



Legalized Marijuana and the Opioid Crisis: Implications for Dental Hygiene Practice

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Legalized Marijuana Learning Objectives

- Review how marijuana affects the body
- Learn about the current state of marijuana laws in Oregon and nationally
- Discuss dental health implications of marijuana use

But what do YOU want to know?



Many Forms of CO Marijuana

DISCREET MARIJUANA PRODUCTS FOR DABBING AND VAPORIZING



300+ TYPES OF EDIBLES



MARIJUANA HASH & CONCENTRATES



HASH



BUBBLE HASH



HASH OIL



WAX



SHATTER



LIQUID THC

Cannabis Effects in the Brain

- **Amygdala** - ↑ anxiety/panic attacks, reduced traumatic memories, ↓ hostility
- **Brain stem** - anti-nausea, ↓ BP; drowsiness, ↓ pain and tremor
- **Cerebellum** - ↓ coordination
- **Cerebral cortex** - altered consciousness, memory impairment, distorted perceptions, hallucination
- **Hippocampus** - impaired memory function
- **Hypothalamus** - ↑ appetite



YOUR BRAIN



MARIJUANA

THC vs. CBD



Delta-9 tetrahydrocannabinol (THC) and **Cannabidiol (CBD)**, both active in marijuana, have different and sometimes opposite effects.



THC is psychoactive and largely responsible for the marijuana high.
CBD, however, is non-psychoactive.



THC vs. CBD



THC isolated in pharmaceuticals is useful as anti-nausea and anti-vomiting agent for cancer and AIDS patients, but **CBD** (or **CBD-THC** combination medications) appears to have a broader therapeutic potential.



CBD has shown to be effective in treating a wide range of conditions, including neurological disorders like epilepsy and some anxiety disorders, as well as post-traumatic stress syndrome in conjunction with **THC**.



Both **CBD** and **THC** interact in different ways with the body's own endocannabinoid system, mimicking specific neurotransmitters that help regulate everything from mood to appetite to sleep patterns and other crucial functions.



As of mid 2017, **CBD** medication called Epidiolex was undergoing clinical trials for rare childhood seizure conditions.



THC vs. CBD



Synthetic **THC** medications in the form of Marinol (dronabinol) and Cesamet (nabilone) have been available to cancer and AIDS patients for decades, approved to prevent nausea and vomiting and increase appetite.



THC and **CBD** have both been studied as anti-pain medications, especially for neuropathic pain which are difficult to control with traditional opioid treatments. Results about the effectiveness have been mixed, however.



Sativex is a **CBD-THC** combination drug manufactured by the British company GW Pharmaceuticals. It has been tested for a number of different psychological and physical conditions, but it is not approved for use in the U.S.



CBD and **THC**, along with the other cannabinoids and terpenes in whole marijuana, work to modulate each other's effects in a phenomenon called the "entourage effect." Scientists don't yet understand exactly how this works.

The Health Effects of Cannabis and Cannabinoids

- A Jan 2017 National Academies of Sciences, Engineering, and Medicine (NASEM) ~400 page report used more than 10,700 abstracts of papers published in peer-reviewed journals since 1999.
- The results are extensive and a bit all over the place, so let's watch a nice explanation from our friend Dr. Carroll...

What We Know about Pot in 2017 - Feb 2017

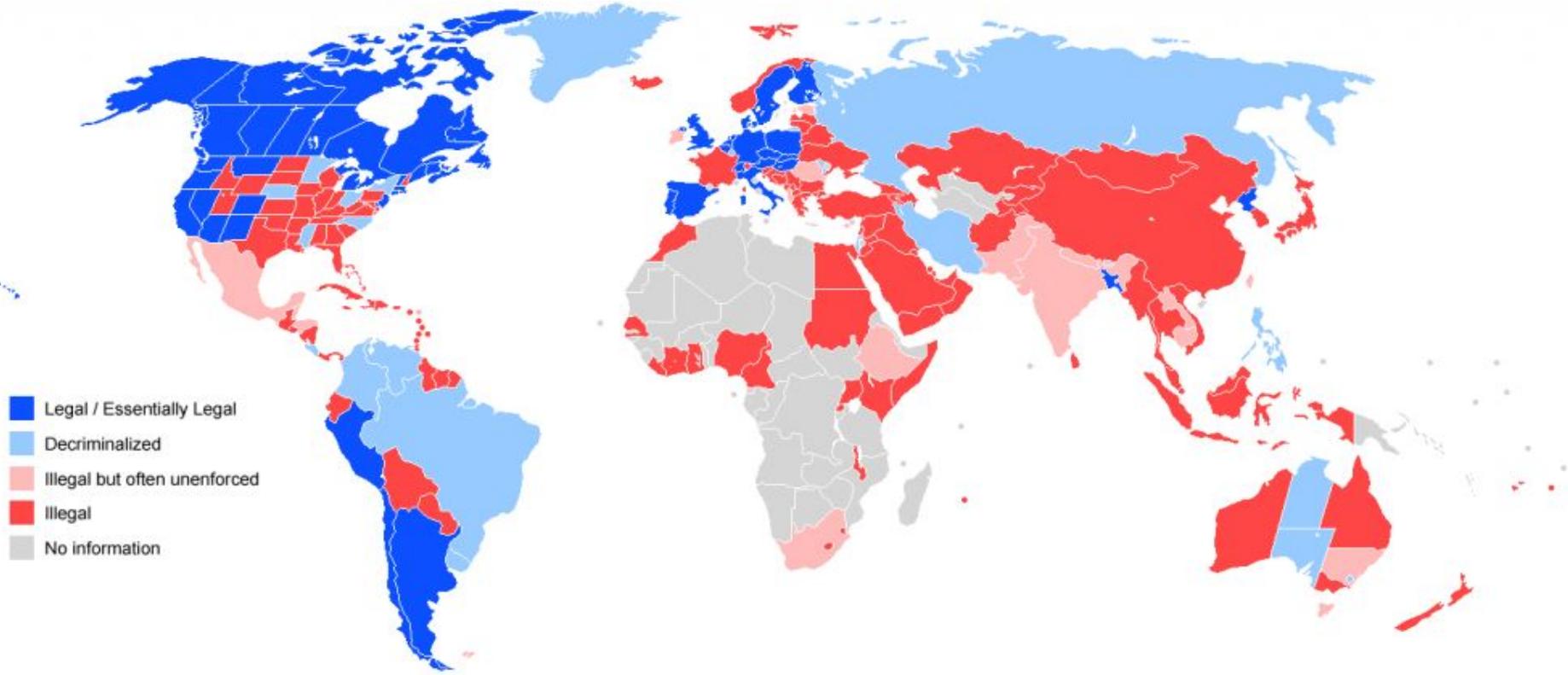


AN UPDATE ON POT

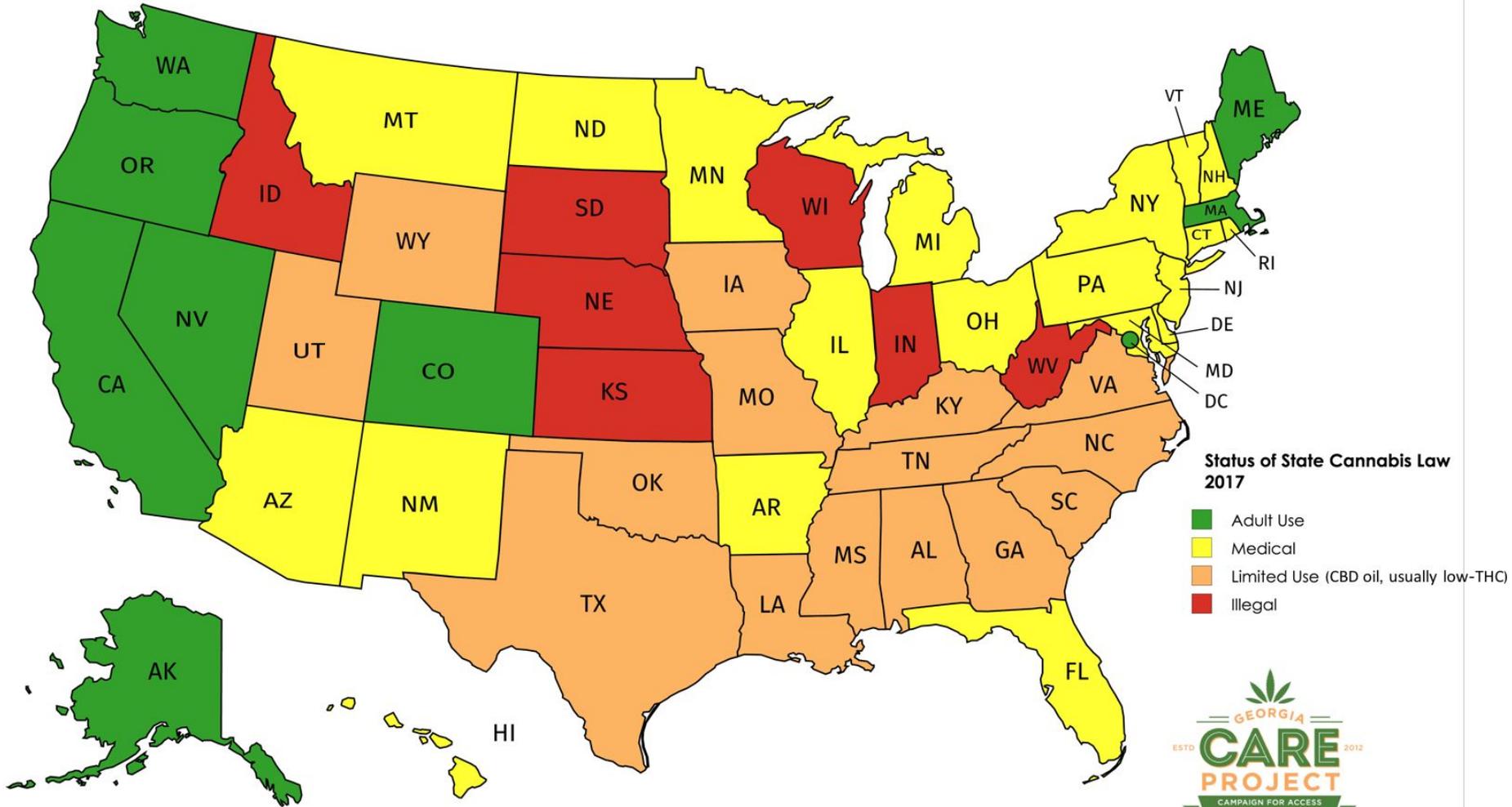
What was your biggest surprise?



