Update on Substance Use Trends Impacting the Pediatric Population

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Objectives

- Describe current substance use trends
- Recognize different settings in which infants and children are impacted by substance use
- Outline the dangers of drug and alcohol environments for children
- Outline the utility of different drug testing methodologies and the benefits, and limitations
- Formulate a multidisciplinary response to drug endangered children
- Describe the value of family centered approaches to ensure the safety, health and well-being of substance-exposed children and their caregivers

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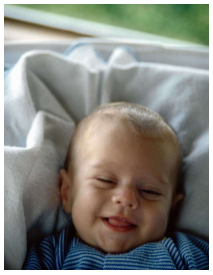
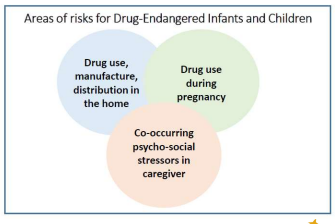
Substance Use and Infants/Children/Youth





Source: Farst J and Wells KM. Drug Endangered Children. In Child Abuse: Medical Diagnosis and Management. 4th ed. Illinois: American Academy of Pediatrics (2019), eds. Antoinette Laskey and Andrew Sirotnak: 527-563

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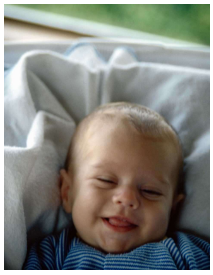
Substance Use and Infants/Children/Youth



Impact of current trends

- COVID pandemic
- Mental illness and substance use disorders
- Surging opioid use; fentanyl crisis
- Legalization of recreational marijuana

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COVID-19 Impact

2019 data is all pre-COVID-19

COVID-19 has brought:

- Great fear of illness/death from the virus
- Loss of familiar daily structure
- Isolation
- New expectations: home schooling and daycare provision
- Unemployment/stress of trying to find employment
- Financial stress
- Inability to get regular "non-essential" medical care and follow up
- Increases in domestic violence and child abuse

Expect substantial increases in substance use disorders, mental illness, and suicidality in all age groups

SAMHSA Substance Abuse and Mental Health Services Administration

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Changes in Excessive Drinking during COVID-19 between February and April, United States

- Alcohol use, including excessive drinking, has increased nationally during COVID-19
  - Average drinks per day increased 27%
  - Binge drinking increased by 26%
- Largest increases in excessive drinking were observed in the Western US (which includes Colorado)
- Significant increases among women, Black adults and people with children
- Alcohol weakens the immune system and could increase the risk of complications of COVID-19

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Created by CDPHE, Alcohol Epidemiology
Sources: Barbosa, C, Cowell, A, Dowd, W. How Has Drinking Behavior Changed During the COVID-19 Pandemic? Results from a Nationally Representative survey. RTI International, July 2020. World Health Organization, Fact sheet - Alcohol and COVID-19: what you need to know

COLORADO Department of Public Health & Environment

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We Are Already Seeing the Negative Mental Health Effects of COVID-19

1000% increase in calls to the Disaster Distress Helpline relative to same period in 2019

Increases in proportion of ED visits related to suicide attempts in April and May relative to same time period in 2019—decreased in June as stay at home orders lifted and America began to open up again

Increases in calls to domestic violence hotlines

Reports of child abuse/increases in infant deaths attributed to injuries related to child abuse

Increases in suicides in some areas

Increases in opioid overdose deaths in some areas—as much as 25-50% increases over comparison 2019 time period—first responders in some areas concerned about administering nasal naloxone related to COVID-19

Emergency housing for those leaving psychiatric hospitalization converted to COVID-quarantine space in some areas increasing homelessness for those with SMI

Layoff of behavioral health staff/providers without financial reserves to survive long-term and unable to generate enough revenue to survive

All of this portends major increases in mental/substance use disorder treatment and recovery service needs and potential loss of the staff and services to assist Americans experiencing these issues

SAMHSA

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Mental Illness and Substance Use Disorders in America

PAST YEAR, 2019 NSDUH, 18+

Among those with a substance use disorder:
2 IN 5 (38.5% or 7.4M) struggled with illicit drugs
3 IN 4 (73.1% or 14.1M) struggled with alcohol use
1 IN 9 (11.5% or 2.2M) struggled with illicit drugs and alcohol

Among those with a mental illness:
1 IN 4 (25.5% or 13.1M) had a serious mental illness

7.7% (19.3 MILLION) People aged 18 or older had a substance use disorder (SUD)

3.8% (9.5 MILLION) People 18 or older had BOTH an SUD and a mental illness

20.6% (51.5 MILLION) People aged 18 or older had a mental illness

Source: The National Survey on Drug Use and Health: 2019, Elinore F. McCance-Katz, MD, PhD, Asst. Secretary for Mental Health and Substance Use, Substance Abuse and Mental Health Services Administration, U.S. Dept of Health and Human Services; https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health

SAMHSA Substance Abuse and Mental Health Services Administration

In 2019, **61.2M** Americans had a mental illness and/or substance use disorder-an increase of 5.9% over 2018 composed entirely of increases in mental illness.

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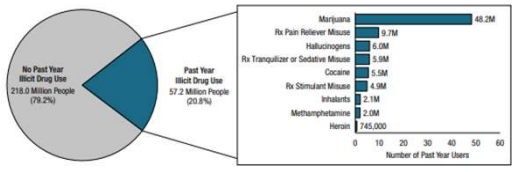
Past Year Illicit Drug Use among People Aged 12 or Older: 2019



Rx = prescription.
Note: The estimated numbers of past year users of different illicit drugs are not mutually exclusive because people could have used more than one type of illicit drug in the past year.

Source: National Survey on Drug Use and Health, 2019

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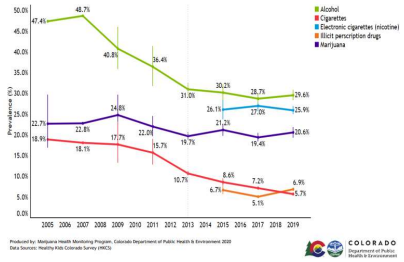
Past 30-day Substance Use Among High School Students, Colorado 2005-2019



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"Novel Drugs"

- Designer Drugs
- Research Chemicals
- Legal Highs
- Psychoactive Substance

Source: G. Sam Wang, MD

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Synthetic Cannabinoids

- K2, Spice, Buddha
- Sold as incense, not for human consumption, aromatherapy
- JWH-018, etc.
- Over 150 known/detected

Source: G. Sam Wang, MD

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NPDS Adolescent Illicit Drug Exposure Calls, 2007-2017

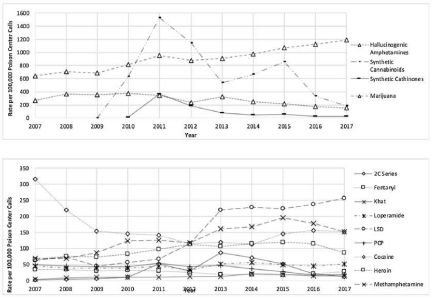

Fig. 1. a. Adolescent drug exposure rate per 100,000 poison center calls among 10-18 years, 2007–2017 (Hallucinogenic amphetamines, Synthetic cannabinoids, Synthetic cathinones, and Marijuana). b. Adolescent drug exposure rate per 100,000 poison center calls among 10-18 years, 2007–2017 (2C, Fentanyl, Khat, Loperamide, LSD, PCP, Cocaine, Heroin, and Methamphetamine).

Source: NG et al. PMID: 31279256

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Resource for Trends

Source: G. Sam Wang, MD

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Overview: Opioid Crisis

- In 2019, nearly 50,000 deaths in the US from opioid-involved overdoses
- Over one death every 10.8 minutes
- Total "economic burden" of prescription opioid misuse alone in the US is $78.5 billion (healthcare, lost productivity, and criminal justice involvement)

Source: CDC

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Prescription Painkillers

- Over-prescription of powerful opioid pain relievers beginning in the 1990s led to a rapid escalation of use and misuse by a broad demographic of men and women across the country

  Source: U.S. Department of Health and Human Services (HHS), Office of the Surgeon General. 2016. Facing addiction in America: The Surgeon General's report on alcohol, drugs, and health. Washington, DC

- About 1/3 of women of reproductive age filled an opioid prescription in 2016

  Source: Home Visiting Improvement Action Center Team. 2016. The emerging crisis of opioid addiction: Implications for home visiting.

