

Lobby

Did you participate on one or both of the first two pharmacology webinars earlier this month (Pharmacology of Alcohol and Pharmacology of Opioids)?

- YES
- NO
- CAN'T REMEMBER!



Northwest (HHS Region 10)

PTTC

Prevention Technology Transfer Center Network

Funded by Substance Abuse and Mental Health Services Administration



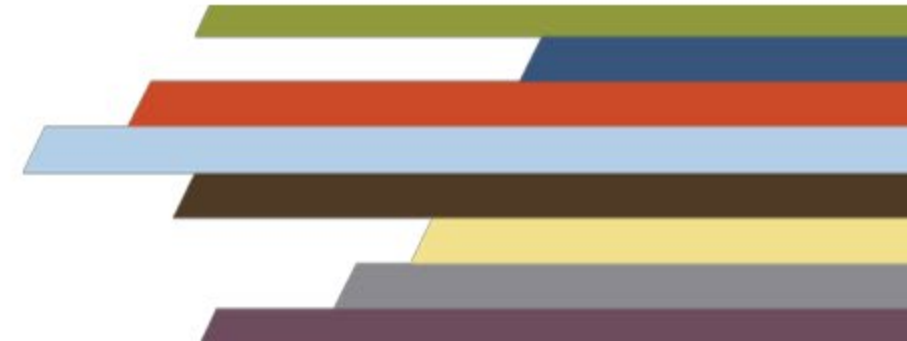
Pharmacology Basics & Psychostimulants

What Prevention Specialists Need to Know

Ron Jackson, MSW. LICSW

Clinical Professor

School of Social Work, University of Washington



Disclaimer

The views expressed in this webinar do not necessarily represent the views, policies, and positions of the Substance Abuse and Mental Health Services Administration or the U.S. Department of Health and Human Services.

This webinar is being recorded and archived, and will be available for viewing after the webinar. Please contact the webinar facilitator if you have any concerns or questions.

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The Northwest PTTC is a partnership led by the Social Development Research Group (SDRG) at University of Washington (UW) School of Social Work in collaboration with the Prevention Science Graduate Program at Washington State University (WSU), and the Center for the Application of Substance Abuse Technologies (CASAT) at the University of Nevada, Reno (UNR).

Northwest partnering institutes share a vision to expand the impact of community-activated prevention by equipping the prevention workforce with the power of prevention science.



Prevention Science
Graduate Program

WASHINGTON STATE UNIVERSITY



Upcoming Webinar!



Pharmacology of Cannabis

October 29, 2020

11:00 AM – 12:30 PM Pacific Time

Presenter



Ron Jackson, MSW, LICSW, is a Clinical Professor at the University of Washington's School of Social Work where he teaches courses on addiction and its treatment methods. He recently retired as the Executive Director of Evergreen Treatment Services (ETS), a private non-profit organization, in Seattle, Washington, that provides outpatient opioid treatment in clinics in western Washington and street-based case management services for homeless persons with substance misuse disorders (REACH Program) in Seattle. He served for 10 years as a Co-Principal Investigator for the Washington Node of NIDA's Clinical Trials Network and is currently on the Advisory Board for the NWATTC. Mr. Jackson has worked in the field of addiction treatment since 1972.

The first casualty of mental illnesses and addictions is hope.

Stigma has four distinct components:

- labeling someone with a condition
- stereotyping people who have that condition
- creating a division: a superior "us" group and a devalued "them" group, resulting in loss of status in the community
- discriminating against someone on the basis of their label(s)

(Central LHIN Resource Manual, 2012)

ADDICTION

“Addiction is a brain disease shaped by behavioral and social context.”

Dr. Alan Leshner, Former Director
National Institute on Drug Abuse

“Drug addiction is associated with altered cortical activity and decision making that appears to overvalue reward, undervalue risk, and fail to learn from repeated errors.”

Dr. Nora Volkow, Director
National Institute on Drug Abuse

“Any disease that is treated as a mystery and acutely enough feared will be felt to be morally, if not literally, contagious.”

