



# Seeing the Flower in the Weeds

## Cannabis and Youth

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## Financial Disclosures

- We have no financial interests or relationships to disclose.



## Learning Objectives

- Outline current trends of cannabis use.
- Highlight screening tools to evaluate for substance use in youth.
- Understand the endocannabinoid system and interaction with cannabis use.
- Recognize the cognitive impact of cannabis use in youth.
- Become familiar with common psychiatric comorbidities associated with cannabis use.
- Share evidence-based interventions and available resources in our communities.



## Clinical Case

- 14 yo female lives with mother, younger sister, and brother in SE Portland, who is in the 9<sup>th</sup> grade, is brought in to see her primary care provider by her mother due to anxiety resulting in poor school attendance.
- Mother has tried to get her into see therapist but no one has openings.
- Patient reports anxiety attacks daily that are exacerbated when thinking about going to school.
- Mom shares that she has attended school sporadically over the past several months and spends much of her time isolated in her room or out with friends. She has a couple friends whom mother feels are negative influences. Not following rules and increase in conflict with mother and siblings.
- Patient endorses cannabis use on self report screener.

## Keeping Up with the Language

- Weed
- Tree
- Flower
- Herb
- Ganja
- MaryJane
- Blunt
- Oil
- Glass
- Wax
- Fire
- Edibles
- Blazing
- Cheeching
- Smoking trees
- Vaping
- Dabbing



# How Are Youth Using Cannabis?

	8th	11th
During the past 30 days, if you used marijuana, how did you use it?		
Smoked it (in a joint, bong, pipe, blunt)	80.0	74.5
Vaporized it (e.g., vapor pen)	43.3	47.8
Ate it (in brownies, cakes, cookies, candy)	31.7	33.1
Drank it (tea, cola, alcohol)	4.9	6.7
Dabbed it	32.8	28.1
Used in some other way	3.6	3.6

## Vaping and Dabbing

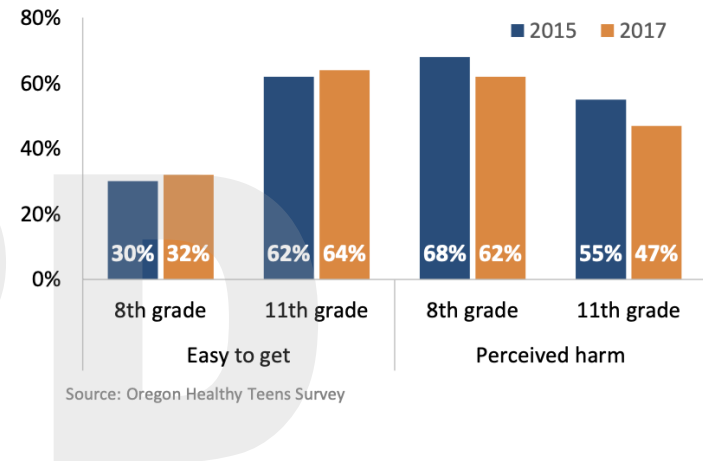
- Nationally teen cannabis vaping doubled between 2013 and 2020
- Higher potency
  - Cannabis flower 15-25% THC
  - Concentrates 60-90% THC
- Safety concerns
  - Perception that safer method of administration
  - Limits on regulation
  - Extraction process - highly concentrated
    - Dependency
    - Additives - Vit E Acetate
    - Pesticides
- Discreet - easy to use and not get caught



## Perceptions of Harm

- Regular marijuana use is perceived as less harmful compared to smoking a pack of cigarettes per day, binge drinking, daily consumption of alcohol, or misuse of prescription drugs.
- Comparing perception of risk of substances among 11th graders:
  - Cigarettes - 79.9%
  - E-cigarettes/vape pens - 36.2%
  - Daily alcohol - 55.6%
  - Binge drinking - 74.8%
  - Marijuana use - 36.6%
  - Prescription drug misuse - 84.0%