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Abuse of Prescription Drugs

- Roughly 21-29% of patients prescribed opioids for chronic pain misuse them
- Between 8-12% of people using an opioid for chronic pain develop an opioid use disorder
- An estimated 4-6% of people who misuse prescription opioids transition to heroin

Source: CDC

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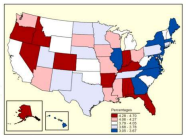
Coloradans and Prescription Pain Medication

4.8% of Coloradans age 12 or older misused prescription pain relievers in the past year …

or about 217,000 Coloradans in this age group

Colorado is still in the top tier of states.



Source: CDPHE

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Opiate Addiction

- Opioids are highly addictive
- Bind to receptors in the brain and create a pleasurable sensation that can lead to complex brain disease

Source: American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women & the American Society of Addiction Medicine. 2017, August. ACOG Committee Opinion No. 711: Opioid use and opioid use disorder in pregnancy

- Individuals with Opioid Use Disorder (OUD) are characterized by having a mild, moderate or severe dependence on a certain illicit opioid drug and/or prescription medication
  - Occurs when the ongoing use of the drug causes a clinical inability to fulfill and experience normal activities and responsibilities

Source: SAMHSA, 2016. *Clinical guidance for treating pregnant and parenting women with opioid use disorder and their infants.*

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Prescription Opiate Addiction

- Withdrawal symptoms are similar to flu like symptoms: body aches, shaking, chills, nausea, vomiting, dry skin, exhaustion
- "Paraphernalia" – tea strainers in room with powder residue – used to crush and rinse coating off pain killers


Source: Lynn Reimer, PhD

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Prescription Painkillers

- Abuse of prescription painkillers associated with increase in heroin use
- Heroin very cheap and easy to get
- Don't start by shooting heroin, usually snort, pop in capsule, smoke



Source: Lynn Reimer, PhD

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Heroin and…

- Heroin on the street is dirty
  - Heroin is being mixed with fentanyl
  - Phillip Seymour Hoffman died of Heroin, Xanax, Cocaine & Methamphetamine
  - Over 80 deaths across US in one month after Hoffman death

- Speed Balls - one takes you up, one takes you down
  - Cocaine + heroin
  - Methamphetamine + heroin –"goof ball"
  - Often result in overdose & death

Source: Lynn Reimer, PhD

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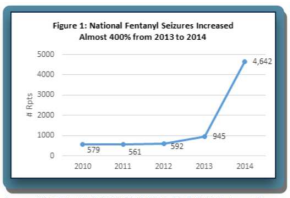
Fentanyl Law Enforcement Seizures

According to the DEA's National Forensic Laboratory Information System (NFLIS), the estimated number of items positive for fentanyl seized by law enforcement nationwide increased by almost 400% from 2013 (945) to 2014 (4,643)



Source: DOJ, DEA. NFLIS 2010, 2011, 2012, 2013, & 2014 Annual Report.

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Abuse of Fentanyl in US

- Synthetic opioid 100 times more potent than morphine, 50 times more potent than heroin
- Just 2 mg can be lethal
- Can be combined with other illicit drugs and sold as powders, sprays, or pressed pills
- Over 150 people die daily from overdoses of synthetic opioids like fentanyl

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Abuse of Fentanyl in Colorado

- In 2016, 912 people in CO died from overdoses, 300 from opioids and an additional 228 from heroin (600 died from Colorado roads) – compared to 23 Coloradoans dying from heroin in 2001
- Every 5 hours and 56 minutes a fatal overdose occurs in Colorado
- Of the 1,659 drug overdose deaths in Colorado last year, nearly 50% invovled fentanyl, up from 37% just one year prior

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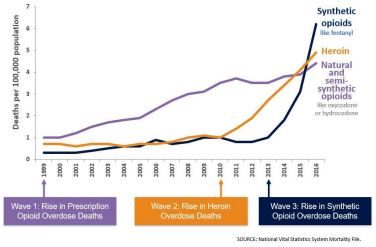
3 Waves of the Rise in Opioid Overdose Deaths



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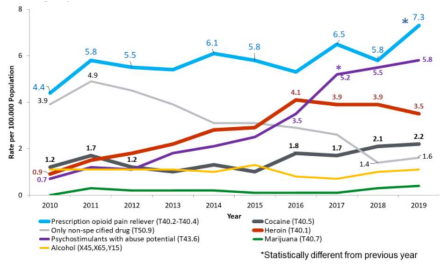
Health Impact: Drug Overdose Deaths

Age-adjusted rates, Colorado residents, 2010-2019



Source: CDPHE

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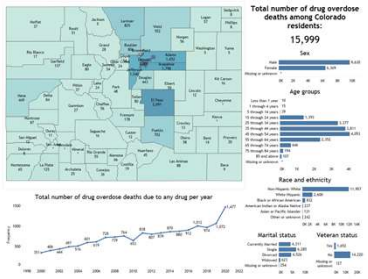
Counts of drug overdose deaths due to any drug in Colorado, 2000-2020



Source: CDPHE

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Overdose Deaths

- In 2016, the number of overdose deaths involving opioids (including prescription opioids and illegal opioids such as heroin and illicitly manufactured fentanyl) was 5x higher than in 1999
- In 2016, on average, 116 Americans died every day from an opioid overdose

  Source: U.S. Department of Health and Human Services. 2018, August. What is the U.S. opioid epidemic?
- In 2009, for the 1st time in the United States, drug overdose deaths outnumbered deaths due to motor vehicle crashes

  Source: Behavioral Health Coordinating Committee. 2013. Addressing prescription drug abuse in the United States: Current activities and future opportunities. Washington, DC: Prescription Drug Abuse Subcommittee, U.S. Department of Health and Human Services.

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Overdose and Naloxone

- Narcon® (Naloxone)
  - Opioid antagonist – FDA-approved
  - Temporarily reverses the effects of overdose
  - Causes rapid withdrawal symptoms
  - Available free to everyone

- Free OpiRescue app – helps recognize the signs of an overdose, find naloxone and use it to reverse, etc.
- May be used by lay people ("at home" use) or by emergency health care providers
- Fentanyl test strips – used to identify presence of fentanyl in unregulated drugs – negative result does not necessarily mean a drug is safe

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Overview - Marijuana

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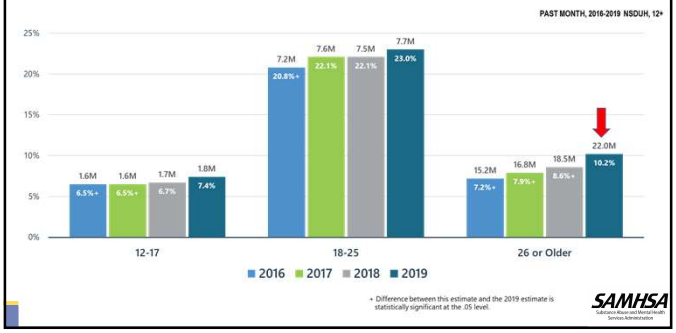
Past Month Marijuana Use for All Age Groups



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Updates in Monitoring Marijuana and Substance Use Trends in Colorado

- Healthy Kids Colorado Survey (HKCS)
  - Every 2 years, self-reported, school-based survey (HS and MS)
  - Largest survey asking about youth substance use in Colorado

Source: Elyse Contreras, Colorado Department of Public Health and Environment

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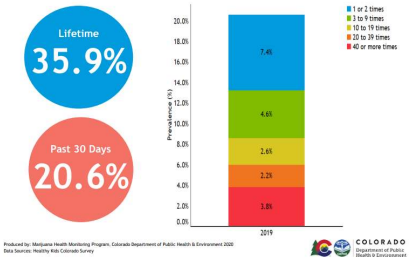
Marijuana use among high school students, 2019



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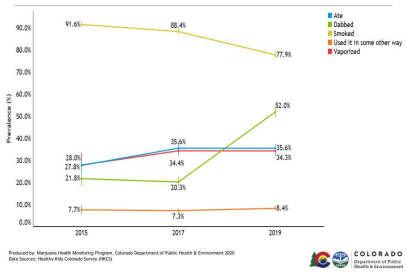
Marijuana method of use among high school students currently using marijuana, 2015-2019



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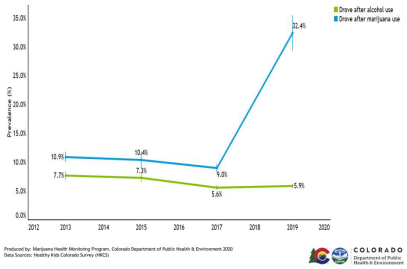
Driving after substance use among high school students, 2013-2019