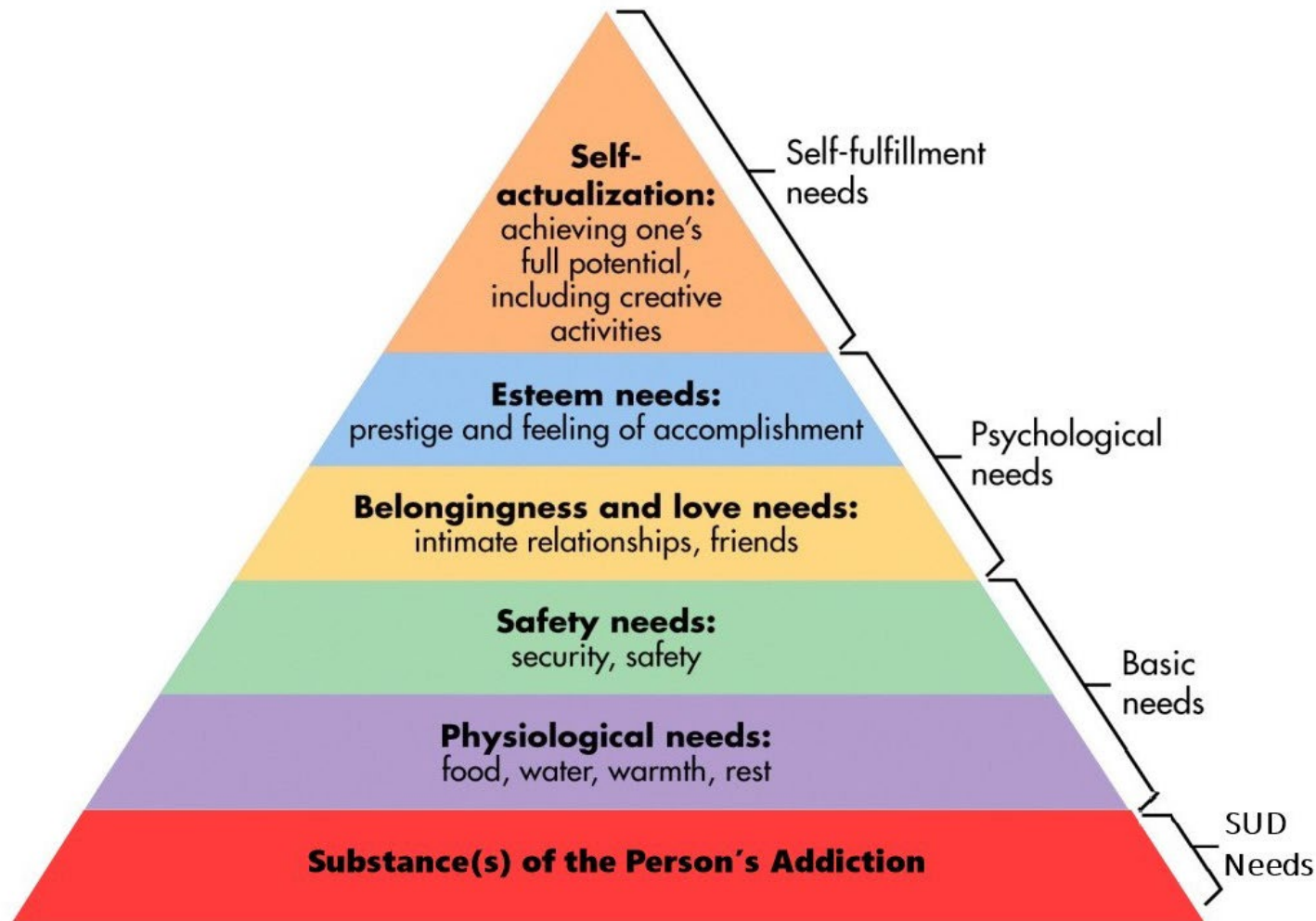
Susan Sontag, “Illness as Metaphor” 1978

ELEMENTS OF ADDICTION

1. COMPULSION & CRAVING
 - A. BIOLOGICAL (WITHDRAWAL)
 - B. CONDITIONED RESPONSE
2. LOSS OF CONTROL OVER USE
3. CONTINUED USE DESPITE ADVERSE CONSEQUENCES
4. SALIENCE OF USE

DURATION of SYMPTOMS

Maslow's Hierarchy of Needs: As changed by addiction



Substance Use Disorders – DSM 5

- **Tolerance***
- **Withdrawal***
- **More use than intended**
- **Craving for the substance**
- **Unsuccessful efforts to cut down**
- **Spends excessive time in acquisition**
- **Activities given up because of use**
- **Uses despite negative effects**
- **Failure to fulfill major role obligations**
- **Recurrent use in hazardous situations**
- **Continued use despite consistent social or interpersonal problems**

Severity measured by number of symptoms:

2-3 Mild

4-6 Moderate

7-11 Severe

*not counted if prescribed by a physician

Source: American Psychiatric Association 2013

THEORIES ON THE ETIOLOGY OF ADDICTION

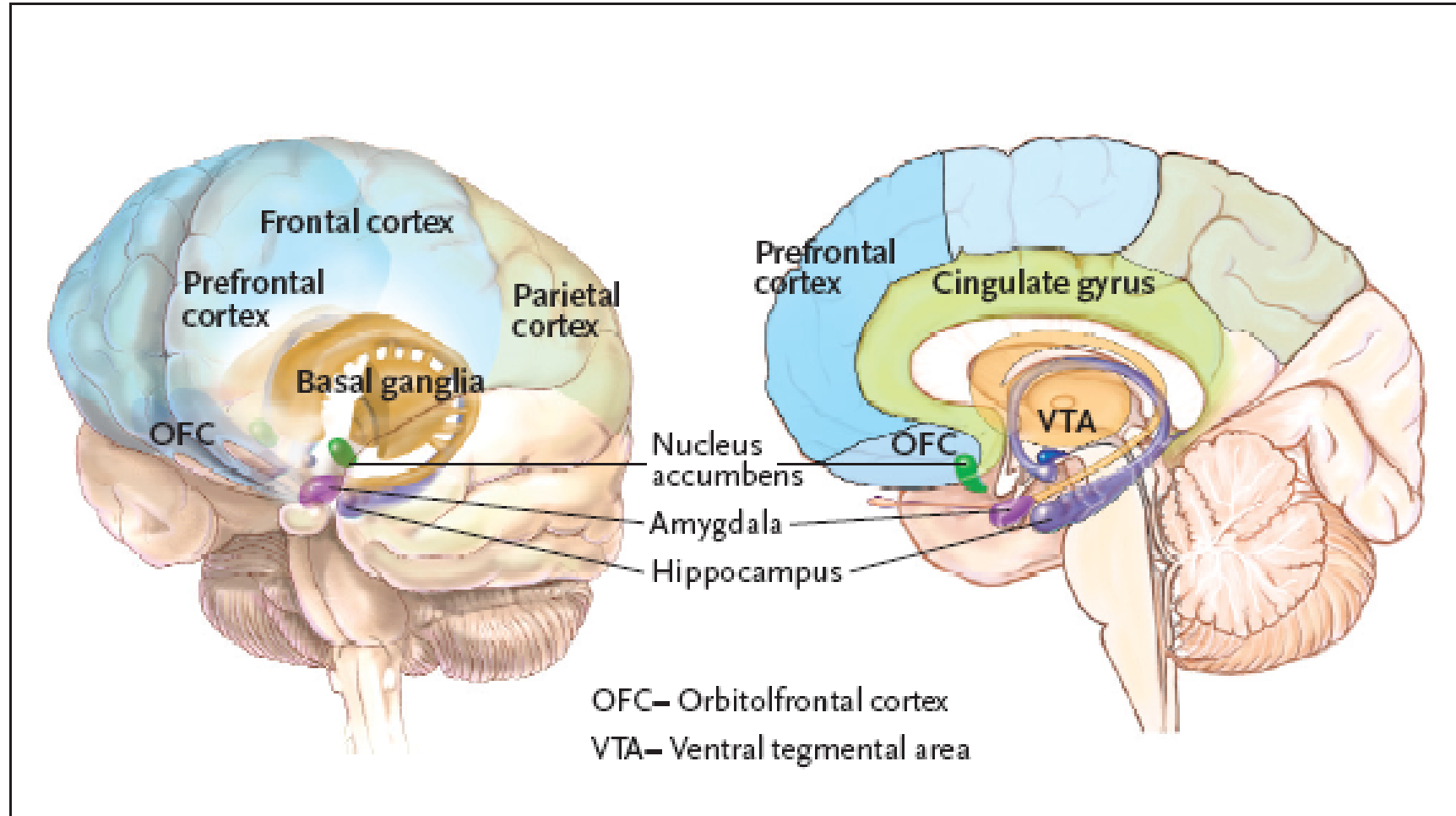
- DRUG BASED (AGENT)
- USER BASED (HOST)
 - PSYCHOLOGICAL
 - BIOLOGICAL
- ENVIRONMENT BASED



Basics of Pharmacology



Major Brain Regions with Roles in Addiction



© 2007 Teiese Winslow

The prefrontal cortex is the focal area for cognition and planning. The ventral tegmental area (VTA) and nucleus accumbens (NAc) are key components of the brain's reward system. The VTA, NAc, amygdala, and hippocampus are major components of the limbic system, which coordinates drives, emotions, and memories.

How Drugs Work

- Interact with neurochemistry
- Results:
 - ✓ Feel Good – Euphoria/reward
 - ✓ Feel Better – reduce negative feelings
- Final result – behavior persists

VARIABLES DETERMINING DRUG EFFECTS

- DOSE
- ROUTE OF ADMINISTRATION
- SET & SETTING
- OTHER DRUGS IN COMBINATION
- BIOCHEMICAL INDIVIDUALITY

DRUG CLASSIFICATION

- CNS DEPRESSANTS
 - SEDATIVE-HYPNOTICS
 - ETHANOL, BARBITURATES, BENZODIAZEPINES, METHAQUALONE, VOLATILE INHALANTS, GHB
 - OPIATE ANALGESICS
 - MORPHINE, HEROIN, METHADONE, CODEINE, OXYCODONE, DEMEROL
- CNS STIMULANTS
 - COCAINE, AMPHETAMINE / METHAMPHETAMINE, METHYLPHENIDATE, NICOTINE, CAFFEINE
- HALLUCINOGENS
 - LSD, PSYLOCIBIN, Mescaline, MDA / MDMA, PCP, KETAMINE
- CANNABIS - MARIJUANA & HASHISH



Poll

In your community, what substances are of most concern to you?

