# Understanding Marijuana and Parenting Strategies

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## Normalization

Legalization driving the process of "normalization" relative to marijuana today

- **Psychological shift**
  - Almost immediately from – *it's bad for you, it's illegal to - it must be okay for you, it's legal.*
- **Protective environmental factors go away**
  - Access goes up makes the drug more available, but also "visibility" – reinforces that MJ must be okay.
  - Perception of harm goes down
  - The calculus of marijuana use actually changes
    - *Goes from - an individual or small group decision* to use
    - *To - mass/social media encouragement* to use via feature and benefit language and imagery

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## Best Defense – Parent Education

Our kids are becoming increasingly marijuana & vaping savvy (or they think they are)

Parents need some understanding to:

- Be able to have a conversation
- Can push back where you feel it's needed
- Set the tone you want (quiet or neutral is now "pro-pot")

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## Understanding Marijuana

1. Physiological Effects
2. Forms & Potencies
3. Parenting Strategies

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## Understanding Marijuana
# Physiological Effects

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### Brain 101

- "The brain you go to bed with tonight is not the same brain you woke up with this morning" – Elasticity.
- The brain is a learning, adaptive organ that grows and matures through feedback
- Your brain is who you are; what you understand; how you are in the world

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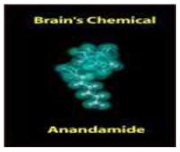
## Brain 101- Endocannabinoid Receptor Site System

- Naturally occurring cannabinoids - Anandamide
- Anandaminde binds to Endocannabinoid receptors (CB1 & CB2) for proper function
- THC (Delta-9-tetrahydrocannabinol) - mimics Anandamide.





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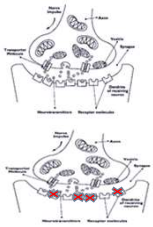
## Brain 101- Synaptic connections

- Homeostasis: balance & neutrality
- Over stimulating a synaptic system will cause receptors to shut down



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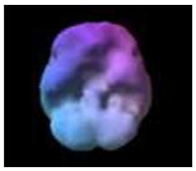
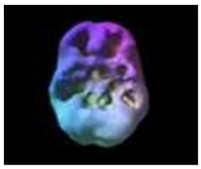
## Brain 101 - Receptors

- Receptor shut down – real physiological event; reduces neural activity overall

**Prefrontal/temporal lobe activity – 16 yo**



**Non-using**



**2 year daily user**

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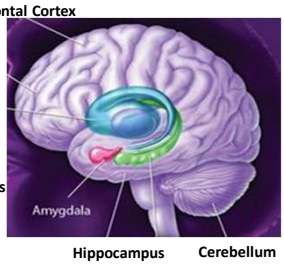
## Brain 101 - Endocannabinoid Signals in the brain

**6 Major Regions:**

- Contain huge number of endocannabinoid receptors
- Indicates Anandamide is important to these regions & function

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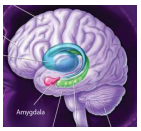
## Brain 101 - Endocannabinoid Signals in the brain




Hippocampus – memory or not
- Memory storage; eliminates memory

Frontal Lobes – working memory
- Ideas, thoughts, goals spark here
- Working memory –held for up to 2 minutes before processed through rest of the brain for implementation & memory storage

Basal Ganglia – body organization
- Translates prefrontal cortex goals into action plan

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## Brain 101 - Endocannabinoid Signals in the brain


Cerebellum – fine motor
- Manages grace & fine motor movement

Amygdala – emotional processing
- Bonding, nurturing - connection
- Boredom, excitability, virtual newness - motion
- Spirituality - awe

Nucleus Accumbens – pleasure/reward pathway
- why we do NOT get addicted to anti-biotics
- "Importance meter" - Dopamine
- Anticipatory pleasure

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## Brain 101 - Major effects Summary

