprayed on plant material.
1. Spice is a “man made” chemical. 100x stronger than weed.

2. The chemical - Spice is sprayed on plant material that resembles marijuana herb. (Damiana leaf)

3. Spice has “no” other use than to get people intoxicated.

4. Many first time users of Spice have ended up in emergency rooms with severe hallucinations, paranoia, heart attack, seizures, vomiting, kidney failure and death.
Spice can be vaped in a vaping device.

Spice can be infused in food products.

Drug tests do exist for Spice.
Synthetic pot warning issued as number of users experiencing severe bleeding jumps to 32

18 hospitalized after becoming ill on skid row

Health, law officials alarmed at ‘spice’ overdoses
VAPING
FDA brings e-cigarettes under federal authority

WASHINGTON (AP) — New federal rules announced Thursday have the potential to upend the multibillion-dollar electronic cigarette industry just as it is attempting to position itself as an alternative to traditional cigarettes.

Under the long-awaited rules issued by the Food and Drug Administration, hundreds of e-cigarette brands will have to undergo a lengthy federal review to stay on the market. The rules will bring the burgeoning industry under federal oversight for the first time. The changes will limit e-cigarette sales to minors and require new health warnings. 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.
- 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)
MULTIPLE EXPLOSIONS

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."
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 tales of chain smokers make traditional drugs increasingly unacceptable. 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-cigarette users should beware of.

Such was the fate of 16-year-old Ty Greer, a teen in Alberta, Canada, who suffered second-degree burns to his face after an e-cigarette spontaneously exploded in his mouth while he was using it in his car.

"It burned the back of his throat, burned his tongue very badly. He wasn’t wearing glasses, he probably could have lost his eyes. He wanted to die. ‘It 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

In Case You Missed It

Doctors reassure jogging American: Don’t cut your ribbons even if you’re young and fit
JUUL VAPE – DOUBLE THE NICOTENE
Not only does the Juul have a higher nicotine concentration than other comparable devices (a Juul pod is 5% nicotine by volume; a Blu e-cig cartridge is 2.4%), it also uses a slightly different nicotine formula than most vape pens use.

The Juul is also sleek, small, colorful, and fairly affordable, at $35 for the pen and $16 for a four-pack of pre-filled cartridges (or "Juul pods").
TRENDS & PARAPHERNALIA
The potent opiate behind surging drug overdose deaths across the U.S. may be 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.
The purest Fentanyl is from China. It comes in pill and powder form.

- Do you know what you are taking?
- Many drug users are unaware they are taking fentanyl.
- GOOD SAMARITAN LAWS -

- Do not fear calling 911 if you or friend need help!

- Good Samaritan policies protect the caller and overdose victim from arrest and/or prosecution for simple drug possession, possession of paraphernalia, and/or being under the influence.
SD Medical Examiner cases 2016:

- THC was found in 25.8% (125 out of 484) accidental overdose deaths.

- THC found in 25.2% of prescription drug overdose deaths, more than any single medication, and a higher association than benzodiazepines.

- Many addicted individuals will not take medication as prescribed and use multiple substances at once.
DABBING & PARAPHERNALIA

Wax can be dabbed using paper clips, dental tools, small screw drivers and pens.

Grinders and blunts, bongs.
FALSE CONTAINERS AND ITEMS THAT HAVE OTHER MEANING
ONLINE DRUG LIBRARY AND POSTINGS

Adult content - access restricted

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

I'm over 18

Exit

Why Donate to Erowid Center?

The issues surrounding the use of psychoactive substances in society demand a spread of accurate information in order to inform and educate, and Erowid Center needs to continue its mission to maintain politically driven anti-drug movements in the United States.

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 PREVENTION
WHEN IN DOUBT - 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.
Be open to questions before you judge!

Ask about use or ask your Doctor to ask about use.

Be alert of any changes in grades, friends, money issues, moods & sleep patterns.

We need an ongoing drug prevention curriculum in schools starting in middle school.
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.mpisdcounty.net/
QUESTIONS?