

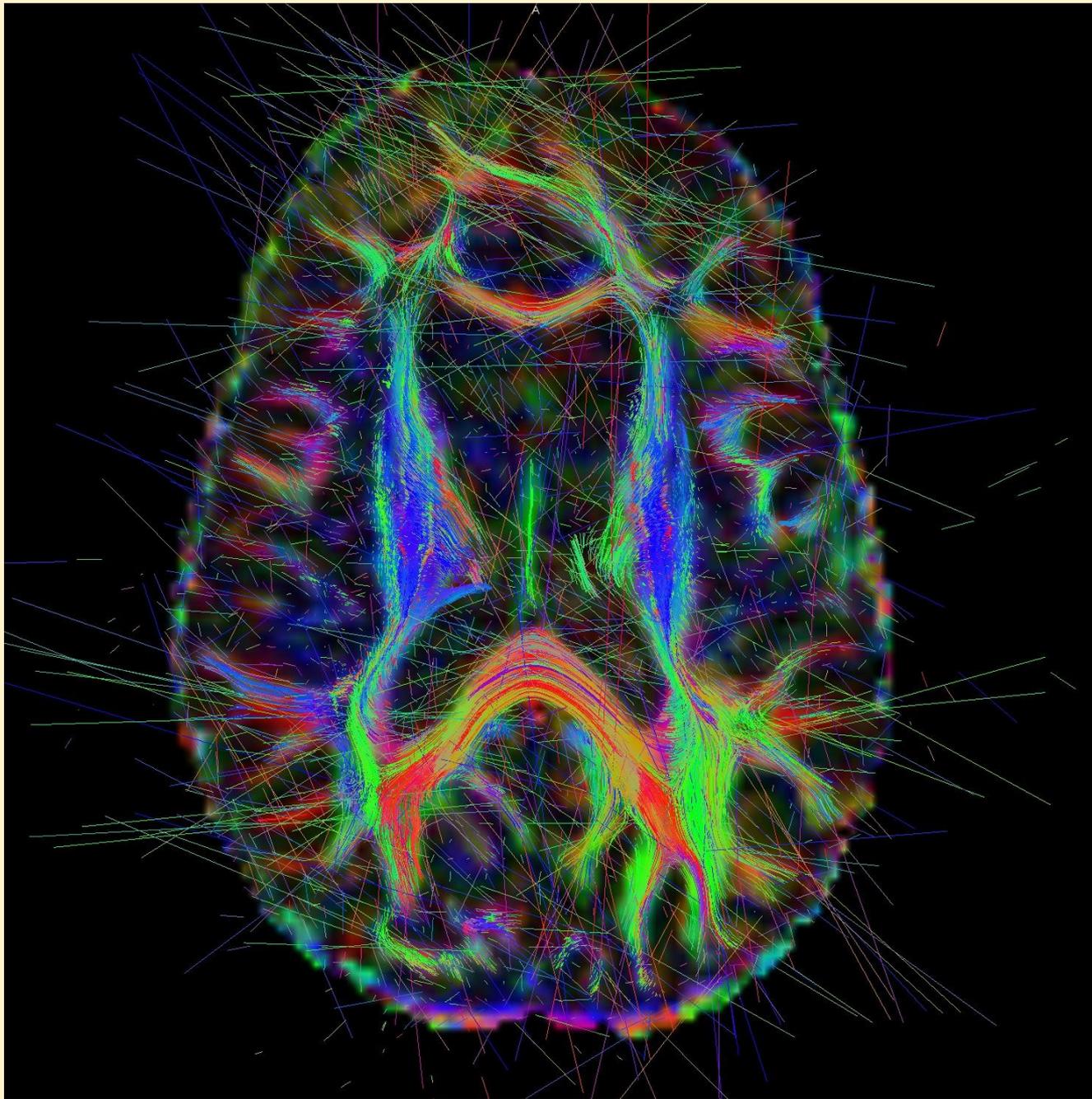
THE PHYSIOLOGY OF ADDICTION

Effects of Drug-Taking Behavior on the Brain

Ruth A. Potee, MD

Family Physician & Addictionologist, Valley Medical Group
Medical Director, Franklin County House of Corrections
Medical Director, Franklin Recovery Center
Medical Director, Pioneer Valley Regional School District
Chair, Department of Medicine, Baystate – Franklin Medical Center
Co-Chair – Healthcare Solutions of the Opioid Taskforce

*Thanks to Tess Jurgensen and the OTF of Franklin County
and North Quabbin for organizing these forums*



HIJACKING THE BRAIN

New research suggests that the brain's reward system has different mechanisms for craving and pleasure. Craving is driven by the neurotransmitter dopamine. Pleasure is stimulated by other neurotransmitters in "hedonic hot spots." When the craving circuitry overwhelms the pleasure hot spots, addiction occurs, leading people to pursue a behavior or drug despite the consequences.

PATHWAYS TO CRAVING

Desire is triggered when dopamine, which originates near the top of the brain stem, travels through neural pathways to act on the brain. Drugs increase the flow of dopamine.

Ventral tegmental area (VTA)

Dopamine is produced here and flows outward along neurons distributed throughout the brain's reward system.

Dorsal striatum

Neurons here help form habits by identifying enjoyable patterns, such as the anticipation of buying drugs.

Prefrontal cortex

The amino acid glutamate, produced here, interacts with dopamine to spark visualizations that cue cravings.

Amygdala

Neurons here are stimulated by learned emotional responses, such as memories of cravings and pleasure.

Orbitofrontal cortex

This hot spot gives a sense of gratification but is also the first to shut down if a person has indulged too much.

Ventral pallidum

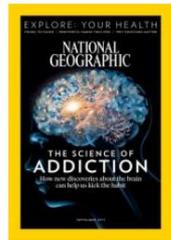
Animal experiments show that damaging this hot spot can turn something that once gave pleasure into a source of disgust.

Nucleus accumbens

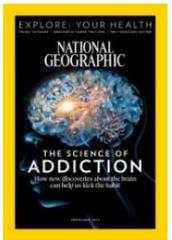
A hot spot within this key part of the craving circuitry amplifies the response to pleasure.

PLEASURE HOT SPOTS

A system of small hedonic hot spots, unrelated to dopamine, provides temporary sensations of pleasure and forms a feedback loop with the reward system that controls desire.

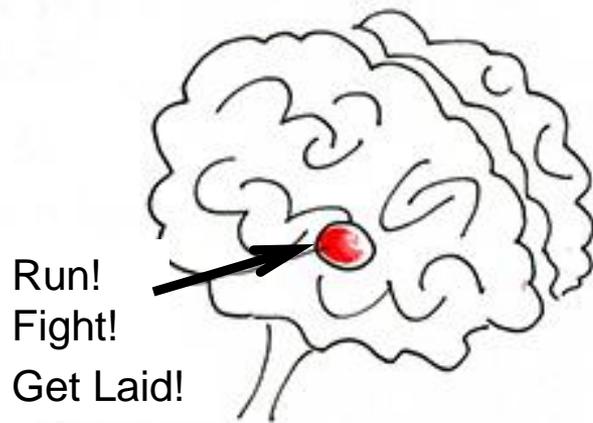


September 2017



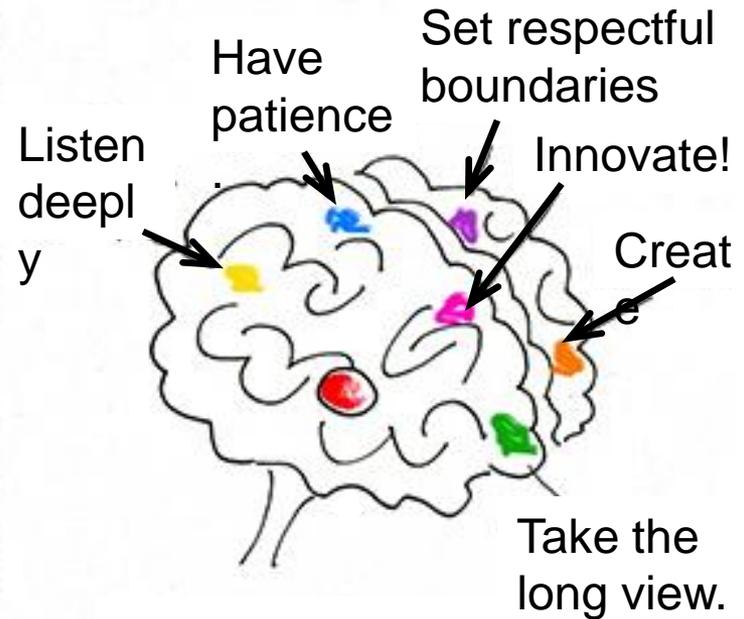
September 2017

EAT, DRINK, HAVE SEX (AND USE DRUGS)



Run!
Fight!
Get Laid!

Lizard brain advice



Listen
deeply

Have
patience

Set respectful
boundaries

Innovate!

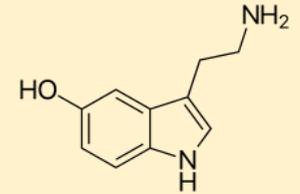
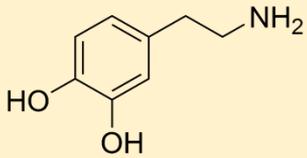
Create

Take the
long view.