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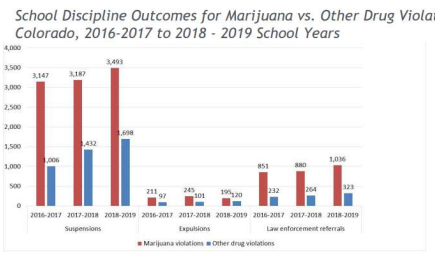
School Discipline Outcomes for Marijuana vs. Other Drug Violations, Colorado, 2016-2017 to 2018-2019 School Years



Source: Colorado Department of Education

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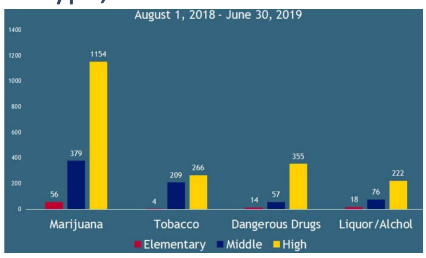
Drug-Related Offenses for Students by School Type, Colorado



Source: Colorado Department of Public Safety; Division of Criminal Justice

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Basics

- Names: *pot, grass, reefer, weed, herb, Mary Jane, or MJ*
- Greenish-gray mixture of the dried, shredded leaves, stems, seeds, and flowers of *Cannabis sativa*
- Contains over 600 chemicals, about 70 of which are cannabinoids
  - THC: Psychoactive, mind-altering effect
  - CBD: Therapeutic, sedative effect

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Methods of Use

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Things to Know

- Topicals are NON-psychoactive
- Raw plant is NON-psychoactive
- **Must heat plant material to temperature that releases active ingredients in THC**
- Eating cannabis is not the same as smoking it

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Diversity of E-Cigarette Products

(Source: Photo by Mandie Milles, CDC)

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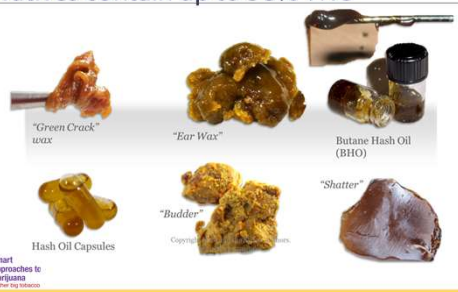
Marijuana is not "just a plant" anymore – derivatives contain up to 98% THC



SAM Smart Approaches to Marijuana preventing another big tobacco

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TABLE 1 Definitions of Dabbing Terminology Used by Users and Patients

References to the substance	
BHO	A THC concentrate created through use of solvents via either open column extraction or a closed-loop system. Products have a much higher THC concentration than traditional flower cannabis. They typically are consumed by placing the product on a heated surface and inhaling the vapors.
Shatter	A form of BHO with a solid, glasslike appearance. It shatters when scraped from the dish. Users consider this a superior form.
Budder	An extract that has a viscous, spreadable texture (this is distinct from cannabis-infused butter, which is ingested rather than inhaled).
Earwax or wax	An extract with a sticky, pasty consistency.
Honeycomb or crumble wax	A crumbly extract with a spongiform appearance and dry texture.
Dabbing	The act of inhaling the vapors from a concentrate.
Dab or glob	The amount of extract used for 1 inhalation (hit). Whereas dabs are standard sized dosages, globs represent unusually large amounts.
Honeybuds	Cannabis buds that have been infused with BHO.

Source: Assessing the Dangers of "Dabbing": Mere Marijuana or Harmful New Trend?, John M. Stogner and Bryan Lee Miller, *Pediatrics* 2015;136,1

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References to paraphernalia	
Oil rig or rig	A water pipe or bong designed specifically to use concentrates, with the bowl replaced by a nail and dome (or by a swing or skillet).
Nail	A hollow rod used in place of a bowl to use concentrates, usually made of titanium (glass and quartz are also used).
Swing or skillet	A small metallic plate or pan clipped with wires to an oil rig and used to smoke concentrates. The plate is heated and then swung to the pipe opening before a concentrate is applied. A swing would be used in lieu of a nail.
Wand, dabber, or pick	A device used to apply concentrates to a heated surface.
Dome or globe	A concave glass cap placed over a hot nail to contain vapors.
Torch	A small blowtorch used to heat a nail or skillet for using concentrates (usually a handheld crème brûlée torch or propane canister).
E-pen	Handheld electric smoking device used for vaporizing extracts.
References to manufacturing	
Open column extraction	Extraction method in which a solvent, such as butane, is passed through a stainless steel or glass cylinder packed with cannabis material, through a screen, and onto a Pyrex dish or tray. The resulting product is then purged of solvent.
Blasting	Slang term for open column butane extraction, often refers to amateur production.
Closed loop system	Extraction method and equipment that recaptures the solvent gas released for reuse, typically associated with commercial or medical production.
Dual extraction method	The pairing of a butane extraction with an alcohol wash. Butane is used as a solvent in the "first run." Alcohol is used for the "second run."
Purging	The act of drawing out any solvents from concentrate (eg, whipping with low heat, vacuum leaching).

Some colloquial definitions are adapted from Black.[7]

Source: Assessing the Dangers of "Dabbing": Mere Marijuana or Harmful New Trend?, John M. Stogner and Bryan Lee Miller, *Pediatrics* 2015;136,1

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Edibles

Edibles
Serving Size = 10mg
Retail Limit = up to 100 mg
Medical Limit = N/A
Onset = 30 min to 4 hour

Smoking
5mg = 2 hits on a joint
35mg = an entire joint
130mg = an eighth ounce
Onset = Instant

Products
Baked Goods – Brownies, Cookies, Cakes, Pies, Granola Bars, Pastries, Nut Clusters
Bulk Foods – Cereal, Granola, Trail Mix, Nuts, Popcorn, Crackers, Baking Mixes
Chocolate – Bars, Truffles, Candy Coatings
Liquid – Cooking Oil, Coffee, Juice, Tea, Soft Drinks, Sauces (Marinara, Wing, Tapenade)
Pills – Capsules, Pressed Pills
Hard Candy – Suckers, Lozenges
Soft Candy – Gummies, Chocolate Chews, Fruit Chews, Licorice, Taffy

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The Industry Today

1. **Kid-friendly:** comes in shapes & colors attractive to children, like **candy and soda**
2. **95%** **Potent:** often made w/ concentrates of up to **95% pure THC** (joints are ~ 15% THC)
3. **$$$** **Aggressive marketing:** free samples, billboard advertising, and other **Big Tobacco tactics**
4. **Contaminants:** In 2015, CO recalled 100s of thousands of edibles containing **banned pesticides**
5. **Fighting regulation:** The pot industry has lobbied hard against regulation (*e.g.*, warning labels, dosing rules, and bans on ads targeting kids)

SAM Smart Approaches to Marijuana preventing another big tobacco

Source: Marijuana Business Journal; other media. Icons: Marianna Nardella; Anton Gajosik; Petra Prgomet; Joey Golaw; Creative Stall; Luis Prado; Aha-Soft

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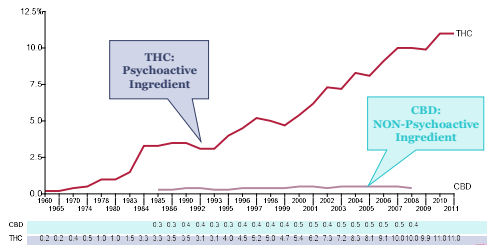
Marijuana has become significantly more potent since the 1960s

Average THC and CBD levels in the United States



Source: Mehmedic et al., 2010

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Potency

- Hundreds of hybrid strains of varying strengths
  - THC Levels 1983: 4% average
  - THC Levels Today: 9-12% average
    - As high as 29% advertised
    - 121% increase from 1999 to 2010
- THC content/potency has been steadily increasing over the past 30+ years
- Concerns that consequences could be worse than in the past, especially among new users or in young people with developing brains
- Do not know all consequences to the brain and body

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Effects on the Brain

- THC binds to specific sites in the brain called cannabinoid receptors (CBRs)
- CBRs are located on the surface of nerve cells
- CBRs are found in high-density areas of the brain that influence pleasure, memory, thinking, concentration, movement, coordination, and sensory and time perception
- Part of a vast communication network called the endocannabinoid system - plays a critical role in normal brain development and function
- TCH effects are similar to those produced by naturally occurring chemicals found in the brain and body called *endogenous cannabinoids* – help control many of the same mental and physical functions disrupted by MJ use
- Over time, overstimulation can alter CBR function and lead to addiction and withdrawal symptoms when use stopped

