MARIJUANA USE

As more states legalize recreational marijuana, advertisements promoting marijuana are on the rise. However, there are still many misconstrued facts related to its use. So what is marijuana?

Marijuana

"Marijuana refers to the dried leaves, flowers, stems, and seeds from the **Cannabis sativa** or **Cannabis indica** plant."[12] The cannabis plant contains various types of **cannabinoids**, such as the **psychoactive chemical THC** and over 100 chemically-related compounds like **CBD** and delta-8.*

delta-9 tetrahydrocannabinol

The main **psychoactive chemical** in marijuana - creates a "high" feeling.

cannabidiol

A **non-psychoactive chemical** in marijuana - does not create a "high" feeling, and is used to treat some conditions.

There may be **valid medical reasons** for marijuana use and it is important to understand cultural norms before broaching the potentially "taboo" topic of marijuana use. Key facts[13] to remember are:

Marijuana can be addictive

One in 6 people that start using marijuana before they are 18 becomes **addicted.**[14] In fact, about **3 in 10 people** who use marijuana have marijuana use disorder, or an addiction. A study[15] found that **nearly half** of routine marijuana users had **withdrawal symptoms** after stopping use.

Marijuana use has increased, while perceived great risk has decreased

Specifically in Missouri, **self-reported past month marijuana use** among those 18 - 25 **increased** from 21% in 2020 to 26% in 2021. This was also the first year since 2014 that **marijuana use in Missouri is higher than average use in the United States.** Additionally, perceived great risk from smoking marijuana once a month among this age group has **steadily decreased** in Missouri (8%) and the United States (12%) since 2003 (23% and 24%, respectively).[16]

*Delta-8 THC is naturally produced by the cannabis plant, but not in substantive amounts. Due to this, it is manufactured in concentrated amounts from CBD. However, **delta-8 THC products have not been approved for safe use by the FDA.**[17]

MARIJUANA USE

Long-term Impact:	mental health problems, chronic cough, frequent respiratory infections.
Withdrawal Symptoms:	Irritability, trouble sleeping, decreased appetite, anxiety.[18]

Though it is a naturally occurring substance, that does not mean it is safe

The most common reason people use marijuana is to "feel mellow, calm, or relaxed."[19] However, routine use of marijuana **increases risk of mental health issues** (such as depression and social anxiety), and could cause temporary psychosis. In fact, there is a **strong correlation** between using marijuana at a **young age** and developing **schizophrenia**. To add to this issue, the amount of THC in the marijuana flower has **increased over 200%** from 1995 to 2015.[20]

Driving while high is impaired driving

Many people think, unlike alcohol, it is safe to drive while using or under the influence of marijuana. A study[21] assessing seriously injured patients in a car crash found that **25% were positive for marijuana**, while 22% were positive for alcohol.

Medical marijuana has potential benefits for several conditions, but there are still risks

Research has shown that derivatives of marijuana can help with symptoms and conditions, such as Alzheimer's, epilepsy, and glaucoma. **Note:** **Medical marijuana is ONLY medicinal if consulting with a medical provider and it still has risks and side effects.**[22]

Chronic use of marijuana can hinder brain development

Chronic use of marijuana as an emerging adult can "affect normal brain development, leading to problems in **learning**, **memory**, **coordination**, **reaction time** and **judgment.**" There is also a link between **chronic marijuana use during adolescence and a loss of IQ** that is never recovered as the individual ages.[23]

ALCOHOL USE

Because alcohol is legal for adults in every state and easy to access, it continues to be the most widely consumed substance for emerging adults.[24] Unfortunately, emerging adults do not always understand the true impact alcohol can have on their actions and health.

Alcohol

"Alcohol is a psychoactive substance with dependence-producing properties that has been widely used in many cultures for centuries. The harmful use of alcohol causes a high burden of disease and has significant social and economic consequences."[25]

12 oz beer at 5% alcohol content

5 oz wine at 12% alcohol content

1.5 oz liquor at 40% alcohol content

For this age group specifically, they often **drink more at a time** than adults, or **binge drink**. This is dependent upon age and body size, but is defined as the amount to reach a blood alcohol content (BAC) of 0.08%.[26]

1 Drink x 3 to 5* every 2 hours = Binge Drinking

*On average it is 3 to 5 drinks depending on a person's age and size.

