Pain and Drug Addiction: Intertwining Epidemics:

Epidemics with Common Causes and Shared Solutions:

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NIDA Division of Epidemiology,
Prevention and Services Research,

NIH Pain Consortium

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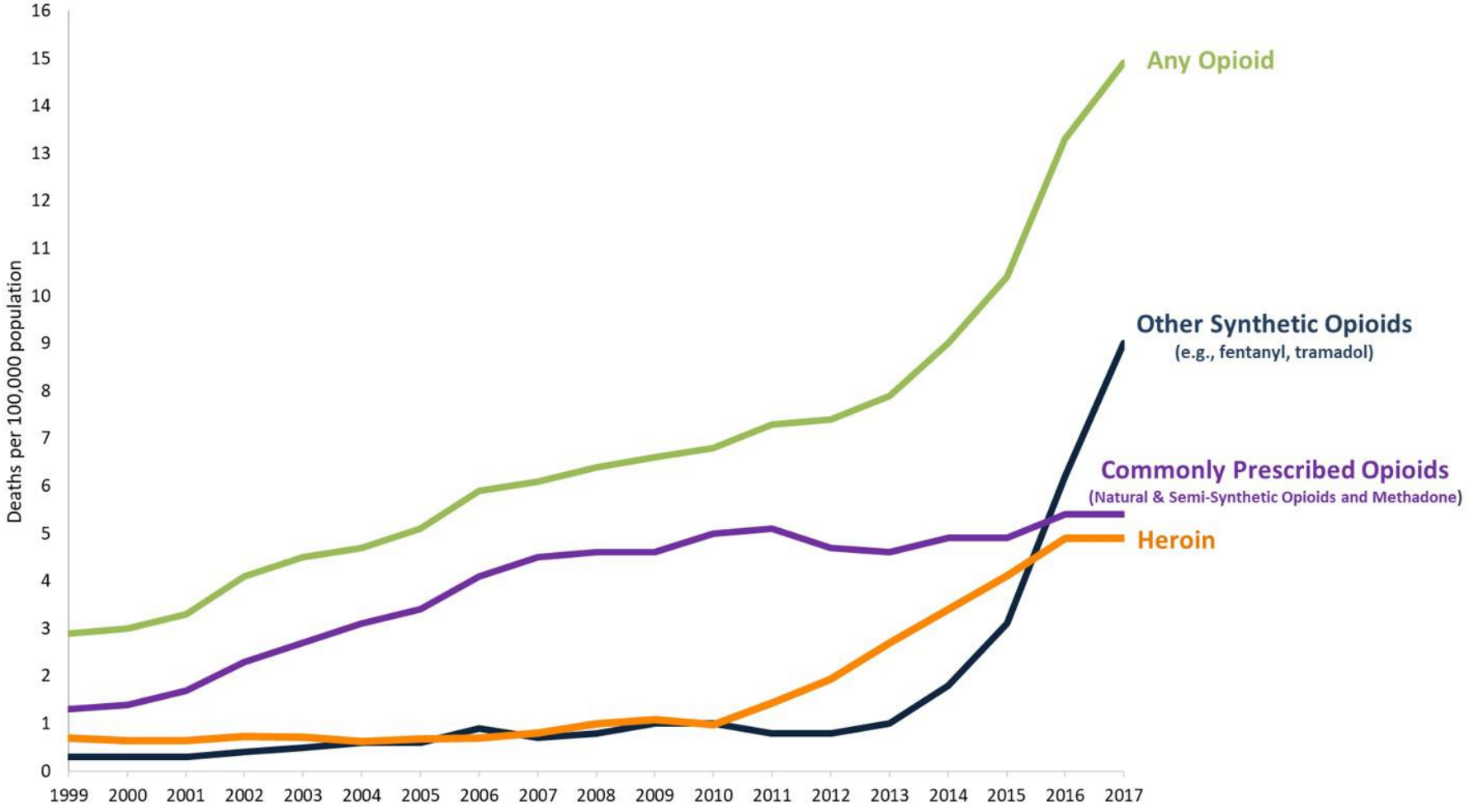
301 435 1313

National Institute on Drug Abuse
The Science of Drug Abuse & Addiction

Disclosures:

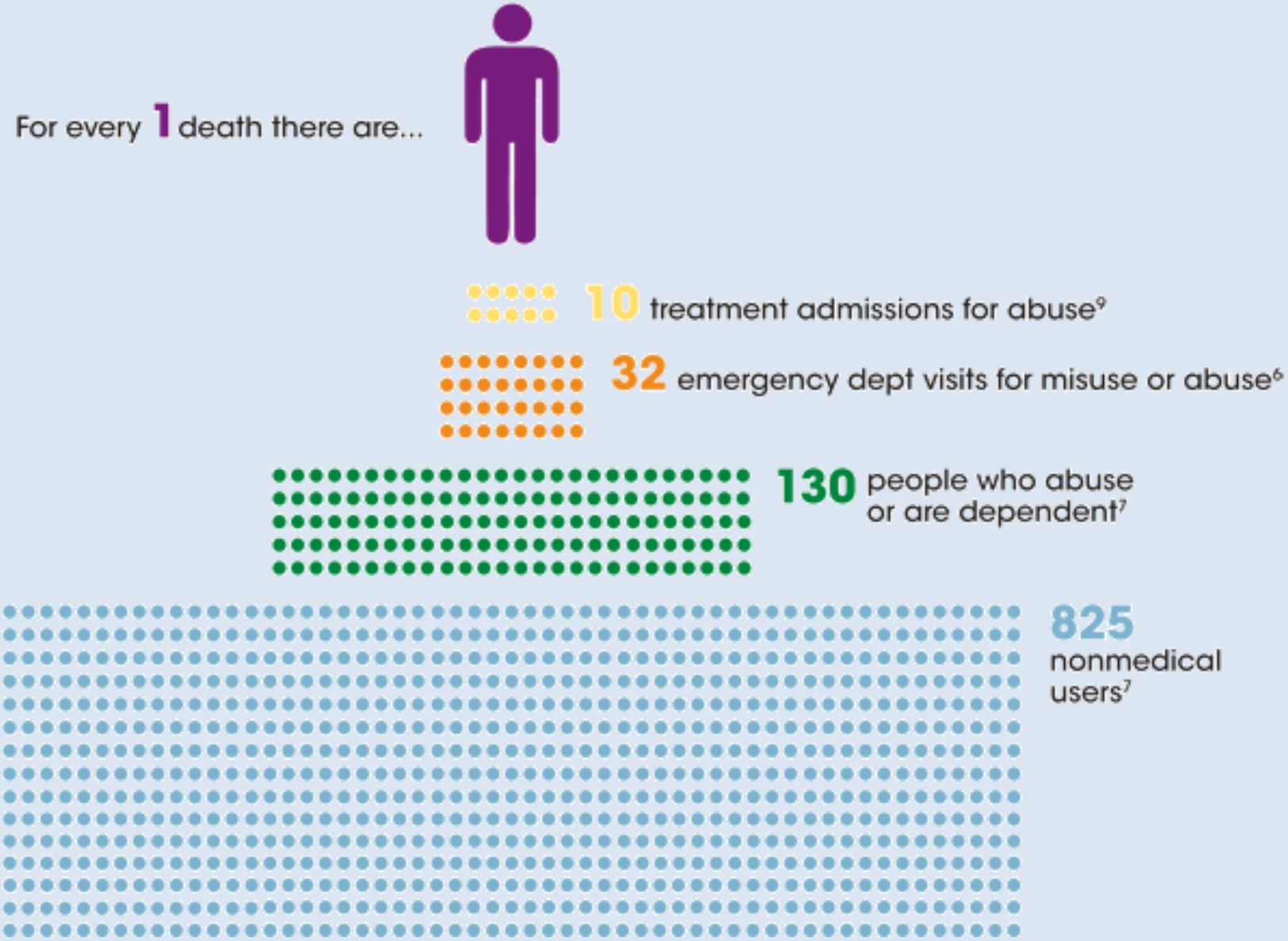
Nothing to disclose.

Overdose Death Rates Involving Opioids, by Type, United States, 2000-2017



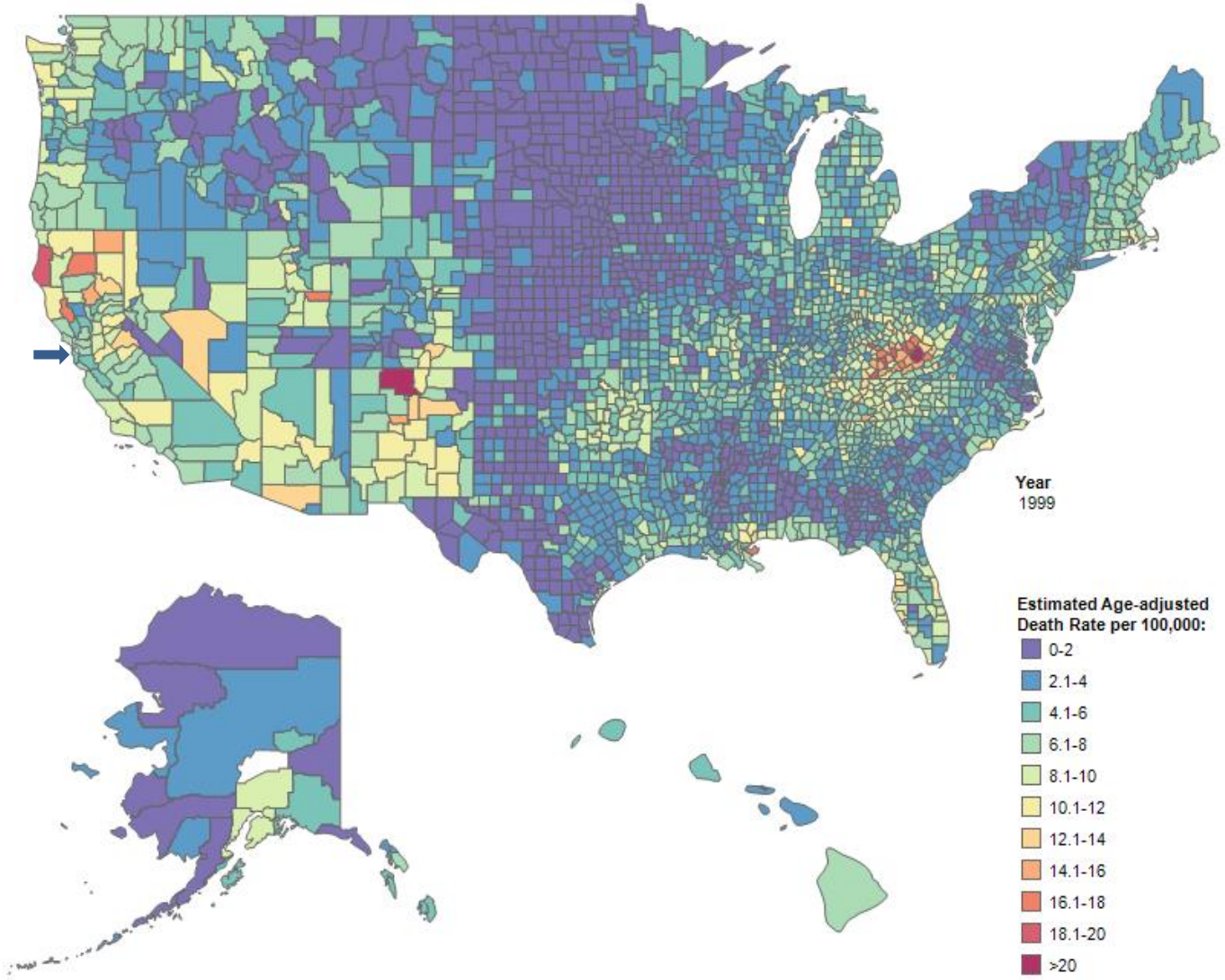
SOURCE: CDC/NCHS, National Vital Statistics System, Mortality. CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2018. https://wonder.cdc.gov/.

www.cdc.gov
Your Source for Credible Health Information


For every 1 death there are...
10 treatment admissions for abuse[9]
32 emergency dept visits for misuse or abuse[6]
130 people who abuse or are dependent[7]
825 nonmedical users[7]

CDC, 2014

Marked *Geographic Variation in Mortality*: Estimated Age-adjusted Death Rates for Drug Poisoning by County



1999

Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System; Tom Frieden Presentation at the Opioid Summit, Atlanta, April 2016

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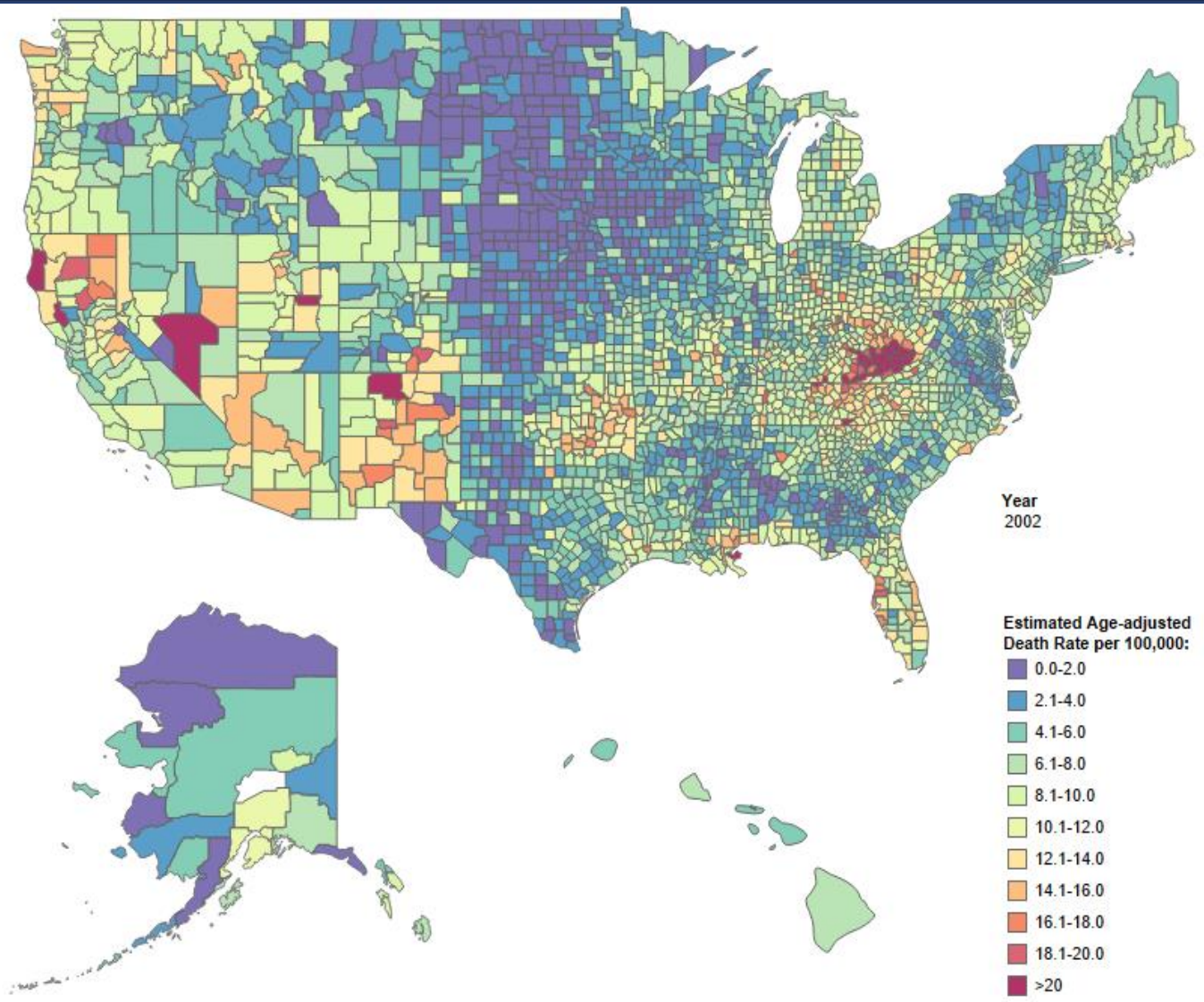

2002

Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System; Tom Frieden Presentation at the Opioid Summit, Atlanta, April 2016

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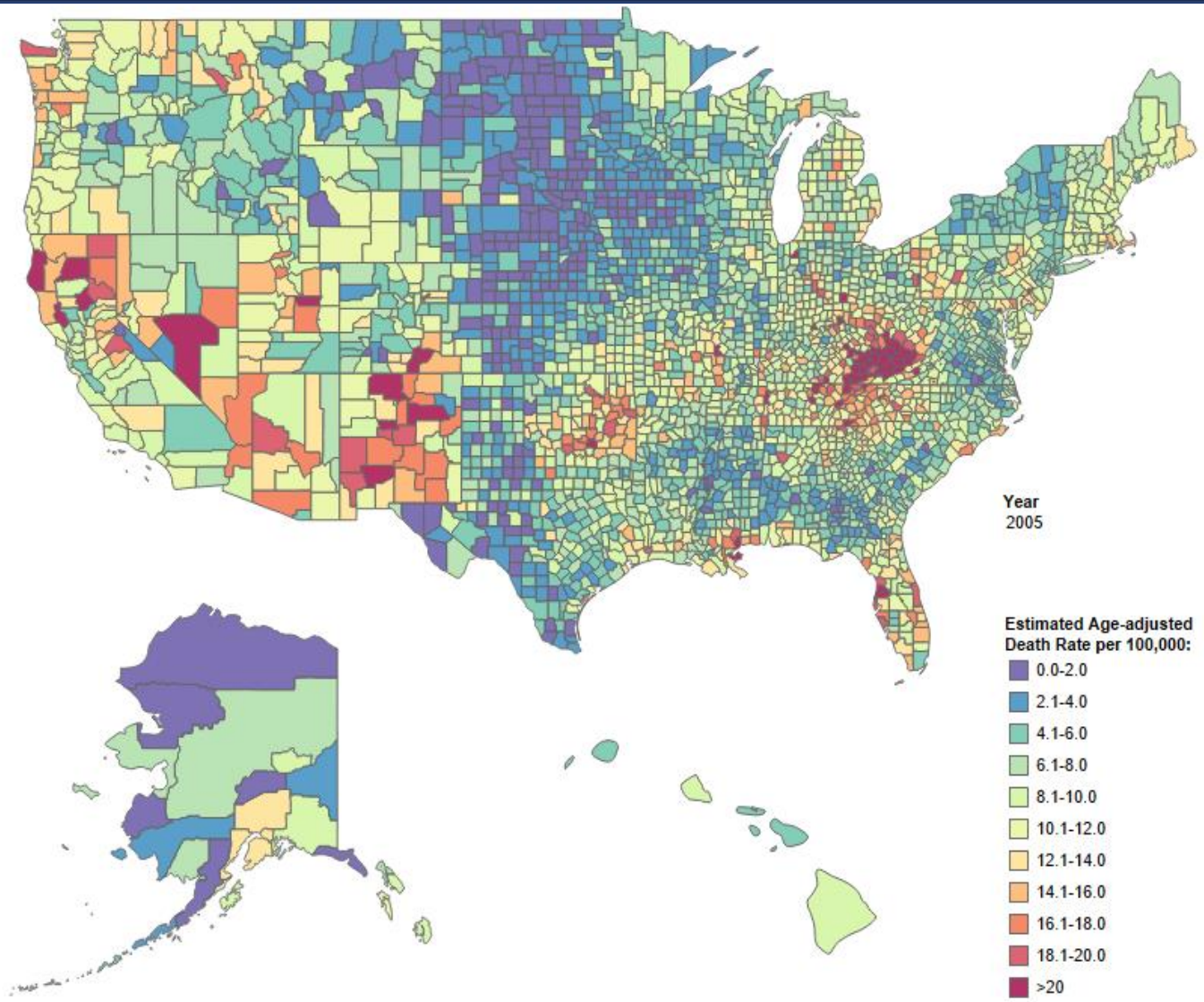