Cortex advice

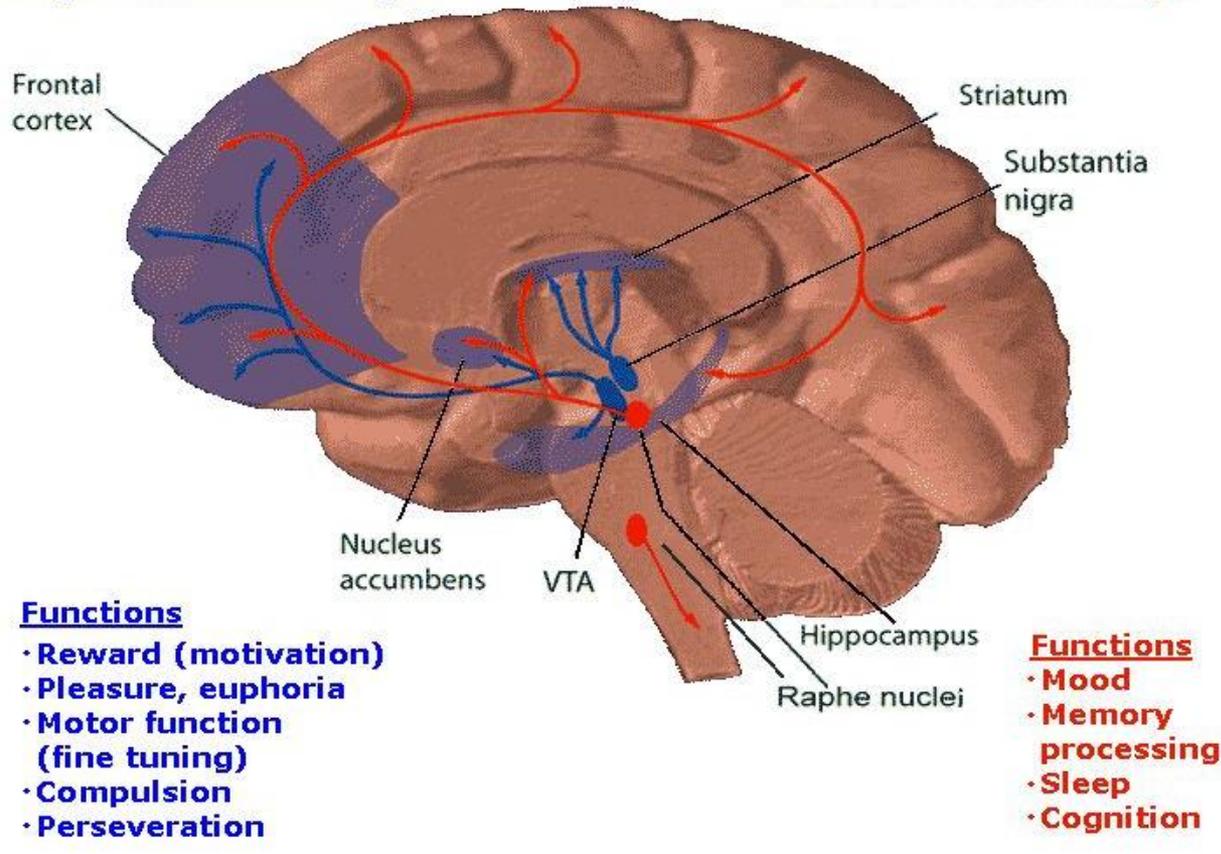
DOPAMINE & SEROTONIN

Location and Function



Dopamine Pathways

Serotonin Pathways

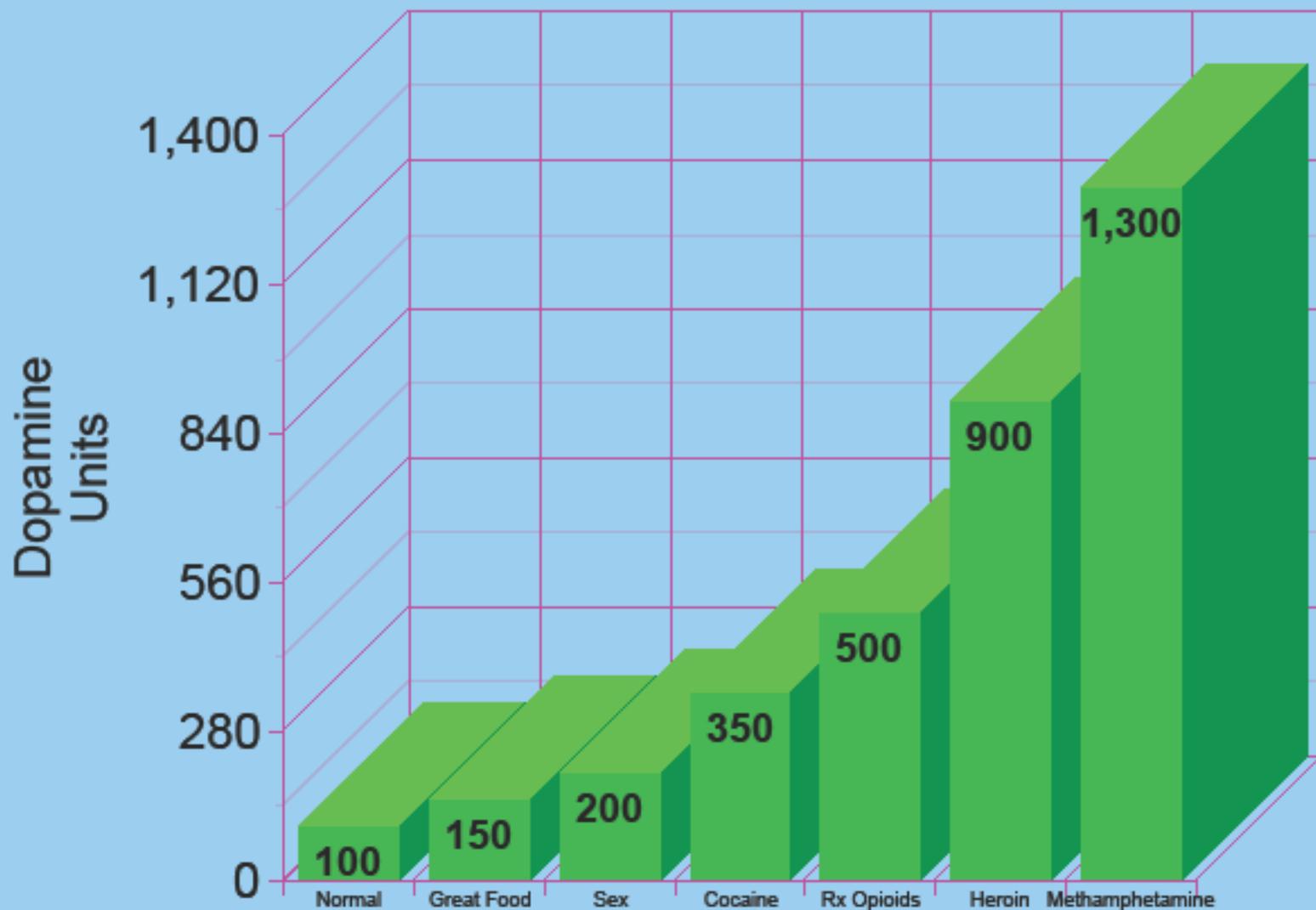




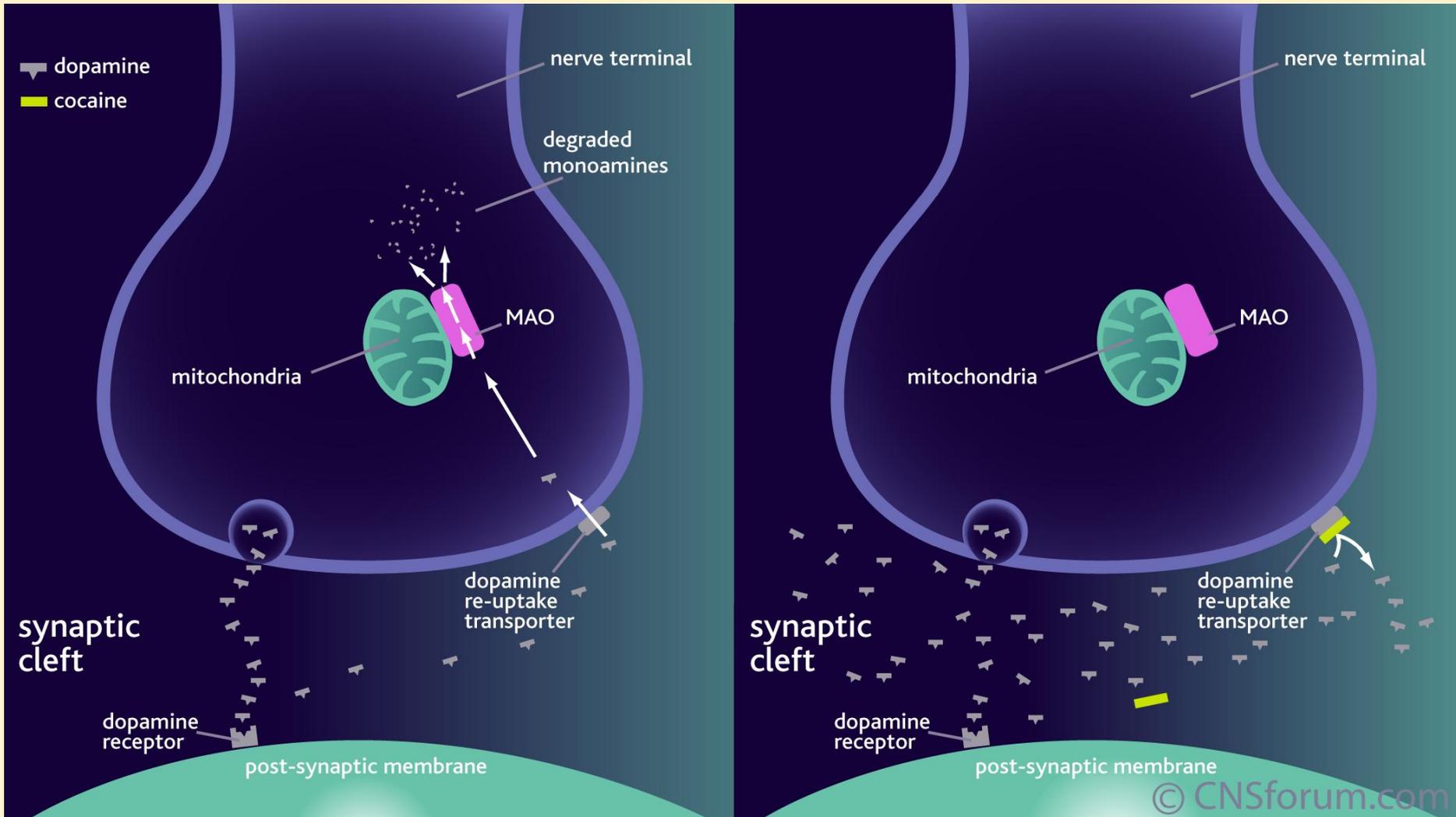
IT IS SAD
TODAY.



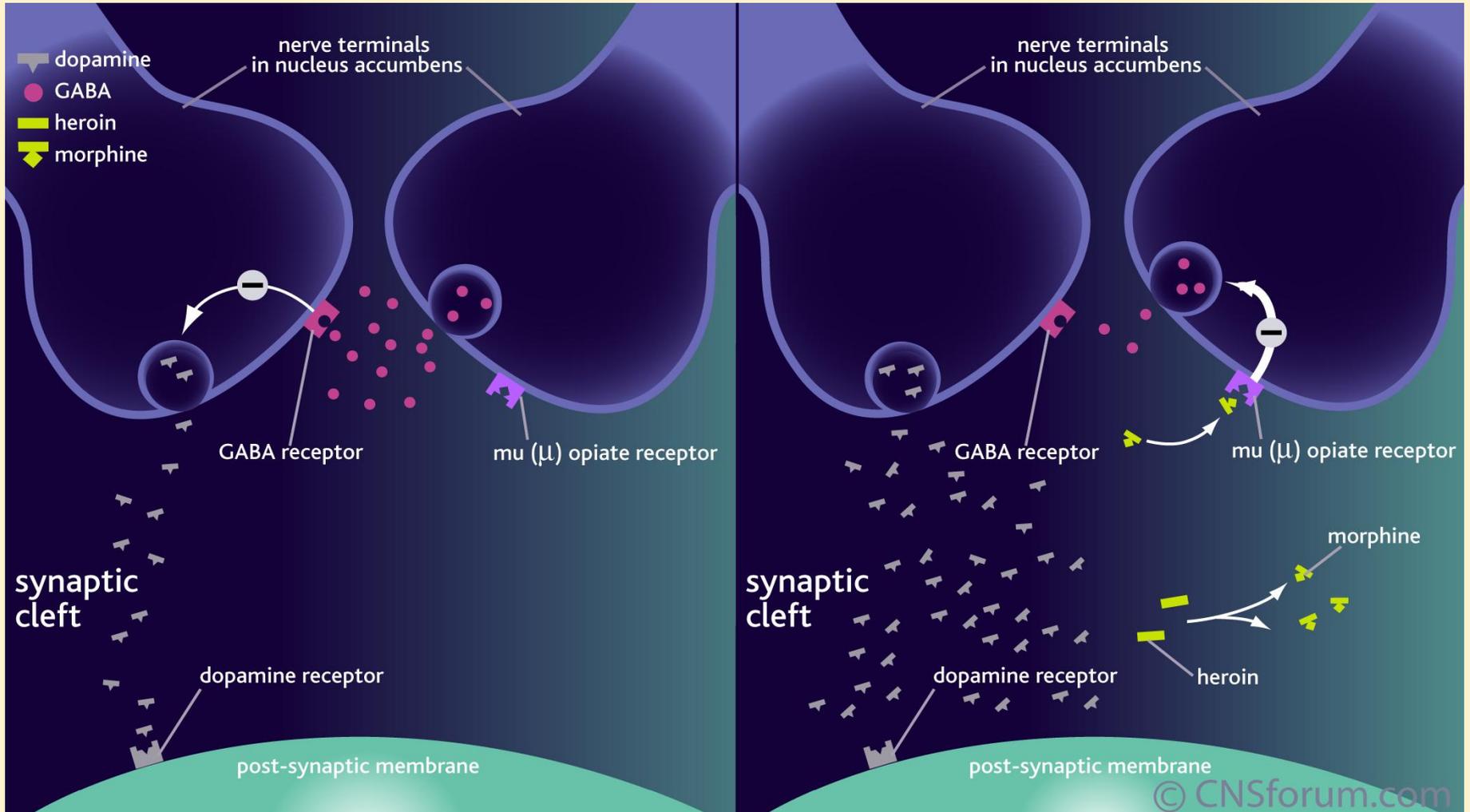
Dopamine Levels

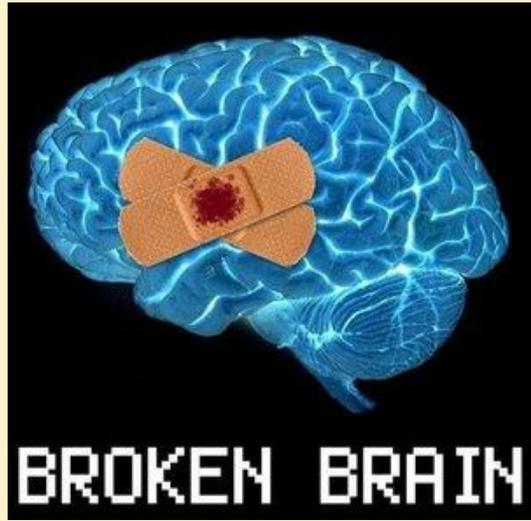
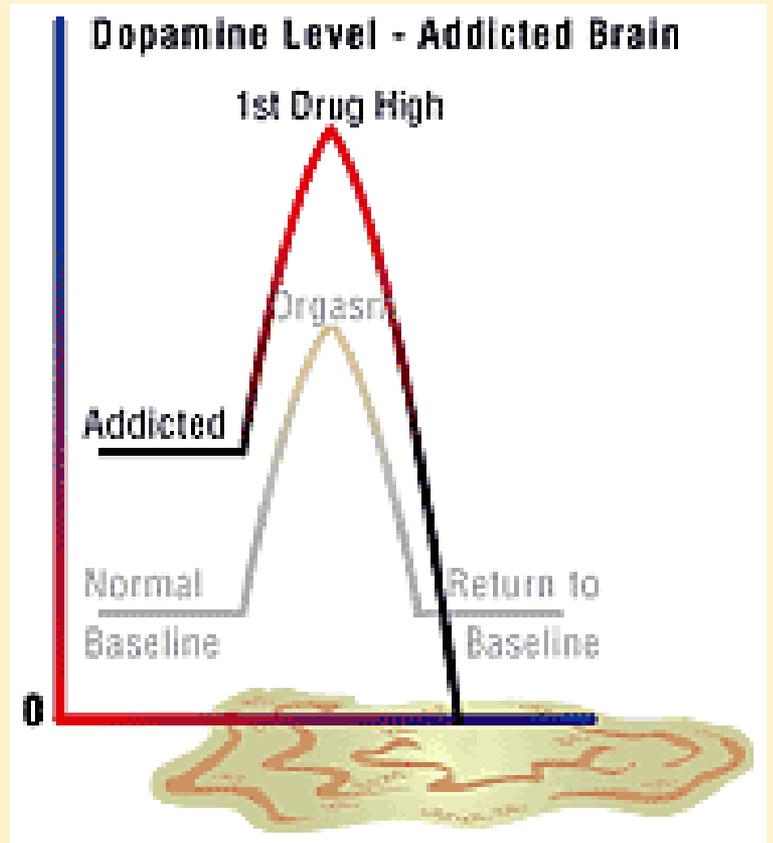
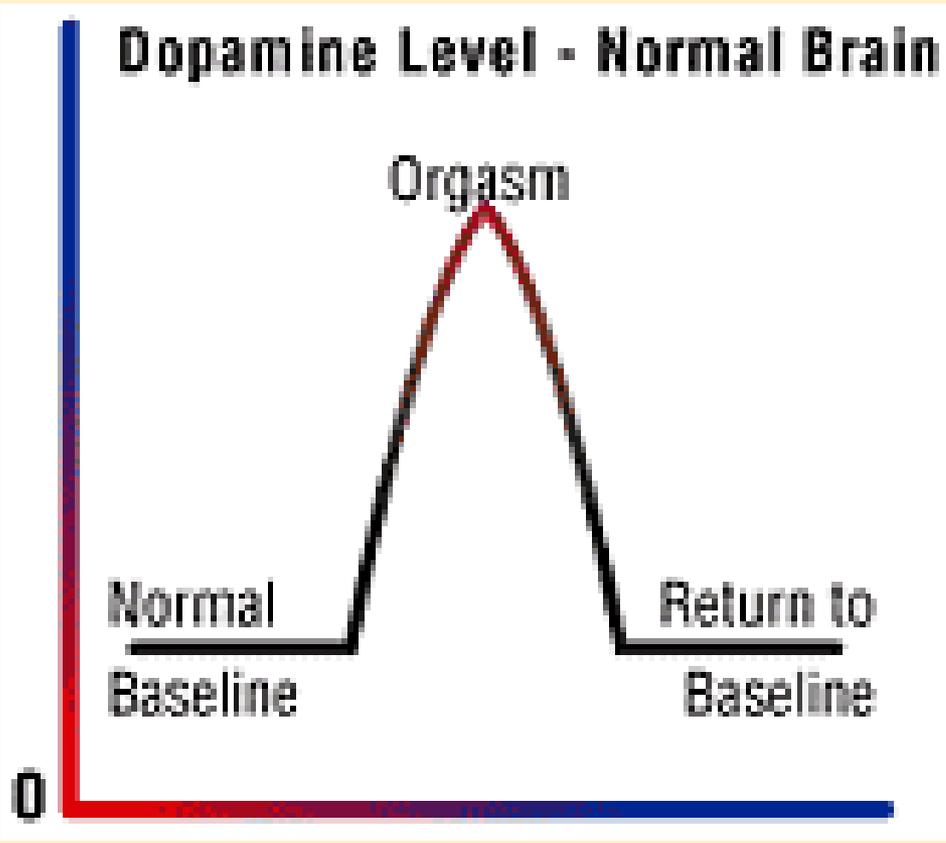


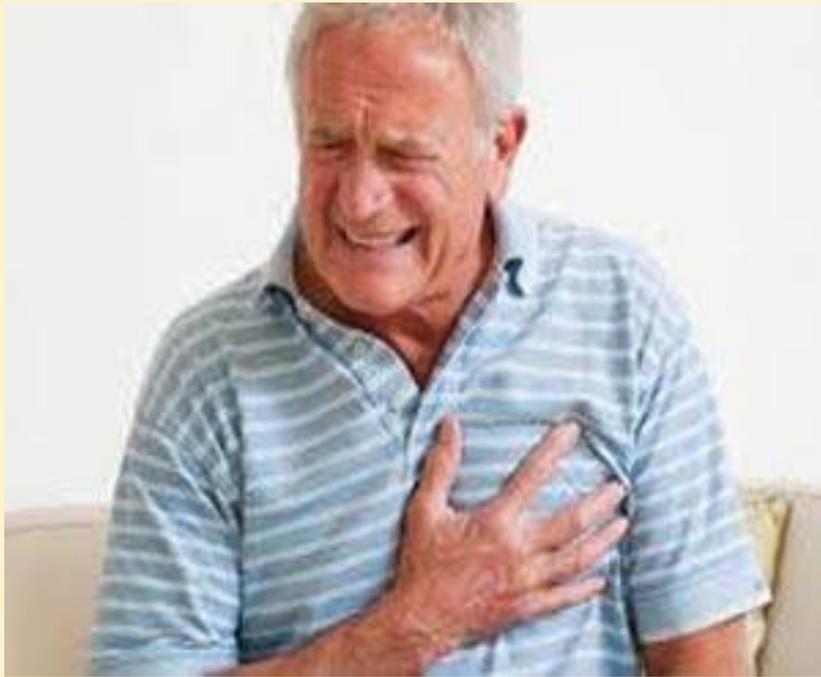
How Cocaine Works



How Heroin Works

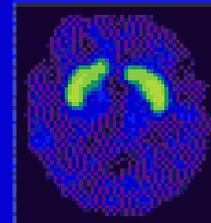
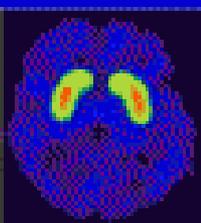
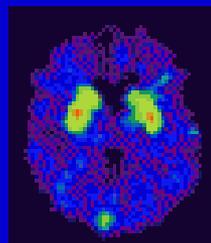
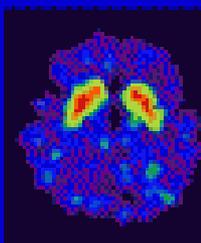
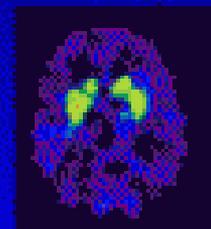
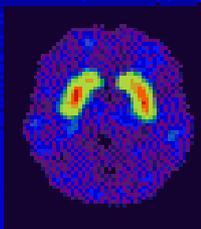
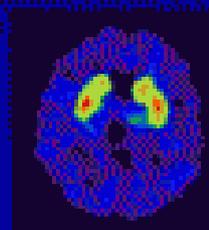






Functionally...

