

Primer on Opioid Use Disorders

A Brain Disease





Of people entering treatment for heroin addiction who began abusing opioids in the 1960s, more than 80% started with heroin. Of those who began abusing opioids in the 2000s, 75% reported that their first opioid was a prescription drug.

Opioid Overdose Crisis

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. [RELATED ARTICLE](#)

UPDATE The first governmental account of [nationwide drug deaths](#) show: roughly 64,000 people died from drug overdoses in 2016.

In one year, drug overdoses killed more Americans than the entire Vietnam War did

2015 was the worst year for drug overdose deaths in US history. Then 2016 came along.

By German Lopez | [@germanlopez](#) | [german.lopez@vox.com](#) | Updated Jun 8, 2017, 1:17pm EDT

Opioids now kill more people than breast cancer

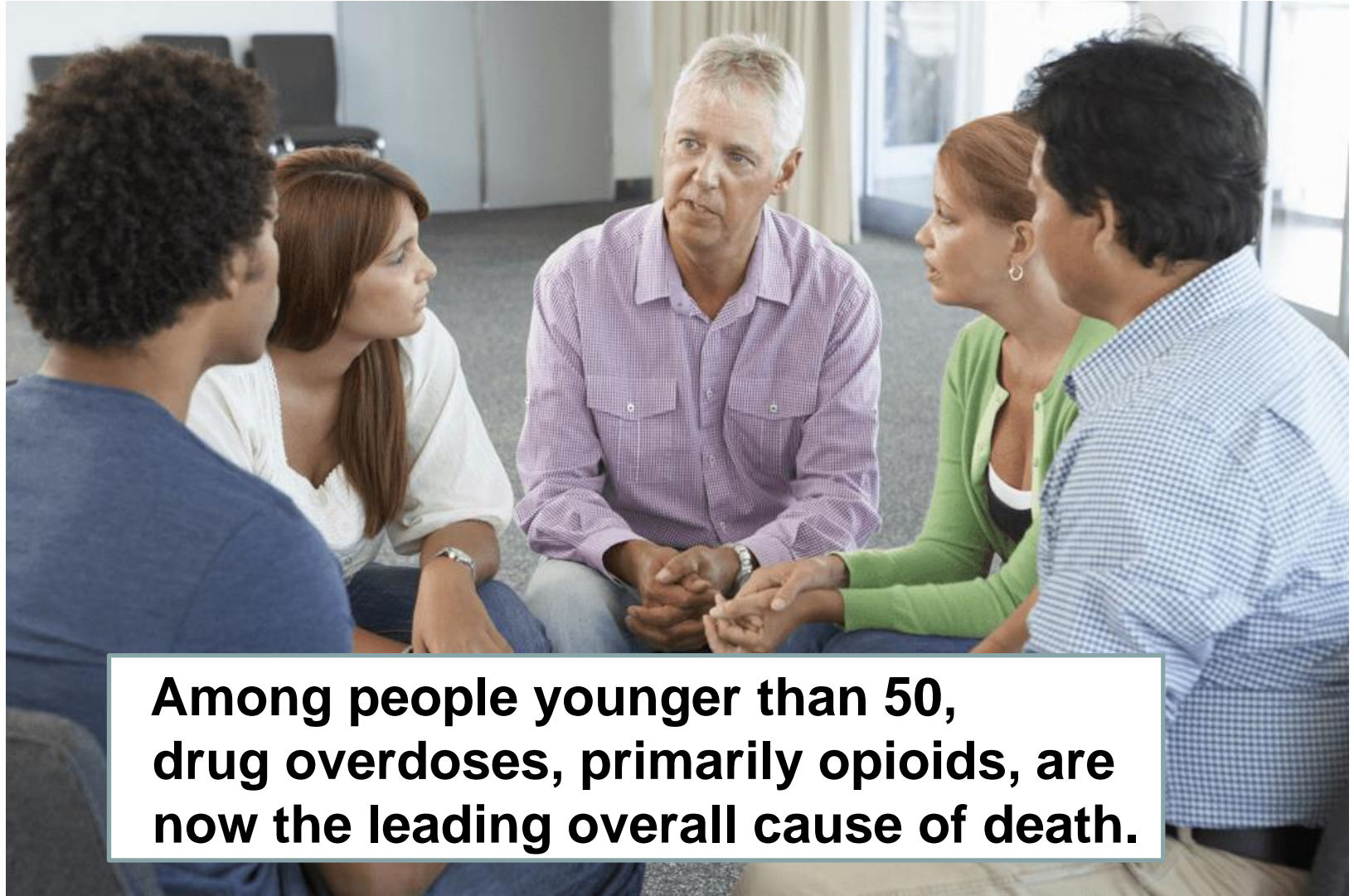
By Nadia Kounang, CNN

🕒 Updated 12:14 AM ET, Thu December 21, 2017



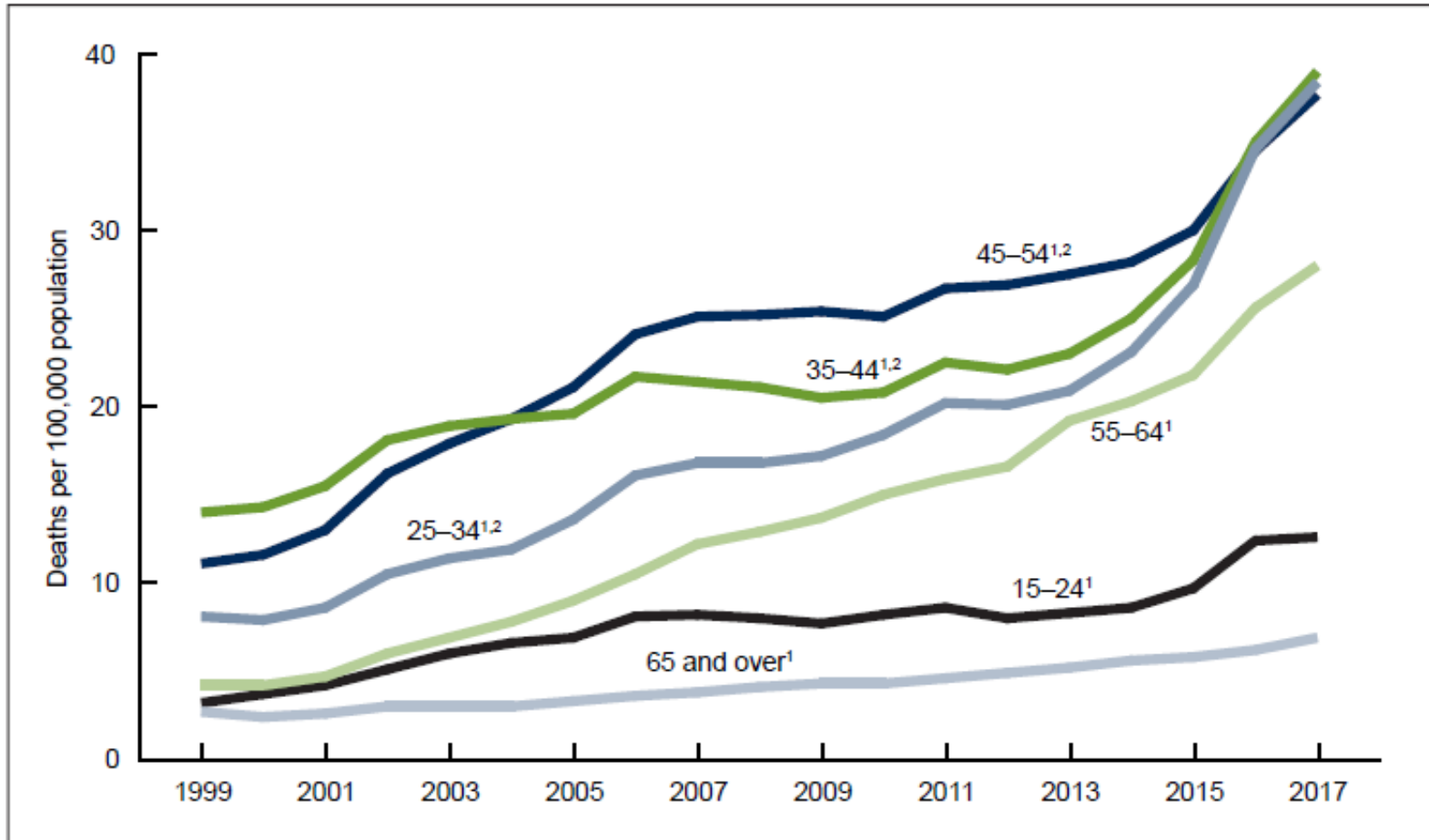
Epidemiology of Illicit Opioid Use

- 11.4 million with past year illicit opioid use
 - 11.1 million prescription painkillers (4.1%)
 - 886,000 with past year heroin use (0.3%)
- Prescription opioids are 2nd most prevalent illicit drug among youths (12-17) and emerging adults (18-25)
- 2.1 million with past year opioid use disorder



