Opiate-Use Disorder in American Indians

HOW SEVERE?

HOW TO PREVENT?

HOW TO TREAT?

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OSAGE NATION HEALTH SERVICES

Why the concern now?

- Markedly increased fatal opioid death rate, i.e. people are dying at increasing rates
- When people merely suffered, the approach was more of that of therapeutic nihilism
- Stigma was and is a formidable obstacle in designing and accepting effective prevention and treatment strategies, e.g. MAT->"substituting one drug for another"
- Total overdose death rates remain high and includes overdoses from methamphetamine and alcohol-related accidents
- Many opioids are legal and methamphetamine is not (with rare exception)

How Severe?

TABLE 2. Number and age-adjusted rates (per 100,000 population) of total drug overdose deaths for American Indians/Alaska Natives and non-Hispanic whites, by sex, age, and rural/urban residence — Washington, 2013–2015

Characteristic	American Indian/Alaska Native			Non-Hispanic white		
	No.	Rate (95% CI)	Rate ratio (95% CI)	No.	Rate (95% CI)	Rate ratio (95% CI)
Sex						
Male	116	51.8 (42.7–64.7)	1.7 (1.3–2.3)	1,422	17.6 (16.6–18.5)	1.4 (1.3–1.5)
Female	68	30.1 (23.3–39.2)	Referent	1,040	12.5 (11.7–13.4)	Referent
Age group (yrs)						
<25	18	8.4 (5.0–13.2)	Referent	157	3.7 (3.1–4.3)	Referent
25–39	59	57.0 (43.4–73.5)	6.8 (4.0–11.5)	628	20.8 (19.2–22.5)	5.6 (4.8–6.8)
40–54	76	89.7 (70.7–112.3)	10.7 (6.4–17.9)	974	30.8 (28.9–32.8)	8.3 (7.1–10.0)
≥55	31	39.4 (26.8–55.9)	4.7 (2.6–8.4)	703	14.4 (13.4–15.5)	3.9 (3.3–4.7)
County type of residence						
Metropolitan (urban)	160	43.3 (36.7–51.5)	1.4 (0.9–2.2)	2,195	15.9 (14.0–17.8)	1.1 (0.9–1.2)
Nonmetropolitan (rural)	24	30.5 (19.3–48.1)	Referent	267	15.0 (14.3–15.7)	Referent

Source: Washington Center for Health Statistics Death Files 2013–2015, corrected for AI/AN misclassification through linkage with the Northwest Tribal Registry.
Abbreviation: CI = confidence interval.

How prevalent?

TABLE 1. Corrected* and uncorrected age–adjusted total drug,† opioid–involved, and heroin–involved overdose mortality rates (per 100,000 population) and rate ratios for American Indians/Alaska Natives and non–Hispanic whites — Washington and United States, 2013–2015

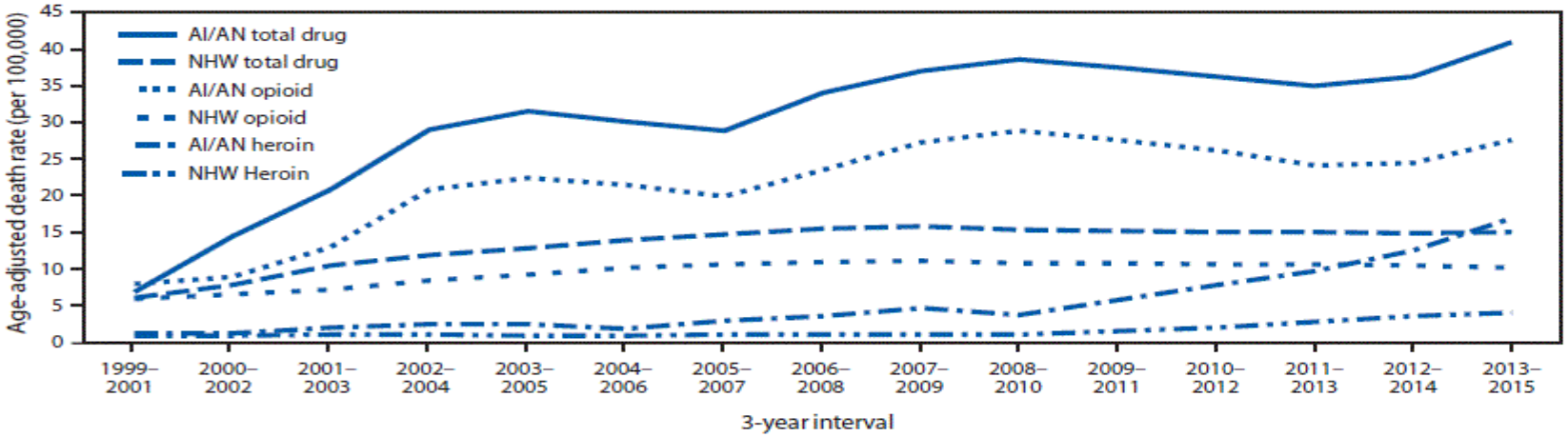
Return

Race	Population	Type of drug overdose rate (95% CI)		
		Total drug†	Opioid-involved	Heroin-involved
American Indian/Alaska Native	WA (corrected)	40.9 (35.1–48.0)	27.5 (22.8–33.5)	16.7 (13.1–21.6)
	WA (uncorrected)	28.7 (23.7–33.7)	19.6 (15.7–24.2)	11.9 (8.9–15.5)
	US (uncorrected)	13.2 (12.5–13.8)	7.6 (7.1–8.0)	2.4 (2.1–2.6)
White, non-Hispanic	WA (corrected)	15.1 (14.5–15.7)	10.2 (9.7–10.7)	4.1 (3.7–4.4)
	WA (uncorrected)	15.7 (15.0–16.3)	10.6 (10.1–11.2)	4.3 (4.0–4.6)
	US (uncorrected)	19.2 (19.1–19.3)	12.1 (12.0–12.2)	4.4 (4.4–4.5)
AI/AN:NHW rate ratios				
WA AI/AN:NHW (corrected)	—	2.7 (2.3–3.1)	2.7 (2.3–3.2)	4.1 (3.2–5.2)
WA AI/AN:NHW (uncorrected)	—	1.8 (1.3–2.6)	1.8 (1.5–2.3)	2.8 (2.1–3.6)
U.S. AI/AN:NHW (uncorrected)	—	0.69 (0.65–0.72)	0.63 (0.59–0.67)	0.55 (0.49–0.61)
WA AI/AN (corrected:uncorrected)	—	1.4 (1.0–2.1)	1.4 (1.1–1.8)	1.4 (1.0–2.0)

Sources: Washington Center for Health Statistics Death Files 2013–2015 linked with the Northwest Tribal Registry (corrected data); CDC WONDER online database, M
Cause of Death data 2013–2015 (uncorrected data).

How many have died?