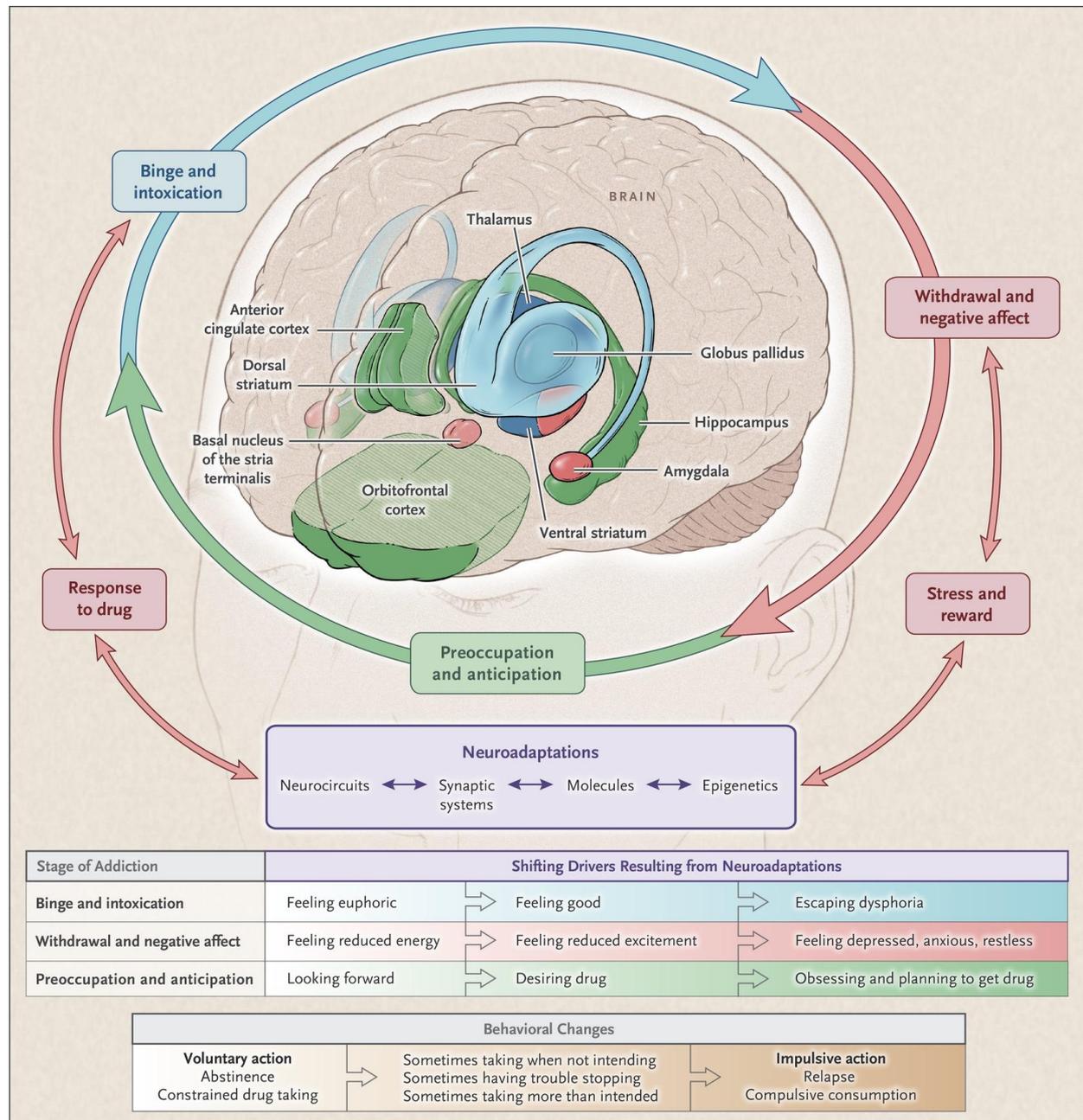
Dopamine D2 Receptors are Decreased by Addiction



Control

Addicted





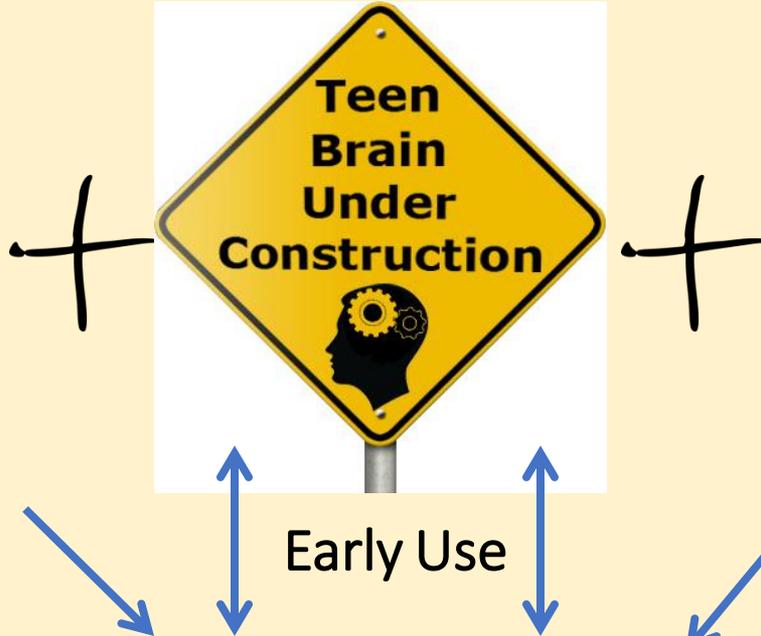
Neurobiologic Advances from the Brain Disease Model of Addiction

Nora D. Volkow, M.D., George F. Koob, Ph.D., and A. Thomas McLellan, Ph.D.

N Engl J Med 2016; 374:363-371 [January 28, 2016](#)



Genetics



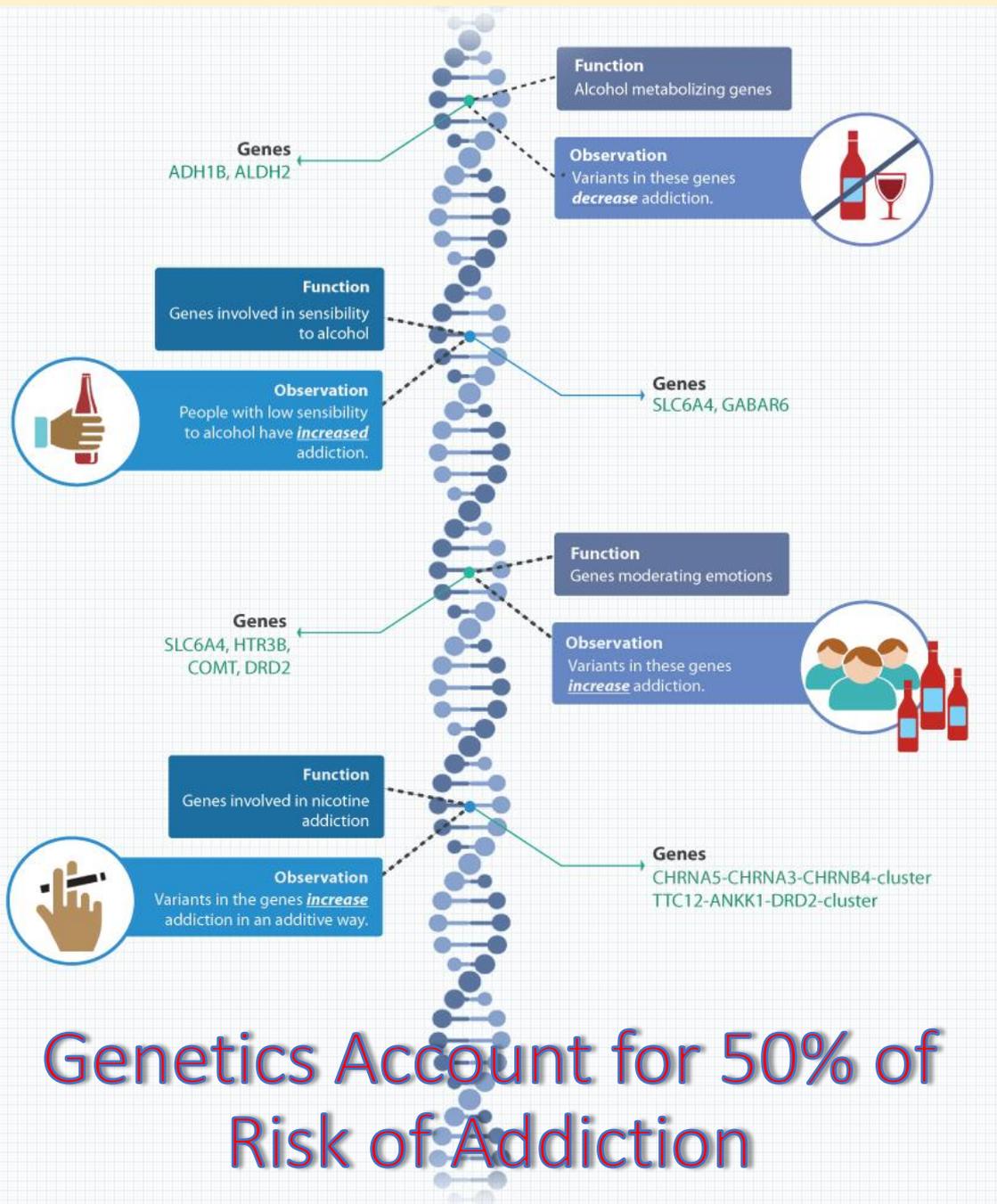
Early Use



Trauma

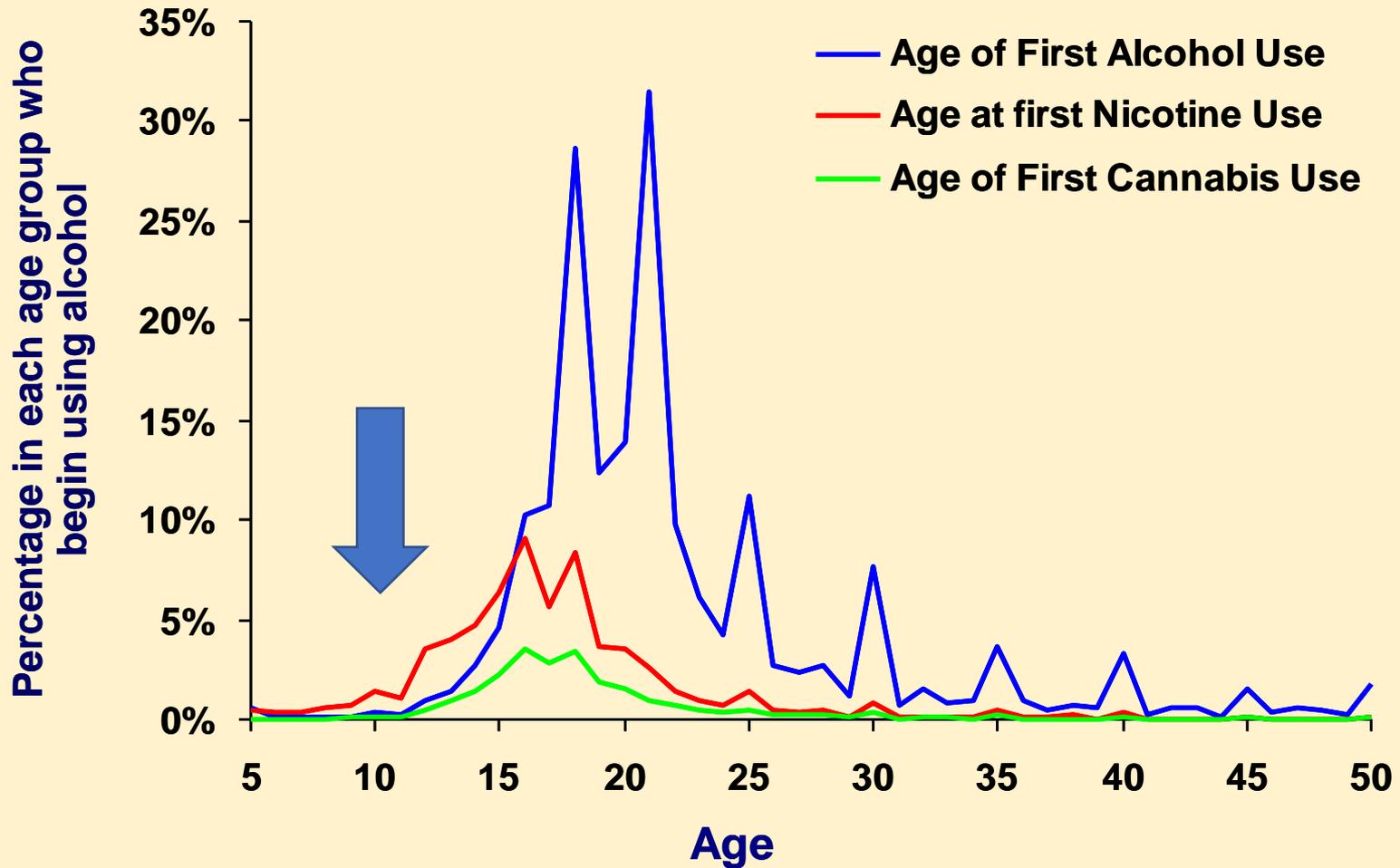


Poor Mental Health





Addiction is a Developmental Pediatric Disease



Source: NIAAA National Epidemiologic Survey on Alcohol and Related Conditions, 2003



Adverse Childhood Experiences – ACEs

Emotional Neglect
Abuse
Household Dysfunction

Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults

The Adverse Childhood Experiences (ACE) Study

Vincent J. Felitti, MD, FACP, Robert F. Anda, MD, MS, Dale Nordenberg, MD, David F. Williamson, MS, PhD, Alison M. Spitz, MS, MPH, Valerie Edwards, BA, Mary P. Koss, PhD, James S. Marks, MD, MPH

Background: The relationship of health risk behavior and disease in adulthood to the breadth of exposure to childhood emotional, physical, or sexual abuse, and household dysfunction during childhood has not previously been described.

Methods: A questionnaire about adverse childhood experiences was mailed to 13,494 adults who had completed a standardized medical evaluation at a large HMO; 9,508 (70.5%) responded. Seven categories of adverse childhood experiences were studied: psychological, physical, or sexual abuse; violence against mother; or living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. The number of categories of these adverse childhood experiences was then compared to measures of adult risk behavior, health status, and disease. Logistic regression was used to adjust for effects of demographic factors on the association between the cumulative number of categories of childhood exposures (range: 0–7) and risk factors for the leading causes of death in adult life.

Results: More than half of respondents reported at least one, and one-fourth reported ≥ 2 categories of childhood exposures. We found a graded relationship between the number of categories of childhood exposure and each of the adult health risk behaviors and diseases that were studied ($P < .001$). Persons who had experienced four or more categories of childhood exposure, compared to those who had experienced none, had 4- to 12-fold increased health risks for alcoholism, drug abuse, depression, and suicide attempt; a 2- to 4-fold increase in smoking, poor self-rated health, ≥ 50 sexual intercourse partners, and sexually transmitted disease; and a 1.4- to 1.6-fold increase in physical inactivity and severe obesity. The number of categories of adverse childhood exposures showed a graded relationship to the presence of adult diseases including ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. The seven categories of adverse childhood experiences were strongly interrelated and persons with multiple categories of childhood exposure were likely to have multiple health risk factors later in life.

Conclusions: We found a strong graded relationship between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults.

Medical Subject Headings (MeSH): child abuse, sexual, domestic violence, spouse abuse, children of impaired parents, substance abuse, alcoholism, smoking, obesity, physical activity, depression, suicide, sexual behavior, sexually transmitted diseases, chronic obstructive pulmonary disease, ischemic heart disease. (Am J Prev Med 1998;14:245–258) © 1998 American Journal of Preventive Medicine

Finding Your ACE Score

While you were growing up, during your first 18 years of life:

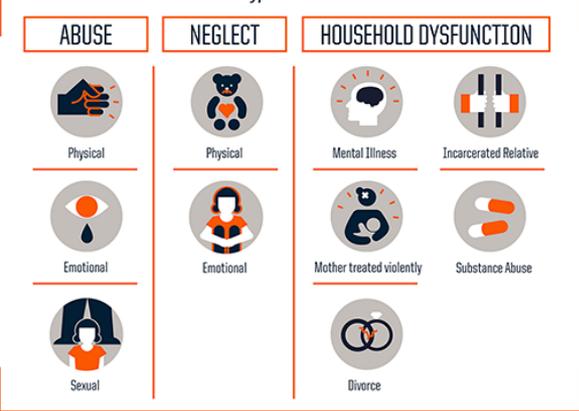
1. Did a parent or other adult in the household **often or very often**...
Swear at you, insult you, put you down, or humiliate you?
or
Act in a way that made you afraid that you might be physically hurt?
Yes No If yes enter 1 _____
2. Did a parent or other adult in the household **often or very often**...
Push, grab, slap, or throw something at you?
or
Ever hit you so hard that you had marks or were injured?
Yes No If yes enter 1 _____
3. Did an adult or person at least 5 years older than you **ever**...
Touch or fondle you or have you touch their body in a sexual way?
or
Attempt or actually have oral, anal, or vaginal intercourse with you?
Yes No If yes enter 1 _____
4. Did you **often or very often** feel that ...
No one in your family loved you or thought you were important or special?
or
Your family didn't look out for each other, feel close to each other, or support each other?
Yes No If yes enter 1 _____
5. Did you **often or very often** feel that ...
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
or
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes No If yes enter 1 _____
6. Were your parents **ever** separated or divorced?
Yes No If yes enter 1 _____
7. Was your mother or stepmother:
Often or very often pushed, grabbed, slapped, or had something thrown at her?
or
Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?
or
Ever repeatedly hit at least a few minutes or threatened with a gun or knife?
Yes No If yes enter 1 _____
8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
Yes No If yes enter 1 _____
9. Was a household member depressed or mentally ill, or did a household member attempt suicide?
Yes No If yes enter 1 _____
10. Did a household member go to prison?
Yes No If yes enter 1 _____

Now add up your "Yes" answers: _____ This is your ACE Score.

