

Opioid Overdose Prevention Training of the Trainer



Today's workshop is sponsored by BSAS

The Bureau of Substance Addiction Services:

- Provides access to addictions services for the uninsured
- Funds and monitors prevention, intervention, treatment and recovery support services
- Licenses addictions treatment programs and counselors
- Tracks statewide substance use trends
- Develops and implements policies and programs
- Supports the addictions workforce



Helpful Websites

BSAS:

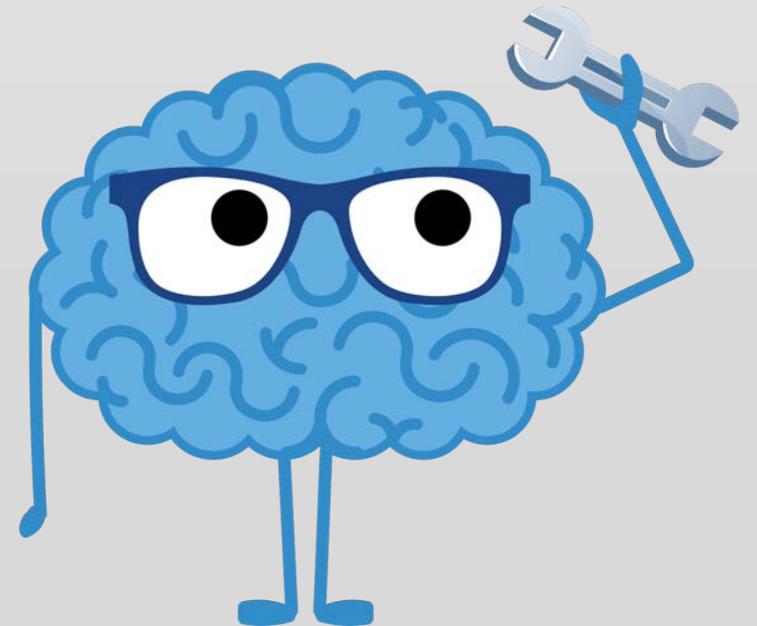
www.mass.gov/dph/bsas

Helpline: www.helpline-online.com

Careers of Substance:
www.careersofsubstance.org

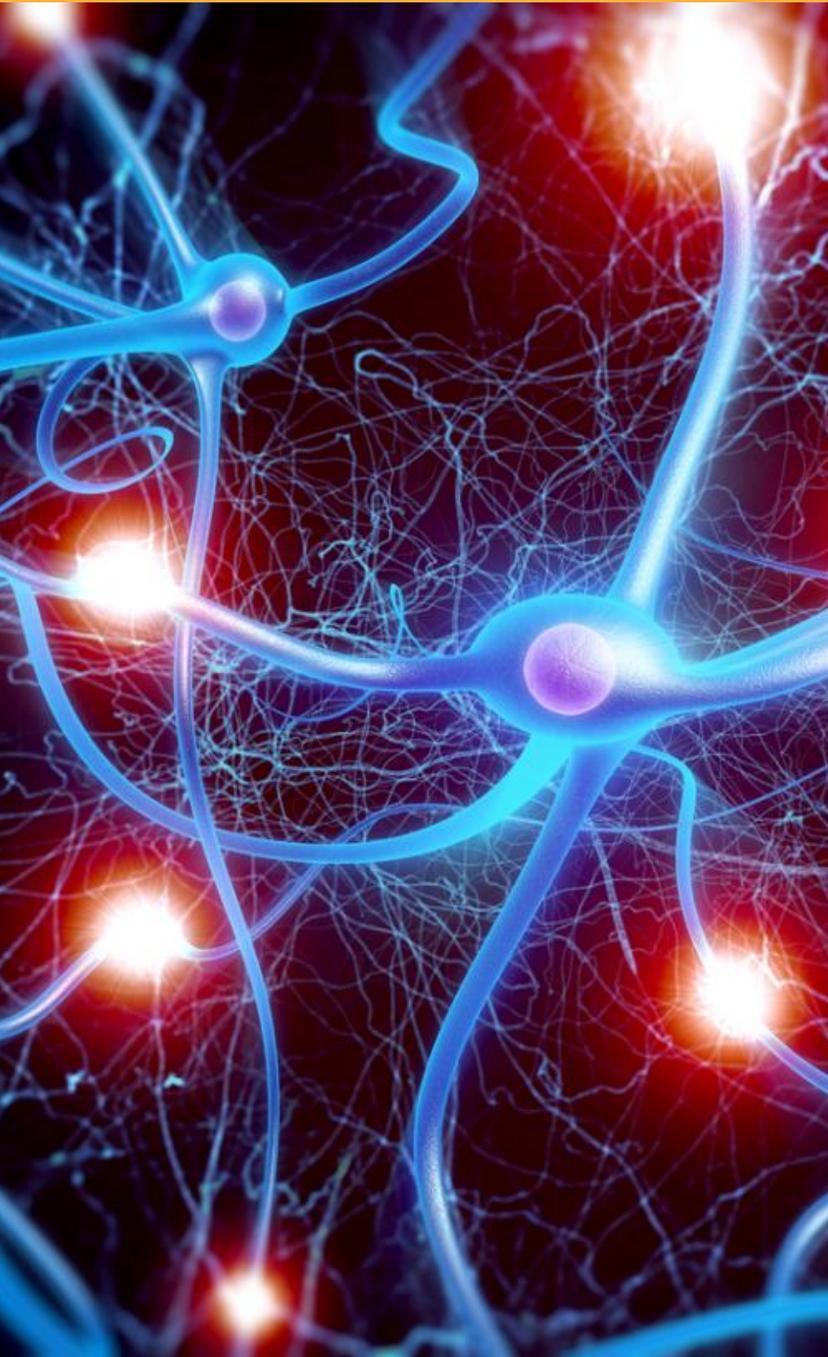
Agenda

- Overview of opiates
- The opioid epidemic for both Mass and the U.S.
- Opioid Use Disorder and current factors
- Opioid overdose prevention and response





Opioid Overview



Opioid Overview

- Opioids are a class of drugs used to block pain signals between the brain and the body and are typically prescribed to treat moderate to severe pain
- In addition to controlling pain, opioids can make some people feel relaxed, happy or “high,” and can be addictive.
- Opioids include prescription medications, often referred to as painkillers, or they can be street drugs, such as heroin

Opioid Overview

Where do opioids come from?

- The body produces its own opioids
 - Moderates pain and produces feelings of pleasure and well being
 - Endogenous opioids, such as beta endorphins, enkaphalins
- They are derived from the opium poppy
 - Opiates: codeine, morphine, laudanum
 - Travel the same pathways as endogenous opioids, but much more potent
- They are partially or completely synthesized in a lab
 - More efficiently target and alter brain chemical processes



Opioid Overview

Organic

Opium
Morphine
Codeine

Semi-Synthetic

Heroin
Hydrocodone
Oxycodone
Oxymorphone
Buprenorphine

Synthetic

Fentanyl
Methadone
Tramadol

Opioid Overview

Opioid routes:

- Ingested- pills that are swallowed
- Snorted- heroin, fentanyl or crushed pills
- Smoked- opium, heroin
- Injected- heroin, fentanyl or crushed pills
 - Most common method of use for people who are seeking treatment
- Others?