- Tobacco
- Opioids
- Alcohol
- Methamphetamine
- Cocaine
- Marijuana



Psychostimulants

Cocaine & Methamphetamine



Cocaine



Methamphetamine

“Crank” “Crystal” “Crystal Meth”

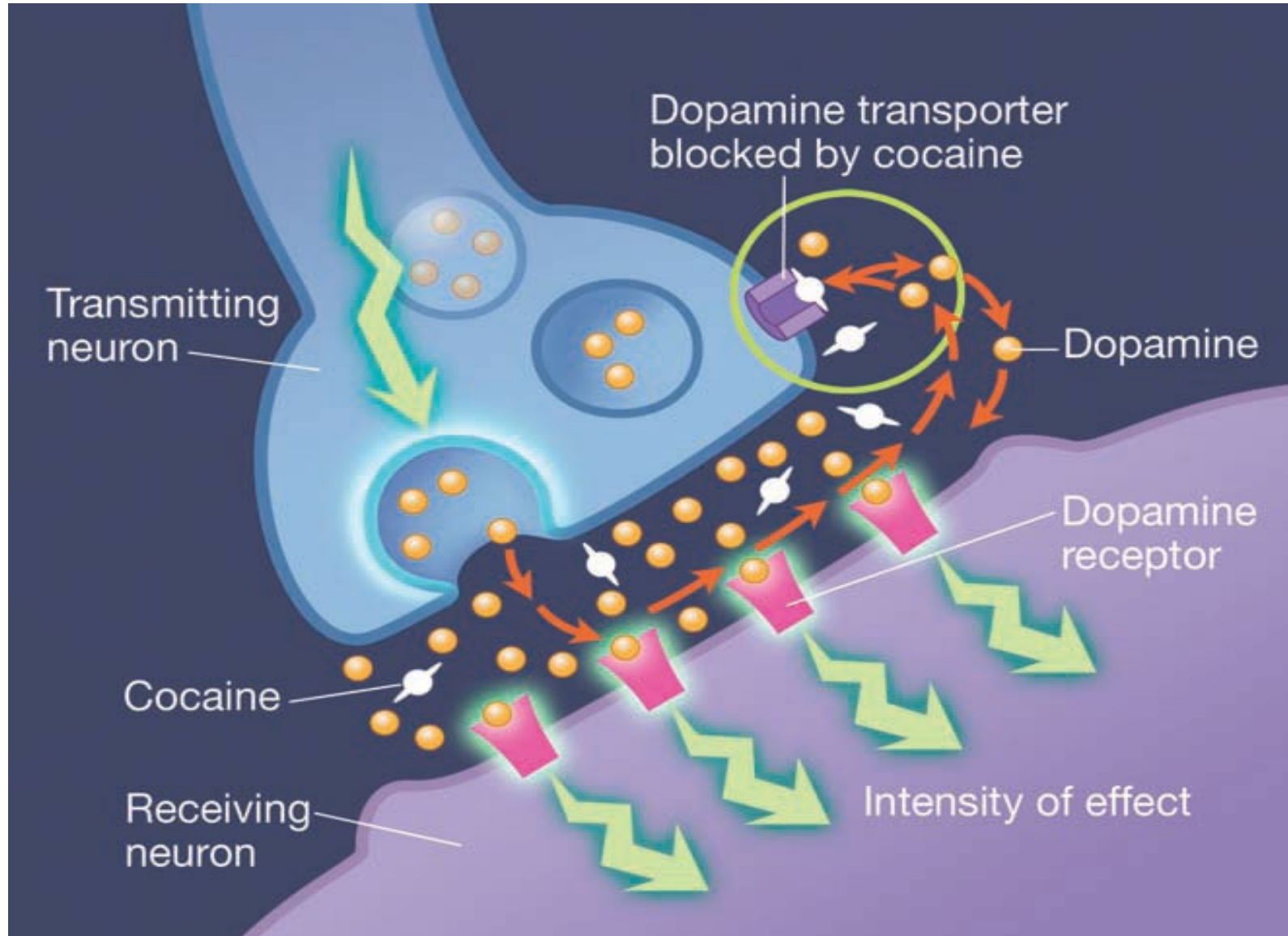


Poll

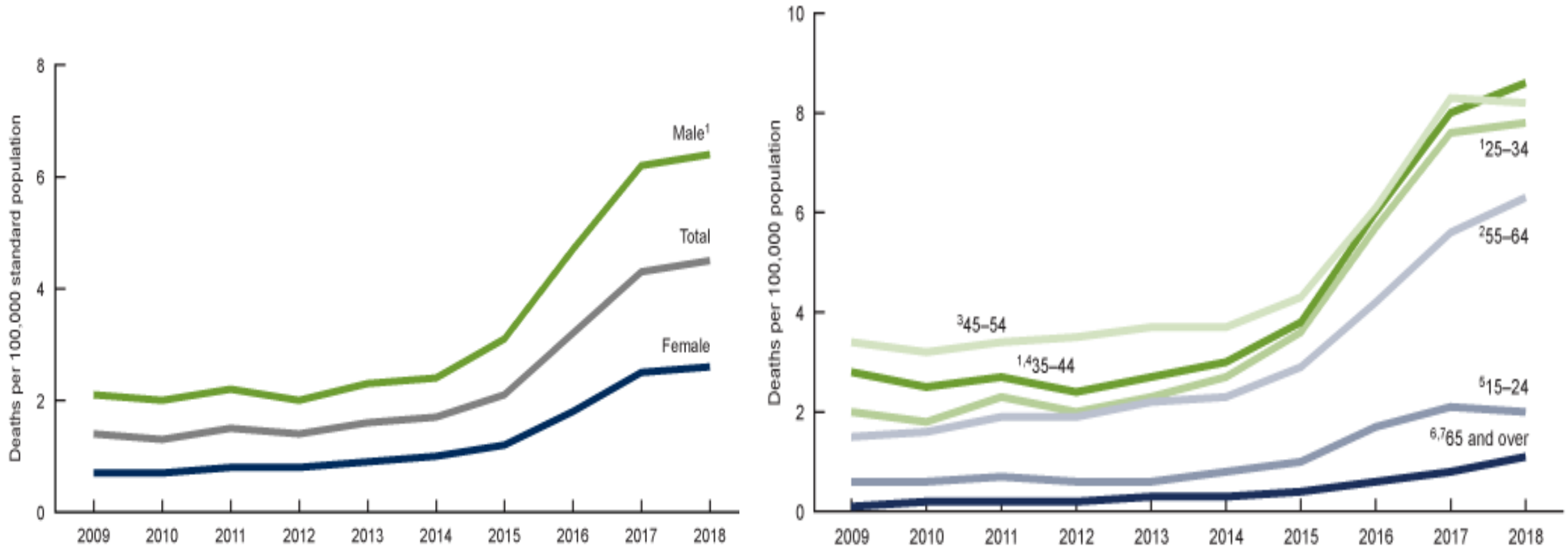
What is the primary origin of global supply of meth to the US?

- China
- Mexico
- Canada
- Europe

Dopamine Neurotransmission