WHAT ARE THEY?

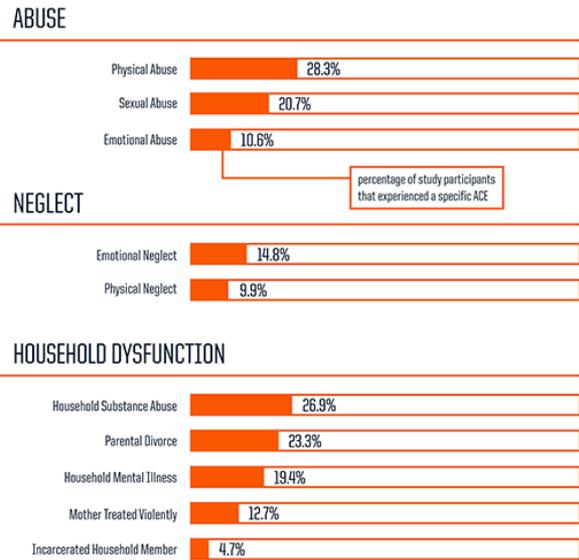
ACEs are
ADVERSE CHILDHOOD EXPERIENCES

The three types of ACEs include



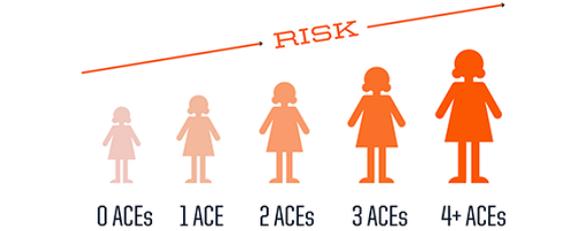
HOW PREVALENT ARE ACEs?

The ACE study* revealed the following estimates:

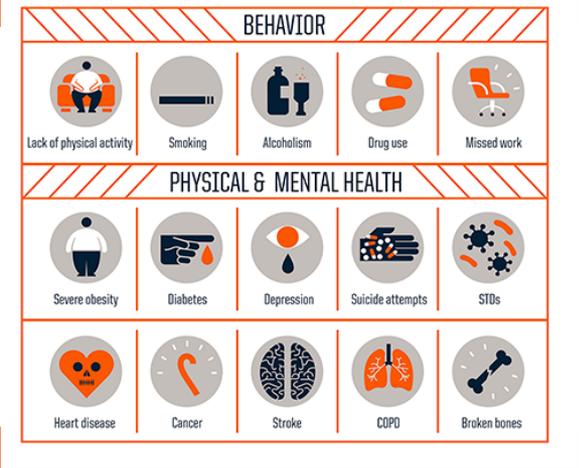


WHAT IMPACT DO ACEs HAVE?

As the number of ACEs increases, so does the risk for negative health outcomes



Possible Risk Outcomes:



Of 17,000 ACE study participants:

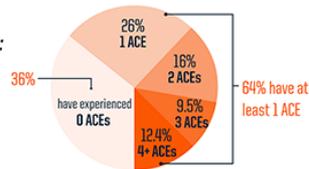


Table 1. Prevalence of childhood exposure to abuse and household dysfunction

Category of childhood exposure ^a	Prevalence (%)	Prevalence (%)
Abuse by category		
Psychological		11.1
<i>(Did a parent or other adult in the household . . .)</i>		
Often or very often swear at, insult, or put you down?	10.0	
Often or very often act in a way that made you afraid that you would be physically hurt?	4.8	
Physical		10.8
<i>(Did a parent or other adult in the household . . .)</i>		
Often or very often push, grab, shove, or slap you?	4.9	
Often or very often hit you so hard that you had marks or were injured?	9.6	
Sexual		22.0
<i>(Did an adult or person at least 5 years older ever . . .)</i>		
Touch or fondle you in a sexual way?	19.3	
Have you touch their body in a sexual way?	8.7	
Attempt oral, anal, or vaginal intercourse with you?	8.9	
Actually have oral, anal, or vaginal intercourse with you?	6.9	
Household dysfunction by category		
Substance abuse		25.6
Live with anyone who was a problem drinker or alcoholic?	23.5	
Live with anyone who used street drugs?	4.9	
Mental illness		18.8
Was a household member depressed or mentally ill?	17.5	
Did a household member attempt suicide?	4.0	
Mother treated violently		12.5
<i>Was your mother (or stepmother)</i>		
Sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her?	11.9	
Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?	6.3	
Ever repeatedly hit over at least a few minutes?	6.6	
Ever threatened with, or hurt by, a knife or gun?	3.0	
Criminal behavior in household		
Did a household member go to prison?	3.4	3.4
	Any category reported	52.1%

^aAn exposure to one or more items listed under the set of questions for each category.

Injury Prevention & Control : Division of Violence Prevention

Violence Prevention

About Us +

Child Maltreatment -

Definition

Data Sources

Risk and Protective Factors

Essentials for Childhood

ACE Study -

About the Study

The ACE Pyramid

Major Findings

Questionnaires

Data and Statistics

Related Links

Publications

[CDC](#) > [Violence Prevention](#) > [Child Maltreatment](#) > [ACE Study](#) > [Major Findings](#)

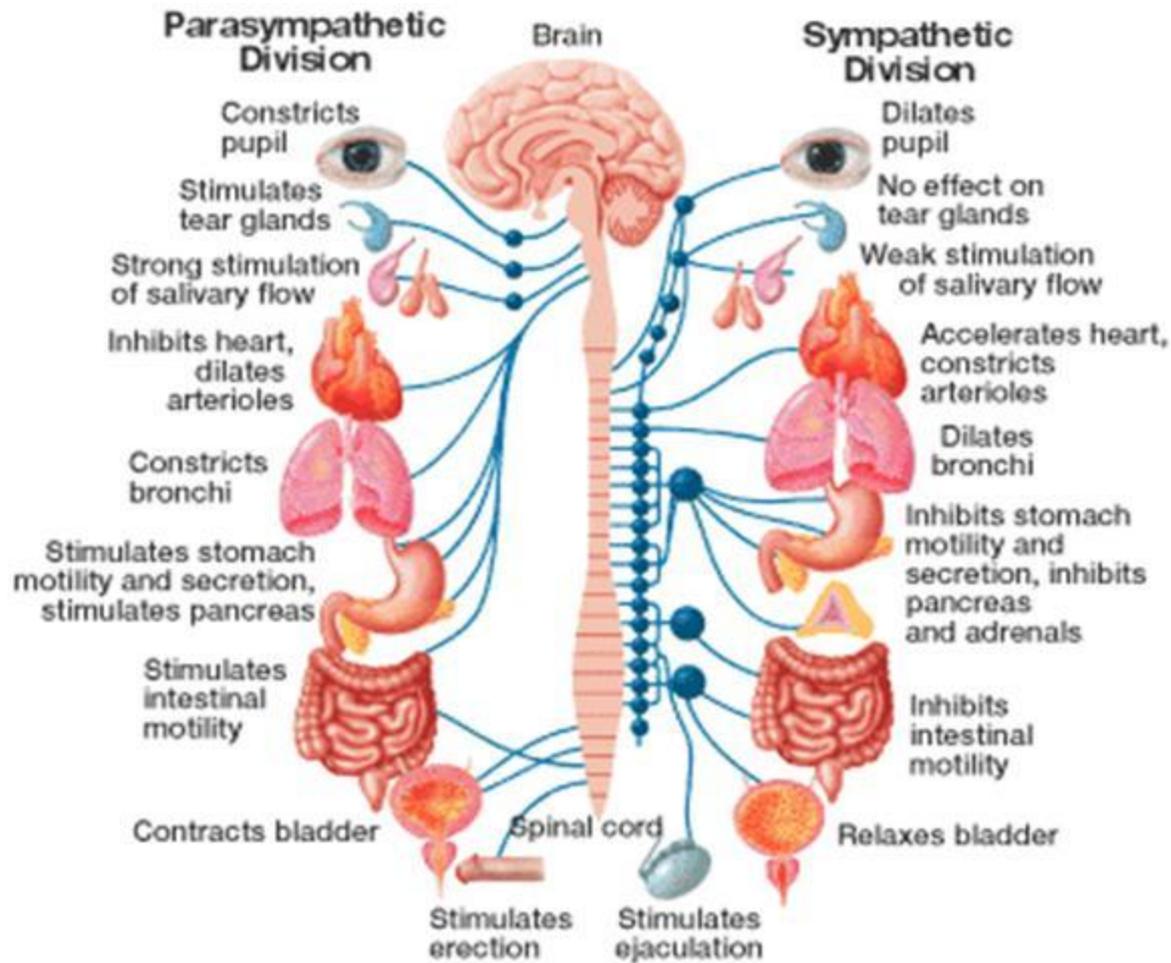
Major Findings



Childhood abuse, neglect, and exposure to other traumatic stressors which we term *adverse childhood experiences* (ACE) are common. Almost two-thirds of our study participants reported at least one ACE, and more than one of five reported three or more ACE. The short- and long-term outcomes of these childhood exposures include a multitude of health and social problems.

The ACE Study uses the ACE Score, which is a total count of the number of ACEs reported by respondents. The ACE Score is used to assess the total amount of stress during childhood and has demonstrated that as the number of ACE increase, the risk for the following health problems increases in a strong and graded fashion:

- Alcoholism and alcohol abuse
- Chronic obstructive pulmonary disease (COPD)
- Depression
- Fetal death
- Health-related quality of life
- Illicit drug use
- Ischemic heart disease (IHD)
- Liver disease
- Risk for intimate partner violence
- Multiple sexual partners
- Sexually transmitted diseases (STDs)
- Smoking
- Suicide attempts
- Unintended pregnancies
- Early initiation of smoking
- Early initiation of sexual activity
- Adolescent pregnancy



FREEZE & SURRENDER

Fight or Flight

Complex Childhood Trauma

Behaviors

Aggression

Disproportionate Reactiveness

Impulsivity

Distractibility

Withdrawal and Avoidance

Three or More Traumatic Events

Two-and-half times more likely to repeat a grade than are children who have experienced none

Five times more likely to have severe attendance issues

Six times more likely to experience behavioral problems

More than **twice** as likely to be suspended from school

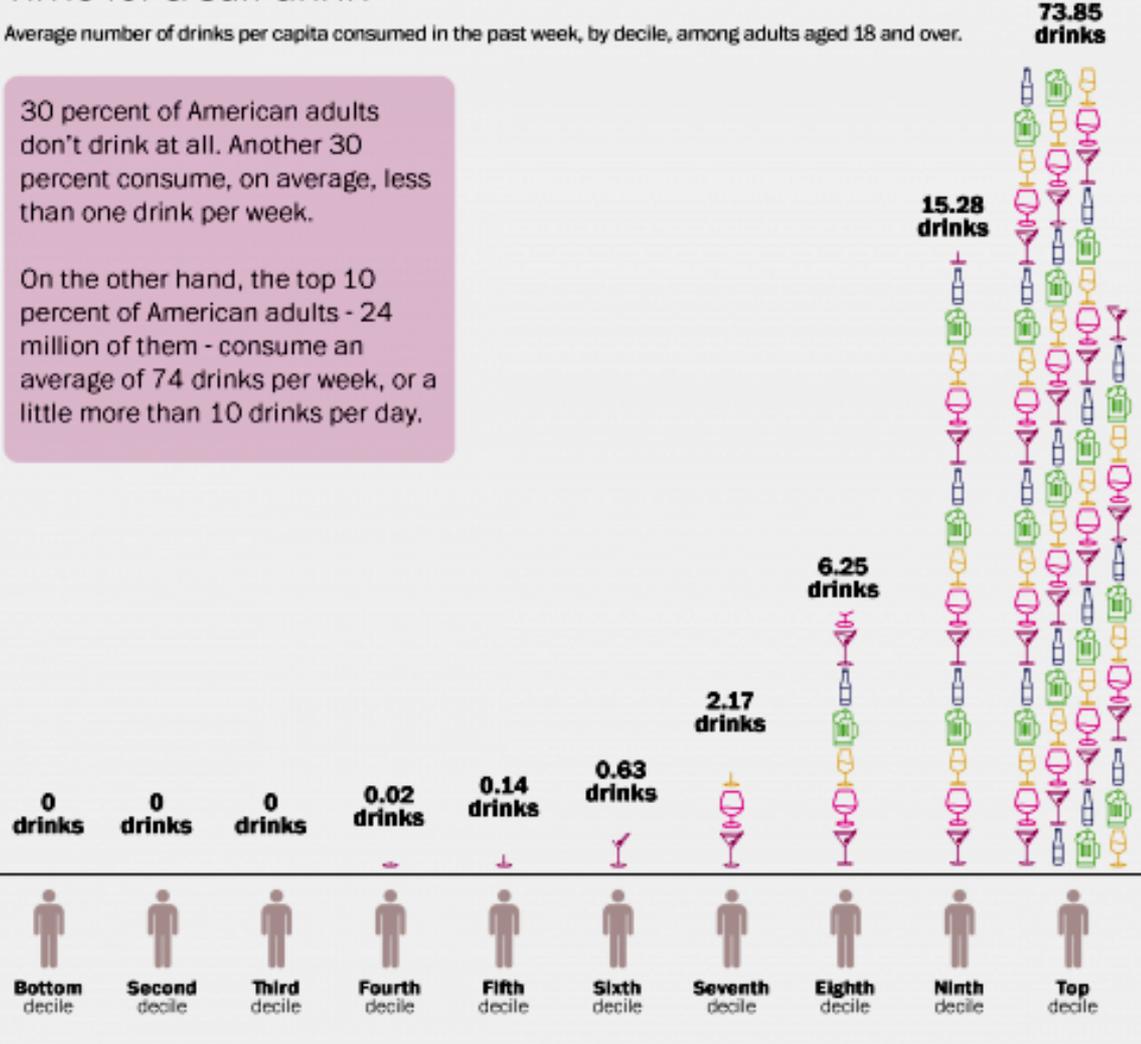
Think you drink a lot?

Time for a stiff drink

Average number of drinks per capita consumed in the past week, by decile, among adults aged 18 and over.

30 percent of American adults don't drink at all. Another 30 percent consume, on average, less than one drink per week.

On the other hand, the top 10 percent of American adults - 24 million of them - consume an average of 74 drinks per week, or a little more than 10 drinks per day.



