Addressing Drug Use within the Adolescent Population

Ramon Solhkhah, M.D.
Chairman, Department of Psychiatry
Jersey Shore University Medical Center
Corporate Medical Director
Meridian Behavioral Health Services
Professor and Founding Chair, Department of Psychiatry & Behavioral Health
Hackensack Meridian School of Medicine at Seton Hall University

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Disclosure

Speakers Bureau for:
- Janssen Pharmaceuticals, Inc.
- Galen Pharmaceuticals

Grant Funding from:
- National Institute on Drug Abuse (NIDA)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- Forest Research Institute
- Alkermes PLC
- Teva Pharmaceutical Industries Ltd.
- Sunovion Pharmaceuticals Inc.
- Pfizer/DCRI

Off-label uses of medications will be discussed.

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Why is drug use important?

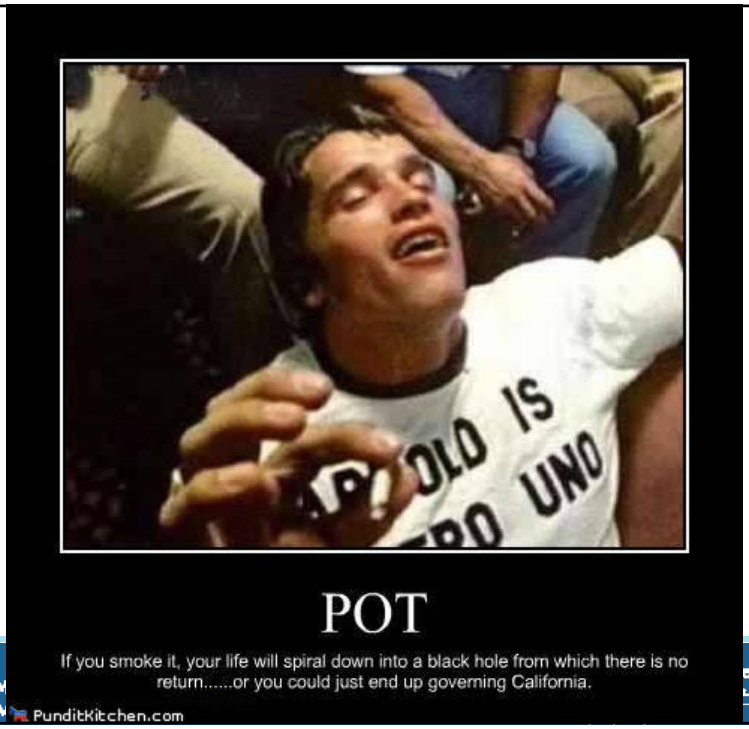
"I don't think it [smoking marijuana] is more dangerous than alcohol."

President Barack Obama
January 19, 2014

Why is drug use important? (cont.)

"As has been well documented, I smoked pot as a kid…"

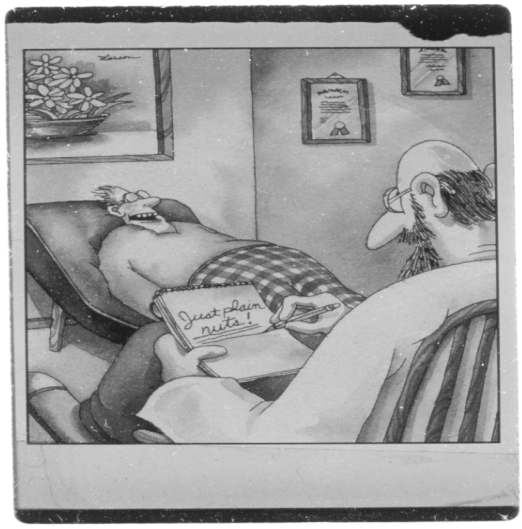
President Barack Obama
January 19, 2014



Learning Objectives

- To appreciate how common adolescent drug use is.
- To develop an understanding of the utility of assessing for AOD use in working with teens and young adults.
- To appreciate the differences in adolescent treatment, as compared to adult treatment, for these substance-related disorders.