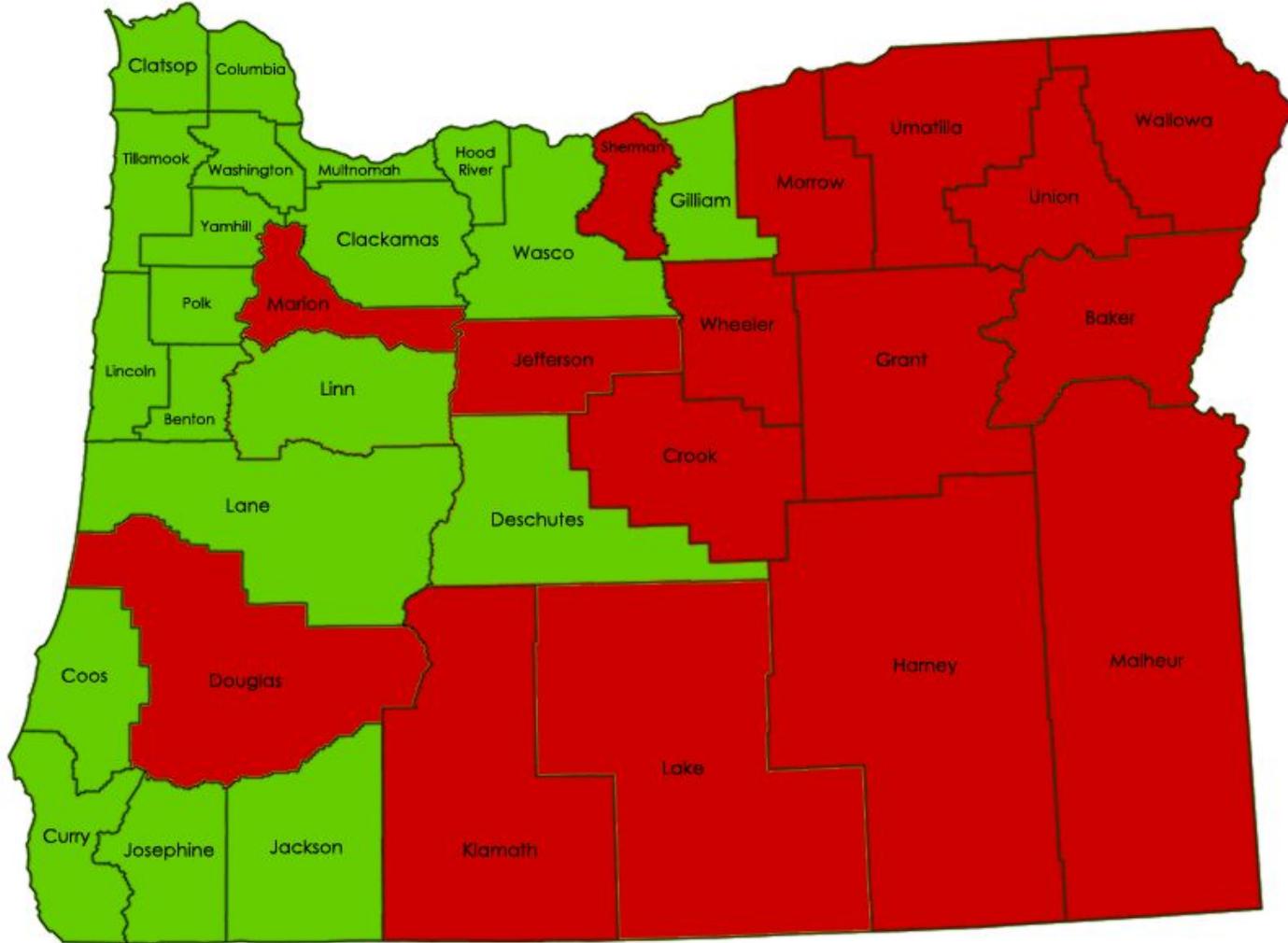
Global Medical Cannabis Landscape

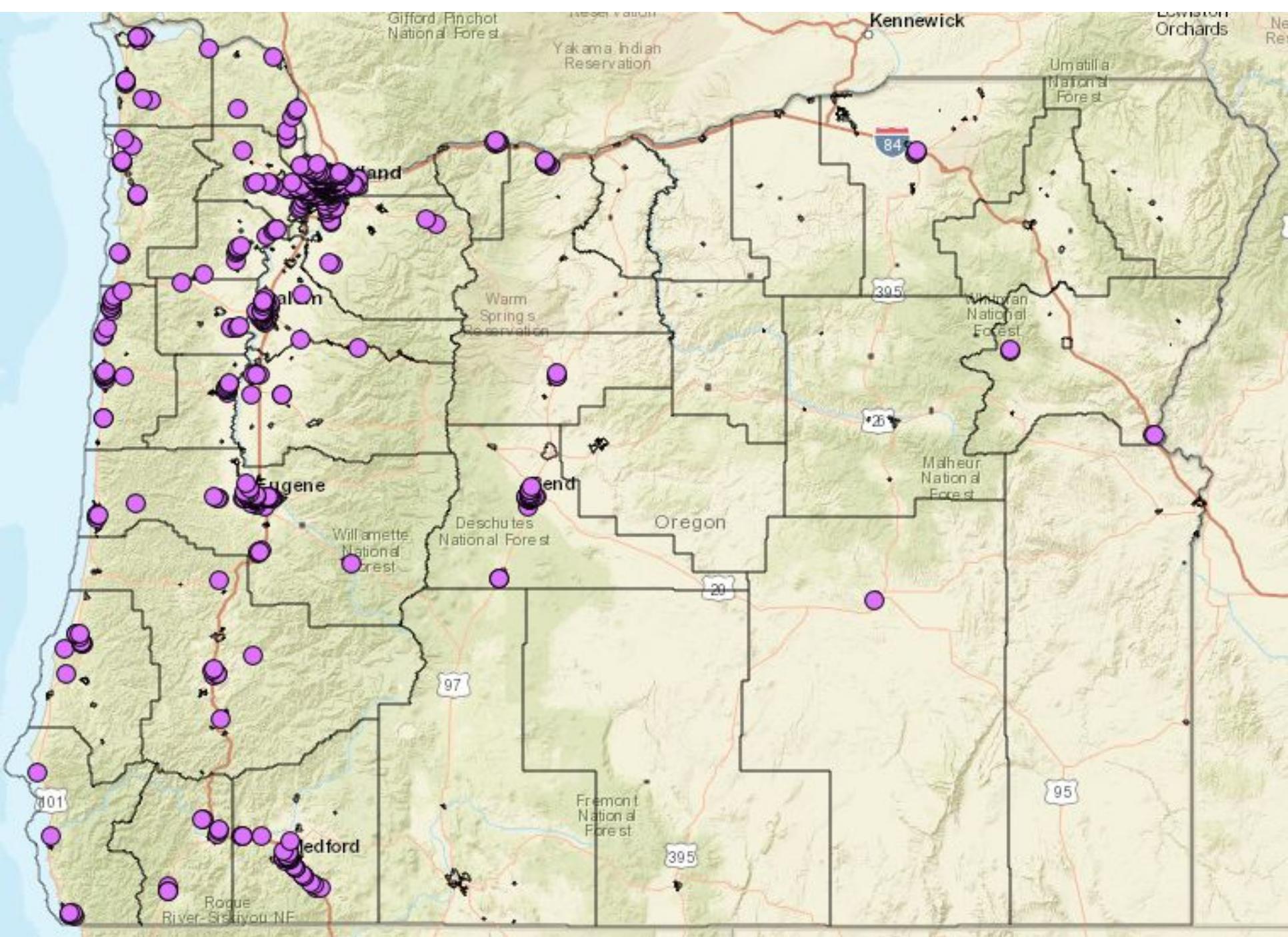


Status of State Cannabis Laws in 2017



Oregon Counties Banning Recreational Marijuana Sales





Oregon Marijuana Law

21+

You can possess, use and buy recreational marijuana if you are 21 and older. If you are younger, it's illegal.



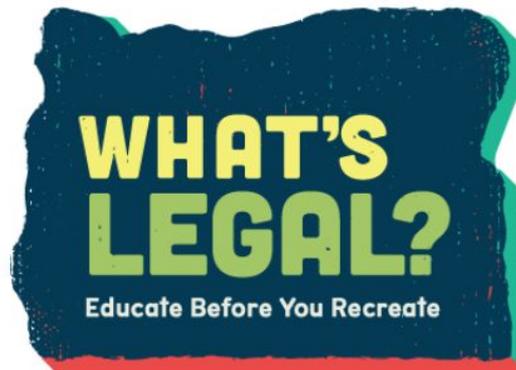
OLCC-licensed retail stores may sell marijuana to recreational users or OMMP patients. You may also grow your own or receive it as a gift.



There are limits to how much recreational marijuana you may possess, both in public or in private.



Gifting and giveaways by individuals is allowed, but may not include any financial consideration.



Driving under the influence of marijuana remains illegal. Please be responsible.

Oregon Possession Limits

If you are 21+ and on public property, you may possess:

- 1 ounce of usable cannabis (i.e. dried flower)
- 1 ounce of cannabis concentrates or extracts
 - Note: Cannabis concentrates must be purchased from a licensed retail location, possession of homemade concentrates remains illegal.
- 16 ounces of cannabis edibles in solid form
- 72 ounces of cannabis products in liquid form
- 10 cannabis seeds
- 4 immature cannabis plants

If you are 21+ and on private property, you may possess:

- Up to 8 ounces of usable cannabis (i.e. dried flower)
- All other limits remain the same as public possession.

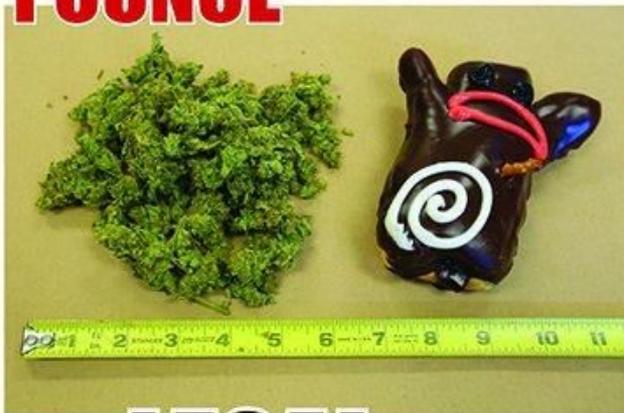
POSSESSING MARIJUANA:

a visual aid

PORTLAND POLICE BUREAU

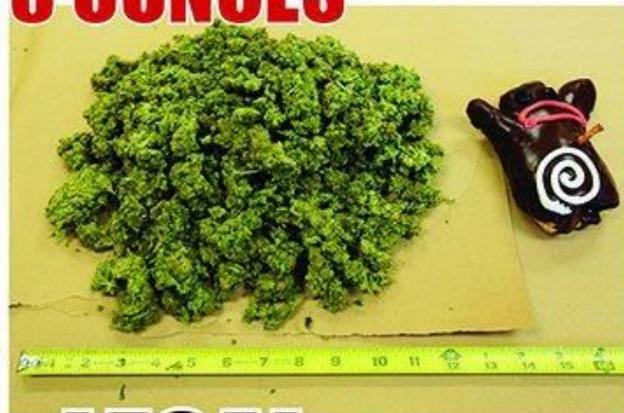
Sworn to Protect  Dedicated to Serve

1 OUNCE



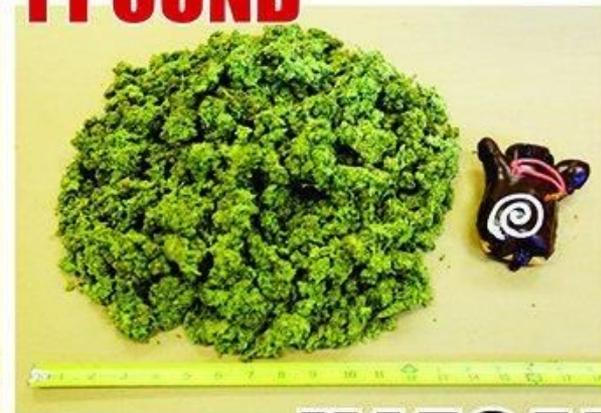
LEGAL on person

8 OUNCES



LEGAL in household

1 POUND

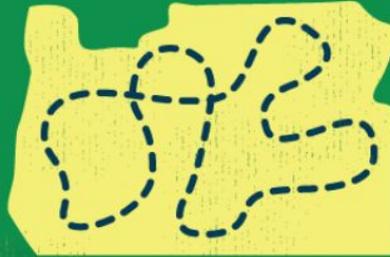


ILLEGAL

Oregon Marijuana Law



Adults 21 and older can use recreational marijuana at home or on private property. You can't use recreational marijuana in public places.



You cannot take marijuana in or out of the state, even to other states where it is legal.



Oregon is committed to creating a well regulated industry, and to preventing underage marijuana use.

***DISCLAIMER: Employers, landlords and licensing bodies maintain discretion to enforce their own regulations as far as the use, possession and cultivation of marijuana by employees, tenants and licensees. Federally recognized Tribes are subject to their own governance and may or may not permit marijuana on their sovereign land. Marijuana is not allowed on federal land.**

Oregon Marijuana Law

- OLCC regulated
- Still Schedule 1 Federally
- Banking issues unresolved = cash industry
- Cities and Counties may opt out of licensing:

	Cities	Counties	Total
No Voter Referral	74	16	90
2018 Voter Referral	4	0	4
Total	78	16	94

Questions?



Marijuana Dental Implications

- JAMA study followed 1027 routine recreational cannabis users over 20 years
- Cannabis use = poor periodontal health, even after controlling for tobacco pack-years, childhood health and SES, brushing and flossing, and alcohol dependence
- Periodontal measurements for combined attachment loss obtained using half-mouth design at age 26 and full-mouth at age 38

Marijuana Dental Implications

Table 2. Associations Between Tobacco and Cannabis Use From Ages 18 to 38 Years and Health at Age 38 Years

	% or Mean as a Function of Use, Adjusted for Sex ^a					Statistical Tests ^b	
	Never Used Tobacco Daily/Never Used Cannabis	<5 y/No Diagnosis	5 to <10 y/1 Diagnosis	10 to <15 y/2 Diagnoses	≥15 y/≥3 Diagnoses	Model 1, Bivariate ^c	
						β (95% CI)	P Value
Periodontal Health, Mean Attachment Loss Across Sites, mm							
Pack-years	1.37	1.44	1.63	1.79	2.32	0.50 (0.45 to 0.56)	<.001
Joint-years	1.41	1.57	2.08	2.21	2.51	0.33 (0.26 to 0.39)	<.001
Cannabis dependence	1.41	1.57	1.75	2.06	2.58	0.33 (0.27 to 0.39)	<.001

Marijuana Dental Implications

- A limited number of studies reported cannabis associated gingival enlargement similar to phenytoin-induced gingival enlargement.
- Journal of Periodontology study concluded that cannabis use is associated with deeper probing depths, more attachment loss, and higher odds of having severe periodontitis.

IT'S A QUESTION PARTY!

Questions?

MY FAVORITE!



Let's Talk About Opioids...