1. **Movement**
   - Movement & reaction times **slow down** [Cortex, Basal Ganglia]
   - Awareness or understanding of adjustments needed **get diminished** [Cerebellum]
2. **Memory**
   - Memory of what I'm doing now & why **gets diminished** [Cortex, Hippocampus]
   - Medium & long term memory **become less robust** [Cortex, Basal Ganglia, hippocampus]
   - Thinking **becomes more shallow** [Cortex]
   - Learning becomes more **difficult** [all]
3. **Emotional Growth**
   - Motivation, Drive & Learning **slow** [Amygdala]
   - Awe, inspiration & wonder **fade** [Amygdala]
   - Pleasure gets associated with the drug [Nucleus Accumbens]
   - Connecting with friends and family (relationships) becomes **difficult** [Amygdala]
   - Life becomes **dull, boring** without the drug [Amygdala]
   - Violence & anger management become difficult [All]

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## Brain 101 - Teenage Brain

13-18 –brain undergoes:

- Neural pruning -- neural connections no longer need drop away
- Myelination – things I focus on become super highways –more efficient – entrenched – "hard wired" in

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## Brain 101 - Teenage Brain

| Neural pruning | Myelination |
|---|---|
|  |  |

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## Brain 101 - Teenage Brain – different from Adults

Teen brain


- Can be injured more easily
- Does not heal from injury as quickly

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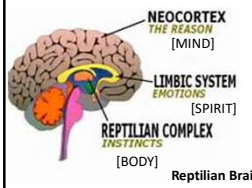
## Brain 101- 3 Major Components




**Prefrontal Cortex / NeoCortex / Cerebral Cortex**

- Executive Function / Higher thinking
- Discernment / insight
- Right & Wrong
- Understanding Cause & Effect
- Impulse control
- Self-awareness

**Reptilian Brain**

- Core/involuntary body function
- Primal instincts
- Am I safe
- Do I have enough to eat
- Is anything going to hurt me

**Limbic System / Mammalian Brain**

- Started to raise our young
- Heart/emotion is here
- Do I feel cared about
- Do I trust
- Where do I belong
- How do I fit in

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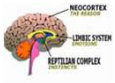
## Brain 101 - Teenage Brain – different from Adults




12-17 – Limbic system

18-25 – Prefrontal cortex

26+ -- maximum neural capacity for processing complicated things

- Drugs and alcohol are complicated neurologically
- Fact is, the 12-17 brain is really not ready for it neurologically

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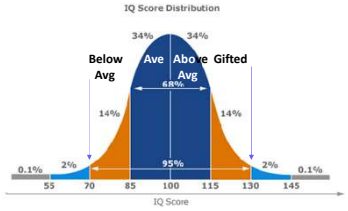
## Brain 101 – Teens, Young Adults and marijuana

Major studies show the teen-aged brain can be changed and injured with marijuana use:

**Mental**

- Potential for immediate psychosis/psychotic break
- Schizophrenia - Causal factor with or without family history
- IQ loss - up to 8 points (intelligence level can easily drop)

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## Brain 101 – Teens, Young Adults and marijuana, con't

**Emotional**

- Increase in anxiety & depression
  - 2x more likely overall
  - 5x more likely among females
- Amotivational Syndrome
- Suicide attempts - 7x increase

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## Brain 101 – Teens, Young Adults and marijuana, con't

**Physical**

- Brains measurably smaller - use under 16
- Vomiting syndrome (Cannabinoid Hypermesis Syndrome)
- Physical (bodily) implications
  - lungs/COPD (mooking),
  - myocarditis - heart attack/heart enlarged,
  - stroke,
  - fetal damage

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## Marijuana 101 – Is marijuana addictive?

- 30% of marijuana users have a Cannabis Use Disorder (CUD)
  Addiction -> Heavy Use*
- How do we know it's Addictive:
  - MJ activates the Nucleus Accumbens
  - MJ meets the criteria for biological addiction:
    - Tolerance
    - Withdrawal symptoms
    - Continued use despite negative consequences
- Marijuana is Lipophilic
- Very potent today

*NIDA

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## Marijuana 101 – Can I overdose or die from Marijuana?