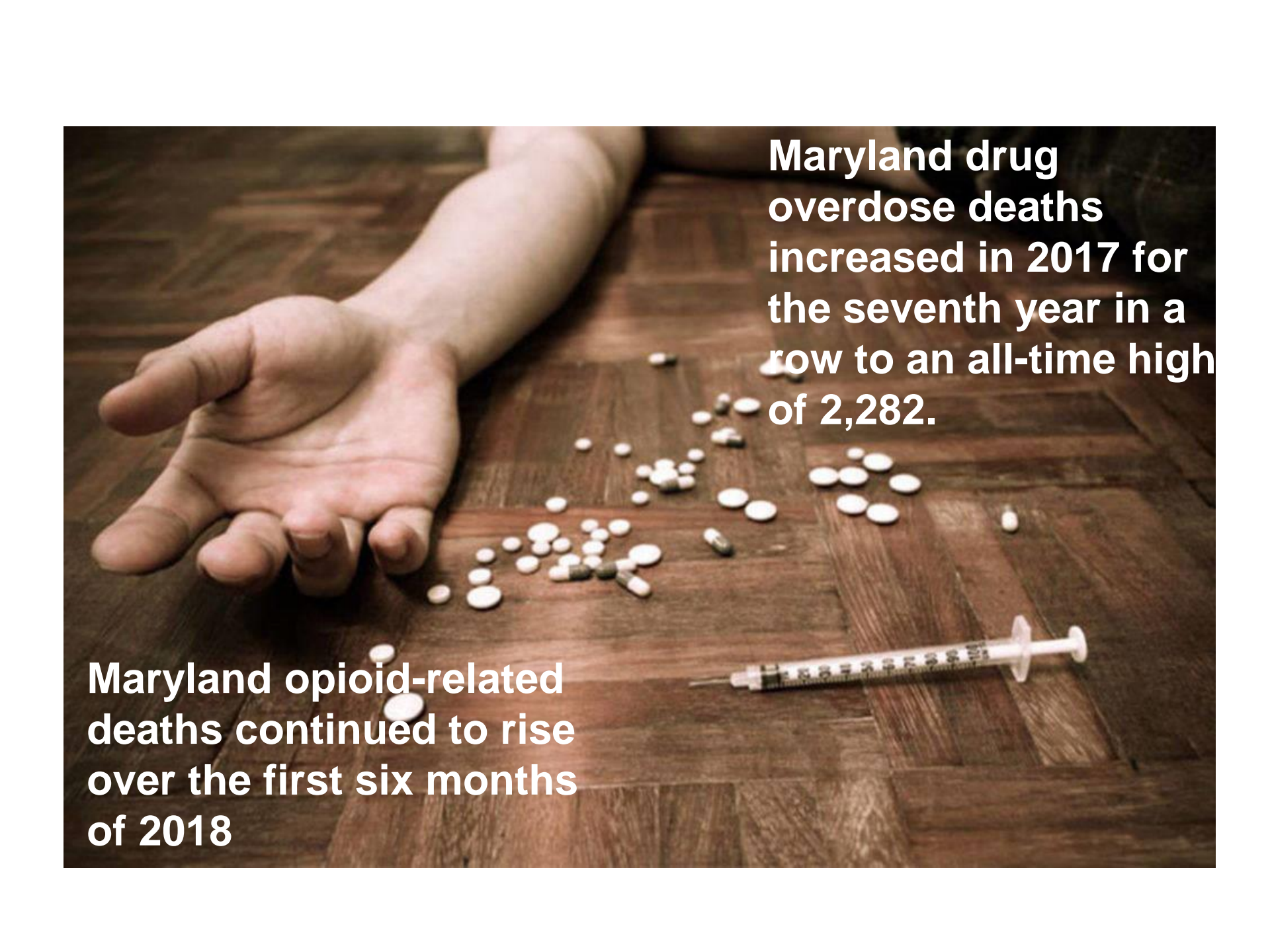
Among people younger than 50, drug overdoses, primarily opioids, are now the leading overall cause of death.

U.S. Overdose Death Rates by Age Group: 1999 - 2017



Opioid Overdose in the U.S.

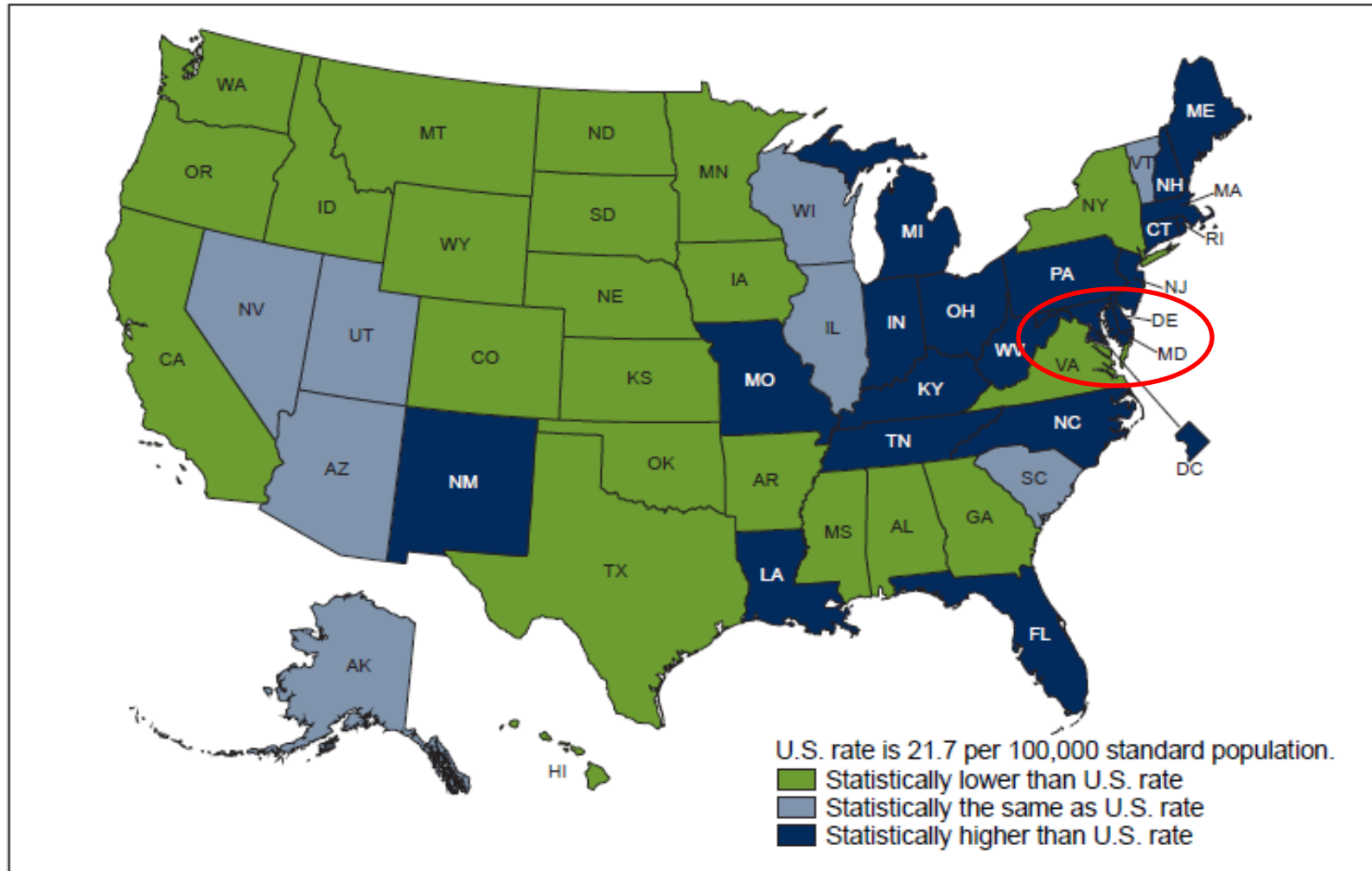
- ~70,000 drug overdose deaths in 2017
 - 47,600 (67.8%) involved an opioid
 - > 28,000 synthetic opioid overdose deaths
 - > 15,000 heroin overdose deaths
 - Rates remained stable in most states, with significant decreases in five states (**Maryland**, Massachusetts, Minnesota, Missouri, and Ohio)
 - The highest overdose death rates from prescription opioids were in West Virginia, Maryland, Kentucky, and Utah.
- Overdose is more common than realized
 - 38 – 68% of people injecting drugs report non-fatal overdose

A photograph showing a person's hand lying flat on a dark wooden floor. Scattered around the hand are numerous white and grey pills of various shapes and sizes. In the lower right foreground, a clear plastic syringe with a needle is lying on the floor. The lighting is dramatic, with strong shadows.

Maryland drug overdose deaths increased in 2017 for the seventh year in a row to an all-time high of 2,282.

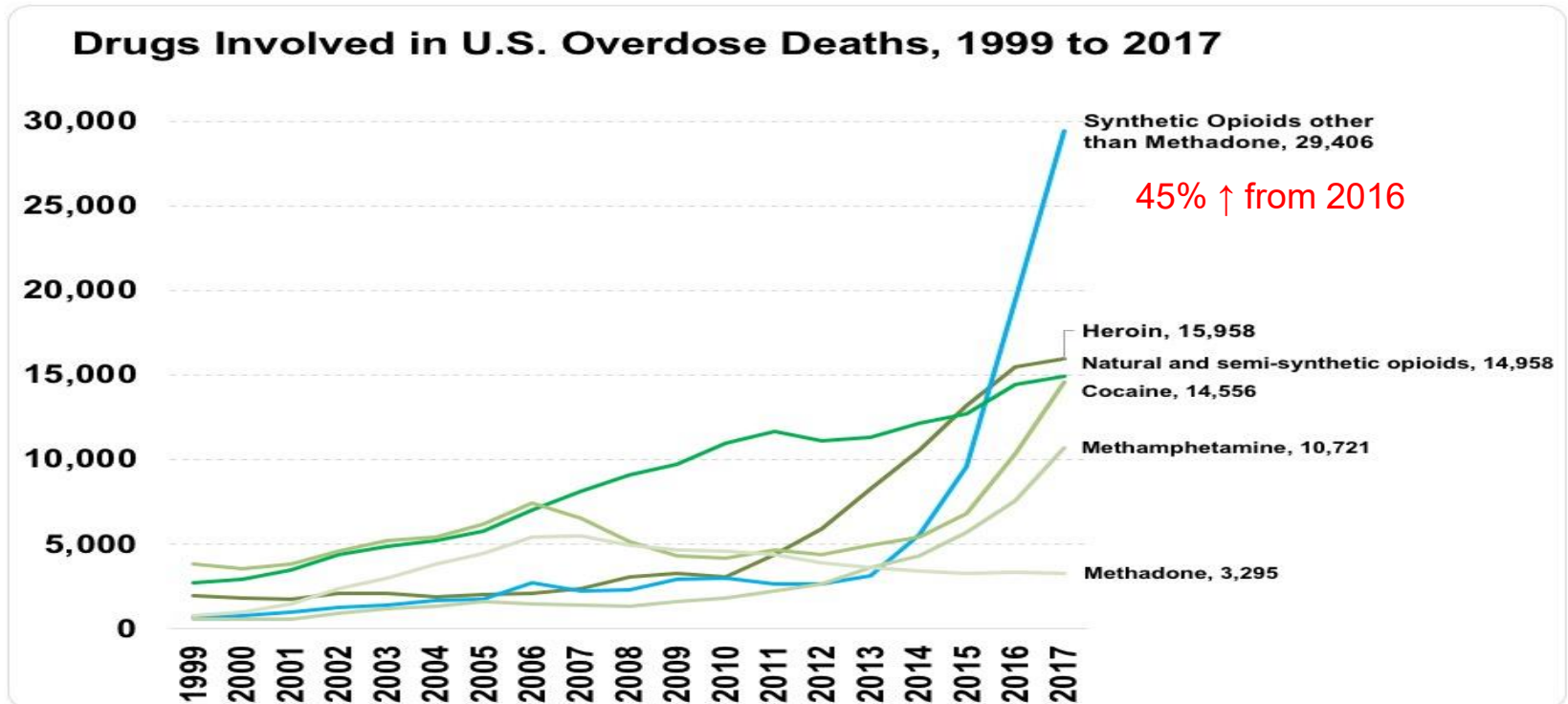
Maryland opioid-related deaths continued to rise over the first six months of 2018