2005

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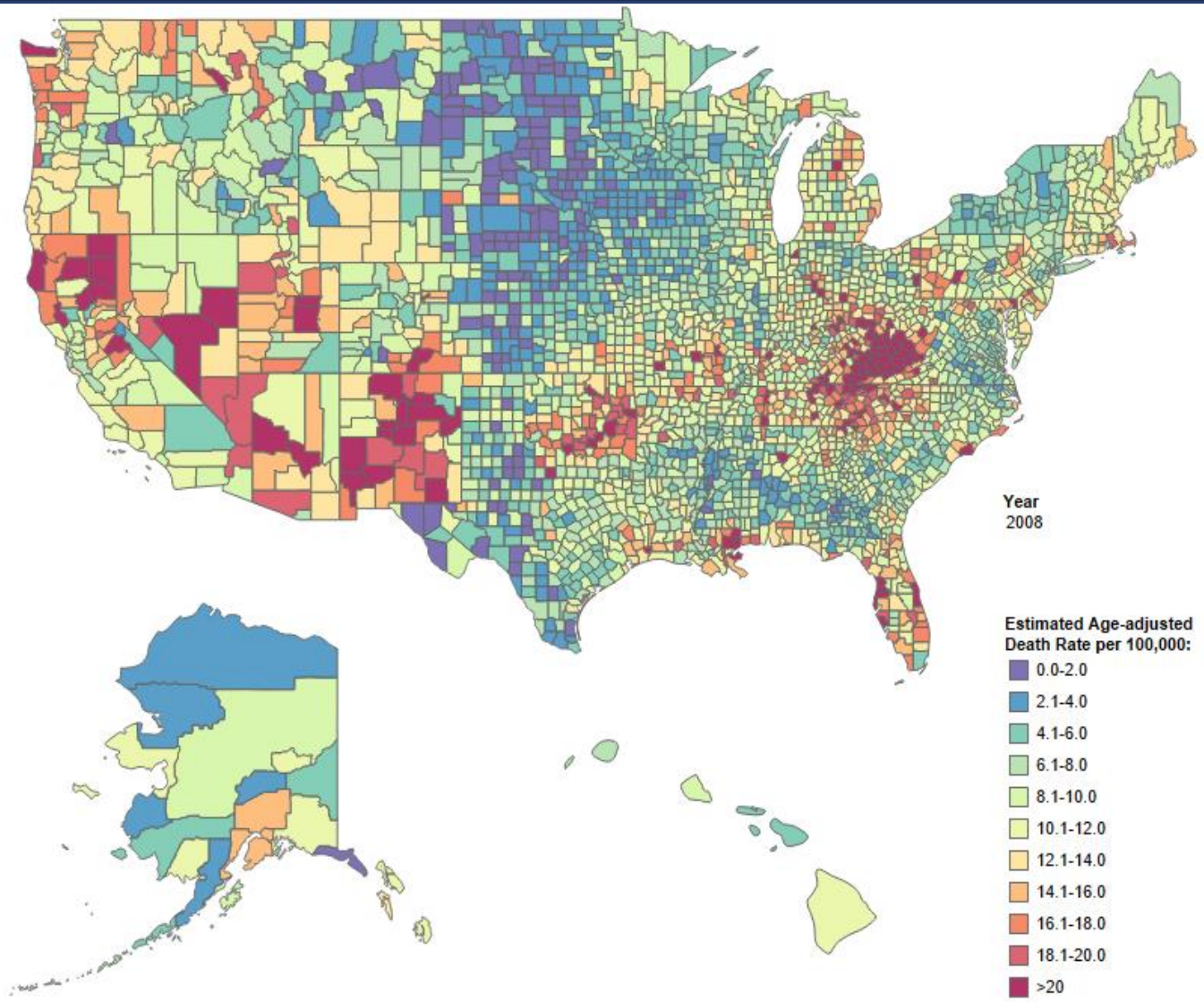
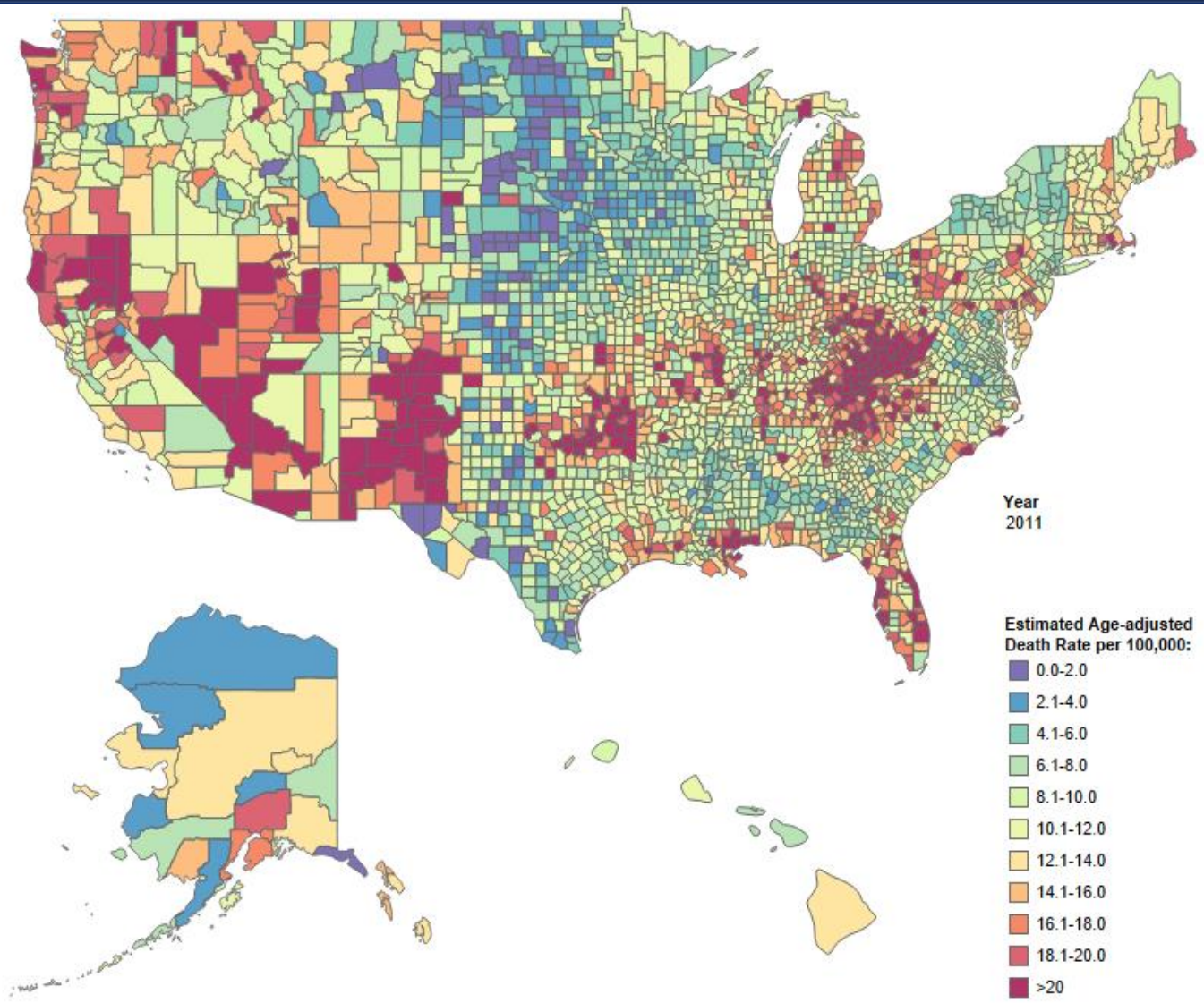


2008

Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System; Tom Frieden Presentation at the Opioid Summit, Atlanta, April 2016

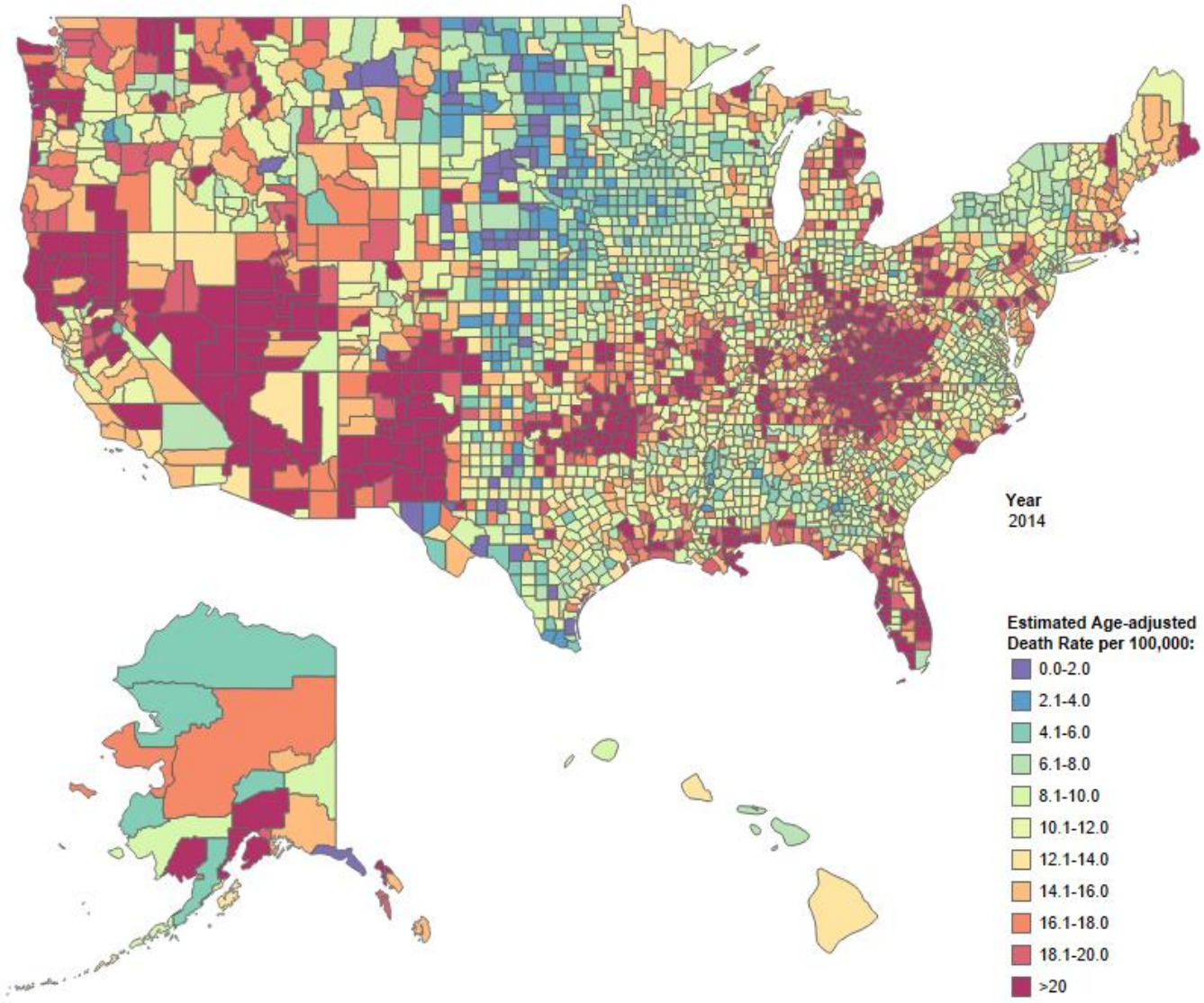
Marked *Geographic Variation in Mortality*: Estimated Age-adjusted Death Rates for Drug Poisoning by County



2011

Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System; Tom Frieden Presentation at the Opioid Summit, Atlanta, April 2016

Marked *Geographic Variation in Mortality*: Estimated Age-adjusted Death Rates for Drug Poisoning by County

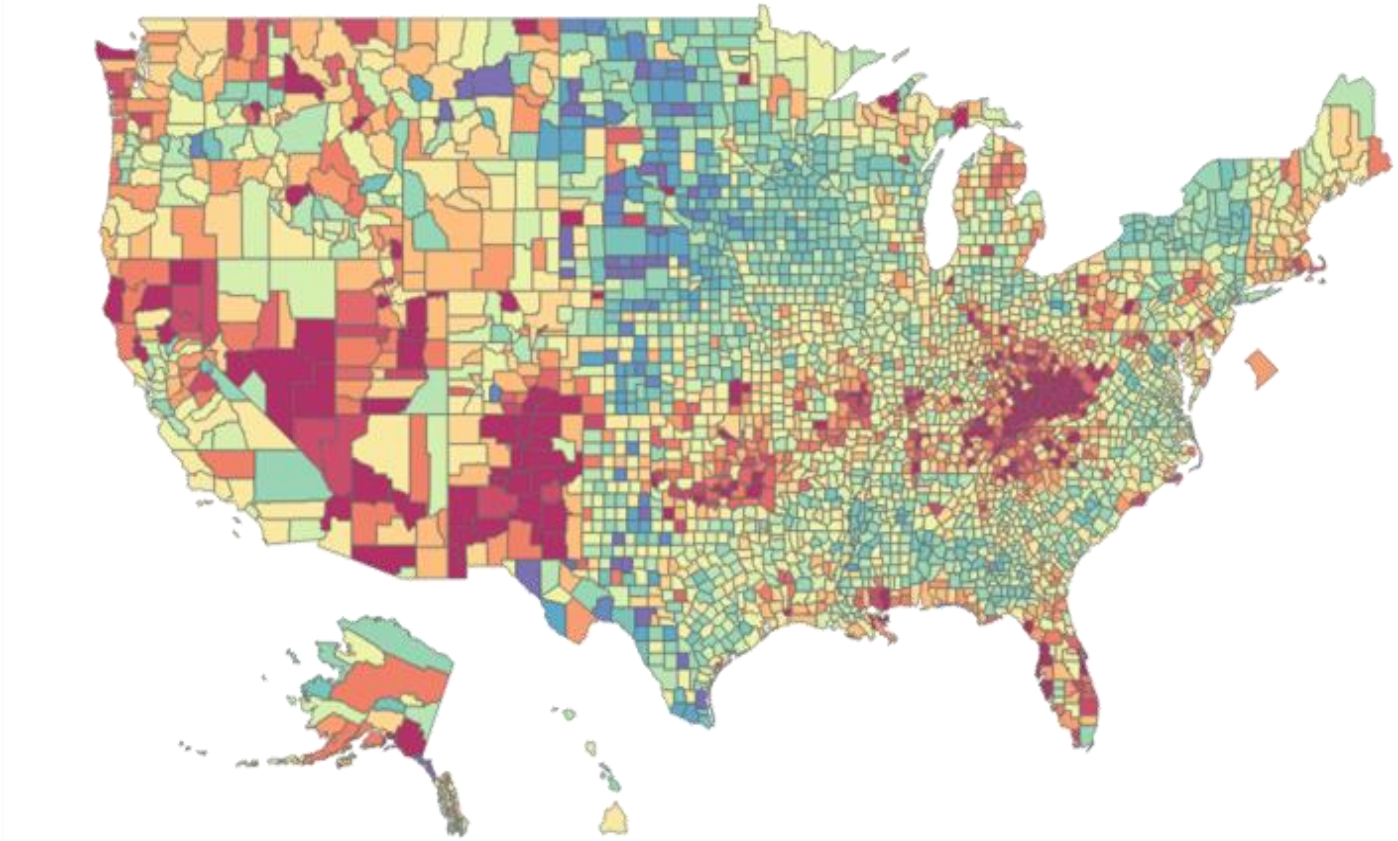


2014

Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System; Tom Frieden Presentation at the Opioid Summit, Atlanta, April 2016

Marked *Geographic Variation in Mortality*: Estimated Age-adjusted Death Rates for Drug Poisoning by County

2016



Legend for estimated age-adjusted death rate (per 100,000 population)

<2	8-9.9	16-17.9	24-25.9
2-3.9	10-11.9	18-19.9	26-27.9
4-5.9	12-13.9	20-21.9	28-29.9
6-7.9	14-15.9	22-23.9	30+

HEROIN
FENTANYL
CARFENTANIL
Milo Police Department

SHOCKING LEVELS OF ILLICIT DRUG SMUGGLING

NBC

Feds make largest fentanyl bust in U.S. history

Jan. 31, 2019

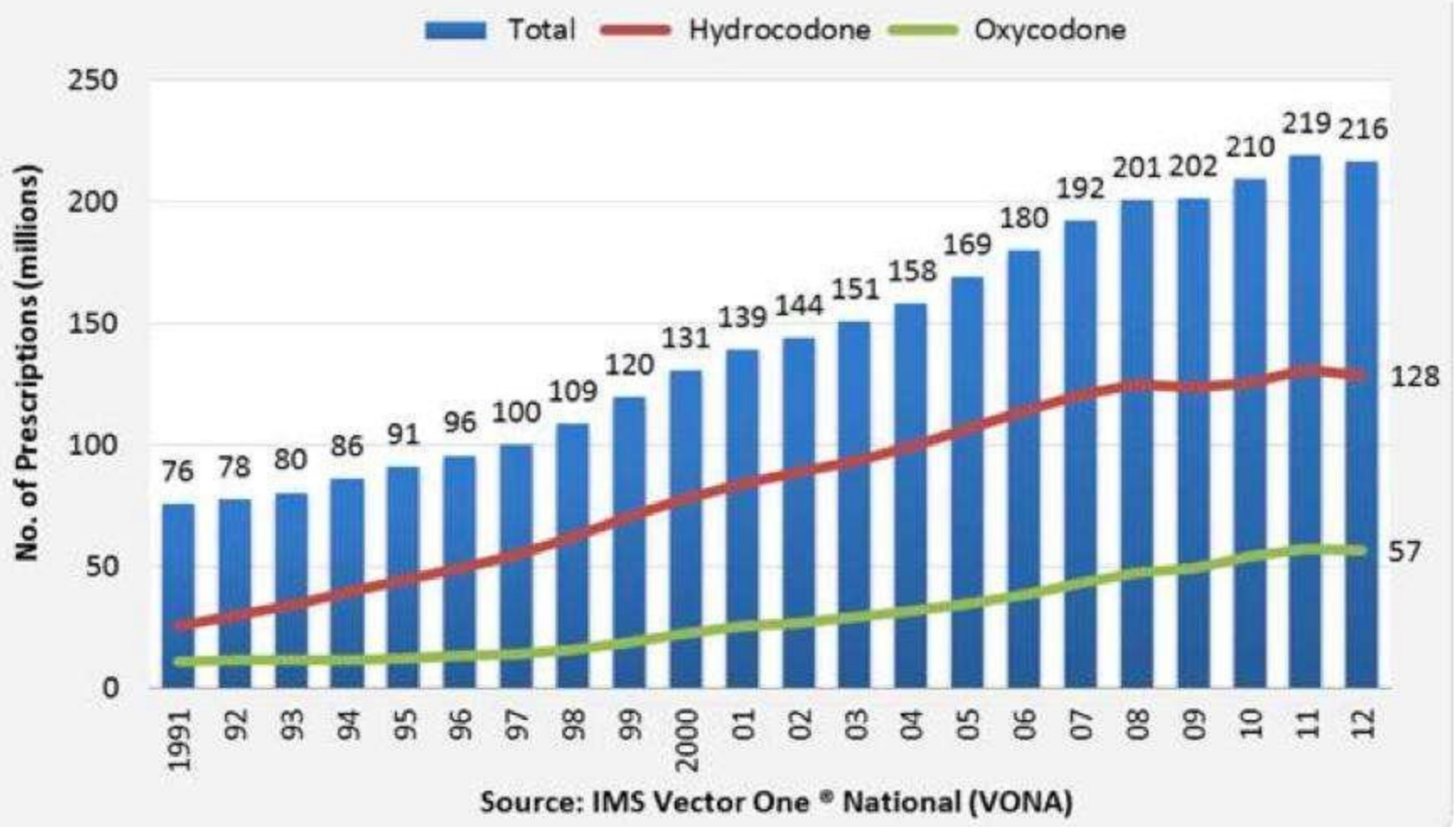
- CBP officers seized:
  - **254 pounds of fentanyl** in a floor compartment of a truck trailer loaded with cucumbers
  - **395 pounds of methamphetamine**
- **Fentanyl sufficient to kill >50 million people**