ALCOHOL USE

Long-term Impact: mood and behavior dysregulation; heart, liver, and pancreas damage; cancers, and a weakened immune system.

Withdrawal Symptoms: tremors, sweating, elevated pulse and blood pressure, insomnia, anxiety, nausea or vomiting, and seizures.[27]

Alcohol use early in life greatly increases the chance of alcohol use disorder (AUD) as an adult

Individuals 26 and older who began drinking before age 15 are **3.5 times more likely** to report having an alcohol use disorder in the past year than those who waited until age 21 or later to begin drinking.[28]

Alcohol use inhibits critical thinking

Alcohol impacts the part of our brain that helps with **decision making**, causing us to act on it before we think through the ramifications. This can lead to riskier choices, such as: unprotected and/or nonconsensual sex, aggressive behaviors, drunk driving, or acting on suicidal thoughts.

Car crashes are a top cause of death for teenagers

"In 2021, 27% of young drivers (ages 15-20) involved in fatal crashes had BACs of .01 g/dL or higher; 22% of those young drivers had BACs of .08 g/dL or higher."[29]

There is a correlation between emerging adult violence and alcohol use

Nearly 33% of teens that are arrested for an assault stated they were intoxicated, with "chronic violent young offenders" being three times as likely to drink than their non-violent peers.[30]

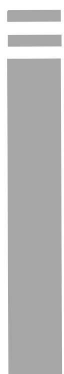
VAPE USE

Whether it's the tasty flavors, ease of concealing, or alternative to the conventional cigarette, e-cigarettes/vapes have overtaken cigarettes for the top use tobacco/nicotine product among emerging adults.[31]

E-Cigarettes and Vaping

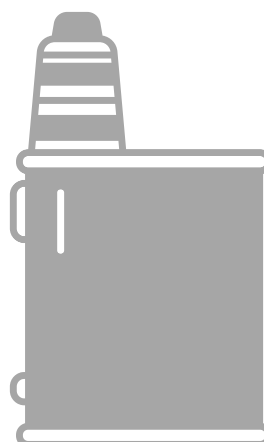
"E-cigarettes, vapes, vape or hookah pens, vaporizers, e-pipes, vape watches, and other electronic nicotine delivery products are electronic, battery-powered devices that heat a liquid and allow users to inhale the aerosolized liquid, also known as e-liquid or e-juice."[32]

E-cigarettes come in a **variety of shapes**, **devices**, **and types**. Since their inception, e-cigarette companies have come out with new generations of devices, depending on the users choice of disposing/reusing, modifying (i.e., changing how much/quickly the liquid in the vape is burned), flavoring, and liquid contents (e.g., nicotine, THC, or CBD).[33]



1st Generation
Disposable e-cigarettes

2nd Generation
E-cigarettes with prefilled or refillable cartridge

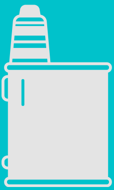


3rd Generation
Tanks or Mods that are refillable

4th Generation
Pod Mods that are prefilled or refillable

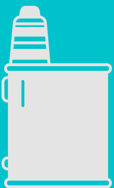
VAPE USE

Long-term Impact:	risk of cancer, especially lung cancer; chronic bronchitis; emphysema; heart disease; leukemia; cataracts; pneumonia.
Withdrawal Symptoms:	irritability, attention and sleep problems, depression, increased appetite.[34]



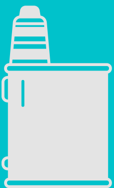
E-cigarettes labeled as "0% nicotine" still have nicotine

"Some vape product labels **do not disclose that they contain nicotine**, and some vape liquids marketed as containing 0% nicotine have been found to contain nicotine."[35]



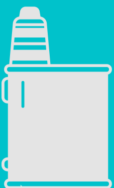
Emerging adults often view vaping as safe

Surveys for high schools students in Missouri show that these youth **perceive e-cigarettes as safe**, and often do not know that they contain nicotine.[36]