Age-adjusted Death Rate by State

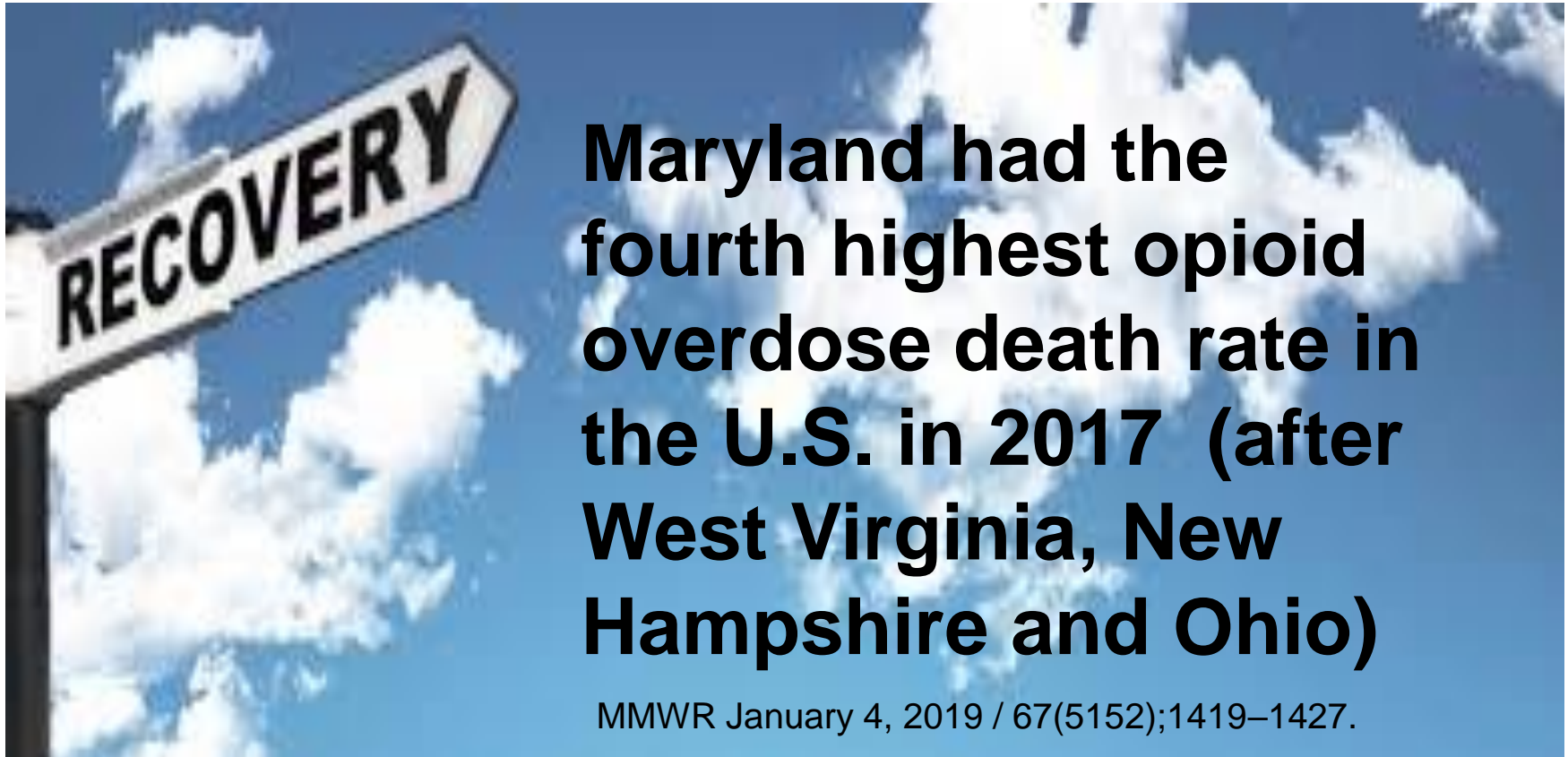


US Overdose Deaths: Drugs Involved

> 70,237 deaths in 2017



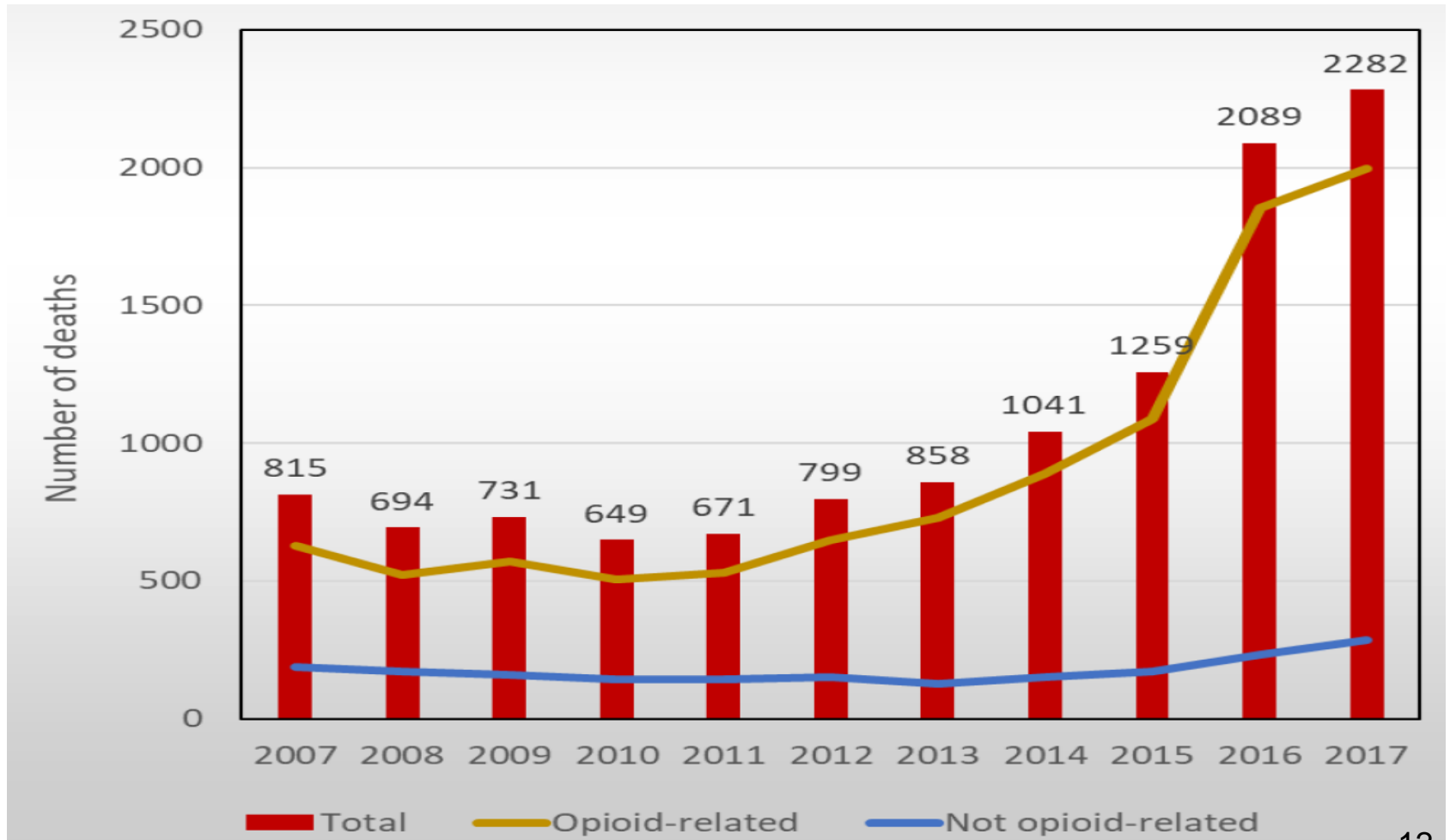
Drugs Involved in U.S. Overdose Deaths* - Among the more than 72,000 drug overdose deaths estimated in 2017*, the sharpest increase occurred among deaths related to fentanyl and fentanyl analogs (synthetic opioids) with nearly 30,000 overdose deaths. Source: NIDA/CDC Wonder