Why Teens Use Drugs?



Why is there a Drug Problem?

"I don't know what this medication does... but the commercials for it are really cool!"

"The doctor gave me these zonko pain pills, but I promised him I'd only take them in case of extreme discomfort."

PRINCE
1958-2016
THE NATIONAL Enquirer
WORLD EXCLUSIVE
INSIDE WHITNEY'S
DRUG DEN!
WITH TOM
OVER THE BABY!
MORE PHOTOS INSIDE
PLUS
US WEEKLY
JONES
How I Got Thin!
HOLLYWOOD'S DRUG PROBLEM
Who's using? It's not just who you think. Inside the dark world destroying the lives of today's top stars
AVRIL LAVIGNE
"i'm not party person and i alway wear underwear
Cory Monteith
R.I.P.
(1982-2013)

21 Strains Over 20% THC
HIGH TIMES
Growing Granddaddy Purp
The STRONGEST STRAINS on Earth!
2013
BONANA
1/8 $55 1.2g
BIG FATTY
1/8 $55 1.2g
SILVER
1/8 $50 1g
New Jersey of Children
Hackensack Meridian Health
American Academy of Pediatrics

Monitoring the Future

General themes:

- Adolescent drug use essentially stable since 1996, with slight decreases since 2001.
- Decreases in use of inhalants and hallucinogens.
- +/- changes in the use of ecstasy (MDMA), steroids (10th graders), heroin (12th graders), and cocaine (10th and 12th graders).
- Large increases in prescription drug abuse.

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Monitoring the Future (cont.)

Any illicit drug:

	2016	2008	2000
8th grade:	20% (9%)	20% (8%)	27% (12%)
10th grade:	39% (19%)	34% (16%)	46% (23%)
12th grade:	50% (26%)	47% (22%)	54% (25%)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Monitoring the Future (cont.)

Cigarettes:

	2016	2008	2000
8th grade:	15% (5%)	21% (9%)	41% (15%)
10th grade:	26% (9%)	32% (15%)	55% (24%)
12th grade:	38% (16%)	45% (22%)	63% (31%)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

New Jersey Department of Children and Families | American Academy of Pediatrics

Monitoring the Future (cont.)

Alcohol:

	2016	2008	2000
8th grade:	28% (15%)	39% (16%)	51% (22%)
10th grade:	52% (26%)	58% (29%)	71% (41%)
12th grade:	68% (39%)	72% (43%)	80% (50%)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

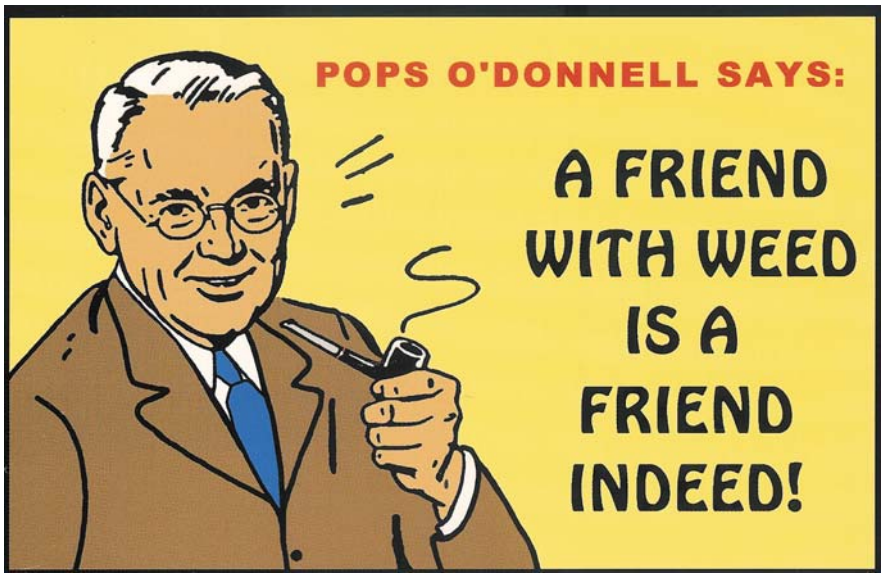
Monitoring the Future (cont.)