FIGURE. Age–adjusted death rates*,† for total drug,§ opioid–involved, and heroin–involved overdose deaths among American Indians/Alaska Natives and non–Hispanic whites — Washington, 1999–2015



Source: Washington Center for Health Statistics Death Files 1999–2015, corrected for AI/AN misclassification through linkage with the Northwest Tribal Registry

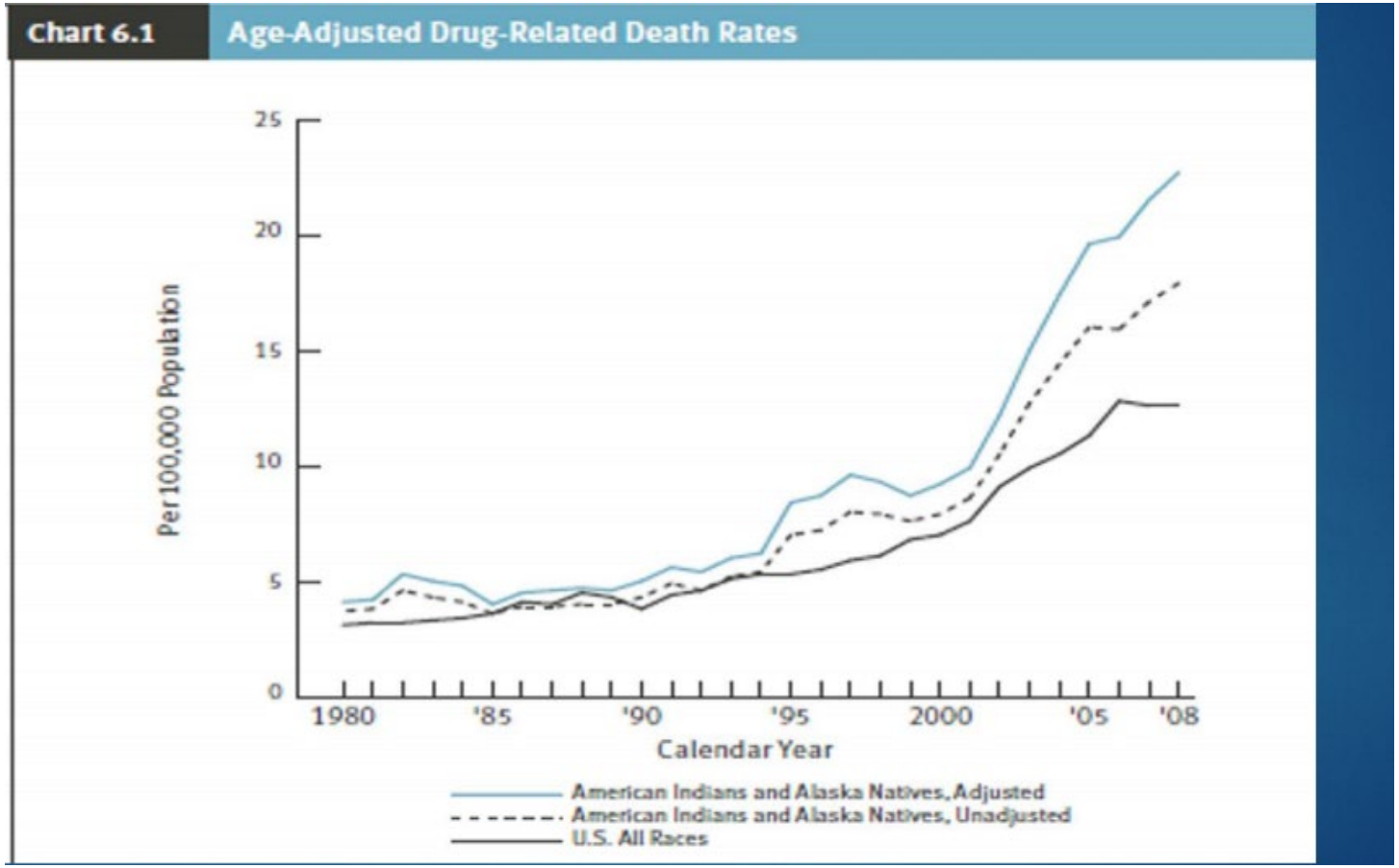
Abbreviations: AI/AN = American Indian/Alaska Native; NHW = non-Hispanic white.

* Per 100,000 persons.

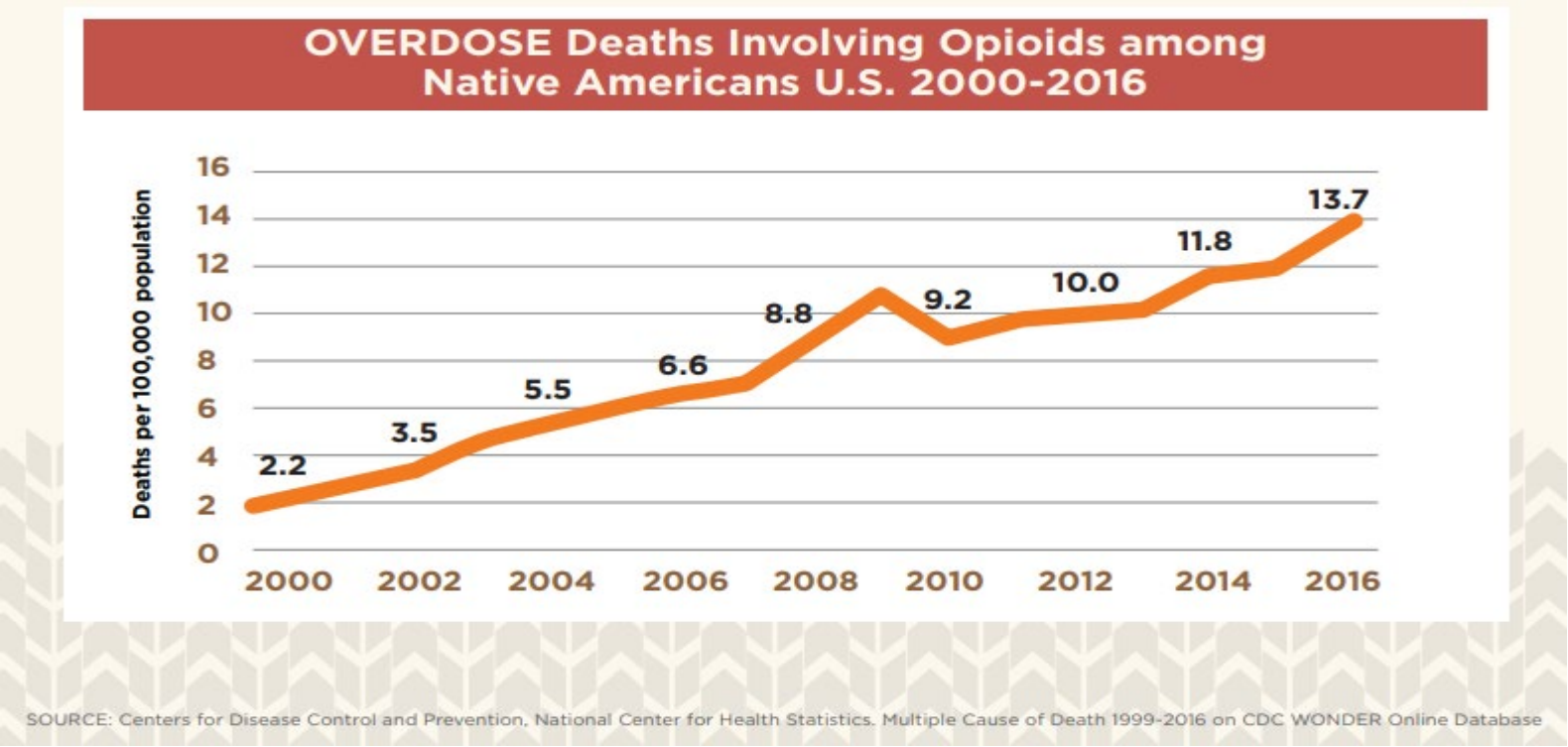
† Three-year rolling averages.

