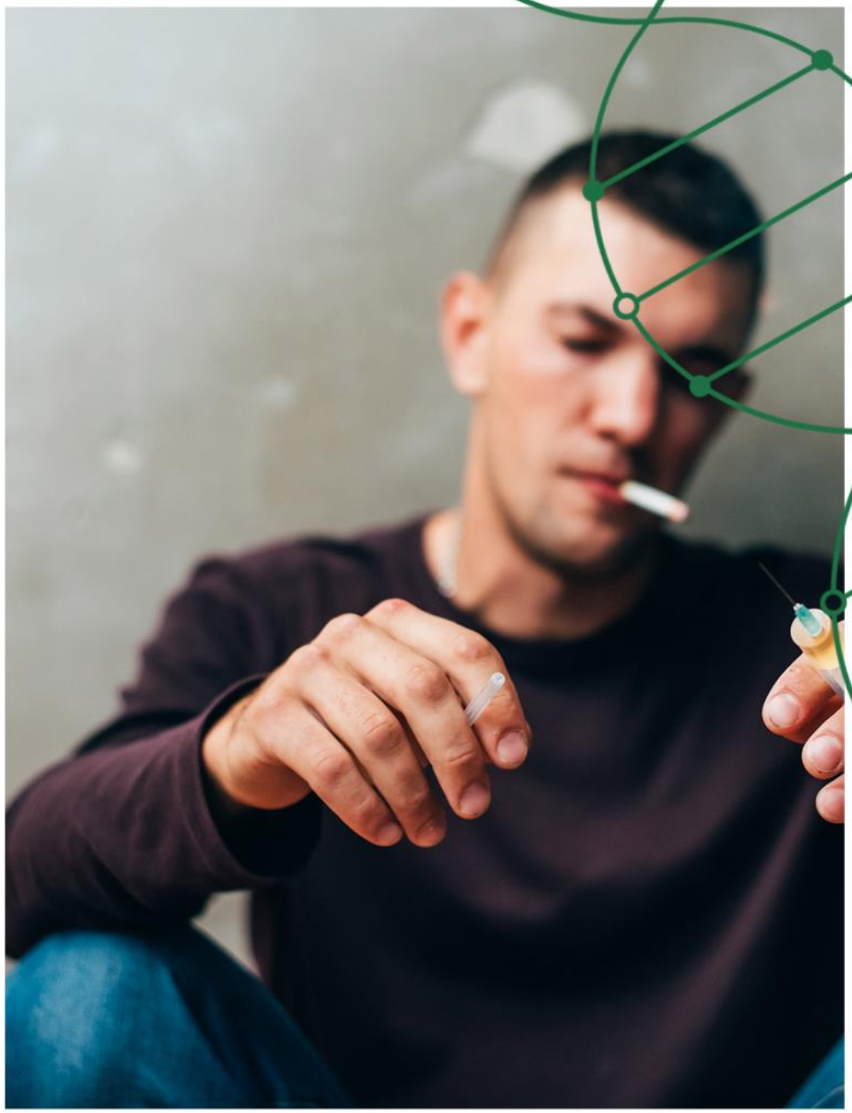
Understanding Substance Abuse and Its Implications



Definition of Substance

Substance Definition

Chemical Types

Any chemical (natural or synthetic) that, when ingested, inhaled, injected, or absorbed, exerts a physiological or psychological effect.

Legal Substances

Alcohol

Widely used legal substance.

Nicotine

Commonly found in tobacco products.

Caffeine

Stimulant found in coffee and tea.

Prescription Medications

Medication available by prescription that can be abused.

Illicit Substances

Cocaine

A powerful stimulant drug.

Heroin

An opioid drug derived from morphine.

Methamphetamine

Highly addictive stimulant.

LSD

A hallucinogenic drug.

Use → Misuse → Abuse *(a continuum)*

- **Use**: taking a substance in a manner generally **accepted** or **prescribed** (e.g., caffeine for alertness; antibiotics for infection).
- **Misuse**: non-medical or **off-label** use (e.g., taking higher-than-prescribed dose of benzodiazepines).
- **Abuse**: **repetitive** or **continued** use **despite clear harm**—physical, psychological, social, or legal.

Why “Abuse”?

Highlights a behavioral pattern: prioritizing substance use over health or obligations.

In ICD10: “Harmful use” is termed abuse, distinct from “dependence.”

