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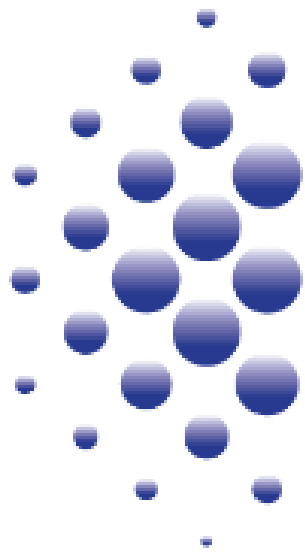
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<https://www.streamtext.net/player?event=IASA>

# Nature vs. Nurture:

The Impact of Genetics and the Environment on Addiction

Presented by: Dr. Anjali Nandi, PhD, MAC, LAC  
Facilitated by: Greg Brown

October 7, 2020



BJA's

# **Comprehensive** Opioid, Stimulant, and Substance Abuse

Program

# Webinar Information

This project was supported by Grant No. 2019-MU-BX-K031 awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the U.S. Department of Justice's Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, the Office for Victims of Crime, and the SMART Office. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.

# Pre-Webinar Information



Participants will be muted for the duration of the webinar.

Questions and comments can be asked using the question box in the control panel.



Presentation slides, instructor bios, and corresponding resources can be found in the handouts section of the control panel.

Live transcript/captions available at <https://www.streamtext.net/player?event=IASA>

# Post-Webinar Information

- At the end of the webinar, a short evaluation will appear (pop-up blocker must be turned off).
- A recording of this webinar will be available in approximately 2 weeks at [www.ncjtc.org](http://www.ncjtc.org).
- A certificate of attendance will be sent within 2 weeks to participants who:
  - ✓ Attend the entire live webinar
  - ✓ Complete the evaluation

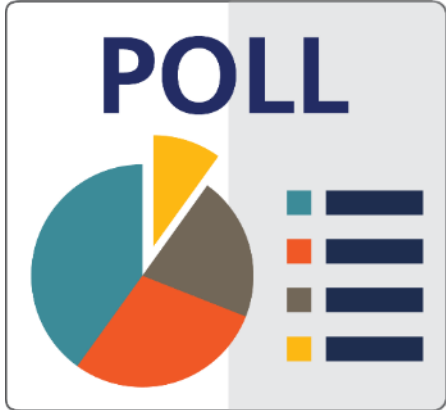
**Note:** Certificates will not be provided for viewing the recorded webinar.



# Poll Questions

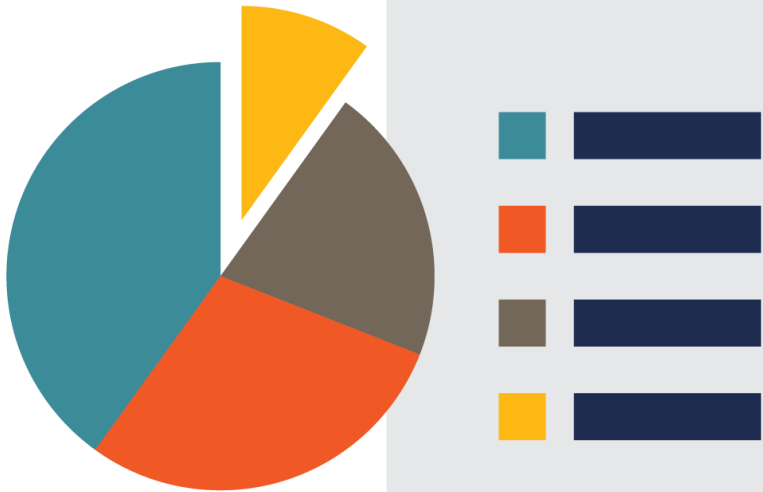
Poll questions may be asked during the webinar.

This is your time to weigh in with your thoughts.



Please respond promptly; polls are open for a short period of time.

# POLL



## Which of the following best describes your role?

- Victim Services / Victim Advocate
- Probation / Community Corrections
- Law Enforcement
- CAC Worker, Social Worker, Mental Health Worker
- Other



# Learning Objectives

- ① Understand the impact of genetics on the susceptibility for addiction.
- ② Explore the environmental impacts on addiction.
- ③ Understand the evidence-based strategies to attend to these environmental impacts and addiction.