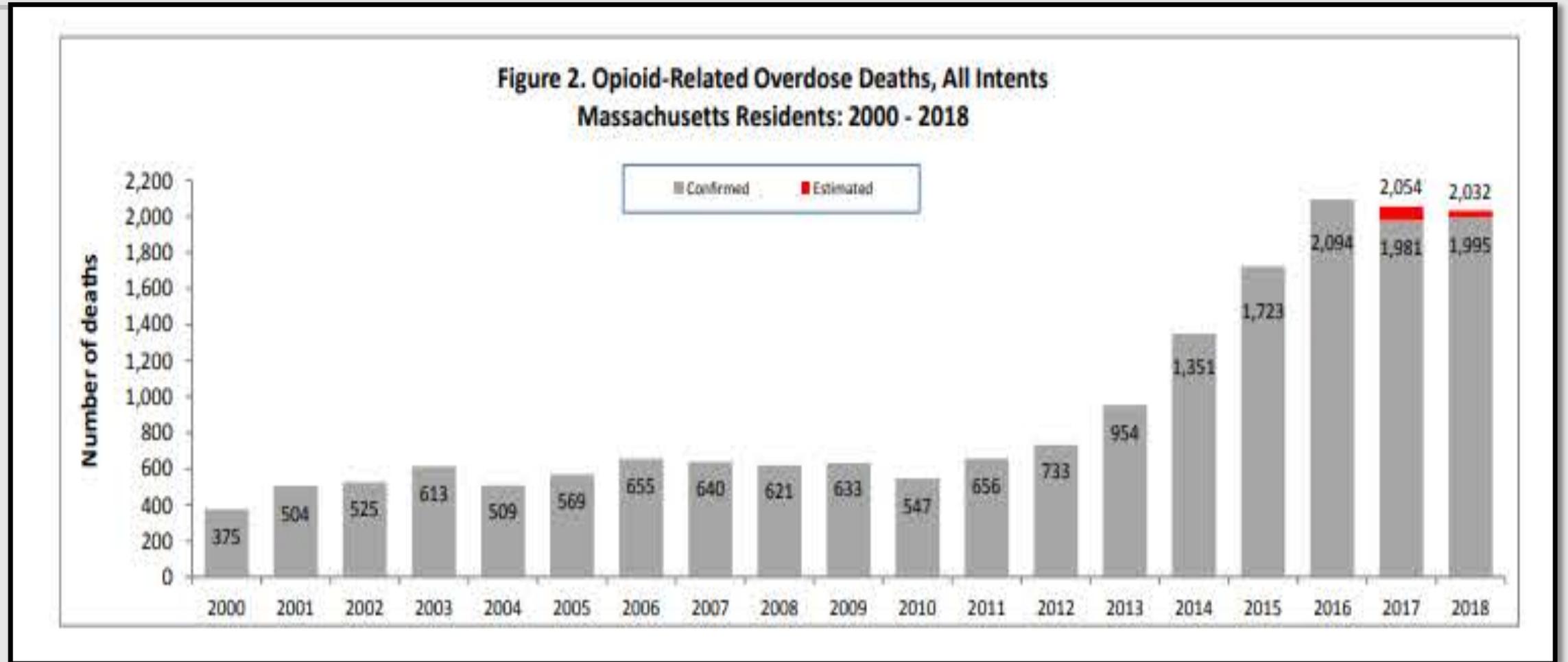
Opioid Epidemic

Opioid Overdoses

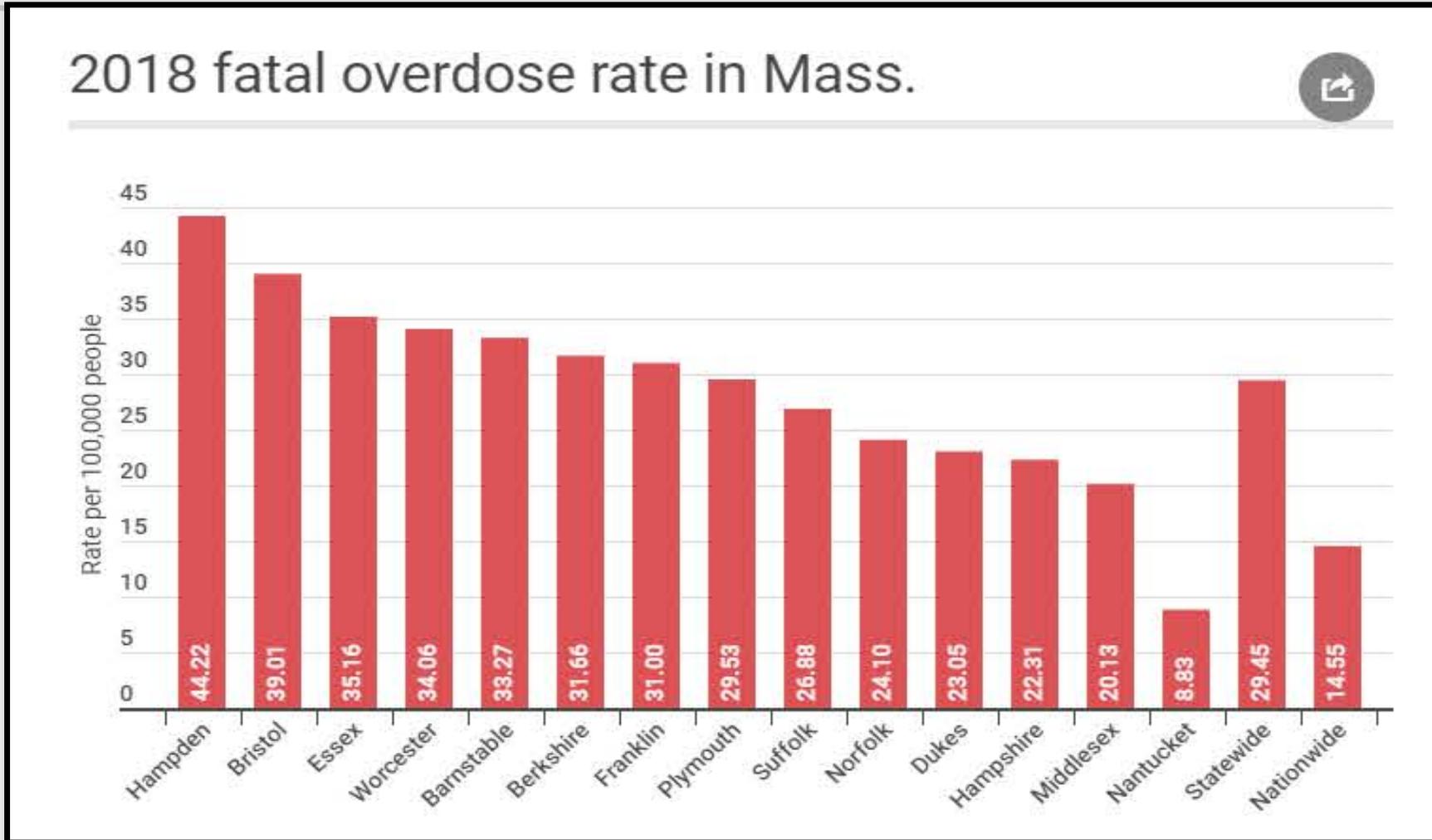
- Number one cause of accidental death in MA and the U.S.
- Opioids are the leading cause of death of people under 45
- On average, 130 Americans die every day from an opioid overdose