In DSM5, replaced by Substance Use Disorder – graded by severity (mild/moderate/severe) based on 11 criteria.

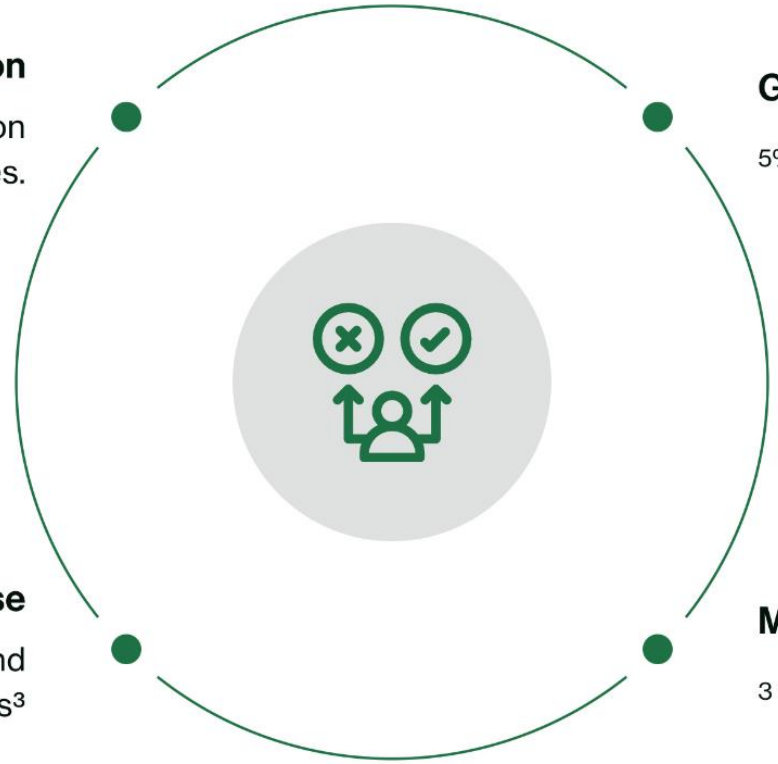
. **Definition of "Substance Abuse"**
(WHO Regional Office for Africa)
. **"Substance abuse refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs."*

(DSM-IV-TR defines) substance abuse as:[81] A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following (مذكورات تحت), occurring within a 12-month period

Why It Matters

Societal ripple effects of addiction

Family disruption, increased crime, strain on healthcare resources.



Global burden of substance abuse

5% of adults worldwide use illicit drugs[1]

Economic impact of substance abuse

≥ 1 trillion USD in healthcare, lost productivity, and social services[3]

Mortality related to substance abuse

3 million deaths each year attributed to alcohol[2]

Key Concepts in Substance Use Disorders

Craving: Intense desire or urge to use.
Withdrawal: Symptoms upon dose reduction or cessation
Tolerance: Need for ↑ dose to achieve prior effect
Relapse: Return to substance use after abstinence

Dependence: Physiological adaptations to repeated substance exposure, manifests as tolerance and withdrawal.

Intoxication: Reversible syndrome after substance use.

Addiction: Chronic, relapsing behavioral disorder requiring ≥ 2 of 11 criteria over 12 months.

Epidemiology Deep Dive by Substance

Alcohol

Current Drinkers
In 2016, an estimated 2.3 billion people were current drinkers.

Alcohol Use Disorder
283 million aged 15+ had an AUD (Alcohol Use Disorder).

