

Lobby

Of the more than 67,000 drug overdose deaths in 2018, what percentage involved an opioid?

- a. 50%
- b. 20%
- c. 70%
- d. 90%

Source: Centers for Disease Control and Prevention (CDC)



Northwest (HHS Region 10)

PTTC

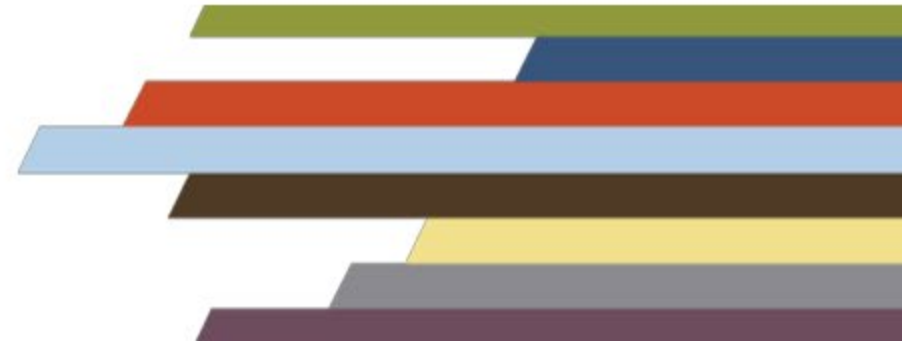
Prevention Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration



Pharmacology Basics and Opioids

What Prevention Practitioners Need to Know

*Ron Jackson, MSW, LICSW
Clinical Professor
School of Social Work, University of Washington*





Northwest (HHS Region 10)

PTTC

Prevention Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration



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



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.

Developed under SAMHSA Cooperative Agreement # H79SP080995-01

Upcoming Webinars



A Guide to HHS Region 10 State Cannabis Policies

October 13, 2020 (11:00 AM – 12:00 PM Pacific)

Pharmacology of Psychostimulants (cocaine & methamphetamine)

October 22, 2020 (11:00 AM – 12:30 PM Pacific)

Pharmacology of Cannabis

October 29, 2020 (11:00 AM – 12:30 PM Pacific)

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.”

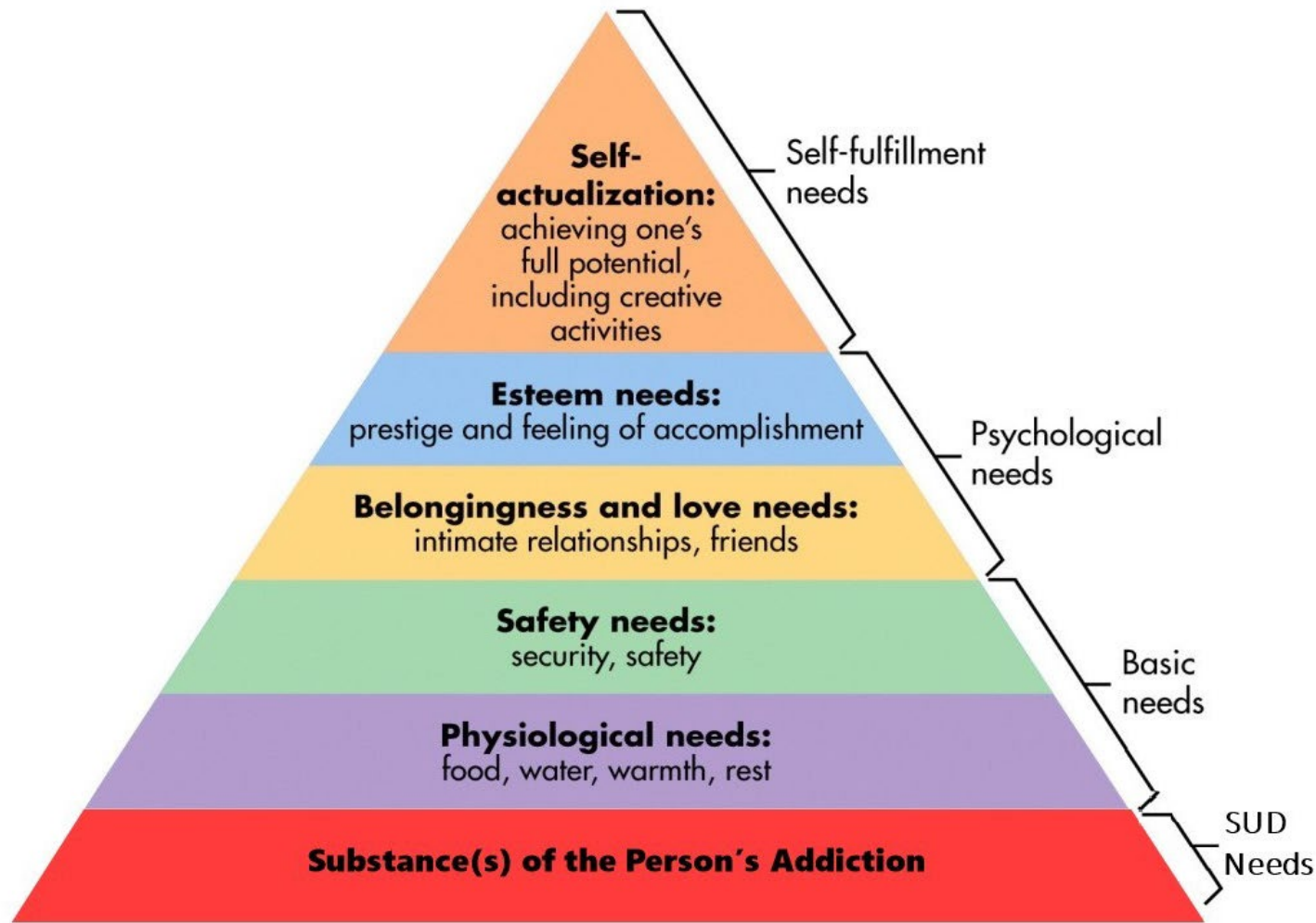
Susan Sontag, “Illness as Metaphor” 1978