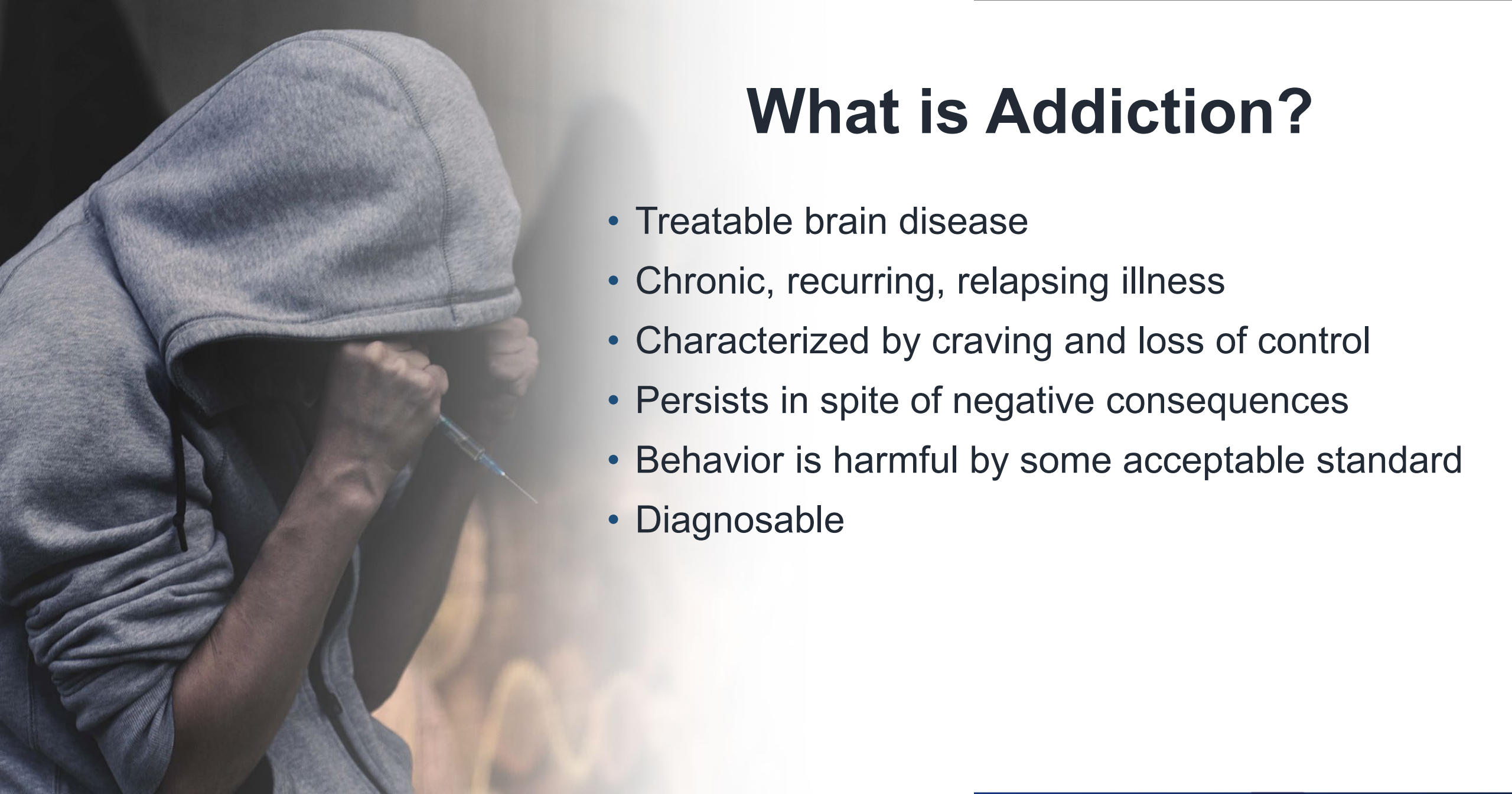
**Dr. Anjali Nandi, PhD, MAC, LAC**  
Associate, NCJTC  
*Presenter*