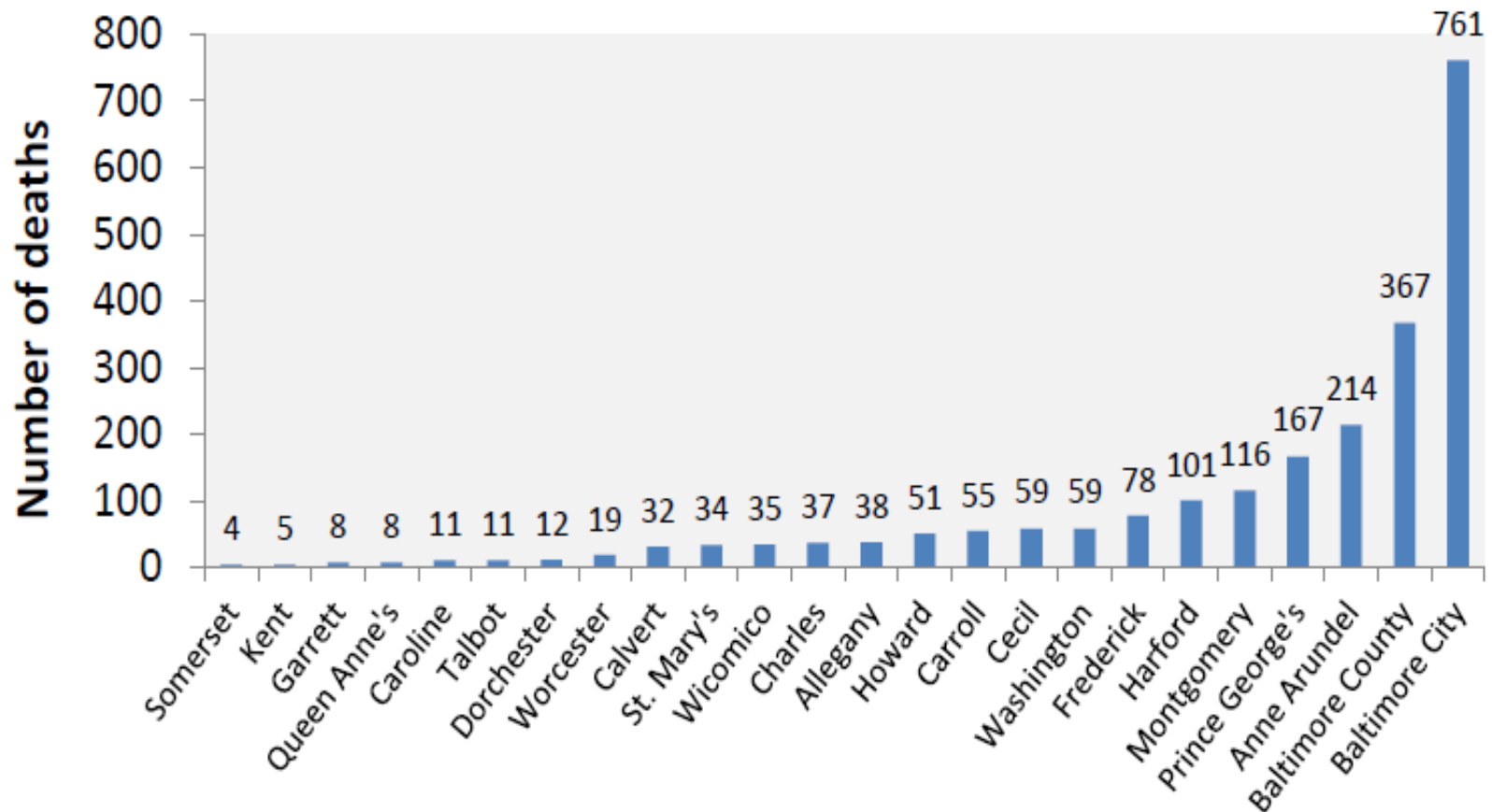
Maryland had the fourth highest opioid overdose death rate in the U.S. in 2017 (after West Virginia, New Hampshire and Ohio)

MMWR January 4, 2019 / 67(5152);1419–1427.

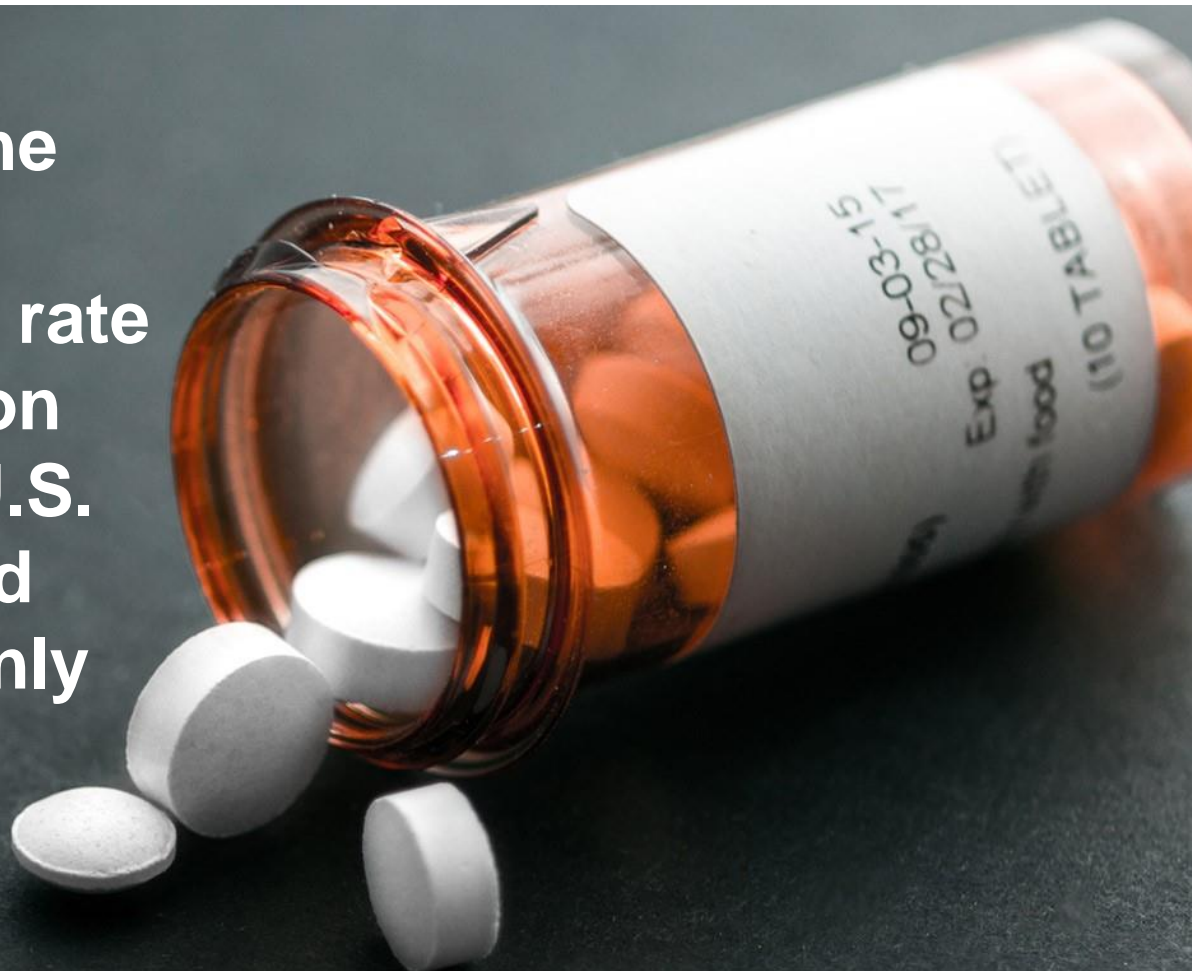
Maryland Overdose Deaths, 2017



Maryland Overdose Deaths, Location



Maryland had the second highest overdose death rate from prescription opioids in the U.S. in both 2016 and 2017 (second only to W Virginia)



MMWR January 4, 2019 / 67(5152);1419–1427.

Etiology of Addiction

Heritability of Addiction

Drug Access and Availability

Cultural Norms

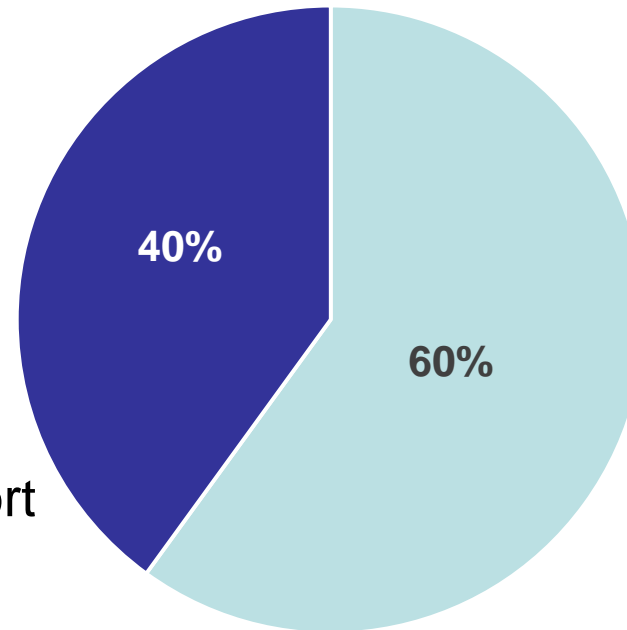
Family Dynamics

Trauma and Abuse

Religious/Spiritual Values

Peer Dynamics/Social Support

Age of First Use



Psychiatric Disorders

Personality

■ Genetic ■ Environmental

Opioid Tolerance & Physical Dependence

Both tolerance and physical dependence are physiological adaptations to chronic opioid exposure

Physical Dependence ≠ Addiction

DSM-5 Substance Use Disorder (SUD)

Physiology

- Tolerance
- Withdrawal

Loss of Control

- Use more than intended
- Inability to cut down or control use
- Give up important activities
- Craving
- Great deal of time obtaining, using, recovering

Consequences

- Continued use despite physical/psych problems
- Role failure
- Recurrent interpersonal /social problems
- Use in hazardous situations