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**

Theories on the Etiology of Addiction

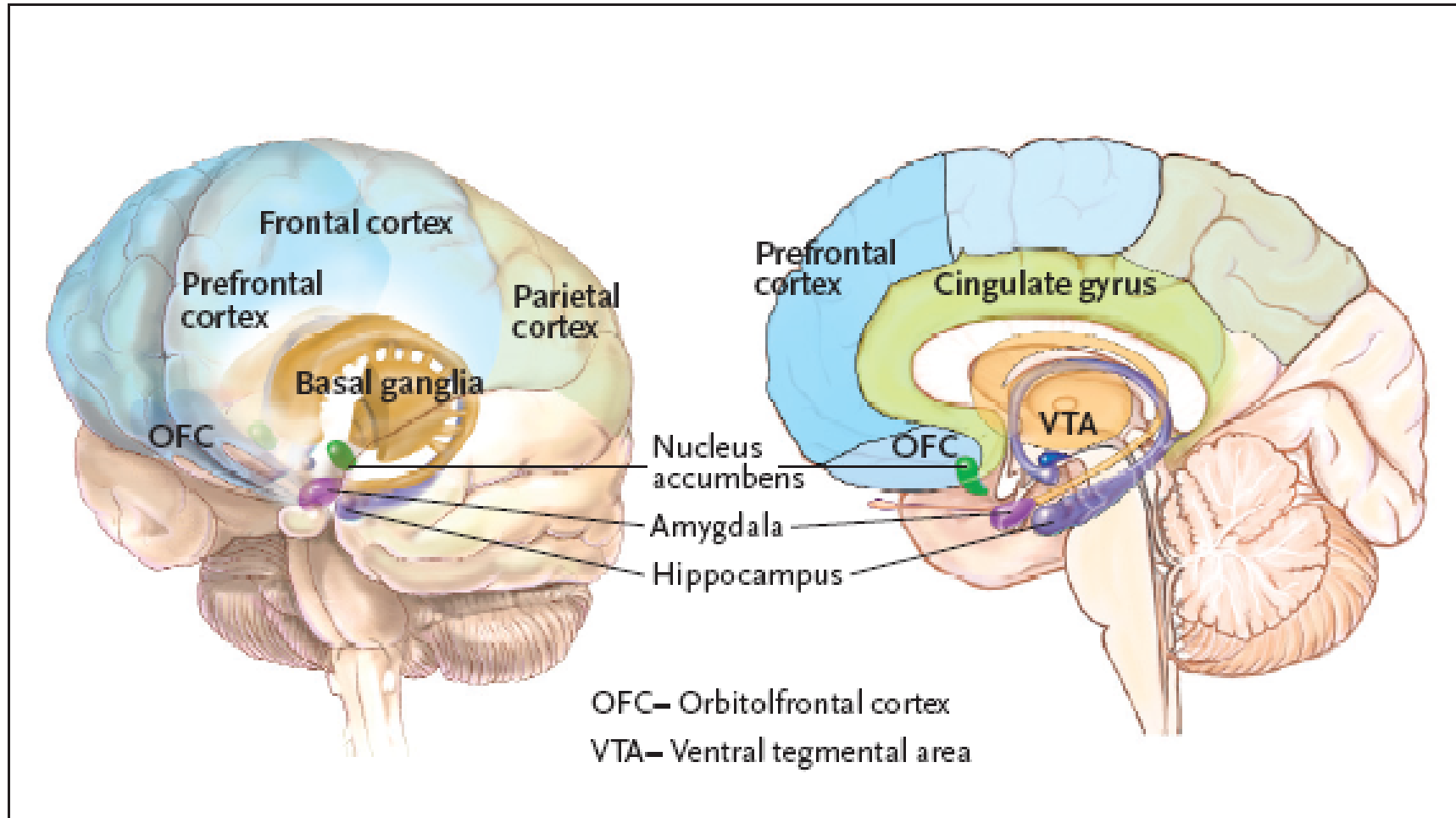
- Drug Based (AGENT)
- User Based (HOST)
 - Psychological
 - Biological
- Environment Based



Basics of Pharmacology



Major Brain Regions with Roles in Addiction



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



Opioids



Opioids



Heroin

Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.