**Kevin Mariano**  
Project Coordinator, NCJTC  
*Panelist*

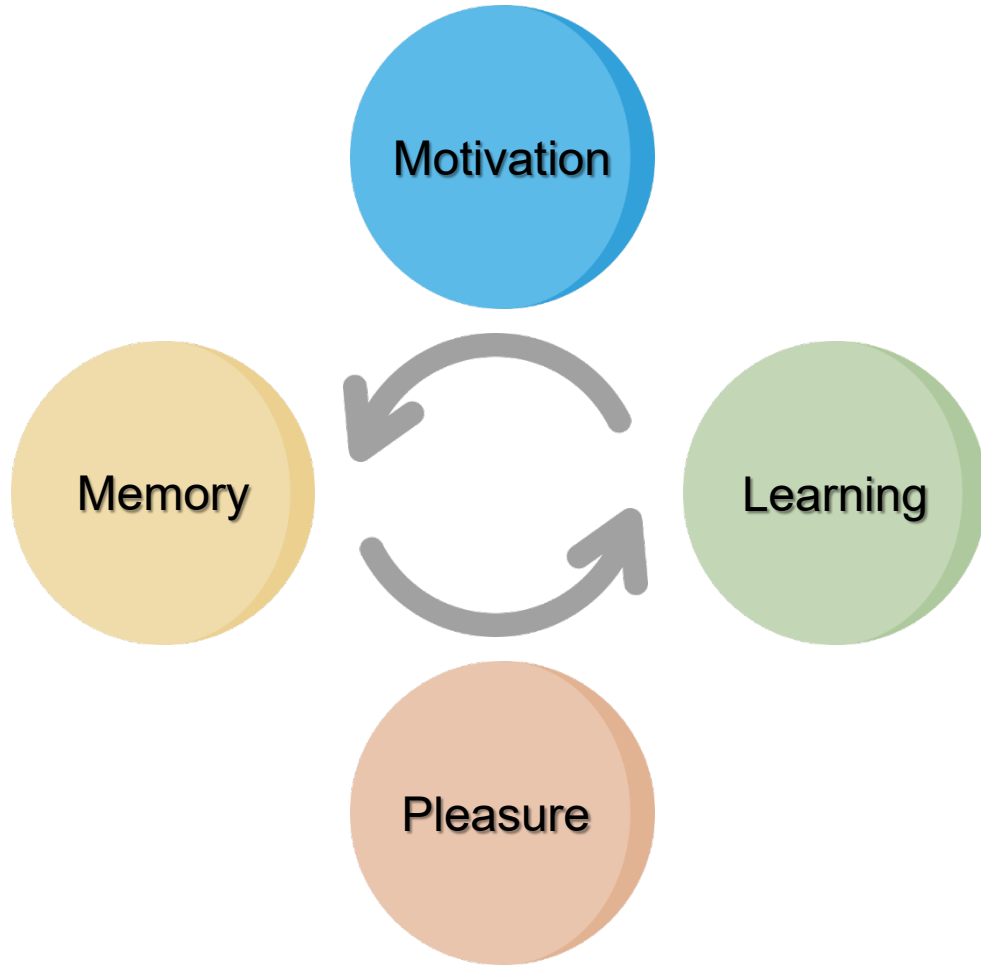


**Greg Brown**  
Program Manager, NCJTC  
*Moderator*



# What is Addiction?

- Treatable brain disease
- Chronic, recurring, relapsing illness
- Characterized by craving and loss of control
- Persists in spite of negative consequences
- Behavior is harmful by some acceptable standard
- Diagnosable



# Reward Circuit

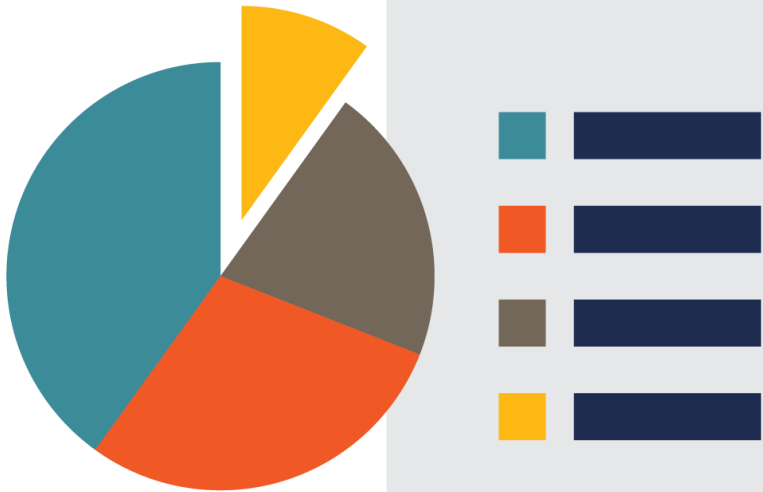
- Addictive substances and behaviors stimulate the same circuit — and then overload it.
- Liking becomes wanting; wanting becomes seeking for survival
- Affects judgement, behavior and impulse control
- Compulsion despite negative consequences





- Addiction involves craving for something intensely, loss of control over its use, and continuing involvement with it despite adverse consequences.
- Addiction changes the brain, first by subverting the way it registers pleasure and then by corrupting other normal drives such as learning and motivation.
- Pleasurable activities, such as gambling, shopping, and sex, can also co-opt the brain and be addictive.