§ Total drug overdose deaths include opioid-involved and nonopioid-involved deaths; opioid-involved deaths include heroin-involved deaths.

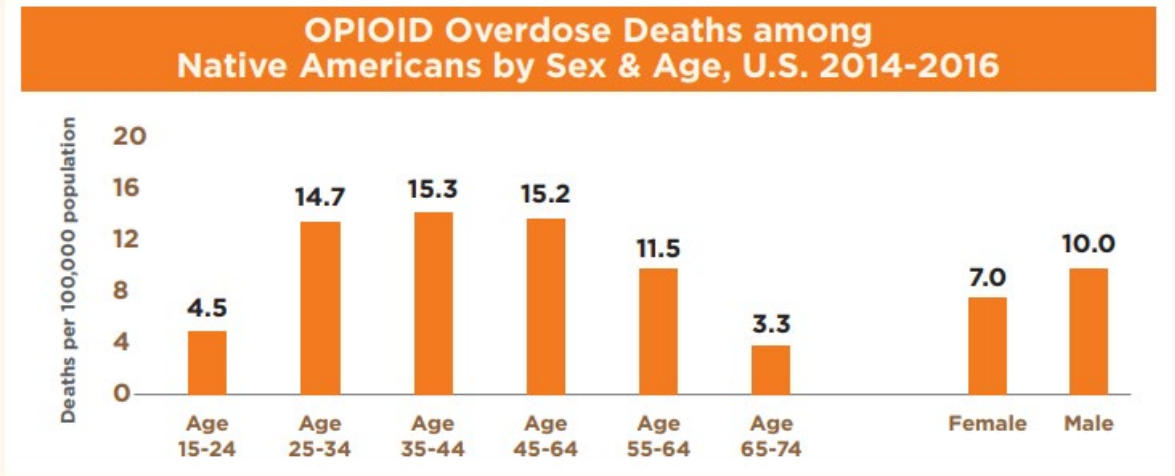
How many are dying?



Who is dying from Opiate overdose?



Who is dying in the Indian population?



The opioid overdose death rate among Native American males significantly exceeds the rate among Native American females (10.0 per 100,000 vs. 7.0 per 100,000). Opioid overdose deaths are significantly more common among Native Americans between the ages of 25-64.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2016 on CDC WONDER Online Database

Which Opiate is Killing Us?

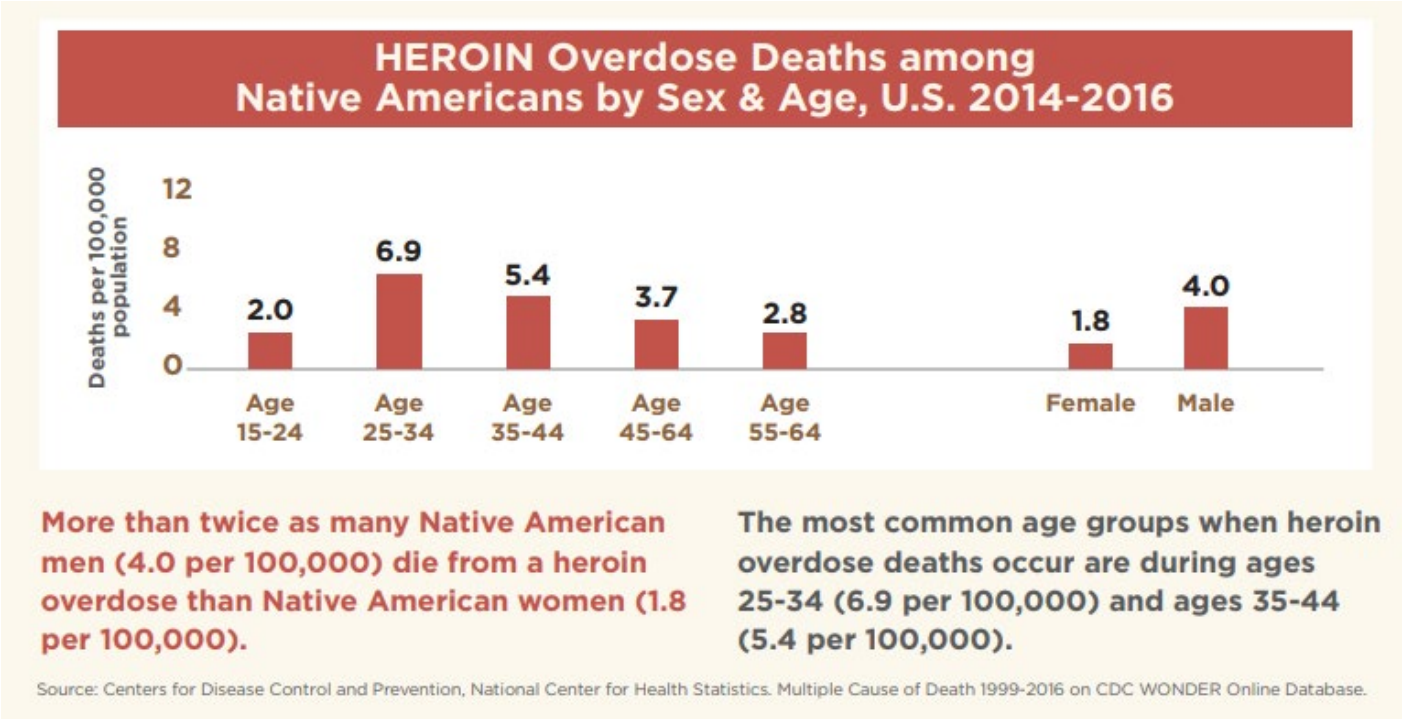
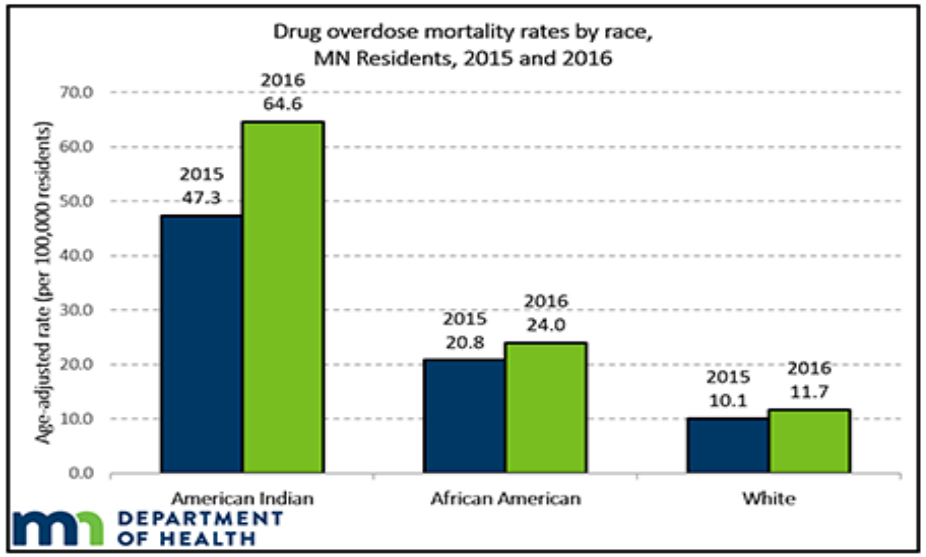