Figure 6. Perceived ease of access and harm among Oregon youth, 2017





## Screening

- Start early - recommend starting at age 11.
- Multiple substance use screening tools available.
  - CRAFFT, S2BI, BSTAD
- Screen and treat for other mental health diagnosis.
  - Anxiety
    - GAD 7 (13 and older)
    - SCARED (8-18) self report and parent version
  - Depression - PHQ A
  - ADHD - Vanderbilt scales (parent and teacher)
  - PTSD - Civilian PTSD checklist



## Substance Use Screening Tools

- Brief Screener for Alcohol Tobacco and other Drugs (BSTAD)
  - Frequency of use in past year by friends and self.
  - 12-17
- Screening to Brief intervention (S2BI)
  - Frequency of using eight types of drugs in the past year
  - 12-17
- CRAFFT: Car, Relax, Alone, Forget, Friends, Trouble
  - Adolescent validated analog to adult screener CAGE
  - Under age 21
- High sensitivity and specificity for identifying use and disorders
- ASK about VAPING

# BSTAD



<p>In the past year did you have friends who...</p> <p>In the past year did you...</p> <ul style="list-style-type: none"><li>- Use tobacco products</li><li>- Drink alcohol</li><li>- Use illicit substances or misuse prescription medications</li></ul>	No	Yes
<p>If personal drug use is endorsed then more specific questions are asked about type: cannabis, cocaine, heroin, methamphetamine, hallucinogens, inhalants.</p>		
<p>For each substance where use was endorsed ask: In past 30 days on how many days did you use... In past 90 days on how many days did you use... In past year on how many days did you use...</p>	___ days	

# S2BI\*



## S2BI: SCREENING TO BRIEF INTERVENTION

In the past year, how many times have you used:

- **Tobacco?** (Cigarettes, e-cigarettes, vapes etc.)
- **Alcohol?**
- **Marijuana?** (Smoked, vaped, edibles, etc.)

**STOP** if all “Never.” Otherwise **CONTINUE**

- **Prescription drugs that were not prescribed for you** (pain medication, Adderall, etc.)
- **Illegal drugs?** (Cocaine, Ecstasy, etc.)
- **Inhalants?** (Nitrous oxide, etc.)
- **Herbs/synthetic drugs** (Salvia, K2, bath salts, etc.)

- Never**
- Once or twice**
- Monthly**
- Weekly or more**

In the past year, how many times have you used:  
Tobacco? Alcohol? Marijuana?



C  
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<b>Part A: During the PAST 12 MONTHS, did you:</b>		No	Yes
1.	Drink any <u>alcohol</u> (more than a few sips)? (Do not count sips of alcohol taken during family or religious events.)		
2.	Smoke any <u>marijuana</u> or <u>hashish</u> ?		
3.	Use <u>anything else</u> to <u>get high</u> ? ("anything else" includes illegal drugs, over the counter and prescription drugs, and things that you sniff or "huff")		
<b>Part B: CRAFFT</b>		No	Yes
1.	Have you ever ridden in a <b>CAR</b> driven by someone (including yourself) who was "high" or had been using alcohol or drugs?		
2.	Do you ever use alcohol or drugs to <b>RELAX</b> , feel better about yourself, or fit in?		
3.	Do you ever use alcohol or drugs while you are by yourself, or <b>ALONE</b> ?		
4.	Do you ever <b>FORGET</b> things you did while using alcohol or drugs?		
5.	Do your <b>FAMILY</b> or <b>FRIENDS</b> ever tell you that you should cut down on your drinking or drug use?		
6.	Have you ever gotten into <b>TROUBLE</b> while you were using alcohol or drugs?		



## Clinical Case Continued

- CRAFTT
  - Positive screen with total score of 2.
    - Uses weed to feel better.
    - Uses weed alone.
- GAD 7
  - Elevated score indicating severe level of anxiety.
- History
  - No in utero exposure to substances.
  - Biological father left at age 5 and has had limited involvement.
  - Single mother, works a lot and patient has had to help care for siblings.
  - Family history of anxiety and substance use.
  - Sexual assault last year but never shared with mother.
  - Historically did well in school and played basketball but decided not to play and failing most classes.
  - Started using marijuana occasionally in 7th grade with increase this past year to daily use. Using flower and vapes.
  - Endorses cutting and passive suicidal ideation.