Nicotine damages the developing brain

Nicotine use while the brain is developing "can harm the parts of the brain that control **attention, learning, mood, and impulse control**" and hinders how the developing brain makes new connections (or synapses), leading to slower processing and memory issues.[37]



E-cigarettes can contain more nicotine than cigarettes

More and more e-cigarettes and vapes contain **nicotine salts**, a **more potent form of nicotine** created to lessen irritation to the throat and make it more enjoyable to use.[38]

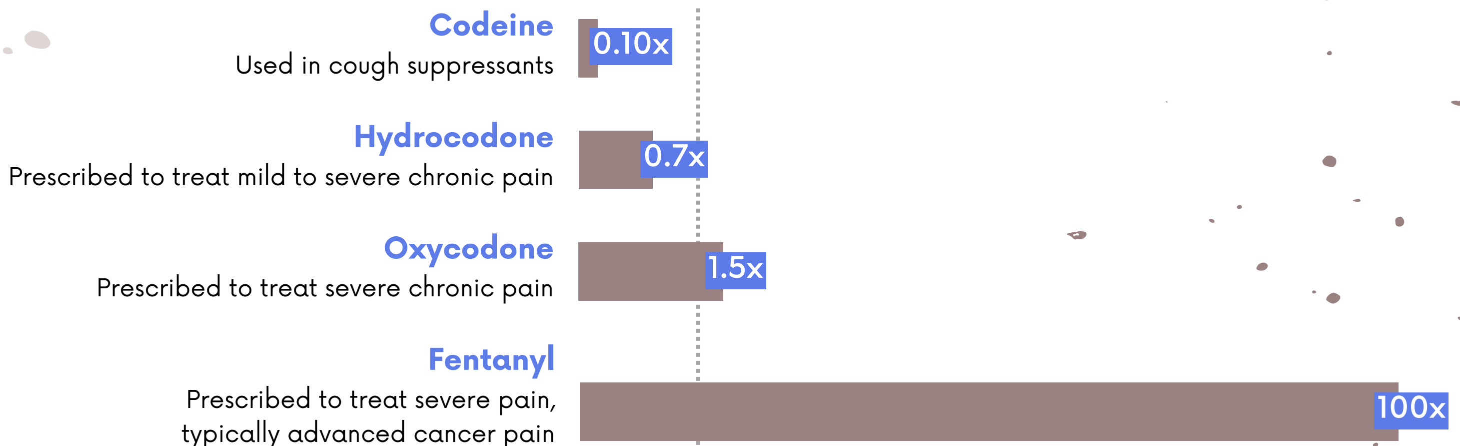
OPIOID USE

Opioid misuse can often start from a legitimate prescription for pain medication following an injury, broken bone, or even wisdom tooth surgery. **Emerging adults** are the **biggest misusers of prescription pain mediation**. In 2016, **20% of emerging adult deaths were related to opioids.**[39]

Opioids

Opioids "are a class of drugs used to reduce pain. Opioids include the illegal drug heroin, synthetic opioids such as fentanyl, and pain medications available legally by prescription. Prescription opioids are generally safe when taken for a short time and as directed by a healthcare provider, but because they produce euphoria in addition to pain relief, they can be misused and have addiction potential."[40]

With so many types of opioids, it's important to understand the different **levels of potency for common opioids** as many overdoses are caused by **substances** laced with dangerous levels of opioids. Below are common opioids and their potency as compared to **morphine**:[41]



OPIOID USE

Long-term Impact:	increased risk of overdose or addiction if misused.
Withdrawal Symptoms:	restlessness, muscle and bone pain, insomnia, diarrhea, vomiting, cold flashes with goose bumps, leg movements.[42]

Prescription use of opioids can lead to misuse

"Research shows individuals who are prescribed opioids prior to graduating high school are **33 percent more likely to misuse prescription opioids** after graduating. Additionally, taking opioids after wisdom teeth removal also increases the odds of long-term use."[43]

Emerging adults usually obtain opioids from friends or relatives

"**Fifty-three percent** of people ages 12 or older who obtained prescription pain medication for nonmedical use **obtained them from a friend or relative**."[44]

Xylazine mixed with fentanyl can create a non-reversible overdose and cause necrotic tissue