- Marijuana does not shut down the brain stem – so cannot die via a typical drug-overdose.
- Marijuana can cause psychosis and psychotic breaks, which are considered types of overdose and can lead to*:
  - Suicide
  - Homicide
  - Accidental death
  - Compromised return to normal – only 50% return to pre-break status

*Dr Christine Miller – MillerBio

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## Marijuana 101 – Can I overdose or die? con't

Traffic fatalities

- Washington doubled (AAA)
- Colorado – all reports 50%+ (HIDTA)
- National traffic fatalities from 2012-2017 ** among 16-25yo show:
  - 12% increase in fatalities involving **marijuana**
  - 45% decrease in fatalities involving **alcohol**

Note: Mixing alcohol with marijuana = 8x increase in impairment+

** National FARS data 2017
+Marilyn Heustis research

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Brain 101 - Teenage Brain Science Conclusion

- Teens are supposed to be figuring out who they are - what fires dopamine in their brains – what they find important - what motivates and demotivates them, etc…
- Marijuana spoofs the brain:
  - **takes over memory,**
  - floods the brain with **too many cannabinoids** and
  - **fires off dopamine** at meaningless times.
  - This robs kids of real self-discovery. It interrupts understanding, identity & learning
  - This puts real things at risk – intelligence, relationships graduation, athletic and other performance, good jobs

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Understanding Marijuana

# Forms & Potencies

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## Marijuana: 4 Forms – extremely potent

1. Plant - dried flower or herb – smoke-able
2. THC* Liquid Concentrates - Vaping
3. THC* Solid Concentrates - Dabbing
4. Edibles – THC* infused food & drink

**THC is the cannabinoid in marijuana that intoxicates a user or gets a user "high"*

**Advertising & branding are a new normal**

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Marijuana – the new normal
hello marijuana
goodbye stress
eaze
CALI LIFESTYLE
You'll Never Smoke Alone.
WE WAKE AND BAKE EVERY MORNING.
GOT WEED?
9 MILES AHEAD
LEFT ON EASY STREET
RECREATIONAL MARIJUANA STORE
3012 GS CENTER RD | WENATCHEE, WA
GREEN LIFE
STARFIGHTER
THC ~ 27%
TYPICAL EFFECTS
HWY 420
$20 1/8's
Emerald City Organics

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Branding –
Marijuana is cool…
CULTIVATORS CHOICE
THE ORIGINAL SKUNK*1
Giggle
High Guys RADIO
stonerdays.com
CountDabula
DOPE
MARIJUANA HALL OF FAME
Kush
WAKE and BAKE
Humboldt Bread & Bakery
Tokin
SEATTLE CHRONIC
JUST HIT IT.
TokinTops
30

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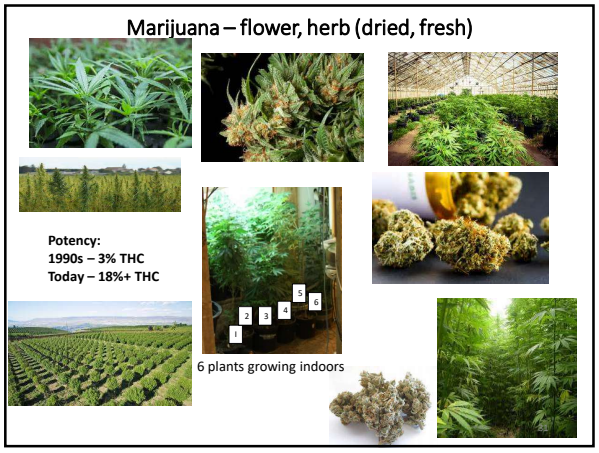
Marijuana – flower, herb (dried, fresh)
Potency:
1990s – 3% THC
Today – 18%+ THC
6 plants growing indoors

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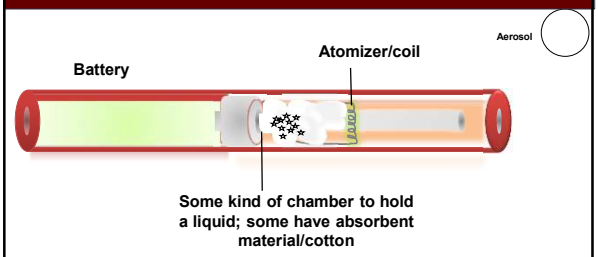
## What Are Vapes / E-Cigarettes?

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## What goes in a Vape pen?