Low-risk drinking limits



On any single DAY		Per WEEK	
MEN	No more than 4  drinks on any day **** AND ****	WOMEN	No more than 3  drinks on any day **** AND ****
	No more than 14  drinks per week		No more than 7  drinks per week

To stay low risk, keep with BOTH the single-day AND weekly limits

Infographic: NIAAA

12 fl oz of regular beer



about 5% alcohol

=

8–9 fl oz of malt liquor (shown in a 12 oz glass)



about 7% alcohol

=

5 fl oz of table wine



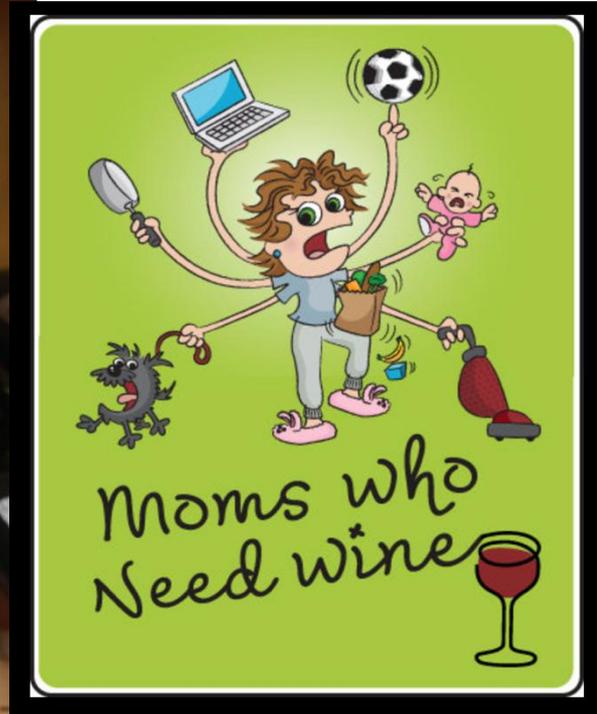
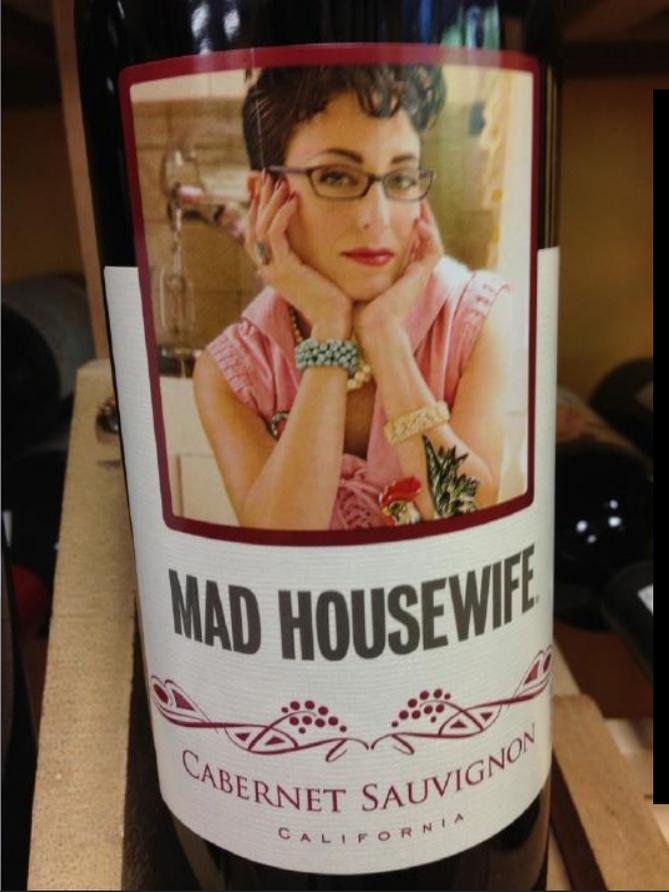
about 12% alcohol

=

1.5 fl oz shot of 80-proof spirits ("hard liquor" — whiskey, gin, rum, vodka, tequila, etc.)



about 40% alcohol





TIME

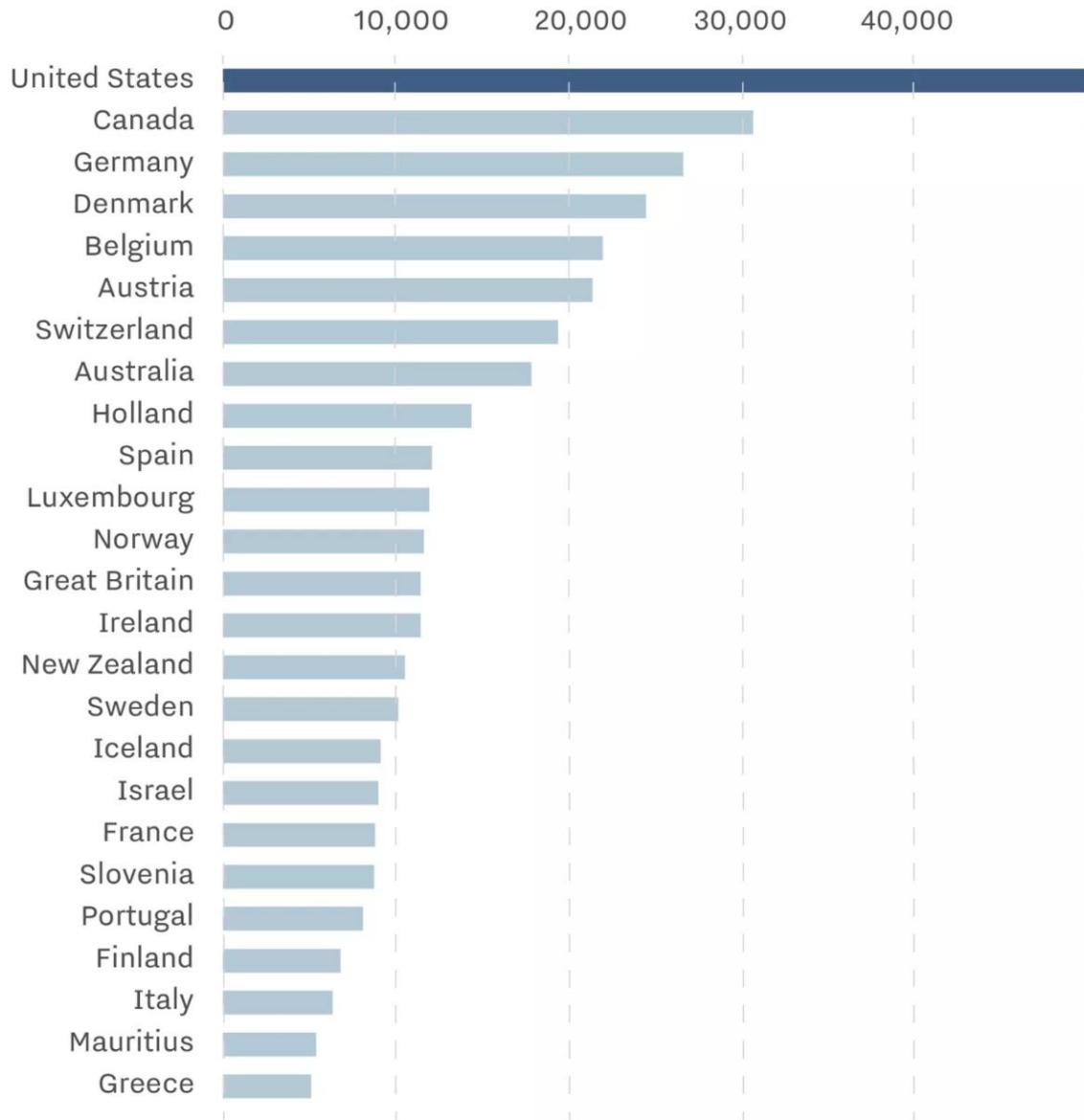
They're the most
**powerful
painkillers**
ever invented.

And they're creating
the worst addiction
crisis America
has ever seen.

By Massimo Calabresi



Standard daily opioid dose for every 1 million people



Source: United Nations International Narcotics Control Board

Credit: Sarah Frostenson

Vox

Chronic Use of Opioid Analgesics in Non-Malignant Pain: Report of 38 Cases

Russell K. Portenoy and Kathleen M. Foley

Pain Service, Department of Neurology, Memorial Sloan-Kettering Cancer Center, and Department of Neurology, Cornell University Medical College, New York, NY 10021 (U.S.A.)

(Received 10 June 1985, accepted 28 October 1985)

Summary

Thirty-eight patients maintained on opioid analgesics for non-malignant pain were retrospectively evaluated to determine the indications, course, safety and efficacy of this therapy. Oxycodone was used by 12 patients, methadone by 7, and levorphanol by 5; others were treated with propoxyphene, meperidine, codeine, pentazocine, or some combination of these drugs. Nineteen patients were treated for four or more years at the time of evaluation, while 6 were maintained for more than 7 years. Two-thirds required less than 20 morphine equivalent mg/day and only 4 took more than 40 mg/day. Patients occasionally required escalation of dose and/or hospitalization for exacerbation of pain; doses usually returned to a stable baseline afterward. Twenty-four patients described partial but acceptable or fully adequate relief of pain, while 14 reported inadequate relief. No patient underwent a surgical procedure for pain management while receiving therapy. Few substantial gains in employment or social function could be attributed to the institution of opioid therapy. No toxicity was reported and management became a problem in only 2 patients, both with a history of prior drug abuse. A critical review of patient characteristics, including data from the 16 Personality Factor Questionnaire in 24 patients, the Minnesota Multiphasic Personality Inventory in 23, and detailed psychiatric evaluation in 6, failed to disclose psychological or social variables capable of explaining the success of long-term management. We conclude that opioid maintenance therapy can be a safe, salutary and more humane alternative to the options of surgery or no treatment in those patients with intractable non-malignant pain and no history of drug abuse.



MORPHINE

Natural opioid analgesic

DISCOVERY

Isolated in the early 1800s

USAGE

Derived from opium poppy, morphine has been one of the most common and effective drugs used to treat severe pain. It is, however, a highly addictive drug that has been abused widely.

POTENCY

One Morphine milligram per day (MME) is the standard by which other opiates are measured.



OXYCODONE

Semi-synthetic opioid analgesic

DISCOVERY

Developed in the 1910s in Germany

USAGE

Oxycodone is a legal pain medication but it has been widely abused in the U.S. since the 1960s. According to a 2014 DEA report, illicit oxycodone products sell at an average price of \$1 per milligram, with the 40 mg OxyContin® tablet being the most popular.

POTENCY

Oxycodone is 1.5 times stronger than morphine.



HYDROCODONE

Semi-synthetic opioid analgesic

DISCOVERY

Synthesized in the 1920s in Germany

USAGE

According to the Drug Enforcement Administration, hydrocodone is the most frequently prescribed opioid in the United States and is associated with more drug abuse and diversion than any other legal or illicit opioid.

POTENCY

Hydrocodone has an equal strength to morphine.



FENTANYL

Synthetic opioid analgesic

DISCOVERY

Synthesized in 1959 by Paul Janssen

USAGE

Fentanyl is a legal pharmaceutical drug used to treat severe pain. However, it has been made available illegally as a non-prescription drug, and increasingly used to intensify the effects of heroin and other drugs.

POTENCY

Generally about 50 to 100 times more potent than morphine.



METHADONE

Synthetic opioid analgesic

DISCOVERY

Developed in 1937 by German scientists

USAGE

Methadone is a legal pharmaceutical drug used to treat chronic pain and addiction to narcotics. Non-medical use of the drug in the U.S. is illegal.

POTENCY

In doses between 1-20 mg a day, methadone is four times stronger than morphine.



TRAMADOL

Synthetic opioid analgesic

DISCOVERY

Synthesized in 1962 in Germany

USAGE

Tramadol was reclassified as a controlled substance in the United States in 2014 by the DEA, amid growing concern that the painkiller and other opioid analgesics are being abused or misused.

POTENCY

Tramadol is one tenth the strength of morphine.

Drug Deaths in America Are Rising Faster Than Ever

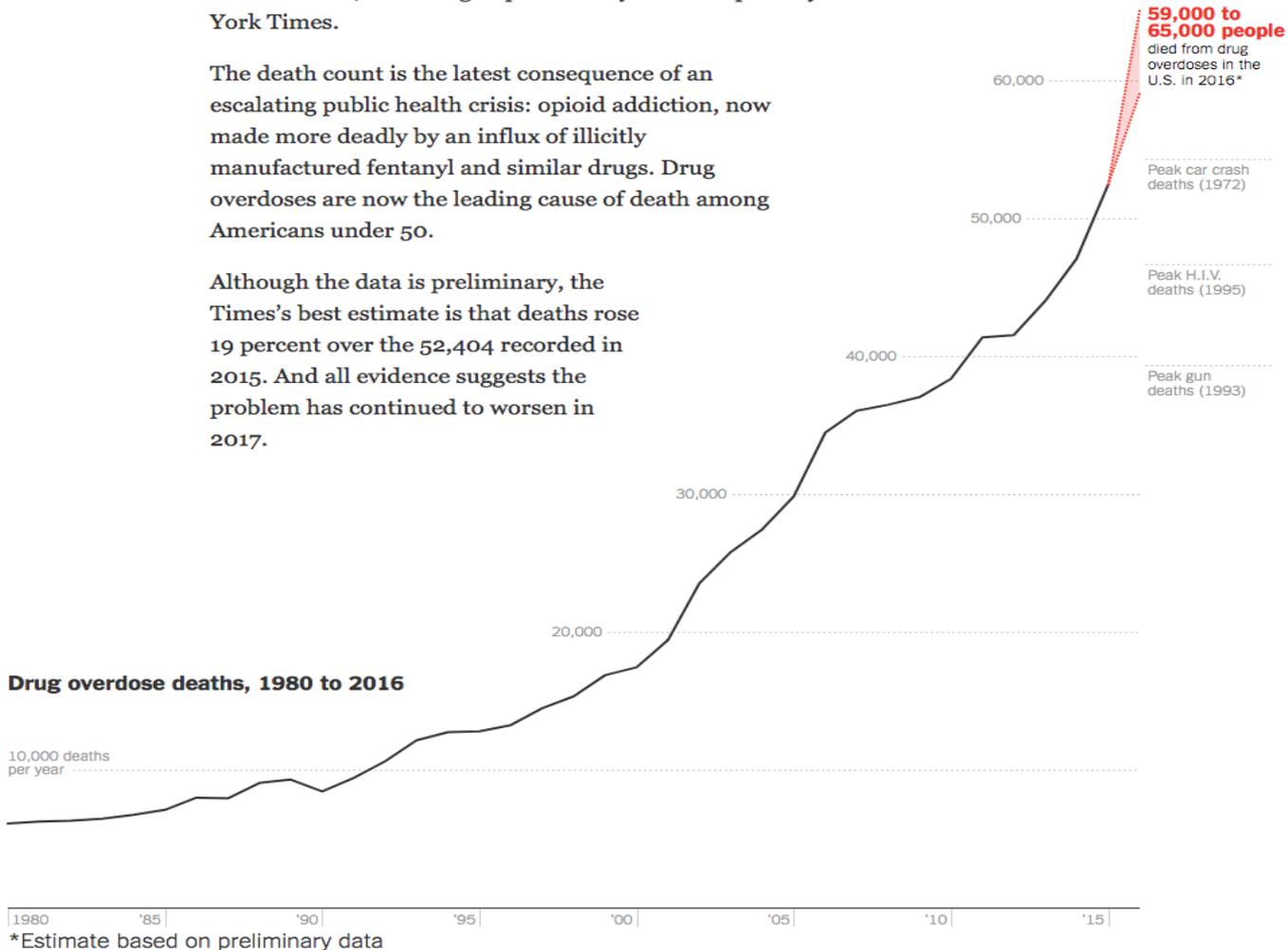
By **JOSH KATZ** JUNE 5, 2017

New data compiled from hundreds of health agencies reveals the extent of the drug overdose epidemic last year.

AKRON, Ohio — Drug overdose deaths in 2016 most likely exceeded 59,000, the largest annual jump ever recorded in the United States, according to preliminary data compiled by The New York Times.

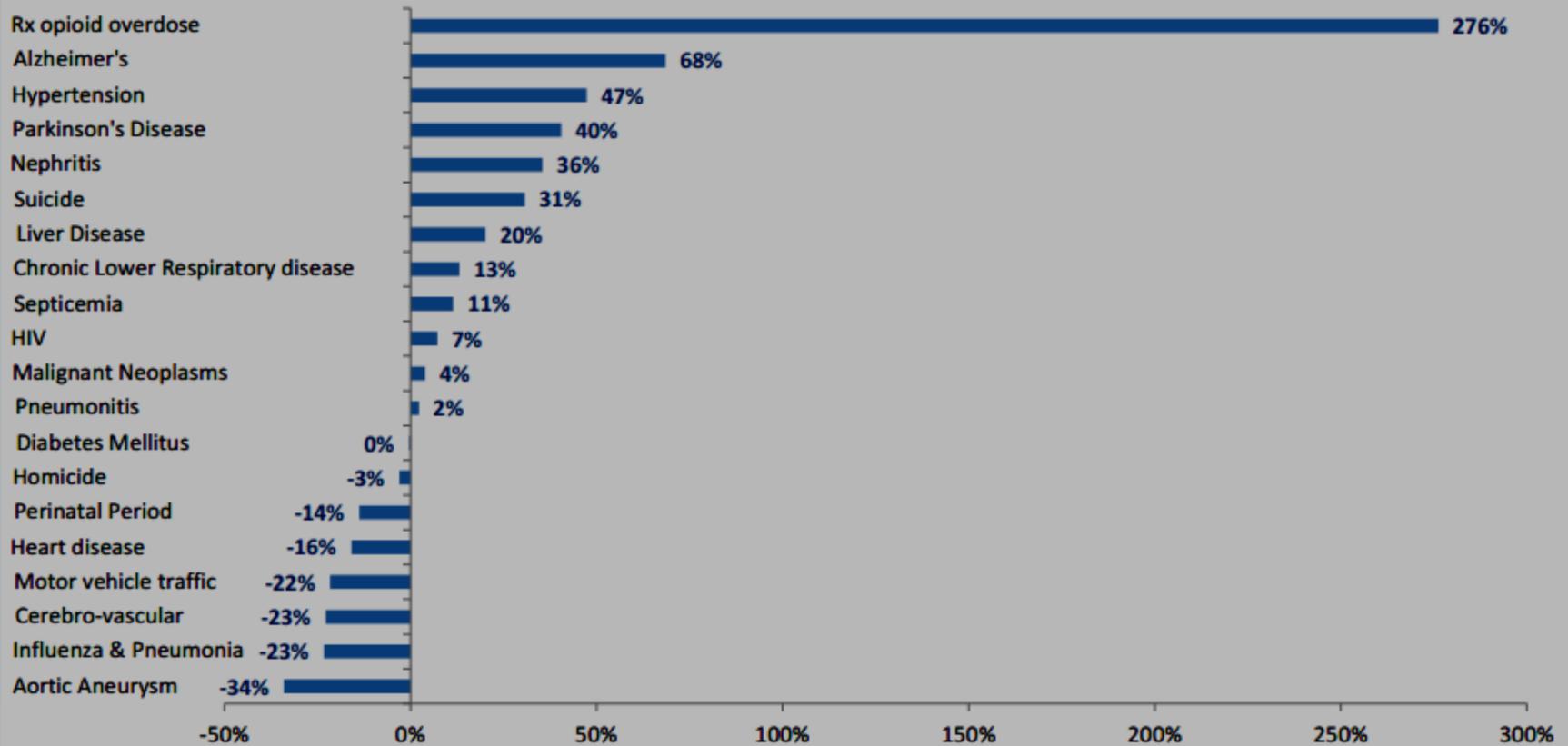
The death count is the latest consequence of an escalating public health crisis: opioid addiction, now made more deadly by an influx of illicitly manufactured fentanyl and similar drugs. Drug overdoses are now the leading cause of death among Americans under 50.