CBP estimates the fentanyl street value at $3.5 million

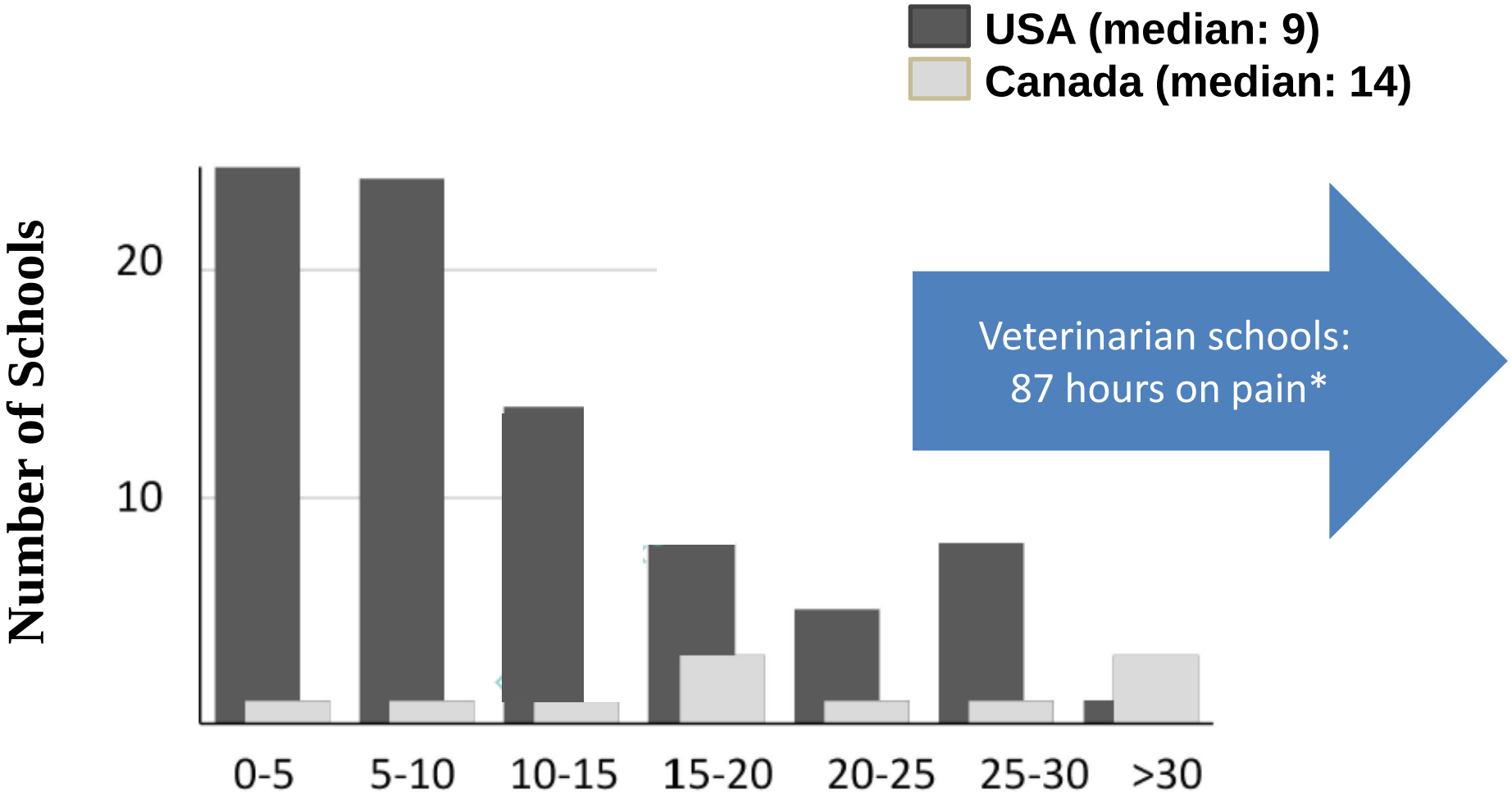
OFFICE OF THE ASSISTANT SECRETARY FOR HEALTH

Weapon of Mass Destruction!

Figure 4. Opioid Prescriptions Dispensed by US Retail Pharmacies



Education on Pain in Medical Schools



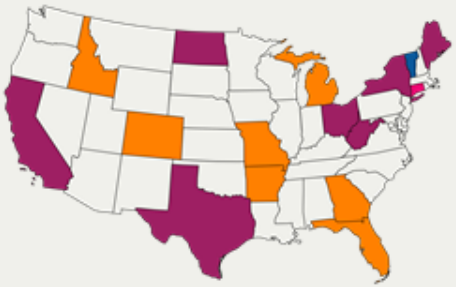
Lina Mezei, B.S., and Beth Brianna Murinson, M.S., M.D., Ph.D. 2011

**Watt-Watson J. et al., Pain Res Manag. 2009*

Coverage of Nonpharmacologic Treatments for Low Back Pain Among US Public and Private Insurers

Do insurance plans cover nonpharmacological treatments for low back pain?

Coverage documents and interviews with 43 senior executives at 15 Medicaid, 15 Medicare Advantage, 15 commercial plans, 2017



- Medicaid, Medicare, and commercial
- Medicaid and Medicare
- Medicare only
- Medicaid only

Commonly Covered

Physical Therapy
98%

Chiropractic Care
89%

Limited Coverage

Acupuncture
20%

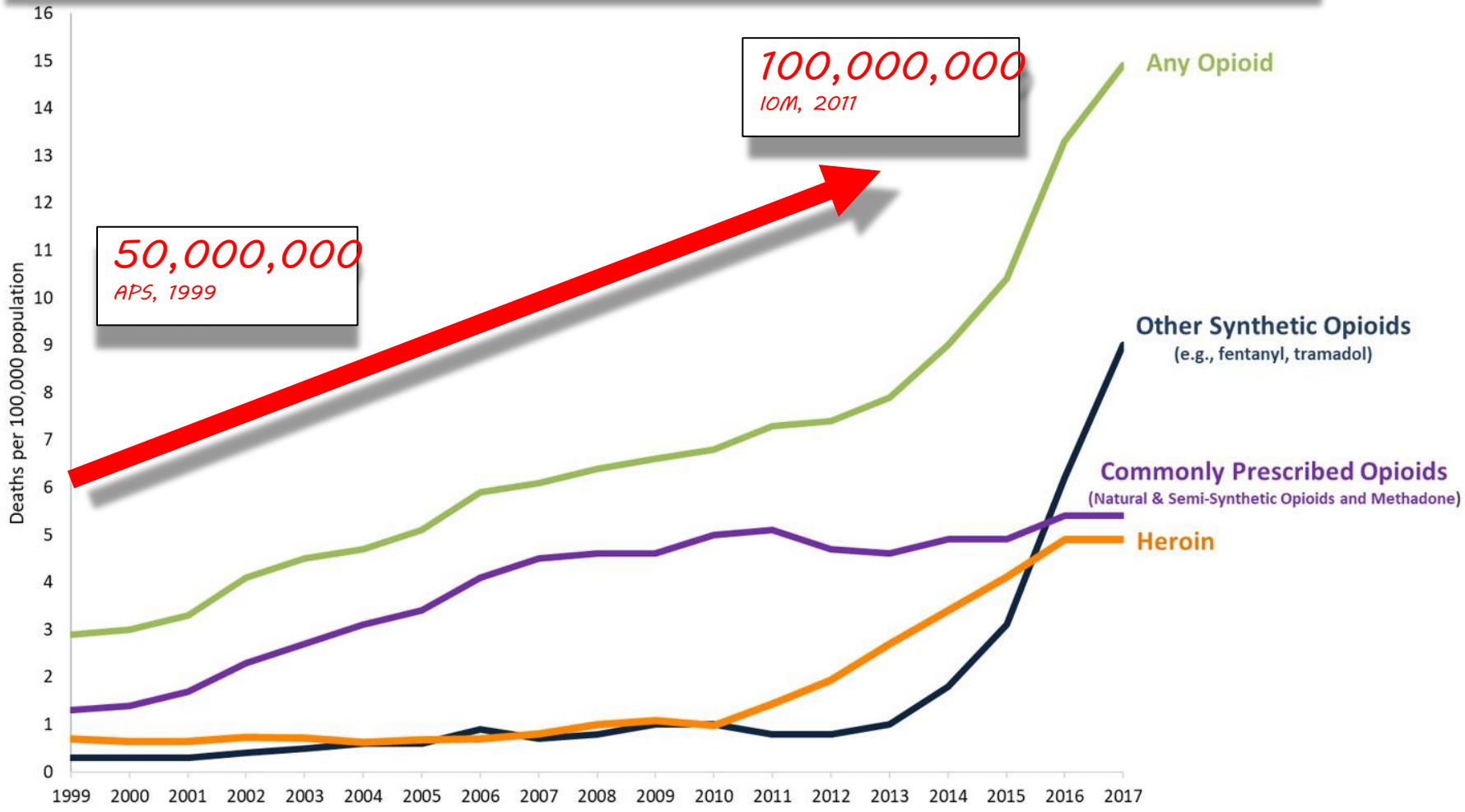
Psychological Interventions
20% **(3/15 Medicaid plans)**

All covered services often further limited through prior authorization, condition requirements, visit limits, and referral requirements. Percents based on 45 insurance plans.

JAMA Network Open

Heyward J et al. *JAMA Network Open*. 2018.
doi:10.1001/jamanetworkopen.3044

Americans in Persistent Pain!!



SOURCE: CDC/NCHS, National Vital Statistics System, Mortality. CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2018. https://wonder.cdc.gov/.

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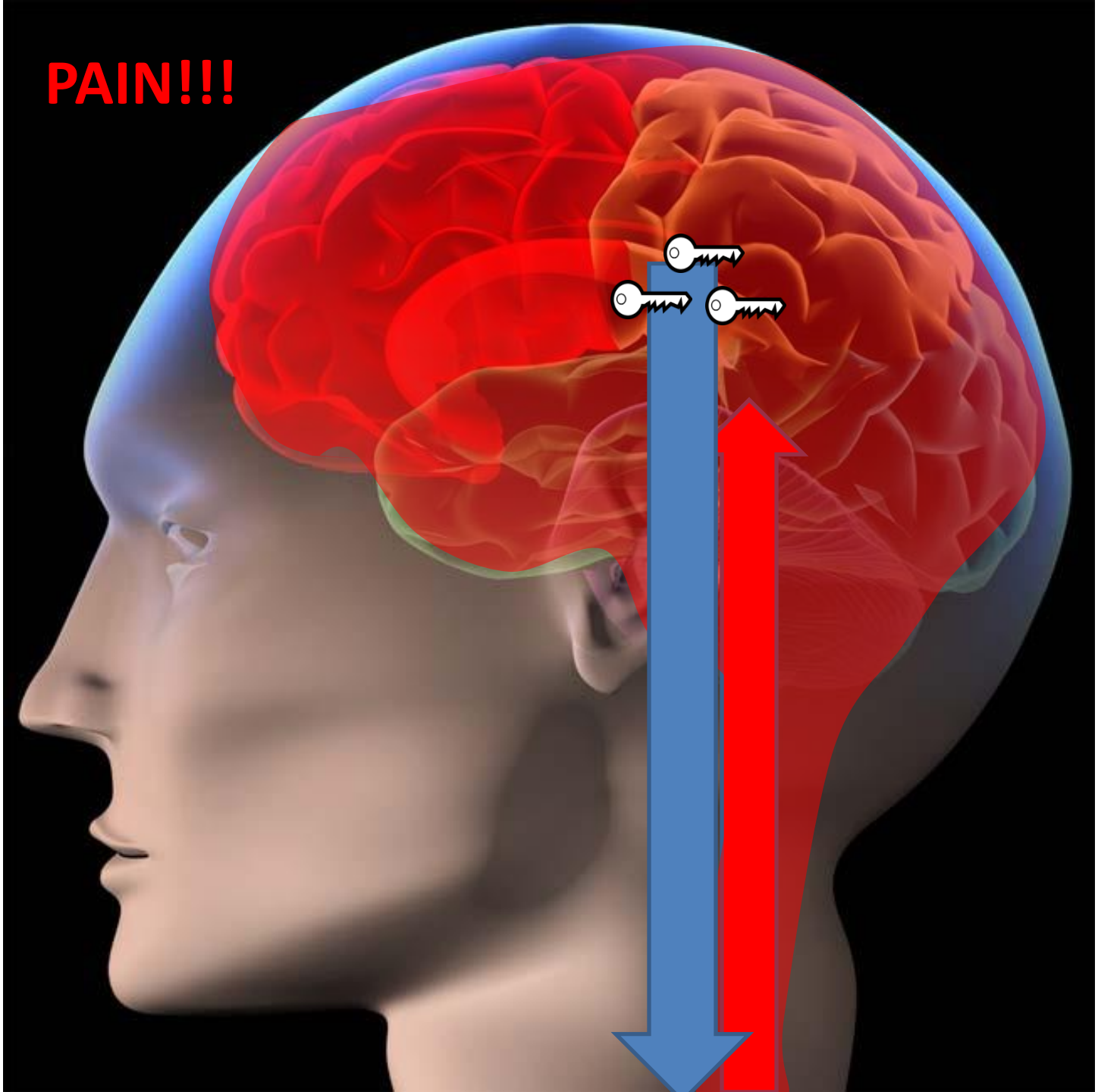
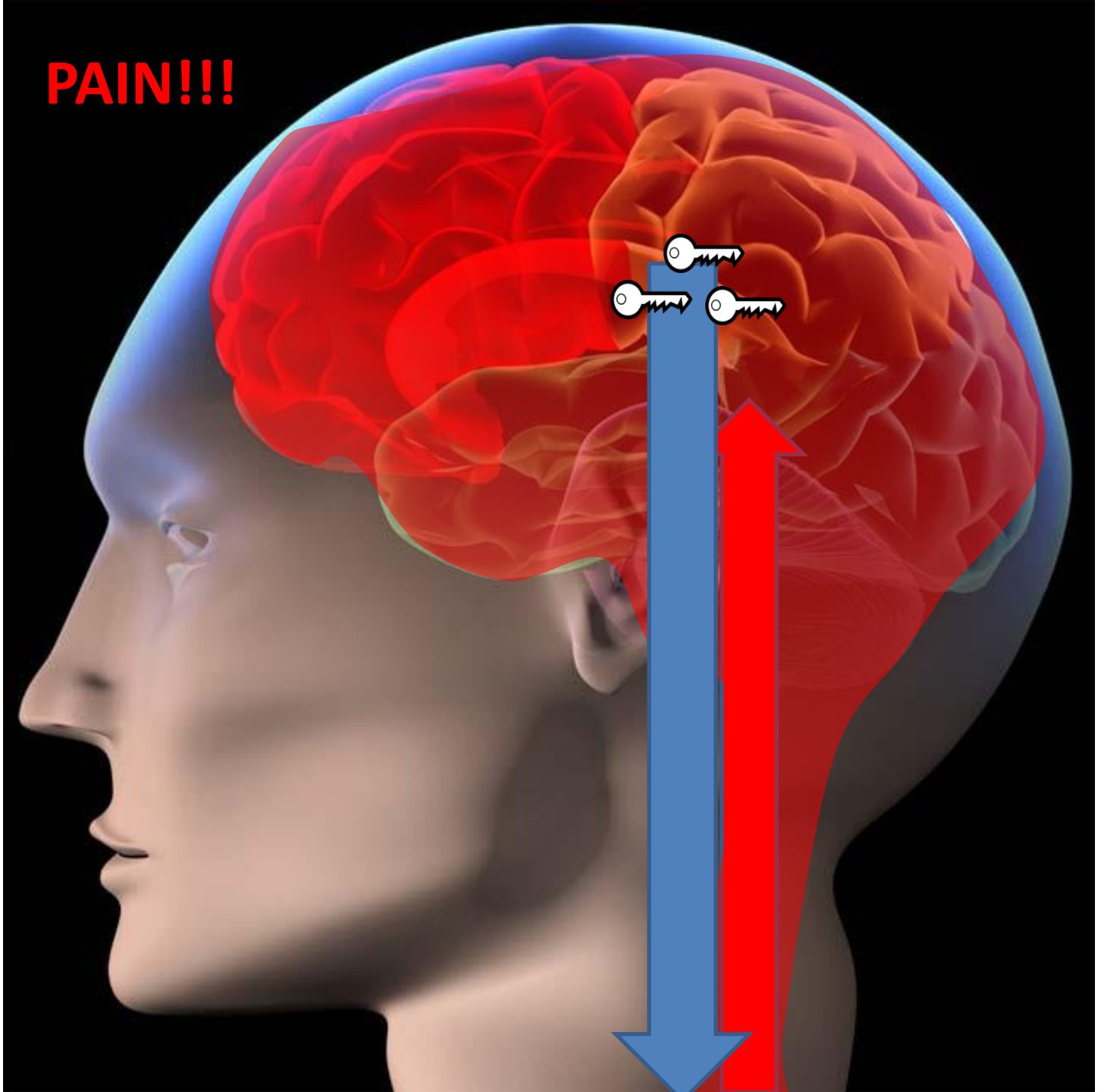