Opioid Crisis Learning Objectives

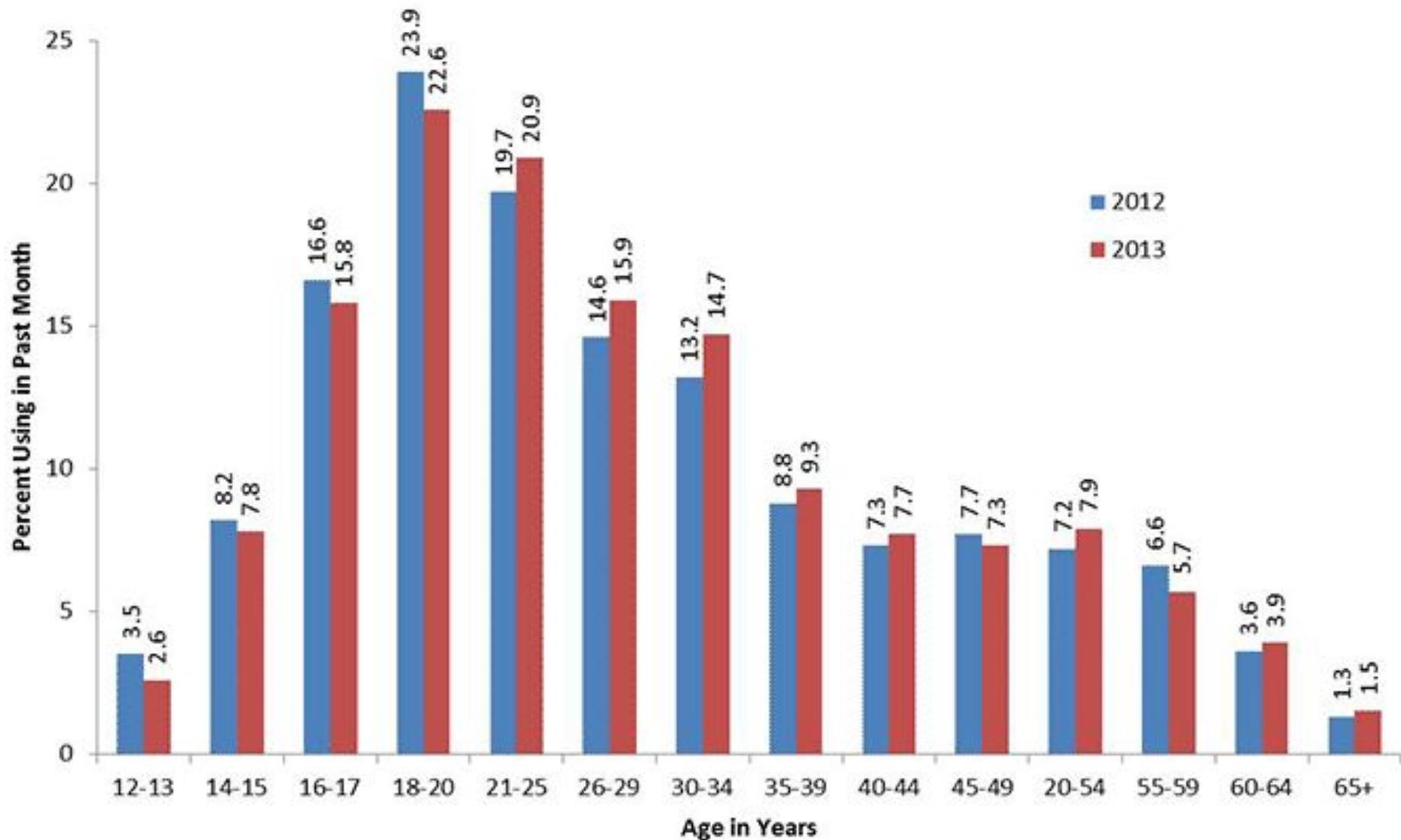
- Review data regarding opiate abuse in the U.S.
- Discuss examples of the crisis.
- Recognize efforts to address the situation.
- Discuss oral health considerations for patients with potential opioid use issues.



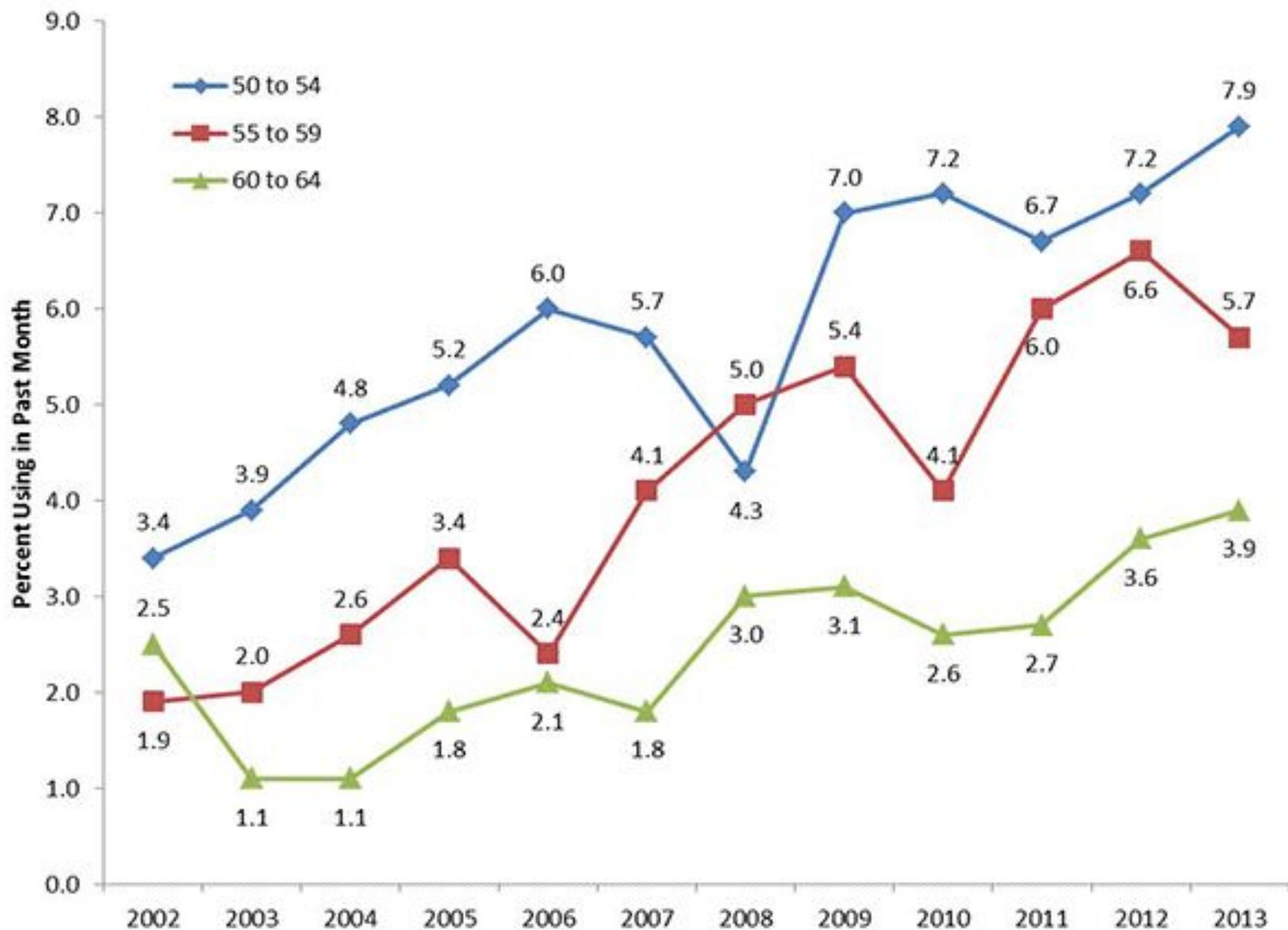
Sobering Opioid Facts

- Opioid overdoses = leading cause of death under 50
- Teenage overdoses increased 20% in 2015, most related to opioids
- Following a 10 day supply of opioids, 1 in 5 (20%) may become long term users.
- > 90 Americans die every day from an opioid overdose.
- 80% of the global opioid supply is consumed in the U.S.
- ~80% of heroin users reported misusing Rx opioids first.
- In 2015, they cost the US economy more than \$500 billion.

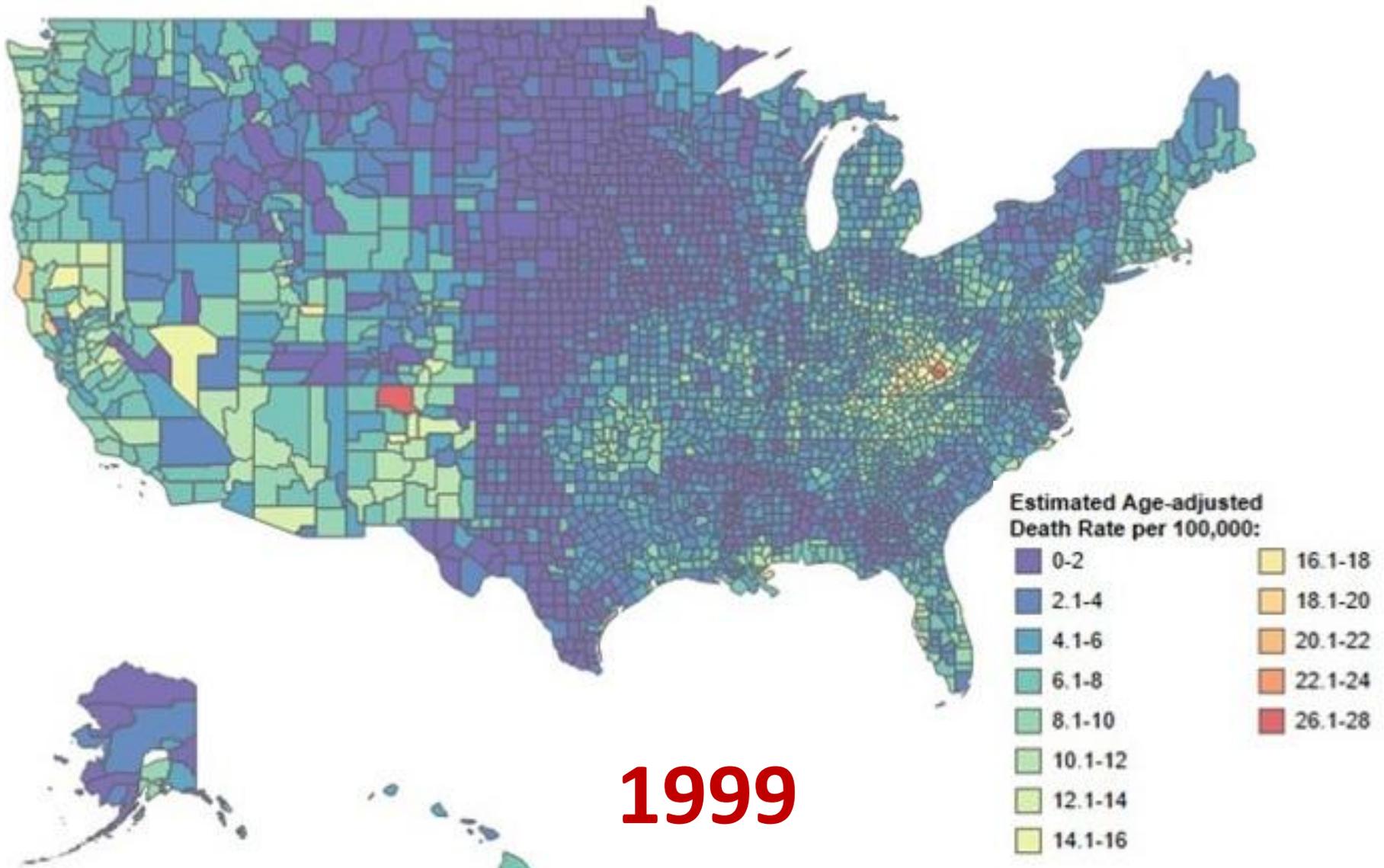
Past-Month Illicit Drug Use by Age 2012 and 2013



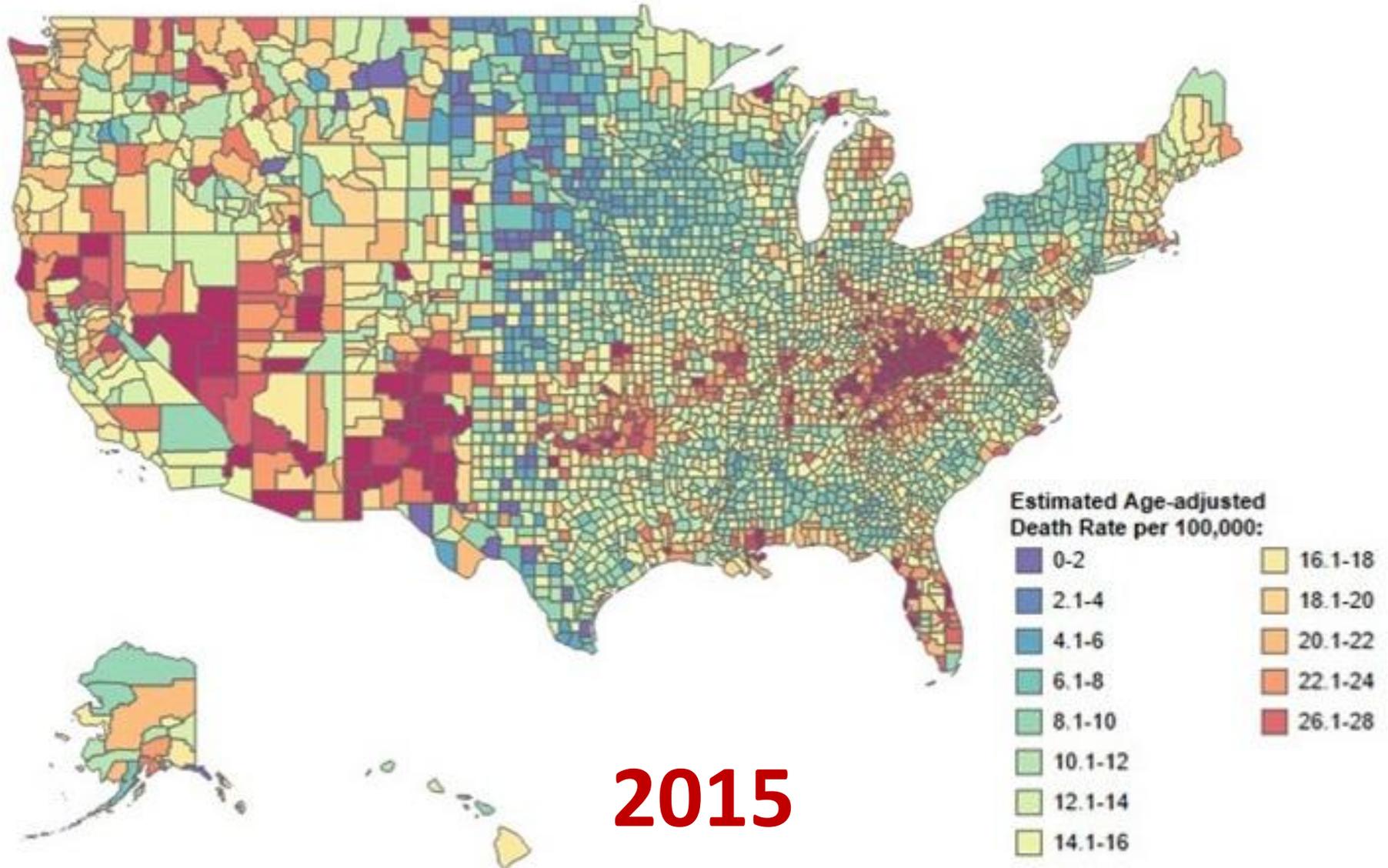
Past-Month Illicit Drug Use Among Adults Aged 50 to 64