Xylazine, a sedative approved for use with large animals, has been increasingly seen mixed with fentanyl. Unlike opioids, xylazine is **not responsive to Narcan**, making this combination particularly dangerous.[45] Additionally, wounds caused by xylazine "often appear on the body's limbs and extremities (i.e., toes, fingers, hands, arms, legs) and are marked by impaired healing and necrotic tissue."[46]

OVERDOSES

Research shows that current rates of **overall** **substance use** among high schoolers continues to decrease.[47] However, non-fatal and fatal **overdoses** continue to rise, mostly stemming from **fentanyl, a synthetic opioid similar to morphine that is much more potent.** With decreases in overall **SU**, but increases in overdoses, it is an important time to talk with **emerging adults** openly and honestly about preventing overdoses. Key topics to prevent overdoses include:

Many overdoses are accidental

Often, someone does not truly know the **potency** of a **substance**, or thinks that it's okay to take the **same amount as a friend** without knowing that person is a frequent user and has built up a higher tolerance that could be lethal to others. Commonly, **drug dealers will cut a** **substance** they are selling (e.g., marijuana, oxycodone) with something more potent (fentanyl). This **dramatically increases potency** of the **substance** without the **substance user's** knowledge. Overdoses also often occur after a **relapse**. When a person reduces or stops use, it **lowers their tolerance** to that drug. If they use the same level of that drug, they are at increased risk of overdose.

You can reverse an overdose by using Naloxone (aka Narcan)

"**Naloxone** is a **life-saving medication** that can **reverse an overdose from opioids** - including heroin, fentanyl, and prescription opioid medications - when given in time. Naloxone is easy to use and small to carry. There are two forms of naloxone that anyone can use without medical training or authorization: prefilled nasal spray and injectable."[48] However, **xylazine cannot be revered with Narcan**.

When in doubt, **use** **naloxone** - if it turns out the individual did not use opioids, **naloxone will NOT hurt them**, but if they did, you might have saved their life.

Every Missourian

has a **standing prescription** of **Narcan** at **pharmacies.**

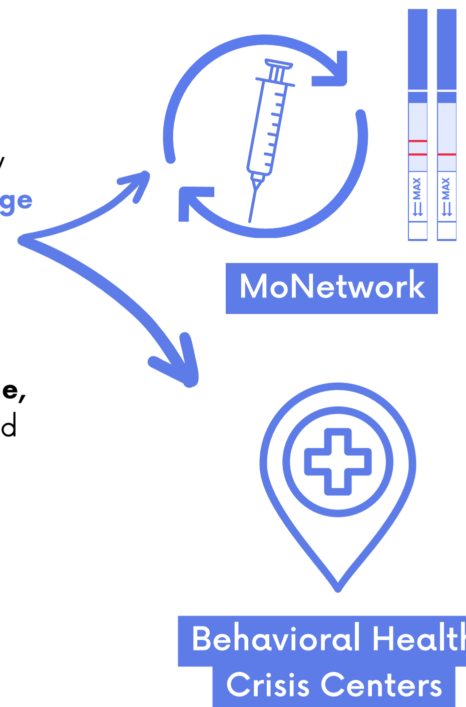
It is also available through **health departments**

OVERDOSES

Harm reduction messaging helps reduce overdoses[49]

Harm Reduction is "a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use" such as HIV, Hepatitis C, or other **irreversible** conditions.[50] Strategies involve "meeting people where they are" in their treatment journey, and include **needle-exchange services**, **fentanyl test strips**, and **sobering centers**. Usually at these locations treatment options are provided, but never required.

Other key harm reduction messages include: **not using alone, taking turns using**, **doing a test dose**, **not mixing drugs**, and **having naloxone readily available**.