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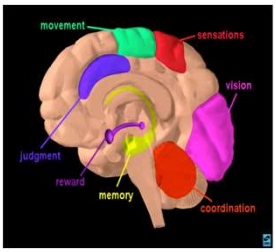
Cannabinoid Receptors Are Located Throughout the Brain and Regulate a Host of Brain Activity

- Brain Development
- Memory & Cognition
- Motivational Systems & Reward
- Appetite
- Immunological Function
- Reproduction
- Movement Coordination
- Pain Regulation & Analgesia

(Source: NIDA)



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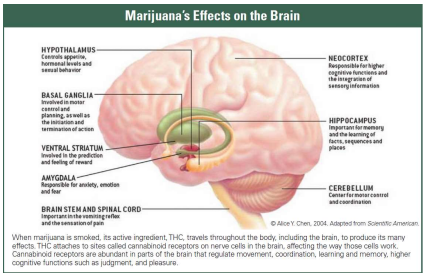
Marijuana Affects the Brain



52

Marijuana Use - Short Term Effects

- Impairs short-term memory
- Impairs attention, judgment, and other cognitive functions
- Impairs coordination and balance
- Increases heart rate
- Altered perception of time
- Occasionally - anxiety, fear, distrust, or panic
- High Doses - acute psychosis, which includes hallucinations, delusions, and a loss of the sense of personal identity

Source: Volkow N, et al. Adverse Health Effects of Marijuana Use. N Engl J Med 2014;370:2219-27.

53

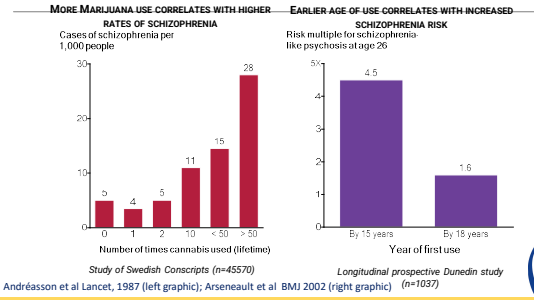
Addiction and Withdrawal

- Addiction
  - Approximately 9% of those who use marijuana will become addicted (according to criteria for dependence in the DSM-IV)
  - 1 in 6 among those who start marijuana use as teenagers
  - Up to 25-50% among those who use marijuana daily
  - 2.7 million people 12 years of age and older met DSM-IV criteria for dependence on marijuana (5.1 million people met criteria for dependence on any illicit drug, 8.6 million met criteria for dependence on alcohol)
- Withdrawal
  - Irritability, Sleeping difficulties, Dysphoria, Craving, Anxiety

Source: Lopez-Quintero C, et al. Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Drug Alcohol Depend 2011;115:120-30.

54

Marijuana Use is Strongly Correlated with Psychosis



Source: Andréasson et al Lancet, 1987 (left graphic); Arseneault et al BMJ 2002 (right graphic)

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Causal Relationship between Marijuana and Mental Illness

Case Reports in Medicine
Volume 2009, Article ID 321456, 2 pages
http://dx.doi.org/10.1155/2009/321456

Case Report

Suicidal Ideation Induced by Episodic Cannabis Use

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Abstract
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3. Discussion

In patient's life, suicidal ideation presented in two different occasions, only immediately after acute cannabis intoxication. This strongly suggests the causal relationship between intoxication and suicidal ideation.

There is a convincing relationship between suicidal behavior and cannabis use, the latter awakening depressive experiences [3]. Rates of cannabis abuse are elevated among those being treated for depression [4, 5] and among those making a suicidal attempt [6]. In a sample of Italian students, the use of cannabis was associated with suicide risk [7]. In a population of French adolescents, cannabis use appeared to be an independent predictor of suicidal ideation after controlling the depressive symptoms [8]. In a cohort study of young Norwegians, cannabis by itself seemed not to lead to depression but was associated with later suicidal thoughts and attempts [9].

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SUMMARY AND COMMENT | PSYCHIATRY, GENERAL MEDICINE

INFORMING PRACTICE

September 12, 2017

Cannabis Use May Be Causally Related to Depression and Suicidal Ideation

Peter Roy-Byrne, MD reviewing Agrawal A et al. Lancet Psychiatry 2017 Sep

In an analysis of twins discordant for frequent cannabis use, common predisposing factors did not fully explain these associations.

Epidemiologic studies have found associations between cannabis use and both depression and suicidality (thoughts or behaviors) but have not determined whether the associations are causal or attributable to confounding factors or common genetic vulnerabilities. To control for common genetic and family environmental factors, researchers examined the associations in 13,986 Australian twins (6181 monozygotic and 7805 dizygotic twins) drawn from three registry studies between 1992 and 2009. Within twin pairs discordant for cannabis use, persistence of the association in the cannabis-using twin would suggest that use is causally related to depression and suicidality.

In the entire sample, early cannabis use and frequent use were associated with major depression and suicidal ideation and attempt. Analyses of twin pairs who were discordant for early versus later or no use did not yield consistent findings. However, within monozygotic twin pairs discordant for frequent versus limited or no use, frequent use was associated with depression (odds ratios; compared with no or limited use, 1.68; compared with lighter use, 1.98) and suicidal ideation (ORs, 2.35 and 2.47, respectively).

COMMENT

This study suggests a causal relationship between frequent cannabis use and both major depression and suicidal ideation. This relationship may be mediated both via effects of the cannabinoid system on mood and via environmental factors related to cannabis use itself (e.g., increased trauma exposure, diminished life opportunities, other associated drug use). The analysis is limited by the possibility that not all confounders were accounted for and by arbitrary thresholds used to define early use and frequency of use. The results provide a counterpoint of caution against the increasing promotion of cannabis use as a therapeutic tool for various medical conditions.

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Causal links between cannabis, schizophrenia: New evidence

Date: December 19, 2016

Source: University of Bristol

Summary: People who have a greater risk of developing schizophrenia are more likely to try cannabis, according to new research, which also found a causal link between trying the drug and an increased risk of the condition.

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These can often present as a "psychotic episode" – which is a relatively sudden worsening of psychotic symptoms over a short time-frame, frequently resulting in hospitalisation.

The heaviest users of cannabis are around four times as likely to develop schizophrenia (a psychotic disorder that affects a person's ability to think, feel and behave clearly) than non-users. Even the "average cannabis user" (for which the definition varies from study to study) is around twice as likely as a non-user to develop a psychotic disorder.

Furthermore, these studies found a causal link between tetrahydrocannabinol (THC - the plant chemical which elicits the "stoned" experience) and psychosis. This means the link is not coincidental, and one has actually caused the other.

SAM Smart Approaches to Marijuana

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Buying & Selling Marijuana

- Be aware of state/local laws
  - (Ex.) Only legal to purchase from regulated medical dispensary or retail marijuana facility
  - May give less than an ounce over 21 without remuneration
- Inherent dangers with home distribution
  - Potential for violence
  - Potential for burglary
  - Organized crime
  - Unpredictable environment
  - Unknown adults

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Marijuana Cultivation Concerns

Presence of:
- Growing rooms
- Processing rooms
- Hash oil labs

Hazards:
- Electrical
- Chemical
- Air quality
- THC
- Mold & fungus

Source: Detective Darren Bloom, Longmont Police Department, 2011

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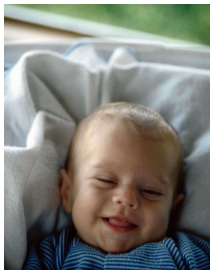
Substance Use and Infants/Children/Youth



- Prenatal exposure and breastfeeding
- Caregiver impairment
- Environmental exposure
- Manufacturing and grows: Toxin/chemicals/molds exposure risk
- Youth use

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Under-Estimation of Cases Infants with Prenatal Substance Exposure (IPSE)

- Social stigma for mothers and families
- Fear
- Unreliability of mothers' self-reports
- Lack of uniformity in hospital policies and procedures for screening, testing, referrals
- Limitations of toxicology testing techniques

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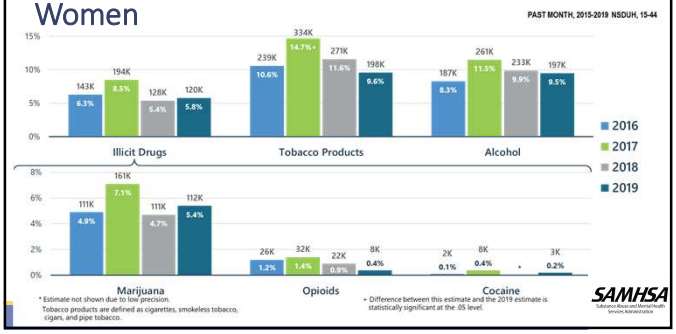
Past Month Substance Use Among Pregnant Women