Cocaine Overdose Deaths U.S. 2009-2018



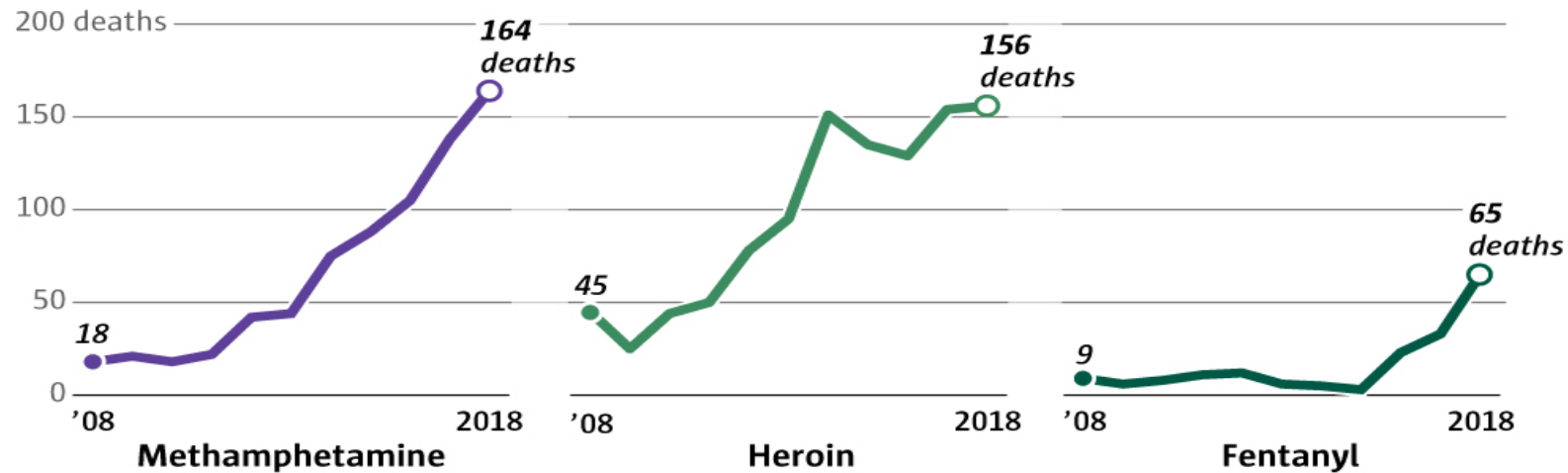
Source: CDC, NCHS Data Brief No. 384, October 2020

Methamphetamine Deaths

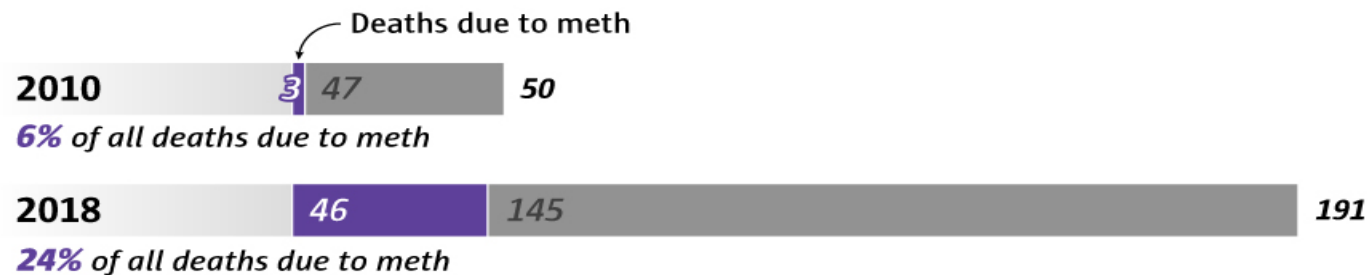
Meth deaths are up

More methamphetamine coming across the border in recent years has resulted in a rise in meth use in Western Washington, while wide access to Narcan has slowed the growth in heroin overdoses.