# POLL



**Which do you think contributes more to predicting alcohol/drug issues later in life?**

- Nature (i.e., genetics)
- Nurture (i.e., upbringing)
- Both equally





# The Power of Genetics

As much as half of a person's risk of becoming addicted to nicotine, alcohol, or other drugs depends on genetic makeup

# What Does This Mean?

- What is genetics?
  - What do they do?
  - What are genes?
  - Why does it matter?
- 
- The DNA sequences of any two people are 99.9% the same.
  - However, that 0.1% variation accounts for 3 million differences in the nearly 3 billion base pairs of DNA sequence!
  - These differences contribute to visible variations and invisible traits, such as increased risk for or protection from certain diseases such addiction.

# Genetics and Disease

Some diseases, such as sickle cell anemia or cystic fibrosis, are caused by a change, known as a *mutation*, in a single gene.


Most diseases, including addiction, are complex, and variations in many different genes contribute to a person's overall level of risk or protection.

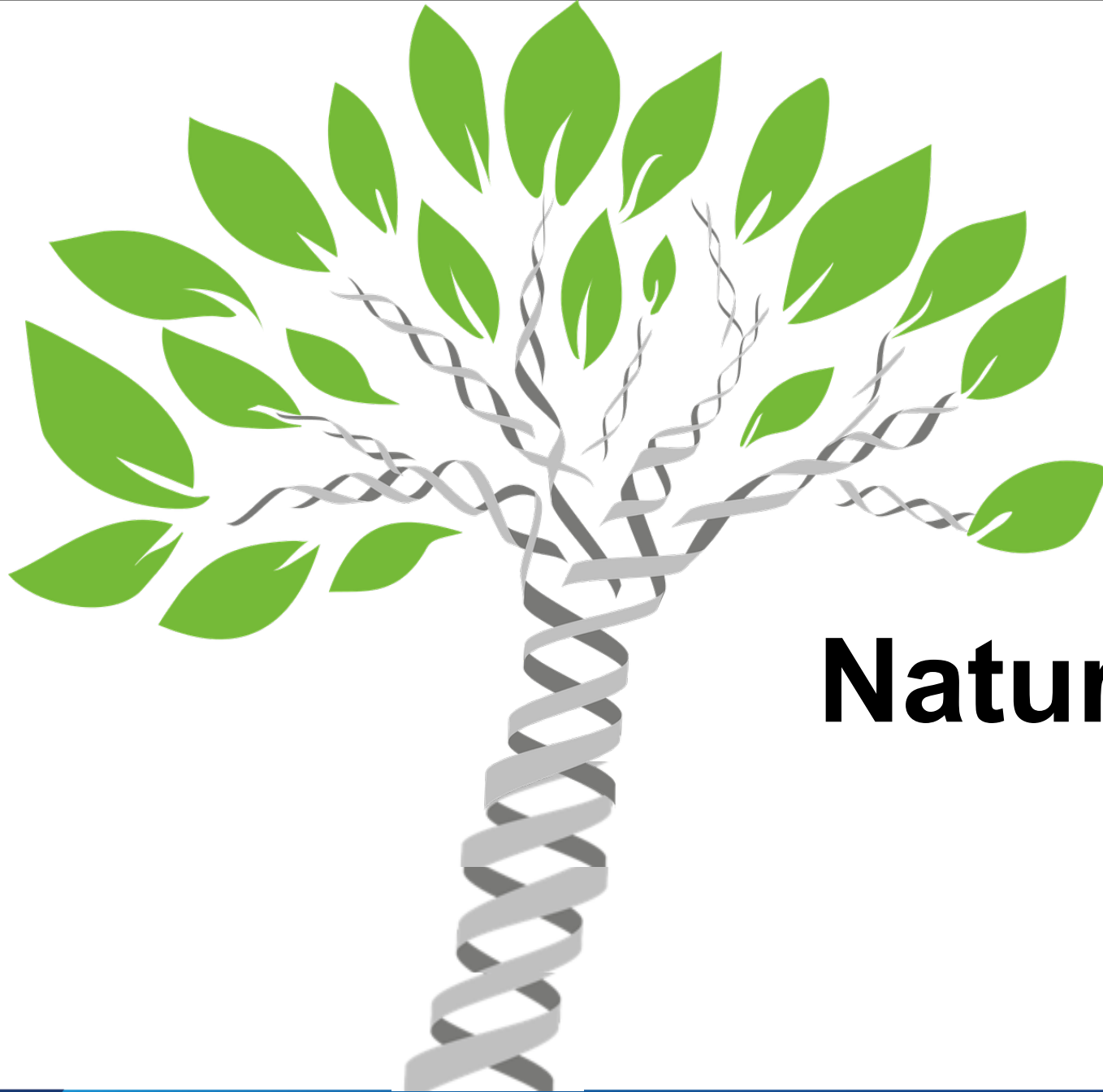


# Nature or Nurture

- Addiction runs in family; more nature than nurture, provides increased biological risk
- Kids raised by adoptive parents with or without addiction had same levels of developing addiction when birth parents had no trouble with addiction
- Kids whose birth parents struggled with addiction were 4 times more likely to struggle regardless of prevalence in adoptive parents
- Alcoholism in family results in increased risk for drug addiction



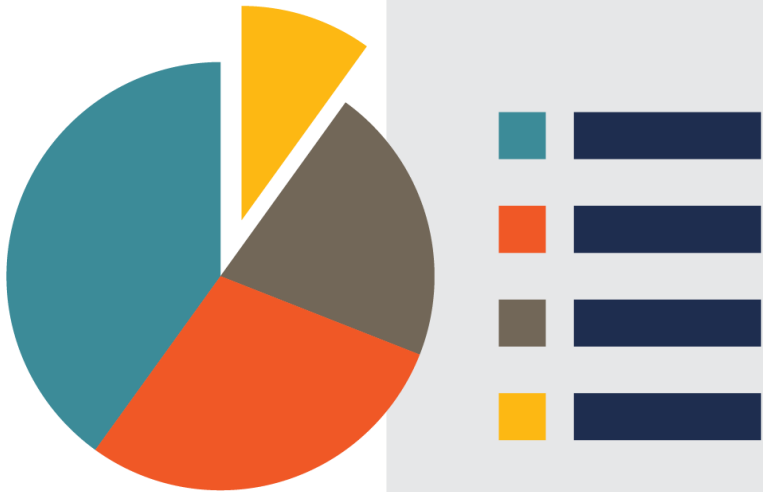
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- People are born with an initial level of tolerance determined by our genetics
  - Tolerance increases as we use more
  - As tolerance increases, physical tolerance increases much faster than mental tolerance



# Nature & Nurture



# POLL



**With your clients, what has the most impact on their development of addiction?**

- Home life
- Peers
- Social issues
- All of it



# Environmental factors

- ✓ Parental engagement
- ✓ Chaotic household
- ✓ Adverse Childhood Experiences (ACEs)
- ✓ After-school activities
- ✓ Exercise
- ✓ Exposure
- ✓ Social norms
- ✓ Neighborhood disadvantage
- ✓ Barriers to Treatment