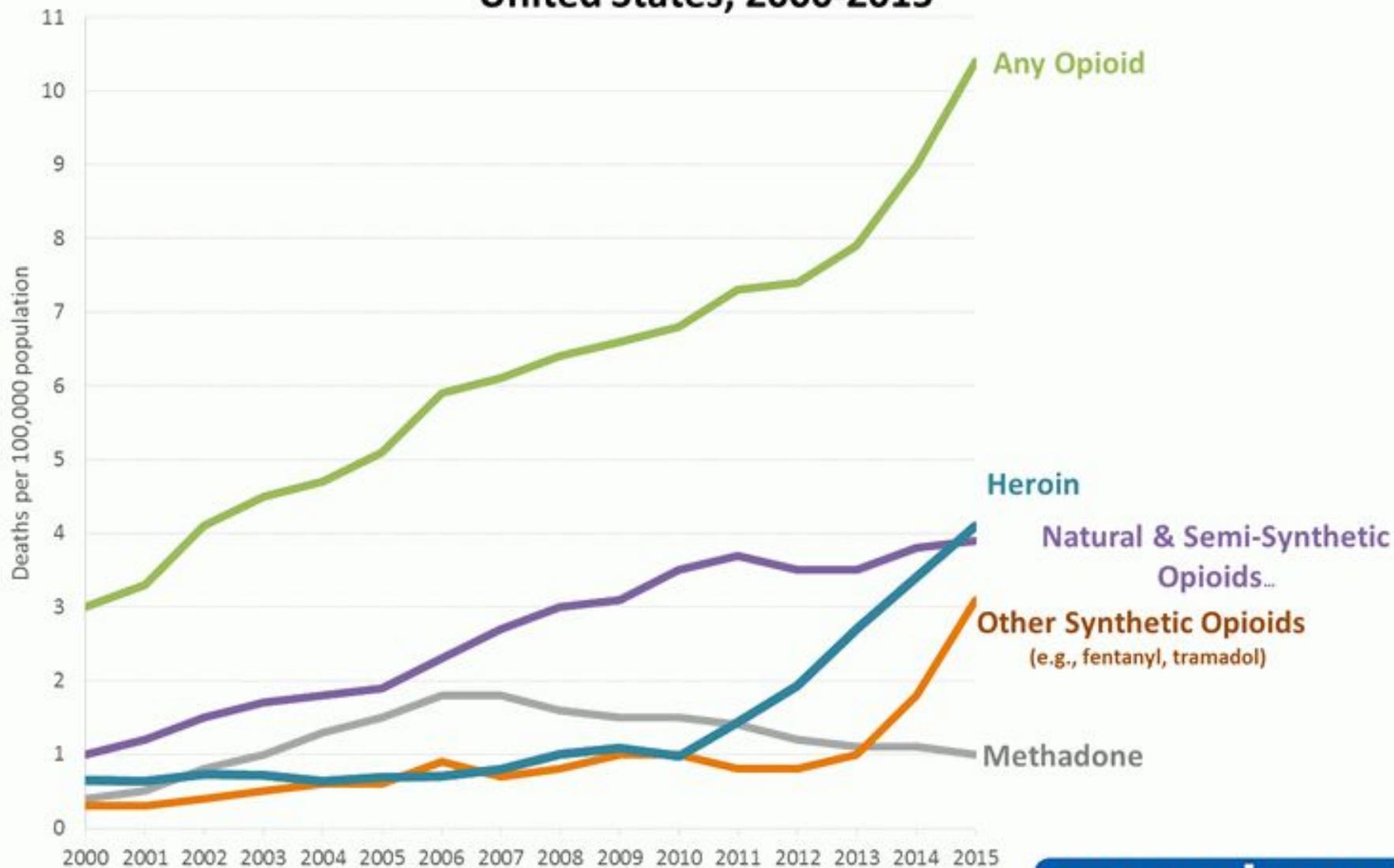
Marked Geographic and Temporal Variation in Overdose Deaths : Estimated Age-adjusted Death Rates for Drug Poisoning by County



Marked Geographic and Temporal Variation in Overdose Deaths : Estimated Age-adjusted Death Rates for Drug Poisoning by County



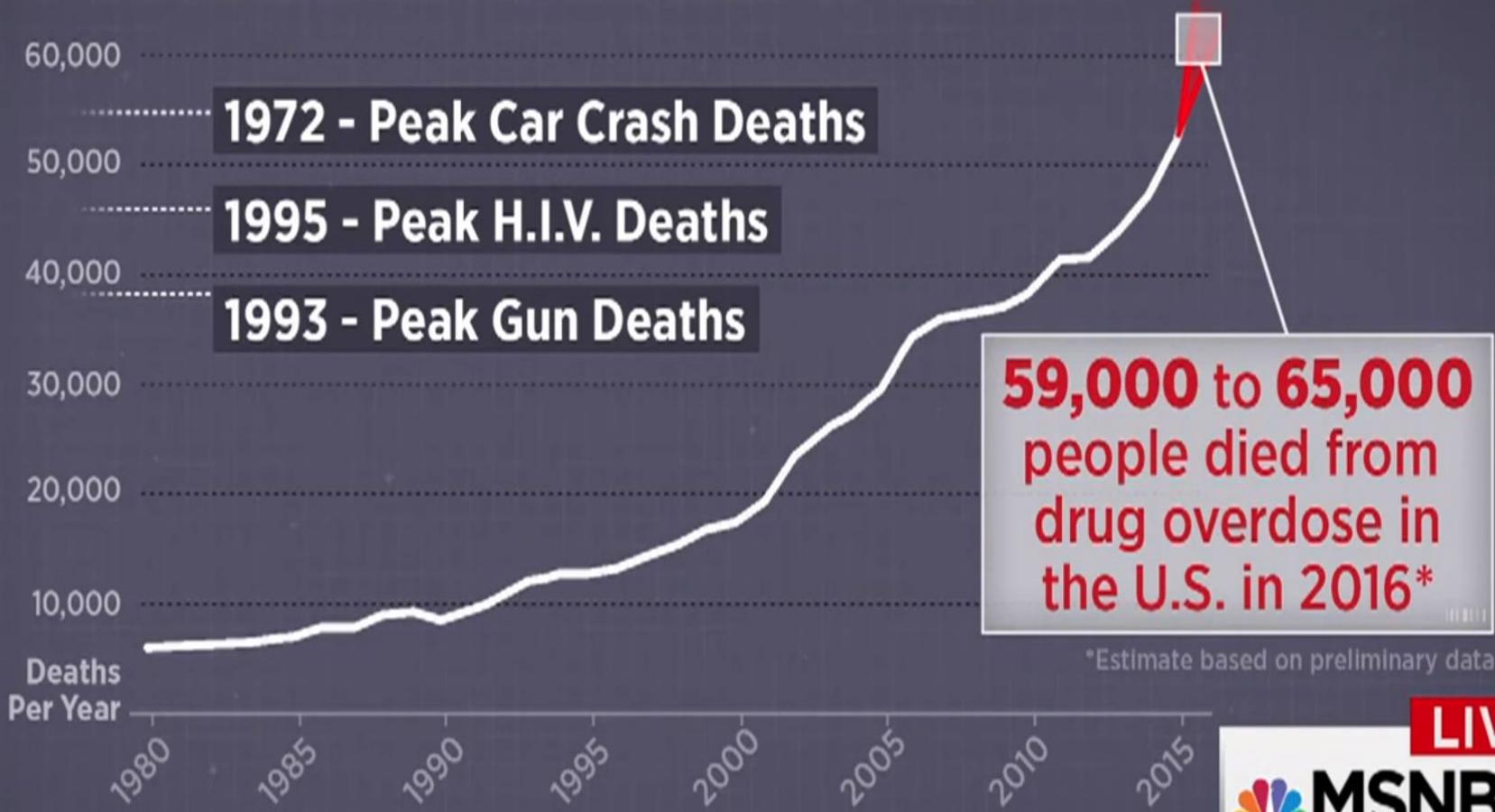
Overdose Deaths Involving Opioids, by Type of Opioid, United States, 2000-2015



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/>.

DRUG OVERDOSE DEATHS, 1980 TO 2016

The New York Times



59,000 to 65,000
people died from
drug overdose in
the U.S. in 2016*

*Estimate based on preliminary data

LIVE

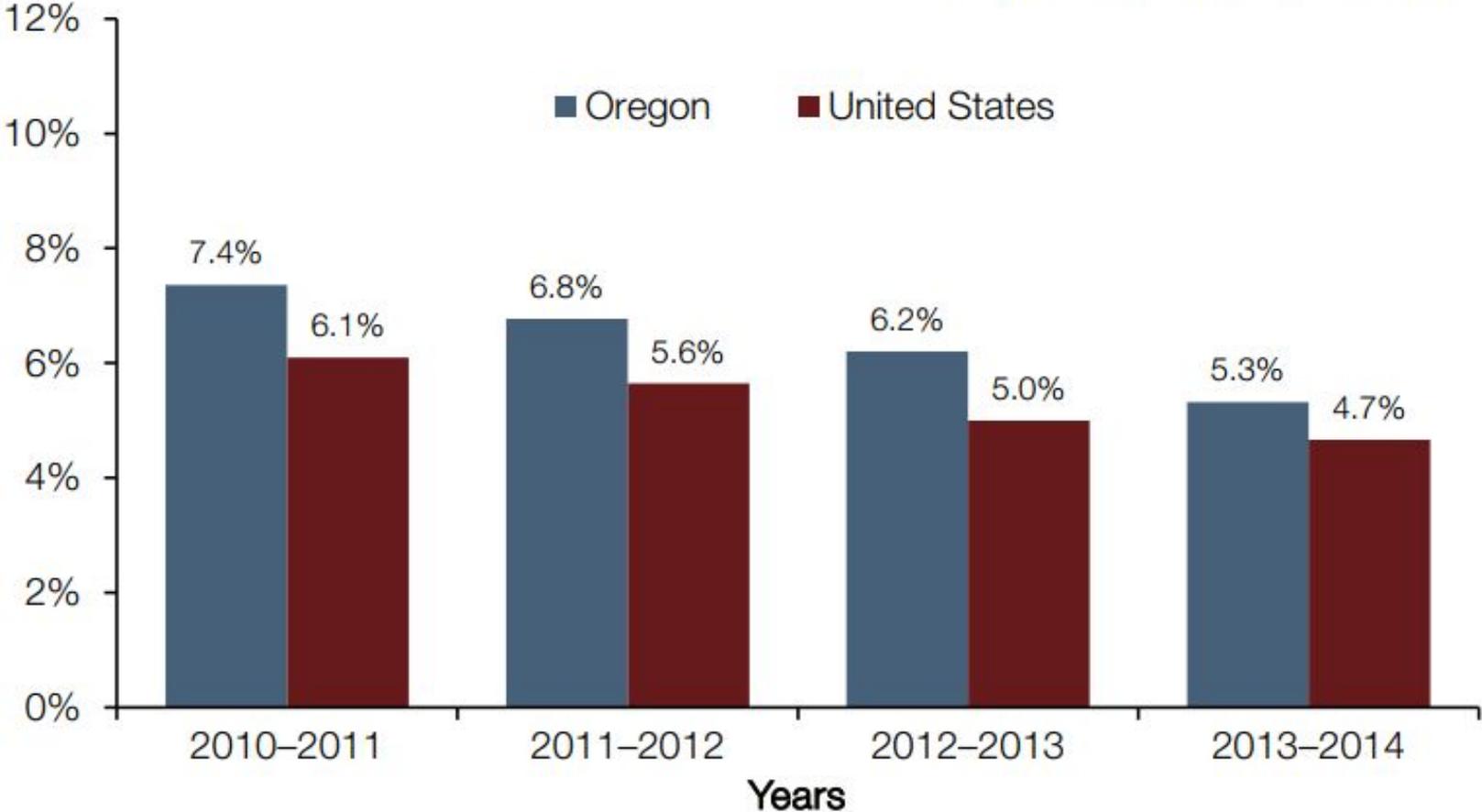


Past Year Nonmedical Use of Pain Relievers Among Adolescents Aged 12–17 in Oregon and the United States (2010–2011 to 2013–2014)¹