Laws exist to safeguard individuals using illicit substances in emergency situations

In the state of Missouri, the **Good Samaritan Law** protects people who call 911 from arrest & prosecution for possession of drugs or paraphernalia.[51]

OTHER SUBSTANCES

Though a non-exhaustive list, other common **substances used** by **emerging adults** and key facts about them include:[52]

Types of Substances	Physical and Psychological Response	Bodily impact
Stimulants (prescription): • Ritalin • Adderall	Intense focusing and extra energy	• **Long-term impact**: Heart problems, psychosis, anger, paranoia • **Withdrawal symptoms**: depression, tiredness, sleep problems
Stimulants (non-prescription): • Cocaine (Crack/Coke) • Methamphetamines	Feelings of euphoria and confidence, suppressing appetite, and extra energy	• **Long-term impact**: Nasal damage (if snorted), weight loss, death of bowel tissue, and accelerated heartbeat • **Withdrawal symptoms**: depression, anxiety, tiredness, increased appetite, sleep problems
Hallucinogens: • Ketamine • LSD • Mescaline (Peyote) • PCP • Psilocybin (Shrooms) • Salvia • Ayahuasca	Distortions in a person's perceptions of reality, feelings of euphoria, and intense dissociation from oneself	• **Long-term impact**: randomized flashbacks to when drug was used, hallucinations, intense mood changes, and paranoia. • **Withdrawal symptoms**: depression, anxiety, confusing, and irritability
Inhalants: Solvents, aerosols, and gases found in household products such as spray paints, markers, glues, and cleaning fluids	Slows the central nervous system resulting in euphoria, pleasure, and relaxation	• **Long-term impact**: liver, kidney, brain and bone marrow damage • **Withdrawal symptoms**: nausea, tremors, irritability, problems sleeping, and mood changes
Kratom: A tropical deciduous tree with leaves that contain many compounds (including a mind-altering opioid) that can be bought as tablets, capsules, or extracts	Causes mood-lifting effects, pain relief, and acts as an aphrodisiac; can also cause sedation at high doses	• **Long-term impact**: hallucinations, weight loss, and insomnia. • **Withdrawal symptoms**: muscle aches, insomnia, hostility, aggression, emotional changes, and jerky movements

MYTH BUSTERS

There are many **myths** about **substance use** among **emerging adults**. These are some of the most common ones and their corresponding facts:

MYTH	FACT
___ is not addictive, it's natural!	**Anything can be habit-forming if misused** as a replacement for something (e.g., drinking to replace confidence, cannabis to take the place of loneliness, Adderall to replace tiredness, mushrooms/psilocybin for creativity).
Prescription drugs are safe to use if they are prescribed by a doctor	Prescription drugs are **only safe when they are taken as directed by the intended recipient**. A person's health history, symptoms, current medication regiment, and many other factors weigh into each individual prescription. It is NOT safe to take someone else's prescription drugs even if you think you have the same issue.
The best way to stop using a substance is to stop "cold turkey"	This is **rarely the best way** to stop substance use. Quickly stopping use of substances could be **detrimental** as the body adapts to the sudden absence of the substance. Stopping use should **be discussed with a healthcare provider**, and be a moderate taper, sometimes with medications.
Someone needs to hit "rock bottom" before they can get help	The **earlier** someone gets help, the **easier** it will be to break a substance use habit - though it's never too late to seek support.

STIGMA AND SUBSTANCE USE

"Often unintentionally, many people still talk about addiction in ways that are **stigmatizing** - meaning they use words that can portray someone with a **SUD** in a **shameful or negative way** and may **prevent them from seeking treatment**."[53]

Instead of saying...	Try saying...	Why?
"Addict User Drunk/Alcoholic Junkie"	*"Person with a substance use disorder Person with an addiction"*	Using person-centered language shows that the individual with a **SUD** **"has"** a **problem/illness**, rather than **"is"** the **problem.**
"They have a dirty habit"	*"They have a drug addiction"*	A "dirty habit" can decrease a person's sense of hope for change and implies choice in use/not stopping use. This is inaccurate - the person **has an illness that needs to be medically treated**.
"Substance Abuse"	*"Substance Use (for illict drugs) Substance Misuse (for legal substances being used other than intended)"*	Saying "substance abuse" has a high association with **judgement and punishment**.
"They are on subs/they are on methadone"	*"They are getting medication treatment for their substance use disorder"*	Typically the phrasing of someone "on subs" (short for suboxone) or "on methadone" carries a **derogatory tone** suggesting that someone is "**trading one addiction for another**." In reality, medication is used to treat a **variety of health issues** and can be very effective at treating some **SUDs**.
"They are clean"	*"They are in remission or recovery They are not drinking or taking drugs"*	"**Clean**" implies an opposite of "**dirty**," which adds to **stigma**.