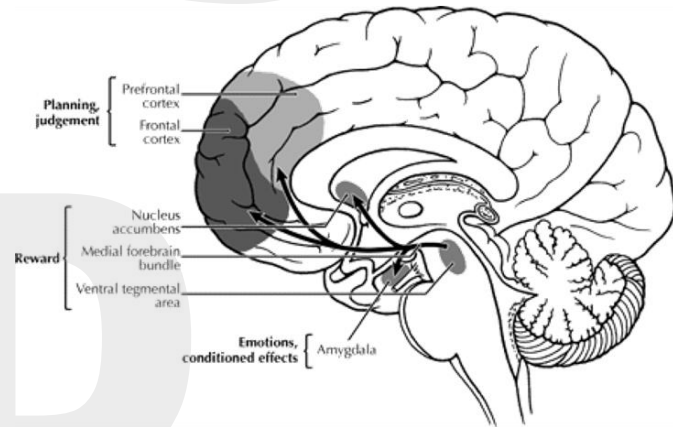


## Clinical Case Continued

- Harm reduction approach
  - Does the patient think there is a problem? What are her concerns?
  - Does she want to change and what are her goals?
- Critical piece: why is she using?
  - How does it help? What does it help with?
  - Are there any concerns related to that use?
- Compassion / Connection
- Patient perspective
  - She does not think her cannabis use is problematic. She feels it is helping her.
  - She does not like how anxious she is and that she has a hard time falling asleep and staying asleep. She reports nightmares and intrusive memories.
  - Eventually shares that she feels sad that there is so much conflict with her mom and her siblings. She feels really overwhelmed with everything.

# Adolescent Brain Development

- Brain Development
  - Amygdala develops faster than prefrontal/frontal cortex
    - Amygdala - emotional center, more reactive
    - Frontal cortex - controls reasoning, impulse control and planning
- Dopamine
  - Neurotransmitter associated with pleasure
  - Dopamine more robust in brain during adolescence
    - Increase pleasure associated with reward
- Huge amount of neuron development and pruning
  - Gray matter volume decreases
  - White matter volume increases
  - More vulnerable to stress



# Neurobiology of Cannabis Use

- Cannabis affects reward pathway similar to other drugs.
  - Mesolimbic dopamine pathway
  - Corticolimbic system
    - Reward/pleasure pathway connected to memory/learning and emotional centers.

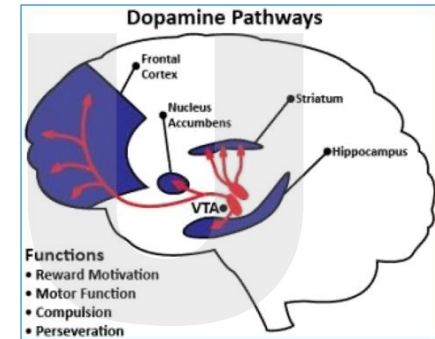
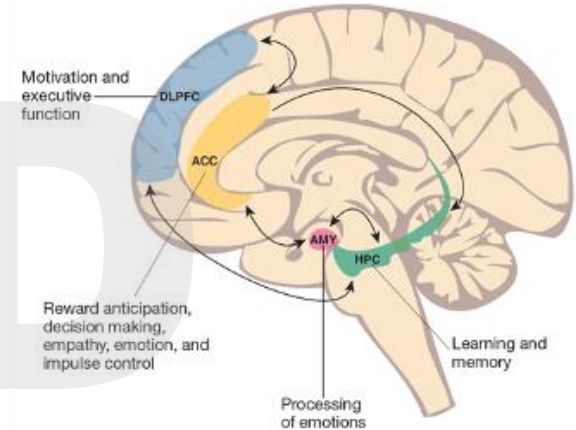