Marijuana:

The most widely used illicit drug among teens.

	2016	2008	2000
8th grade:	17% (7%)	15% (6%)	20% (9%)
10th grade:	36% (18%)	30% (14%)	40% (20%)
12th grade:	46% (23%)	43% (19%)	49% (22%)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics



New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

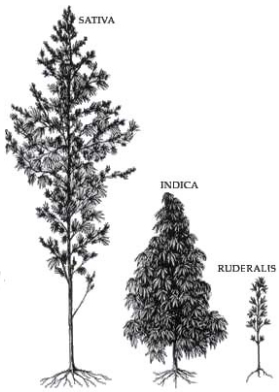
Cannabis

From *Cannabis sativa*

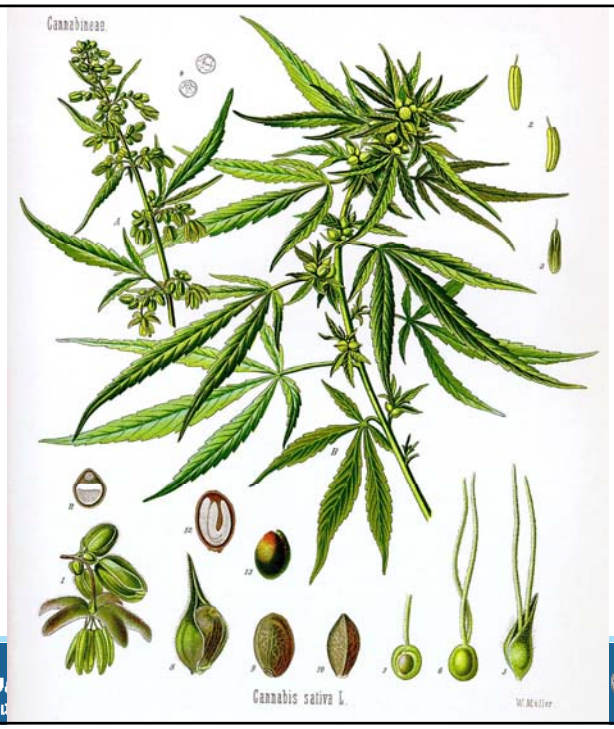
- 60+ cannabinoids in resin
- Δ^9-tetrahydrocannabinol (THC)

Forms:

- Marijuana (dried leaves, stems, flowering tops)
  - Marijuana is a green, brown, or gray mixture of dried, shredded leaves, stems, seeds, and flowers of the hemp plant
  - Schedule I drug
  - Consumption: commonly in rolled cigarettes and hollowed cigars, also orally
  - Potency varies with strain and growing conditions
  - Sinsemilla = withouts seeds, no pollination so highly potent
- Hashish (relatively pure resin or leaf extracts)
  - Consumption: smoked or eaten
  - Potency depends on preparation
  - Hash oil = alcohol extract, highly potent



New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics



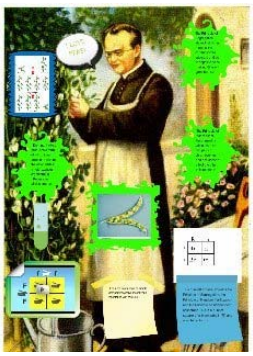
Cannabis (cont.)