Most used at least 3 other drugs.

Heroin is a highly addictive opioid drug with a high risk of overdose and **death** for users.

People who are addicted to...



ALCOHOL

are

2x



MARIJUANA

are

3x



COCAINE

are

15x



Rx OPIOID PAINKILLERS

are

40x

...more likely to be addicted to heroin.

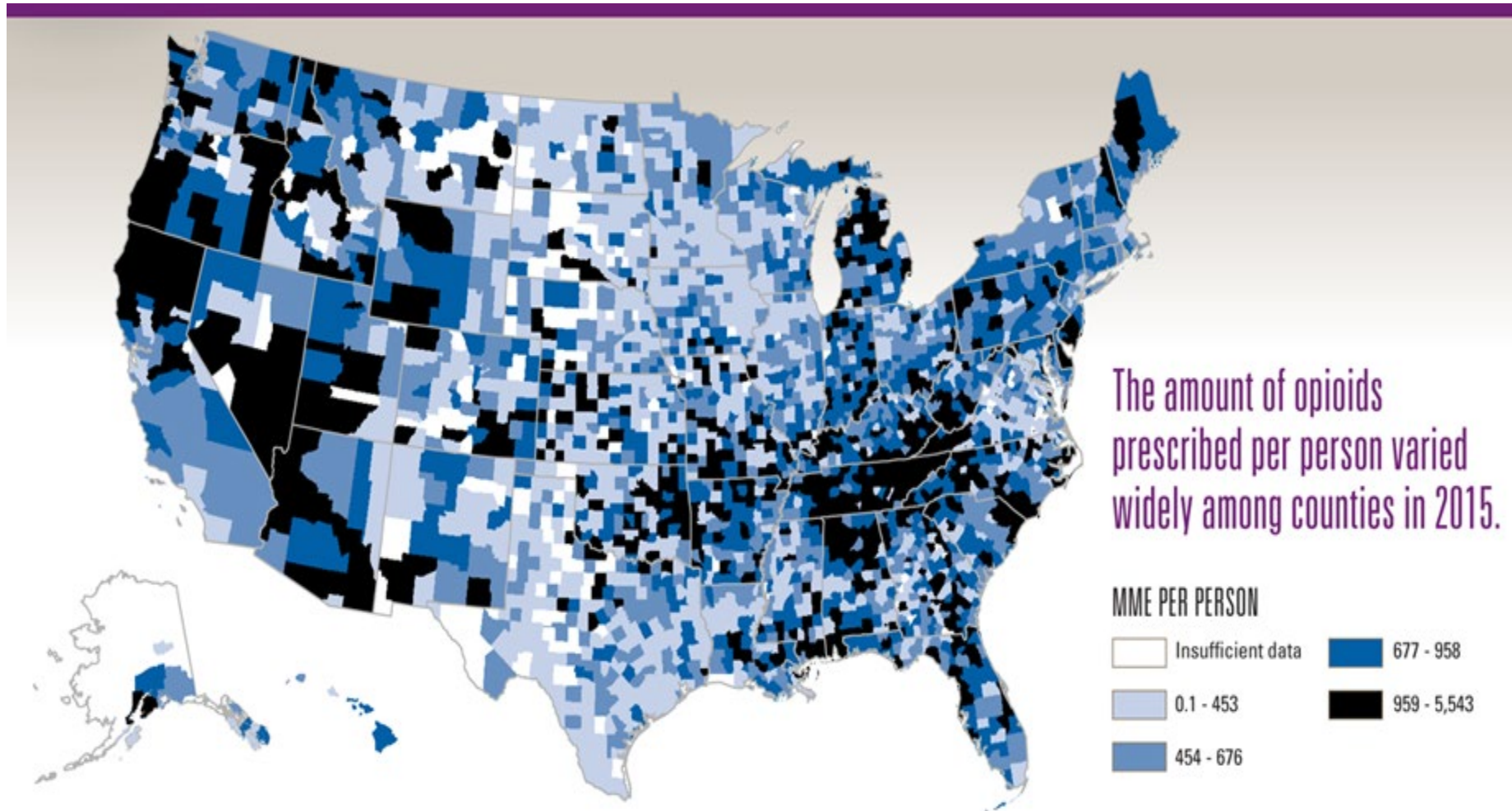
Poll

Which of the HHS Region 10 states had the highest opioid prescribing rate in the region in 2018?