Table 2. Last-30-Day Prevalence of Alcohol and Drug Use Comparing Reservation-Based American Indian Students (2016-2017) With MTF Students (2016)

Type of Substance Use	Grade 8			Grade 10			Grade 12		
	American Indian, % (95% CI)	MTF, %[a]	RR (95% CI)	American Indian, % (95% CI)	MTF, %[a]	RR (95% CI)	American Indian, % (95% CI)	MTF, %[a]	RR (95% CI)
Alcohol	15.8 (10.7-22.7)	7.3	2.1 (1.4-3.0)[b]	24.1 (20.0-28.7)	19.9	1.2 (1.0-1.5)	30.7 (25.1-36.9)	33.2	0.9 (0.8-1.1)
Been drunk	9.6 (5.8-15.4)	1.8	5.3 (3.3-8.9)[b]	16.5 (12.9-20.8)	9.0	1.8 (1.4-2.4)[b]	23.2 (17.7-29.8)	20.4	1.1 (0.8-1.5)
Binge drinking	11.8 (6.4-20.6)	3.4	3.5 (2.0-6.0)[b]	16.6 (13.6-20.0)	9.7	1.7 (1.4-2.1)[b]	22.8 (18.3-28.1)	15.5	1.5 (1.2-1.9)[b]
Marijuana	22.5 (16.1-30.5)	5.4	4.2 (3.1-5.8)[b]	35.1 (28.2-42.8)	14.0	2.5 (2.0-3.1)[b]	39.3 (32.1- 46.9)	22.5	1.7 (1.4-2.2)[b]
Any illicit drug, not marijuana[c]	6.4 (4.6-8.9)	2.7	2.4 (1.7-3.3)[b]	6.7 (3.8-11.7)	4.4	1.5 (0.9-2.7)	9.7 (7.0-13.3)	6.9	1.4 (0.9-2.0)
Inhalants	4.9 (3.4-7.2)	1.8	2.7 (1.8-4.1)[b]	2.2 (1.2-3.9)	1.0	2.2 (1.2-4.3)[b]	2.1 (1.2-3.6)	0.8	2.6 (1.2-6.1)[b]
Tranquilizers	1.4 (0.7-2.9)	0.8	1.8 (0.9-3.5)	1.6 (0.9-3.0)	1.5	1.1 (0.5-1.9)	2.7 (1.8-4.2)	1.9	1.4 (0.9-2.3)
Narcotics other than heroin	1.3 (0.7-2.3)	NA	NA	2.8 (1.6-4.9)	NA	NA	4.9 (2.8-8.2)	1.7	2.9 (1.6-5.2)[b]
Amphetamines	1.6 (0.8-3.4)	1.7	0.9 (0.5-1.8)	2.5 (1.5-4.1)	2.7	0.9 (0.5-1.6)	4.5 (2.8-7.3)	3.0	1.5 (0.8-2.6)
Cocaine	1.2 (0.6-2.5)	0.3	4.0 (1.9-9.4)[b]	2.4 (1.3-4.4)	0.3	8.0 (3.7-17.6)[b]	4.1 (2.8-6.1)	0.6	6.8 (3.5-13.1)[b]
Crack	0.8 (0.3-2.1)	0.2	4.0 (1.5-10.1)[b]	1.3 (5.9-2.9)	0.2	6.5 (2.5-15.0)[b]	1.7 (0.6-4.8)	0.5	3.4 (1.6-12.3)[b]
LSD	1.5 (0.8-2.8)	0.4	3.8 (2.3-9.1)[b]	1.5 (0.6-4.2)	0.7	2.1 (0.8-6.4)	2.5 (1.4-4.6)	1.0	2.5 (1.2-5.1)[b]
Hallucinogens other than LSD	2.2 (1.3-3.8)	0.3	7.3 (4.1-13.1)[b]	3.7 (1.8-7.4)	0.5	7.4 (3.4-15.1)[b]	2.8 (1.7-4.6)	0.7	4.0 (2.2-7.3)[b]
Heroin	0.8 (0.3-2.1)	0.2	4.0 (1.4-10.9)[b]	0.6 (0.2-1.3)	0.2	3.0 (1.2-8.2)[b]	0.5 (0.1-3.2)	0.2	2.5 (0.3-18.3)
Crystal meth[d]	1.0 (0.4-2.4)	0.3	3.3 (2.6-4.3)[b]	1.4 (0.8-2.7)	0.2	7.0 (3.1-14.9)[b]	3.3 (1.6-6.8)	0.4	8.3 (3.0-19.1)[b]
Cigarettes	10.6 (7.8-14.2)	2.6	4.1 (2.9-5.8)[b]	15.1 (10.4-21.3)	4.9	3.1 (2.1-4.7)[b]	23.1 (17.9-29.4)	10.5	2.2 (1.6-2.9)[b]

Racial disparities in overdose deaths



In 2016, African Americans were two times more likely to die of a drug overdose than whites.

In 2016, American Indians were almost six times more likely to die of drug overdose than whites.

Groups at Greatest Risk for Prescription Drug Abuse/Overdose

- Men aged 25-54 have the highest prescription drug overdose rates, although rates for women 25-54 are increasing faster.
- People in rural counties are about two times as likely to overdose on prescription painkillers as people in big cities.
- Teens/young adults
- Soldiers and veterans