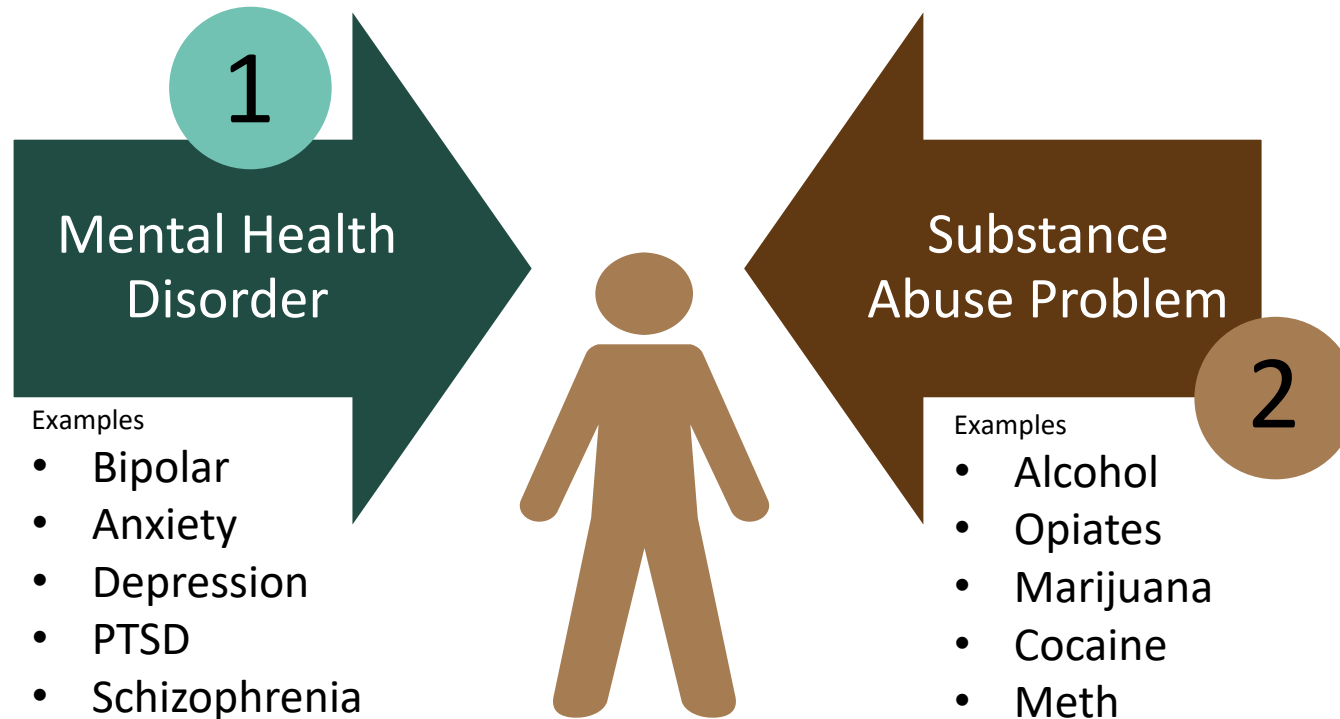
The background of the slide features a faded, purple-tinted image of a playground. In the foreground, there are several swings hanging from a metal frame. In the background, there are two large teepees and a small building, possibly a playhouse or a small house, situated in a grassy field.

# Data on American Indian/ Alaska Native (AI/AN) population

- Three times as many are diagnosed with substance use disorders compared to white Americans.
- Twice as many require treatment for addiction compared to any other racial and ethnic group.
- Highest rates of alcohol-related deaths.
- Higher opioid mortality rate than any other racial and ethnic group.
- Implementation of medical assisted treatments (MATs) is significantly lower than the general population.

# What is a Co-occurring Disorder?

A person who has at least one mental health disorder and who also abuses drugs or alcohol