1. Liquid Nicotine concentrate
2. Liquid THC (marijuana) concentrate
3. Flavors


How can you tell what's in a vape pen?
- You can't
- No label, little smell

How strong is the liquid in a vape pen?
- You don't know
- Vape liquid concentrate is not generally well labeled
- Potency can be anything 18% - 50% eLiquid; 85% THC in pods

Source: Human Relations Media – drug fact pack3

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## Pens (open) vs Pods (closed)

www.vape360.com www.vapes.com


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Juuls


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Vape Devices marketed specifically for THC
PAX (open) & PAX Era (closed) – for Pods

www.vape360.com www.vapes.com


Potency: 85% THC

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## The Usual Suspects


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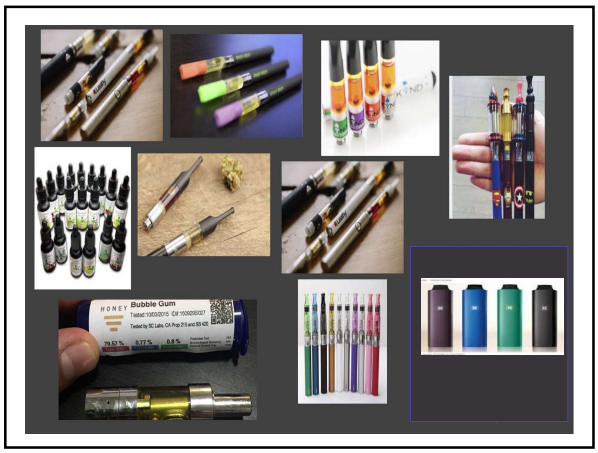
HONEY
Bubble Gum

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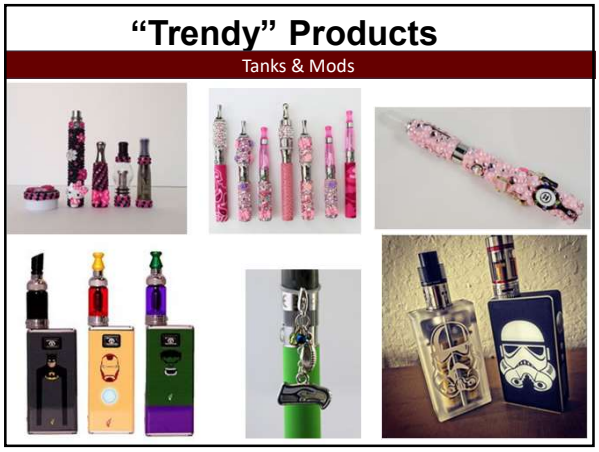
"Trendy" Products
Tanks & Mods

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Flavors
Lemon
Banana
Coffee
Tobacco
Cherry Limeade
Vanilla
Chocolate
Coffee
#1 Flavor Selection with 19 Flavors!
Tobacco
Cowboy
Menthol
Almond
Apple
Banana
Cherry
Chocolate
Cinnamon
Clove
Grape
Orange
Peach
Pineapple
Vanilla
Mellon
Mild Menth
Variety
What's Your Taste?
Apple Pie
Blueberry Muffin
Caramel
Chocolate Strawberry
MILK CHOCOLATE

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## Vapes are better than cigarettes because it's Just Water Vapor. Is this right?


2017 - Stanford Tobacco Toolkit

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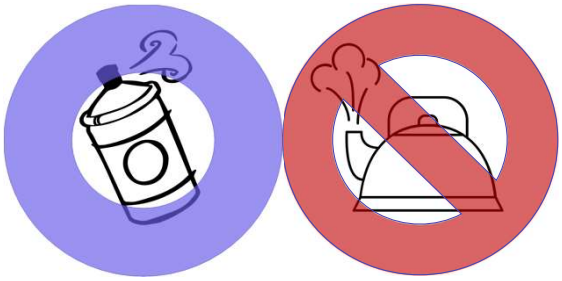
## It's an Aerosol, Not a Vapor