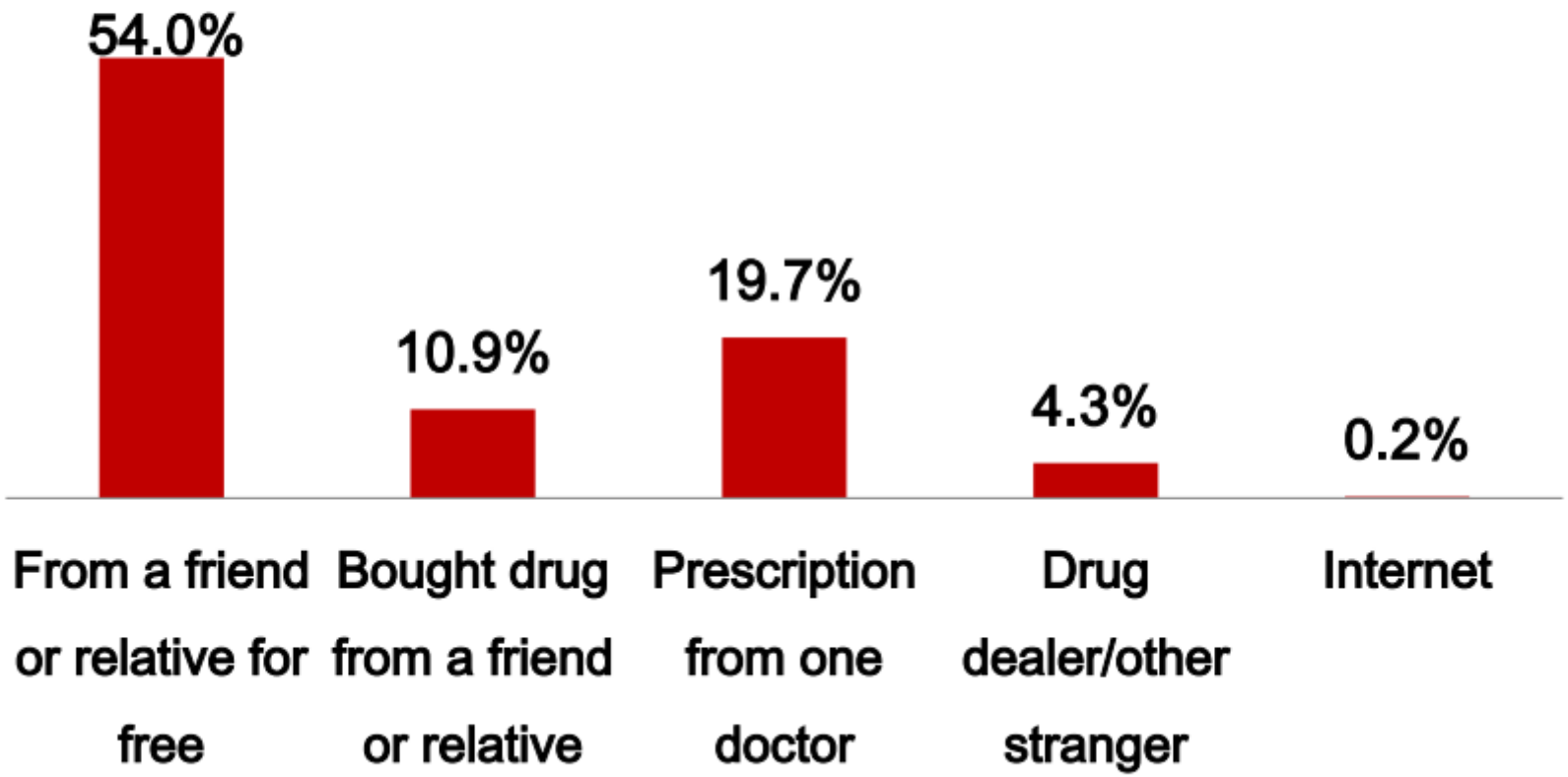
Groups at Greatest Risk for Prescription Drug Abuse/Overdose

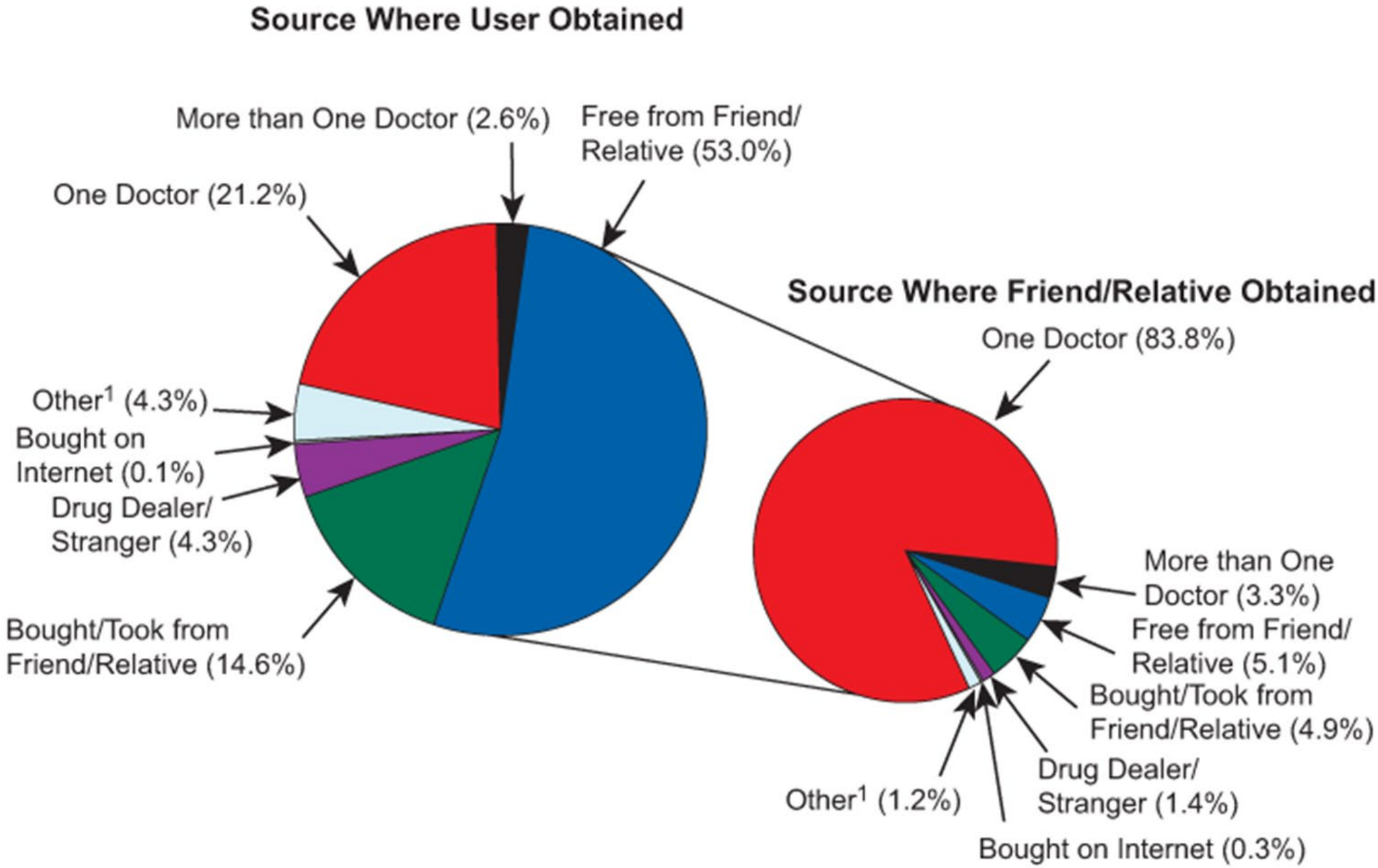
- Individuals with occupational injuries
- Individuals with mental illness or past substance abuse
- Whites and American Indians or Alaska Natives are more likely to overdose on prescription painkillers.