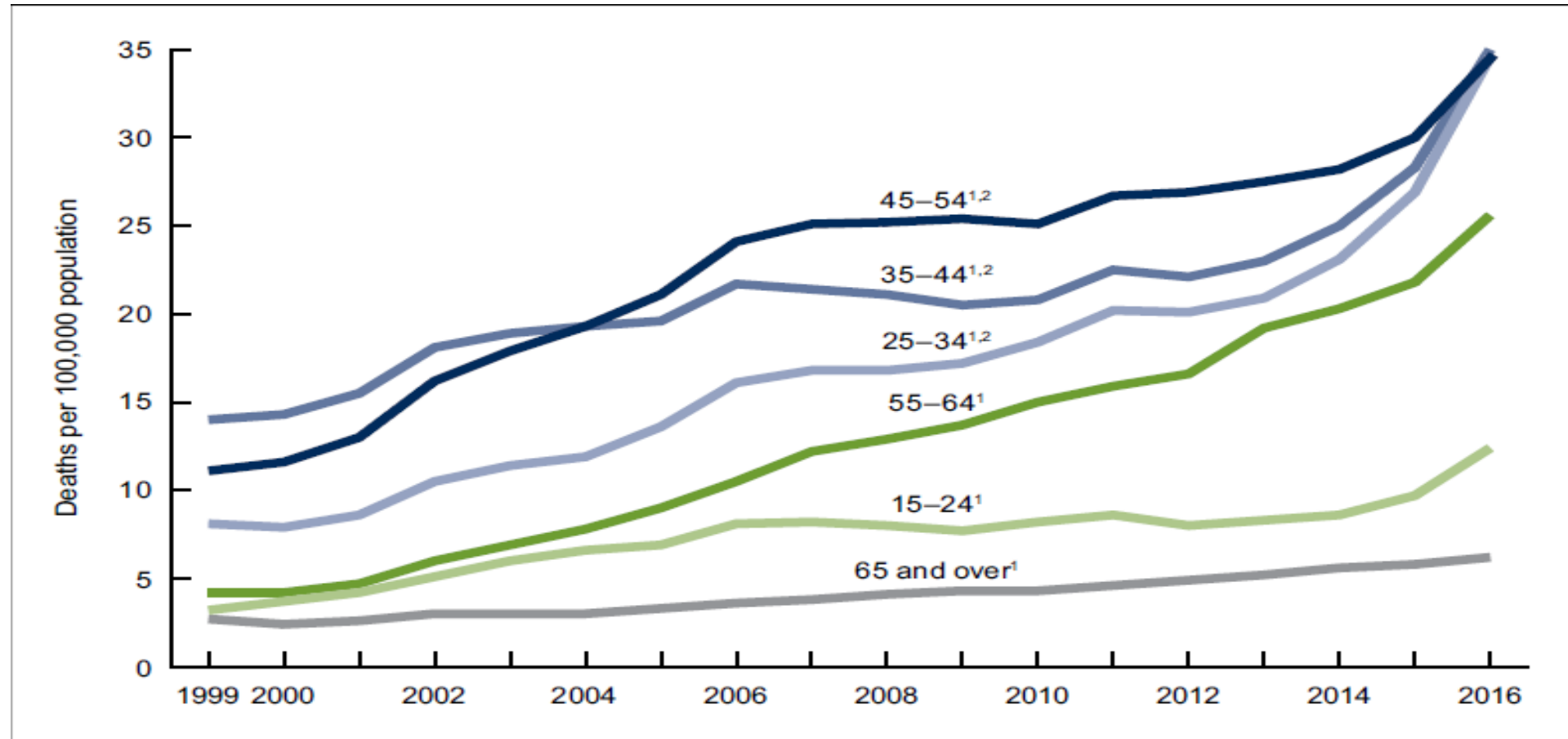
- a. Alaska
- b. Idaho
- c. Oregon
- d. Washington

Source: Centers for Disease Control and Prevention (CDC), 2018.