PAIN!!!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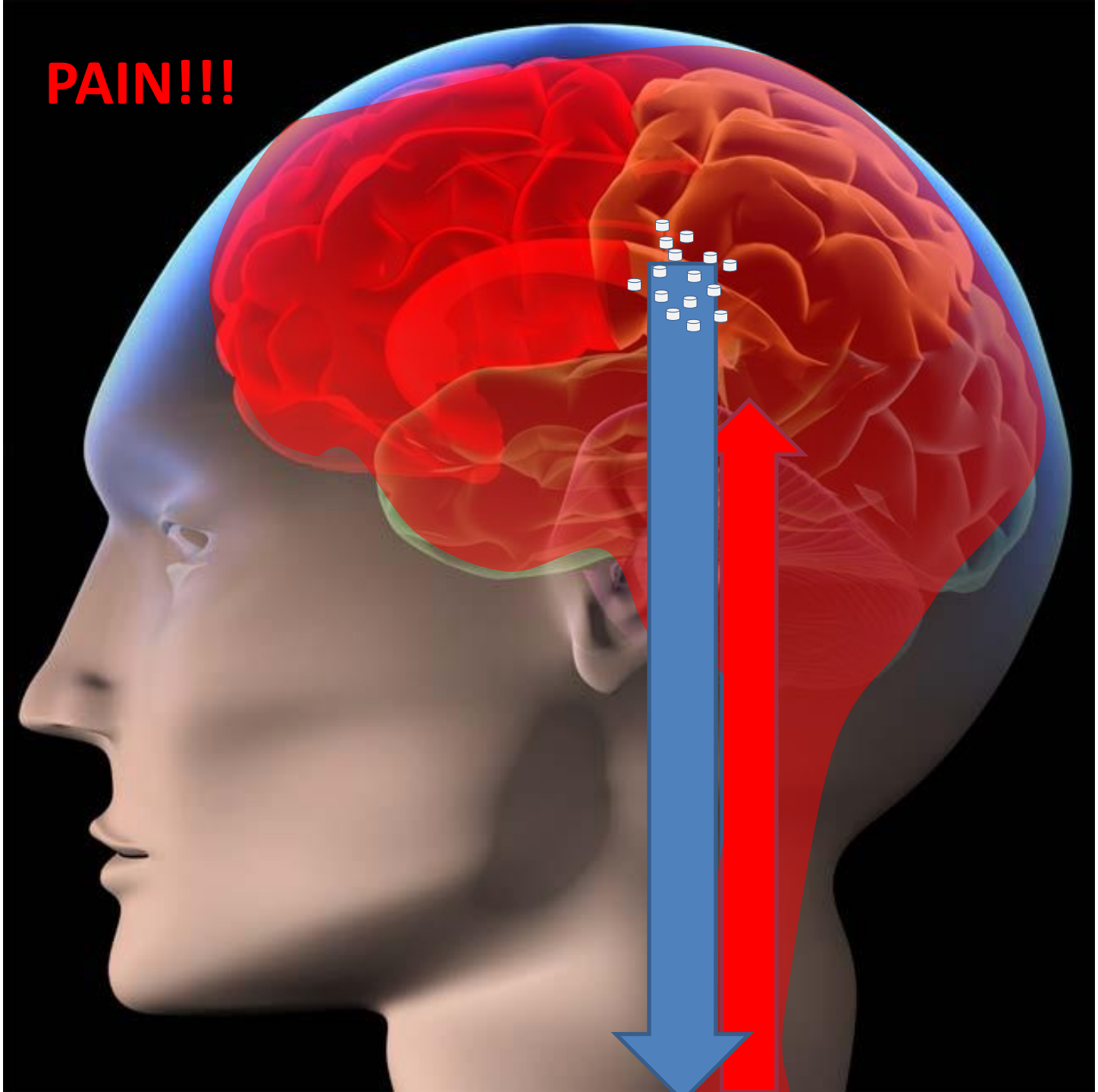
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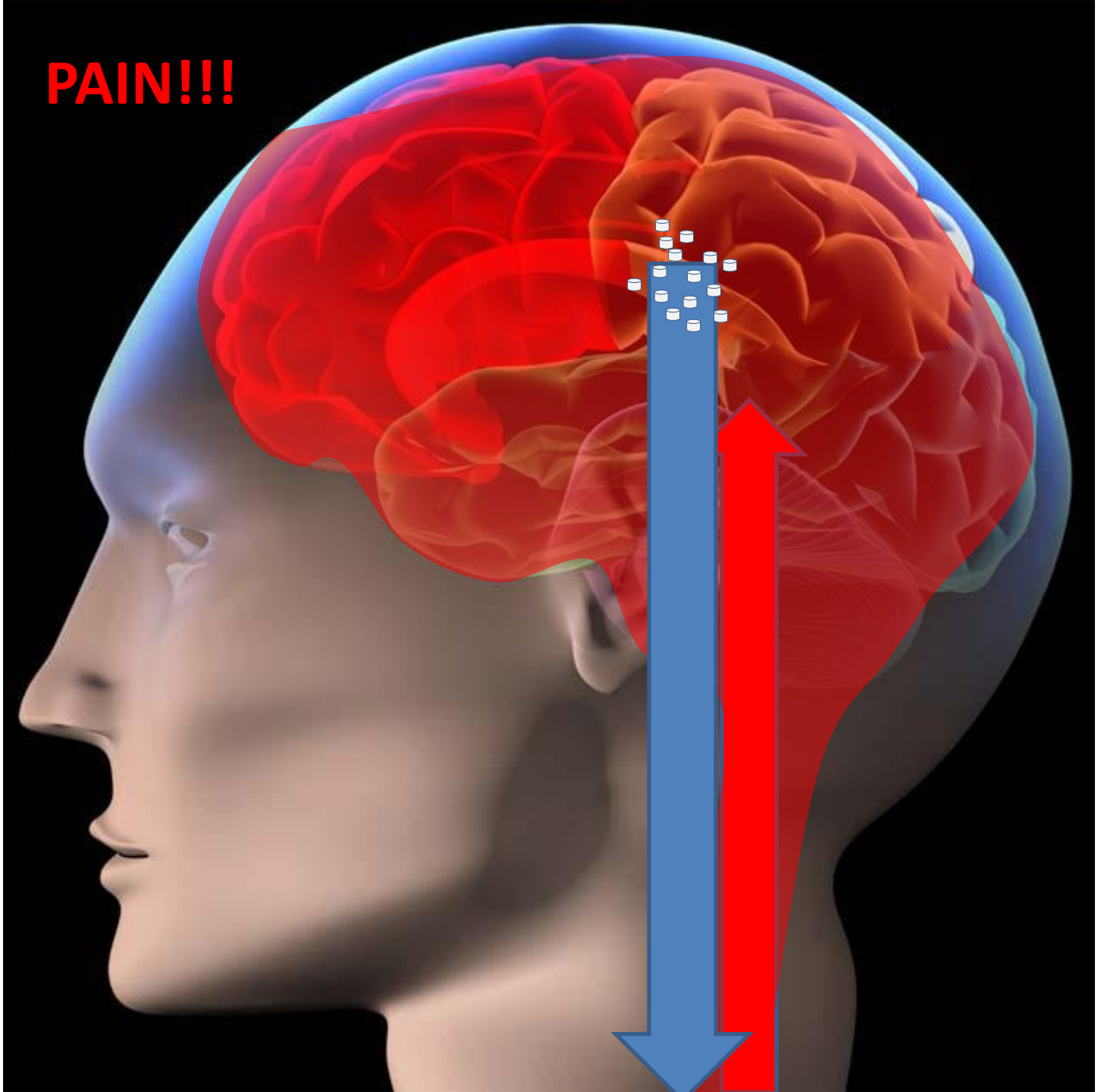
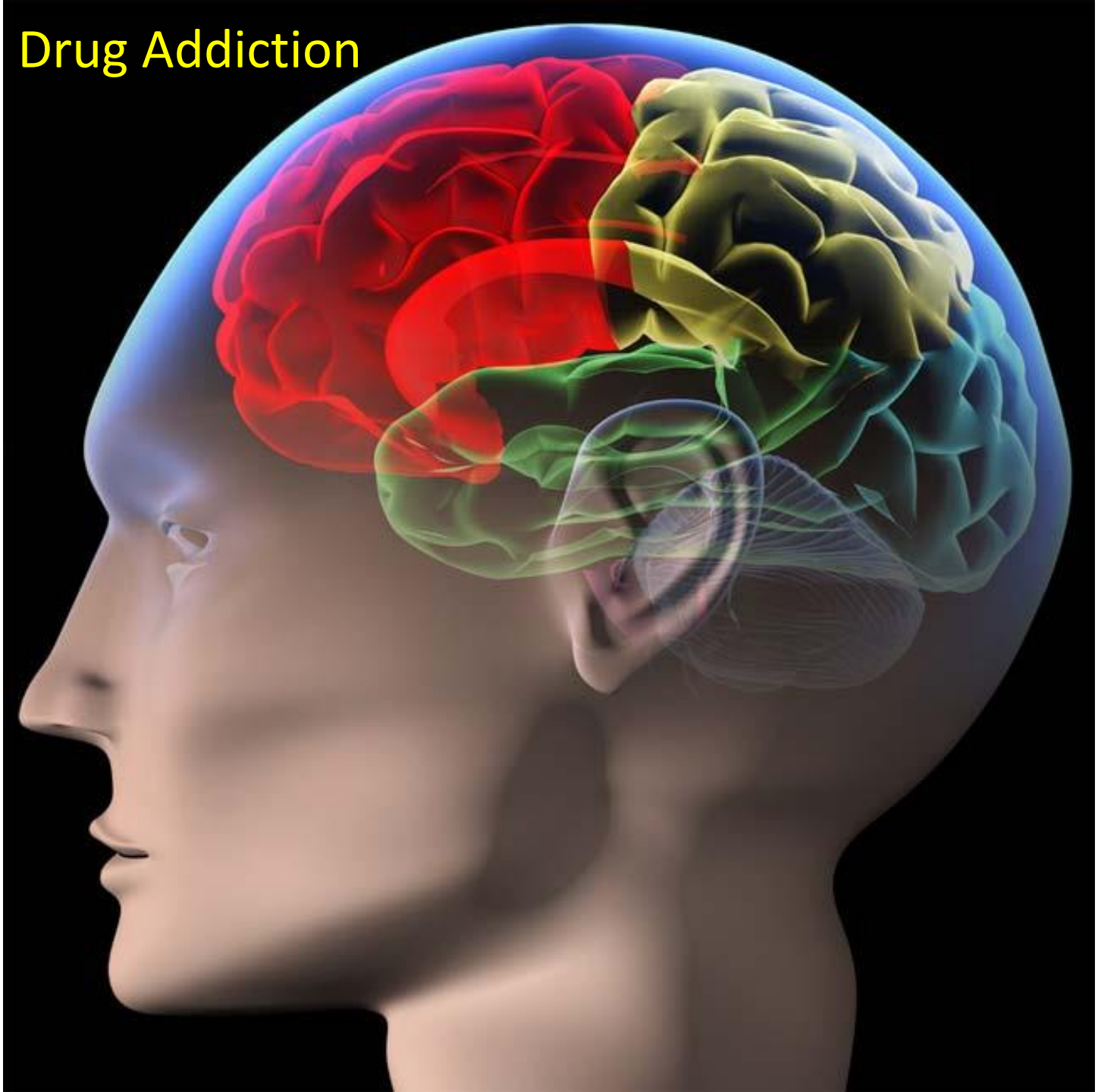
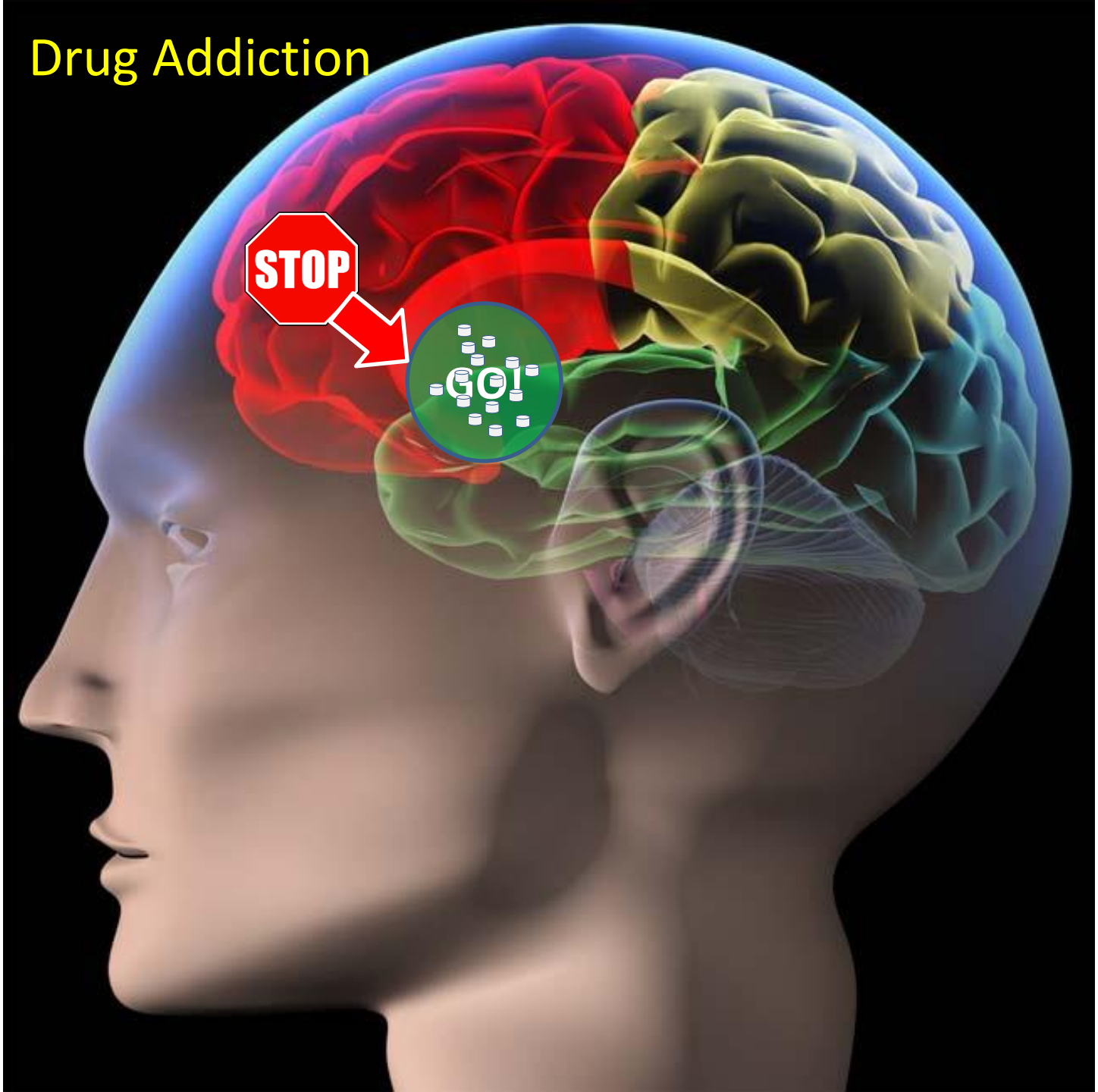

PAIN!!!

However!

PAIN!!!

Drug Addiction




Drug Addiction
STOP
GO!

Drug Addiction
STOP
GO!

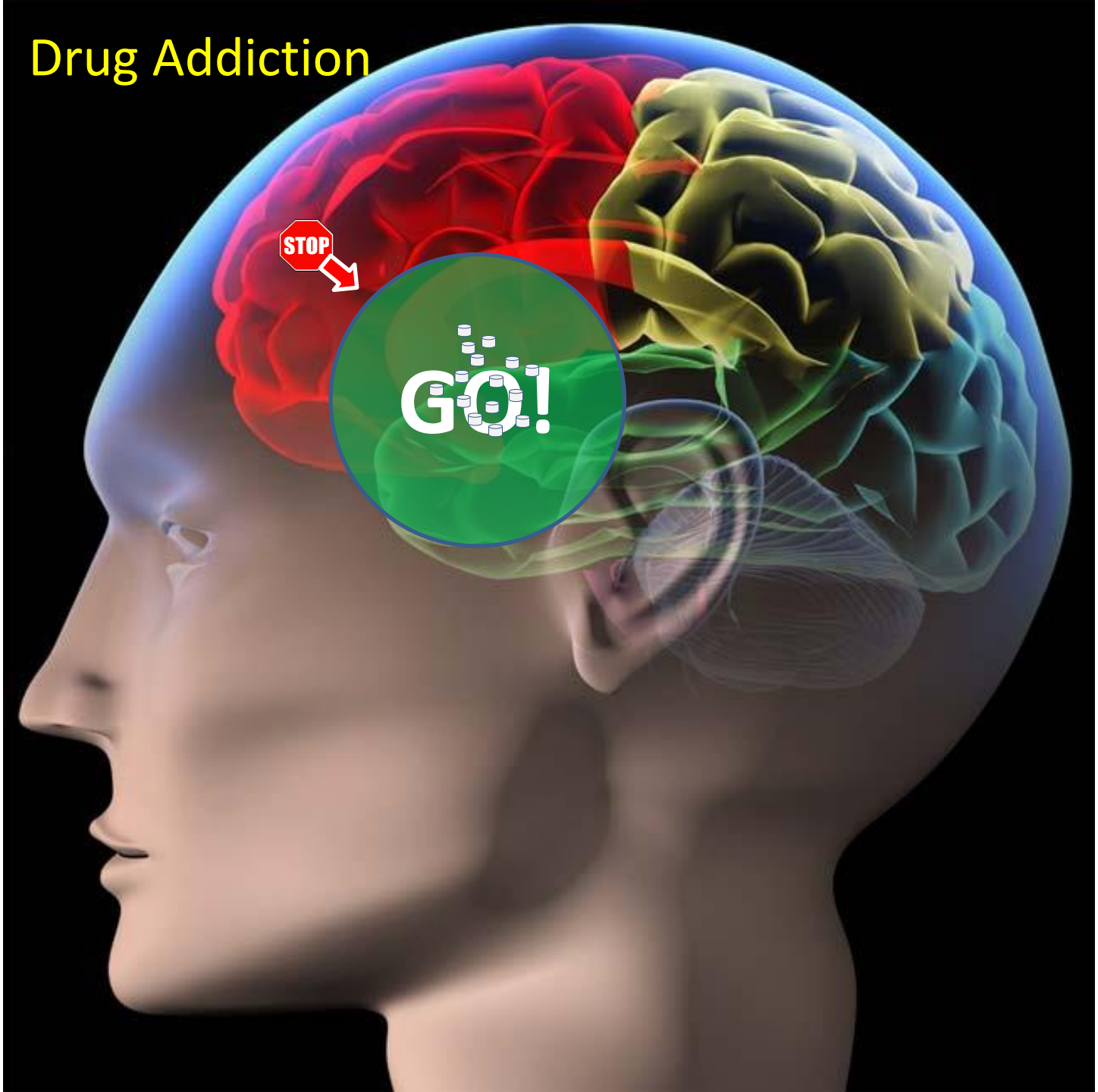
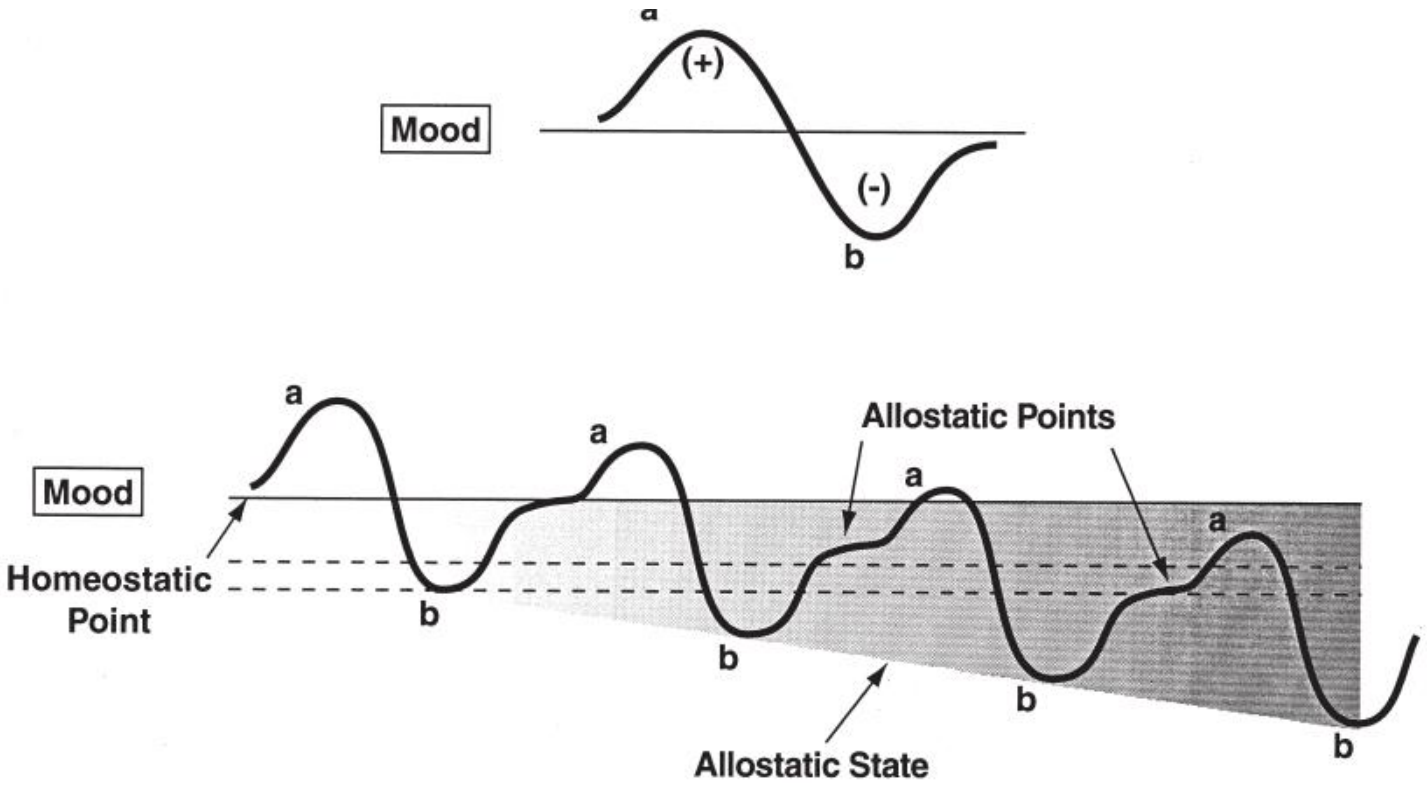

Drug Addiction
STOP
GO!

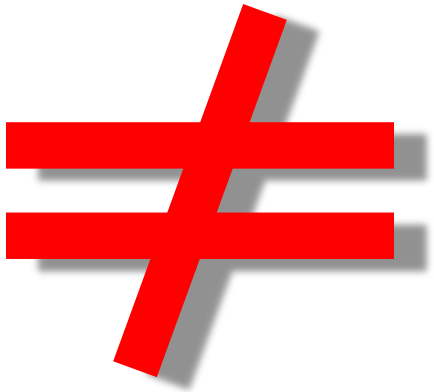
Diagram illustrating an extension of Solomon and Corbit's (1974) opponent-process model of motivation



G.F. Koob, M. Le Moal Drug addiction, dysregulation of reward, and allostasis Neuropsychopharmacology, 24 (2001), pp. 97-129

Key concept:

addiction versus
dependence



Pain

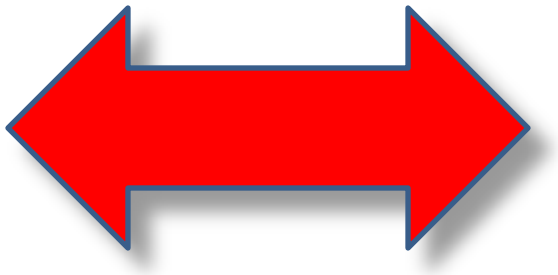
Addiction

Key concept:

Pain and addiction as diseases…

Key concept:

incarceration versus treatment



- There is robust literature that there is a high prevalence of Suicide ideology in patients with pain ranging from 18% to > 50%.

- A systematic review by Tang and Crane revealed that the risk of successful suicide was doubled in patients with CP as compared to non-pain controls

Tang NK, Crane C. Suicidality in chronic pain: A review of the prevalence, risk factors and psychological links. *Psychol Med* 2006; 36 :575-586.