64

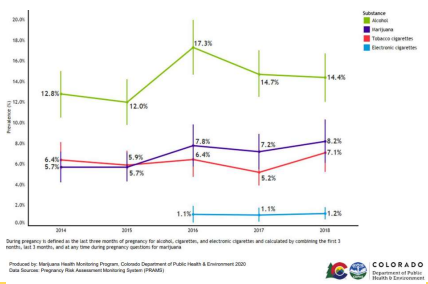
Updates in Monitoring Marijuana and Substance Use Trends in Colorado

- Pregnancy Risk Assessment Monitoring System (PRAMS)
  - Annual survey of women who recently gave birth
  - Mail survey with telephone follow-ups – asks about many risk factors including substance use

Source: Elyse Contreras, Colorado Department of Public Health and Environment

65

Substance use during pregnancy, Colorado 2015-2018



66

Effects Vary Widely

- Effects are variable -- on mother, baby or both
- **Alcohol is most dangerous to fetal brain & body**
- Illegal drugs – data are often confounded by poly-substance use, poverty, violence, genetics, etc.
- Poor prenatal care
- Poor nutrition/poor weight gain
- Good home environment helps

No Safe Amount of Drugs or Alcohol During Pregnancy

Source: *Peds* 129:e540/2/2012

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Timeline of Fetal Development

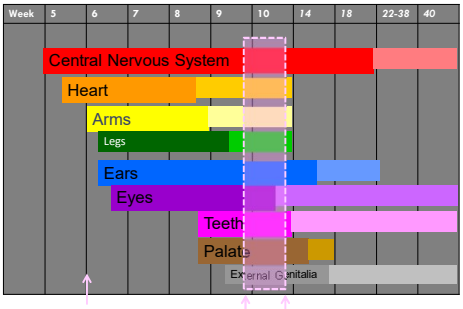

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TABLE 17.1
Possible Clinical Presentations Related to Prenatal Substance Exposure

	Alcohol	Nicotine/Tobacco	Marijuana/THC	Opiates	Cocaine	Methamphetamine
Effect on fetal growth	• Effect on growth must be present to diagnose FASD. • Associated with even moderate levels of exposure.	• Low birth weight and IUGR • Directly proportional to umber of cigarettes smoked • Appears to resolve by 24 mos of age	• Studies limited • May be associated with low birth weight/small for gestational age	• Reported but many confounding variables • Low birth weight due to symmetric IUGR or preterm birth • Microcephaly	• Effect on intrauterine growth demonstrated/ small for gestational age • Decreased head circumference	• Studies limited • Independent effect on fetal growth demonstrated
Congenital anomalies	• Multiple anomalies described throughout the literature • FASD	Weak data for association with oral facial clefts	No clear teratogenic effect	No clear teratogenic effect	Original reports not confirmed	Studies limited
Withdrawal	One study reporting withdrawal symptoms, but not confirmed in longitudinal studies	• No clear withdrawal described • Abnormal newborn behavior consistent with drug toxicity	• No clear withdrawal • Abnormal newborn behavior	NAS	Early reports but not substantiated	No prospective studies available
Neurobehavior in newborn	• Poor habituation and low levels of arousal • Motor abnormalities	Impaired orientation and autonomic regulation and abnormalities of muscle tone	Increased startle and tremors	• Abnormal neurobehavior related to NAS/withdrawal • Subacute/delayed withdrawal	• Irritability and lability of state • Decreased behavioral and autonomic regulation • Poor alertness and orientation	• Abnormal neurobehavioral patterns including poor movement quality, decreased arousal, and increased stress

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TABLE 17.1
Possible Clinical Presentations Related to Prenatal Substance Exposure (*Continued*)

	Alcohol	Nicotine/Tobacco	Marijuana/THC	Opiates	Cocaine	Methamphetamine
Long-term effects	• Significant attention problems from childhood through adulthood • Lower IQ scores • Poorer memory and executive functioning skills • Impaired development and use of language • Variety of significant academic and school problems, primarily deficits in reading and math skills	• Impulsivity and attention problems • Associated with hyperactivity and negative and externalizing behaviors through childhood and into adulthood • Possible abnormalities in learning and memory • Slightly lower IQ scores • Poor language development • Poorer performance on arithmetic and spelling tasks • Increased probability of tobacco use • Experimentation with drugs among adolescents	• Inattention and impulsivity in toddlers • Memory and perceptual problems in older children • Associated with deficits in problem-solving skills that require sustained attention and visual memory, analysis, and integration • Subtle deficits in learning and memory • Associated with academic underachievement, especially in reading and spelling • Associated with behavioral problems	• Hyperactivity and short attention span • Improved developmental scores with appropriate medical and environmental controls	• Some reports of problems, possibly moderated by other risks, such as attention difficulties and oppositional/defiant behavior • Does not predict overall development or IQ scores • Alterations in executive functioning including visual-motor ability, attention, and working memory • Association with subtle language delays	• Possible association with externalizing behaviors and peer problems • Possible association with lower IQ scores

Abbreviations: FASD, fetal alcohol spectrum disorder; IUGR, intrauterine growth retardation; NAS, neonatal abstinence syndrome; THC, tetrahydrocannabinol.

Source: Farst J and Wells KM. Drug Endangered Children. In Child Abuse: Medical Diagnosis and Management. 4th ed. Illinois: American Academy of Pediatrics (2019), eds. Antoinette Laskey and Andrew Sirotnak: 527-563

70

All Exposures = Increased Infant Mortality

- Associated increased risk of SIDS/SUIDS (?)
- Associated risk of positional overlay
- Associated risk of very premature birth and severe complications

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Neonatal Opioid Withdrawal Syndrome (NOWS)

7 newborns were diagnosed with neonatal opioid withdrawal syndrome (NOWS) for every 1,000 newborn hospital stays
- Approximately 1 baby every 19 minutes in the United States
- Nearly 80 newborns diagnosed every day

The number of babies born with NOWS increased by 82% nationally from 2010 to 2017 - increases were seen for nearly all states and demographic groups

Sources: HCUP Fast Stats. Healthcare Cost and Utilization Project (HCUP). September 2021. Agency for Healthcare Research and Quality, Rockville, MD; Hirai AH, Ko JY, Owens PL, Stocks C, Patrick SW. Neonatal Abstinence Syndrome and Maternal Opioid-Related Diagnoses in the US, 2010-2017. JAMA. 2021;325(2):146–155. doi:10.1001/jama.2020.24991

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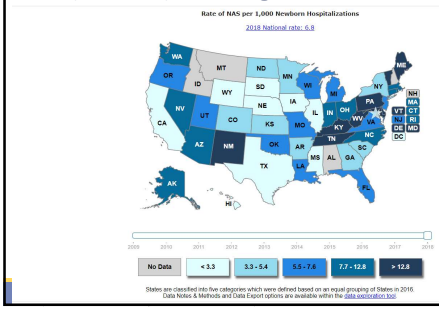
Neonatal Opioid Withdrawal Syndrome (NOWS) Among Newborn Hospitalizations



Source: HCUP Fast Stats. Healthcare Cost and Utilization Project (HCUP). September 2021. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/faststats/nas/nasmap.jsp

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Opiate Use in Pregnancy
Neonatal Opioid Withdrawal Syndrome Treatment

- Historically used modified Finnegan's Neonatal Abstinence Scoring System to monitor – new data on FNASS (Yale New Haven studies)
- Nonpharmacologic support
  - Breastfeeding
  - Skin-to-skin contact
  - Minimizing environmental stimuli
  - Swaddling, swaying, or rocking
  - Promoting adequate rest and sleep
  - Rooming-in
  - Providing sufficient caloric intake to establish weight gain
- Eat, Sleep, Console – a comprehensive care strategy for infants with NOWS that incorporated a standardized stepwise non pharmacologic and pharmacologic approach to NOWS treatment

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Opioid Use and Breastfeeding

- Important intervention
  - If on opioid maintenance
  - Should be encouraged (unless HIV positive, using illicit drugs or have a disease or infection for which breastfeeding is not advised)
  - Less likely to need pharmacologic treatment for NAS
  - Can reduce length of hospital stay
- Only available intervention demonstrated to reduce NAS severity in opioid-exposed newborns

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Marijuana Prevalence Estimates

- Most commonly used illicit drug during pregnancy, and RISING
- 2.4% in 2002 (ages 18-44); almost 4% in 2014
- Study*:
  - From 2009 to 2016, marijuana use based on self-report or urine toxicology among 279,457 pregnant women increased from 4% to 7%
  - Women were almost twice as likely to screen positive for marijuana use via urine drug tests versus self-report (strongly suggesting that marijuana use during pregnancy has been underestimated in self-reported surveys)
  - 22% of adolescents (aged <18) and 19% of young adults (aged 18-24) screened positive for marijuana use in 2016
- 4-5% of women use marijuana during pregnancy (estimates range from 2.5 to 27%)
- 60% of cannabis users continued to use ~10 joints per week throughout pregnancy (60-70% of the level of use the year before)
- Many women reporting cannabis use for nausea and vomiting during pregnancy

*Source: Young-Wolff, K.C., et al. Trends in Self-reported and Biochemically Tested Marijuana Use Among Pregnant Females in California From 2009-2016. *The Journal of the American Medical Association*.