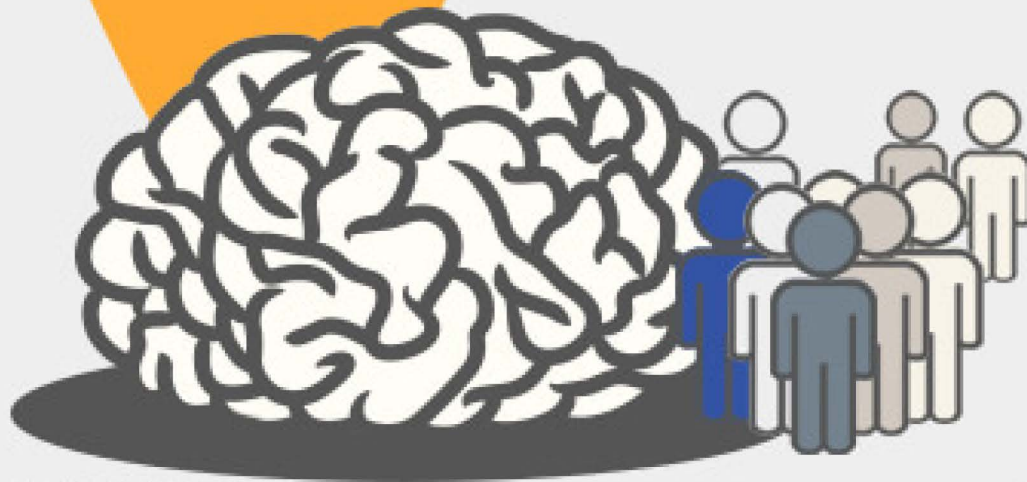


## Co-Occurring Disorders

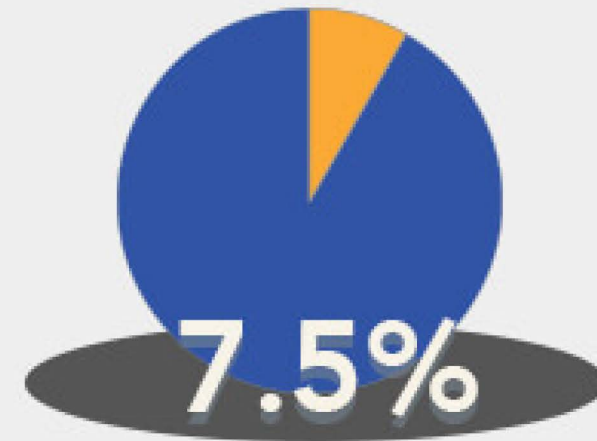
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Million Americans