2017 - Stanford Tobacco Toolkit Image Credit: via thenounproject.com

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## Third-hand Smoke

Nicotine & other chemicals

2017 - Stanford Tobacco Toolkit

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## Aerosol Composition

- Propylene glycol
- Glycerin
- Flavorings (many)
- Nicotine
- NNN
- NNK
- NAB
- NAT
- Ethylbenzene
- Benzene
- Xylene
- Toluene
- Acetaldehyde
- Formaldehyde
- Naphthalene
- Styrene
- Benzo(b)fluoranthene
- Chlorobenzene
- Crotonaldehyde
- Propionaldehyde
- Benzaldehyde
- Valeric acid
- Hexanal
- Fluorine
- Anthracene
- Pyrene
- Acenaphthylene
- Acenapthene
- Fluoranthene
- Benz(a)anthracene
- Chrysene
- Retene
- Benzo(a)pyrene
- Indeno(1,2,3-cd)pyrene
- Benzo(ghi)perylene
- Acetone
- Acrolein
- Silver
- Nickel
- Tin
- Sodium
- Strontium
- Barium
- Aluminum
- Chromium
- Boron
- Copper
- Selenium
- Arsenic
- Nitrosamines,
- Polycyclic aromatic hydrocarbons
- Cadmium
- Silicon
- Lithium
- Lead
- Magnesium
- Manganese
- Potassium
- Titanium
- Zinc
- Zirconium
- Calcium
- Iron
- Sulfur
- Vanadium
- Cobalt
- Rubidium
- Diacetyl

2017 - Stanford Tobacco Toolkit

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## Aerosol Composition

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- Styrene
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- Chlorobenzene
- Crotonaldehyde
- Propionaldehyde
- Benzaldehyde
- Valeric acid
- Fluoranthene
- Benz(a)anthracene
- Chrysene
- Retene
- Benzo(a)pyrene
- Indeno(1,2,3-cd)pyrene
- Benzo(ghi)perylene
- Acetone
- Acrolein
- Silver
- Nickel
- Boron
- Copper
- Selenium
- Arsenic
- Nitrosamines,
- Polycyclic aromatic hydrocarbons
- Cadmium
- Silicon
- Lithium
- Lead
- Magnesium
- Iron
- Sulfur
- Vanadium
- Cobalt
- Rubidium
- Diacetyl

**All of these have been found in e-cigarette/vape pen aerosol**

2017 - Stanford Tobacco Toolkit

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## Aerosol Composition

**Compounds in red are from FDA 2012, Harmful and Potentially Harmful Substances – Established List**

- Propylene glycol
- Glycerin
- Flavorings (many)
- Nicotine
- NNN
- NNK
- NAB
- NAT
- Ethylbenzene
- Benzene
- Xylene
- Toluene
- Acetaldehyde
- Formaldehyde
- Naphthalene
- Styrene
- Benzo(b)fluoranthene
- Chlorobenzene
- Crotonaldehyde
- Propionaldehyde
- Benzaldehyde
- Valeric acid
- Hexanal
- Fluorine
- Anthracene
- Pyrene
- Acenaphthylene
- Acenapthene
- Fluoranthene
- Benz(a)anthracene
- Chrysene
- Retene
- Benzo(a)pyrene
- Indeno(1,2,3-cd)pyrene
- Benzo(ghi)perylene
- Acetone
- Acrolein
- Silver
- Nickel
- Tin
- Sodium
- Strontium
- Barium
- Aluminum
- Chromium
- Boron
- Copper
- Selenium
- Arsenic
- Nitrosamines,
- Polycycli
- c aromatic hydrocarbons
- Cadmium
- Silicon
- Lithium
- Lead
- Magnesium
- Manganese
- Potassium
- Titanium
- Zinc
- Zirconium
- Calcium
- Iron
- Sulfur
- Vanadium
- Cobalt
- Rubidium
- Diacetyl

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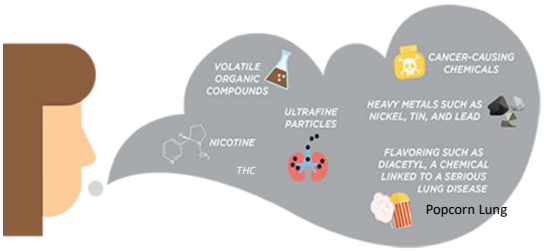
## Summary – Nothing good comes from eLiquids




Vaping impairs the function of alveolar macrophages – cells that remove dust, bacteria & allergens – which are vital to the immune system – study out of Birmingham England, published in Thorax Journal

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## Vaping – 2019 crisis - EVALI