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Marijuana Dispensaries

- 70% of marijuana dispensaries in Colorado recommended THC products to pregnant women
- Medical dispensaries were more likely to recommend marijuana products than retail dispensaries: 83% and 60% respectively

SAM Smart Approaches to Marijuana
preventing another big tobacco

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Marijuana Use in Pregnancy

- Animal research suggests that the body's endocannabinoid system plays a role in control of brain maturation, particularly in the development of emotional responses
- Endocannabinoid receptors are thought to exhibit a cellular distribution map different from adults
- Double-hit hypothesis
- Epigenetic processes and behavioral consequences
- Concern that even low concentrations of THC during prenatal period may have profound and long-lasting consequences for the brain and behavior

(Source: Alpar A, DiMarzo V, Harkany T. Biol Psych 2015)

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MJ Prenatal Effects on Infants/Children

- Highest level of evidence available longitudinal cohort studies - OPPS Study, MHPCD Study, Generation R Study
- Conflicting results on:
  - Differences in birth weight and birth length from marijuana
  - Neonatal development
- Infant behavior – lower memory functioning and verbal scores
- Child behavior – **consistent significant impact as a result of prenatal exposure** – more impulsivity and hyperactivity, inattention, detrimental affect of intellectual development, delinquency, problems in abstract and visual reasoning, depressive symptoms
  - Most common among heavy cannabis users ~ 1 or more joints per day

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CDPHE Statements

- There is no known safe amount of marijuana during pregnancy
- THC can pass from mother to the unborn child through the placenta
- The unborn child is exposed to THC used by the mother
- Maternal use of marijuana during pregnancy is associated with negative effects on exposed children that may not appear until adolescence
  - The most negatively affected are academic ability, cognitive function and attention, which may not become evident until adolescence when these typically develop
- There are negative effects of marijuana use during pregnancy regardless of when it is used during pregnancy

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Marijuana Use While Breastfeeding

- Clinical data suggests marijuana use during breastfeeding may be dangerous for the infant
  - THC is excreted in breast milk
  - Decrease in Infant Motor & Psychomotor Development
- Impact varies based on regular vs. occasional use
- Infants should be closely monitored
- **CDPHE Statement:** THC can also be passed from the mother's breast milk, potentially affecting the baby.
- **AAP Statement:** Breastfeeding is contraindicated for women using marijuana

Source: Aurelia, G, et al, Journal of Toxicology, 2009

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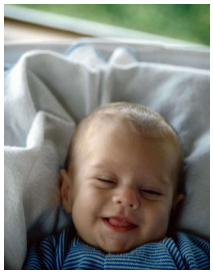
Substance Use and Infants/Children/Youth



- Prenatal Exposure and Breastfeeding
- Caregiver impairment
- Environmental Exposure
- Manufacturing and Grows: Toxin/chemicals/molds exposure risk

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Children in Substance-Abusing Homes

- 8.3 million (12% of U.S. children) live with at least one parent who is alcoholic or in need of substance abuse treatment.

Source: National Survey on Drug Use and Health Report 4/16/2009

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Children of Parents with Substance Abuse Problems

- Have poorer developmental outcomes (physical, intellectual, social and emotional)
- 3X more likely to experience physical, verbal, or sexual abuse
- 4X more likely to be neglected
- 3 to 8X greater risk for substance abuse themselves

(Source: CASA Columbia, 2005)

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Substance Abuse Affects Connection

- Risk of impeding development of the parent-child relationships that are essential for children to thrive
- Mothers may have self regulatory challenges, leading to maladaptive maternal response that interfere with healthy relationships
- Mothers may experience negative outcomes such as struggles with depression and other psychiatric disorders

(Source: Kim, P., & Watamura, S. E. (2015). Two open windows: Infant and parent neurobiologic change. Washington, DC: Ascend, The Aspen Institute.)

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Substance Abuse Affects Parenting

- Impaired attachment
- Impaired judgment and priorities
- Inability to provide the consistent care, supervision, necessities, and guidance children need
- Substance abuse is a critical factor in ~7 out of 10 child welfare cases

Source: *Pediatrics* 2009, 124:285; CASA Columbia, April 1999

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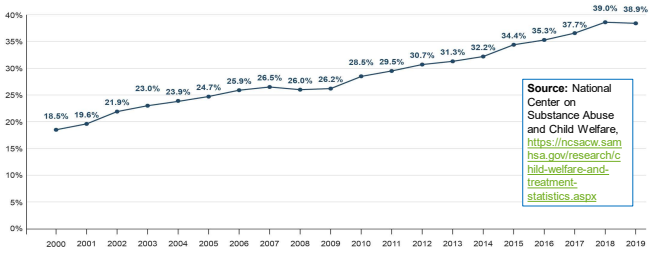
Prevalence of Parental Alcohol or Drug Abuse as an Identified Condition of Removal in the United States, 2019



Source: National Center on Substance Abuse and Child Welfare, https://ncsacw.samhsa.gov/research/child-welfare-and-treatment-statistics.aspx

Note: Estimates based on **all children in out-of-home care at some point** during Fiscal Year

Source: AFCARS Data, 2000-2019

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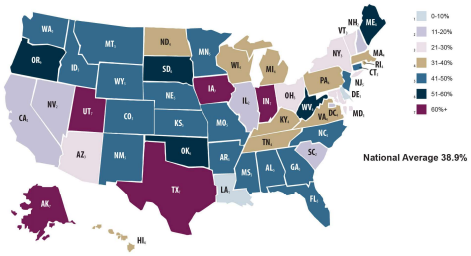
Parental Alcohol or Other Drug Abuse as an Identified Condition or Removal by State, 2019

Source: National Center on Substance Abuse and Child Welfare, https://ncsacw.samhsa.gov/research/child-welfare-and-treatment-statistics.aspx



Note: Estimates based on all children in out-of-home care at some point during Fiscal Year

Source: AFCARS Data, 2019 v1

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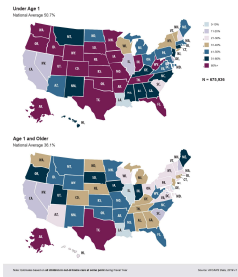
Percent of Children Removed with Parental Alcohol or Drug Abuse as an Identified Condition of Removal by Age, 2019



Source: National Center on Substance Abuse and Child Welfare, https://ncsacw.samhsa.gov/research/child-welfare-and-treatment-statistics.aspx

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Impact on Children

- Impaired Caregivers
  - Lack of Supervision
  - Lack of Necessities
  - Abuse or Neglect
  - Overdoses
- Injurious Environment
  - Access to Drug
  - Access to Paraphernalia
  - Cultivation

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Opioid Dependence and Parenting

- Recent review of 12 studies
- Children of parent with opioid dependence demonstrate:
  - Greater disorganized attachment
  - More avoidance
- Mothers with opioid dependence demonstrate:
  - More irritability, ambivalence, disinterest
  - Greater difficulty interpreting cues

Source: Romanowicz et al. The effects of parental opioid use on the parent-child relationship and children's developmental and behavioral outcomes: a systematic review of published reports. BMC Child and Adolescent Psychiatry and Mental Health 2019;13:5.