Mild: 2-3 symptoms; Moderate: 4-5 symptoms; Severe: ≥ 6 symptoms

**We must promote a more respectful,
harm-reduction approach.**

**We must avoid unnecessary arrests and
incarceration for substance use.**

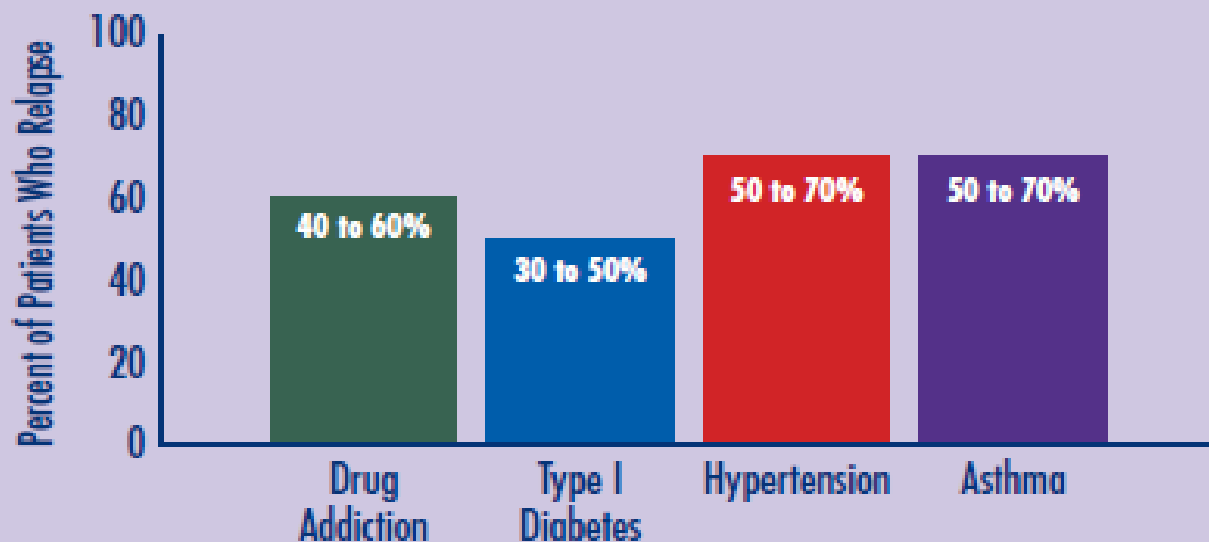


Opioid Use Disorder (OUD)

- Opioid Use Disorder is a **chronic, relapsing and remitting, disease** that effects brain chemistry and function.
- Opioid Use Disorder is **not** a lack of willpower or a moral failing.
- Opioid Use Disorder is **treatable** - just like other chronic diseases, such as asthma and diabetes.

Recurrence Rates for SUD Comparable to Other Chronic Diseases

COMPARISON OF RELAPSE RATES BETWEEN
DRUG ADDICTION AND OTHER CHRONIC ILLNESSES



Relapse in this chart refers to patients who experience recurrence of symptoms that requires additional medical care. The recurrence rates are similar across these chronic illnesses, underscoring that drug use disorders should be treated like other chronic conditions; symptom recurrence serves as a trigger for renewed intervention.

Source: JAMA, 284:1689-1695, 2000

Chronic Medical Consequences

- **Gastrointestinal**
 - Constipation
- **Endocrine**
 - Hypogonadism
 - Sexual dysfunction
 - Irregular menses
- **Infectious**
 - STI's
 - Syphilis
 - Gonorrhea
 - Chlamydia
- **Infectious**
 - Hepatitis C
 - 65 - 70% prevalence of Hep C in long term PWID
 - Hepatitis B
 - 7% of PWID chronic dz
 - Hepatitis A
 - 20% of cases
 - HIV/AIDS
 - 10% of new cases

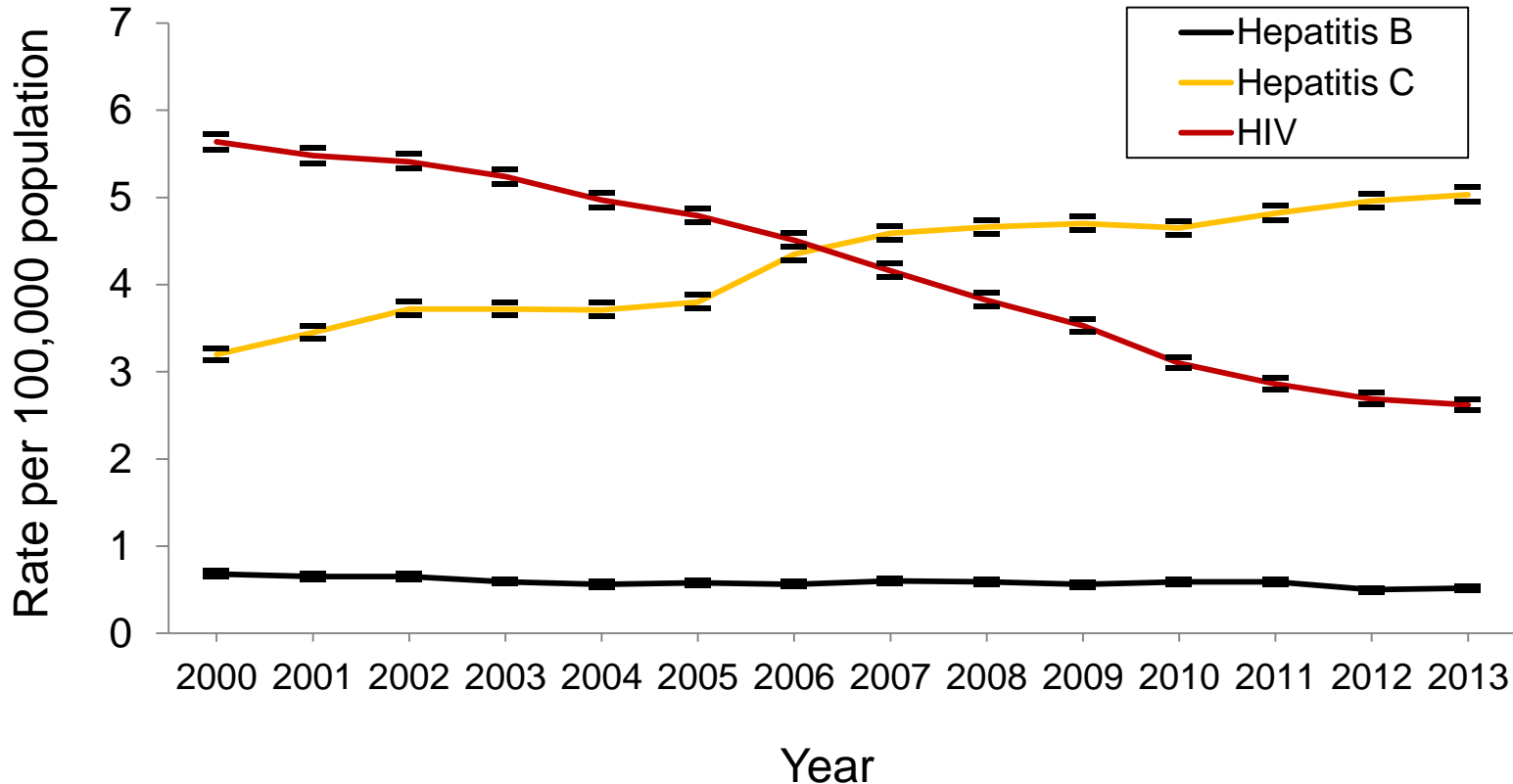


**We must avoid
coercive treatments
which are known
to be
counterproductive.**

Persons who Inject Drugs (PWID) and Hepatitis C (HCV)

- Hepatitis C (HCV) is most common blood-borne pathogen in US
 - 1.3% or 3.2 million in US are HCV antibody positive
- Leading cause of liver transplantation and death from liver disease in US
- In US, **injection drug use is most common identifiable cause**
 - Up to 77 percent of PWID are HCV antibody positive
- *Active IDU is not a contraindication to therapy*
 - Management of HCV-infected PWID is enhanced by linkage to drug treatment programs

HCV-related deaths exceed HIV-related deaths



HCV-related deaths surpassed HIV-related deaths in 2007

Posttraumatic Stress Disorder & Substance Use Disorders

- ↑ SUD prevalence in those with PTSD
 - 1/3 at least one SUD
 - ~1/4 of women and 1/2 of men
- ↑ PTSD prevalence in those with SUD
 - 30–60% of those with an alcohol use disorder

Opioid Use and Hospitalization

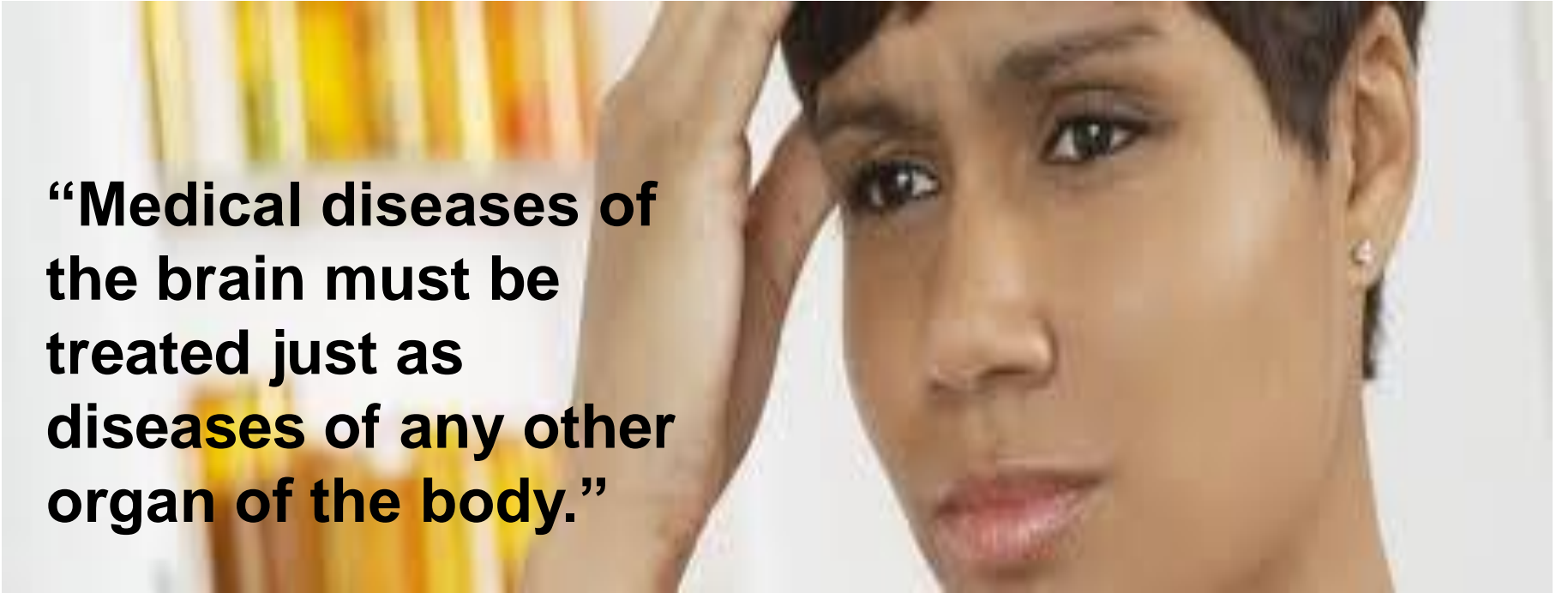
- 1999 – 2006: 65% ↑ in hospitalizations for poisoning by prescription opioids, sedatives, and tranquilizers
- 2002 – 2012: 1.9 fold ↑ in hospitalizations for opioid use disorder
- >60% with fatal overdose had ≥1 hospitalization or ED visit, for any reason, in the 1 year prior
- Hospitalization may be “teachable moment”