START THE CONVERSATION

FOR CLINICIANS

FOR NON-CLINICAL PROFESSIONALS, SKIP TO PAGE 75

As a provider working with **emerging adults**, common questions for beginning to speak with **emerging adults** about **substance use** and how it influences their lives may be "how do I bring up **substance use** without accusing?" or "how do I know if their use is severe?" To start this conversation you can practice asking key questions, and know the direction the pathway will head as you learn more about their **substance use**. One model to consider using is the **Screening**, **Brief Intervention**, and **Referral to Treatment,** or **SBIRT**,[54] model.

Screening

Ask questions in a way that will elicit the most honest responses.

1 Explain your role, the reason for screening, and create a safe environment

- "One thing I talk with all my clients about is **substance use**. Would it be okay if we talk about your use for a few minutes? If alright with your parents/caregivers, I would like to talk to you privately as a way for you to take control of your health. "

2 Establish confidentiality

- "As a reminder, whatever we talk about will remain confidential, with exceptions of topics related to safety."

3 Begin with open-ended questions

- "Tell me about alcohol and drug use within your friend groups, peers at school, or in your community."
- "Does anyone in your family drink alcohol or use drugs?"
- "Have you ever tried alcohol, marijuana, or other drugs?"

If you're concerned they're **selling drugs**, the goal may center on:

- **building understanding** for selling (income for themselves, their family, community norms)
- **dangers of continuing** (risk of jail time hurting chances of future goals/jobs)
- **encouraging skills developed** put to use in more legitimate practices

START THE CONVERSATION

FOR CLINICIANS

4 Utilize a screening tool to assess substance use severity

- It is important to choose a screening tool that is right for the **emerging adult**, depending on their **age** and **what you plan to screen them for** (e.g., alcohol, tobacco, marijuana, opioids). You can find a list of tools by going to the National Institute on Drug Abuse website, with some that can be **completed and scored online.**[55]
- "Something I ask everyone I work with is to fill out a questionnaire. Would you like to fill it out yourself, or have me ask you the questions outloud?"

5 Ask permission to review screening tool results

- "Would it be ok to discuss your answers to the questionnaire?"

Brief Intervention

Review screening results, appropriately respond to severity, and help an emerging adult decide the best steps for their health.

6 Review screening tool results

No use/slight experimentation

End here for this path

- **Praise for abstaining/non-harmful use of substances**
  "It's great that you've chosen not to use alcohol or drugs at this stage of your life. What made you make that decision?"
- **Focus on coping strengths**
  "Sometimes people use substances to cope with something going on. Since you aren't using, what do you do to cope instead?"
- **State the benefit of continued abstinence from substance use**

Concerning use

Continue on next page

- **Explore association between substance use and any health factors:**
  "Do you think your use has anything to do with your [anxiety, depression, insomnia, etc.]?
- **Asking questions related to natural consequences and if they've tried to quit**
  "Has your substance use resulted in any decisions you wish you had not made?"
  "What would happen if you tried to stop using _?"
- **Establish if there are signs of addiction and/or signs of acute danger.**
  "If you stop using _ for a day, does your body feel different?"
  "Have you ever used too much that you don't remember?"

START THE CONVERSATION

FOR CLINICIANS

Referral to Treatment

Talk through next steps with an emerging adult and family/friends, decide on best options for care, and create a warm-hand off to a SU treatment provider.

7 Assess readiness to change and build motivation

- "What do you like about using _?" What are some of the not so good things about using _?
- "On a scale of 1 to 10, how ready are you to change your **substance use**? Why not [lower number]? Why not [higher number]?"
- "What are some of the best reasons you can think of to avoid **substance use**?"

8 Reinforce autonomy and elicit emerging adult choice

- "What you choose to do is up to you."
- "What next steps would you like to take to reach your goal/vision?"