Also known as:

- Pot
- Herb
- Grass
- Weed
- Boom
- Mary Jane
- Gangster
- Reefer
- Blunt
- Chronic
- And many others…

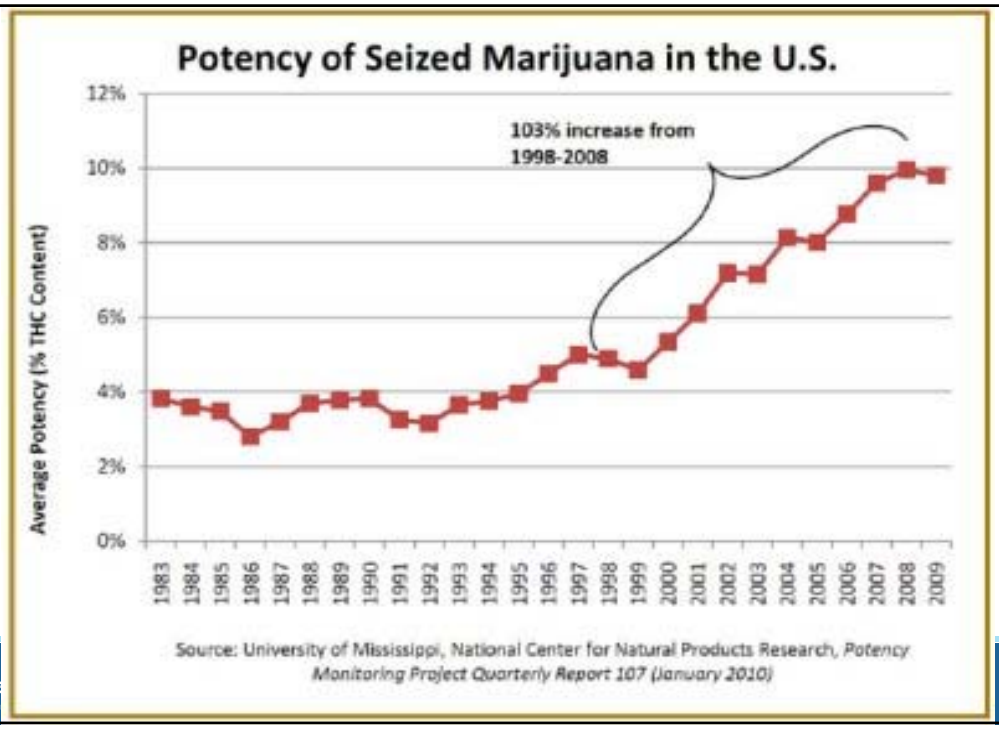
Change in THC Potency

- Marijuana has been altered from its original form with gene manipulation to be more potent. (*Thanks, Gregor Mendel*)
- The potency of Marijuana varies greatly across, and even within, geographic areas.



- Some samples from 2008 were as high as **37.20%**

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics



Symptoms of Chronic Marijuana Use

School Nurses may pick up chronic marijuana use first because of the amotivational syndrome.

Academic issues:

- Procrastination
- Lack of follow through
- Not turning in assignments in time
- Dropping grades
- Missing class etc.

From Kim Poslick, LADC

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Synthetic Marijuana

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Synthetic Marijuana

May be responsible for many deaths in the US (and elsewhere) since 2004.

Structurally related to THC, the active compound in marijuana.

Basically, five types:

- **JWH-018 (1-pentyl-3-(1-naphthoyl)indole)** or **AM-678**
- **JWH-073**
- **JWH-200**
- **CP-47,497**
- **Cannabicyclohexanol – developed by Pfizer in 1979**

Most made in China, India and/or Asia and then routed through Europe

Synthetic Marijuana (cont.)

Dried plant matter is used as the base.
Chemical is dissolved in a liquid then sprayed on plant matter
Mixture is then smoked or ingested.

New Jersey Department of Children and Families · Hackensack Meridian Health · American Academy of Pediatrics

Synthetic Marijuana (cont.)