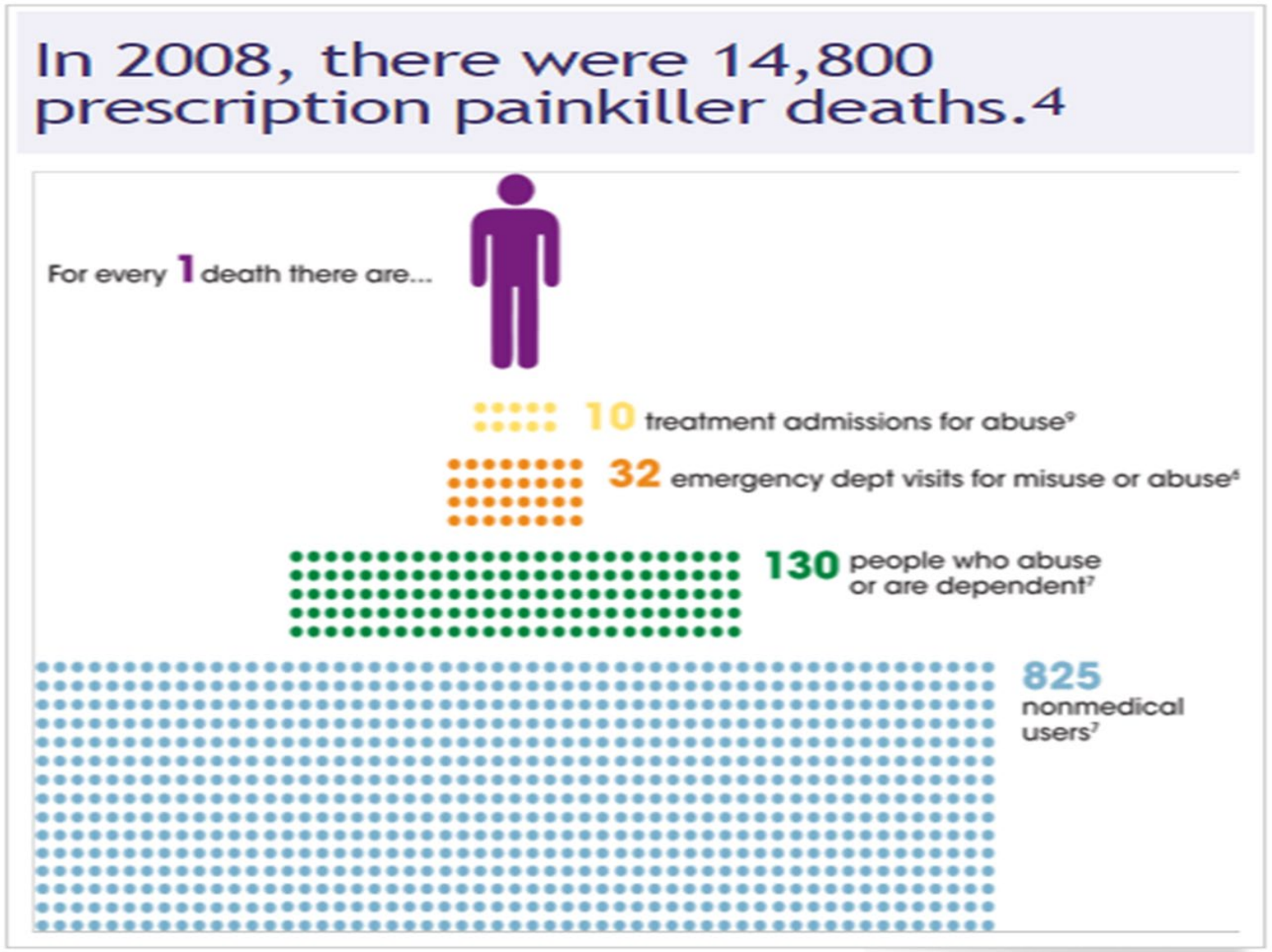
Prescription Drug Abuse – American Indians

- Data indicate high usage of illicit drugs by American Indians and outline the need for targeted resources and outreach
- American Indian and Alaskan Native populations show high percentages of:
  - Lifetime abuse (64.8 percent)
  - Past year illicit drug use (27.1 percent)
  - Current non-medical use of prescription drugs (6.2 percent)

Source of Nonmedical Pain Relievers Among Persons Aged 12 or Older Who Used in the Past 12 Months




Source Where User Obtained
More than One Doctor (2.6%)
Free from Friend/ Relative (53.0%)
One Doctor (21.2%)
Other[1] (4.3%)
Bought on Internet (0.1%)
Drug Dealer/ Stranger (4.3%)
Bought/Took from Friend/Relative (14.6%)
Source Where Friend/Relative Obtained
One Doctor (83.8%)
More than One Doctor (3.3%)
Free from Friend/ Relative (5.1%)
Bought/Took from Friend/Relative (4.9%)
Drug Dealer/ Stranger (1.4%)
Other[1] (1.2%)
Bought on Internet (0.3%)


In 2008, there were 14,800 prescription painkiller deaths.4
For every 1 death there are...
10 treatment admissions for abuse9
32 emergency dept visits for misuse or abuse6
130 people who abuse or are dependent7
825 nonmedical users7

Risk factors for American Indian Opiate Use Disorder

- higher incidence of historical trauma
- higher incidence of adverse childhood experiences
- lack of access to medical care and/or non-opioid treatment options
- stigma in pursuing chemical health treatment and recovery supports
- lack of access to culturally responsive treatment programs
- lack of trust with Western medicine interventions
- failure to appropriately diagnose physical or mental health symptoms
- lack of research about the effectiveness of interventions within people of color and American Indian communities
- access to illicit drugs within the community
- racial bias on the part of providers who prematurely and/or abruptly discontinue opioids
- illicit drugs are currently addressing symptoms
- cultural acceptance of sharing prescription medications with loved ones

Historical Trauma

- Historical loss

Loss of population/land/culture

- Historical loss symptoms

Depression

SUD

Dysfunctional parenting

Physiological stress involving the Hypothalamic pituitary axis and the amygdala of the brain

- " a legacy of chronic trauma and unresolved grief"
- A part of "culturally competent care"

Text Box 1
DSM-5 Criteria for Opioid Use Disorder OUD Presented in the Author's Mnemonic