U.S. Opioid Epidemic



U.S. Drug Overdose Deaths by Age Group – 1999 - 2016

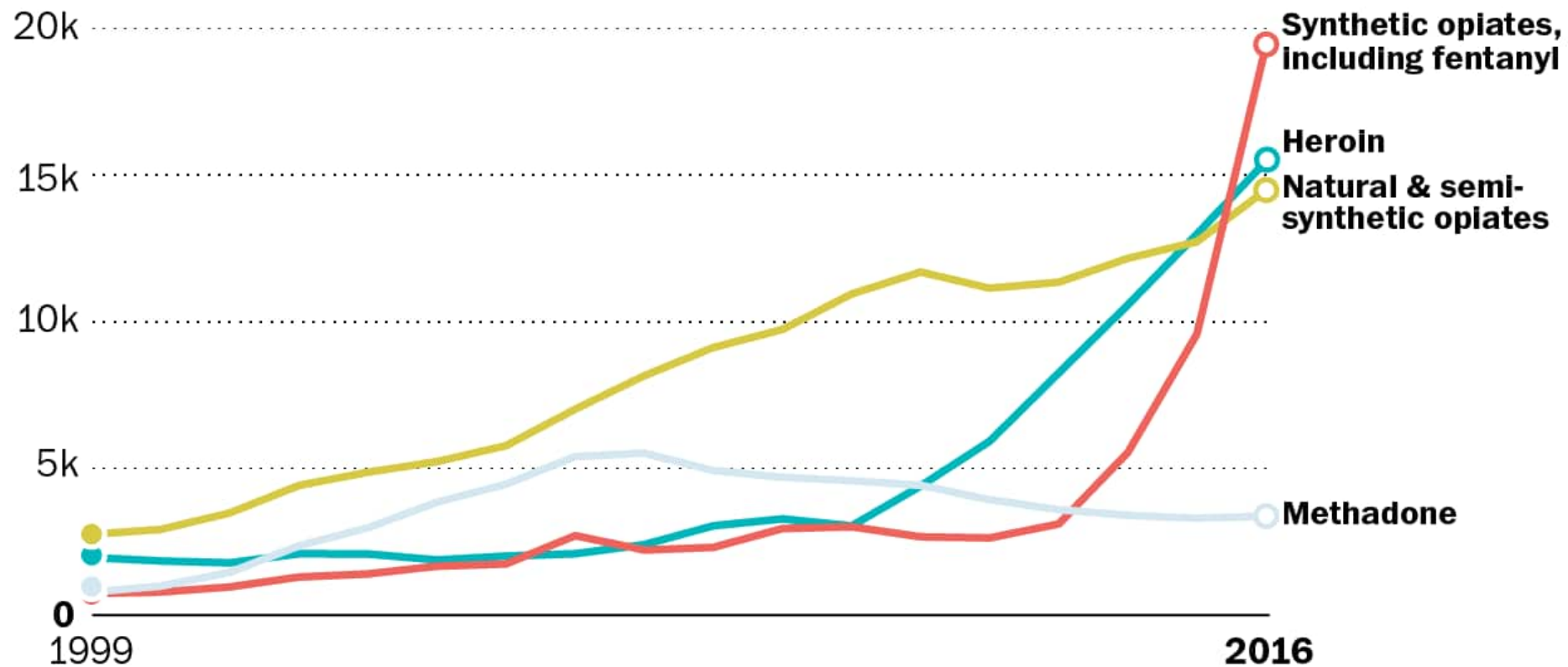


Source: NCHS, National Vital Statistics System, Mortality

Opioid Deaths

Opioid deaths surge in 2016

Number of opioid overdose deaths by category, 1999 to 2016

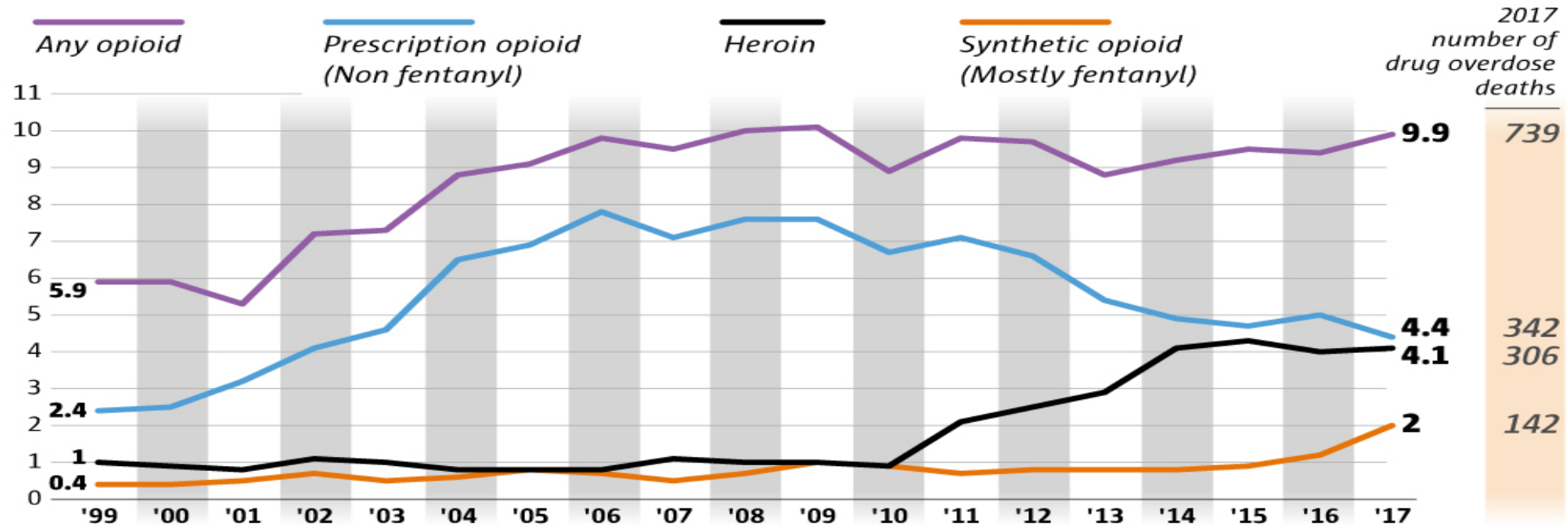


Opioid Epidemic

The shifting opioid epidemic

Even while deaths from prescription opioids declined sharply, overall opioid overdoses remained relatively flat, largely due to spikes in heroin and fentanyl deaths. Abrupt tapering and hard pill limits might drive some pain patients to seek out street drugs.

Age adjusted-rate for overdose deaths per 100,000 Washington residents