Sold as herbal incense

- Substances have no odor

Sold as plant food (Bonsai-18)

"Not for human consumption"

Sold at head shops, internet

Schedule I since 2012

Physical Effects

- Disorientation
- Anxiety attacks
- Significant Tachycardia (HR of 120-150)
- Significant Hypertension
- Seizures
- Psychosis (including hallucinations and paranoia)

New Jersey Department of Children and Families
Hackensack Meridian Health
American Academy of Pediatrics

Monitoring the Future (cont.)

Heroin:

	2016	2008	2000
8th grade:	1% (0.3%)	1% (0.4%)	2% (0.5%)
10th grade:	1% (0.3%)	1% (0.4%)	1% (0.5%)
12th grade:	1% (0.3%)	1% (0.4%)	1% (0.7%)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Monitoring the Future (cont.)

Narcotics (other than heroin):

	2016	2008	2000
8th grade:			
10th grade:			
12th grade:	11% (3%)	13% (4%)	13% (3%)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Good news?

Few progress to substance abuse or dependence.

- 3-9% drug abuse/dependence
- 5-8% alcohol abuse/dependence

Risk Factors

Genetic:

- Child of a substance abuser

Constitutional:

- Early first use (<15 years old)
- Chronic pain and disability
- Physiologic factors

Psychological:

- Psychiatric diagnosis
- History of physical/sexual/emotional abuse
- History of attempted suicide

New Jersey Department of Children and Families · Hackensack Meridian Health · American Academy of Pediatrics

Risk Factors (cont.)

Sociocultural:

- Family
- Peers
- Schools
- Community

Medical Assessment

- In-depth drug use history
- Thorough psychiatric evaluation
- Physical examination
- Laboratory analysis
- Screening instruments

Medical Assessment (cont.)

Remember: Query multiple information sources to assess history, as well as current functioning.

Medical Assessment (cont.)

Begin by meeting with family together (Why are we here today?)

Explain CONFIDENTIALITY.

Interview adolescent without parents present.

Begin with "easy" topics: home, school, friends, activities.

CRAFFT

Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?

Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?

Ever use alcohol/drugs while you are by yourself, ALONE?

Do any of your FAMILY or FRIENDS ever tell you that you should cut down on your drinking or drug use?

Do you ever FORGET things you did while using alcohol or drugs?

Have you ever gotten into TROUBLE while you were using alcohol or drugs?

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Laboratory Measures

Urinalysis (for drugs of abuse)

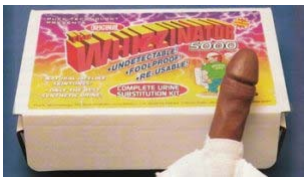
- Accurate when samples collected properly.
- Limited by relatively short detection periods (except for chronic marijuana use).

Serum Toxicology

Hair Analysis

Saliva Analysis

Breathalyzer



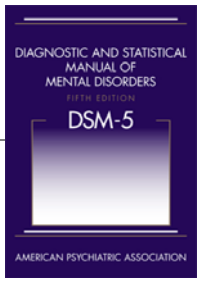
New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Definitions

Use:	At least once (usually defined as within the past 30 days, past year, or lifetime)
Misuse:	Emergence of a pattern of use
Abuse:	Pattern of misuse with impairment and/or consequences
Dependence:	Pervasive pattern of misuse ("Addiction") with associated impairment, inability to control use, use despite consequences, and physiologic symptoms (i.e. withdrawal)

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Definitions (cont.)



Substance Use Disorder:

A generic term that incorporates substance abuse, dependence, and "diagnostic orphans."

Why use SUD? Because the DSM-IV-TR/5 criteria are based on adults, not adolescents.