Living with a co-occurring disorder

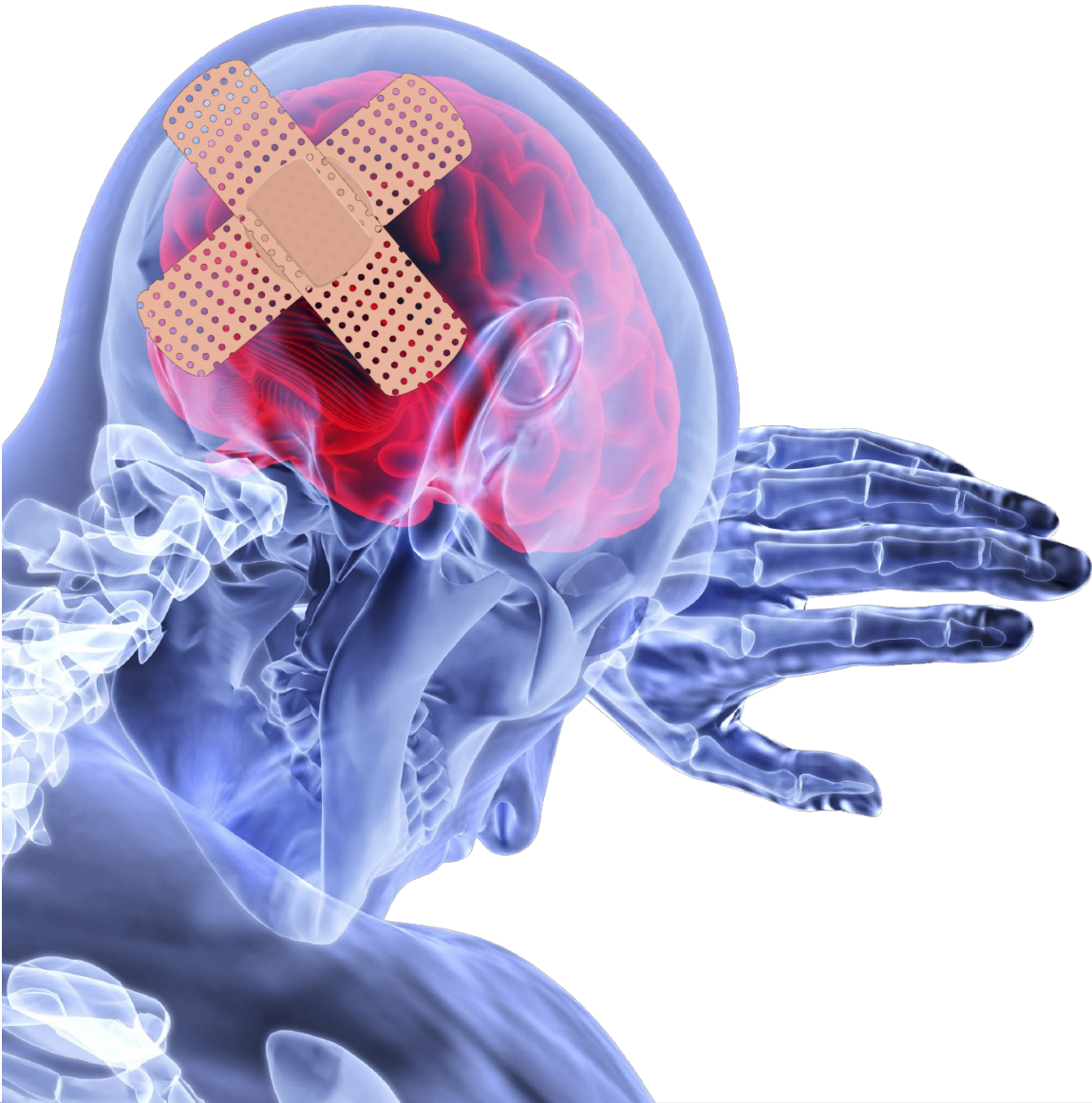


SAMHSA



Only 7.5% enroll in  
a treatment program

# Treatment



- Interacts with the process of self-change
- Is a time-limited event in the course of the larger self-change process.
- All recovery from substance abuse can be envisioned as natural recovery
- Treatment is a facilitator of that process



# Evidence-Based Treatments

- Cognitive behavioral training
- Motivational interviewing
- Contingency management
- Community reinforcement approaches
- Dialectical behavioral therapy
- Pharmacotherapies
- Attending to comorbidity

# Common Themes

- Assessment
- Skill building
- Attention to the relationship
- Empathy
- Incentives and sanctions
- Social support





- Contingent positive reinforcement
- Helps combat the intense brief immediate reinforcers of drugs
- It stops the interaction of the components that compromise addiction.

*Promote what you love instead of bashing what you hate.*



# Medication Assisted Therapies

- Provide pharmacological effects that are similar to those effects of abused drugs.
- Difference is the brevity and intensity of the stimulus.





# Evidence-Based Principles

- No single treatment is appropriate for all individuals.
- Treatment needs to be readily available.
- Effective treatment attends to multiple needs of the individual, not just drug use.
- Remaining in treatment for an adequate period of time is critical for treatment effectiveness.
- Counseling (individual and/or group) and other behavioral therapies are critical components of effective treatment for addiction.
- Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies.

A blurred background image showing a person from the back, sitting and holding their hands together in a prayer-like position. They are wearing a grey sweater and blue jeans. The setting appears to be an indoor space with other people and lights in the background.

# Evidence-Based Principles

- Addicted or drug-abusing individuals with coexisting mental disorders should have both disorders treated in an integrated way.
- Medical detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug use.
- Treatment does not need to be voluntary to be effective.
- Possible drug use during treatment must be monitored continuously.
- Recovery from drug addiction can be a long-term process and frequently requires multiple episodes of treatment.