*Slide courtesy of Dr. Martin Cheatle

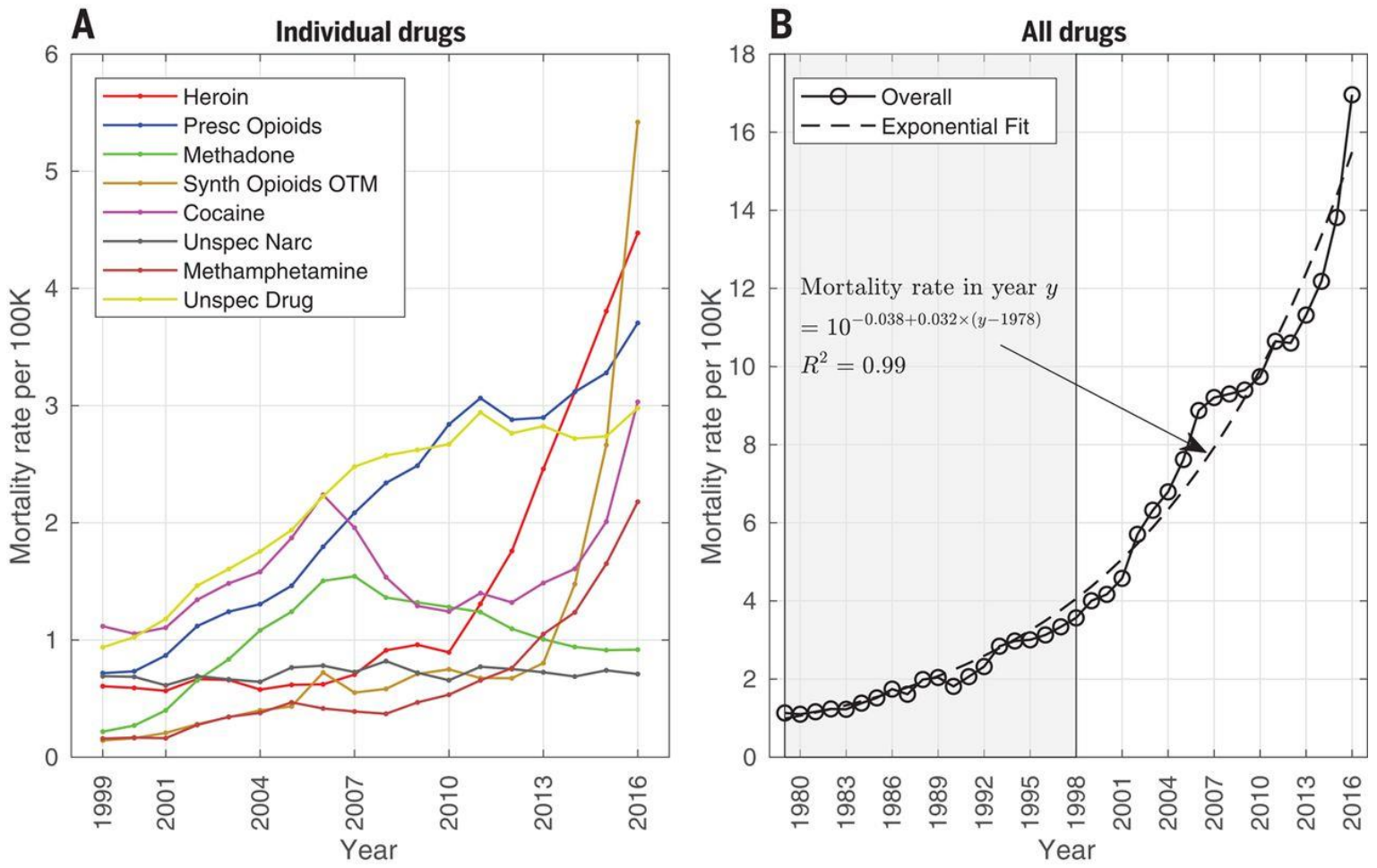
Suicidal Ideation and Behavior and SUD

- Approximately 40% of patients seeking treatment for substance use disorders report a history of suicide attempts [1-3]
- Compared to the general population, those with alcohol use disorders are almost 10 times more likely to die by suicide and those who inject drugs are about 14 times more likely to commit suicide.[4]

1)Roy A, Janal MN. Risk factors for suicide among alcohol-dependent patients. Arch Suicide Res. 2007; 11:211–217; 2) Roy A. Characteristics of cocaine dependent patients who attempt suicide. Arch Suicide Res. 2009; 13:46–51;3). Roy A. Risk factors for attempting suicide in heroin addicts. Suicide Life Threat Behav. 2010; 40:416–420; 4) Wilcox HC, Conner KR, Caine ED. Association of alcohol and drug use disorders and completed suicide: an empirical review of cohort studies. Drug Alcohol Depend. 2004; 76:S11–S19.

*Slide courtesy of Dr. Martin Cheatle

*'This historical pattern of predictable growth for at least **38 years** suggests that the current opioid epidemic may be a more recent manifestation of an ongoing **longer-term process**.'*



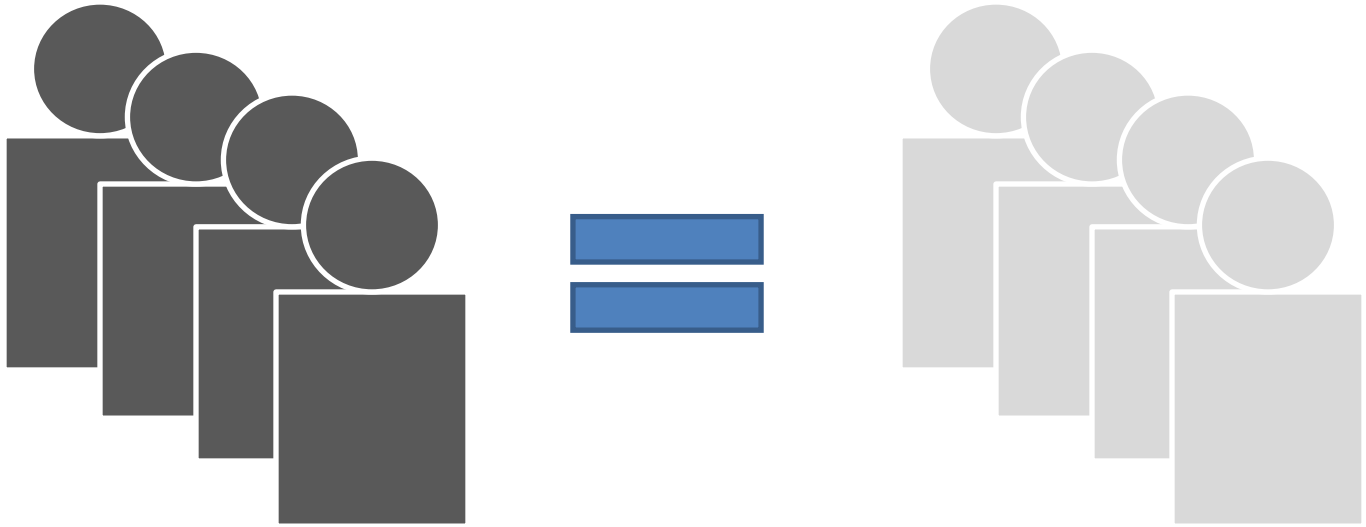
Hawre Jalal, Jeanine M. Buchanich, Mark S. Roberts, Lauren C. Balmert, Kun Zhang, Donald S. Burke3
Science 21 Sep 2018:Vol. 361, Issue 6408, eaau1184 DOI: 10.1126/science.aau1184

Annals of Internal Medicine

OBSERVATION: BRIEF RESEARCH REPORT

Trends in U.S. Drug Overdose Deaths in Non-Hispanic Black, Hispanic, and Non-Hispanic White Persons, 2000–2015

Meredith S. Shiels, PhD, MHS
Neal D. Freedman, PhD, MPH
David Thomas, PhD
Amy Berrington de Gonzalez, DPhil



Annals of Internal Medicine

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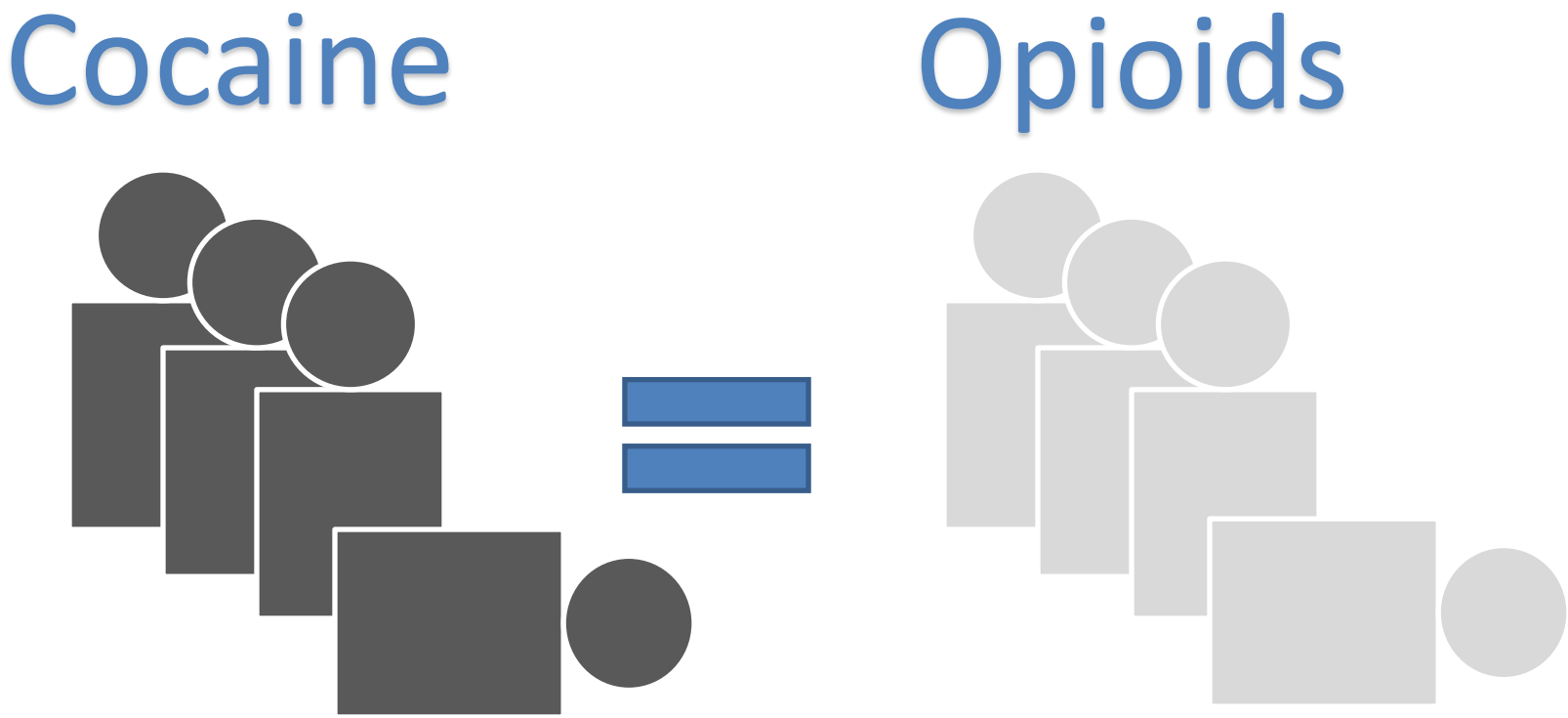
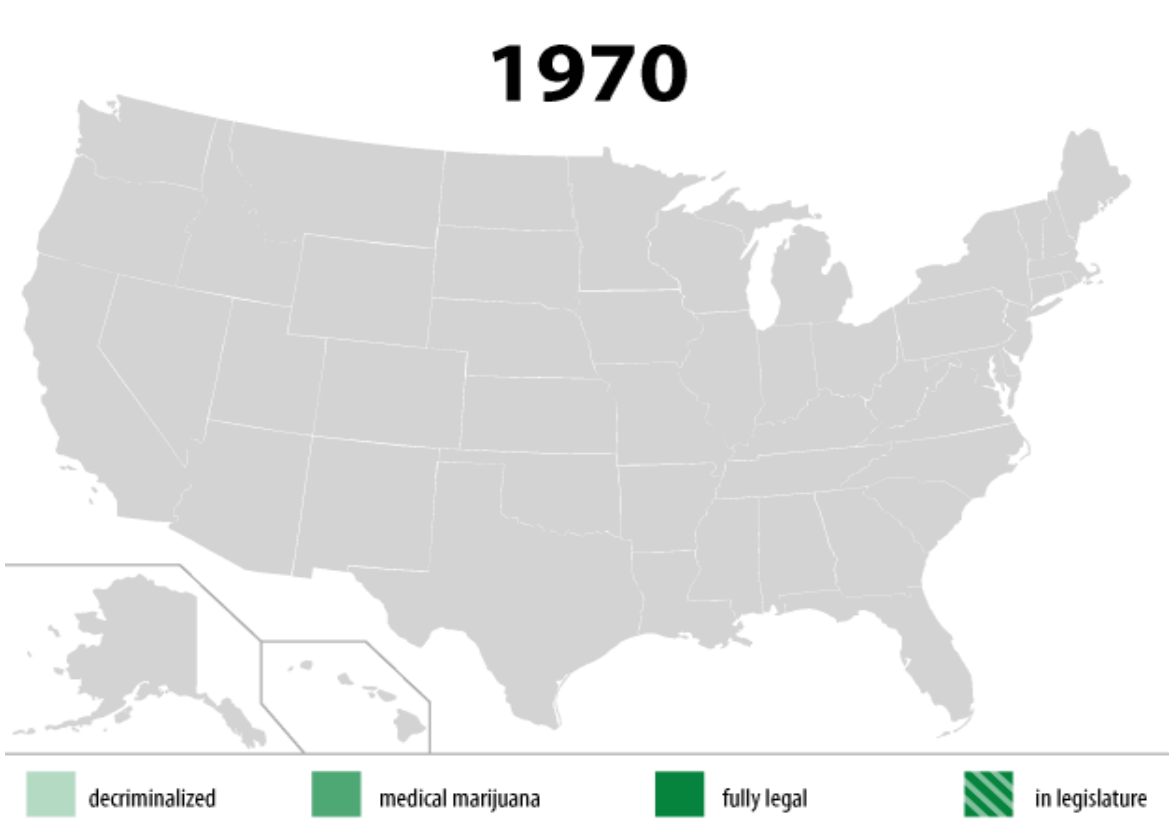
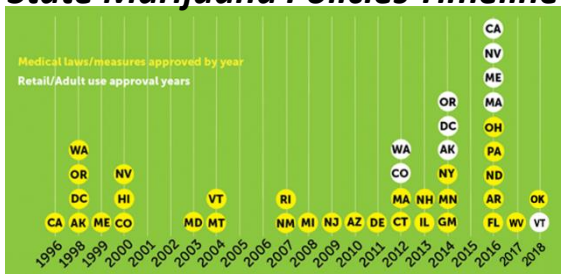


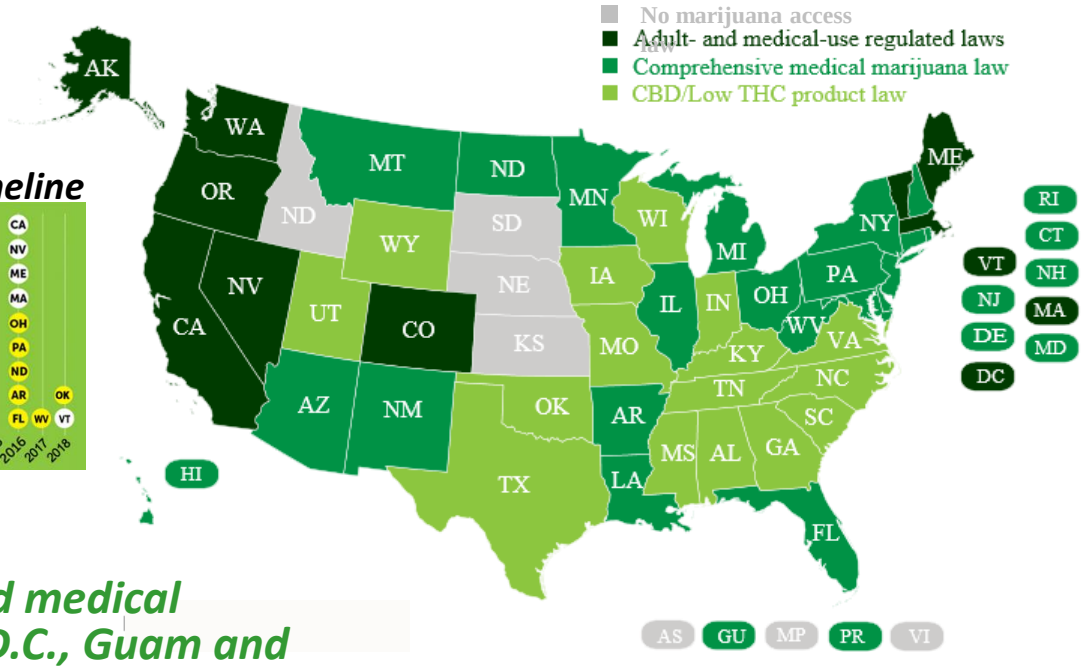
CHANGES IN MARIJUANA POLICY IN THE USA



CURRENT CANNABIS LAWS IN THE U.S.

State Marijuana Policies Timeline





30 states have legalized medical marijuana along with D.C., Guam and Puerto Rico

States with MML vary on:

- ***Allowable conditions and routes of administration.***
- ***Dispensaries/home growth and registries.***
- ***Testing, regulatory requirements.***

States with Recreational Laws vary on:

- ***Marketing, product labeling, distribution (home growth).***
- ***Taxation.***

www.ncsl.org

LIBERTY
MEDICAL CANNABIS
DISPENSARY

2018 Monitoring the Future Study

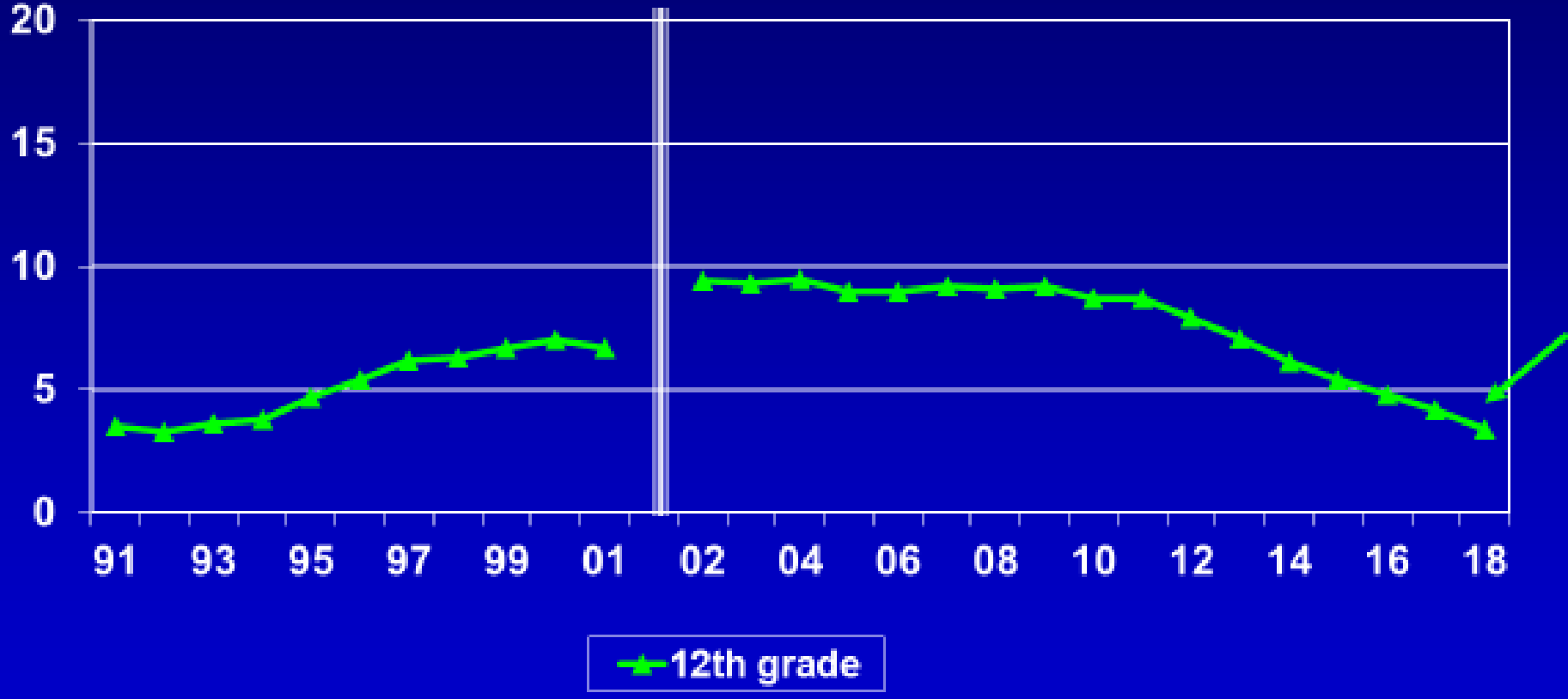
Summary of Findings

Conducted by the University of Michigan
under a research grant from the
National Institute on Drug Abuse
National Institutes of Health
Department of Health and Human Services