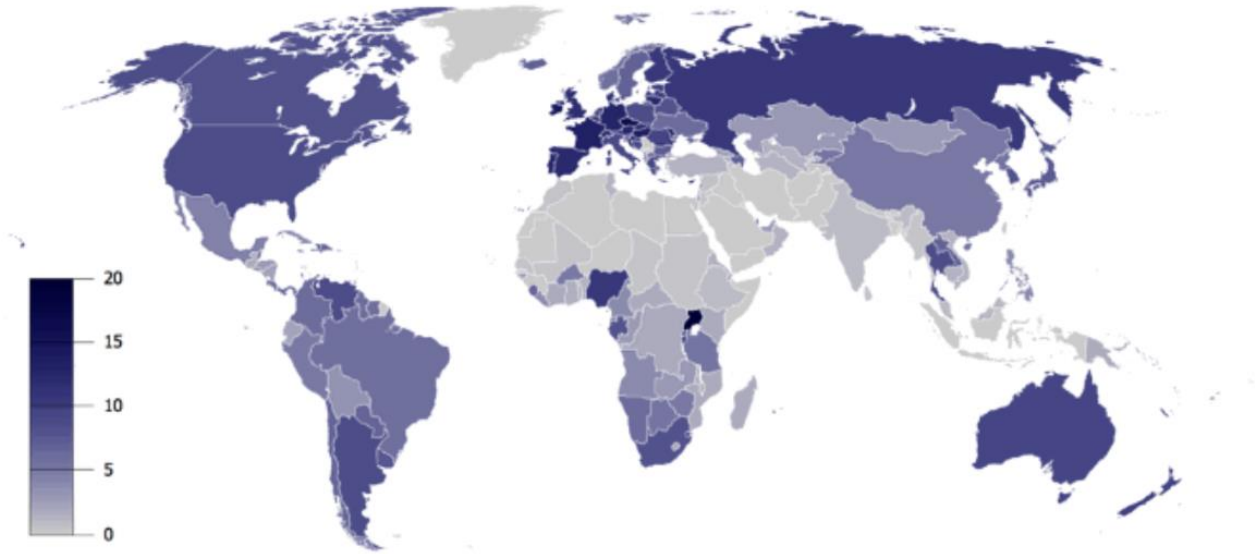
Opioids

Misuse Statistics
8.9 million or 3.4% of Americans aged 12 and older misuse opioids at least once over a 12-month period.

Demographics and Drug Use

Peaks in adolescence and young adults.

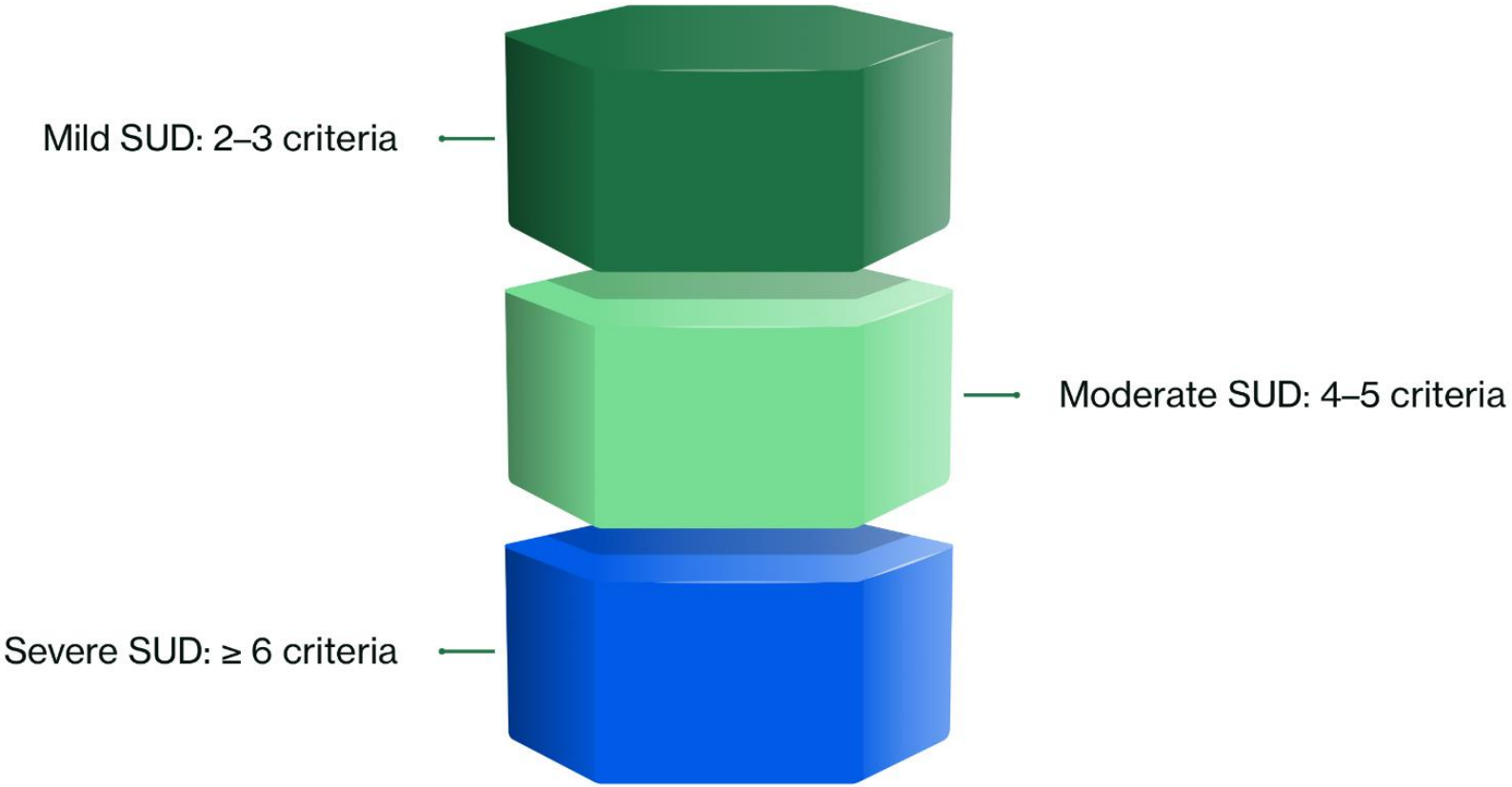
Drug use is higher in countries with high economic inequality.