Ronan and Herzig,
2016

Gserjing, et. al., 2016

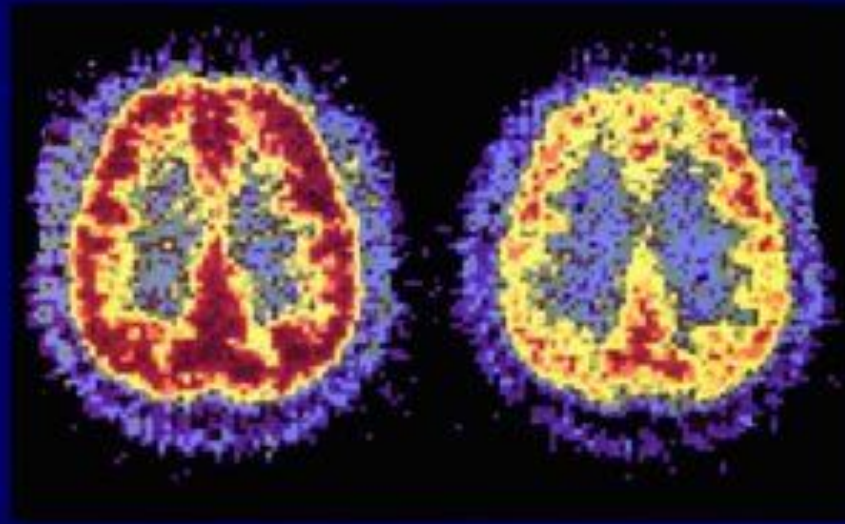
Cohen, et. al., 2010

Seal, et. al., 2001



“Medical diseases of the brain must be treated just as diseases of any other organ of the body.”

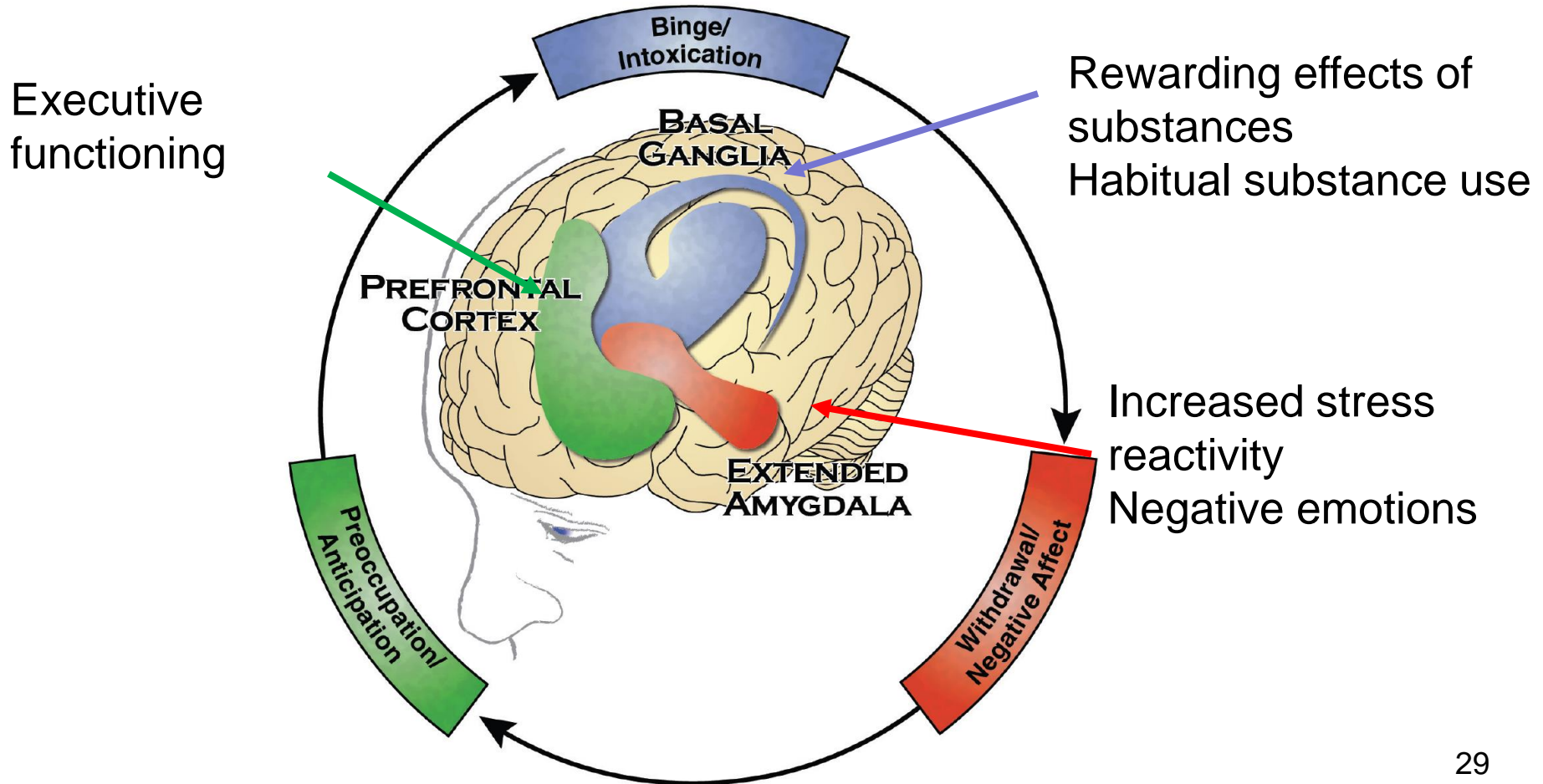
Addiction is a Brain Disease



★ Addiction is a brain disease

- * addicted brain is different from the non-addicted brain
- * Prolonged drug use causes pervasive changes in brain function

3 Stages of Addiction and Associated Brain Regions



Neurobiology Summary

- 3 brain regions- 3 stages of addiction
 - Binge/intoxication:
 - Conditioned responses to cues, even in absence of substance; habit formation
 - Withdrawal/negative affect:
 - Decreased ability to experience pleasure
 - ↑ stress reactivity and ↑ increased dysphoria = strong motivation for continued use
 - Preoccupation/Anticipation:
 - ↓ executive function
- Changes persist well after substance use ends = chronic brain disease

Medically Supervised Withdrawal Management (formerly “detox”)

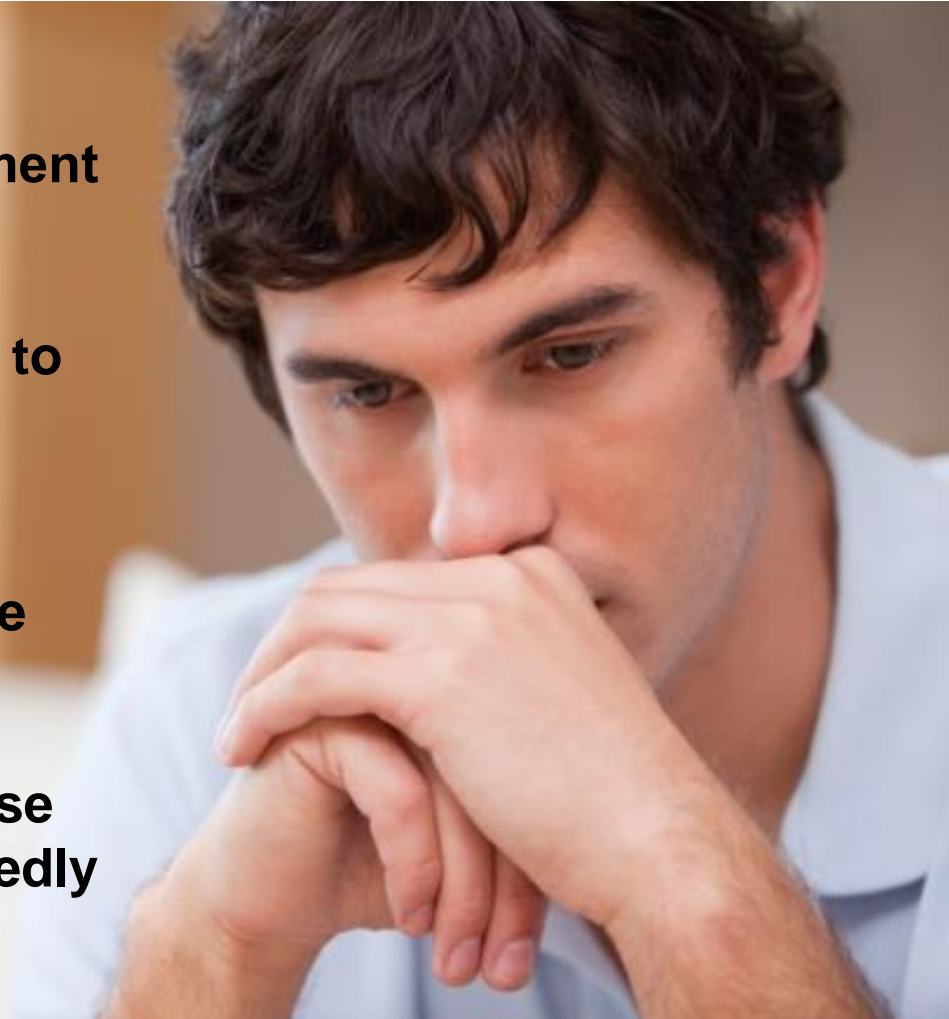
- Withdrawal management **is not treatment**, it is just the start of treatment
- Withdrawal management alone leads to:
 - Low rates of retention in treatment
 - High rates of relapse post-treatment
 - < 50% abstinent at 6 months
 - < 15% abstinent at 12 months
 - Increased rates of overdose due to decreased tolerance

Medication-Assisted Treatment (MAT)

- Improves Outcomes
 - Decreased drug use
 - Increased treatment retention
- Saves Lives
 - Those who receive MAT are 75% less likely to have an addiction-related death than those who do not receive MAT
- Cost Effective
 - Treatment has proven to have a significant return on investment – for every dollar spent on treatment \$7-\$14 is saved

When we say, “treatment works,” we are not referring to every approach that claims to be treatment.