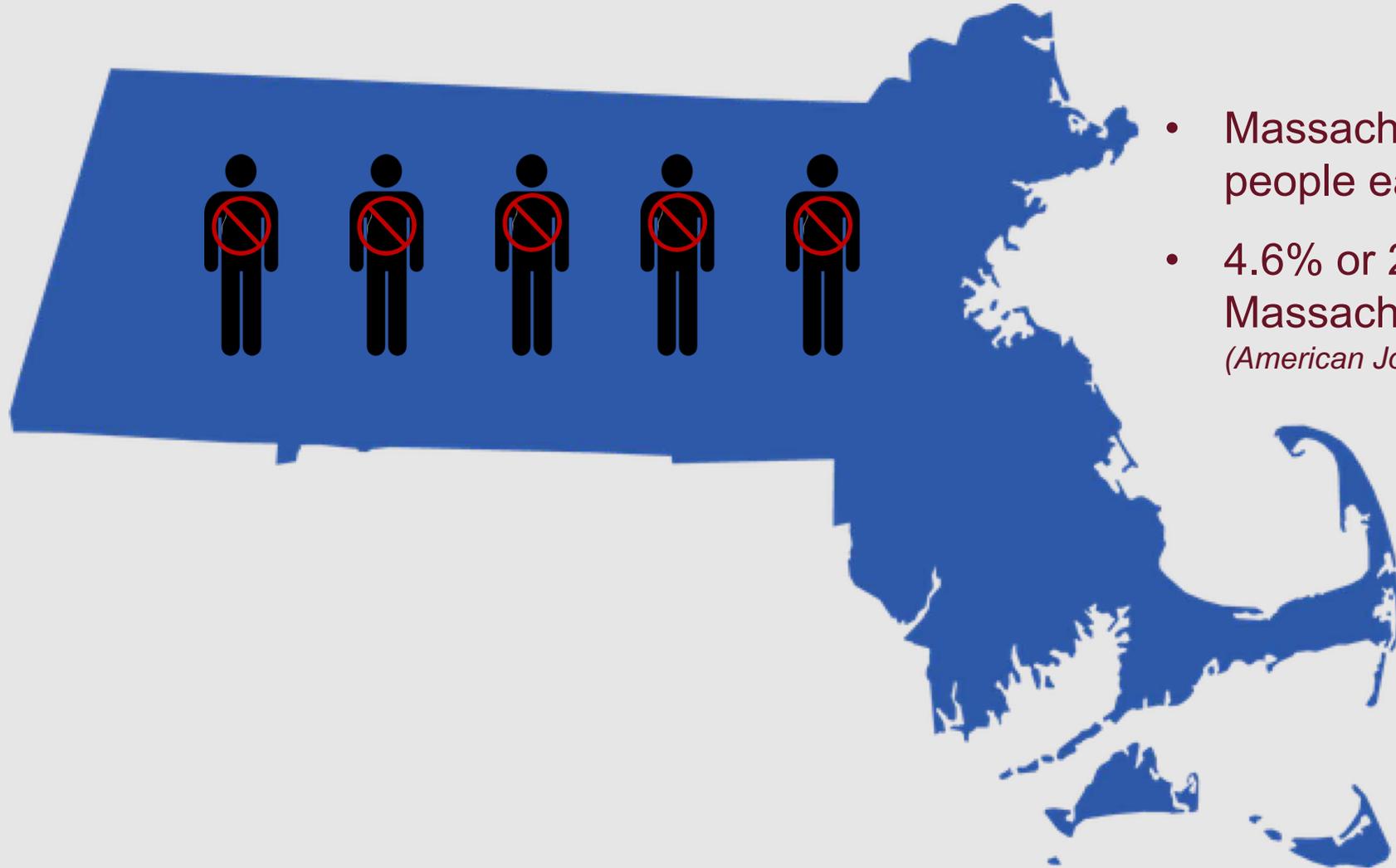
Opioid Stats in Mass



Opioid Stats in Mass



Opioid Stats in Mass



- Massachusetts on average loses 5 people each day
- 4.6% or 275,000 of people in Massachusetts meet criteria for OUD
(American Journal for Public Health, 2018)

Opioid Overdoses in Mass

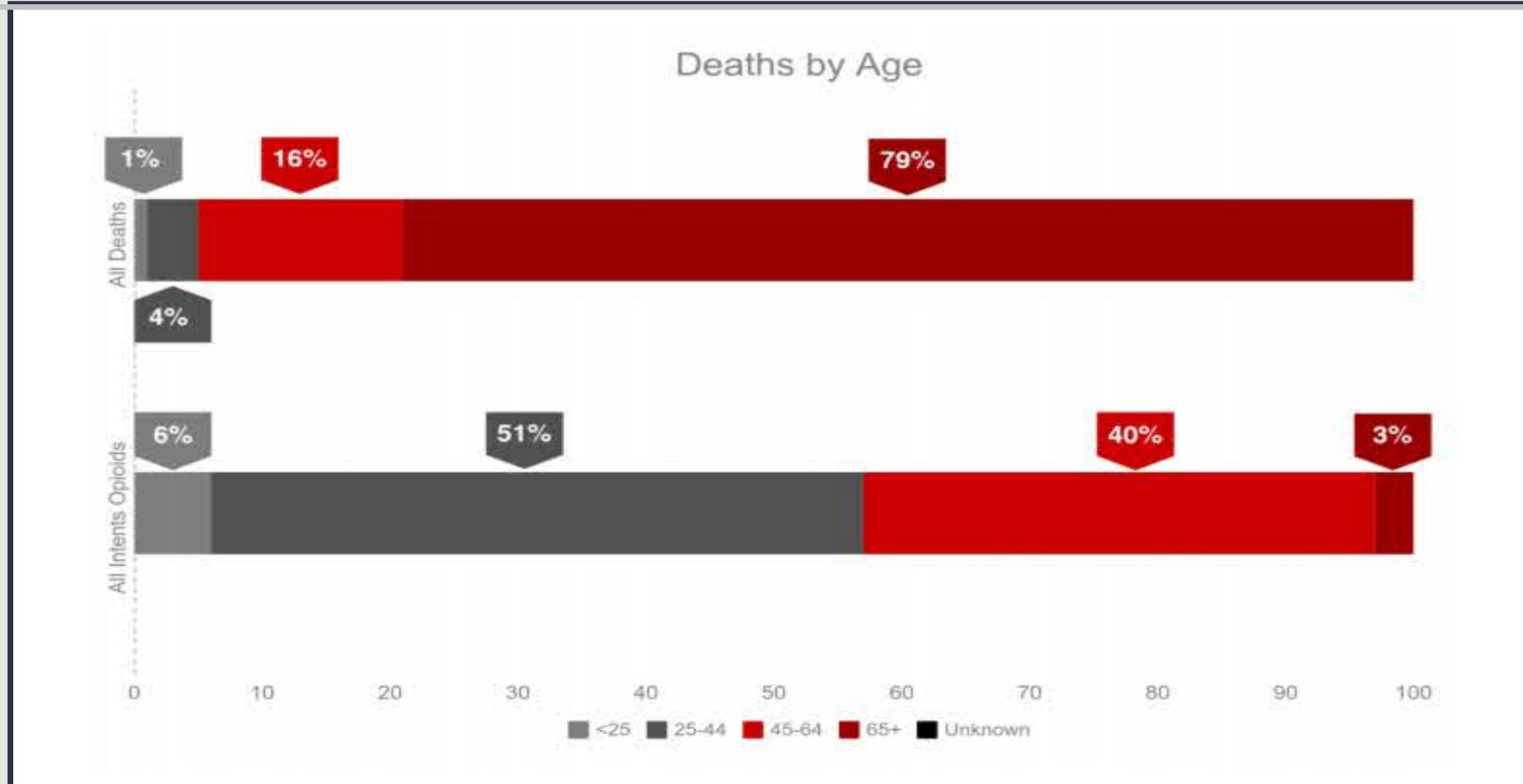
- In New England terms:



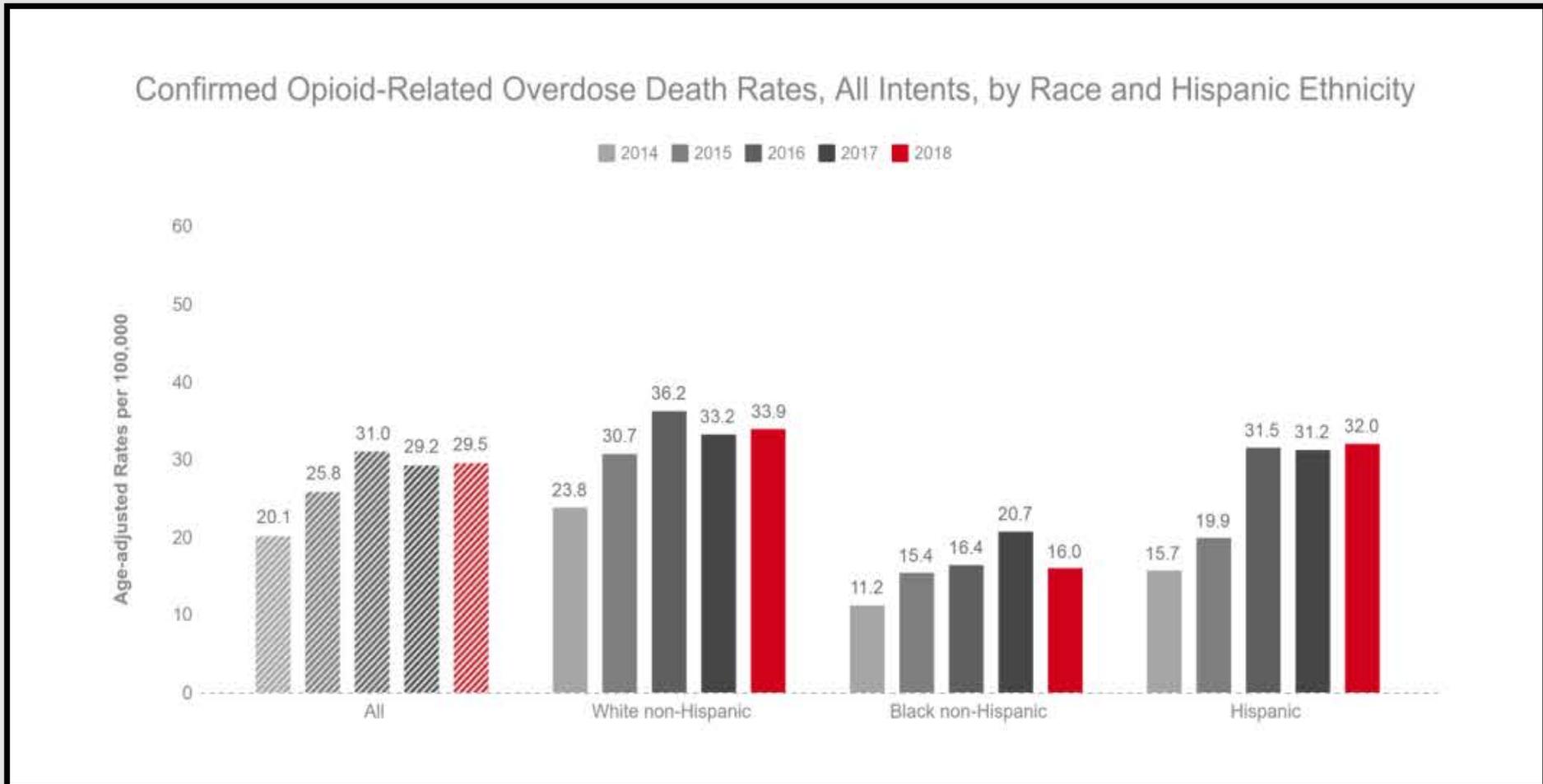
275,000 would fill more than four Gillette Stadiums at full capacity



Opioid Stats in Mass



Opioid Stats in Mass





Opioid Use Disorder

The Process of Opiate Addiction

Initial exposure: When an opiate travels by bloodstream to the brain, it triggers the release of the chemical Dopamine that causes feelings of intense pleasure



Tolerance: as a person continues to use an opiate, it will take increasingly higher doses of the drug to achieve the same effect and feelings of pleasure



Dependence: eventually the body becomes dependent on the opiate and continued use is necessary to prevent withdrawal (“dope sick”)



Addiction: Psychological inability to stop using the substance despite substantial harm to self, relationships, and major life domains.

Opioid Withdrawal

Symptoms include:

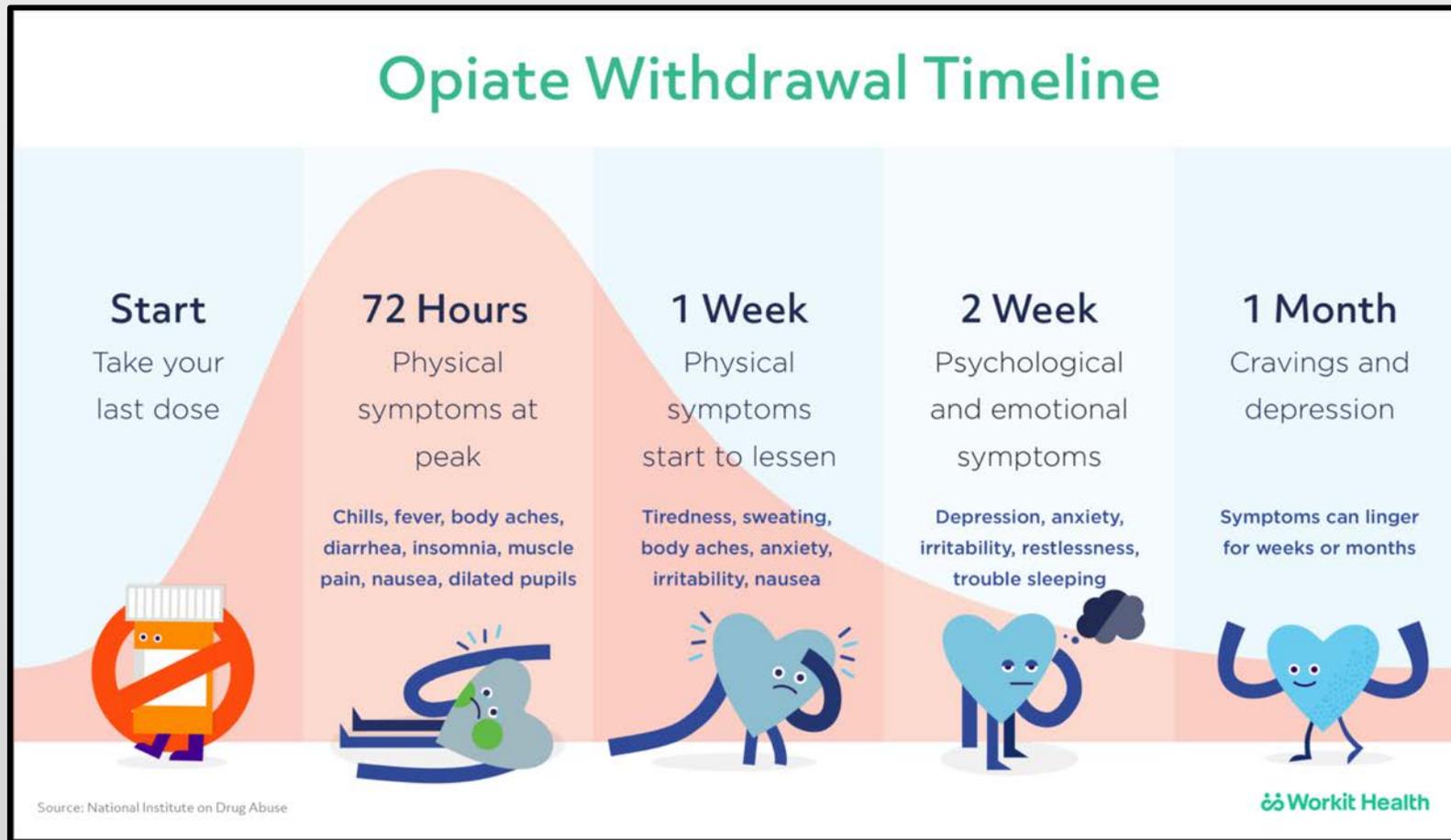
- Muscle, joint, and bone pain
- Runny nose and eyes
- Nausea, vomiting, abdominal cramps, diarrhea
- Goosebumps, chills, sweating
- Anxiety, depression, intense craving
- Loss of appetite
- Confusion, irritability



Opioid Withdrawal



Opioid Withdrawal



Opioid Use Disorder

Most Widely-used Opiates in the U.S.