DSM-5 Criteria for Substance Use Disorder

1 Using more of a substance than intended or using it for longer than you're meant to. (Impaired Control)
2 Trying to cut down or stop using the substance but being unable to. (Impaired Control)
3 Experiencing intense cravings or urges to use the substance. (Impaired Control)
4 Needing more of the substance to get the desired effect — also called tolerance. (Pharmacological)
5 Developing withdrawal symptoms when not using the substance. (Pharmacological)
6 Spending more time getting and using drugs and recovering from substance use. (Impaired Control)
7 Neglecting responsibilities at home, work or school because of substance use. (Social Impairment)
8 COntinuing to use even when it causes relationship problems. (Social Impairment)
9 Giving up important or desirable social and recreational activities due to substance use. (Social Impairment)
10 Using substances in risky settings that put you in danger. (Risky Use)
11 Continuing to use despite the substance causing problems to your physical and mental health. (Risky Use)

Severity of Substance Use Disorder



Biological Risk Factors

Coexisting Mental Illness

Includes mood disorders, ADHD, and conduct disorder.

Genetics

Accounts for 40–60% of vulnerability; family history of SUD increases individual risk.

Neurodevelopment

Adolescence & early adulthood are critical periods; ongoing brain maturation heightens susceptibility.

Environmental & Social Risk Factors

1

Peer Influence & Availability

Peer pressure and drug-using networks; easy access increases experimentation.

2

Socioeconomic Stressors

Poverty, unemployment, housing instability; financial hardship drives self-medication.

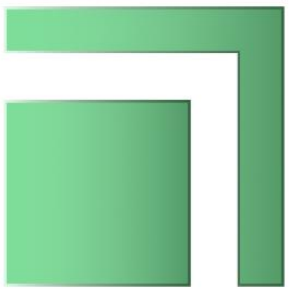
3

Trauma & Adverse Childhood Experiences (ACEs)

Physical, emotional, sexual abuse; neglect and household dysfunction.

Protective Factors & Resilience

Strong family bonds



Academic/school engagement

Access to mental health services

Positive coping skills (sports, arts)

Neurobiology – Reward Pathway

Ventral Tegmental Area → Nucleus Accumbens → PFC

This pathway is critical in the brain's reward system, facilitating the release of dopamine during pleasurable activities.

Acute drug effect: ↑ dopamine = euphoria

The initial use of substances leads to a rapid increase in dopamine levels, resulting in feelings of euphoria.

Chronic use: downregulation of receptors

With prolonged substance use, the brain adapts by reducing the number of dopamine receptors, impacting overall reward sensitivity.

Impaired decision-making

Chronic exposure to substances can lead to significant impairments in cognitive functions, particularly in decision-making processes.

Substance Classification Overview

Classification	Examples
Stimulants	cocaine, amphetamines, nicotine, caffeine
Depressants	alcohol, benzodiazepines, barbiturates
Opioids	heroin, morphine, oxycodone
Hallucinogens	LSD, psilocybin, PCP
Cannabinoids	THC, synthetic cannabinoids
Inhalants & Others	

Clinical Presentation Patterns

Intoxication Syndromes: Pinpoint pupils (opioids), agitation (stimulants), slurred speech (alcohol).