9 Talk through next steps for harm reduction and/or treatment

- **Harm Reduction**: "What steps could you take to reduce harms from alcohol or drug use?"
- Discuss that **substance use** treatment is **whatever they want it to be** and that is it not the same for everyone. It will begin with discussing their goals and other things they need help with (e.g., getting a job, stable housing, going to college).

START THE CONVERSATION

FOR CLINICIANS

10 Ask if the emerging adult would like parents/caregivers or friends present while talking through their decision

- "Do you think your parent/caregiver knows about your substance use?" and help them tell their parent about their **substance use** and plan for treatment. Let them know by talking with their parent/caregiver, they are **drastically increasing success** for their plan to lower/abstain for **substance use**.

11 Complete warm hand-off to treatment provider

- Unfortunately a large amount of people slip through the cracks **between identifying a need and connecting with it**. This can be mitigated by you taking on the role of making sure the **emerging adult** successfully spoke with the treatment provider and that the **emerging adult** feels safe with them.

12 Check-in on status of connection

- Ask the **emerging adult** and/or parents/caregivers to sign a release of information so you can communicate directly with the **SUD** treatment provider and check on the status of the linkage.

START THE CONVERSATION

FOR NON-CLINICAL PROFESSIONALS

For persons working with **emerging adults** in a non-clinical capacity, a less formal method is warranted to speak with **emerging adults** about **substance use**. To start this conversation, it is important to approach them with **empathy** and **understanding** by offering **guidance** and **support** rather than judgement or confrontation.

1 Think about how you will frame the conversation about substance use and choose a specified time and quiet place

- **Make a plan** to have the conversation: "I want to talk about drugs at a convenient time for both of us."
- Make sure your approach is **genuine** and **natural**. You should come into this conversation by expressing **kindness**, **empathy**, **support**, and **encouragement**. The conversation should NOT be about punishment or condemnation.
- Let the **emerging adult** know they are **not in trouble** and that this is a topic that impacts many people in some way. Try starting with: "You are not in trouble. I just think it is important to talk about because there is a lot of misinformation out there."

2 Explain concern through a fact-led and honest conversation

- Start by being **honest** and **explaining your reason for the conversation**, "Everyone will be faced with alcohol or drug use in their lives - whether they are asked if they want a drink or are concerned about a friend, loved one, or co-worker."
- Lead with **open-ended questions**: "What have you heard about marijuana from your friends or social media?" This will help you gauge what they know about **substances** and help correct any misinformation.
- **Refrain from lecturing**. Sharing facts is a good thing, but **emerging adults** do not want to be told what to do.
- **Naturally** bring up **family history of substance misuse**: "**Substance use disorders** can be genetic, meaning if someone in your family was/is addicted to a **substance**, it can be much harder for you to regulate **substance use**."

START THE CONVERSATION

FOR NON-CLINICAL PROFESSIONALS

3

Be prepared that they may have engaged in substance use

- Since **emerging adults** are in the age of **exploration**, it is possible they will have tried or been offered at least one **substance**. Ask if they have ever **felt pressured to try something**: "What made you feel like you could not say no?"
- Instead of focusing on the outcome of quitting or not using **substances**, help them understand **why** they are **using**/wanting to **try** **substances**.
- Ask them if they often use/think of using before or after an event. This can help identify a **potential stressor** linked to the **substance use**.
- If you think their **substance use** could be an **addiction**, seek care from a primary care or behavioral health provider. They will help assess the **emerging adult** for a **substance use disorder**.

4

Remember the goal - keep them coming back

- There is no way you can answer and discuss everything to do with **substance use** the first time. Make it a **reoccurring and relevant conversation** that you initiate: "Did you see the increase in overdoses in our city?"
- If you are concerned about any current use, focus on showing them you **care**. They may share they do not want or need your help at this time - and that is their choice. There may be a time that they **do want help,** and they should know they **can come to you** then.

5

Give them resources and facts in case of an emergency

- The **emerging adult** may be in a situation where they need to **think and act quickly**, such as being offered a joint, a friend being too drunk to drive, or witnessing an overdose. Prepare a list of these resources just in case. Focus on **harm reduction resources** provided earlier in this chapter, or engage in role-play for any of the above circumstances.