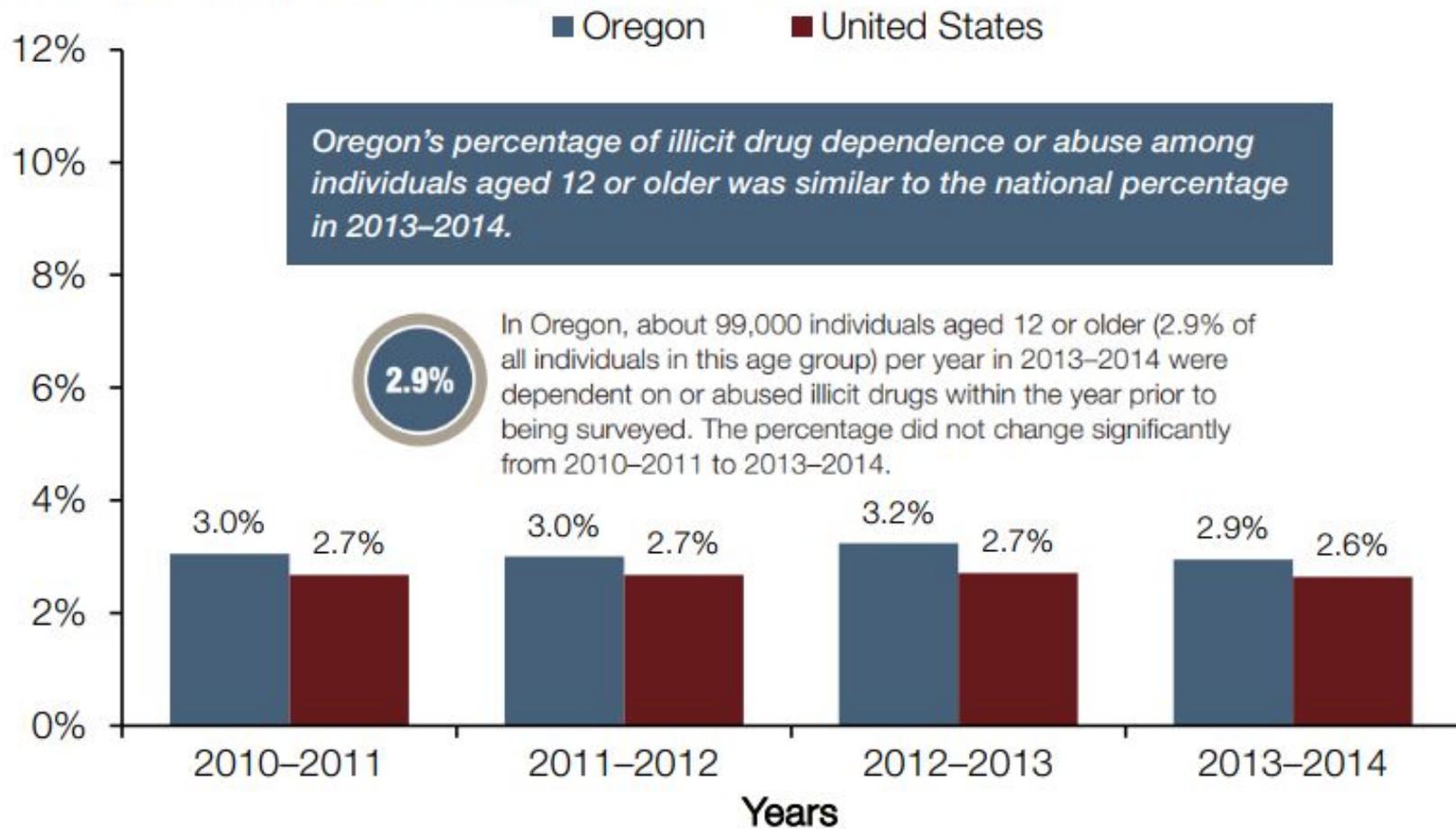
Oregon's percentage of nonmedical use of pain relievers among adolescents aged 12–17 was similar to the national percentage in 2013–2014.

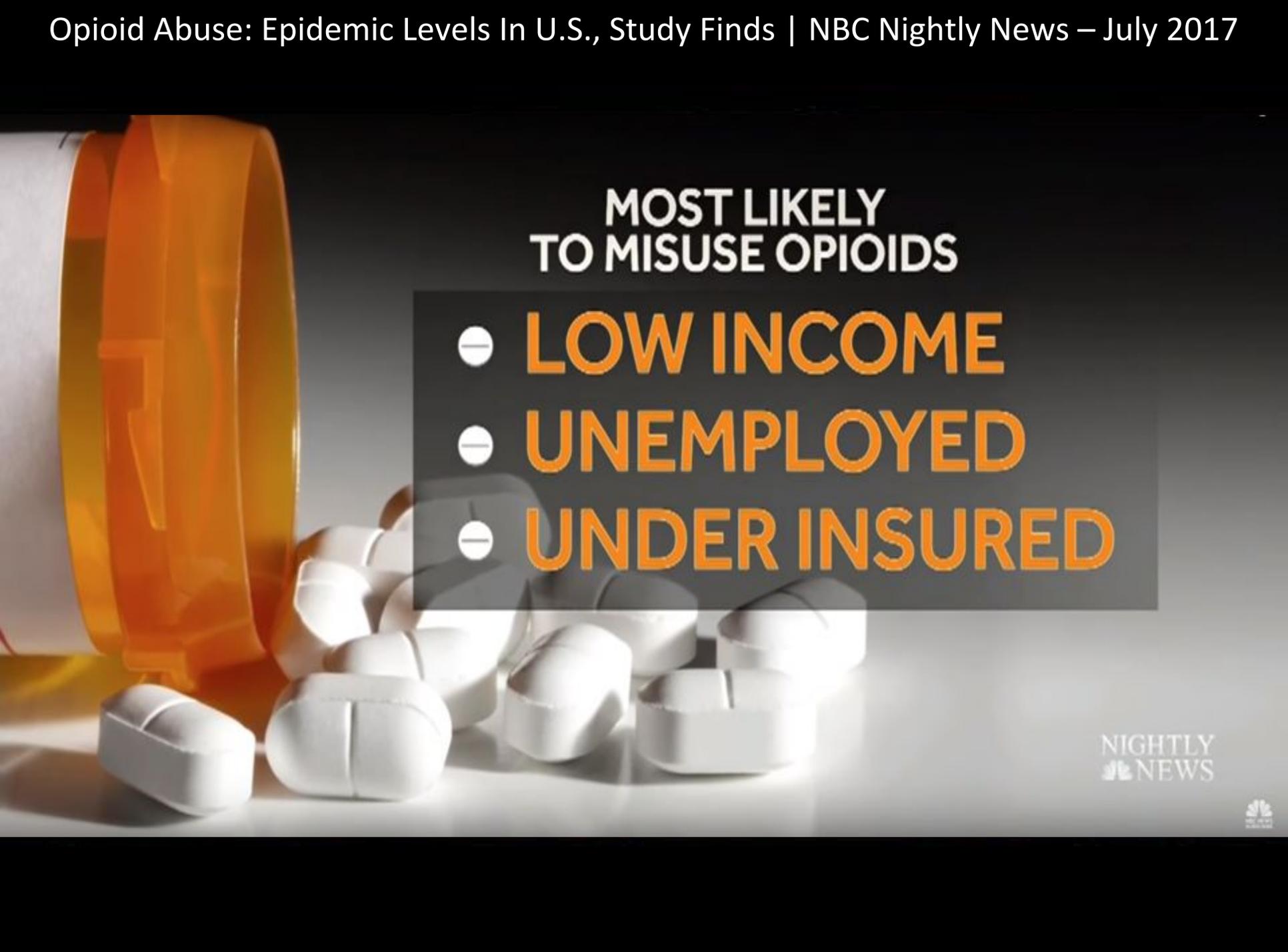
5.3%

In Oregon, about 15,000 adolescents aged 12–17 (5.3% of all adolescents) per year in 2013–2014 reported nonmedical use of pain relievers within the year prior to being surveyed. The percentage decreased from 2010–2011 to 2013–2014.



Past Year Illicit Drug Dependence or Abuse Among Individuals Aged 12 or Older in Oregon and the United States (2010–2011 to 2013–2014)¹





**MOST LIKELY
TO MISUSE OPIOIDS**

- **LOW INCOME**
- **UNEMPLOYED**
- **UNDER INSURED**

What Can DH's Do?

- You are well situated to broach the subject
- You review med use & can screen for abuse
- You can build trust and rapport over time
- You see them regularly enough to notice changes
- You may be the ONLY medical contact they have
- You have a “captive audience”

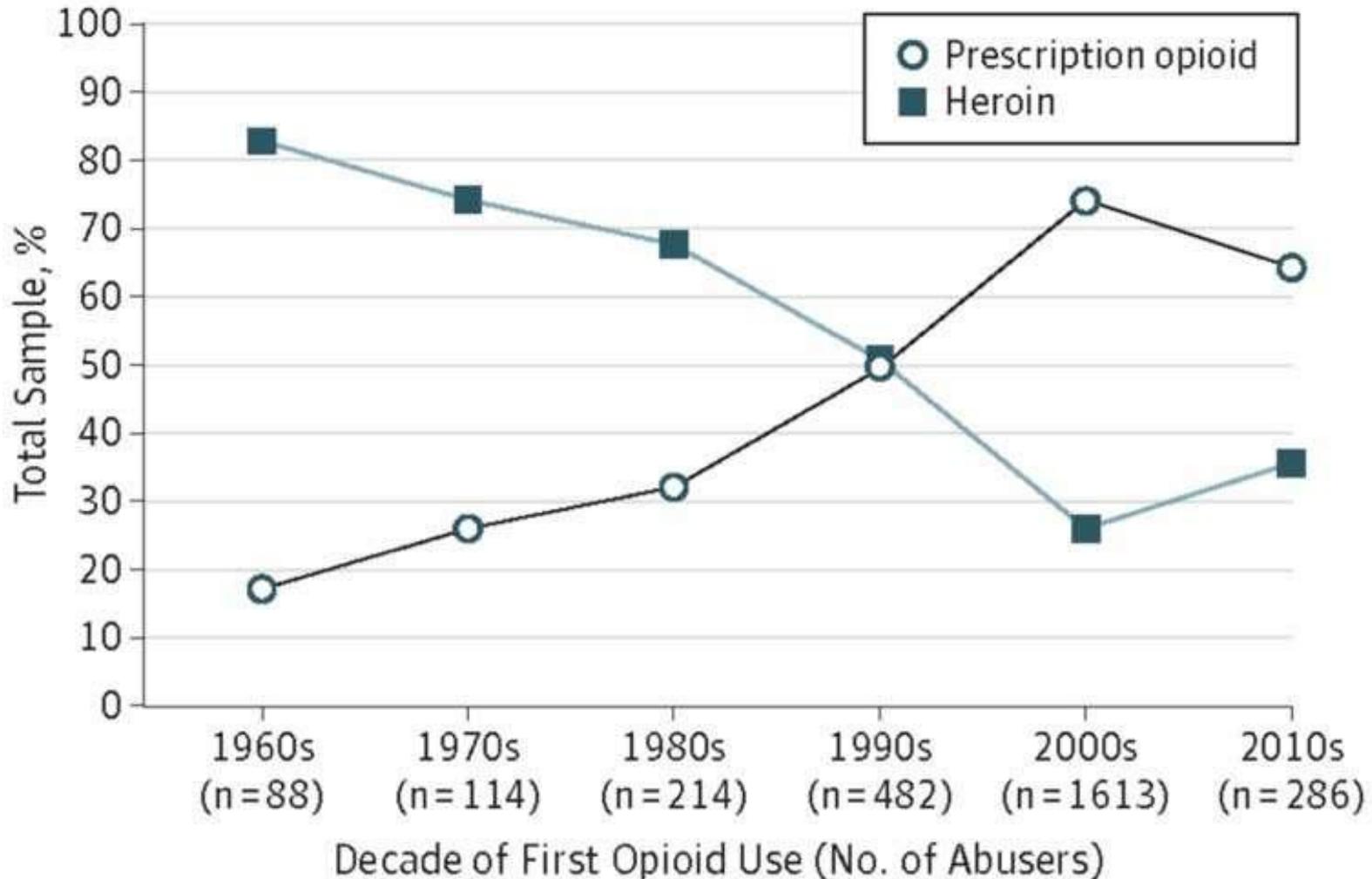
What Can DH's Do?

- Identify and Help Your Patients
- Screen for opioid misuse
- Offer resources for treatment
- Provide effective oral health care to this population

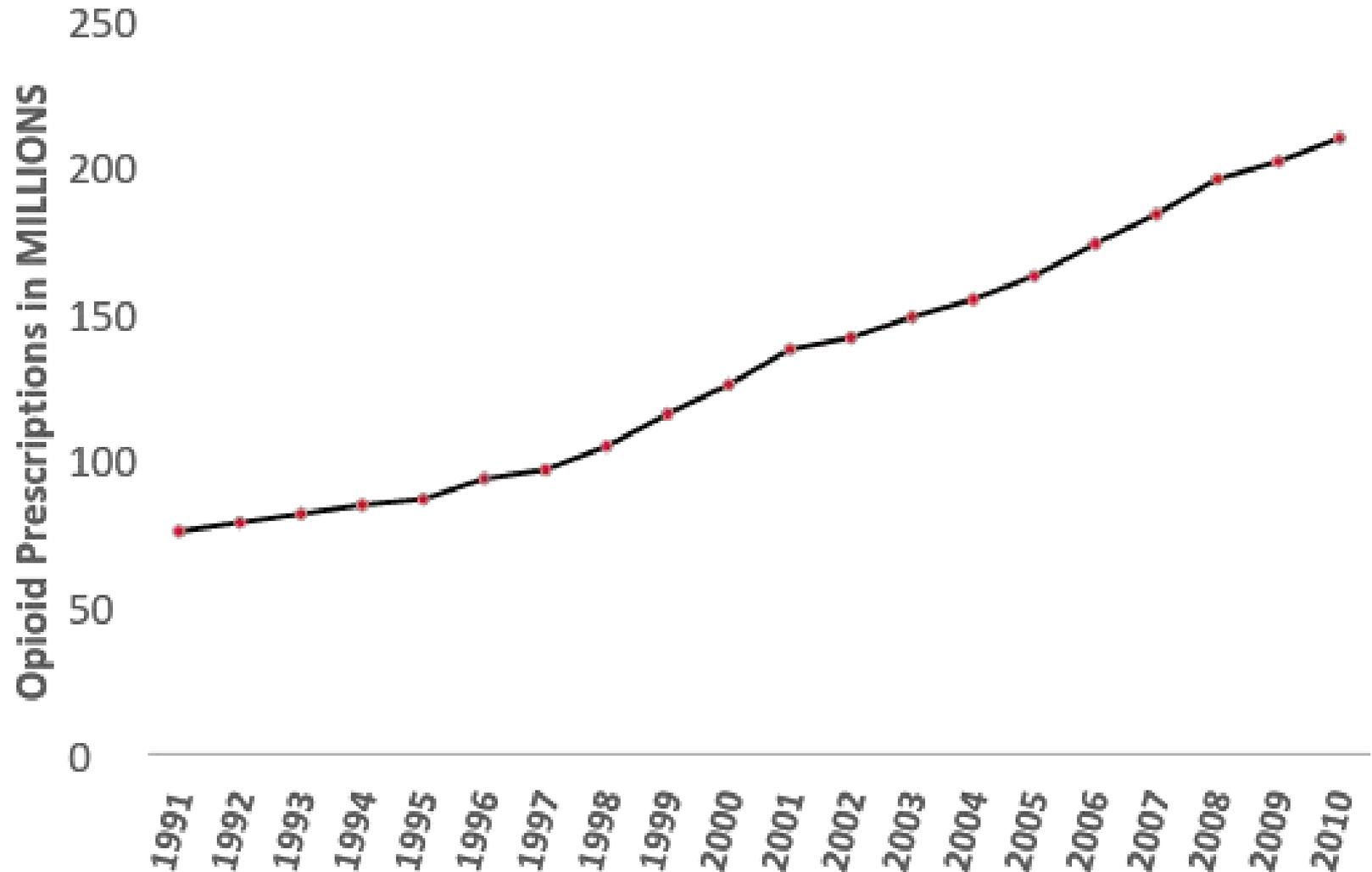
Questions?