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

DSM-5 Cannabis Use Disorder

A. A problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month:

1) Cannabis is often taken in larger amounts or over a longer period than was intended.
2) There is a persistent desire or unsuccessful efforts to cut down or control cannabis use.
3) A great deal of time is spent in activities necessary to obtain cannabis, use cannabis, or recover from its effects.
4) Craving, or a strong desire or urge to use cannabis.
5) Recurrent cannabis use resulting in a failure to fulfill major role obligations at work, school, or home.
6) Continued cannabis use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the cannabis.

Cannabis Use Disorder (cont.)

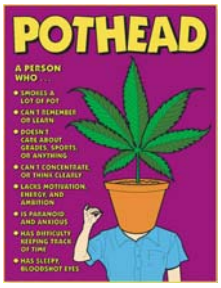
7) Important social, occupational, or recreational activities are given up or reduced because of cannabis use.
8) Recurrent cannabis use in situations in which it is physically hazardous.
9) Continued cannabis use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis.
10) Tolerance, as defined by either of the following:
    a) A need for markedly increased amounts of cannabis to achieve intoxication or desired effect.
    b) A markedly diminished effect with continued use of the same amount of cannabis.

Cannabis Use Disorder (cont.)

11) Withdrawal, as manifested by either of the following:

a) The characteristic withdrawal syndrome for cannabis (refer to Criteria A and B of the criteria set for cannabis withdrawal).

b) Cannabis (or a closely related substance) is taken to relieve or avoid withdrawal symptoms.



Cannabis Use Disorder (cont.)

Current Severity:

Mild (305.20):	2-3 symptoms
Moderate (304.30):	4-5 symptoms
Severe (304.30):	6 or more symptoms

Course Specifiers:

In Early Remission

In Sustained Remission

In a Controlled Environment

Addiction vs. Dependence

Dependence refers to a state resulting from habitual use of a drug, where negative physical withdrawal symptoms result from abrupt discontinuation.

Drug addiction is a condition in which an individual has lost the power of self-control with reference to a drug and abuses the drug to such an extent that the individual, society, or both are harmed.

The key is that addiction results when the **reward pathways** in the brain are stimulated by drug use thereby causing dependence due at least in part to psychological reasons.

Dependence implies the need of the drug to avoid withdrawal symptoms, not to gain a reward response in all cases.

Cannabis Intoxication (292.89)

A. Recent use of cannabis

B. Clinically significant problematic behavioral or psychological changes (e.g., impaired motor coordination, euphoria, anxiety, sensation of slowed time, impaired judgment, social withdrawal) that developed during, or shortly after, cannabis use.

C. Two (or more) of the following signs, developing within 2 hours of cannabis use:

1) Conjunctival injection

2) Increased appetite

3) Dry mouth

4) Tachycardia

D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication with another substance.

Specify if With Perceptual Disturbances

Cannabis Withdrawal (292.0)

A. Cessation of cannabis use that has been heavy and prolonged (i.e. usually daily or almost daily use over a period of at least a few months).

B. Three (or more) of the following signs and symptoms develop within approximately 1 week after Criterion A:

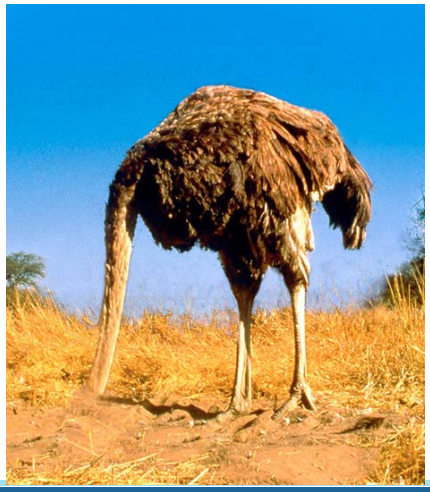
1) Irritability, anger, or aggression
2) Nervousness or anxiety
3) Sleep difficulty (e.g. insomnia, disturbing dreams)
4) Decreased appetite or weight loss
5) Restlessness
6) Depressed mood
7) At least one of the following physical symptoms causing significant discomfort: abdominal pain, shakiness/tremors, sweating, fever, chills, or headache.