Although the data is preliminary, the Times's best estimate is that deaths rose 19 percent over the 52,404 recorded in 2015. And all evidence suggests the problem has continued to worsen in 2017.



Opioid pain reliever-related overdose deaths increasing at a faster rate than deaths from any major cause

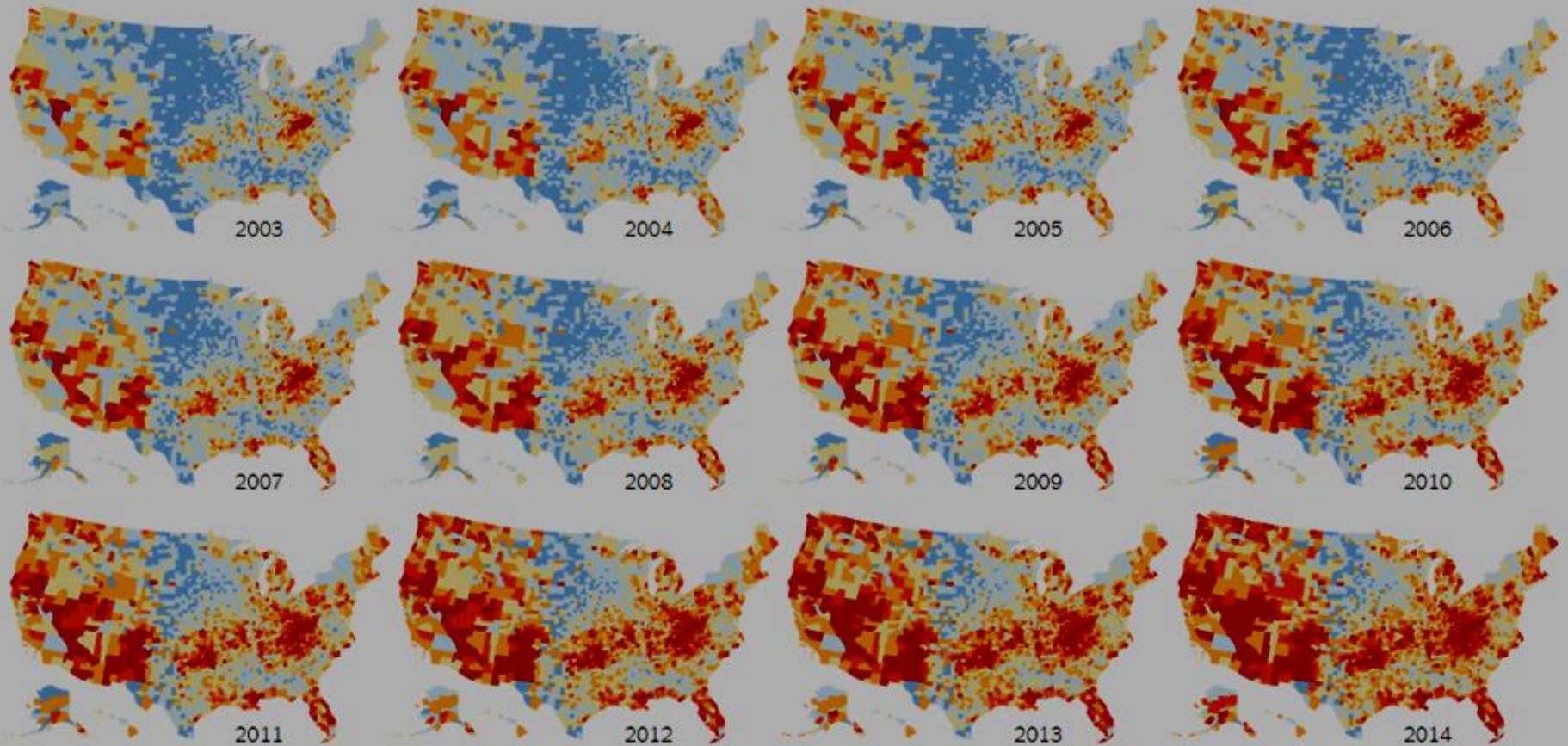
% change in number of deaths, United States, 2000-2010



Deaths Ripples Across America

By HAEYOUN PARK and MATTHEW BLOCH JAN. 19, 2016

Overdose deaths per 100,000



NYT January 19, 2016





Florida Shutting 'Pill Mill' Clinics



Tim Chapman/Miami Herald, via Associated Press

At an Aug. 15 news conference, Florida officials displayed prescription drugs that were surrendered to the state by pain clinics.

By LIZETTE ALVAREZ

Published: August 31, 2011

WEST PALM BEACH, Fla. — Florida has long been the nation's center of the illegal sale of prescription drugs: Doctors here bought 89 percent of all the Oxycodone sold in the country last year. At its peak, so many out-of-staters flocked to Florida to buy drugs at more than 1,000 pain clinics that the state earned the nickname "Oxy Express."

Related

Times Topics: OxyContin (Drug) | Prescription Drug Abuse

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Joe Raedle/Getty Images

Florida Gov. Rick Scott attends a

But with the help of tougher laws, officials have moved aggressively this year to shut down so-called pill mills and disrupt the pipeline that moves the drugs north. In the past year, more than 400 clinics were either shut down or closed their doors.

Prosecutors have indicted dozens of pill mill operators, and nearly 80 doctors have seen their licenses suspended for prescribing mass quantities of pills without clear medical need.

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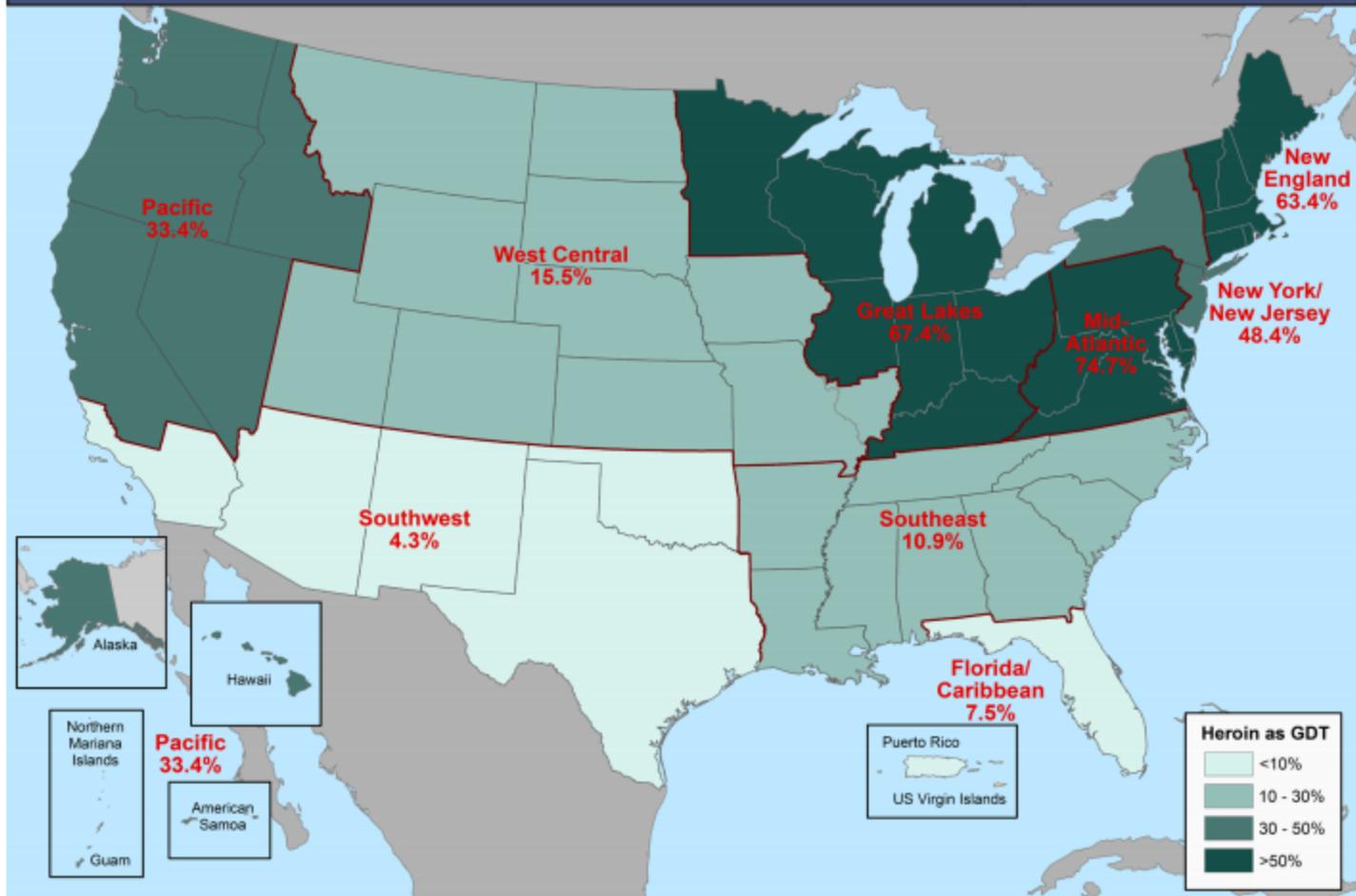




A cap, containing what looks like a dusting of heroin, sells for \$10.

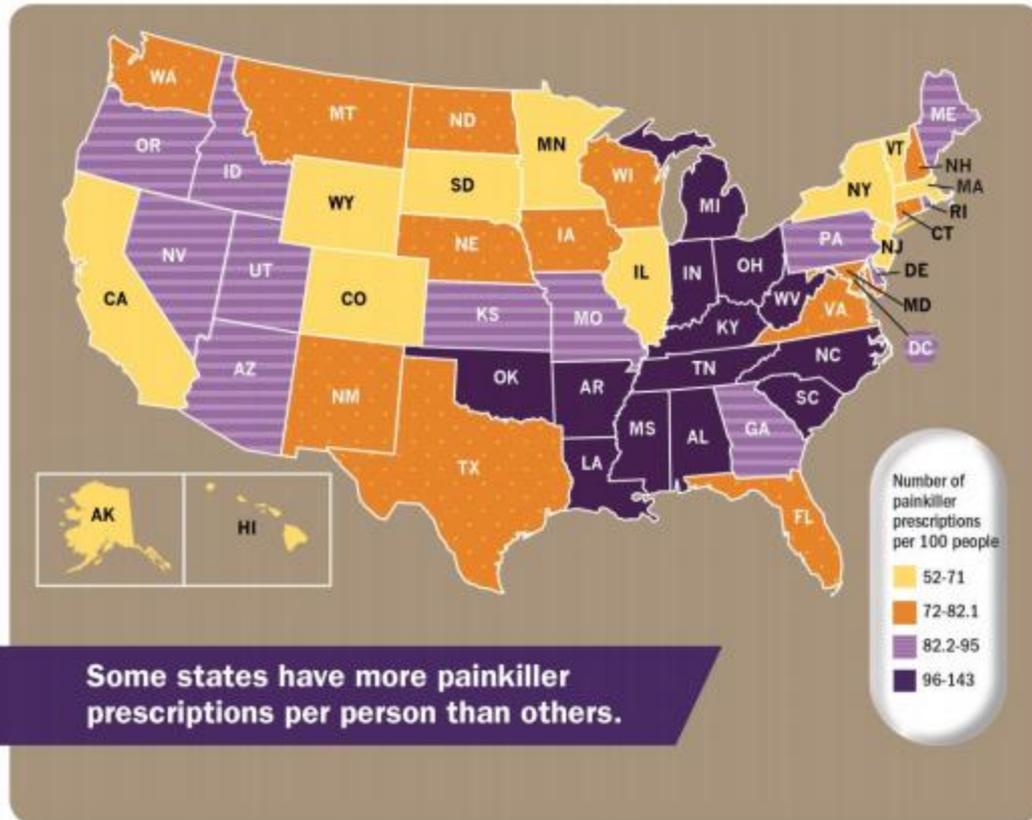


(U) Map 2. Percentage of 2015 NDTs Respondents Reporting Heroin as Greatest Drug Threat, by OCDETF Region



Source: 2015 National Drug Threat Survey

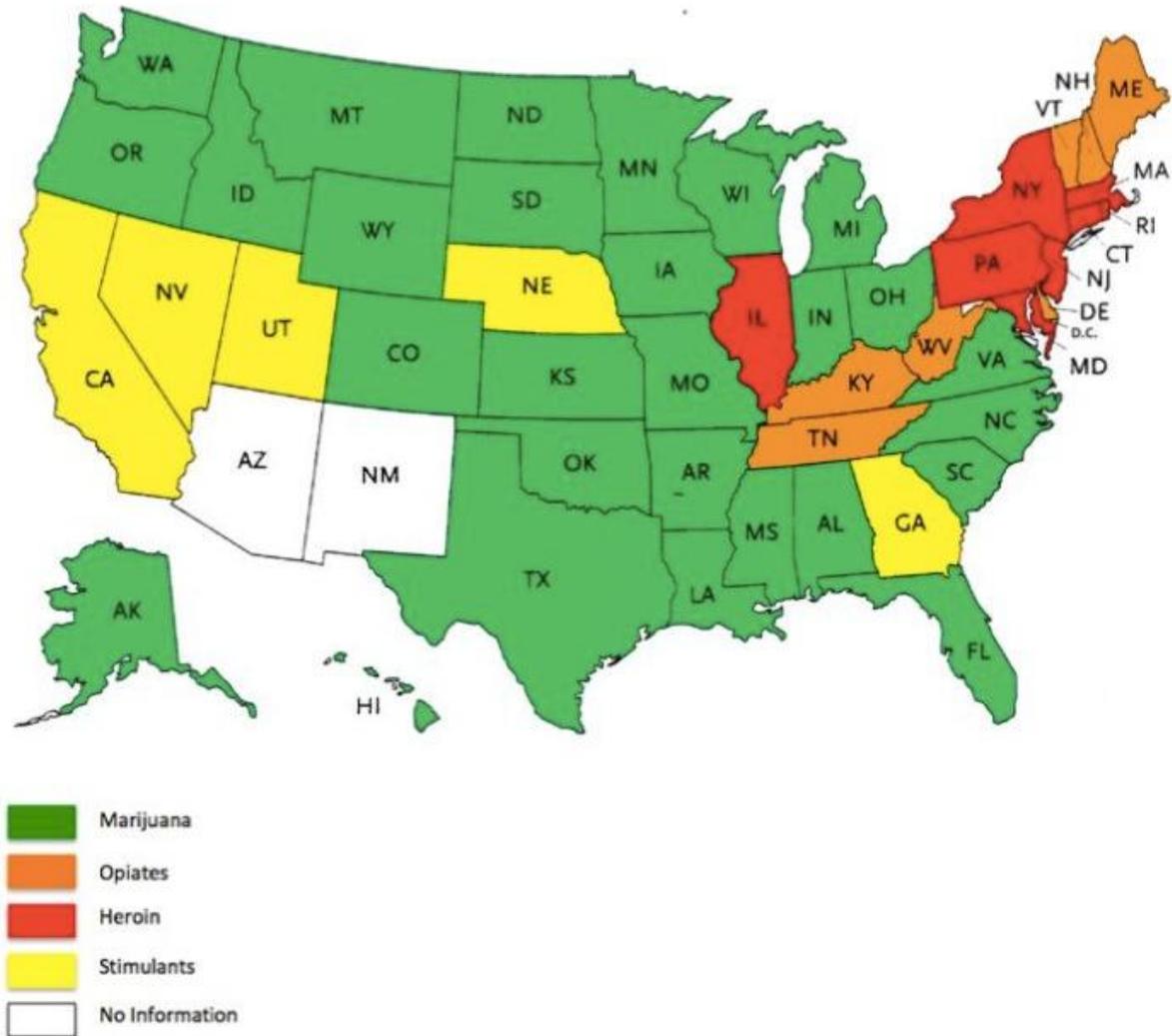
Opioid pain reliever prescribing rates vary by state



SOURCE: CDC Vital Signs, July 2014. cdc.gov/vitalsigns.