Vicodin

A powerful pain killer prescribed for acute episodes of pain (injury, post surgery) and chronic pain. Most abused prescription in the U.S. (Hydrocodone and Acetaminophen)

OxyContin

Originally formulated to time-release its effects- easily overridden and abused. New formulations have made it less desirable on the streets, contributing to an increase in heroin and fentanyl

Heroin

The most widely used non-prescription opiate. It is estimated that more than half of people currently using heroin began opiate use from a prescription

Fentanyl

Used in hospital settings as a pain reliever and intravenous anesthetic. It is primarily used to reduce pain before, during, or after surgery

Fentanyl

- Powerful synthetic opioid developed in 1959 in Belgium by Dr. Paul Janssen
- It's up to 50x stronger than heroin and 100x stronger than morphine
- Quickly adopted in medical settings as a pain reliever and intravenous anesthetic (Sublimaze)
- Analogues quickly developed
 - Slight molecular reformulation of fentanyl to enhance different effects
- Duragesic® developed in 1992
 - Delivers fentanyl via a transdermal patch
 - Used in chronic pain management
- Actiq® available to the public in 1999
 - Dissolved in the mouth (fentanyl lollipop)
 - Intended for opioid-tolerant individuals
 - Found effective in treating breakthrough pain in cancer patients because of its potency

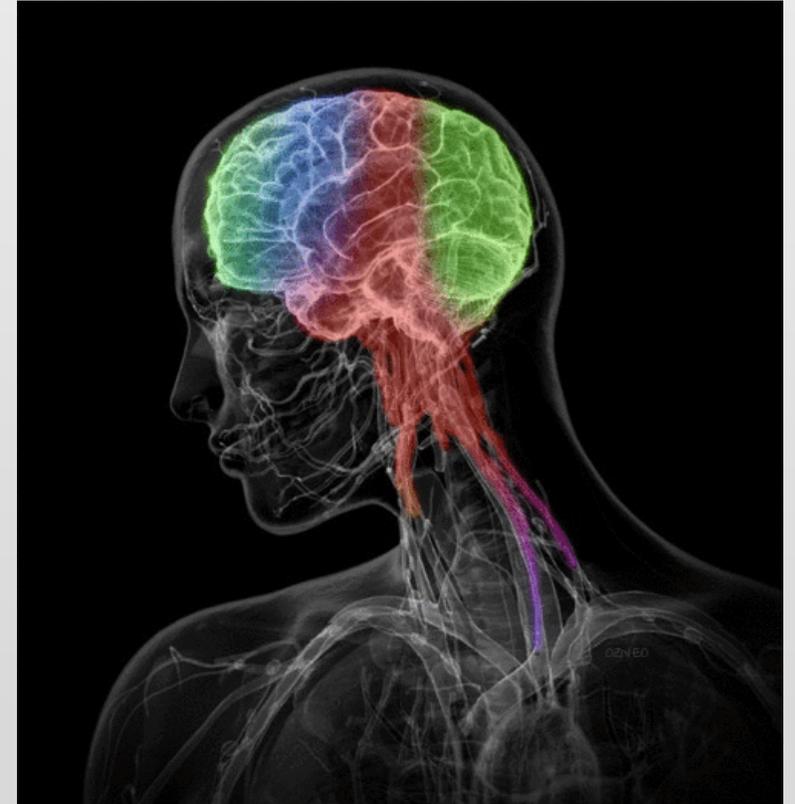
Fentanyl

- In addition to the many legal analogues produced over the years, at least 36 different illegal fentanyl analogues have been identified by law enforcement in the U.S.
- Analogues are sometimes produced to circumvent regulations in a variety of countries. U.S. has laws to circumvent this effort
- The source for many of these analogues are clandestine laboratories in countries like Mexico and “legitimate” factories in China, which does not regulate its sale
- Where the pills cannot be sold, Chinese companies are selling key ingredients and machinery (i.e. pill press) to assist people in manufacturing their own analogues



Fentanyl

- The first documented presence of fentanyl on the streets was in Los Angeles 1979 under the name of “*China White*.”
 - Other names include Apache, China Girl, Dance Fever, Friend, Goodfellas, Jackpot, Murder 8, and Tango & Cash
- Far cheaper and easier to manufacture and transport than other drugs
 - Heroin is expensive to produce and import (planting, cultivation, harvesting, refining, importing)
 - Chemicals can be shipped cheaply into the U.S. or other countries
 - Potency makes for easy shipping (cars vs. trucks, planes vs. boats-even UPS!)
- Because of its potency, portability, and low-price, fentanyl is often used to “cut” other drugs, such as heroin, cocaine, meth, and MDMA (or replace them entirely)



Fentanyl



Potentially fatal dose of heroin

VS.

**Potentially fatal dose of
Fentanyl**

For an average adult male

Fentanyl

Drug	Duration	Potency
Methadone	24-32 hours	****
Heroin	6-8 hours	*****
Oxycontin	3-6 hours	*****
Codeine	3-4 hours	*
Demerol	2-4 hours	**
Morphine	3-6 hours	***
Fentanyl	2-4 hours	*****