NOTE: The numbers of prescription and street opioid overdoses are higher than the total because in some cases victims used more than one drug.

Source: Washington State Department of Health

MARK NOWLIN / THE SEATTLE TIMES

Opioids

- Use dates to 4,000 BC
- Mimics endorphin activity
- Natural - Opium, morphine, codeine
- Semi-synthetic- Heroin, Dilaudid
- Synthetics - Darvon, Demerol, Fentanyl, Oxycontin® (oxycodone), Vicodin® - hydrocodone



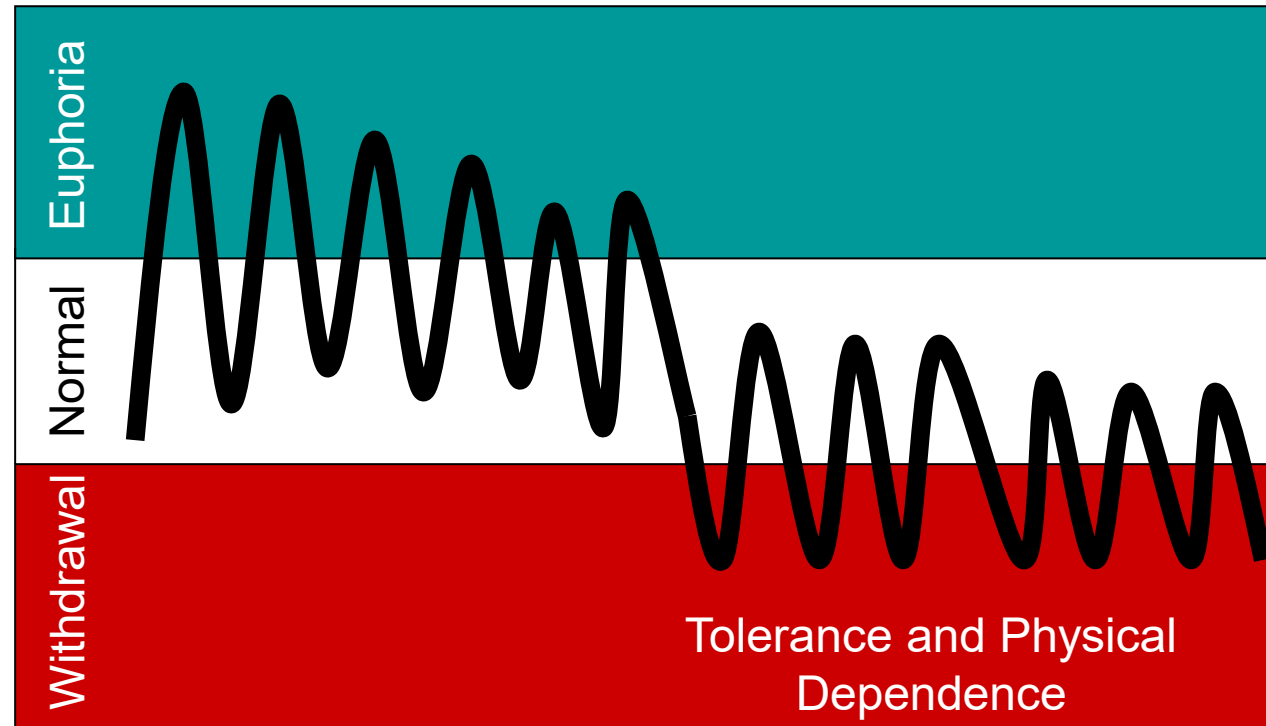
HEROIN & OTHER OPIOIDS

ACUTE USE SYMPTOMS



- DECREASED HEART RATE, BLOOD PRESSURE AND RESPIRATION RATE
- CONSTRICTED PUPILS
- DROOPING EYELIDS AND SLURRED SPEECH
- SLEEPINESS / SEDATION
- NAUSEA
- RELIEF OF PHYSICAL / EMOTIONAL PAIN
(ANALGESIA)