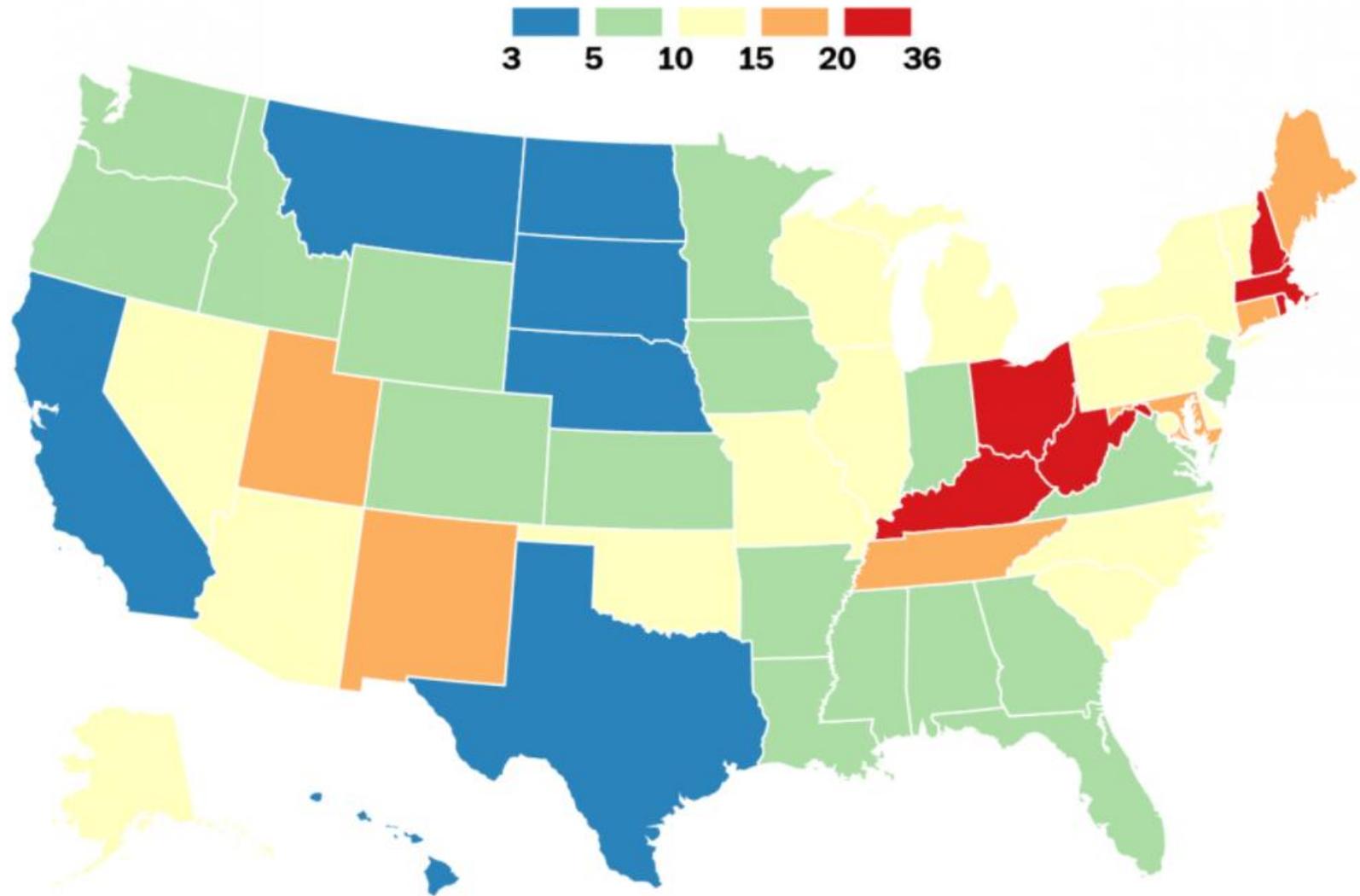
6. A large part of the problem has been the rise of of painkillers and heroin, especially in the Northeast.

(Map shows the drug most commonly cited in drug treatment admissions in each state)

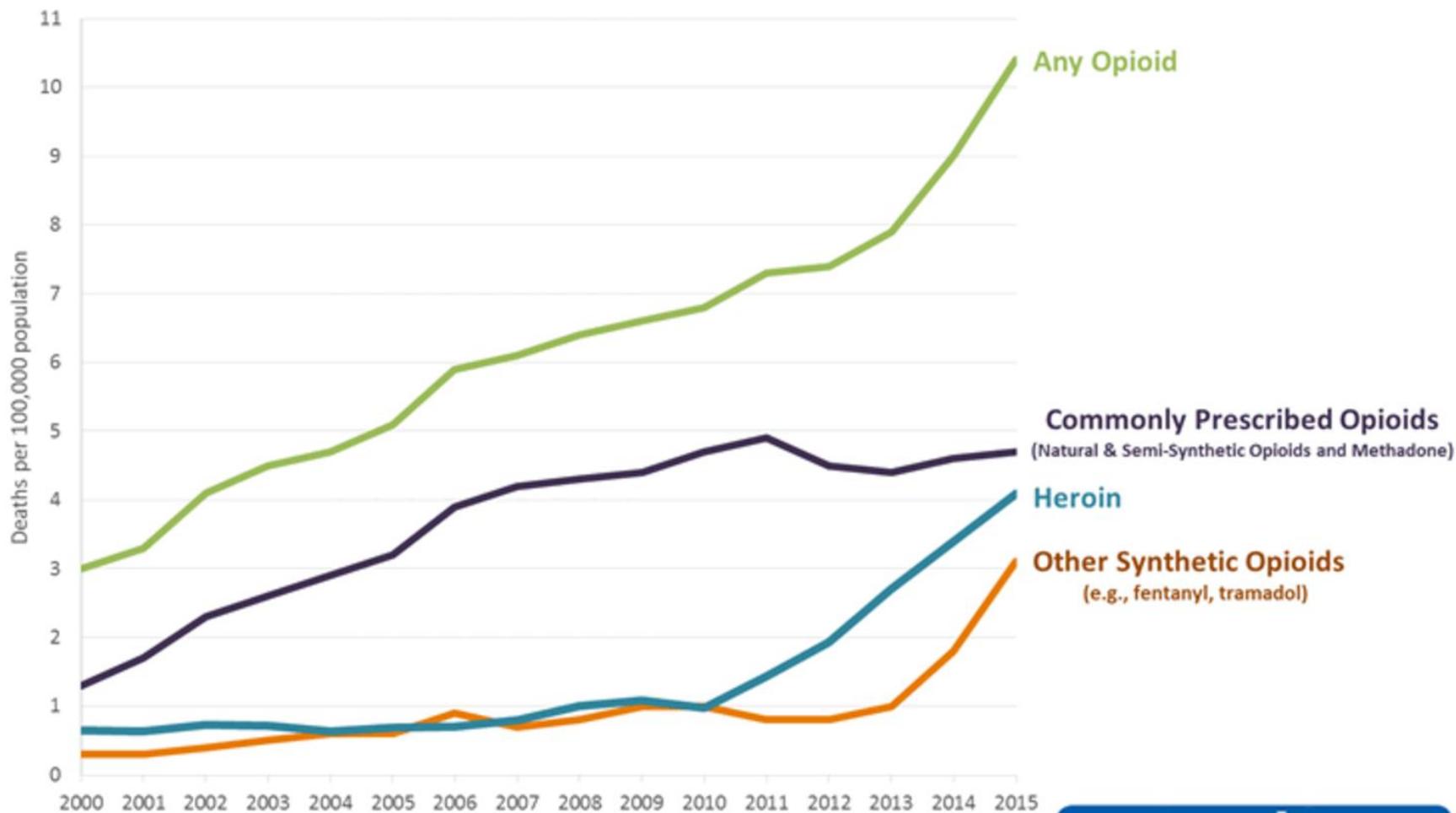


Opioid deaths in 2015

Age-adjusted death rates (per 100,000) for overdose deaths from all opioid drugs



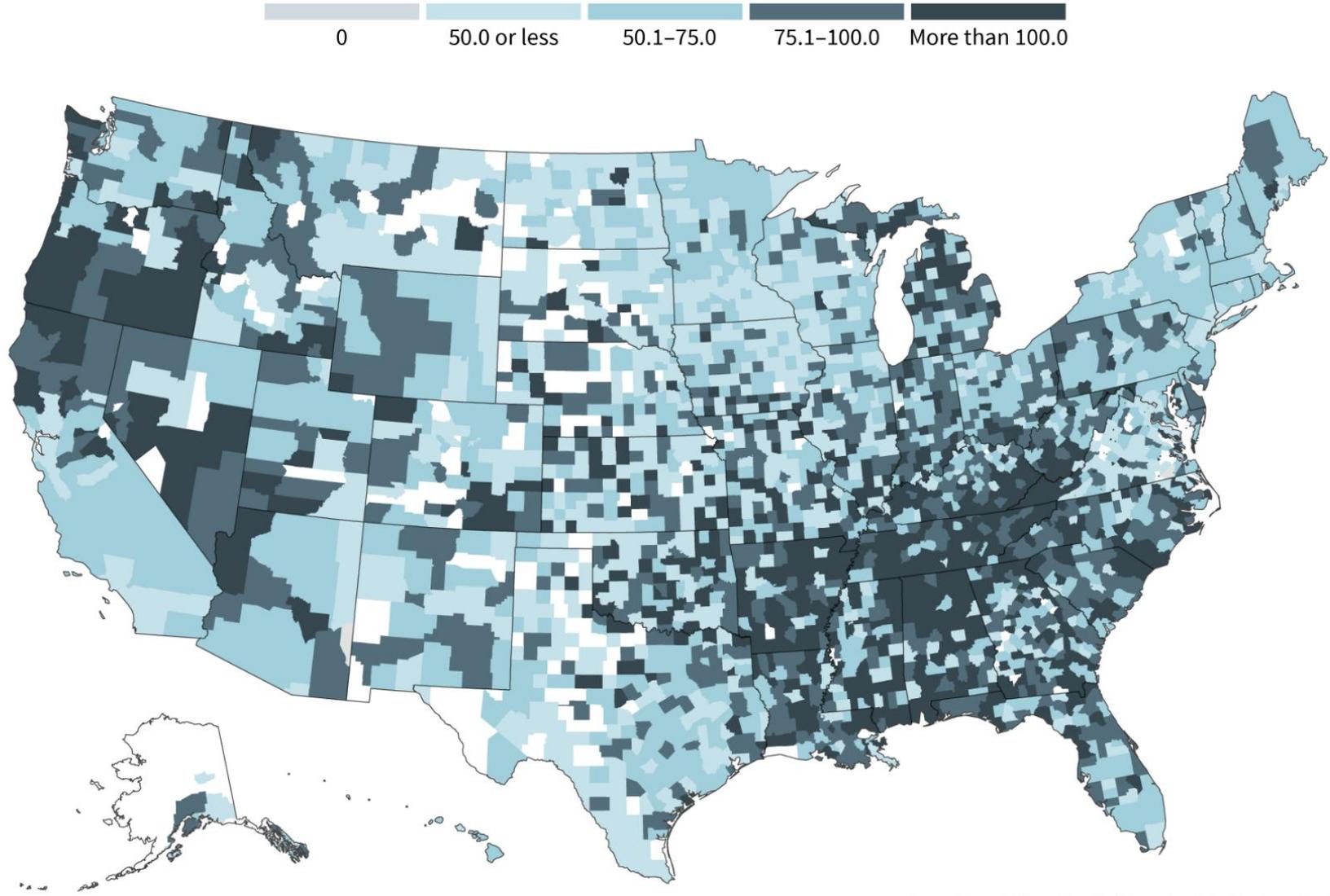
Overdose Deaths Involving Opioids, United States, 2000-2015



SOURCE: CDC/NCHS, National Vital Statistics System, Mortality. CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2016. <https://wonder.cdc.gov/>.

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The map below shows the amount of retail opioid prescriptions dispensed per 100 people in 2016.

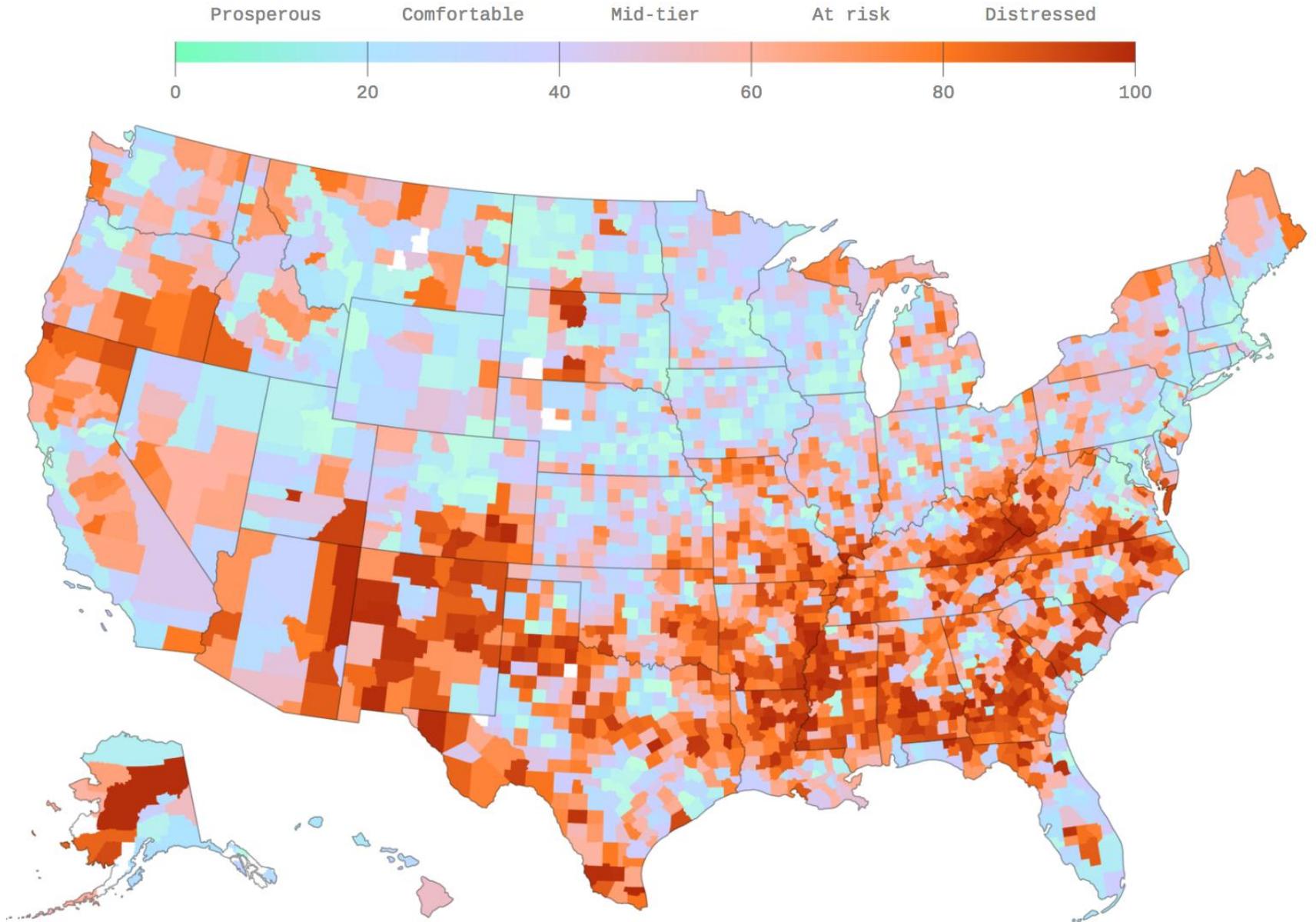


Sources: Centers for Disease Control and Prevention; National Institute on Drug Abuse; Drug Enforcement Administration; World Health Organization

3D illustrations by Jeong Suh
Reporting by Travis Hartman and Yasmeen Abutaleb
REUTERS GRAPHICS

PUBLISHED AUGUST 11, 2017

Distressed communities index



Data: [Economic Innovation Group Distressed Communities Index](#); Map: Lazaro Gamio / Axios

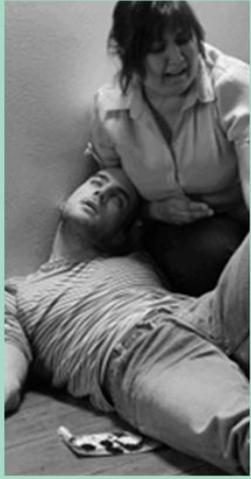
The 2017 DCI finds that **52.3 million Americans live in economically distressed communities**—the one-fifth of zip codes that score worst on the DCI. That represents one in six Americans, or 17 percent of the U.S. population.