Medication-assisted treatment (MAT) is the evidence-based gold standard for the treatment of opioid use disorder, but is markedly underutilized.



Medication-Assisted Treatment (MAT)

- Benefits extend beyond substance use
 - Improve patient survival
 - Decrease criminal activity
 - Increase ability to gain and maintain employment
 - Improve birth outcomes among pregnant women with substance use disorders
 - Decrease risk of contracting HIV or hepatitis C¹⁴
- Underutilized
 - Only 28% of heroin admissions with treatment plans included MAT in 2010

Medications for Addiction Treatment: Goals

- Minimize harms of continued drug use
- Alleviate signs/symptoms of physical withdrawal
- Opioid receptor blockade
- Diminish and alleviate drug craving
- Normalize and stabilize perturbed brain neurochemistry

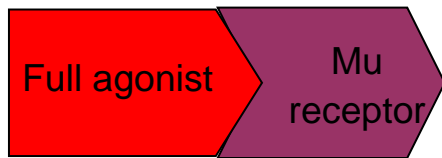


MAT is a comprehensive way to address the needs of individuals that combines the use of medication (Methadone, Buprenorphine, or Naltrexone) with counseling and behavioral therapies.”

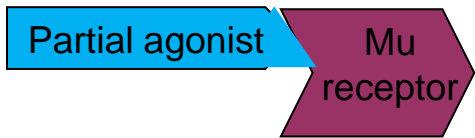
Centers for Disease Control and Prevention (CDC)

FDA Approved Medications for Opioid Use Disorder

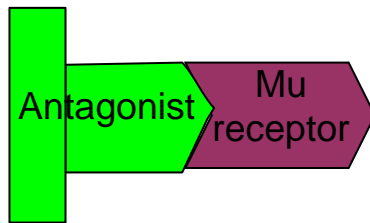
Methadone



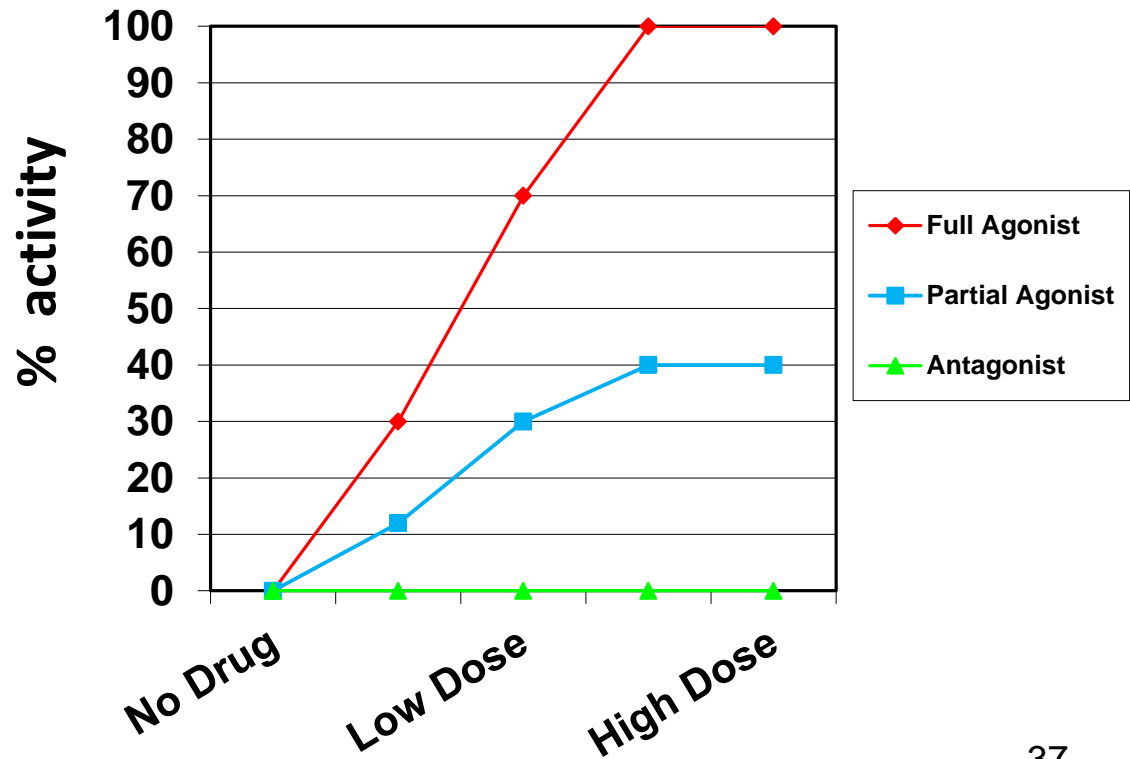
Buprenorphine



Naltrexone



Receptor Activity



Methadone

- Schedule II controlled substance
- Highly regulated: can only be dispensed by SAMHSA-certified clinics to treat opioid addiction
- Rigorously researched (50+ years)
- Blocks the effects of other opioids
- Eliminates opioid withdrawal symptoms and relieves drug cravings
- Recently passed legislation will extend coverage of MAT-based medication to Medicare population

MAT has been shown to improve survival and employment, improve birth outcomes in pregnant women, and decrease drug use, criminal activity, and the risk of contracting HIV or hepatitis C.



Buprenorphine

- Schedule III controlled substance, relatively new (FDA approved in 2002 for treating opioid addiction), prescribed by physicians in the office setting and in some opioid treatment centers
- Eliminates withdrawal symptoms and relieves drug cravings from heroin and prescription opiate medications

Methadone and Buprenorphine Efficacy

- More effective than placebo in ↓ illicit opioid use
 - (Self reports, urine toxicology)
- Good treatment retention
- Saves lives
 - 2.2 -3.2x mortality rate when off of buprenorphine or methadone
- Improvements in other recovery areas
 - Decreased criminal activity
 - Reduction in HIV & HCV transmission
 - Increase in employment

Injectable Naltrexone (XR-NTX)

Efficacy

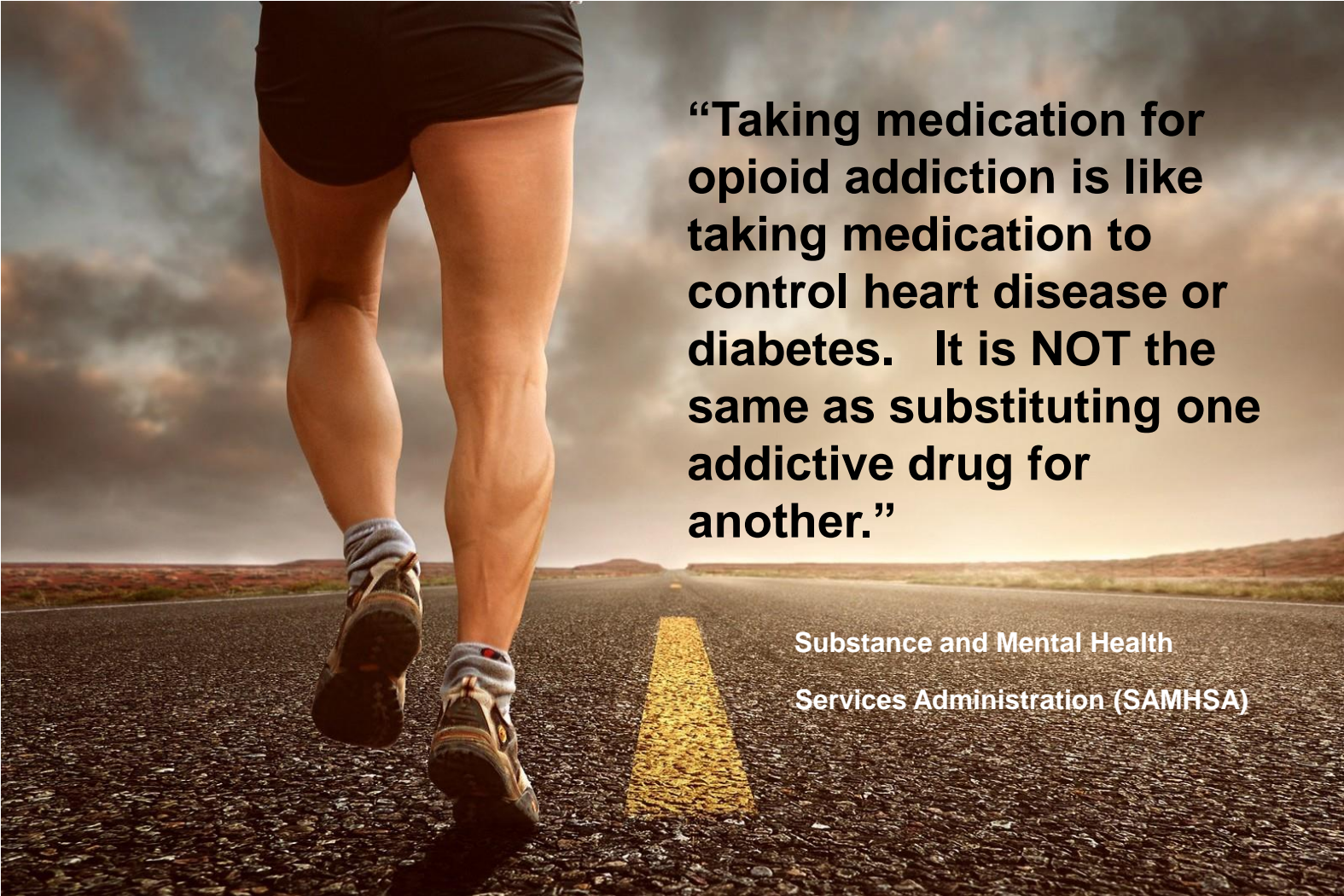
- Compared to placebo
 - Increased abstinence
 - Decreased cravings
- Compared to buprenorphine
 - More difficult to start patients on XR-NTX than BUP-NX (24 week trial)
 - 28% vs 6% unable to be initiated
 - Similar effectiveness if patients can get on it



Only about 20% of Americans with opioid use disorder report having received treatment in the previous year.