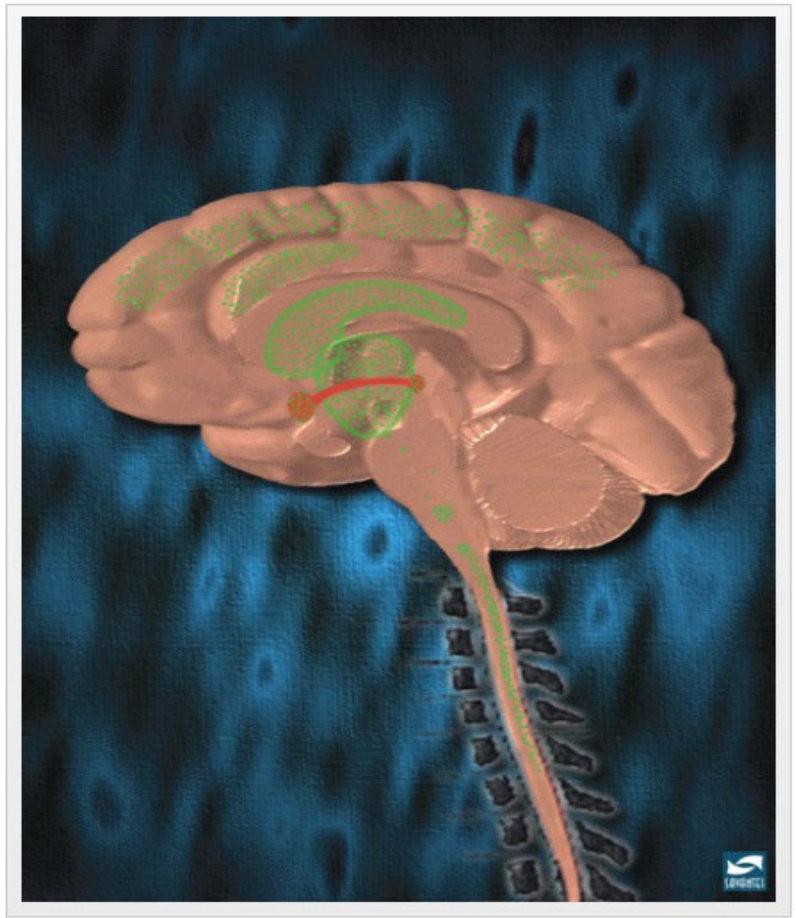
Long Time Craving Control ⇨ TRASHeD ⇨ Withdrawn

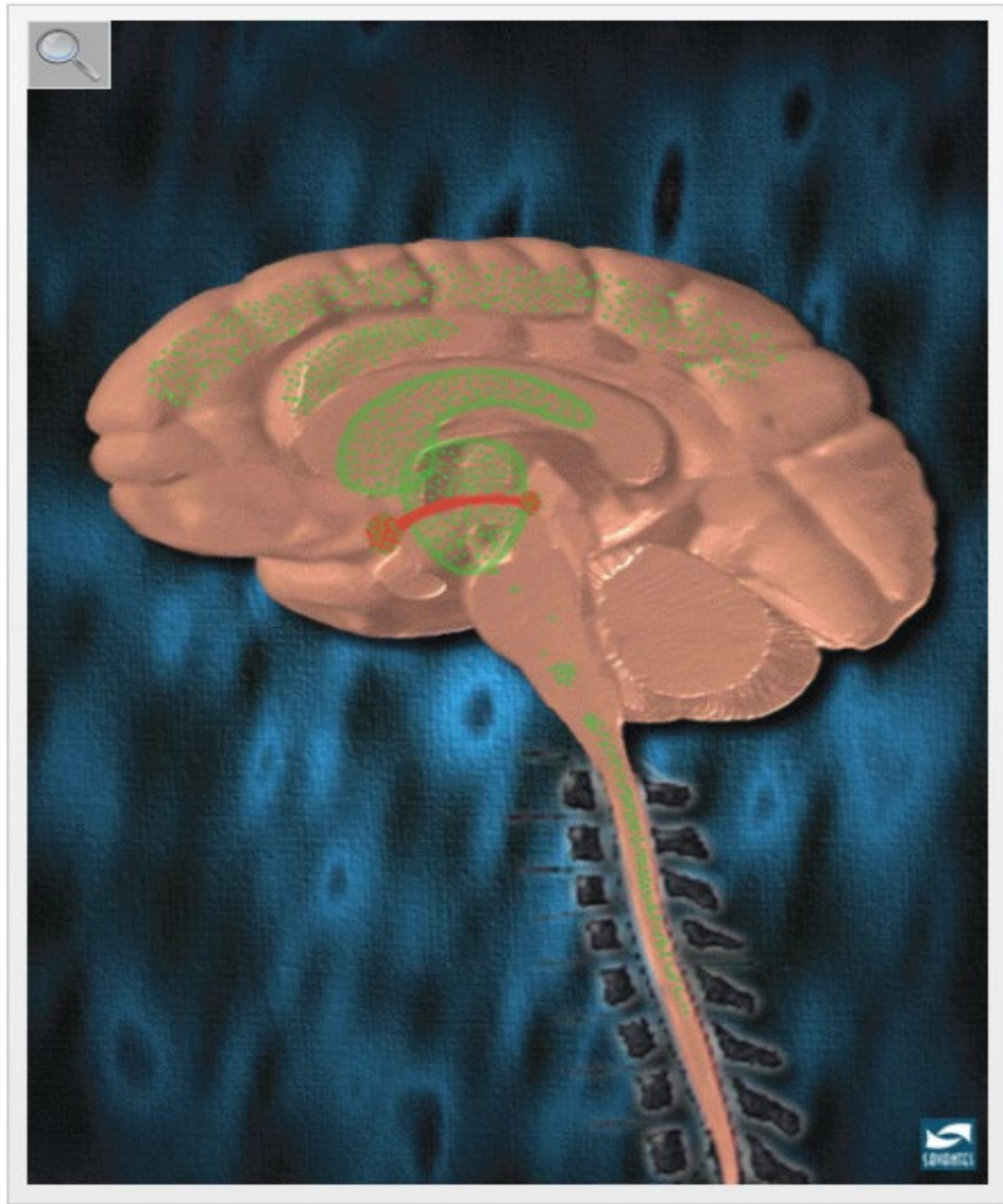
Longer use or larger amounts used than intended
Time spent obtaining opioids, using, or recovering from use
Craving opioids
Failed attempts to **control** or cut back opioid use
Opioid **tolerance**
Role failure due to opioid use
Activities reduced because of recurrent opioid use
Social problems resulting from recurrent opioid use
Health problems resulting from recurrent opioid use
Dangerous opioid use: use despite risk of physical hazard
Opioid **withdrawal** syndrome