DRUG-INVOLVED OVERDOSE DEATHS IN KING COUNTY



METH-INVOLVED DEATHS OF PEOPLE PRESUMED TO BE HOMELESS



Source: King County medical examiner

EMILY M. ENG / THE SEATTLE TIMES

Cocaine & Methamphetamine

Acute Use Symptoms

- Physical:
 - Increased Heart Rate And Blood Pressure
 - Dilated Pupils
 - Seizures
 - Delayed Ejaculation / Prolonged Orgasm
 - Local Anesthesia (Cocaine)
- Emotional / Behavioral:
 - Euphoria And Hyperstimulation
 - Decreased Appetite
 - Increased Wakefulness
 - Enhanced Feelings Of Power / Control

Cocaine & Methamphetamine

Chronic Use Symptoms

- Jitteriness & Anxiety
- Extreme Drug Craving
- Mood Swings - Irritability
- Weight Loss, Anorexia
- Insomnia
- Other Drug Use
- Skin Picking & Ulcerations
- Problems With: (most pronounced in heavy users)
 - Memory and concentration – verbal memory, impairment in “filtering”
 - Cognitive functions – impairment of ability to manipulate information
- Paranoia – can persist after abstinent (MA)
- Fetal Impact – complicated by other drug use and other circumstances having negative effect on fetal outcomes

Myths

The Myth of “Crack Babies” A media-generated stereotype

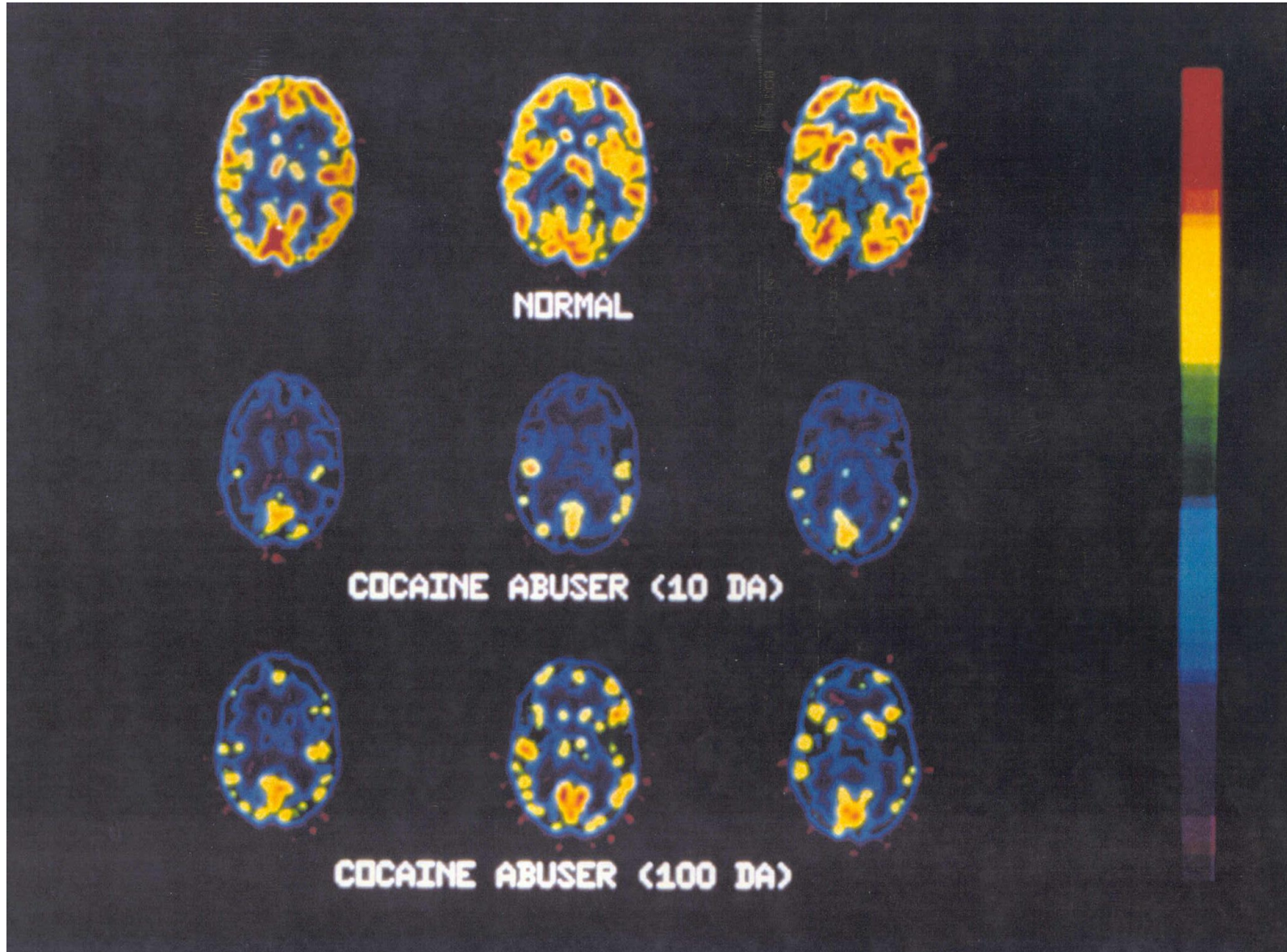
“It is now well-documented that early scientific reports in the 1980’s that portrayed children who were exposed to cocaine in utero as irreparably damaged were inaccurate.”