Acute to chronic opioid use



Heroin & Other Opioids

Chronic Use Symptoms

- Constipation
- Decreased Sexual Interest
- Tolerance
- Hyperalgesia

Heroin & Illicit Prescription Opioids:

- Criminal lifestyle to support habit
- Lifestyle changes
- Hepatitis and HIV infection through needle sharing and other high risk acts

Opioid Withdrawal Syndrome

Acute Symptoms

- FLU-LIKE SYMPTOMS
 - RUNNY NOSE
 - WATERY EYES
 - DILATED PUPILS
 - “GOOSE FLESH”
 - STOMACH CRAMPS & DIARRHEA
 - INCREASED HEART RATE & BLOOD PRESSURE
 - INTENSE DISCOMFORT

4-7 days (short-acting opioids)

10-21 days (methadone, if on long term)

Opioid Withdrawal Syndrome

Protracted Symptoms

- Deep muscle aches and pains
- Insomnia, disturbed sleep
- Poor appetite
- Reduced libido, impotence, anorgasmia
- Depressed mood, anhedonia
- Drug craving and obsession

Drug Dependence: A Chronic Medical Illness

- Genetic Heritability – twin studies
 - Hypertension – 25-50%
 - Diabetes – Type 1: 30-55%; Type 2: 80%
 - Asthma – 36-70%
 - Nicotine – 61% (both sexes)
 - Alcohol – 55% (males)
 - Marijuana – 52% (females)
 - Heroin – 34% (males)
- Voluntary Choice – shaped by personality and environment
- Pathophysiology – neurochemical adaptations
- Treatment Response
 - Medications – effectiveness and compliance
 - Behavioral interventions

If addiction is a chronic disease:

Addiction treatment doesn't cure the disease.

The goal of treatment is to:

- Provide patients the tools to help them manage their addiction – *and medications are among those tools*
- Teach them how to use those tools to achieve and maintain recovery



Medications for Opioid Use Disorder (MOUD)

How do Medications for OUD Work?

There are three types of medications that can block the “high”:

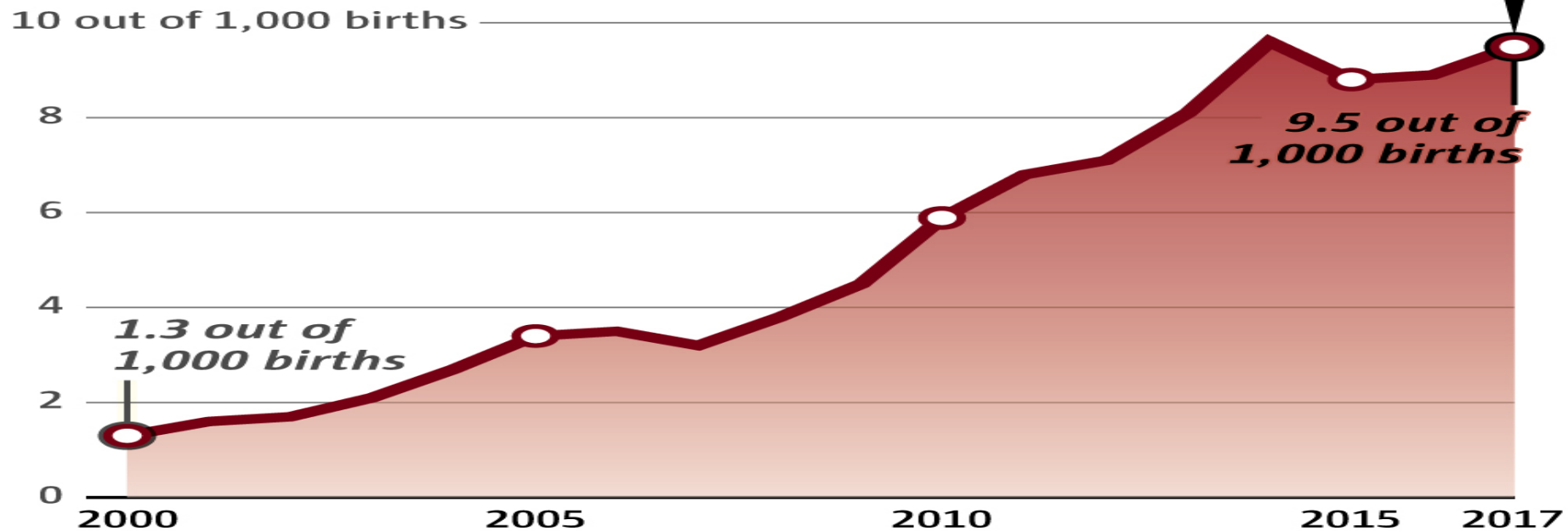
- Agonist – methadone
 - produce opioid effects
- Partial Agonist – buprenorphine (Suboxone)
 - produce moderate opioid effects
- Antagonist – naltrexone (Vivitrol)
 - block opioid effects

Neonatal Abstinence Syndrome

A troubling surge

Research shows a link nationally between infants born in withdrawal from opioids and developmental disabilities requiring later referral to special education, once children reach school age. The period from 2006 and 2012 saw a 40% spike in the rate of Washington maternal substance-abuse diagnoses. Nationally, the increase was 33%.