By comparison, **84.8 million Americans live in prosperous communities**—the one-fifth of zip codes that score best on the DCI. These top-performing zip codes contain 27 percent of the country’s population, a far greater share than any other tier.

Underlying indicators of well-being vary drastically across the different tiers of U.S. communities.

Performance across the seven component metrics of the DCI

	Adults without a High School Diploma	Poverty Rate	Prime-Age Adults Not in Work	Housing Vacancy Rate	Median Income Ratio	Change in Employment	Change in Establishments
Prosperous	5.7%	6.2%	20.8%	4.8%	145.9%	24.5%	12.6%
Comfortable	9.3%	10.0%	24.6%	7.1%	111.3%	15.2%	6.8%
Mid-tier	12.6%	13.8%	28.6%	8.8%	94.8%	10.9%	4.1%
At risk	16.8%	18.6%	34.0%	10.8%	82.8%	7.6%	2.6%
Distressed	22.5%	26.7%	41.8%	14.4%	68.6%	-6.0%	-6.3%
United States	13.3%	15.5%	28.2%	8.3%	100.0%	9.4%	4.2%



HELP
THOSE IN NEED



GIVE
OVERDOSE RESCUE



HOPE
FOR A LIFE SAVED

Save a Life

Learn how to respond to an overdose emergency

Get Naloxone Now is an online resource to train people to respond effectively to an opioid-associated overdose emergency. Get Naloxone Now advocates for widespread access to overdose education and training in how to administer naloxone, the life-saving antidote for opioid-associated overdose. Get Naloxone Now seeks to increase the number of lives saved by bystanders and professional first responders (police officers, firefighters and EMTs). Find out how you can contribute to reducing overdose deaths by accessing our online training modules.

INDIVIDUALS-GET TRAINED!

In as little as 20 minutes, you can learn techniques to save the life of a loved-one, friend, co-worker, neighbor ... anyone ... who is experiencing an overdose caused by prescription narcotics or heroin. You can also find out where you can obtain the lifesaving, easy-to-use antidote, naloxone, as well as access relevant

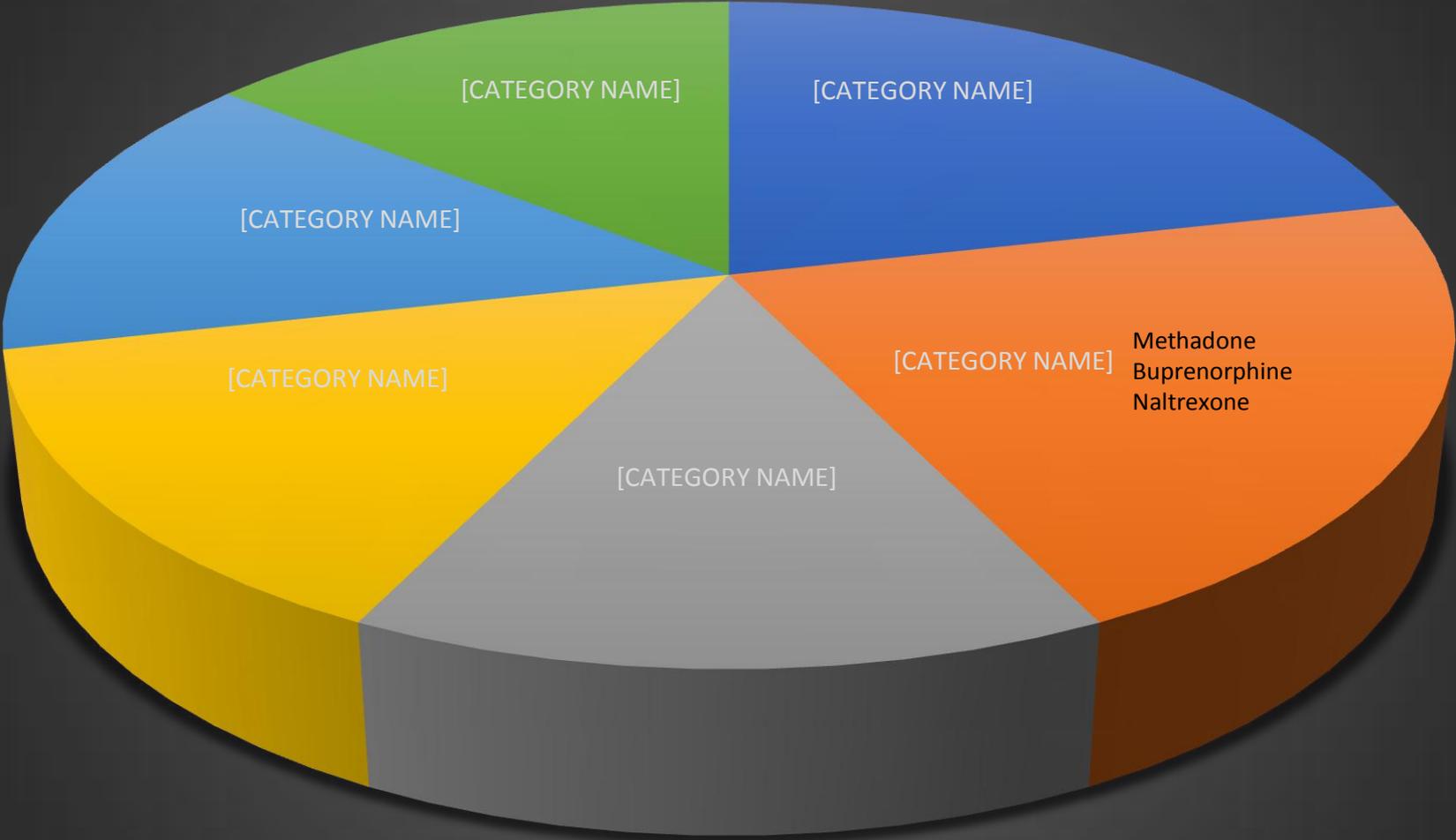
INSTITUTIONAL PROGRAM

Central to our mission to save lives is our institutional program. Targeted online training is available to professional first responders (police officers, firefighters, EMTs) through use of our first responder computer-based module.

HOW CAN YOU HELP

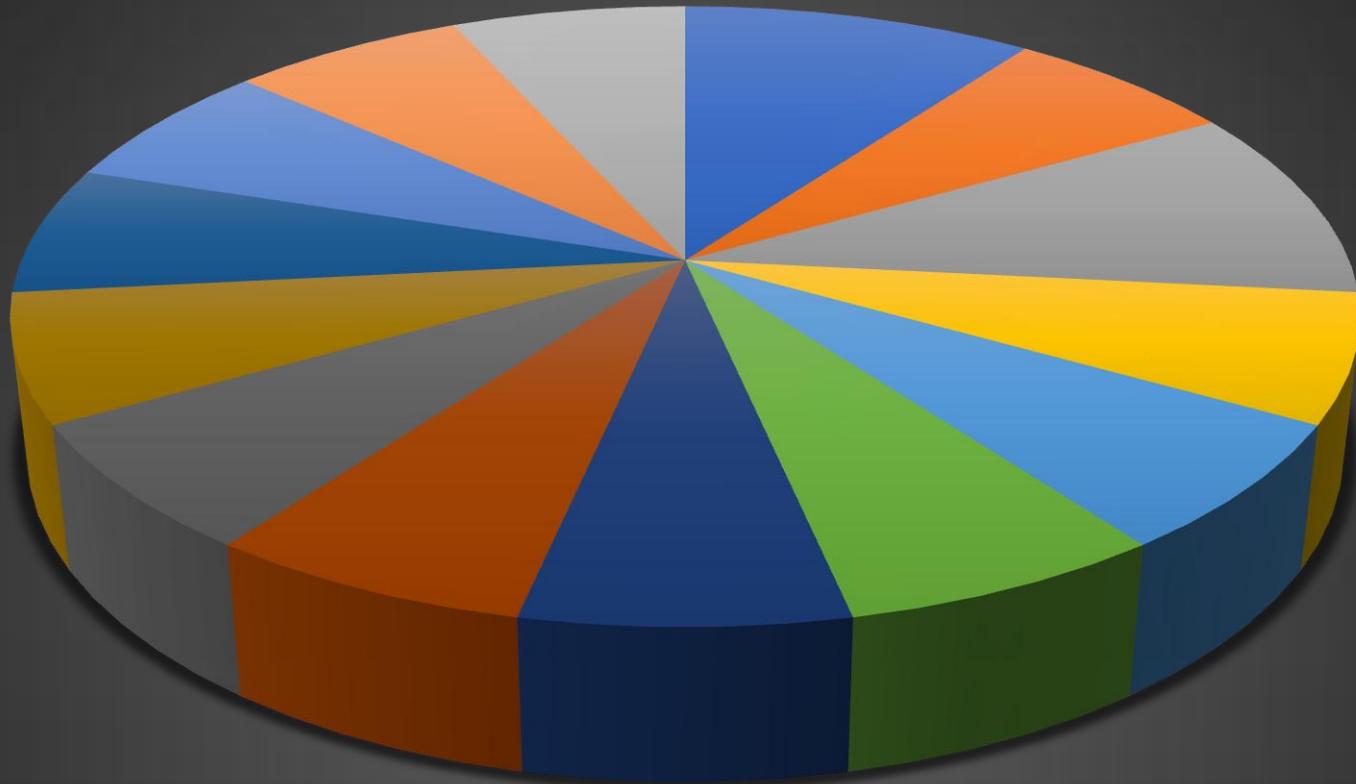
Our computer-based training modules can help you give someone a second chance, and spare those who love them the pain of a preventable loss of life or brain injury. The online training is provided free of charge. If you wish to obtain CE or CASAC credits (pending accreditation) after completing the module, a nominal

What It Takes To Get Better



- Stable & Sober Housing
- Medicine
- Mental Health Treatment
- Positive Relationships
- Physical Movement
- Having a Sense of Purpose

What It Takes To Get Better



- | | | |
|-------------------------------|--------------------------------|-----------------------------|
| ■ Stable & Sober Housing | ■ Having a Sense of Purpose | ■ Medicine |
| ■ Mental Health Treatment | ■ Positive Relationships | ■ Physical Movement |
| ■ Working | ■ Parenting | ■ Going to 12 Step Recovery |
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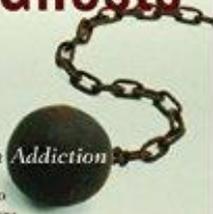
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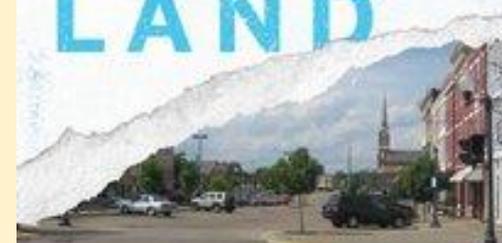
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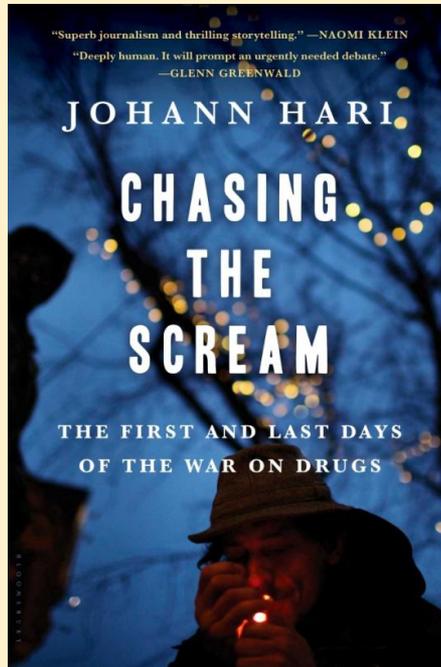
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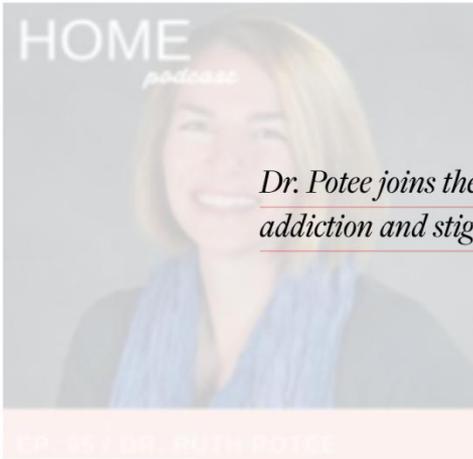
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Dr. Potee on the impact of the opioid crisis upon children

BOSTON GLOBE; MICHAEL LEVENSON



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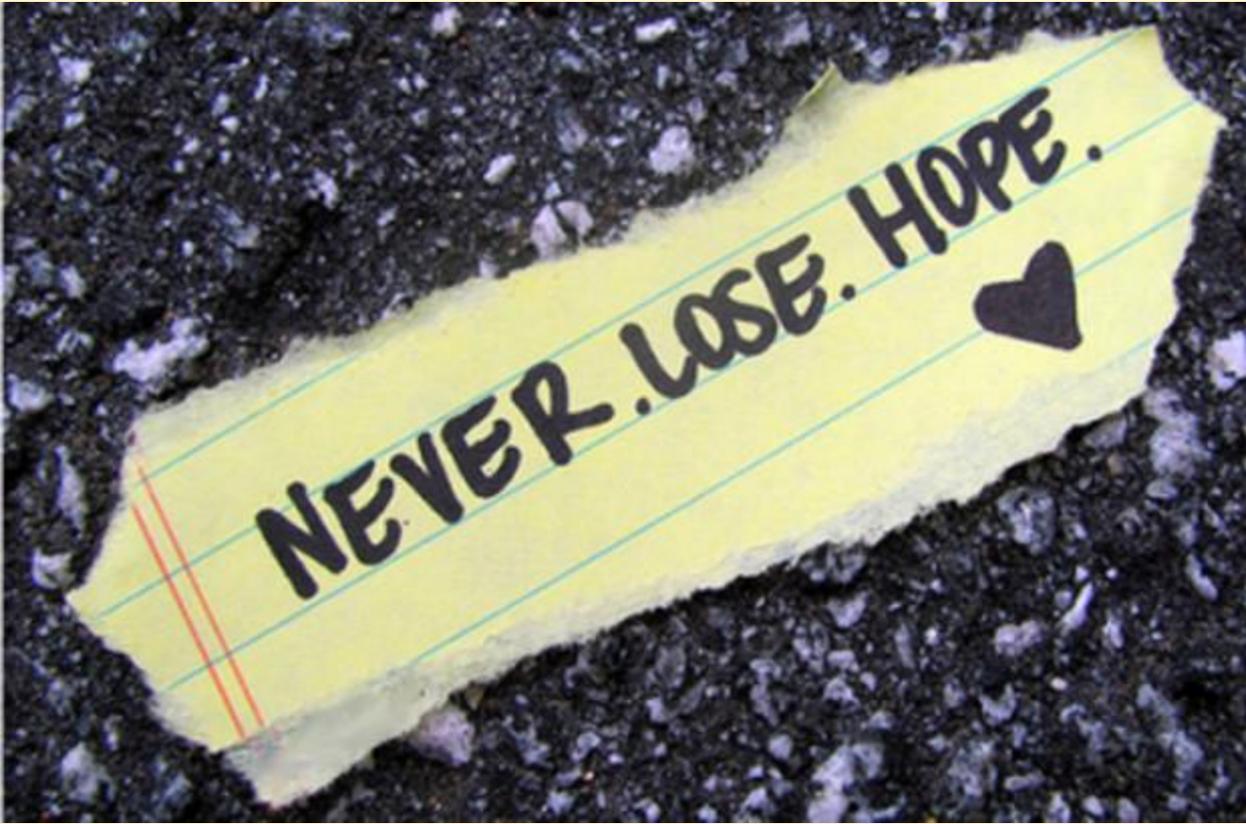


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