December 2018

NIH National Institute on Drug Abuse
Advancing Addiction Science

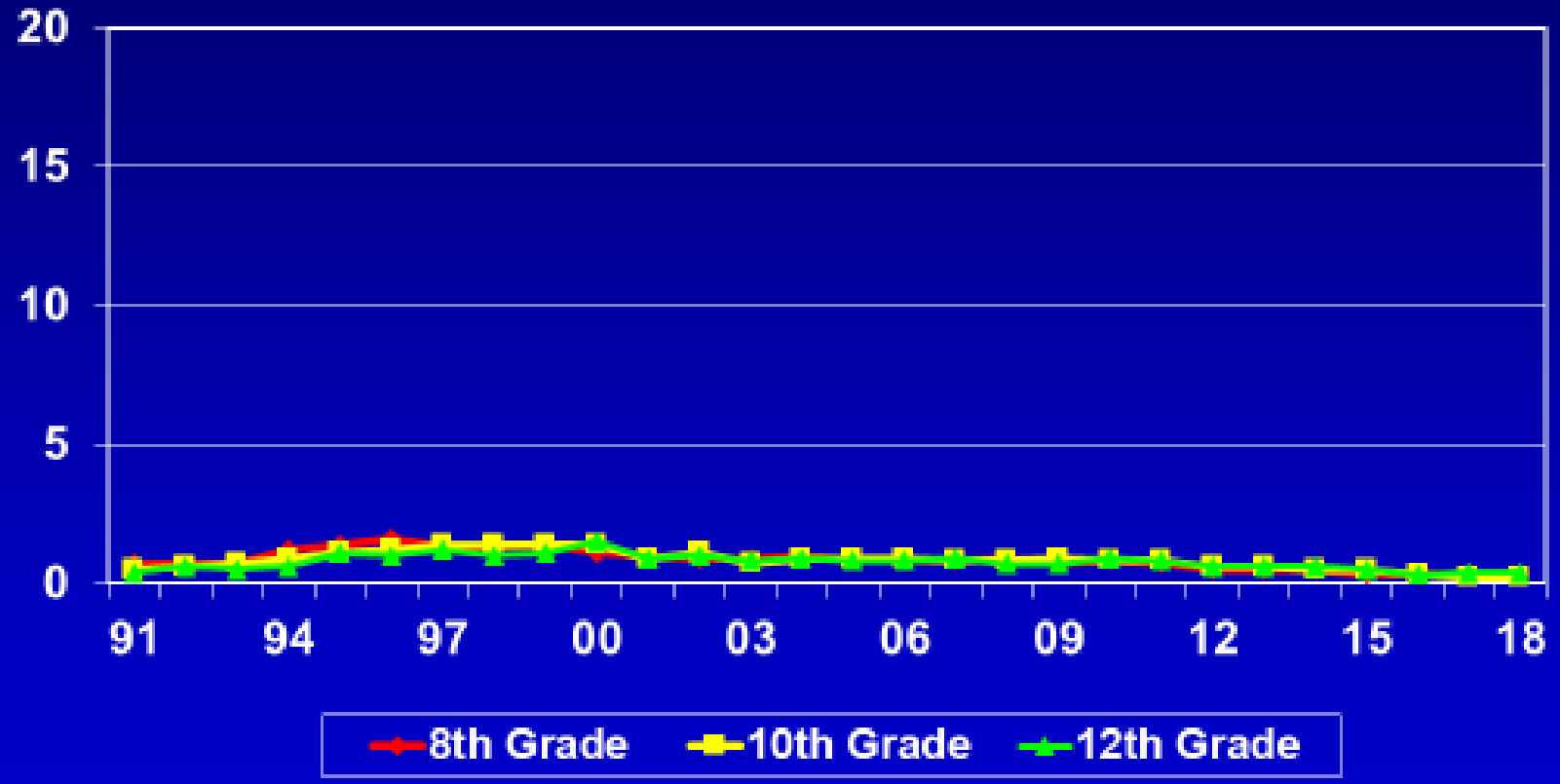
Percent of High School Seniors Reporting Use of Narcotics Other than Heroin



↗ Denotes significant difference between 2017 and 2018

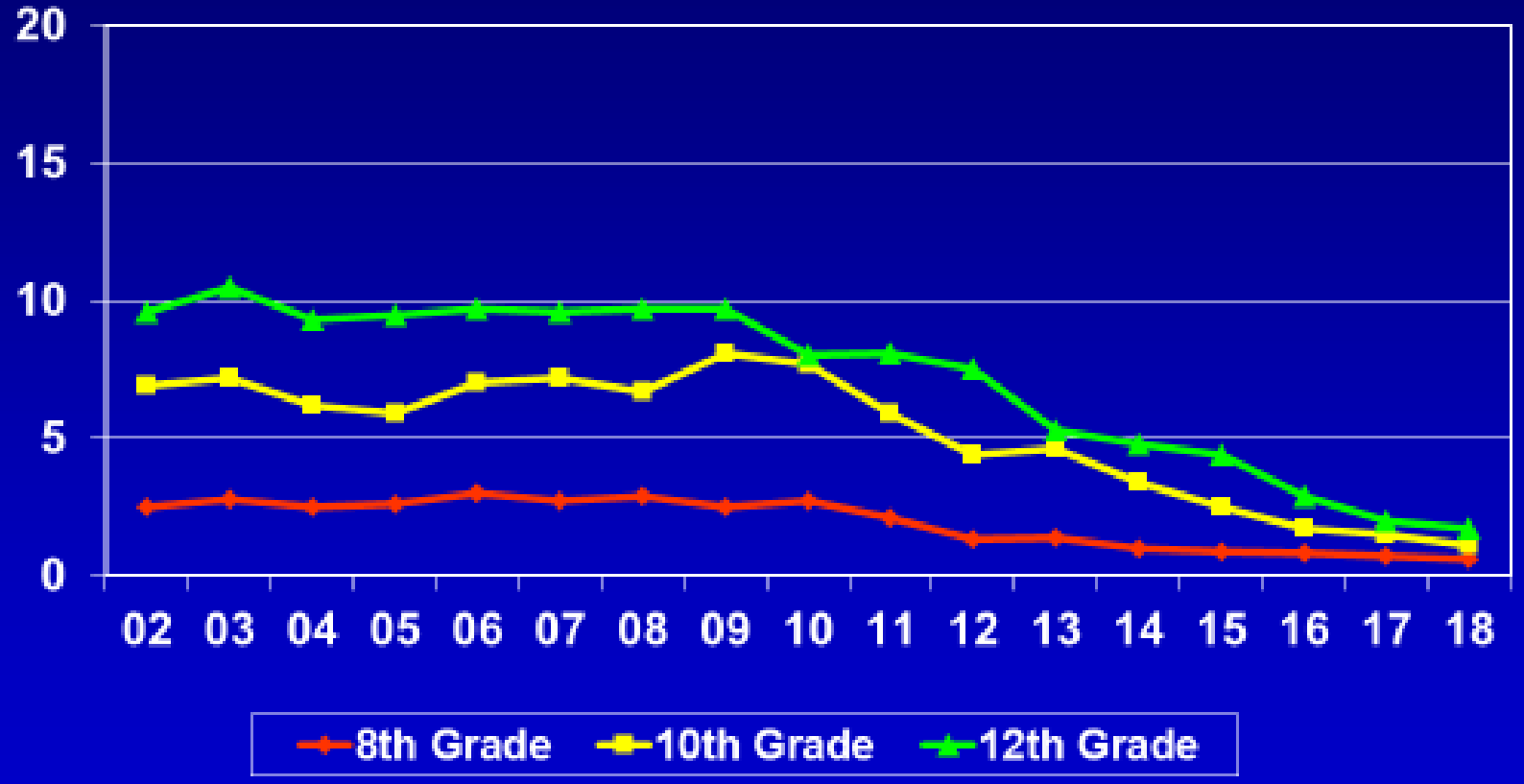
SOURCE: University of Michigan, 2018 Monitoring the Future Study

Percent of Students Reporting Use of Heroin in Past Year, by Grade



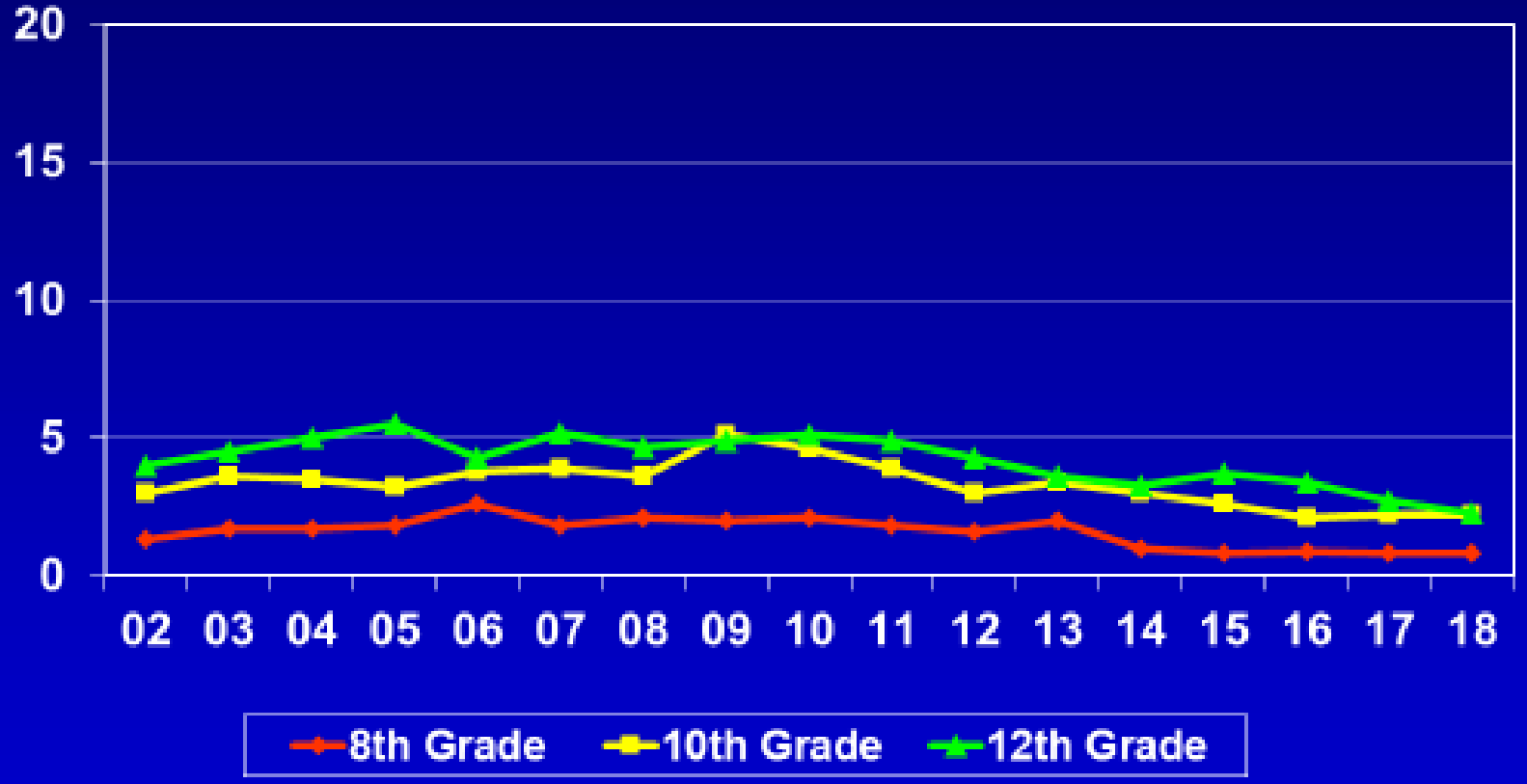
SOURCE: University of Michigan, 2018 Monitoring the Future Study

Percent of Students Reporting Nonmedical Use of Vicodin in Past Year, by Grade



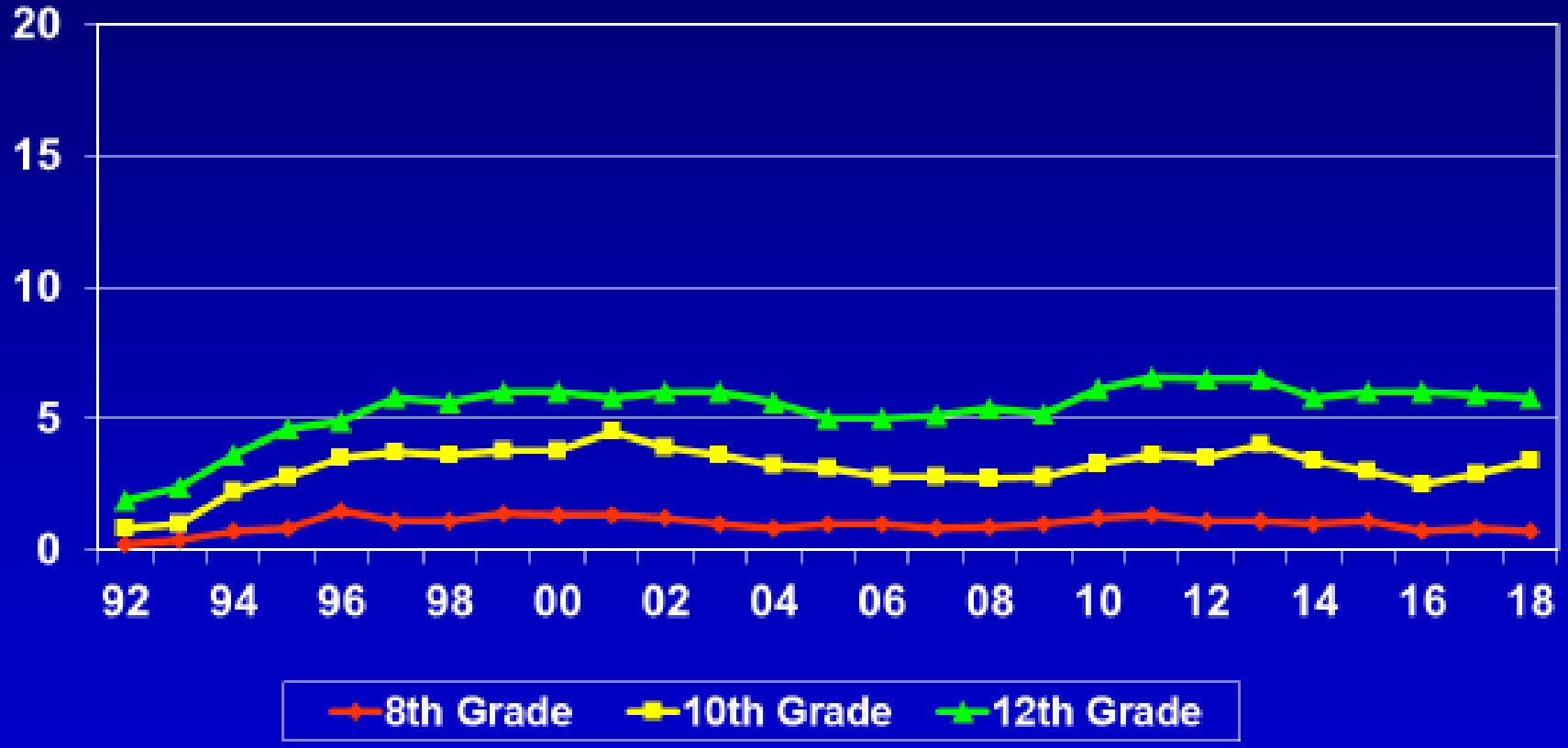
SOURCE: University of Michigan, 2018 Monitoring the Future Study

Percent of Students Reporting Nonmedical Use of OxyContin in Past Year, by Grade



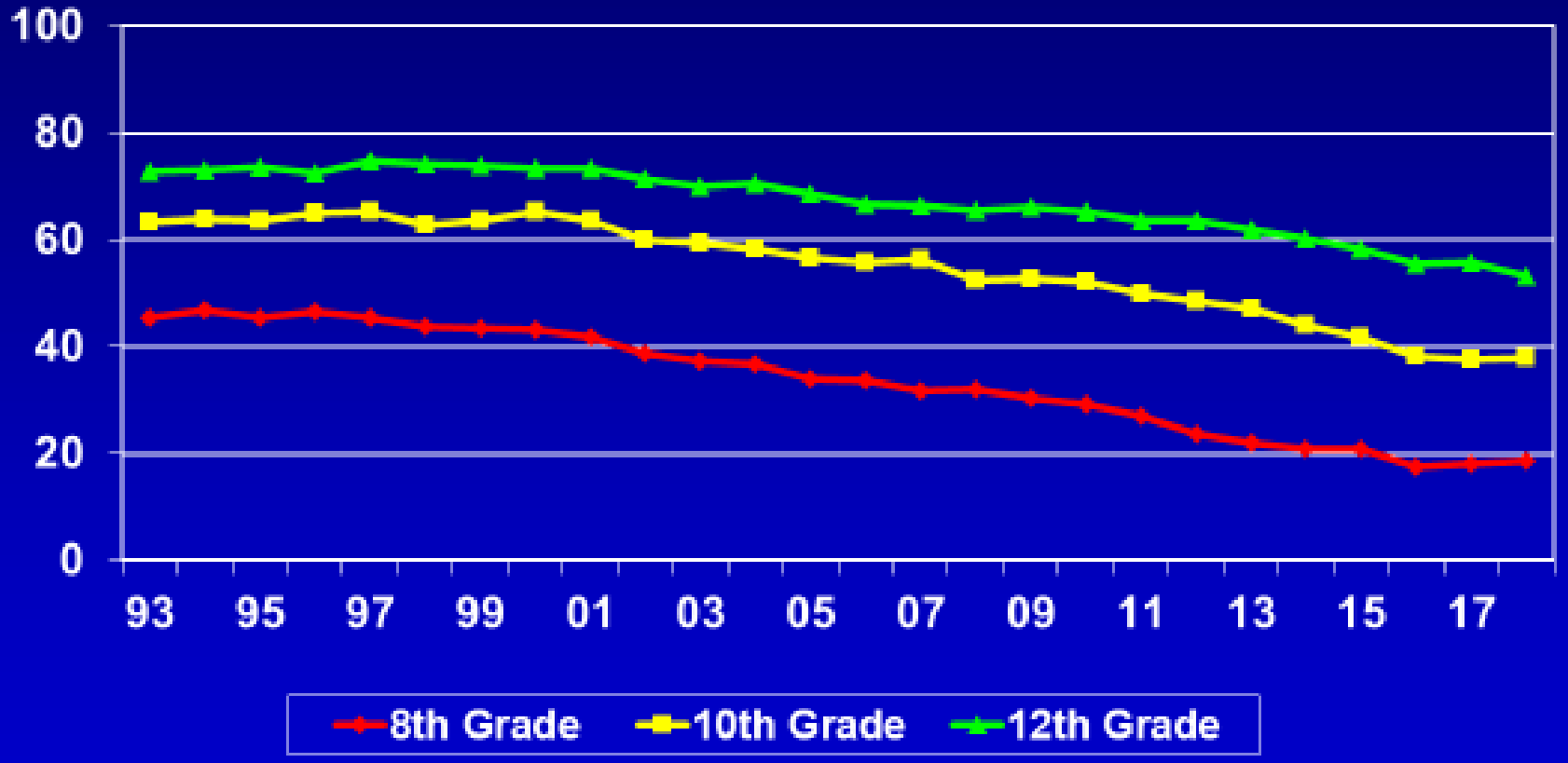
SOURCE: University of Michigan, 2018 Monitoring the Future Study