- 2208 hospitalization, 68 deaths (February 18, 2020)
- 82% are THC related (33% THC only) – from legal and illegal sources
- Significant number involve **lipoid-pneumonia** – lipids in the lungs
  - THC is a lipid (fat soluble)
  - Oils put in eLiquids are likely contributors, i.e. Vitamin E
- Some lung tissue exhibit a **burned-liked condition** - Use of illegal pesticides, herbicides and rodenticides are generally found in legal and illegal cannabis products – they may be contributing
- FDA & CDC asked all Americans to stop vaping THC from regulated or black-market outlets

CDC Webinar weekly; California Bureau of Cannabis Control

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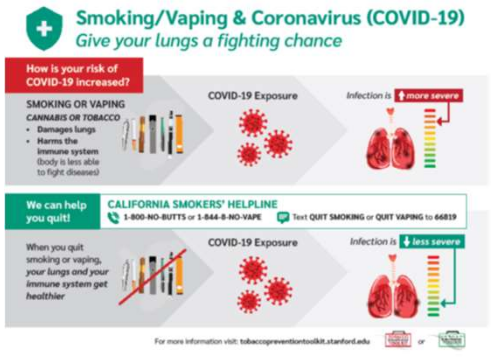
## 2020 crisis - Covid-19

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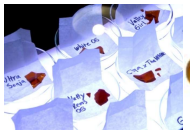
## THC Solid Concentrates - Dabs

Marijuana is not "just a plant"
Potency: 80-95% THC

"Green Crack" wax

"Budder"


"Shatter"



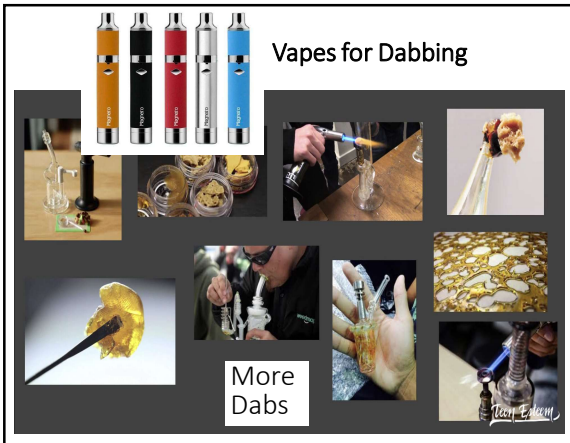
Hash Oil Capsules

Butane Hash Oil (BHO)

50

50

## Vapes for Dabbing

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## Marijuana Edibles

- THC not evenly distributed thru product
- No taste; can't tell the difference between THC & non-THC product
- No Child-Proof containers
- Takes a longer to feel the high - 20-30 min
- Serving sizes unrealistic
- Half the market in Colorado


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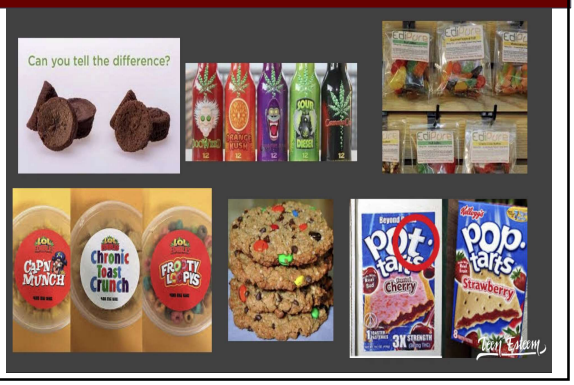
## More Edibles

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FDA-approved THC - Dronabinol - contains up to 10mg of THC/pill; Common brand names: Marinol, Syndro

These contain equal amounts of THC

Dank Grasshopper Chocolate bar contains 420 mg THC per bar – "Extremely Potent!"


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**Mint Black - 1,000MG THC**

*Our infamous 1,000mg THC Black Bar with the ever popular mint addition of Andes mint baking chips and mint drizzle.*

**Nutrition Facts**

Entire Package Approx. Weight: 100g
Servings Per Container: 100

**Amount Per Package**

| | |
|---|---|
| Calories 440 | Calories from Fat 190 |
| | % Daily Value* |
| Total Fat 22g | 34% |
| Saturated Fat 12g | 60% |
| Trans Fat 0 | |
| Cholesterol 40mg | 13% |
| Sodium 120mg | 5% |
| Total Carbohydrate 82g | 21% |
| Dietary Fiber 5g | 20% |
| Sugars 39g | |
| Protein 7g | |