Barriers to Treatment

- System-level barriers
 - Access
 - Workforce deficiency
 - NIMBY (“Not in my Back Yard”)
 - Insurance coverage
 - Payor factors
 - Prior authorizations
 - Lack of parity

A photograph showing the lower legs and feet of a person running on a paved road. The person is wearing black shorts, white socks, and running shoes. The road has a yellow dashed line down the center. The background shows a sunset or sunrise over a landscape with hills under a cloudy sky.

“Taking medication for opioid addiction is like taking medication to control heart disease or diabetes. It is NOT the same as substituting one addictive drug for another.”

Substance and Mental Health
Services Administration (SAMHSA)

Barriers to Treatment

- Community-level barriers
 - Stigma
 - Lack of family or social support
 - Housing restrictions
 - Medication assisted treatment
 - Criminal history (sex offense, arson)
 - Women with children

Barriers to Treatment

- Individual barriers
 - Lack of identification
 - Lack of education
 - Fear
 - Lack of motivation

We must eliminate all restrictions to MAT, and provide adequate reimbursement for this life-saving treatment.

We must ensure access, including in Maryland correctional facilities.



Potential Solutions

- Workforce funding
- Enforcement of parity laws
- Policy changes
 - Removal of prior authorizations
 - Prohibition of refusal of patients on medications
- Eradication of stigma
 - Education on disease model
 - Changing our language
 - Old: “addicts,” “alcoholic”, “drug abuser”, “clean”, “dirty urine”
 - New: “Person with a drug use disorder”, “positive urine”;
“recurrence/remission”

Importance of Medicaid Expansion

- Prior to the Affordable Care Act (ACA), ~ 30% of plans individual and small group markets did not cover addiction treatment
- Medicaid expansion was associated with 18.3% reduction in unmet need for addiction treatment
- Medicaid expansion accounts for $\geq 50\%$ of Medicaid spending on addiction treatment in states hit hard by the opioid crisis.

We must enforce existing mental health and substance use parity laws.

Unfair cost barriers to treatment for mental health and substance use disorders must be removed.

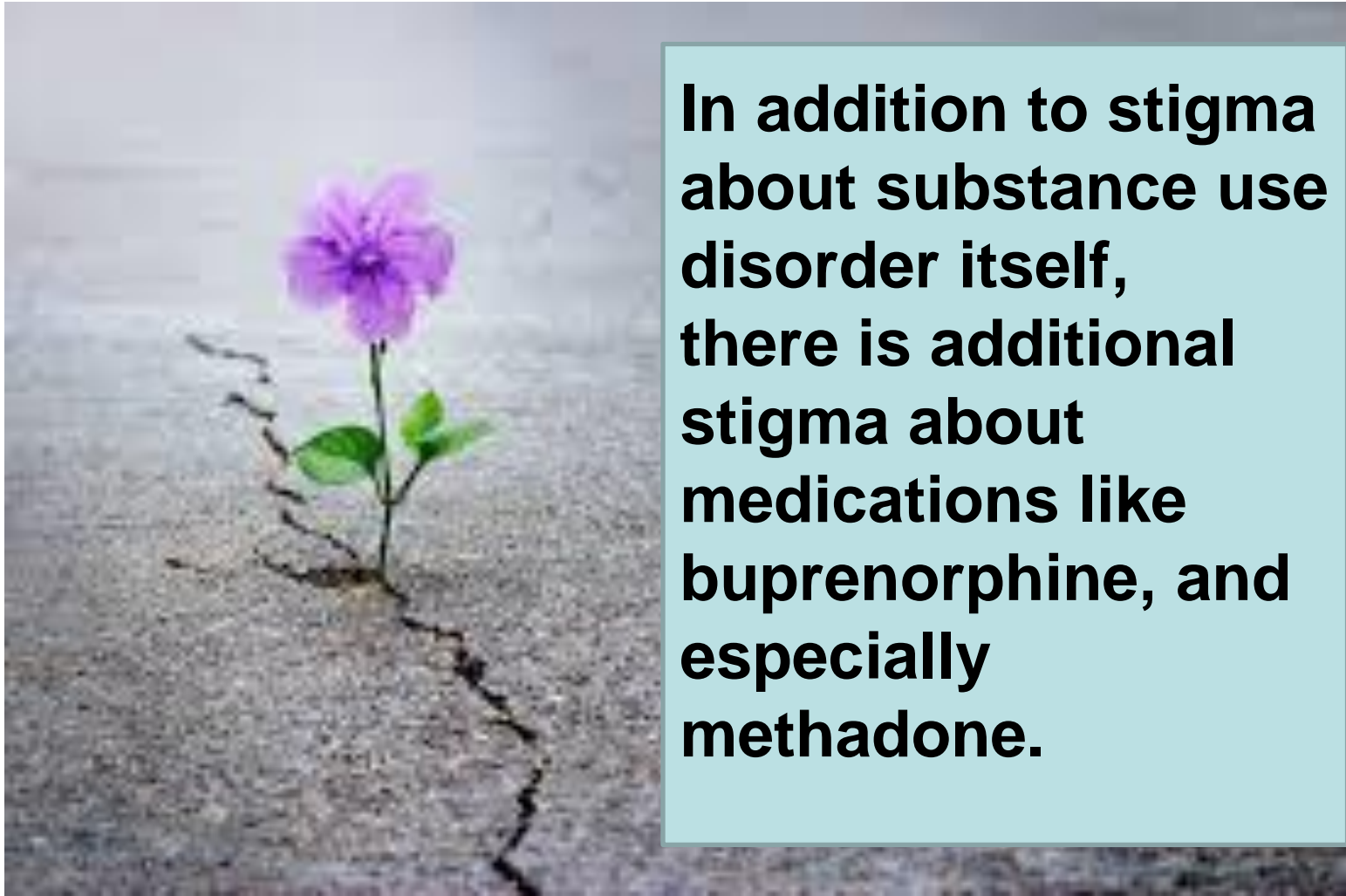


What is Stigma?

- Dictionary Definition:
 - A mark of disgrace associated with a particular circumstance, quality or person
- Synonyms:
 - Shame, disgrace, dishonor, humiliation
- A social process which can reinforce relations of power and control
 - Stereotypes, prejudice and discrimination
- Leads to status loss and discrimination for the stigmatized
- Examples of how stigma is imposed
 - HIV/AIDS related stigma
 - Weight-related stigma
 - Mental-health related stigma

Three Kinds of Stigma

- **Self Stigmatization**
 - Internalizing all the negative things you have heard over the years
 - Shame and Blame
 - It's my fault, I am weak, I am damaged
- **Social Stigma**
 - How the community feels about people with addiction
 - Weak, lack of morals, NIMBY, not a disease, you choose to do this, dangerous
- **Structural Stigma**
 - Laws and Regulations
 - Health care, legal and treatment systems



In addition to stigma about substance use disorder itself, there is additional stigma about medications like buprenorphine, and especially methadone.

Stigma and Substance Use Disorders

A Picture of Stigma

- Becoming dependent on drugs can happen to anyone
- Things people in treatment have said:
 - Just because I am an addict doesn't mean I am a bad person. Deep, down inside I a good person
 - It's not a matter of willpower or lack of moral compass for me
 - Addiction is not the entirety of me, I am me, I am not just my addiction
 - I wish people could know how ashamed I am of some of the things I have done in my active addiction

How Stigma Hurts

- Willingness to attend treatment and access to healthcare
- Harm Reduction
 - Needle Exchange
 - Medication Assisted Treatment
 - Safe Injection Sites
- Self-Esteem and Mental Health
 - Chronic discrimination affects mental/social health

Words Matter

- Use language that accurately reflects science
 - Scientific evidence that addiction is a brain disorder
 - Has a potential for recurrence
 - People can and do recover
- Use language that promotes evidence based treatment
 - Medication assisted treatment such as buprenorphine, methadone and naltrexone work
- Use language that demonstrates respect for patients/clients
 - People with SUDS often described as “junkies,” “crackheads,” “addicts” or other pejorative terms
 - Person who uses substances or person who injects drugs vs Substance abuser

**Stigma, judgement,
and discriminatory
attitudes toward
people with
substance use...**

**...is one of the
greatest barriers to
recovery.**



What Can We Do?

- There are ways to manage and challenge stigma
- Be aware that stigma intersects with other types of marginalization & oppression
- Meet people where they're at; even stigmatizers
- Change is hard, value incremental changes
- Educate, educate, educate
- Advocate, advocate, advocate



WE CAN DO THIS TOGETHER!

Summary

- Opioid epidemic with death rates continuing to rise
 - Initially driven by opioid over prescribing
 - Now, largely driven by fentanyl and its analogues
- Etiology of addiction is multifactorial, with genetic and environmental contributory factors
- Addiction is a chronic brain disease
- Access to all FDA-approved medications should be a mainstay of any agenda
- Eradication of stigma is a part of the solution



THANK YOU FROM ALL OF US

Thanks to:

Maryland-DC Society of Addiction Medicine ([MDDCSAM](#))

Maryland Association for the Treatment of Opioid
Dependence ([MATOD](#))

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Baltimore City Directorate

National Council on Alcoholism and Drug Dependence-
Maryland ([NCADD-MD](#))