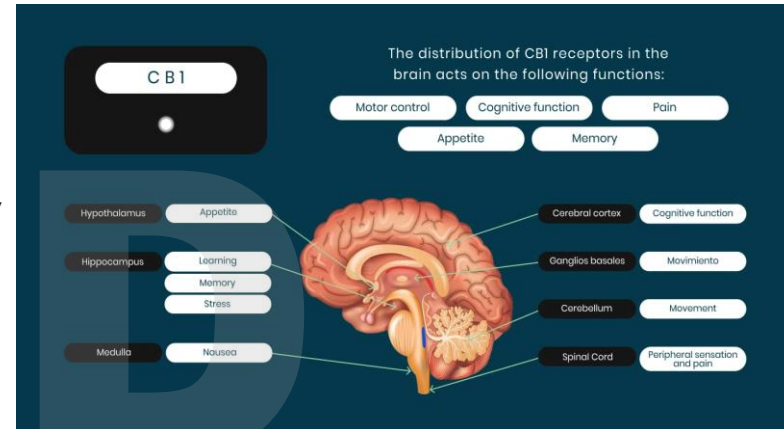
Figure 1. Corticolimbic system



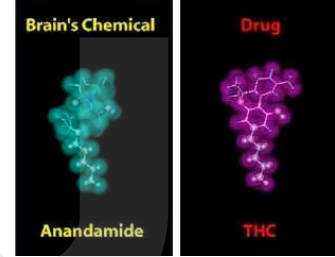
DLPFC, dorsolateral prefrontal cortex; ACC, anterior cingulate cortex; AMY, amygdala; HPC, hippocampus.

# Endocannabinoid system

- Natural cannabinoids
  - Agonists: Anandamide (AEA) and 2-arachidonoyl glycerol (2AG)
  - Receptors CBI and CB2
    - CB1 primarily in CNS with high density in hippocampus, striatum, cortex and amygdala.
    - CB2 primarily in peripheral immune cells and tissues.
- Functions: reward, memory, stress regulation and pain.

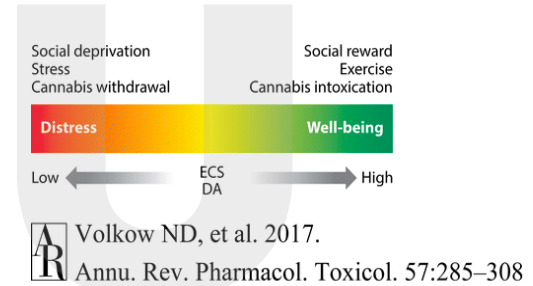


# Neurobiology of Cannabis Use



- THC and CBD – most common cannabinoids and mimic endocannabinoid agonists.
  - THC more active at CB1 and is psychoactive.
    - Effects are more prolonged than those of endocannabinoids.
    - Acute intoxication:
      - Euphoria, increase hunger, decrease pain, decrease nausea, relaxation, memory impairment, alter time perception, decrease motor coordination, anxiety and paranoia.
      - Dry mouth, red eyes, increase HR.
  - CBD more active at CB2 receptor and not psychoactive
    - Effects: decrease anxiety, decrease pain, decrease inflammation.

# Neurobiology of Cannabis Use



- Neuroadaptation
  - Receptors downregulate within 14 days of daily use.
    - As much as 24% reduction.
  - Animal and human studies show withdrawal patterns.
    - Anger, aggression, decreased appetite or weight loss, irritability, anxiety, restlessness, sleep difficulties including strange dreams.
  - Decreased signaling in endocannabinoid system may contribute to increased sensitivity to stress and negative mood states.

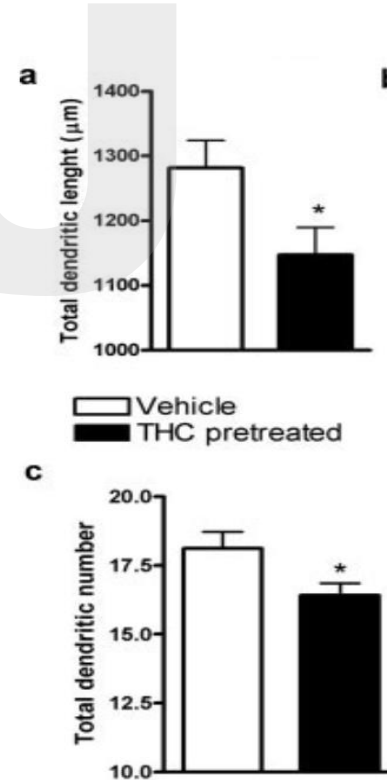


## Cognitive Impact of Cannabis Use

- Increased vulnerability related to adolescent brain development.
  - Endocannabinoid system expressed early and undergoes development throughout adolescence.
    - Helps guide development of other parts of the brain.
  - Excess stimulation by THC may interfere with normal pruning.
- Acute, short and long term impairment.
  - Some of the cognitive impairments resolve and/or improve with abstinence.
  - Long term deficits more likely with early and heavier use.