Percent of Students Reporting Daily Use of Marijuana, by Grade



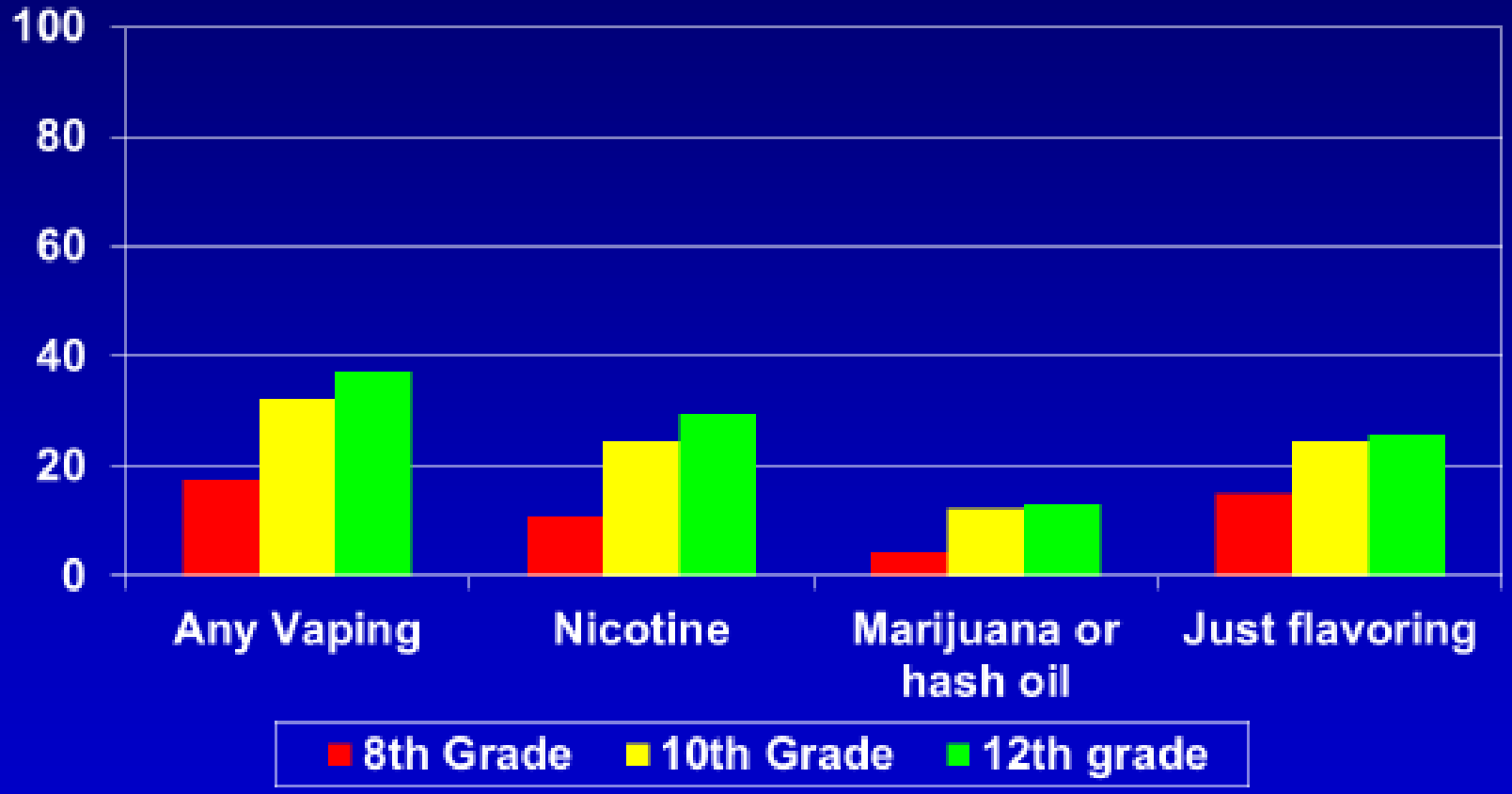
SOURCE: University of Michigan, 2018 Monitoring the Future Study

Percent of Students Reporting Use of Alcohol in Past Year, by Grade



SOURCE: University of Michigan, 2018 Monitoring the Future Study

Percent of Students Reporting Vaping in Past Year, by Type and Grade



SOURCE: University of Michigan, 2018 Monitoring the Future Study

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https://painconsortium.nih.gov

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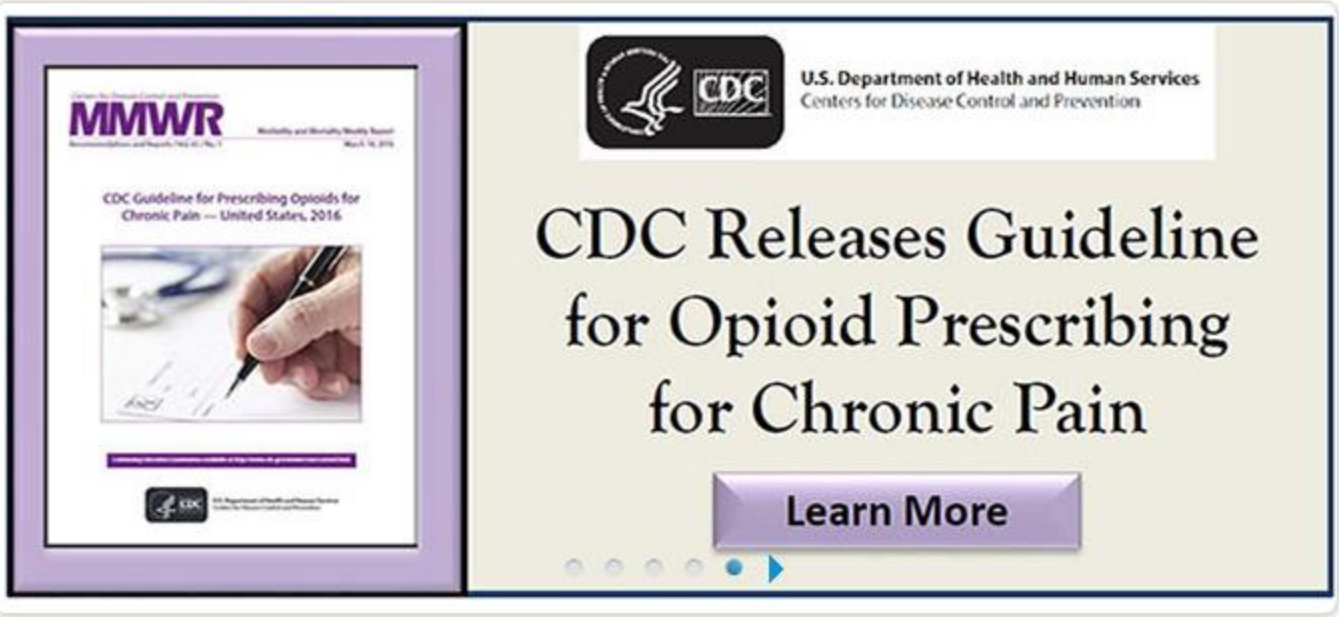
Save the Date: NIH Pain Consortium Symposium 5/31-6/1/2017

Congratulations to 2016 Mitchell Max Awardee, Dr. Ditre

Asst. Sec of Health releases National Pain Strategy

Centers of Excellence in Pain Education Trailer



The NIH Pain Consortium was established to enhance pain research and promote collaboration among researchers across the many NIH Institutes and Centers that have programs and activities addressing pain. The consortium supports initiatives, development of research resources and tools, and hosts events to promote collaboration and highlight advances in pain research.

Tweets by @NIHPainResearch

NIH Pain Resear...

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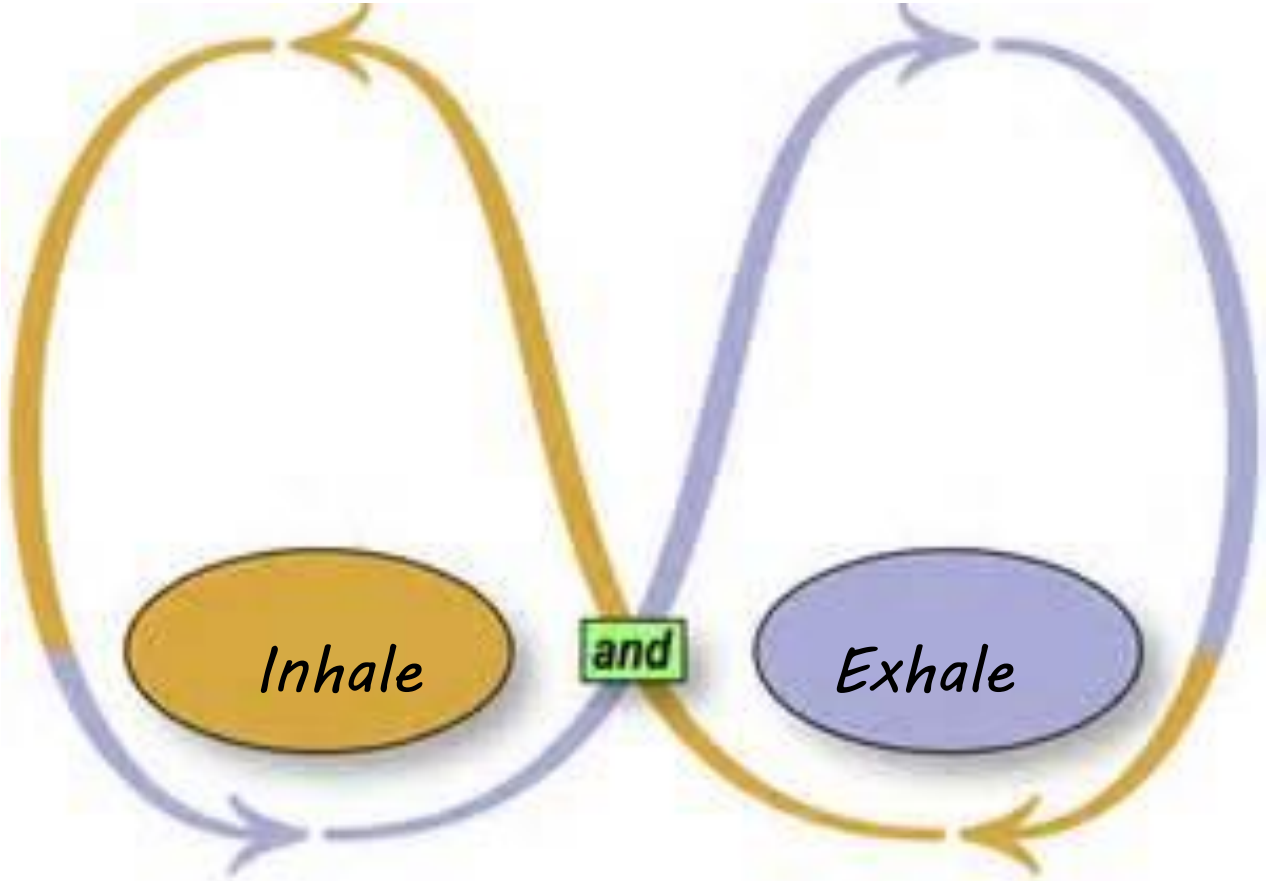
50 mme/day
7 days for acute pain
Short acting

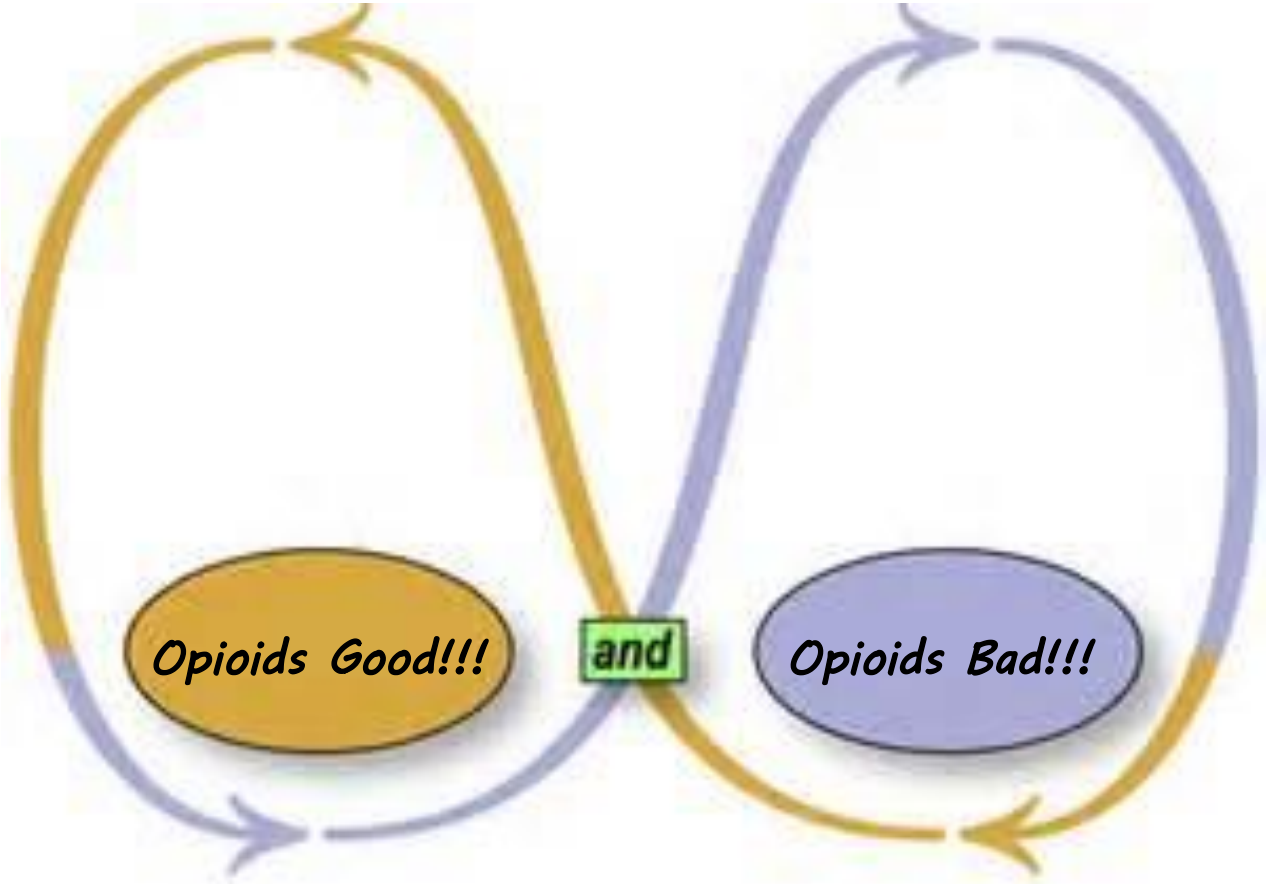
"Polarities"



Take Risks
Conservative
Big Picture
Think

Use Caution
Progressive
Detail Focus
Act

"Polarities"



https://painconsortium.nih.gov

Skip Navigation

NIH Pain Consortium

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Recent News

Save the Date: NIH Pain Consortium Symposium 5/31-6/1/2017

Congratulations to 2016 Mitchell Max Awardee, Dr. Ditre

Asst. Sec of Health releases National Pain Strategy

Centers of Excellence in Pain Education Trailer

The NIH Pain Consortium was established to enhance pain research and promote collaboration among researchers across the many NIH Institutes and Centers that have programs and activities addressing pain. The consortium supports initiatives, development of research resources and tools, and hosts events to promote collaboration and highlight advances in pain research.

Tweets by @NIHPainResearch

NIH Pain Resear...

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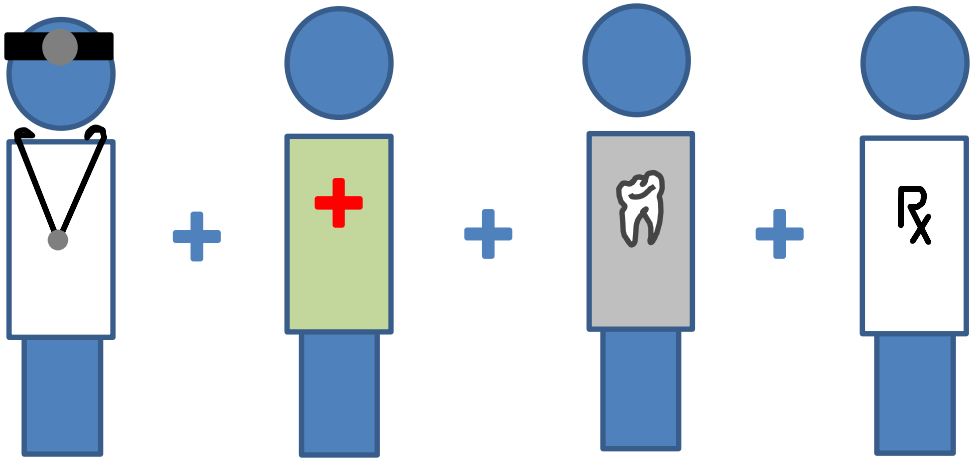
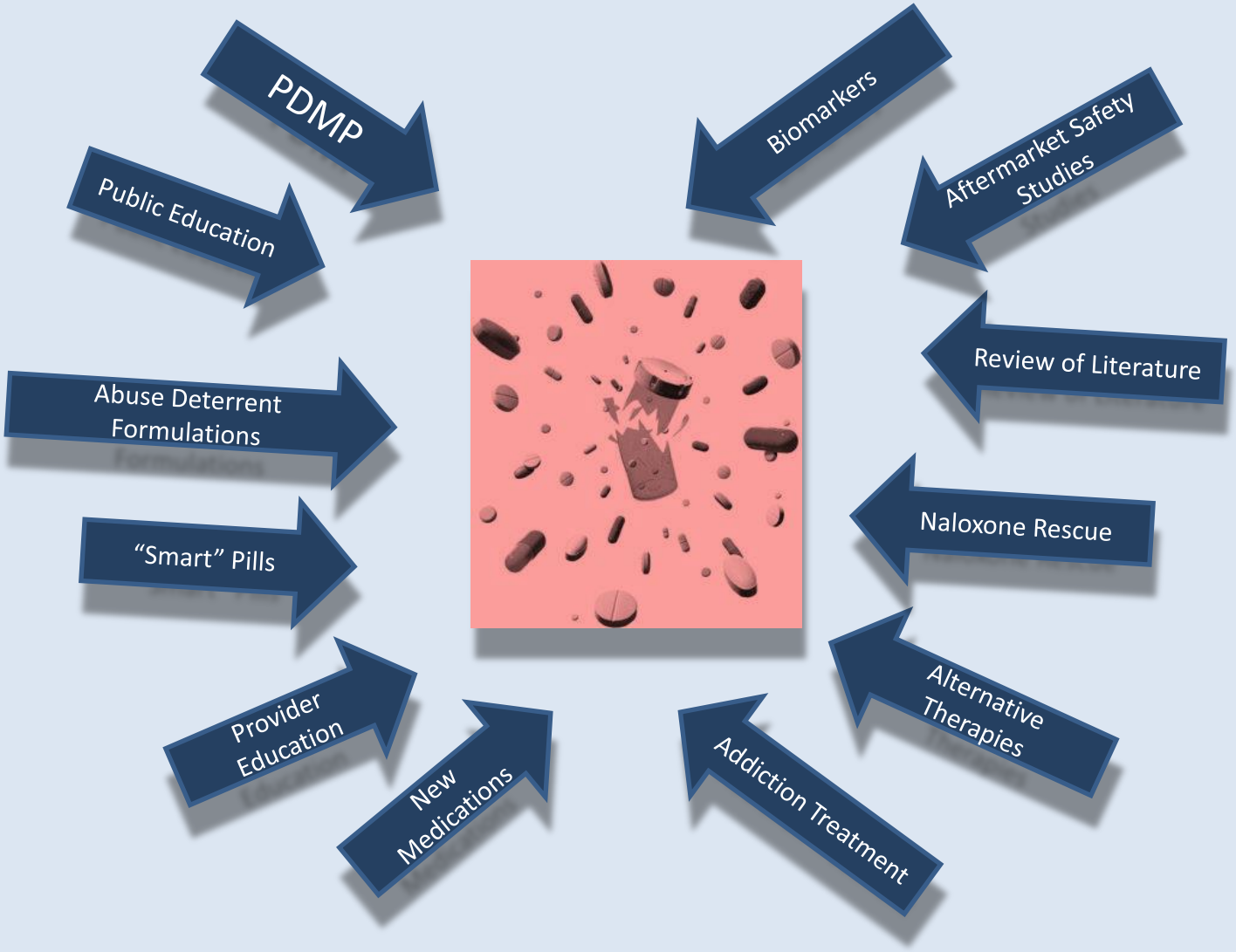
National Pain Strategy