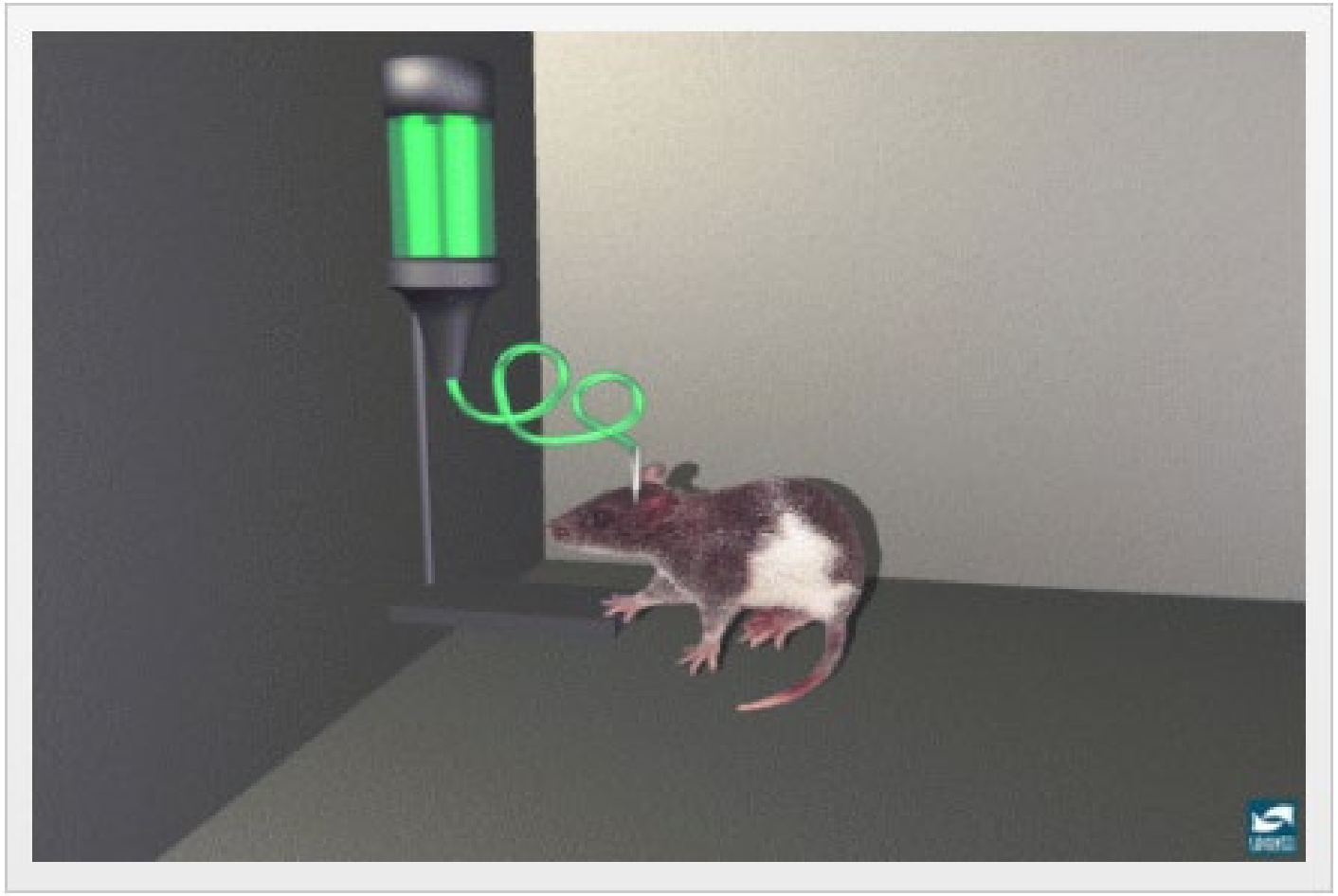
In the above mnemonic, the satisfaction of two or more criteria in a 12-month period defines opioid use disorder. Criteria are listed in order of severity, progressing from milder criteria to those criteria that most impair function or cause distress. Severity scaling is determined by the number of criteria that are met and may be remembered by "5 or 4 is a moderate score" (2–3 = mild; ≥6 = severe).

Harvard Review of Psychiatry23(2):63-75, March/April 2015.

Opiate binding receptors







Comparison of FDA-Approved Medications to Treat Opioid Use Disorder with Physiological Opioid Dependence

Medication	MOR intrinsic activity MOR binding	Differential pharmacology affecting MOR activation at therapeutic dose	Mechanism of relapse prevention
Buprenorphine	Partial agonist High affinity K_i* = 0.2 nM	Slow MOR dissociation allows thrice-weekly sublingual dosing and possibility of high-dose weekly formulations[13–15] Highest known MOR affinity makes rescue from overdose by naloxone less effective;[16] rapid precipitation of withdrawal if full agonists present	Reduces opioid craving, withdrawal, and stress reactivity Competitively blocks or reduces the reinforcing effects of other opioids
Methadone	Full agonist High affinity K_i* = 3.4 nM	Long terminal half-life (up to 120 hours) with delayed steady-state efficacy poses increased MOR toxicity risk during induction phase[17] Multiple drug-drug interactions pose both opioid-toxicity and withdrawal risks during treatment[18]	Reduces opioid craving, withdrawal, and stress reactivity Reduces the reinforcing effects of other opioids
Naltrexone ER	Antagonist High affinity K_i† = 0.26–0.34 nM	Lack of MOR agonism associated with delayed stabilization of opioid craving[19] Safety concern based on rodent data demonstrating chronic naltrexone exposure increases respiratory-depression risk upon opioid agonist reexposure[20]	Competitively blocks reinforcing effects of opioid agonists Reductions in craving are psychologically mediated (reduced anticipatory expectancies)

* Equilibrium dissociation constant for the test compound and relative values are from Volpe et al. (2011).[21]
† Equilibrium dissociation constant is from Yuan et al. (2013).[22]
MOR, mu-opioid receptor; ER, extended release; nM, nanomoles.

Harvard Review of Psychiatry23(2):63-75, March/April 2015.

Medication[b]	Percentage opioid free on medication	Percentage opioid free on placebo/detoxification	Study
Naltrexone ER	36	23	Krupitsky et al. (2011)[23]
Buprenorphine/naloxone	20–50	6	Fudala et al. (2003)[24] Weiss et al. (2011)[25,c]
Buprenorphine/naloxone	60	20	Woody et al. (2008)[26,d]
Methadone	60	30	Mattick et al. (2009)[27]

ER, extended release.

[a] The randomized, controlled clinical trials summarized here paired medication maintenance with evidence-based psychosocial treatments and opioid use self-report data that were confirmed with urine toxicology. Clinical settings for treatment delivery may affect the rates of opioid use in the nonmedication control groups. The trials predominantly used adult opioid use disorder populations, with the majority being heroin dependent or having mixed dependence on heroin and prescription opioids.

[b] All medications are FDA approved.

[c] Population was prescription opioid-dependent patients.

[d] Population was youth aged 14–21 years.

Harvard Review of Psychiatry23(2):63-75, March/April 2015.

Components of Successful Treatment

Evaluation
Appropriate detoxification
Identification of co-occurring disorders
Appropriate pharmacotherapy of co-occurring disorders
Appropriate pharmacotherapy of substance use disorder
Comprehensive curriculum to include 12 step facilitation
Family therapy
Discharge planning

Who needs to be admitted to a facility?

Acute intoxication or medical instability

Acute withdrawal other than opiate

Homeless

Inadequate support system

No transportation to outpatient therapy

Complicating medical/psychiatric co-morbidity

Who may be treated as an outpatient/

Stable and sober environment

Non-suicidal

No significant psychotic symptoms

Outpatient program sufficiently intense enough to address patients severity of illness

Opiate dependent patients do not all or even most do not require medical detoxification

Patients are not done with treatment when program completed-up to a years outpatient treatment/counseling is recommended

Medial Complications of Opiate Use Disorder

Accidental Overdose Death
High risk sexual behaviors-STD
Hepatitis B and C/HIV
Family and parental dysfunction
Incarceration
Unemployment
Depression/anxiety
Opiate withdrawal

Socioeconomic Effects of Opioid Use Disorder

Adverse childhood experiences
Joblessness
Medical costs
Incarceration
Loss of or disregard for cultural influence
Unintended modeling for children
Loss of normal emotional development in adolescence

Going Forward

Defeat the stigma against addictive disease and MAT
Youth prevention using cultural strengths and identification as tools
Early detection and treatment
Availability of MAT providers in I/T/U treatment programs
Increase intensity of treatment of outpatient programs
Wellness courts to emphasize recovery instead of punishment
Address the psychosocial context
Support and encourage physician conservatism in prescribing opioids