## Cognitive Effects Continued

- Greater cognitive deficits in children and adolescents who use marijuana regularly compared to adults.
  - Deficits in working memory, verbal and episodic memory, complex attention, inhibition, reasoning and processing speed.
  - Longitudinal study from infancy to adulthood those with highest cannabis use in adolescence had lowest IQ scores. (Meier et al).
- Changes in hippocampal morphology and neuroplasticity.
  - THC pretreated adolescent rats had worse performance in maze tasks suggesting deficits in spatial working memory (Rubino et al).
  - Human studies have found chronic THC leads to downregulation of CB1R with changes in volume of hippocampus.





## Clinical Case Continued

- She reports that weed has helped with her with concentration, anxiety, and sleep.
- Assessment indicates challenges with attention and focus starting in elementary school but not to a level that led to concerns. Significant worsening and challenges starting in middle school.
- She endorses a number of trauma related symptoms following sexual assault and meets criteria for PTSD.
- Her perpetrator attends her school and this has resulted in an increase in cannabis use and school avoidance behaviors.
- She has never been treated with psychotropic medications and is not engaged in therapy. She has met with school counselor a couple times.



# Cannabis and Comorbid Mental Health Disorders

- High incidence of comorbid mental health disorders in youth using cannabis.
  - Adolescents entering treatment for CUD often report symptoms consistent with at least 2 or more psychiatric disorders.
- Reasons for use: euphoria, social connection, relief from mental health symptoms.
- High level of complexity.
- Common co-occurring disorders
  - ADHD
  - Anxiety
  - Depression and other mood disorders
  - PTSD / trauma related disorders
  - Psychosis



## ADHD and Cannabis Use

- Prevalence of cannabis use disorder in youth with ADHD is 33-38%.
- Diagnostic challenges
  - Youth with ADHD at increased risk of anxiety and depression and more likely to have sleep disturbances.
  - **Screen for ADHD, anxiety, and depression and develop a timeline of symptoms and substance use.**
- Treatment concerns:
  - Efficacy of medication in setting of cannabis use disorder and active use.
  - Misuse or diversion.
- Limited data but studies show that:
  - Stimulants are effective in youth with CUD.
  - Individuals with ADHD and SUD typically require higher doses of stimulants.
  - Cannabis use not associated with misuse or diversion.
  - Treatment of ADHD does not increase risk of developing a substance use disorder.
    - May reduce risk of substance use and risk of progression of substance use.
  - Non stimulant medications atomoxetine and bupropion are effective and well tolerated.



# Depression, Anxiety and Cannabis Use

- Diagnosis of major depression and generalized anxiety three times higher in youth with cannabis use disorder.
- Primarily longitudinal and cross sectional studies used to determine association between adolescent cannabis use and anxiety and depression.
  - Increased incidence of depression and suicidality.
  - Increased odds for panic attacks and anxiety disorders.
  - Directionality of these associations have been mixed.
    - Adverse childhood experiences and chronic stress usually precede onset of cannabis use and increase the risk of early onset cannabis use.
- Remember that cannabis withdrawal can present with anxiety, restlessness, irritability, anger, fatigue, dysphoria, decreased appetite, amotivation and sleep difficulty.



# PTSD/Trauma related disorders and Cannabis Use

- Endocannabinoid system - stress regulation
- Number of studies provide evidence that childhood abuse and early life trauma influences cannabis use.
  - PTSD diagnosis independently increases risk of cannabis use disorder.
  - Large sample of adolescents interviewed about substance use, victimization and family substance use found childhood abuse and witnessing violence increased risk of developing cannabis use disorder.
  - Study of inner city females 12-21 found that those who developed full or partial PTSD reported greater cannabis use.
- Continued use may potentiate stress related motivation to use leading to alterations in brain stress pathway.