C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal with another substance.

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

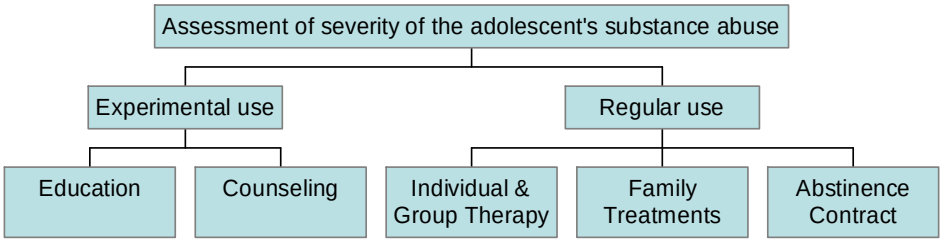
So… What to do?



New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

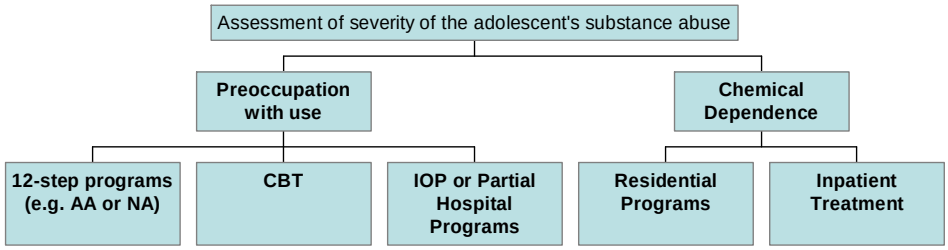
Adolescent Substance Abuse Decision Tree

From Steven Jaffe, M.D.



Adolescent Substance Abuse Decision Tree (cont.)

From Steven Jaffe, M.D.



Treatments for Adolescent and Young Adult SUD

- Cold Turkey
- Psychosocial Treatments
  - CBT
  - Family Interventions
  - Multisystemic Therapy (MST)
  - 12-step groups (AA, NA, etc.)
  - Residential Treatment, including TCs
- Psychopharmacologic interventions

The "Cold Turkey" Approach

Allows for the natural progression of the signs and symptoms of cannabis withdrawal without the use of medications.

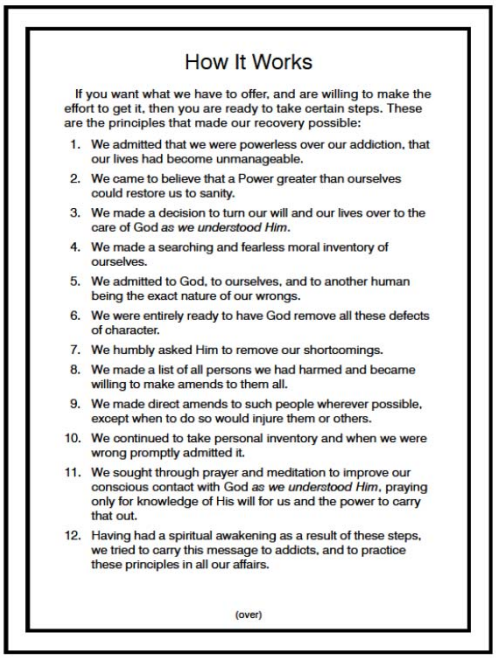
Symptoms generally begin about five to seven days after last cannabis use.

The symptoms increase in severity over the next several days, and can persist for weeks (months?).