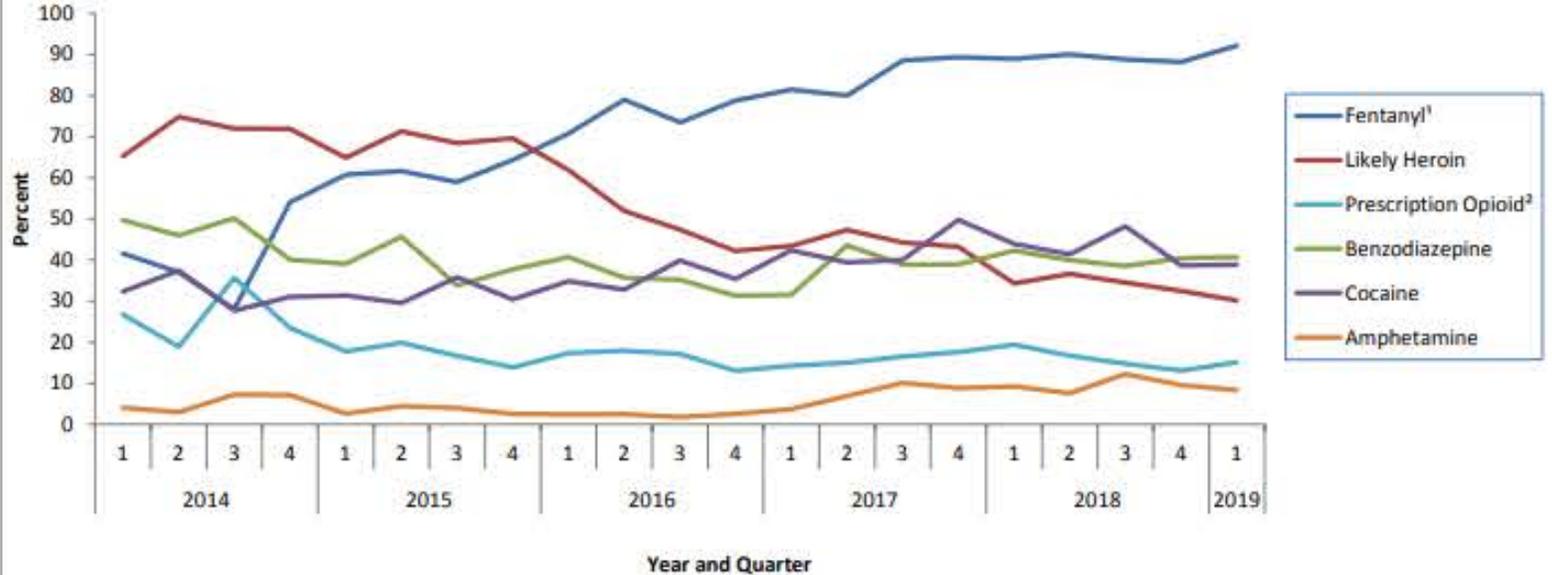
Fentanyl

- Fentanyl binds faster than any other opiate for an elevated feeling of euphoria
- Where overdose from other opioids usually takes 1 to 3 hours, overdose from fentanyl can occur in as little as **5 to 10 minutes**
- Smaller margin for error regarding overdose
- Fentanyl can induce chest wall rigidity (“Wooden Chest”)
 - A condition which causes a seizing of the chest muscles
 - Makes rescue breathing and CPR ineffective
 - Can be reversed with Narcan



Fentanyl

Figure 4. Percent of Opioid-Related Overdose Deaths with Specific Drugs Present
Massachusetts Residents: 2014 - Q1 2019



1. This is most likely illicitly produced and sold, **not** prescription fentanyl

2. Prescription opioids include: hydrocodone, hydromorphone, oxycodone, oxymorphone, and tramadol

Please note that previous estimates may change slightly as DPH routinely receives updated toxicology data from the Office of the Chief Medical Examiner and the Massachusetts State Police.

In Mass:

- A drop in death rates involving heroin have decreased at approximately the same rate that fentanyl-related deaths have increased
- 89% of deaths in 2018 had a toxicology screen showing a positive result for fentanyl

Fentanyl

Heroin

- Derived from the alkaloids found in the Poppy plant
- Formulated to be 15 times stronger than morphine**
- Schedule I drug with no recognized legitimate use
- Stimulates opiate receptors in the brain & brainstem
- Will show up on a routine general opioid screening test

Fentanyl

- Human made through chemicals
- Formulated to be 100 times stronger than morphine
- Schedule II drug with limited medical use
- Stimulates opioid receptors in the brain & brainstem
- Will **NOT** show up on a routine general opioid screening test



Opioid Overdose

Opioid Overdoses

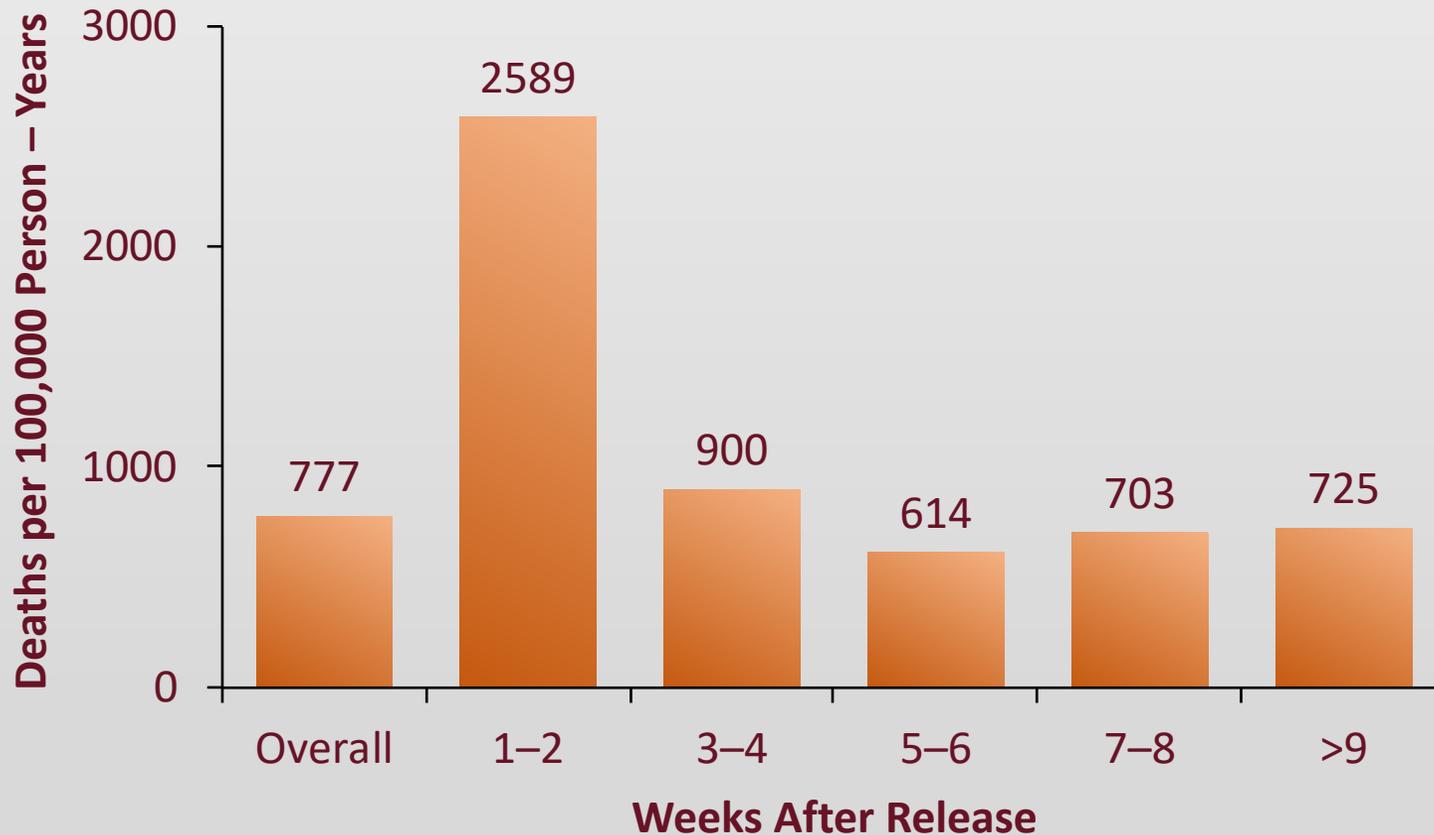
- Due to their effect on the part of the brain which regulates breathing, opioids in high doses can cause respiratory depression and death
- Recognizing an overdose quickly and taking action is key to saving lives



Opioid Overdose: Risk Factors

- Not knowing the purity or exact content of the drug
 - New city/residential location
 - New dealer/source
- Mixing other drugs and alcohol with opioids
 - Using an opioid with other depressants such as alcohol or benzodiazepines
 - Stimulants can also contribute to overdose risk
- New route of administration
- Poor physical health (advance liver damage, respiratory issues)
- Having a previous overdose
- Periods of abstinence-misjudging body tolerance (relapse, after treatment stay, hospitalization, incarceration)

Opioid Overdose: Re-entry



In the first 2 weeks post-release, a former inmate's risk for death by drug overdose = **129** times the risk for the general population.

Binswanger IA, Stern MF, Deyo RA, Heagerty PJ, Cheadle A, Elmore JG, Koepsell TD. *Release from prison-a high risk of death for former inmates.* N Engl J Med. 2007;356(2):157-165.

Intoxicated or Overdose?