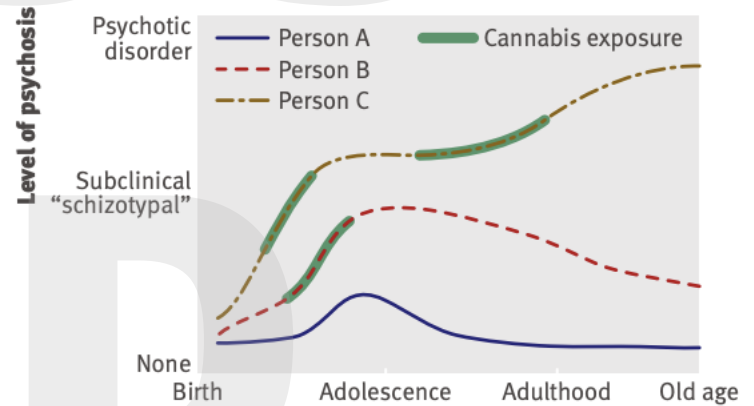


# Psychosis and Cannabis Use

- Adolescent cannabis use predicts two fold increase in risk of developing psychosis and schizophrenia as an adult.
- Youth with psychosis and cannabis use have worse course and prognosis, increased hospitalizations and poorer medication adherence.
- Dose response relationship with increased risk with earlier onset, higher potency and increased frequency.
- Cannabis induced psychosis
  - Often transitory and resolves with abstinence but elevated risk for development of psychotic illness in the future.
  - Significant risk for individuals with history of child maltreatment or genetic vulnerabilities.

# Association with Psychosis

- Substance use is prevalent in early psychosis
  - 33-54% of youth at clinical high risk for psychosis (CHR-p)
  - 22-50% of youth with first episode psychosis (FEP)
- 10 year cohort study comparing incidence of psychosis in cannabis users to non-users found a significant difference.
  - 31% versus 20% incidence.
- Underlying mechanism still unclear.
  - Vulnerability model
  - Cannabis-psychosis persistence model
- Bottom line: cannabis use represents a risk factor for onset and/or worsening of psychosis.





## Clinical Case Continued

- Harm reduction:
  - Focus on her goals.
  - Consider medications to help manage trauma related symptoms and insomnia.
  - Encourage decrease in cannabis use - explore how this might help with family conflict and stress.
- Connect her to mental health and substance use treatment and if available a dual diagnosis program.
  - Mental health therapy: office, school-based, community.
  - Peer support services.
  - Consider alcohol and drug assessment to clarify level of care.
  - Family based therapy \*
- Encourage dialogue with her mother. Allow mother to be an ally and support.
- Encourage conversation with school counselor to develop safety plan for school and/or explore other academic options.



# Interventions for Cannabis Use Disorder

- Assess and treat for underlying or comorbid mental health disorders.
- Brief Intervention - excellent option in primary care.
  - Intensity can vary from a few minutes to 2-3 full counseling sessions.
  - Use of motivational interviewing skills.
    - Processes: engaging, focusing, evoking and planning.
    - Skills: open ended questions, affirmation, reflection and summarize.
- Brief intervention model
  - Brief screening: use validated youth screener.
  - Discuss results: elaborate on extent and settings of use.
  - Decisional Balance Exercise: explore perceived benefit and negative consequences.
  - Triggers and Cravings: identify and discuss internal and external triggers.
  - Readiness to change ruler: core component of MI, explore desire and confidence for change using number scale.
  - Plan of Change: develop specific and realistic patient centered goals to address use.
- Provide psychoeducation.
- Refer to treatment if indicated.



# Psychotherapy

- Individual focused therapy
  - Cognitive Behavioral Therapy
  - Motivational Enhancement Therapy
  - Contingency Management
  - Adolescent community reinforcement approach
- Family based therapies - target family systems in addition to individual and community factors.
  - Multidimensional family therapy
  - Brief strategic family therapy
  - Multisystemic family therapy
  - Functional family therapy
- Co-occurring disorders
  - Risk Reduction through Family Therapy - addresses co-occurring trauma symptoms.