Psychosocial Treatments

Cognitive-behavioral therapy
Behavioral therapy, particularly Contingency Management
Psychodynamic/interpersonal
- Rarely psychoanalysis
- Generally requires 1-year of sobriety prior to initiation

Group and Family therapy (e.g. Network Therapy)
Self-help Fellowships: AA, NA, MA
Therapeutic Communities



How It Works

If you want what we have to offer, and are willing to make the effort to get it, then you are ready to take certain steps. These are the principles that made our recovery possible:

1. We admitted that we were powerless over our addiction, that our lives had become unmanageable.
2. We came to believe that a Power greater than ourselves could restore us to sanity.
3. We made a decision to turn our will and our lives over to the care of God *as we understood Him*.
4. We made a searching and fearless moral inventory of ourselves.
5. We admitted to God, to ourselves, and to another human being the exact nature of our wrongs.
6. We were entirely ready to have God remove all these defects of character.
7. We humbly asked Him to remove our shortcomings.
8. We made a list of all persons we had harmed and became willing to make amends to them all.
9. We made direct amends to such people wherever possible, except when to do so would injure them or others.
10. We continued to take personal inventory and when we were wrong promptly admitted it.
11. We sought through prayer and meditation to improve our conscious contact with God *as we understood Him*, praying only for knowledge of His will for us and the power to carry that out.
12. Having had a spiritual awakening as a result of these steps, we tried to carry this message to addicts, and to practice these principles in all our affairs.

(over)

12 Steps

12-step Facilitation

As a HCP working with students who may be connected to AA/NA, you should:

- Inquire about how many meetings are they attending?
- Do they have a home group?
- Do they have a sponsor?
- What step are they working on?

Pharmacotherapeutic Strategies

Pharmacotherapeutic strategies for treating adolescents with SUDs include:

Craving Reduction

Substitution Therapy

Aversive Therapy

Treatment of Underlying Psychiatric Conditions

Kaminer Y. Issues in the Pharmacological Treatment of Adolescent Substance Abuse. *Journal of Child and Adolescent Psychopharmacology* 5:93-106, 1995.

Treatment of Underlying Psychiatric Conditions

Evidence suggests that some people (including adolescents) may use alcohol and/or drugs to self-medicate distressing mental states associated with underlying psychiatric conditions.

Khantzian EJ. The Self-medication Hypothesis of Substance Abuse Disorders: A Reconsideration and Recent Applications. *Harvard Review of Psychiatry* 4:231-244, 1997.

Psychiatric Disorders

In general, studies of treatment-seeking SUD adolescents reveal:

50-90% have a non-SUD co-morbid psychiatric disorder

Difficulty exists in making the diagnosis due to overlap of symptoms (e.g. inattention, distractibility, loss of control, mood swings).

What about Substance-Induced Disorders?

New Jersey Department of Children and Families | Hackensack Meridian Health | American Academy of Pediatrics

Safety and Monitoring

No consensus on when to initiate treatment.

Concerns over drug interactions and adverse effects when psychoactive medications combined with illicit drugs.

Case report of interaction between marijuana and TCA's.

Wilens TE et al. Case Study: Adverse effects of Smoking Marijuana While Receiving Tricyclic Antidepressants. *Journal of the American Academy of Child and Adolescent Psychiatry* 36:45-48, 1997.

Conclusions

The use of medications in pediatric SUD is still an emerging field, with few studies to help inform treatment.

When used, medications should be a part of a comprehensive bio/psycho/social treatment plan.

Careful monitoring is warranted (including both routine and random drug testing).

If you don't ask, they won't tell…

Conclusions (cont.)

The Pediatric Psychiatry Collaborative is always available for questions and consultations.

Meridian Behavioral Health Services can help through our Addiction and Recovery Service (ARS).

- 2 locations:
  - RMC – Booker Behavioral Health Center (Shrewsbury)
  - JSUMC – Parkway 100 (Neptune)
- To make an appointment, (732) 643-4400, option #2

New Jersey Department of Children and Families · Hackensack Meridian Health · American Academy of Pediatrics

Questions?

- My contact info:

(732) 776-4930 or
ramon.solhkhah@hackensackmeridian.org