Vitamin A 10% • Vitamin C 0%
Calcium 6% • Iron 10%

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Understanding
Marijuana
# Parenting Strategies

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## Why parents should talk to kids about marijuana (and alcohol)…

- **It's ALWAYS been our responsibility** to help kids navigate
- **Our influence matters** - Only 5% of kids try marijuana when they clearly understand their parents are against it. In contrast 35% of kids will try marijuana if their parents support its use or are unclear about their stance on use.*
- **There is no neutral position on pot any longer**
- **We can impact their long-term health** - 90% of adult addicts began smoking, drinking or using other drugs before 18. Increasingly, adult addiction is being seen as a childhood onset disease. As a result, parents can have significant impact the future health of their kids as adults. **
- **The "gateway drug" concept newly understood**

*Source: NSDUH, 2010 published Sept 2011; http://www.samhsa.gov/data/NSDUH/2k10NSDUH/2k10Results.htm
** Source: CASA –National Center for Addiction and Substance Abuse www.casacolumbia.org

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## ~ 3 Gateway drugs for 12-17 year olds ~
Alcohol, Marijuana (THC) and Cigarettes (nicotine)

- All 3 are addictive
- Easily accessible
- Teen brains are especially vulnerable to their harm - as all 3 affect brain plasticity and proper neural function
- Statistically we are finding that the use of one - increases use of the other 2 as well as other illicit drugs*

*Source: Data from DuPont, Han, Shea, Madras. Preventive Medicine 113: 68-73, 2018. [Graph prepared by BK Madras, C Shea]
Past month use of alcohol, marijuana and illicit drugs, among youth aged 12-17, (past month adjusted prevalence; n = 17,000)
** Source: CASA –National Center for Addiction and Substance Abuse www.casacolumbia.org/ https://www.nbcnews.com/health/kids-health/marijuana-may-be-worse-teen-brains-alcohol-study-finds-n916296

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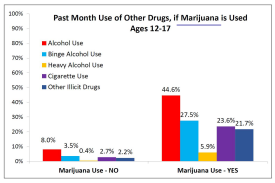
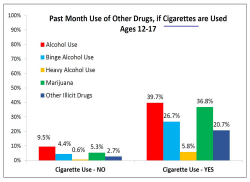
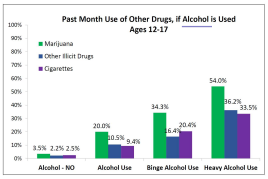
## 2017 NSDUH –National Survey on Drug Use and Health




*Source: 2017 NSDUH Data from DuPont, Han, Shea, Madras. Preventive Medicine 113: 68-73, compiled 2018. [Graph prepared by BK Madras, C Shea]
Past month use of alcohol, marijuana and illicit drugs, among youth aged 12-17, (past month adjusted prevalence; n = 17,000)

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## Tips for Parents
## Find the tone and technique that is right for your family

***Techniques/tactics:***

Be informed / Get credible information

Be in conversation with your kids / Ask questions / use effective listening skills

Role play / what ifs

Adult modeling – stress, joy, social

Verbalize – own emotional processing

Validate resilient behaviors / playback evidence of coping skills

Exercise your parental right to know

Stay connected with other parents

***Communication Goals:***

- Delay, delay, delay (or abstinence)
- Child finds reasons to say "no"
- Child understands their own coping skills
- Child understands family rules and consequences

***Frames of reference:***

- You believe they are unique in the world – don't want that to change or be disrupted
- We aren't going to be naïve about market commercialization – marijuana is Big Tobacco 2.0 – an industry that wants to sell you drugs & if you get addicted, oh well.
- Family History – risk assessment for addiction

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## Let's continue the conversation

PARENT MOVEMENT 2.0

**Helping parents help their kids navigate away from drugs & alcohol though education and advocacy**

**1979 – 1992 Parents reduced illicit drug use among high school senior 67%**

1. **Parent Peer Groups – 3 to 5 parents in conversation can change everything**

2. **Parent Community Groups – Advocacy**

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PARENT MOVEMENT 2.0
Home
Talking With Teens
Know The Drug
PM 2.0
Take the Pledge
I want a substance-free childhood for my kids and their friends
https://parentmovement2-0.org/take-the-pledge
info@parentmovement2-0.org

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