“Current research suggests that, although there are effects of cocaine on child development, these effects are inconsistent and subtle and need to be understood in the context of polydrug use and the caregiving environment.”

Lester et al., *Pediatrics*, 2002

For review of the research: Frank et al., 2001, JAMA

Changes in the Brain - Cocaine

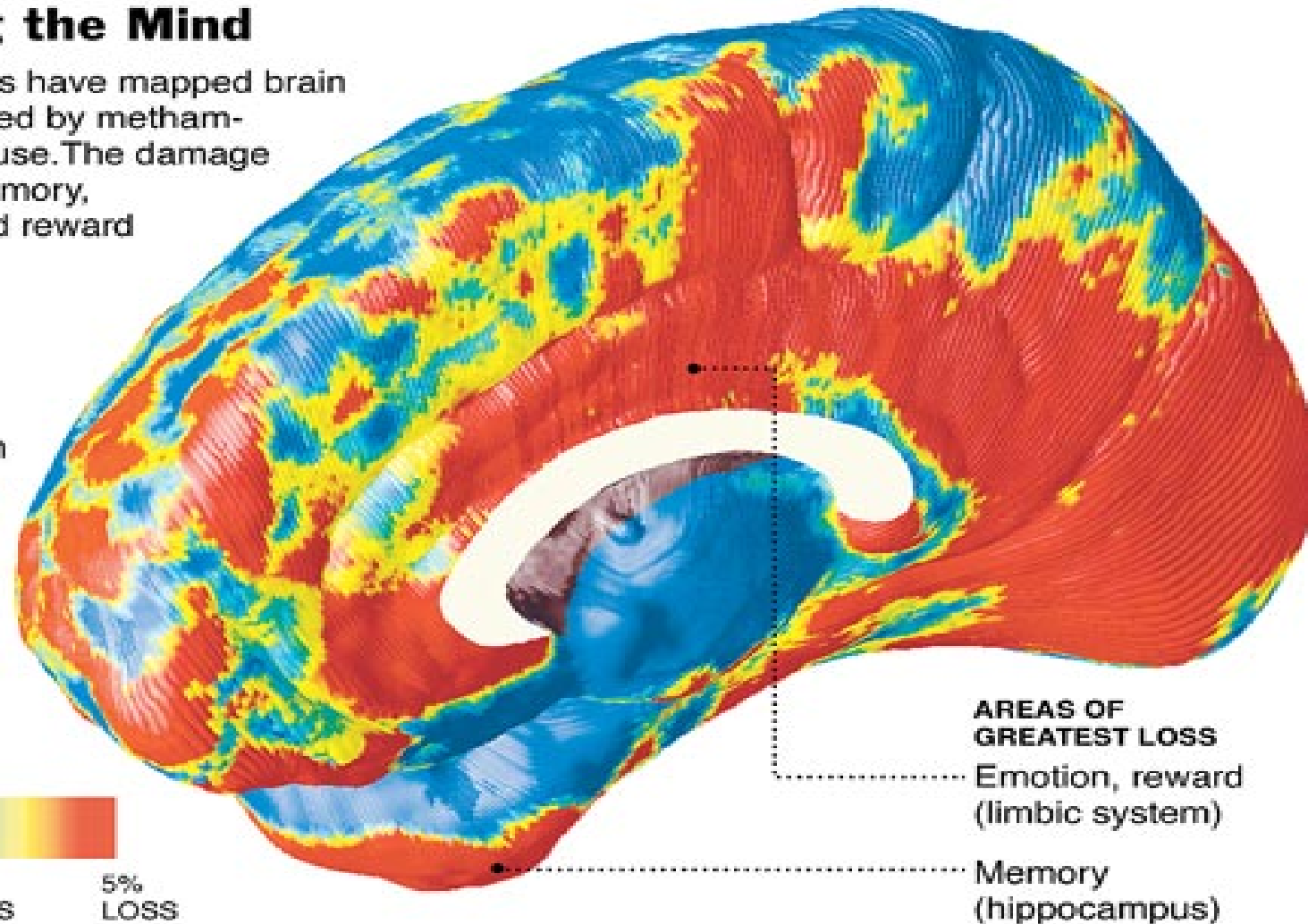
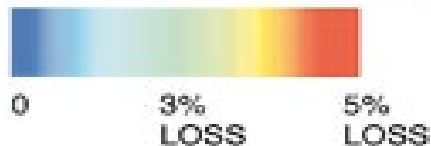