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Child Abuse and Neglect

- University of Iowa study (Oral R et al, 2011)
  - Children presenting for alleged child treatment from 2004 – 2008
  - 665 charts met study inclusion criteria for child abuse/neglect allegation
  - 232 cases were tested for illicit drugs per the testing protocol
  - 34 cases (14.7%) tested positive
  - Logistic regression analysis revealed that positive drug testing was most significantly associated with clinical symptoms suggesting physical abuse or neglect, no or public health insurance, history of parental drug abuse, and history of domestic violence
  - Study concluded that routine drug testing of at least children assessed for neglect and non-accidental burn and soft tissue injuries, children with a history of parental drug use or domestic violence is recommended

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Impact on Children

- Impaired Caregivers
  - Lack of Supervision
  - Lack of Necessities
  - Abuse or Neglect
  - Overdoses
- Injurious Environment
  - Access to Drug
  - Access to Paraphernalia
  - Cultivation

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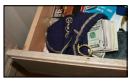
Dealing & Trafficking






Presence of:

- Weapons
- Money
- Packaging
- Paranoia

Exposure to:

- Potential for Violence
- Potential for Burglary
- Organized Crime
- Unpredictable Environment
- Unknown Adults

Source: Detective Darren Bloom, Longmont, co Police Department, 2011

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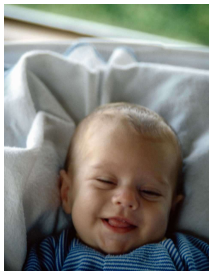
Substance Use and Infants/Children/Youth



- Prenatal Exposure and Breastfeeding
- Caregiver impairment
- Environmental Exposure
- Manufacturing and Grows: Toxin/chemicals/molds exposure risk

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Drug Routes of Entry

- Ingestion – most common - hand to mouth behavior, lack of discretion in ingestion
- Inhalation – smoking
- Absorption – no warning
- Contact – skin and eyes
- Puncture – chemical injection

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Ingestions

- Opioids and sedative-hypnotics such as benzodiazepines are the most common classes of pharmaceutical agents involved with overall ingestions and those that lead to fatality in young children
- Usually unintentional
- Potential for intentional poisoning
  - Most common reported categories are analgesics, stimulants/street drugs, sedatives/hypnotics/antipsychotics, cold and cough preparations, and ethanol
  - History may be lacking

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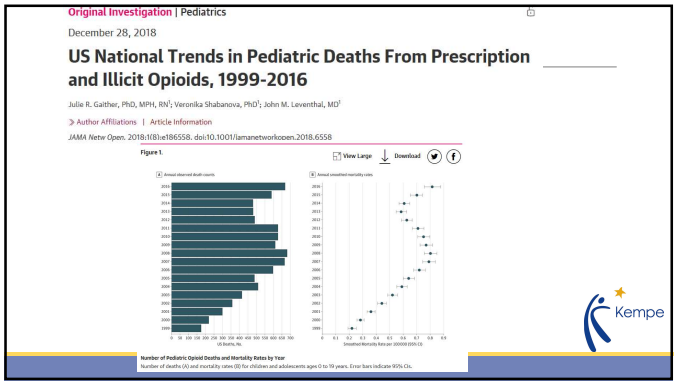
Heroin & Fentanyl injected in candy

- Candy being laced with heroin and fentanyl
- User/ingester becomes very sleepy, groggy
- Breathing can become very shallow
- Death can occur

98



Original Investigation | Pediatrics

December 28, 2018

US National Trends in Pediatric Deaths From Prescription and Illicit Opioids, 1999-2016

Julie R. Gaither, PhD, MPH, RN[1]; Veronika Shabanova, PhD[1]; John M. Leventhal, MD[2]

Author Affiliations | Article Information

JAMA Netw Open. 2018;1(8):e186558. doi:10.1001/jamanetworkopen.2018.6558

Figure 1. View Large Download

Number of Pediatric Opioid Deaths and Mortality Rates by Year

Number of deaths (A) and mortality rates (B) for children and adolescents ages 0 to 19 years. Error bars indicate 95% CIs.

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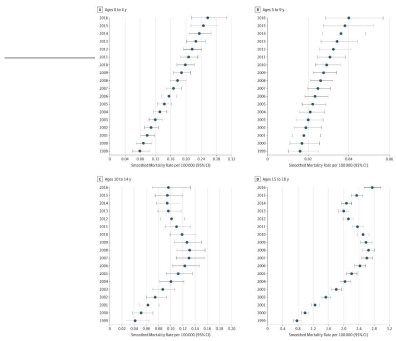

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Marijuana Exposures in Children

Boros et al, 1996
- 2 cases of cannabis-induced coma following accidental ingestion of cannabis cookies

Macnab et al, 1989
- British Columbia's Children's Hospital
- 6 children in 4 years with cannabis toxicity
  - 3 presented in coma, including one with airway obstruction

Appelboem and Oades, 2006
- Reviewed total of 9 cases reported to date
- Youngest recorded case was of an 11-month-old girl

Amirav et al, 2010
- Case of 18-month-old child who presented in coma after ingestion of cannibis

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Marijuana Ingestions Rising

- Legalization, increasing potency, edibles
- Systemic review of the literature describing the clinical effects and outcomes of unintentional marijuana exposures in children – 44 retrospective studies, case series, and case reports (Richards et al)
- Clinical impact is significant compared to other pediatric exposures (Wang et al, 2013)

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Exposure & Ingestion

Colorado Children's Hospital reports an increase in treatment of children (8 mo - 12 yr) for unintentional exposure to marijuana

- 2005 – 2009: 0 marijuana exposures
- 2009 – 2011: 14 marijuana exposures
  - 8 of the exposures were from medical marijuana
  - 7 of the exposures were from marijuana-infused food products
  - 8 admitted, 2 admitted to the pediatric intensive care unit
- Symptoms
  - 9 had lethargy
  - 1 had ataxia
  - 1 had respiratory insufficiency

Source: Pediatric Marijuana Exposures in a Medical Marijuana State; GS Wang, G Roosevelt, K Heard; JAMA Pediatrics, July 2013; 167;7;630-633

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The JAMA Network

From: **Unintentional Pediatric Exposures to Marijuana in Colorado, 2009-2015**

JAMA Pediatr. 2016;170(9):e160971. doi:10.1001/jamapediatrics.2016.0971

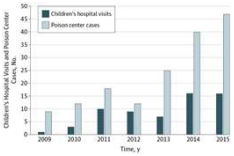

Figure Legend:

State Pediatric Marijuana Exposures - Annual children's hospital visits and regional poison center cases for unintentional marijuana exposures in children 9 years or younger in Colorado between 2009 and 2015. Children's hospital visits include emergency department visits, urgent care visits, and inpatient hospital admissions.

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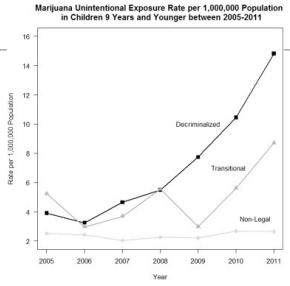

(Source: Wang, et al, 2014)

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Marijuana Exposure Acute Effects in Children

- Sleepiness, euphoria irritability, tachycardia, hypertension
- CNS depression, bradycardia, bradypnea, ataxia, vomiting, seizures
- Small cohort of 38 children presenting to an emergency department for acute marijuana intoxication after ingestion:
  - 3.2 mg/kg of THC led to observation and minimal medical intervention
  - 7.2 mg/kg of THC led to admission to an inpatient floor and moderate medical intervention
  - 13 mg/kg of THC led to admission to an intensive care unit and major medical interventions

Source: G. Sam Wang, MD

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Synthetic Cannabinoids

- Full CB1 Agonist, Variable receptor interactions
- Can have similar THC effects
- Tachycardia, agitation, sympathomimetic
- Seizures, psychosis
- Benzodiazepines, antipsychotics for agitation
- *Undetectable in UDS*

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Methamphetamine Poisoned Kids

- Arizona study
- 18 kids aged < 13 years
- Confirmed oral methamphetamine poisoning
- Drugs left out in easy access to kids
- Agitation (9), inconsolability (6), increased heart rate (18), abdominal pain, vomiting (6), seizures, muscle breakdown, fever (1), ataxia (1)
- Treatment included CT head (5), spinal taps (3), Spider *(Centruroides sculpturatus)* Antivenom (3)
- Anaphylaxis to antivenom (1)

Source: Kolecki, 1998 *Ped Emerg Care* (1998) 14:385-387

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Children Who Ingest Illegal Drugs

Few cases reported in the literature

- 11-month-old boy with irritability and transient cortical blindness/ involuntary turning of the head
- Symptoms resolved after 12 hours
- Mom's history: Found the infant chewing on a small plastic bag
- Tox studies of blood via GC/MS revealed meth value of 88 ng/ml

Source: Gospe SM Jr, *Ann Emerg Med*, 1995, 26:380-2

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Medical Effects on Children

Short-Term

- Similar to adults, but children are not just "small adults"
- Symptoms occur at lower doses (overdoses)

Long Term

- Unknown

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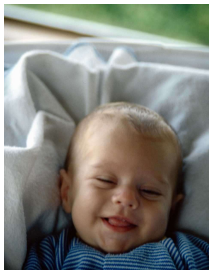
Substance Use and Infants/Children/Youth



- Prenatal Exposure and Breastfeeding
- Caregiver impairment
- Environmental Exposure
- Manufacturing and Grows: Toxin/chemicals/molds exposure risk

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Environmental Hazards

Simulated Methamphetamine Smoking

- Used a standard motel room, smoked 2.45 g in a total of 4 "smokes", with none inhaled.
- Significant meth levels were present in the air during the smoke and present on all surfaces after the smoke.
- If meth has been smoked in a residence, it is likely that children present within that structure will be exposed to airborne and surface meth.