Percentage of the total heroin-dependent sample that used heroin or a prescription opioid as their first opioid of abuse. Source: Cicero et al., 2014



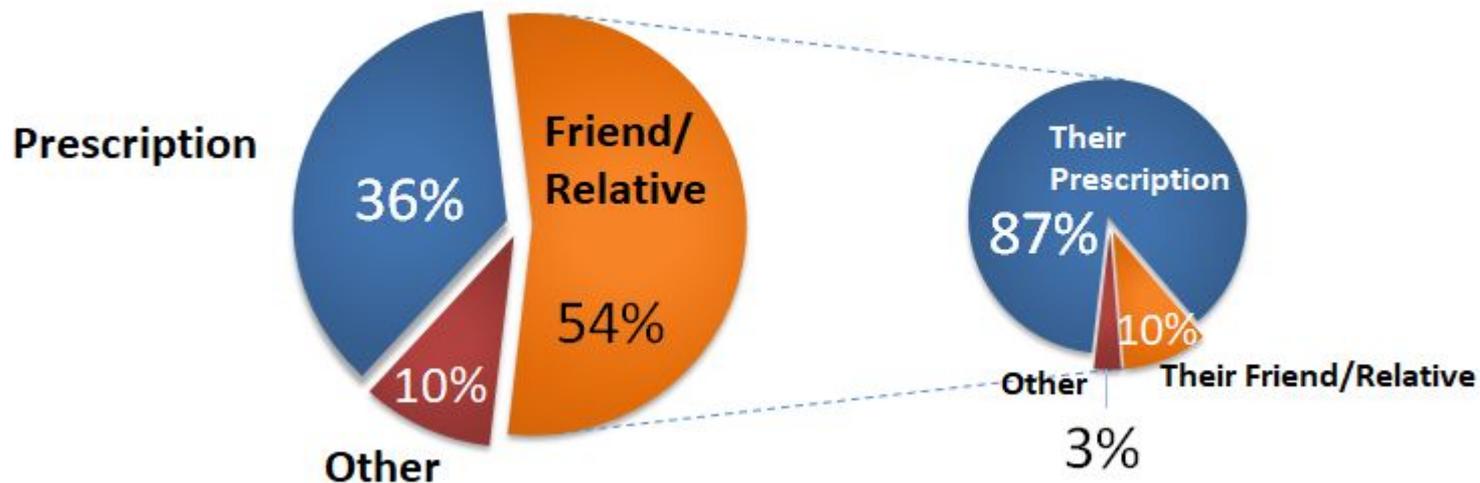
Opioid Crisis Driven by Increased Prescribing



Opioid Crisis Driven by Increased Prescribing

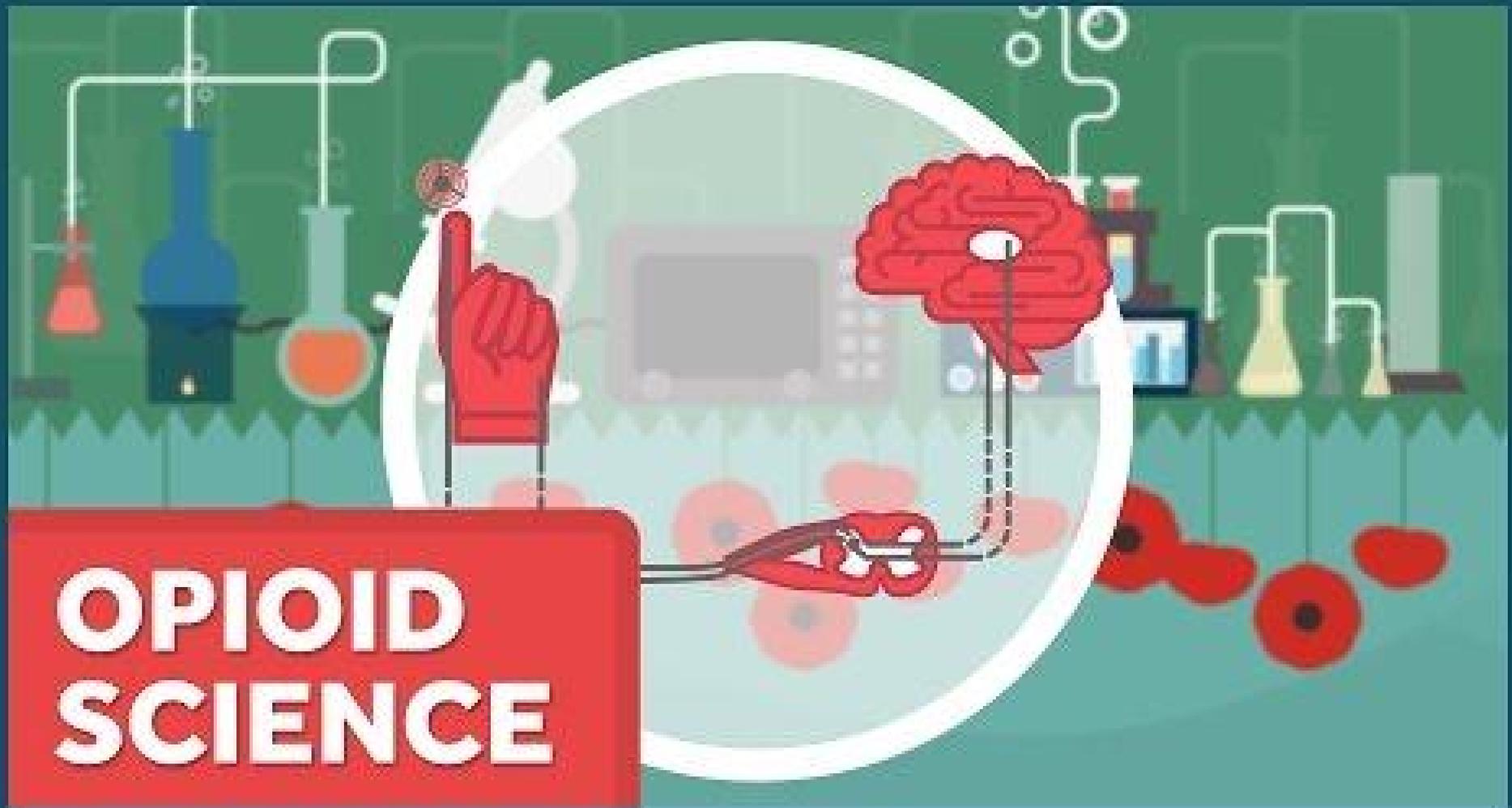
- Opioid prescriptions have *More than Tripled* since 1995
- People misusing opiates *Directly & Indirectly* obtain them by Rx

Source where pain relievers obtained for most recent misuse



Source: SAMHSA, 2015 National Survey on Drug Use and Health.

The Science of Opioids - May 2016

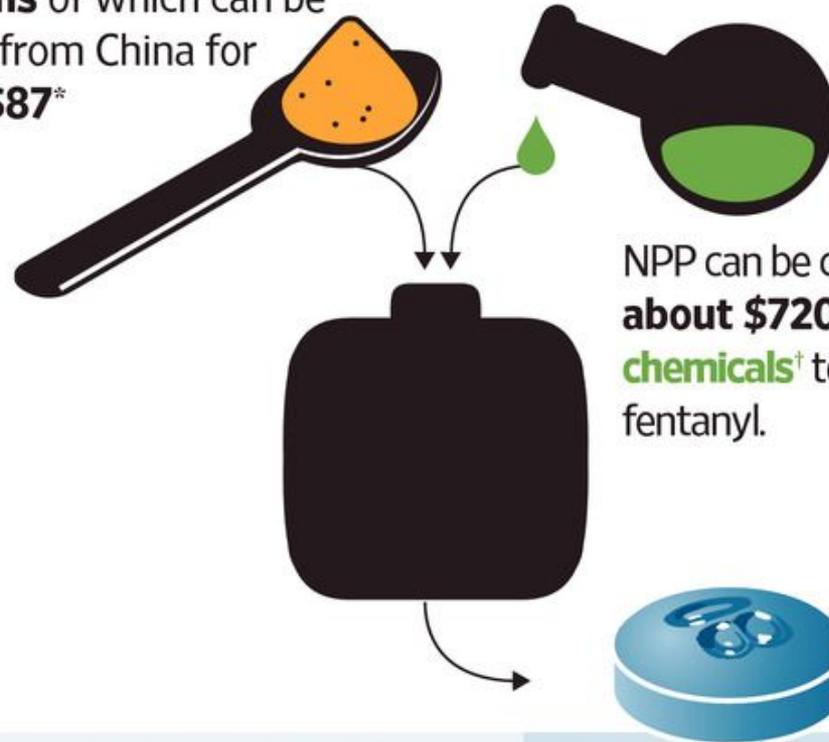


ECONOMICS:
CHEAP
Fentanyl
Precursor
Chemicals

Criminal Chemistry

Traffickers manufacturing fentanyl often purchase the key ingredient from China, which doesn't regulate its sale. Here's how the chemical building blocks become a highly profitable street drug.

The key ingredient is **NPP**,
25 grams of which can be
bought from China for
about **\$87***



NPP can be combined with
about **\$720** of **other
chemicals†** to produce
fentanyl.

The resulting 25 grams of
fentanyl cost about **\$810** to
produce...

...and are equivalent to up to
\$800,000 of pills on the black
market.

*Average current price from Chinese suppliers

†Prices from U.S. suppliers

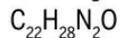
Sources: NES Inc.; Drug Enforcement Administration;
Calgary Police

THE WALL STREET JOURNAL.

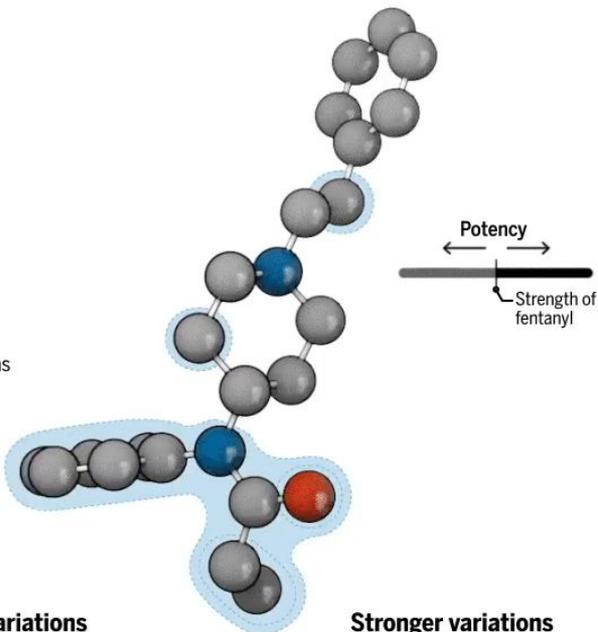
Opiates 2.0

By adding chemical groups, illicit chemists in China have created new analogs of fentanyl, some of them even more potent than the original. Many are sold openly to U.S. buyers as “research chemicals.”

Fentanyl



- Modification areas
- Carbon
- Oxygen
- Nitrogen
- Missing

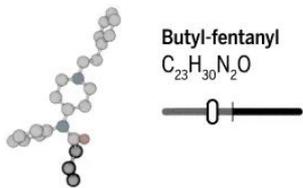
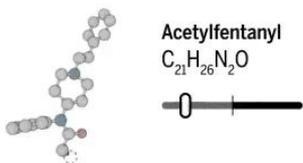


Two milligrams of fentanyl—just a few grains clinging to a sample vial—is a lethal dose. AP PHOTO/CLIFF OWEN

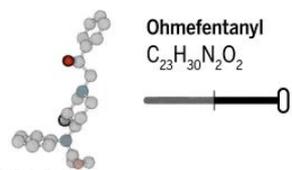
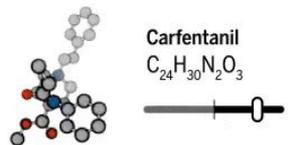
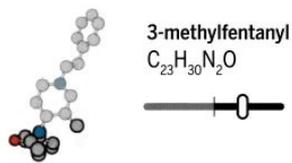
Canadian police seized these printer ink bottles from China full of carfentanil, which is 10,000 times more potent than morphine.