A Comprehensive Population Health Level Strategy for Pain

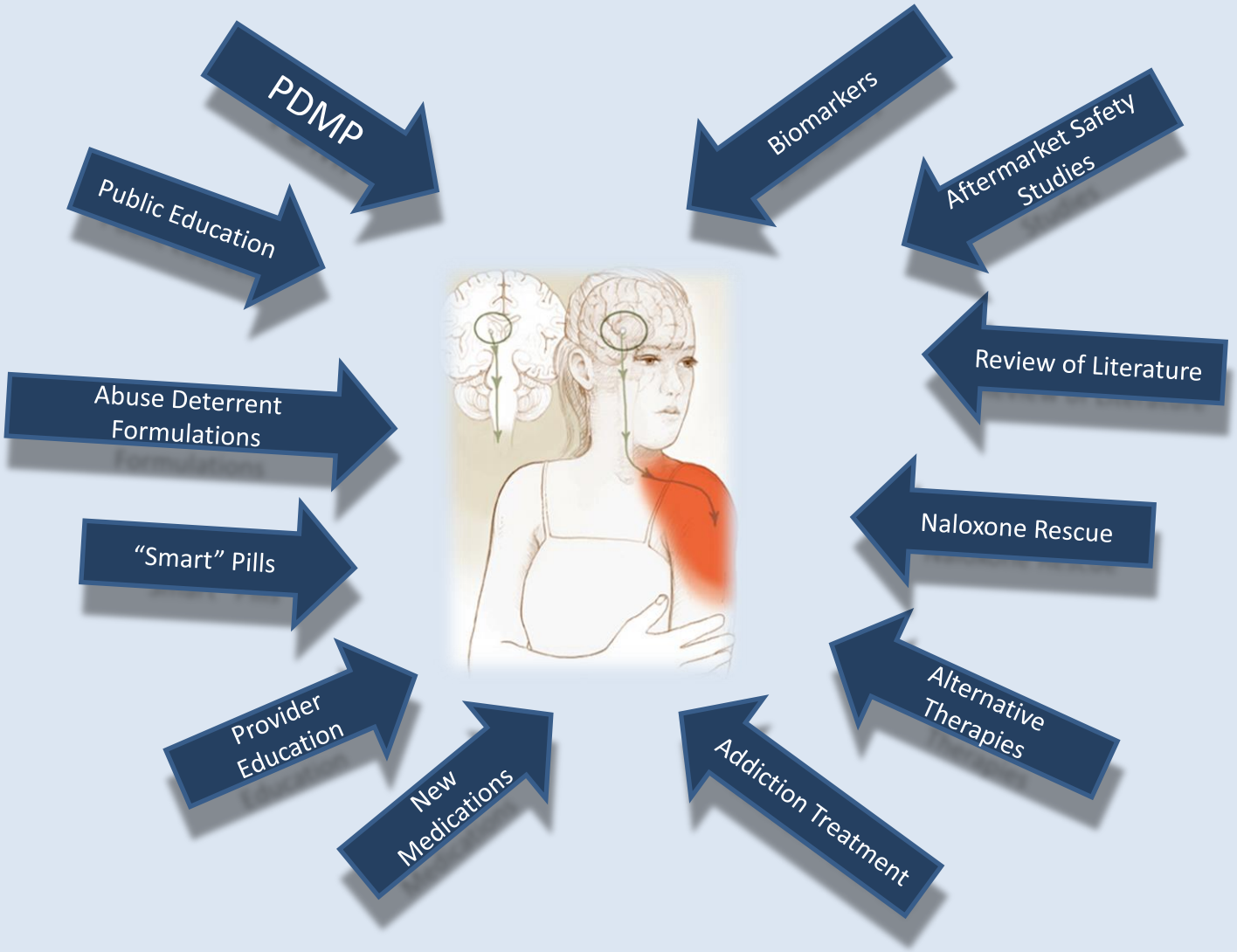


CENTERS FOR DISEASE CONTROL AND PREVENTION
CDC

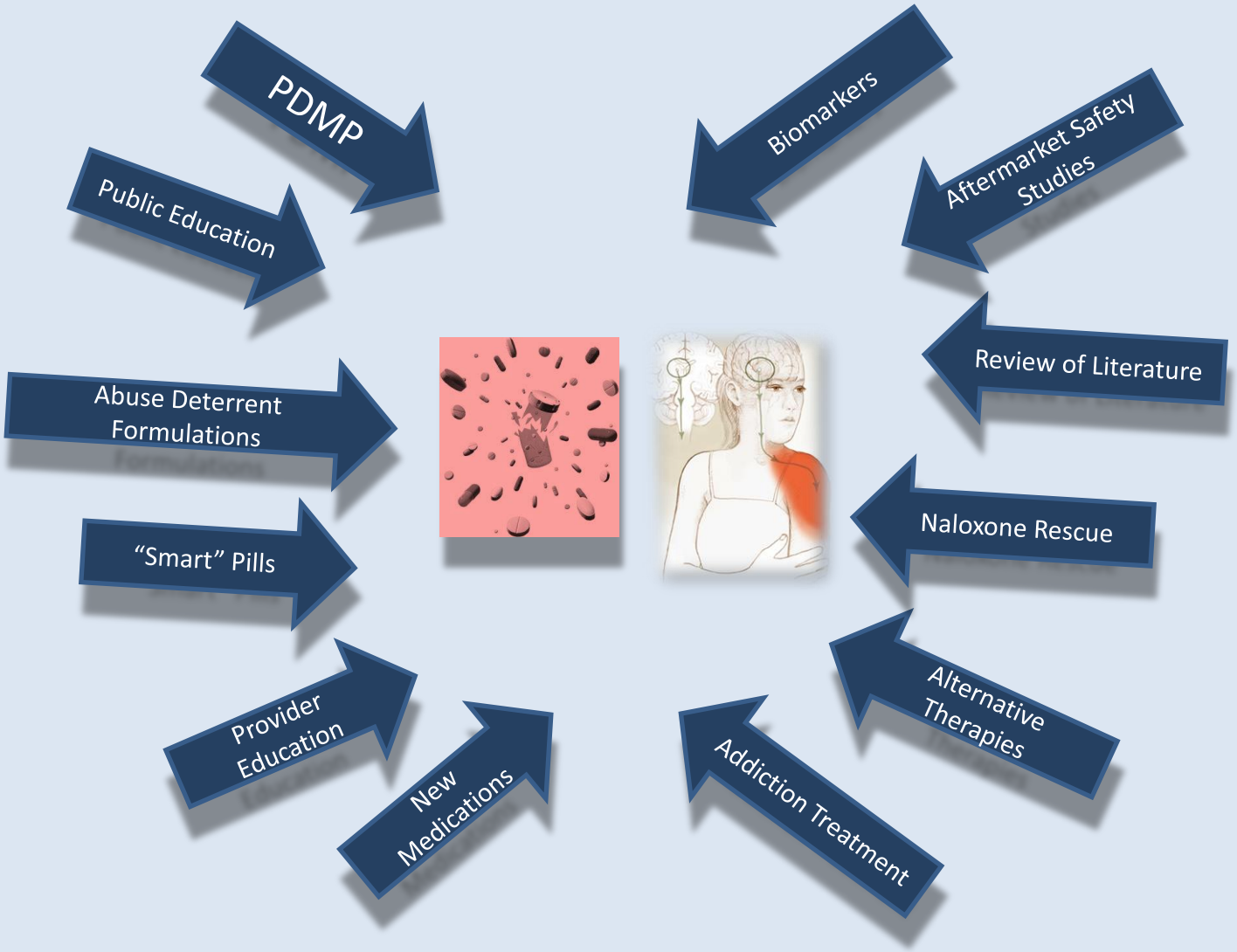
Fighting prescription opioid abuse



Fighting pain



Fighting both!



Editorial | Journal of INTERNAL MEDICINE

doi: 10.1111/joim.12345

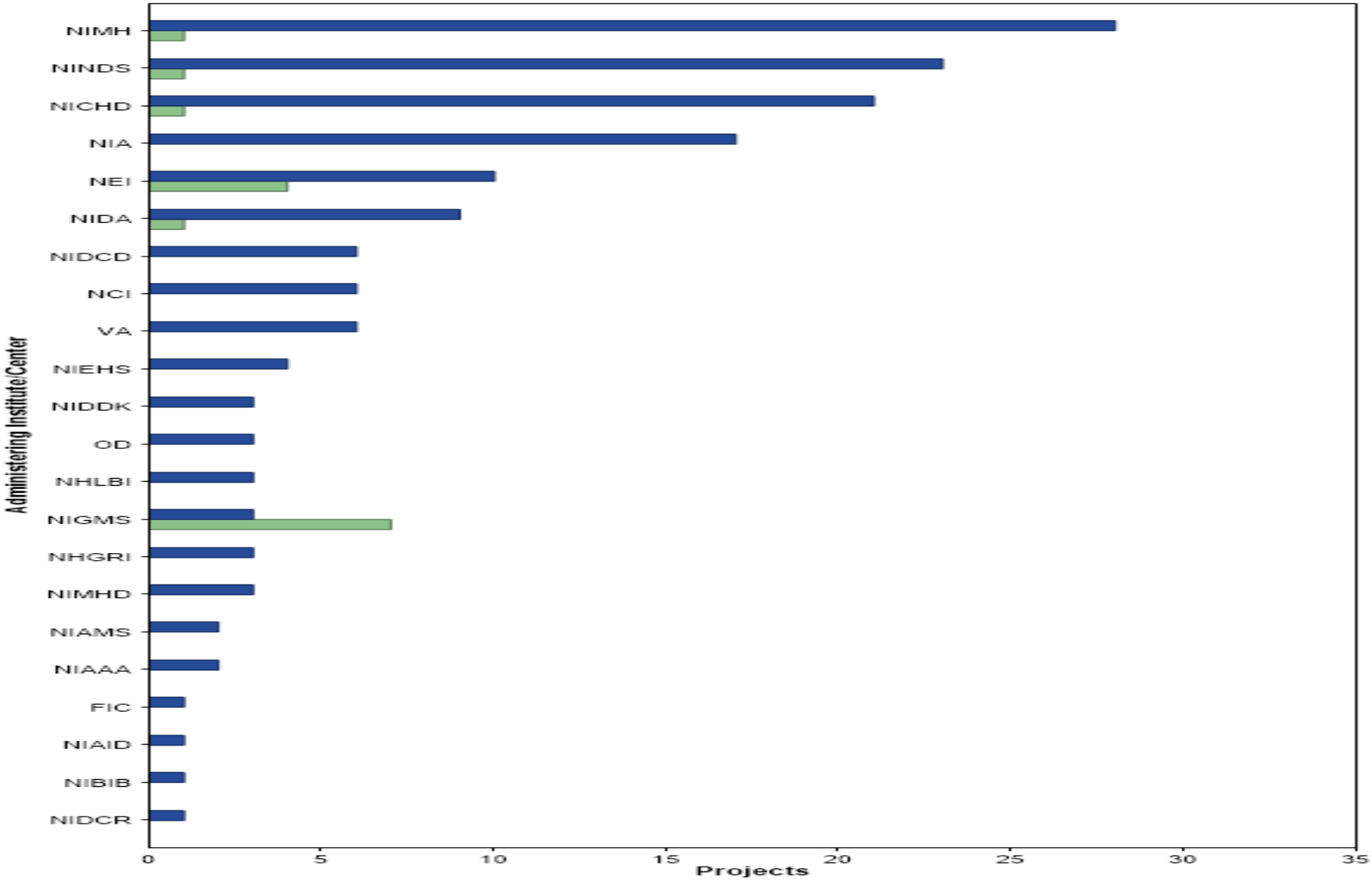
Reflections on the role of opioids in the treatment of chronic pain: a shared solution for prescription opioid abuse and pain

D. Thomas, J. Frascella, T. Hall, W. Smith, W. Compton, W. Koroshetz, J. Briggs, P. Grady, M. Somerman, & N. Volkow

FINE

Richie’s Plank

NIH Virtual Reality Projects
Summary by Administering Institute/Center



Smart tapering…

https://painconsortium.nih.gov/Funding_Research/CoEPEs

EXIT

Pain Education Interactive Modules

Sharee

Sharee is a 19-year-old girl coping with pain crises related to sickle cell disease (SCD). The case provides a history of the disease onset and progression from infancy through high school as seen from her perspective, and explained by case principals. View Interactive Module. View 508-compliant text version (PDF, 4MB)

Margaret Andersen

Margaret Andersen is a 85-year-old woman with limited communication who demonstrates changes in behavior two weeks after entering a nursing care facility. View Interactive Module. View 508-compliant text version (PDF, 738KB)

Betty Miller

Betty Miller is a 77-year-old woman with right shoulder pain for the past 4 weeks. The case follows her visits to her primary care provider and pharmacist; home health services for nursing, social services, and physical therapy; and primary care follow-up. View interactive module. View 508-compliant text version (PDF, 604KB)

Donald Williams

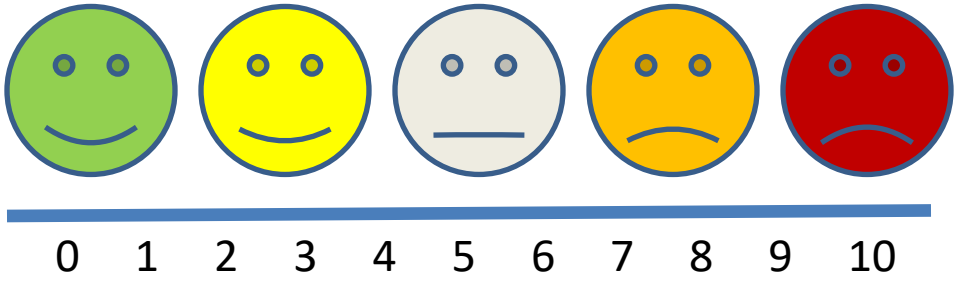
Donald Williams is a 77-year-old man with a total knee arthroplasty 5 days ago. The case follows his interactions following his hospital stay to his skilled care facility. View Interactive Module. View 508-compliant text version (PDF, 642 KB).

https://painconsortium.nih.gov/Funding_Research/CoEPEs

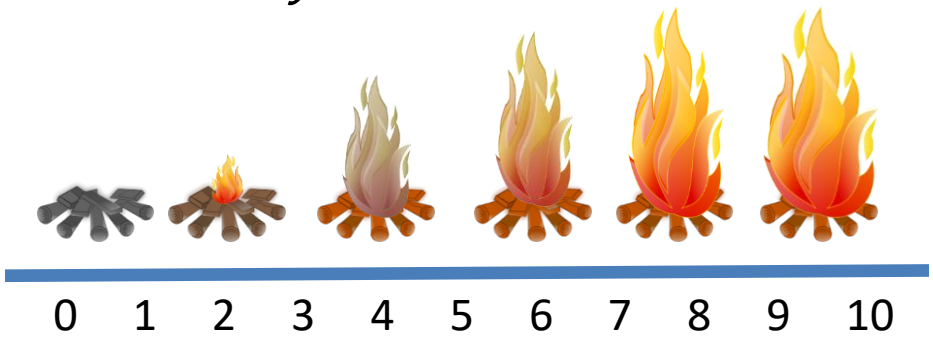
Long-term
End
Prevention
Opioid
Addiction
Compounds
Research
NIH HEAL Initiative
Biomarkers
Therapies
Misuse
Helping
Solutions
Scientific
Epidemic
Pain
Nonaddictive

Objective Pain Measures

"How bad is your pain?



"How bad is your fever?

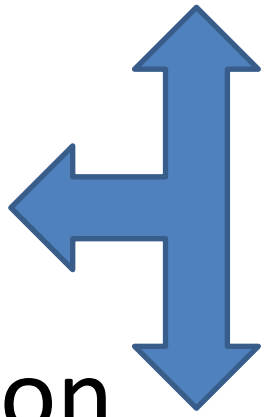


Noa-ometer

Pain- -Meter

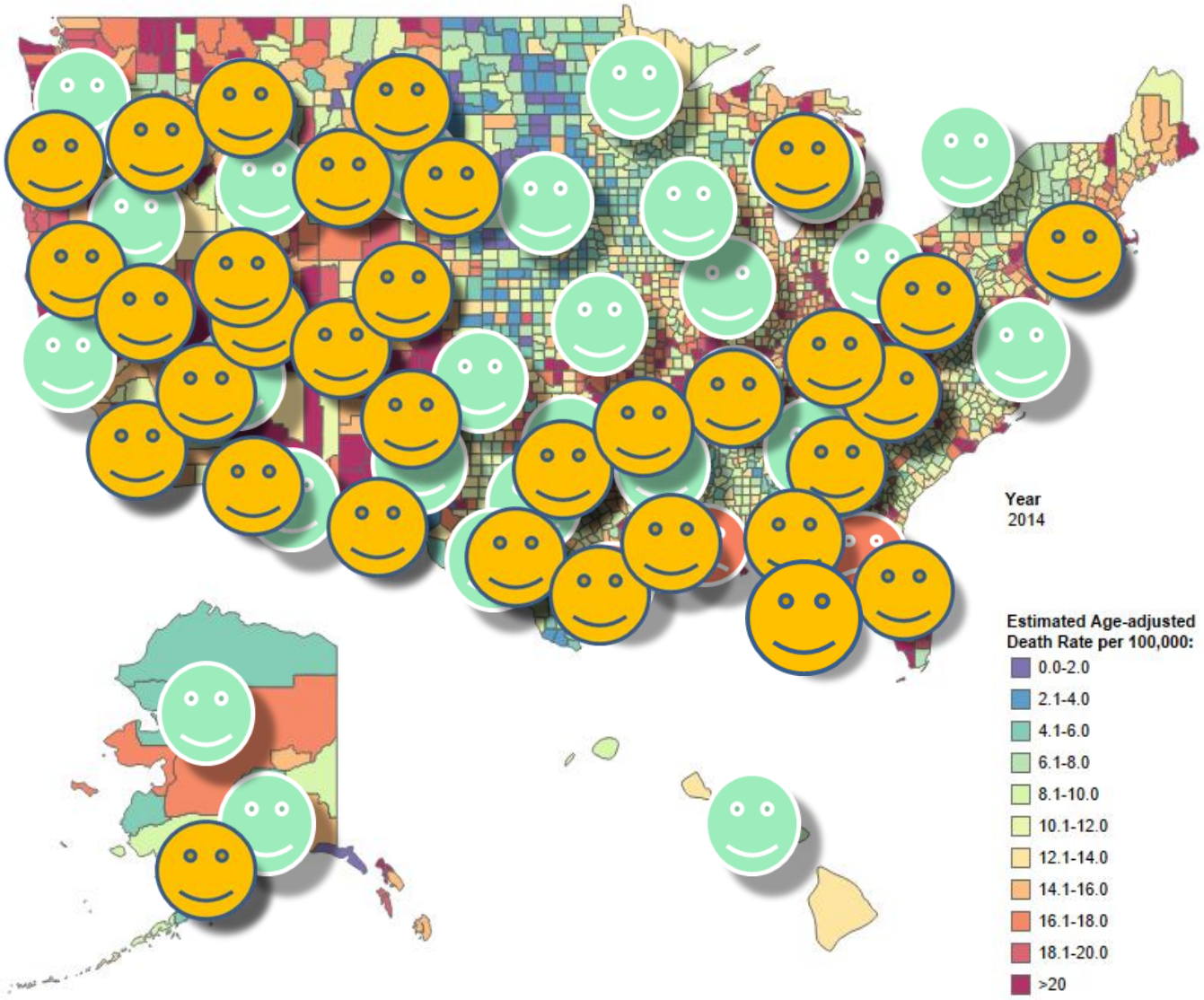
Pain- -Meter

- Treatment
- Translation
- Transformation



HEALing Communities

HEALing Communities


Year
2014
Estimated Age-adjusted
Death Rate per 100,000:
0.0-2.0
2.1-4.0
4.1-6.0
6.1-8.0
8.1-10.0
10.1-12.0
12.1-14.0
14.1-16.0
16.1-18.0
18.1-20.0
>20

Pain and Drug Addiction: Intertwining Epidemics:

Epidemics with Common Causes and Shared Solutions:

David A. Thomas, Ph.D.
NIDA Division of Epidemiology,
Prevention and Services Research,

NIH Pain Consortium

dt78k@nih.gov
301 435 1313

National Institute on Drug Abuse
The Science of Drug Abuse & Addiction