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Growing & Cultivating

Presence of:

- Growing Rooms
- Processing Rooms
- Hash Oil Labs

Hazards:

- Electrical
- Chemical
- Air Quality
- THC
- Mold & Fungus

Source: Detective Darren Bloom, Longmont Police Department, 2011

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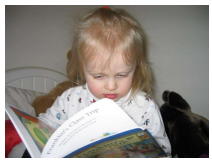
Indications for Testing Beyond the Perinatal Period

- Exploratory ingestions
- Clinical scenarios/physical findings in the child (seizures, altered mental status)
- Known/suspected caregiver substance use
- Illness or injury potentially related to abuse and/or neglect
- Manufacture or distribution in the home



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Testing Protocols

- Drug testing can be used as a tool to guide medical treatment and identify children at risk from factors related to substance use by their caregivers (Farst et al, 2011; Grant et al, 2010)
- Clearly document objective indicator(s) for testing – relate to concern for health and/or safety

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Screening vs Confirmatory Screening

- Screening
  - Urine
  - Immunoassays
- Confirmatory
  - Urine, Blood, Hair
  - Gas or High-Performance Chromatography paired with Mass Spectroscopy

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Urine

Advantages
- Inexpensive
- Commonly available, easy to obtain (low volume)
- Rapid results for immunoassays
- Variation in panel

Disadvantages
- Typically require recent exposure (1-3 days)
- Difficult to correlate with intoxication/symptoms
- Difficult to determine timeline of exposure (outside of acute)
- Commonly available immunoassays have false positives and negatives
- Qualitative (yes/no)

Sources: Goldfrank's Toxicologic Emergencies, 10e, 2015; Moeller KE, Mayo Clin Proc 2017; Smith MP, Clin Lab Med 2016; Hadland SE, Child Adolesc Psychiatr Clin N Am 2016

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Urine Drugs of Abuse Screen at CHCO

- Benzodiazepines
- Opiates
- Barbituates
- PCP
- LSD
- THC
- Amphetamines
- Methamphetamines
- Cocaine
- TCA
- Methadone
- Oxycodone

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Potential Positives/Negatives on Urine Drug Screen

Drug Classification	Potential Positives	Potential Negatives
Amphetamines	ADHD medications Decongestants MDMA Buproprion	
Benzodiazepines	Diazepam Temazepam	Alprazolam Clonazepam Lorazepam
Cannabinoids (Marijuana)	Promethazine Efavirenz	
Opiates	Codeine Heroin Morphine	Semi-synthetic opioids Synthetic opioids
Phencyclidine	Dextromethorphan Ketamine Diphenhydramine	
TCA	Diphenhydramine Quetiapine Cyclobenzaprine	

Source: Goldfrank's Toxicologic Emergencies, 10e, 2015; Moeller KE, Mayo Clin Proc 2017; Smith MP, Clin Lab Med 2016.

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Hair

Advantages
- Subacute or chronic exposure (previous 3-6 months)
- Noninvasive

Disadvantages
- Risk of external contamination
  - *Parent compound: potential contaminant in environment*
  - *Metabolite: evidence for systemic exposure*
- Difficult to clinically correlate
- Difficult to determine timeline of exposure

Source: Curtis J, Clin Toxicol (Phila) 2008

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Blood

Whole blood, serum, plasma - type of blood will depend on specific drug being tested.

Advantages
- Can make better estimate on toxicity, but still need entire clinical picture
- Known literature to help clinically interpret results

Disadvantages
- Invasive
- Expensive
- Not rapid

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Expanded Comprehensive Drug Screens Available

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This Issue Requires that Multiple Agencies Work Together

- Comprehensive services & collaborative relationships
- Provided along a continuum of prevention, intervention and treatment from pre-pregnancy through childhood
- At different developmental stages in the life of the child and family
- Education & Treatment are critical

NO single agency can deliver all of these

Source: Gardner S & Young N, National Center on Substance Abuse and Child Welfare

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Gathering Information

Ask the Parent
- Tell me more about your use. How often? For what purpose? What are you like when you use?
- Where are your children when you use?
- How do you store your marijuana?
- What steps have you taken to protect your children?

Ask Yourself
- Do I believe that the conditions in this home could reasonably result in harm to a child?

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Factors to Consider

- Age & Vulnerability of the Child
- Children's Medical & Developmental Needs
- Accessibility of the Substance
- Sober Caregivers
  - Level of Impairment
  - Use Patterns
  - Presence of Other Caregivers
- Environmental Aspects
  - Second Hand Smoke
  - Cultivation Aspects
  - Distribution Risks
  - Living Conditions
  - Domestic Violence

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Mandated Reporting

- Understand state-specific mandated reporting laws
- Response variability (McGlade, 2009)
  - Identified substance
  - Clinical scenario
  - Environmental Risk

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Involving Child Welfare and/or Law Enforcement

- Mandatory Reporting
  - To have reasonable cause to know or suspect that a child has been abused or neglected
  - To have observed conditions which would reasonably result in abuse or neglect
  - Testing Positive at Birth?
- Illegal Activity
  - Drug Distribution
  - Manufacturing

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Parental Substance Use as Child Abuse

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Key Messages for Parents

- Every child needs an aware, involved, engaged caregiver – parent, grandparent, babysitter
- Provide age appropriate supervision, nutrition, connection
- Crisis Ready – able to respond and ensure child health, safety, and well being in any situation

Safe Sober Caregiver

- Drug & Paraphernalia Storage - lock box, child proof packaging, *stash your stash*
- Environmental Factors – smoke free zone, homes free from drug dealing, meth labs / precursor chemicals, unsafe grows, hash oil labs, violence, strangers, criminal activity

Safe Healthy Home

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Pregnancy
Key Messages

- Anything you eat, drink, smoke or are exposed to can affect your baby
- Talk to your doctor about all medications, supplements, vitamins
- Review ways to stop or reduce use of anything that can negatively affect you or your baby.
- Stopping or reducing use at any point during the pregnancy will benefit both you and your baby.
- Partner's use matters too
- Plan for the future – breastfeeding, caregiving, etc.

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Breastfeeding
Key Messages

- Many of the things you consume, including what you eat, drink or smoke, have the potential to pass through your breast milk to your nursing baby - medications, supplements, alcohol, caffeine, tobacco, marijuana or street drugs.
- Check with your doctor about anything you might take or consume while breastfeeding.
- Use of a substance may also affect your ability to engage, connect, bond and care for your child.
- If you are using any substances, ensure your child always has a safe home, a responsible caregiver, and a sleeping arrangement

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Young Children
Key Messages

- Attending to children's basic needs - food, clothing, shelter, healthcare, and hygiene
- Being within eyesight or earshot of children at all times - napping, sleeping, indoor, & outdoor activities
- Never leaving children home alone or unattended
- Providing clear expectations and rules
- Securing all potential hazards
- Being engaged in meeting child's developmental needs - reading, puzzles, play, other age appropriate activities
- Being physically and mentally capable of responding in case of emergency

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Things to Consider

- Safe Homes
  - Practice Safe Storage, Secure All Hazards, Smoke Free Zones
- Safe Caregivers
  - Be Aware & Know the Risks of Substance Use
  - Choosing a Caregiver
  - Take Care of Yourself & Build Support System
- Healthy Babies & Toddlers
  - Show Your Love
  - Stay Up to Date on Parenting & Child Development
  - Learn How to Calm a Crying Baby
  - Safe Sleep Arrangements
  - Promote Stability

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COVID Therapy!

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THANK YOU

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