ROYAL CANADIAN MOUNTED POLICE

Weaker variations



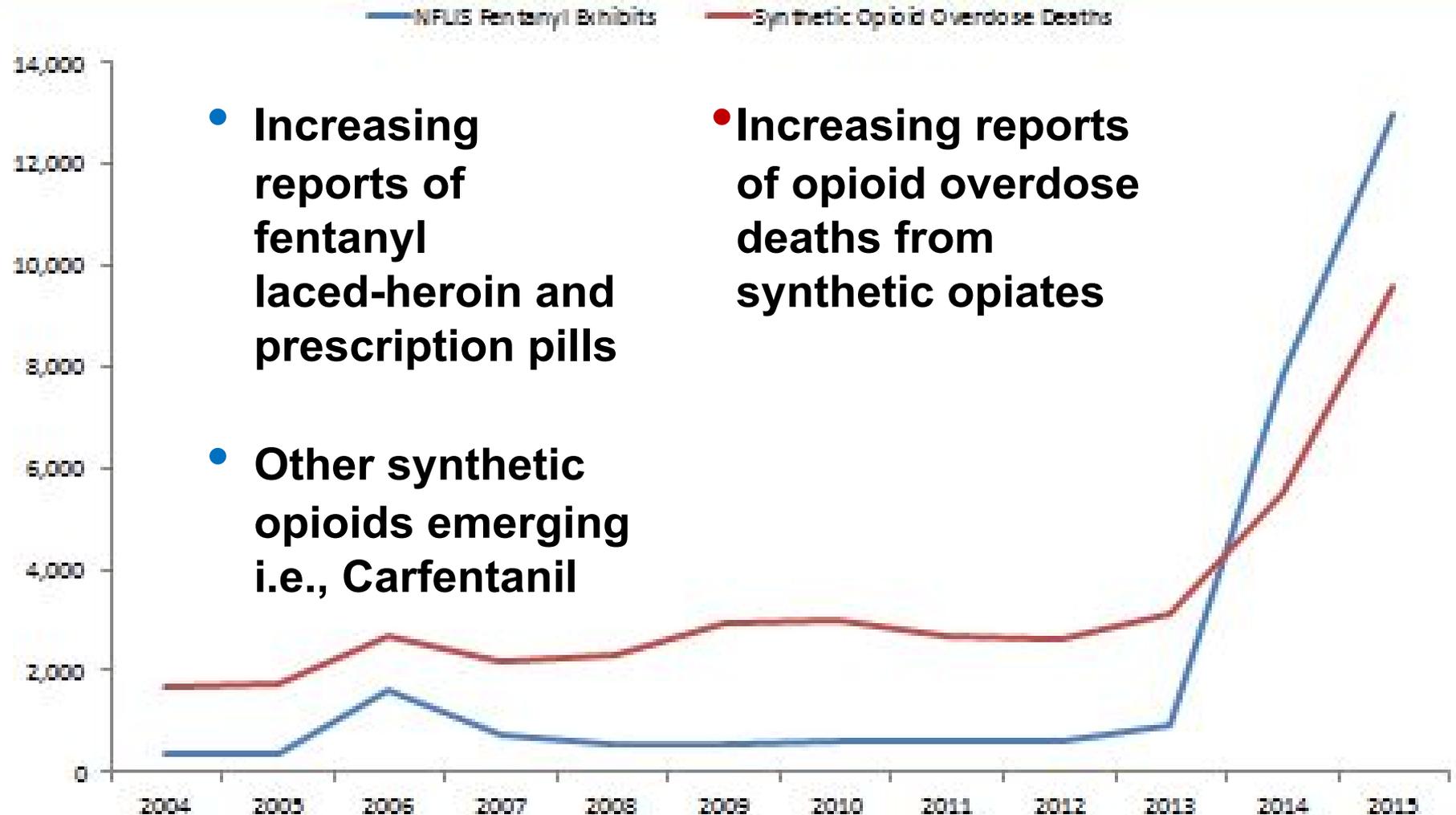
Stronger variations



V. Altounian/Science



Synthetic opioid deaths closely linked to illicit fentanyl supply



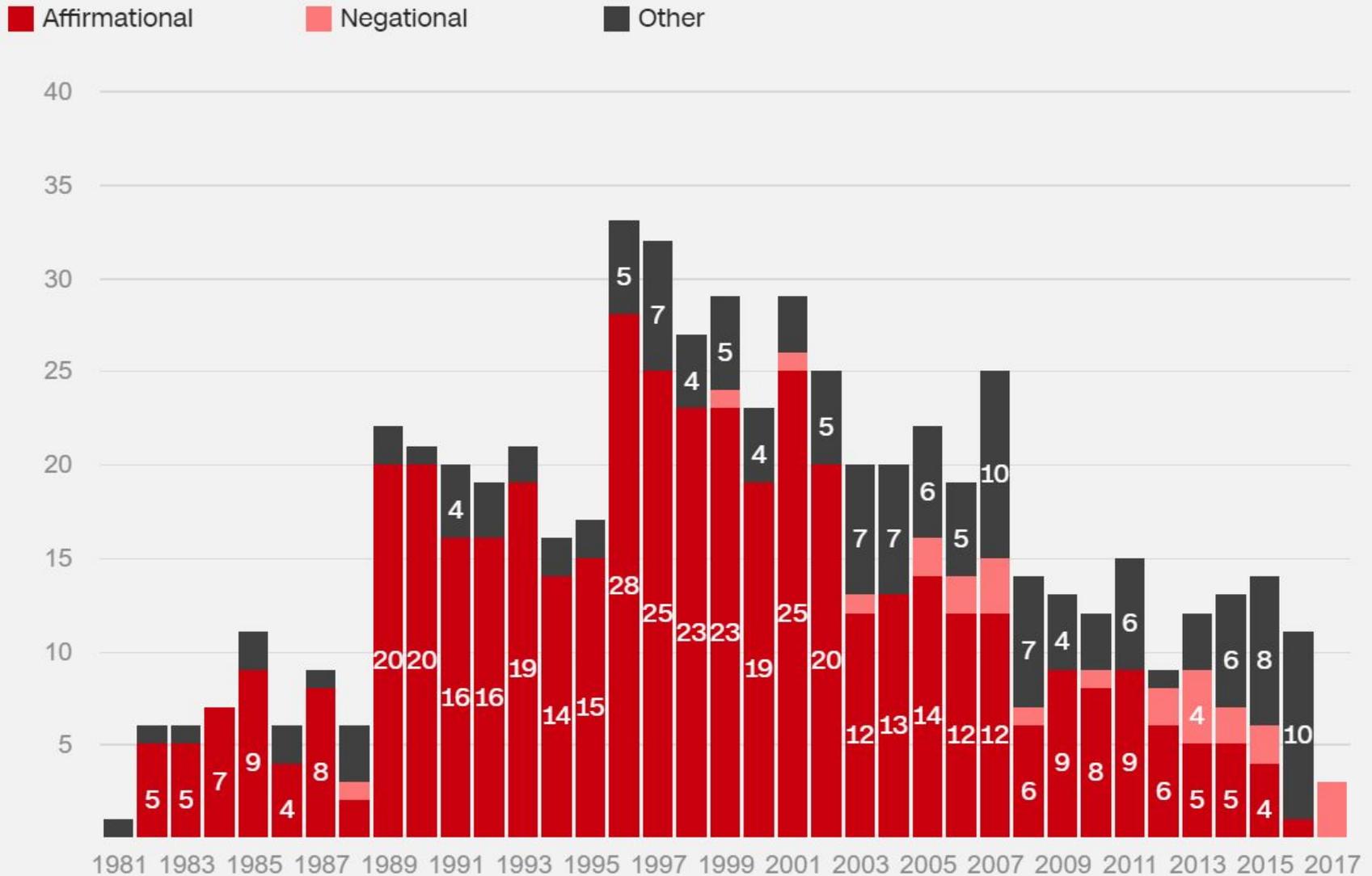
- Increasing reports of fentanyl laced-heroin and prescription pills
- Other synthetic opioids emerging i.e., Carfentanil

- Increasing reports of opioid overdose deaths from synthetic opiates

Questions?



Number and type of citations of the 1980 letter



What Can DH's Do? - Screening

- Conduct thorough medical/social history
- **Ask** if it is ok to talk about opiate misuse
- **Advise** the patient if he or she may be at risk
- **Assess** the patient's readiness to quit
- **Assist** and **Arrange** are covered by referring the patient to his or her primary care physician for help in accessing drug treatment.

What Can DH's Do? - Screening



Buzz Groups

- So this seems to be a problem: If you were the Secretary of HHS, what would you do next?

Benefits of a Public Health Emergency

- FEMA money could be available to states.
- Public health workers could be redeployed.
- Increased access to med-assisted treatments.
- Medicaid could pay for more treatment.
- Congress could appropriate money.
- States could request aid.

Questions?



America's Epidemic of Opioid Abuse - May 2016



OPIOID ABUSE

What Can DH's Do? - Screening

Signs and Symptoms of Opioid Misuse

Systemic	Oral
<ul style="list-style-type: none">• Drowsiness/Sedation• Constricted Pupils• Depressed Respiration• Anorexia• Constipation• Decreased Pain Perception• Increase Risk of Orthostatic Hypotension	<ul style="list-style-type: none">• Xerostomia• Bruxism• High Levels of Plaque and Calculus

Watch for drug seeking behavior, check the PDMP

So what can we do about this?

- Big Picture Priorities
- Corporations respond - Cigna
- Identify and help your patients

Opioid Crisis Big Picture Priorities

- Require and expand prescriber education
- Develop and implement prescriber guidelines
- Expand availability and distribution of treatments for opioid overdoses (i.e. naloxone)
- Expand access to treatment and recovery services
- Strengthen public health surveillance
- Support cutting edge research

Corporations Respond - Cigna

- Big insurer Cigna said recently it will not cover OxyContin for customers starting in 2018.
- Cigna last year said it wanted to cut opioid use by 25 percent among its customers by 2019.
- Last April, the insurer said opioid use among Cigna customers had already declined by 12 percent.
- But they also cut a deal with Xtampza ER maker Collegium Pharmaceutical, to save \$ if too much of their drug is taken by Cigna customers.

Hooked: How Opioid Abuse Starts At The Dentist For Many Americans | NBC Nightly News –
June 2016



NIGHTLY NEWS

Treatment Options

- Medication-assisted treatment is best combined with behavioral therapies.
- Methadone dispensed only at specialized clinics, has many oral health complications.
- Buprenorphine is dispensed at pharmacies by prescription from specially trained physicians.
- Naltrexone can be prescribed by any physician but may require a monthly injection at the office.

What Can DH's Do? - Treatment

Medications for Treatment of Opiate Withdrawal

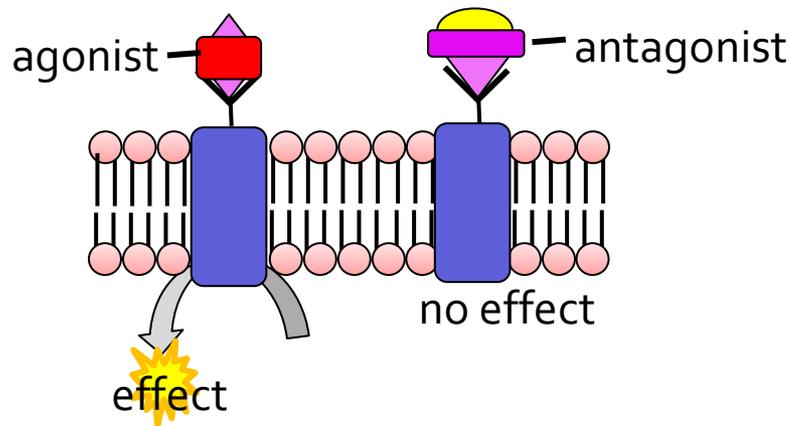
Drug	Drug Class	Route	Oral Implications
Methadone	Opioid	Oral Tablet or Syrup	-High risk of caries from xerostomia, apoptosis of normal flora, sugar cravings -Potential for “meth mouth” destruction -Can mask pain and delay treatment of oral issues
Buprenorphine	Partial Opioid Antagonist	Oral tablet Patch	Decreased respiration
Naltrexone	Opioid Antagonist	Oral & Injection	None

Medications for Opioid Addiction

Full Agonist: Methadone (daily dosing)

Partial Agonist: Buprenorphine (3-4X week)

Antagonists: Naltrexone (ER 1 month)



Binds = activates receptor

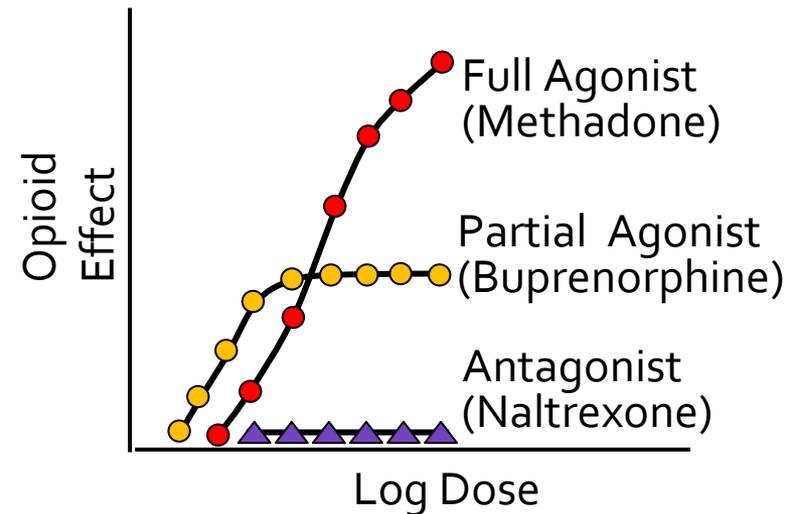
Binds = no effect.