Changes in the Brain - Methamphetamine

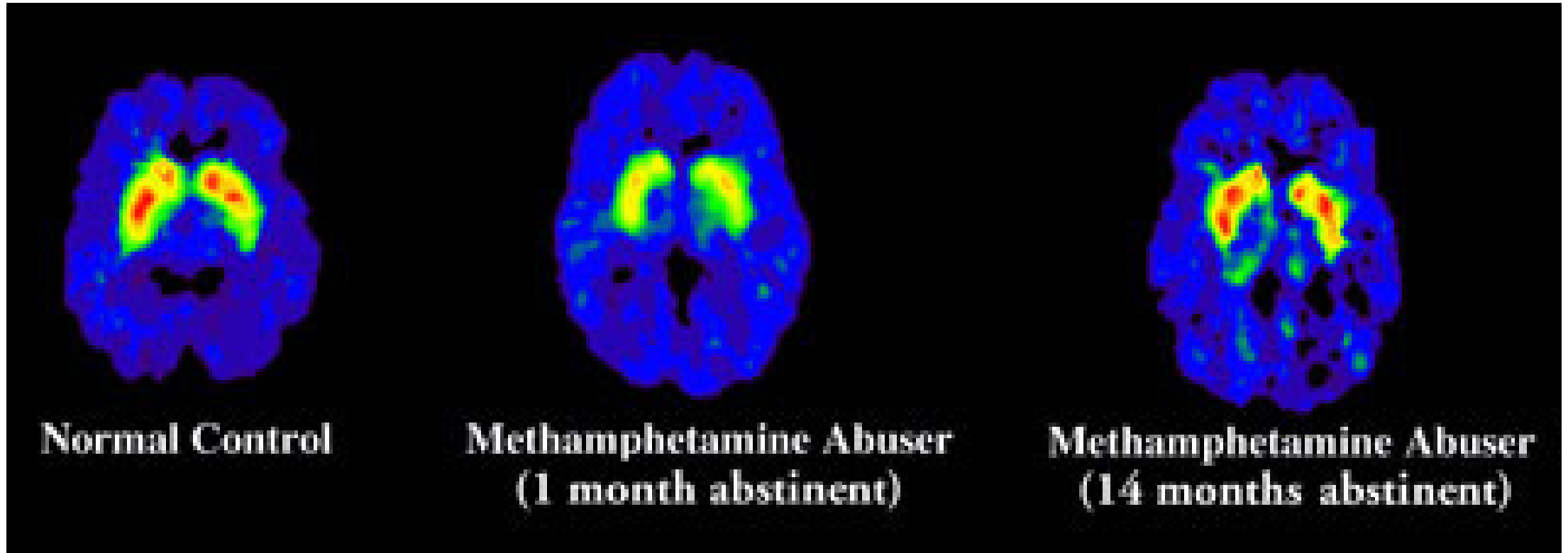
Eroding the Mind

Researchers have mapped brain decay caused by methamphetamine use. The damage affected memory, emotion and reward systems.

Average difference in brain tissue volume of methamphetamine users, as compared with non-users:



Methamphetamine and Dopamine Transporters



Cocaine & Methamphetamine

Withdrawal Symptoms

- Acute: (2-5 days)
 - ✓ Agitated depression
 - ✓ Extreme drug craving
- Prolonged: (2-6 Months)
 - ✓ Aphoria
 - ✓ Episodic Drug Craving
 - ✓ Memory And Cognitive Problems (MA)
 - Verbal memory decreases during 1st 6 months
 - Recall and recognition

Chat

What are the concerns you have about meth and cocaine use in your community?



References

- McLellan, A.T., et.al., Drug Dependence, a Chronic Medical Illness *Journal of the American Medical Association* 284:1689-1695, 2000.
- Lewis, M., Brain Change in Addiction as Learning, Not Disease *New England Journal of Medicine* 379: 1551-60, 2018
- National Institute on Drug Abuse (NIDA):
 - <https://www.drugabuse.gov/drug-topics/cocaine>
 - <https://www.drugabuse.gov/drug-topics/methamphetamine>
- SAMHSA
 - https://store.samhsa.gov/product/Treatment-of-Stimulant-Use-Disorder/PEP20-06-01-001?referrer=from_search_result

EVIDENCE-BASED RESOURCE GUIDE SERIES
Treatment of
Stimulant
Use Disorders





Last Thing!

Please fill out the survey!

The link is in the *Chat!*



Contact Information

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Thank You!