Intoxicated

- Small pupils
- Drowsy, but arousable
 - Responds to verbal commands or rub
- Speech is slurred
- Drowsy, but arousable
 - 8 or more times per minute

**Stimulate
and
observe**

Overdose

- Small pupils
- Not arousable
 - No response to verbal commands or rub
- No speech
- Breathing is slow or irregular
 - Less than 8 times per minute
 - May hear choking sound or a gurgling/snoring noise
 - Blue/gray lips and fingertips

**Give naloxone
Rescue breathing**

Responding to an Overdose

➤ **Call 911**

➤ **ADMINISTER NARCAN**

➤ **Rescue breathing/Chest Compressions**

➤ Chest compressions should only be done if there is no sign of a pulse

➤ Stay with the person until help arrives

➤ Recovery position as needed



Naloxone (Narcan)



Naloxone (Narcan)

- A prescription medicine which reverses an overdose by blocking opioid receptors
- Injectable and intranasal applications, simple nasal spray (most common formulation)
- No intoxication, no adverse reactions, no potential for abuse, no potential for overdose
- Wakes a person who is overdosing in 2-3 minutes and lasts 30-90 minutes
 - Afterwards any opioids in the body will return to the receptors
 - Advise against using more opioids as overdose can occur again once the naloxone wears off
 - Any opiates will not be felt for the next 30 to 90 minutes.
- *Note: must be stored at room temperature*



Naloxone (Narcan) Nasal Spray

Single-step Administration:

- Comes with two pre-assembled applicators with Narcan built in
- Requires no assembly, just insert in nostril and push the button
- Spring-action button delivers full 4mg dose in one nostril
- If person is not revived within 2 to 3 minutes, deliver second applicator



PEEL



PLACE



PRESS



Naloxone Formulations



Nasal with separate atomizer
“Multi-step”

Amphastar Pharmaceuticals



Narcan Nasal Spray
“Single-Step”

Adapt Pharma



Auto-injector

Kaleo Inc.



Intramuscular Injection

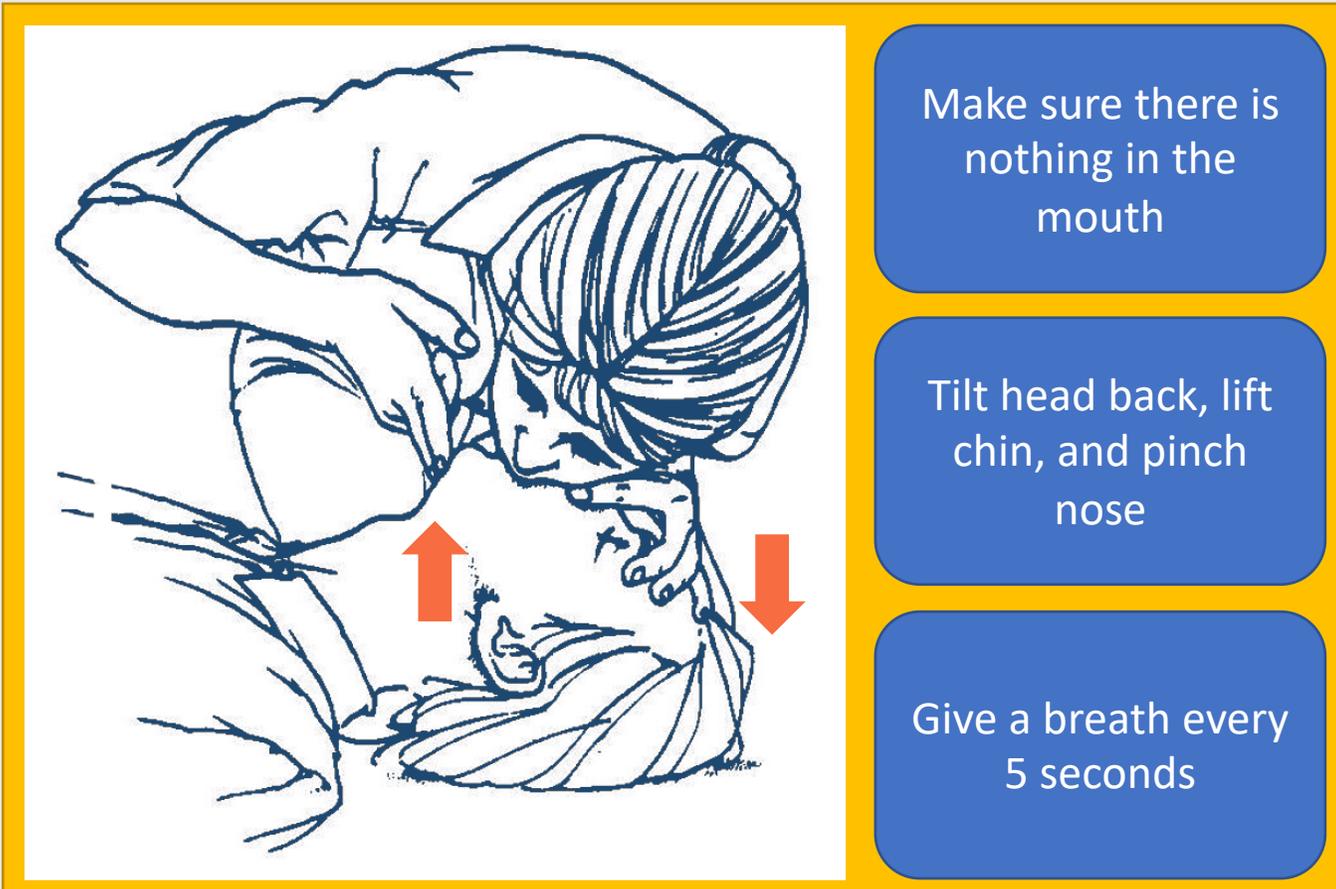
Various Companies

Responding to an Overdose

- ✓ ➤ **Call 911**
- ✓ ➤ **ADMINISTER NARCAN**
- **Rescue breathing/Chest Compressions**
 - Chest compressions should only be done if there is no sign of a pulse
- Stay with the person until help arrives
- Recovery position as needed



Rescue Breaths



Make sure there is nothing in the mouth

Tilt head back, lift chin, and pinch nose

Give a breath every 5 seconds

- Essential for getting oxygen into the lungs
- The air we exhale has 17% oxygen which is more than enough to sustain someone
- Helps a person get enough oxygen until the naloxone reverses the overdose and the person starts breathing on their own
- Can help keep someone alive and prevent brain damage

Responding to an Overdose

- ✓ ➤ **Call 911**
 - ✓ ➤ **ADMINISTER NARCAN**
 - ✓ ➤ **Rescue breathing/Chest Compressions**
 - Chest compressions should only be done if there is no sign of a pulse
- Stay with the person until help arrives
- Recovery position as needed