Full agonists = maximal effect

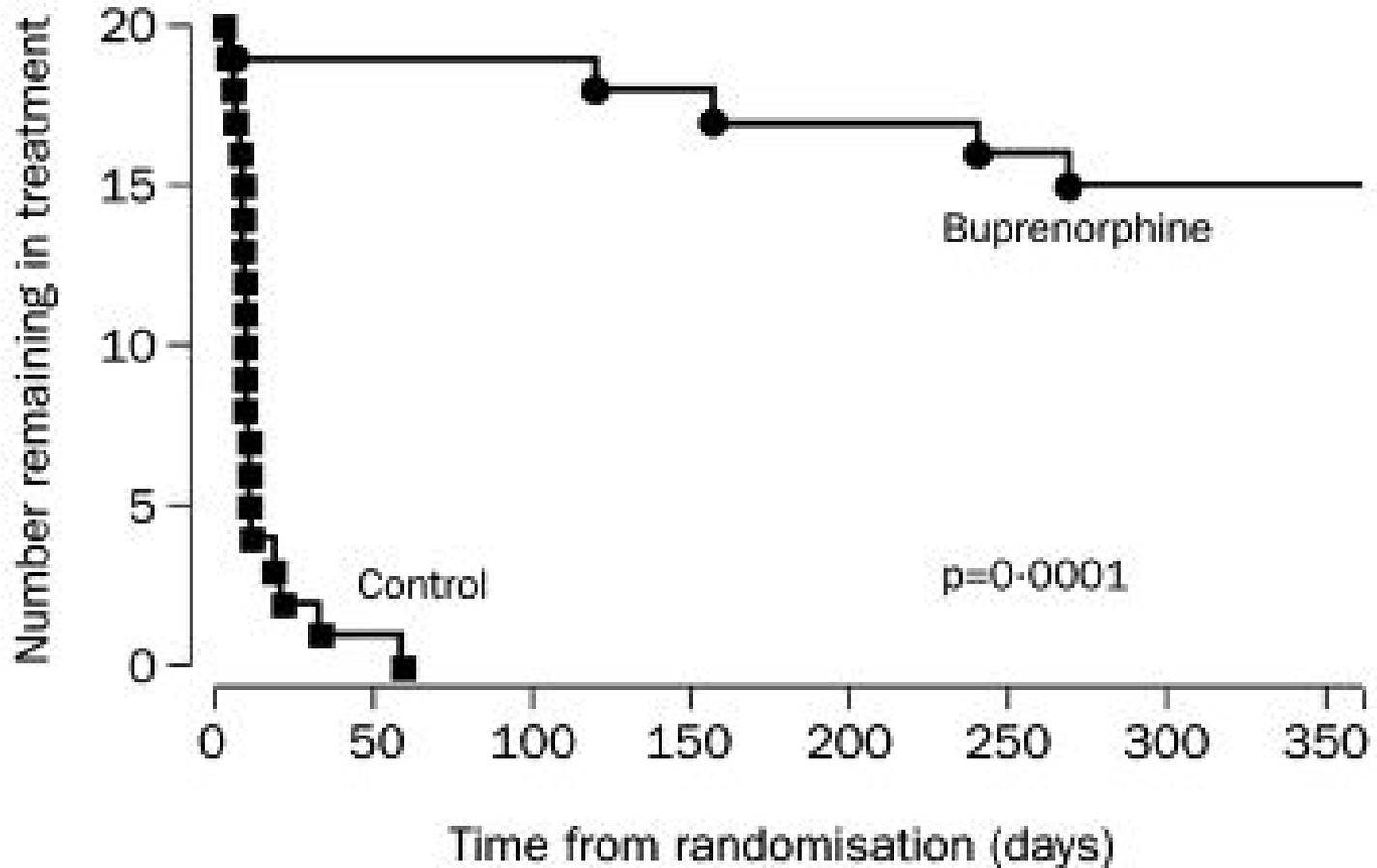
Blocks heroin binding

Partial agonist = intermediate

Blocks heroin binding



Do They Work?



Number at risk

20	19	18	17	17	16	15	15
20	1	0	0	0	0	0	0

What Can DH's Do? – Oral Health

Treatment Plan for Patients with Opioid Misuse

Behavioral Issues

- Address fear and stigma
- Assess ability for consent
- Set realistic treatment goals
- Support patient during treatment

Treatment

- Fluoride
- Mouth guard
- Prevention Therapies
- Nutritional Counseling
- NSAIDS for pain, avoid opiates

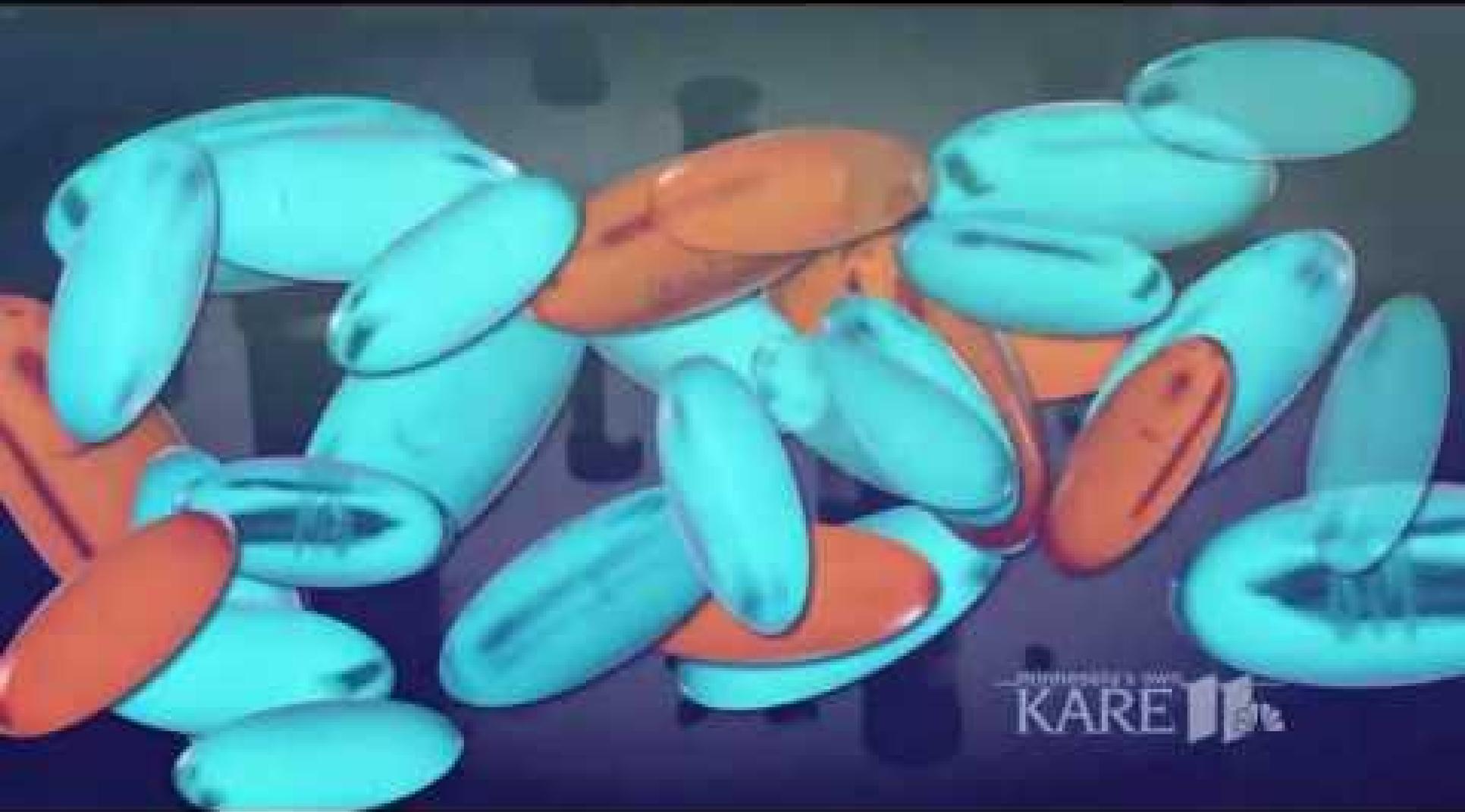
Precautions

- Orthostatic hypotension
- Perception of pain decreased
- Consult physician before using vasoconstrictors
- May need a higher dose of local anesthetic

Questions?



U of M Dental School takes on opioid crisis – July 2017



Minnesota's own
KARE 11

Treating Opioid Overdoses

Oregon Pharmacists Can Now Prescribe Naloxone

Naloxone blocks the effects of an overdose from opioids such heroin, oxycodone, and morphine.

- 1 – Person wants naloxone, contacts pharmacy for availability
- 2 – They read a 7-pg training document
- 3 – Reads and signs final page
- 4 – RPh may dispense without MD Rx

Direct *Overdose Intervention*

Naloxone Distribution for opioid overdose victims. The *potential* for direct intervention to save lives.

"Evzio" naloxone auto-injector APPROVED BY FDA, April 3, 2014

"Narcan Nasal Spray" naloxone APPROVED BY FDA, November 18, 2015



Variations in State Naloxone and Good Samaritan Laws

As of February 1, 2016



Prescription By Standing Order Authorized

33 states have standing orders to authorize non-medical personnel to issue naloxone



Prescribers Immune from Criminal/Civil Liability

27 states protect naloxone prescribers from both criminal and civil liability



Good Samaritan Overdose Prevention Law

36 states offer legal protections to those who call 911 to report an overdose

Opioid Addiction and Treatment - May 2016



**OPIOID
TREATMENT**

Can marijuana help end the opioid crisis?

- Some doctors are interested in the use of marijuana as an alternative or adjunct to opioids.
- “If you give [opioids] alongside cannabis, there is a synergistic effect which means you can give less of the opioid and or you can give the opioid for a shorter period,” Dr. Lester Grinspoon an Associate Professor Emeritus of Psychiatry at Harvard Medical School.
- A 2016 study found doctors in states where marijuana was legal prescribed an average of 1,826 fewer doses of painkillers per year.
- More information is needed but it’s promising at first blush.

Opioids and Marijuana: Myth or Truth?

- Pain medication can fix your pain.
- The more pain pills you take, the better they work.
- There is an addiction gene.
- Addiction is for life.
- Marijuana use leads to dependence or addiction.
- Marijuana is a 'gateway' drug.

Thank You! 😊

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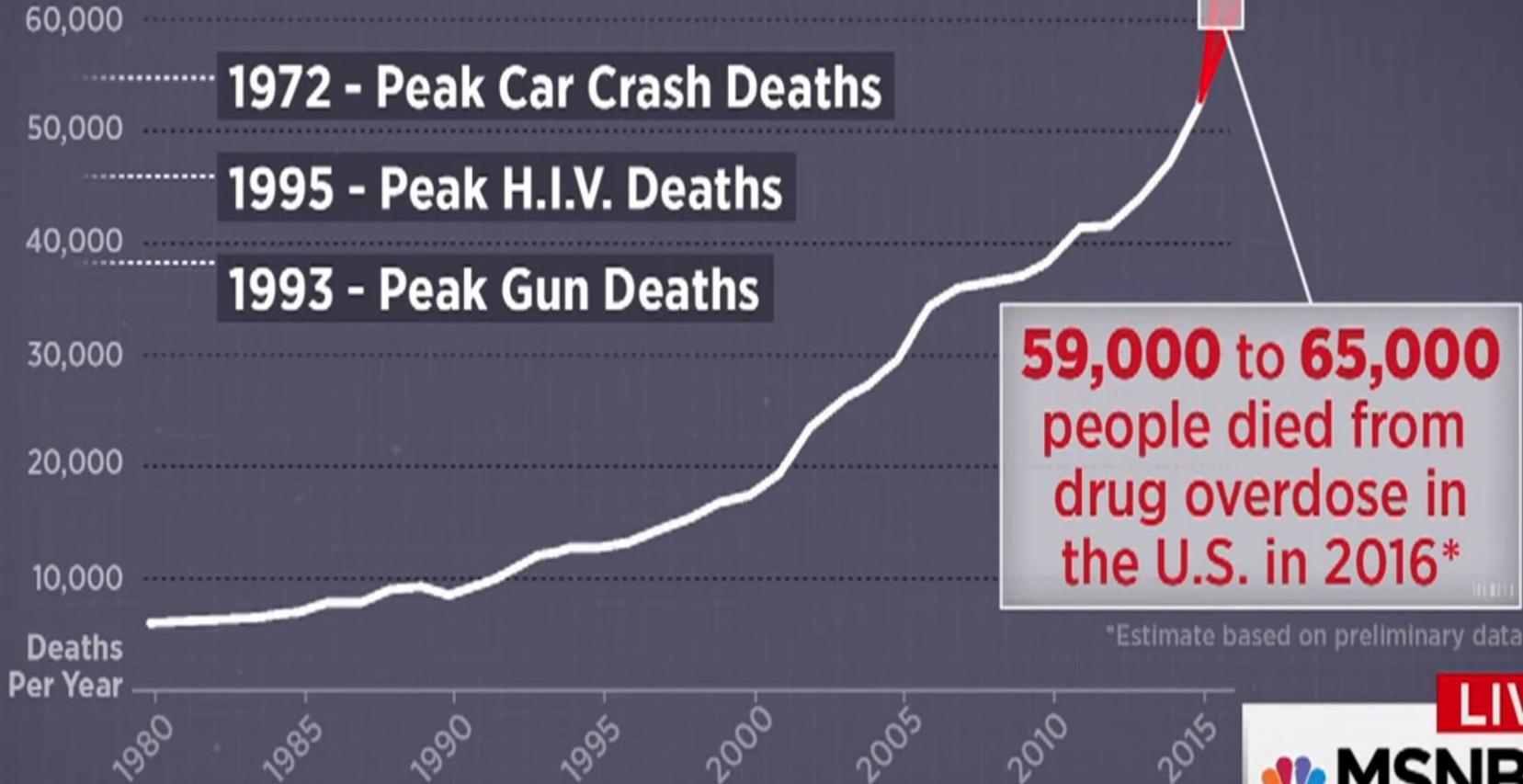
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DRUG OVERDOSE DEATHS, 1980 TO 2016

The New York Times



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