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# Training & Technical Assistance

View upcoming and requestable trainings, upcoming program webinars, resources and more:

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Visit our robust on demand library to view scheduled webinars, webinar recordings, self-paced online course opportunities:

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# Upcoming Webinars

**October 14** | 1:00 PM CT

✓ *Social Emotional Skill Development*

**November 4** | 1:00 PM CT

✓ *Building Stress-Resilient Tribal Communities*

**November 18** | 1:00 PM CT

✓ *Strategies to Reduce Underage Substance Abuse in Tribal Communities*

**December 2** | 1:00 PM CT

✓ *Examining the Relationship between Adverse Childhood Experiences (ACEs) and Substance use among Tribal Populations*

***Registration emails coming soon...***

# *Bureau of Justice Assistance's* Comprehensive Opioid, Stimulant, and Substance Abuse Program (COSSAP) Resource Center



[www.cossapresources.org](http://www.cossapresources.org)

# COSSAP Resources

**Tailored Assistance**—The COSSAP training and technical assistance (TTA) program offers a variety of learning opportunities and assistance to support local, tribal, and state organizations, stakeholders, and projects in building and sustaining multidisciplinary responses to the nation’s substance abuse crisis. ***You do not need to be a COSSAP grantee to request support.*** TTAs are provided in a variety of formats, including virtual and in-person training events, workshop and meeting presentations, and online resources. Request TTA to support your activities at <https://cossapresources.org/Program/TTA/Request>.

**Funding Opportunities**—Current COSSAP and complementary funding opportunities are shared at <https://www.cossapresources.org/Program/Applying>.

**COSSAP Webinars**—All COSSAP webinars are recorded and made available online at <https://www.cossapresources.org/Media>.

**Join the COSSAP community!** Send a note to [COSSAP@iir.com](mailto:COSSAP@iir.com) with the subject line “Add Me” and include your contact information. We’ll be happy to ensure you receive the latest-and-greatest COSSAP opportunities, resources, and updates.

# REMINDER

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- 1. Attend the entire live webinar**
- 2. Complete the evaluation**

A **Certificate of Attendance** will be emailed to you within two (2) weeks.

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