# Pharmacotherapy

- No FDA approved treatment for CUD
- N- Acetylcysteine: antioxidant derived from L-cysteine
  - 1200 mg bid
  - Safe and tolerable
  - Increased odds of negative UDS
  - Strongest evidence related to CUD and adolescents
- Topiramate: Na<sup>+</sup> channel antagonist and glutamate antagonist ->increase in GABA.
  - Decrease amount used daily but no difference in abstinence.
  - Not well tolerated and not recommended for youth.
- Mirtazapine: Antagonizes alpha-2 adrenergic receptors, dual serotonin and norepinephrine antidepressant.
  - Data from adult studies but some benefit with withdrawal symptoms such as sleep and appetite disturbance.



# Outpatient Treatment Options in Oregon

Lifeworks NW: <https://www.lifeworksnw.org/>  
Beaverton, Hillsboro, Gladstone, Gresham, NE Portland  
REAL – culturally focused for African American youth

Morrison Child and Family Services  
(<https://morrisonkids.org/programs/daytreatment/breakthrough/>) Portland, OR  
Breakthrough – Intensive outpatient program for substance use, trauma, truancy and gang involvement, 13-17

Native American Rehabilitation Association Youth and Family:  
<https://www.naranorthwest.org/>: Gresham  
Outpatient youth A&D and mental health treatment with peer support.  
Youth prevention team.

Haven Counseling Collective (<https://www.havencounselingcollective.org/>):  
Portland, OR  
Dual diagnosis school based and on site with peer support.

Newport Healthcare (<https://www.newporthealthcare.com/programs/>): Kirkland  
WA  
For profit - only accepts private insurance, Ages 12-18  
Have PHP, IOP and outpatient and Virtual IOP

Rimrock (<https://www.rimrocktrails.org/specialty-counseling-services/>): Bend, Redmond and Prineville  
Dual diagnosis, virtual options.

ADAPT (<https://adaptoregon.org/services/addiction-treatment/children-families/youth-outpatient/>):  
Programs in Douglas, Coos, Josephine and Curry County.  
A&D assessments, group and individual counseling, case management, after care, school based services and juvenile detention based services.

Best Care (<https://www.bestcaretreatment.org/locations/>): Madras  
Outpatient substance use and mental health treatment.

Daybreak (<https://daybreakyouthservices.org/programs/outpatient/>): Vancouver, WA  
Ages 12-18, co-occurring mental health therapy

Looking Glass (<https://www.lookingglass.us/services/>): Eugene, OR  
Outpatient substance use treatment for ages 11-21 and their families  
Outpatient mental health (locations in Eugene, Cottage Grove, Junction City, Veneta and Oakridge).  
Homeless youth services

Charlie Health (<https://www.charliehealth.com>)  
Teen IOP groups, family therapy and individual therapy (all virtual and works with most major health insurances)



# Residential Treatment Options in OR and SW WA

Madrona: Tigard, OR (<https://www.madronarecovery.com>)  
Dual diagnosis program.  
Co-ed, locked facility, ages 13-17, 3-4 week program.  
Provides medication assisted treatment for opiate use.

NARA (Native American Rehabilitation Association Youth Treatment Center): Gresham, OR ([Youth Residential Treatment Center – NARA NW \(naranorthwest.org\)](http://www.naranorthwest.org))  
Gender specific programming, ages 12-17, unlocked, 120-day program.  
Focus on healing with Native cultural integration  
Not dual diagnosis but have access to outpatient mental health therapy.