Chronic Signs: Skin changes (track marks), organ damage (cirrhosis from alcohol).

Behavioral Red Flags: Legal issues, relationship breakdown.

Comorbidities: Infection risk (HIV/HCV), mood disorders, anxiety disorders.

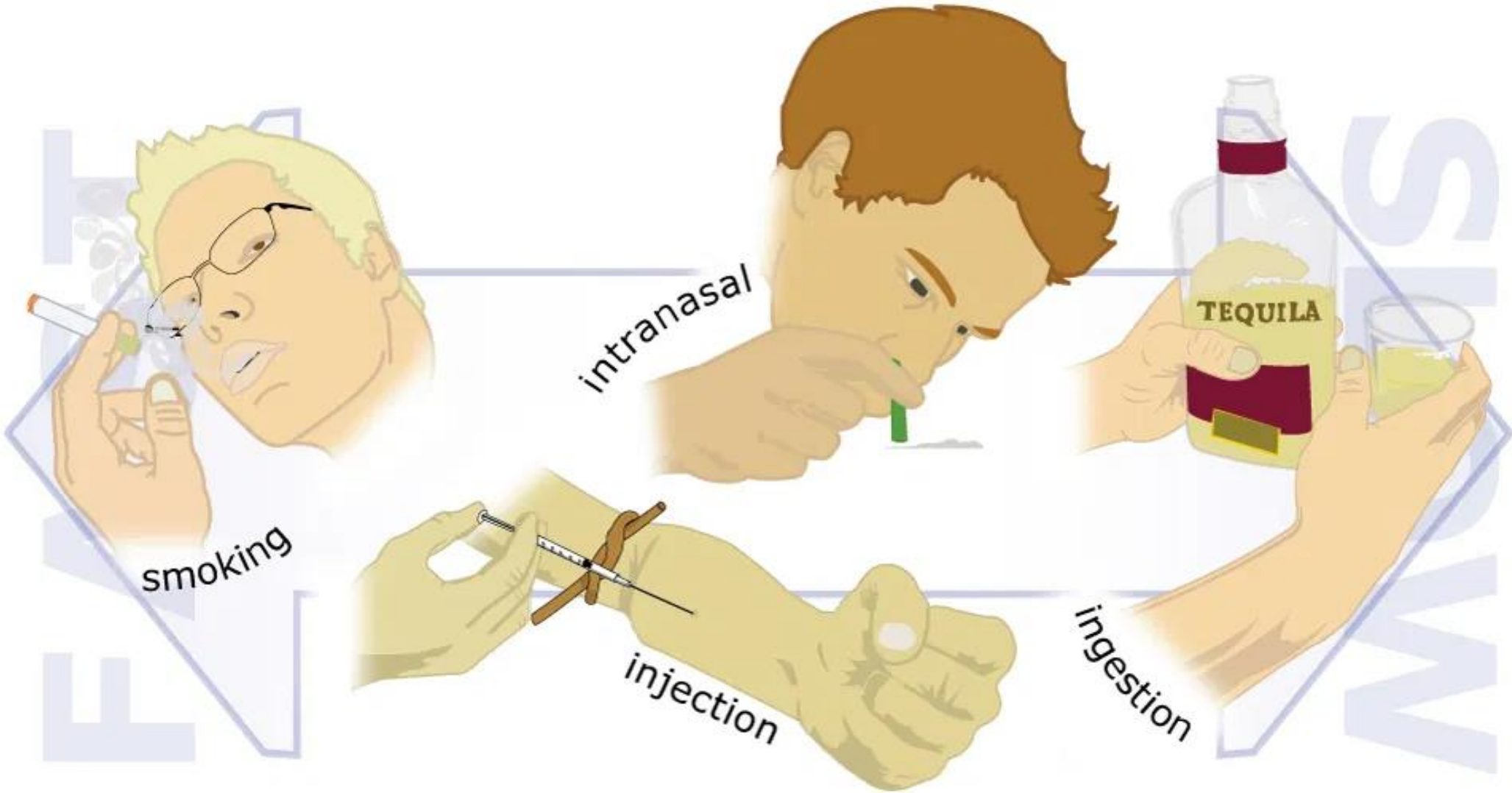
Screening & Assessment Tools

CAGE (alcohol): Cut down/Annoyed/Guilty/Eye-opener.