WASHINGTON INFANTS WITH NEONATAL ABSTINENCE SYNDROME (DRUG WITHDRAWL)



Source: Washington State Department of Health

EMILY M. ENG / THE SEATTLE TIMES

Resources

<https://store.samhsa.gov/shin/content/SMA18-5054/SMA18-5054.pdf>



<https://store.samhsa.gov/product/Opioid-Use-Disorder-and-Pregnancy/sma18-5071>



Resources

- TIP 63 – Medications for Opioid Use Disorder
- ✓ <https://store.samhsa.gov/product/SMA18-5063FULLDOC>



Opioid Overdose or Addiction

Table 3. Factors Associated with the Risk of Opioid Overdose or Addiction.

Factor	Risk
Medication-related	
Daily dose >100 MME*	Overdose, ⁸ addiction ⁸
Long-acting or extended-release formulation (e.g., methadone, fentanyl patch)	Overdose ^{14,41}
Combination of opioids with benzodiazepines	Overdose ⁴²
Long-term opioid use (>3 mo) †	Overdose, ⁴³ addiction ⁴⁴
Period shortly after initiation of long-acting or extended-release formulation (<2 wk)	Overdose ⁴⁵
Patient-related	
Age >65 yr	Overdose ⁴⁶
Sleep-disordered breathing ‡	Overdose ⁴⁷
Renal or hepatic impairment §	Overdose ⁴⁸
Depression	Overdose, addiction ⁴⁹
Substance-use disorder (including alcohol)	Overdose, ⁵⁰ addiction ⁴⁹
History of overdose	Overdose ⁵¹
Adolescence	Addiction ⁵²

* The risk of opioid overdose increases in a dose–response manner at opioid doses of more than 20 morphine milligram equivalents (MME).

† Although addiction is associated with long-term but not short-term opioid use, the prescription of a higher quantity of opioids than is needed for acute pain contributes substantially to the availability of opioids for diversion and abuse.

‡ Sleep-disordered breathing refers to conditions that manifest as abnormal breathing patterns during sleep and includes obstructive sleep apnea and central sleep apnea.⁵³

§ Patients with these disorders are at increased risk because the disposition of various opioid drugs is affected by hepatic and renal impairments, which reduce drug clearance and increase bioavailability.⁵⁴⁻⁵⁶

Heroin Overdose Prevention

- Studies have shown that heroin overdose is a preventable manner of death.
- Methods for overdose prevent include the following:
 - ✓ Education of heroin users about dangerous drug interactions
 - ✓ Education about rescue breathing and Good Samaritan laws
 - ✓ Naloxone (Narcan®) distribution and education about its use.
- CSAT's Overdose Prevention Toolkit
 - http://store.samhsa.gov/shin/content//SMA14-4742/Overdose_Toolkit.pdf
- Stopoverdose.org – <http://stopoverdose.org/>

SAMHSA Resource



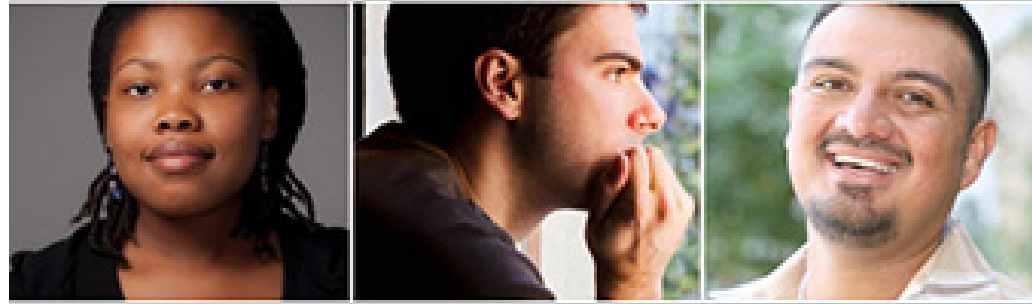
<https://store.samhsa.gov/sites/default/files/d7/priv/sma18-4742.pdf>

Chat

What are some prevention resources that you are using in your prevention work?



Another Resource



Decisions in Recovery: Treatment for Opioid Use Disorder

Handbook



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/publications/drugfacts/heroin>
 - <https://www.drugabuse.gov/publications/drugfacts/fentanyl>
 - <https://www.drugabuse.gov/publications/opioid-facts-teens/letter-to-teens>



We Need Your Feedback!

Please fill out the evaluation form!

The Link is in the CHAT



Contact Information

Janet Porter, MPH, CPS
Training and TA Coordinator
Email: jporter@casat.org





Thank you!