Rimrock Trials ( [Adolescent Residential Treatment Rimrock Trails Prineville, Oregon | Adolescent](http://www.adolescentres.org)): Prineville, OR  
Dual diagnosis program - utilizes collaborative problem solving.  
Co-ed facility for ages 12-17

Deer Creek ( [Youth Residential Care – Adapt Oregon](http://www.adaptoregon.org)): Roseburg, OR  
Ages 13-17

Daybreak ([Inpatient | Daybreak Youth Services](http://www.daybreakyouthservices.org)): Brush Prairie and Spokane, WA  
Dual diagnosis – on site 24/7 nursing, medication management and medication assisted treatment.  
Gender specific treatment, Spokane (female and female identifying)  
Ages 12-17

Morrison Child & Family SAGE Youth Residential ([SAGE Youth Residential - Morrison Child & Family Services \(morrisonkids.org\)](http://www.morrisonkids.org)): Portland, OR  
Long term program for survivors of commercial sexual exploitation (CSEC). Females ages 11-16.

On site mental health and psychiatric care, substance use treatment and CSEC specific programming.  
Referrals accepted from DHS, law enforcement, or parent/guardians

Newport Healthcare: <https://www.newporthealthcare.com/programs/>; Kirkland WA  
For profit - only accepts private insurance  
Gender specific, 12-18



## Opiate Treatment Programs

Great Circle Recovery ([Home - Great Circle Recovery](#)): Portland and Salem locations  
Medication for opiate use disorder for adolescents with peer support and youth specific outpatient groups.



# Parenting Resources

Partnership to End Addiction: <https://drugfree.org/>

Northwest Family Services: <https://www.nwfs.org/>

SMART Recovery Family & Friends [SMART Recovery Family & Friends | Addiction Help for Family Members - SMART Recovery](#)

Invitation to Change for Family & Friends free online [group ITC Group \(ONLINE\) – Cordelia Kraus](#)

Sisu Healing Partners: <https://www.sisuhealingpartners.com>

Provides mental health and substance use coaching, interventions, family coaching and sober transports.

Allies in Recovery:

This program is currently \$59 for 6 months. They provide CRAFT-based video modules as well as an online community. They are available at [alliesinrecovery.net](http://alliesinrecovery.net)

A free Invitation to Change Group for parents of young adults or teens struggling with SUD. Online and starts March 14th

<https://cathytaughinbaugh.com/invitation-to-change-group/?fbclid=IwAR1Ofom06hJGz2ra2znb9wDkP1feKNpoE8h8PICniB541AtwiCYOrI0W6Y&fs=e&s=c>



# Youth & Peer Support Services/Resources

Youth Era: <https://www.youthera.org>

Drop-in center locations:

Milwaukie, OR  
North Bend, OR  
Eugene, OR  
Medford, OR  
Salem, OR

SMART Recovery Teen and Youth online Forum [Teen & Youth Forum](#)  
([smartrecovery.org](http://smartrecovery.org))

Collective Roots APG: [Collective Roots APG](#). Portland, OR

[The Recovery Gym | Strength • Conditioning • Endurance](#) – Cross fit gym specifically for folks in recovery with trainers who are also Certified Recovery Mentors

[The 4th Dimension Recovery Center | A Recovery Community Organization for Young People \(4drecovery.org\)](#) – Offers Peer Support Services, recovery meetings and events for folks 18 to 35 years old

CVAB (Washington) offers multiple programs; find them by clicking on the "services" tab through this link:  
<https://www.cvabonline.org/about>

Columbia River Mental Health has an Options Youth Program that includes therapy, peer support groups, and case management for ages 14-24.

Phone: 360-750-7033

Services: Youth education, work, mental health

<https://crmhs.org/service/children-and-families/#teen-service>

Family Solutions, Clark County, WA

<https://www.family-solutions.net/programs-services/support-services/peer-support/>

Phone: (360) 695-1014

Fax: (360) 750-1374

Email us: [info@family-solutions.net](mailto:info@family-solutions.net)

Lifeline Connections, Washington

<https://lifelineconnections.org/services/mental-health-outpatient-services/peer-support/>

Clark County Teen Talk (peer to peer support)

Access by phone 360-397-CHAT (2428)

Text: 360.984.0936

Email: [ccteentalk1@hotmail.com](mailto:ccteentalk1@hotmail.com)

Website: [www.ccteentalk.clark.wa.gov](http://www.ccteentalk.clark.wa.gov)



## Questions

Please reach out with additional questions!

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