AUDIT (alcohol)

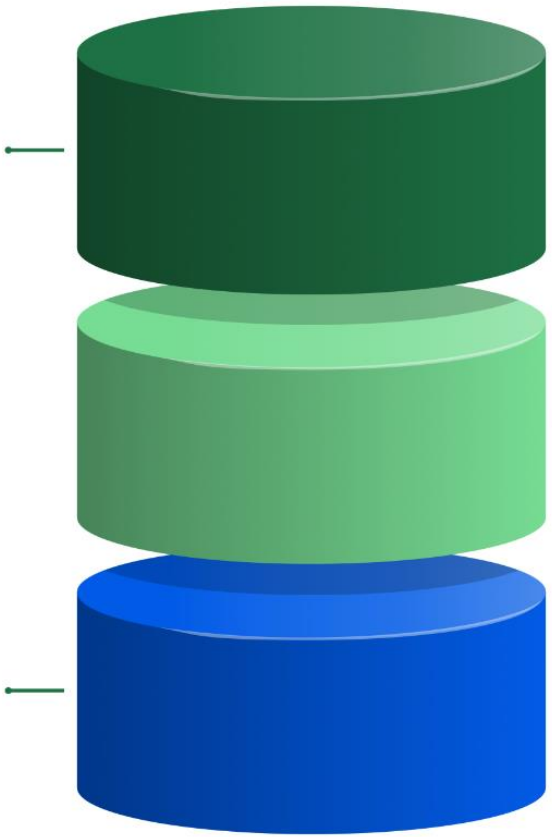
DAST10 (drugs): other than alcohol.

Clinical Histories: Quantity, frequency, route; context & consequences; prior quit attempts.


smoking
intranasal
TEQUILA
injection
ingestion

Laboratory & Imaging Clues

Bloodwork: LFTs, GGT, MCV (alcohol), CDT



Toxicology Screens: urine, serum

Imaging: liver ultrasound, CT head (trauma)

Cognitive Behavioral Therapy (CBT) in Substance Use

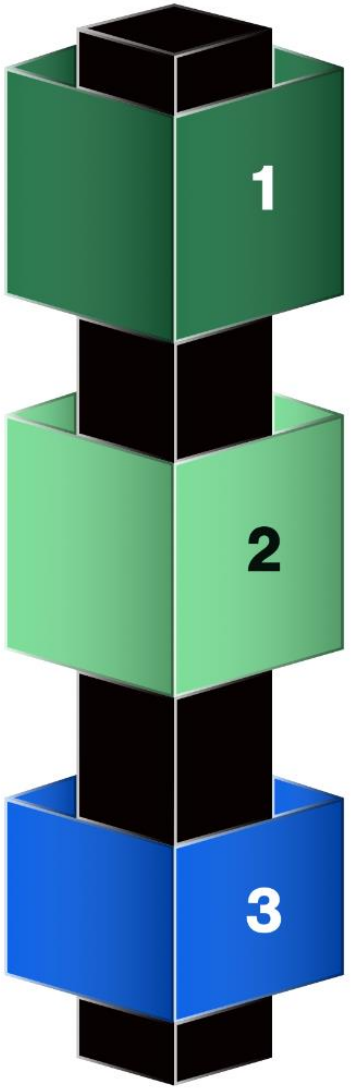
CBT = Targeting the Triangle: Thoughts ↔️ Feelings ↔️ Behaviors.

Identifies and restructures maladaptive beliefs.

Builds coping strategies and relapse prevention.

Outcomes: Helps break the cycle of craving–use–guilt; promotes self-monitoring and behavioral substitution.

Management of Substance Use & Overdose



Supportive Care

Airway, breathing, circulation (ABCs); monitor vitals, mental status; IV fluids, oxygen, symptom control.

Antidotes (When Available)

Withdrawal Treatment

Overview of pharmacotherapies for alcohol, opioids, smoking, stimulants.

Preview of Pharmacotherapies

- **Alcohol:** naltrexone, acamprosate, disulfiram
- **Opioids:** buprenorphine, methadone, naltrexone
- **Smoking:** NRT, bupropion, varenicline
- **Stimulants & others:** off-label use of ADHD meds, antipsychotics

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A. Misuse is always intentional; abuse is accidental.
B. Abuse involves repeated harm despite consequences, while misuse may not.
C. Misuse refers only to illegal substances; abuse refers to legal ones.
D. Abuse occurs only in medical settings.

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✅ Correct Answer: B

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B. Repeated use of legal substances in social settings
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