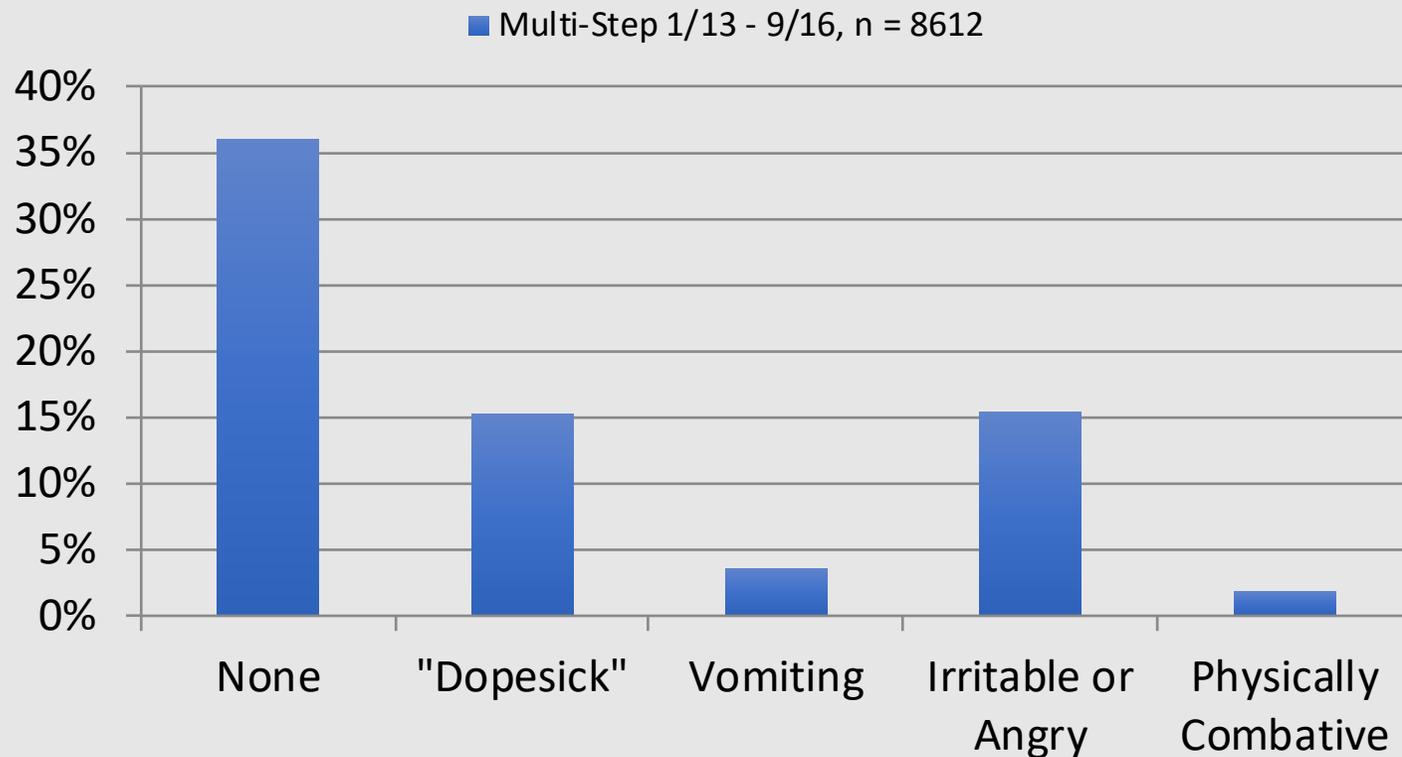
Recovery Position

If you must leave the person who is overdosing, put them into the recovery position so they will not choke on their own vomit



Naloxone (Narcan) Responses

Community Bystander Naloxone Rescue Reports: Post-Naloxone Withdrawal Symptoms.



The Good Samaritan Law

In case of an overdose, the Massachusetts Good Samaritan Law protects both victims and those who call 911 for help from charge, prosecution, and conviction for possession or use of controlled substances.

It does not protect people from arrest for other offenses, such as selling or trafficking drugs, or from existing warrants.

(warrants, weapons, or weight)

[Title XV, Chapter 94C, Section 34A](#)



Naloxone (Narcan) Access

- Naloxone rescue kits are available at pharmacies across the state, with or without prescriptions
 - The Department of Public Health (DPH) has issued a statewide standing order that allows pharmacies to dispense naloxone without a prescription
- All Massachusetts retail pharmacies licensed by the Board of Pharmacy must maintain a continuous, sufficient supply of naloxone rescue kits. (*Policy No. 2018-04: Naloxone Dispensing via Standing Order*)
- Covered by most insurance companies, as well as MassHealth
 - 76% have a copay of \$10 or less
- For information on naloxone programs call the Massachusetts Substance Use Helpline at 1-800-327-5050 or visit www.helplineMA.org



Overdose Education and Naloxone Distribution (OEND) Programs in Massachusetts

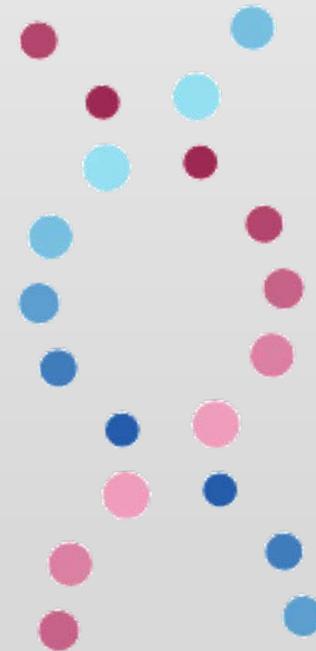
Boston	Central	Northeast	Southeast	Western
<p>ACCESS, Drug User Health Program <i>Fenway Health</i> 617-599-0246 Serving Boston, Cambridge, Somerville, and surrounding towns</p>	<p>AIDS Project Worcester 508-755-3773 Serving Worcester County</p>	<p>Greater Lawrence Family Health Center 978-989-4533 Serving Lawrence and Essex County</p>	<p>AIDS Support Group of Cape Cod Hyannis: 508-778-1954 Martha's Vineyard: 508-487-9445 Provincetown: 508-487-8311 Serving the Cape and the Islands</p>	<p>Healthy Steps <i>Berkshire Medical Center</i> 413-447-2654 Serving Pittsfield</p>
<p>AHOPE <i>Boston Public Health Commission</i> 617-534-3976 Serving Boston</p>	<p>Metro West</p>	<p>Healthy Streets <i>Health Innovations</i> 339-440-5633 Serving Beverly, Chelsea, Lowell, Lynn, Peabody, Salem, and Saugus</p>	<p>The COPE Center <i>Brockton Area Multi-Services, Inc.</i> 508-583-3405 Serving Brockton and Plymouth</p>	<p>Holyoke Community Health Center 413-420-2255 Serving Holyoke</p>
<p>Drug User Health Project <i>Victory Programs</i> 617-927-0836 Serving Boston</p>	<p>Manet Community Health Center 857-939-4108 Serving Braintree, Hull, Quincy, and Weymouth</p>	<p>Lowell Community Health Center 978-221-6767 Serving Lowell</p>	<p>Project Aware SSTAR 508-324-3561 Serving Fall River</p>	<p>New North Citizen's Council 413-746-4885 Serving Springfield</p>
<p>North Suffolk Mental Health 617-912-7554 Serving Revere</p>	<p>Program RISE <i>Justice Resource Institute</i> 508-935-2960 Serving Ashland, Framingham, Natick, Westborough and surrounding towns</p>	<p>Lowell House 978-459-8656 Serving Lowell</p>	<p>Seven Hills Behavioral Health New Bedford: 508-996-0546 Fall River: 508-235-1012 Taunton: 508-967-7170 Serving the South Coast</p>	<p>Tapestry Health Greenfield: 413-475-3377 Holyoke: 413-315-3732 North Adams: 413-398-5603 Northampton: 413-586-0310 Springfield: 413-363-9472 Serving Western MA</p>

Responding to an Overdose



Opioid Overdose: Harm reduction

- Do not use drugs alone – make an overdose plan with using partners
- Keep Naloxone nearby and visible
- Keep door unlocked
- Go low and slow- tester shot
- Use only one drug at a time
- Plan ahead
- Stay with same dealer
- Others?



Opioid Overdose: Harm reduction

- There's an app for that!
- Developed at the University of Washington, Second Chance is a smartphone app that uses sonar to monitor someone's breathing
- If an overdose is detected, emergency services are notified
- Waiting for FDA approval; hoping to be released by the end of 2019



Pop Quiz!

- Example of a synthetic opioid?
 - Fentanyl, Methadone, Tramadol
- Brand name of naloxone?
 - Narcan
- Number of people who die from overdoses everyday in Mass?
 - Five
- A street name for Fentanyl?
 - China White, Apache, China Girl, Dance Fever, Friend, Goodfellas, Jackpot, Murder 8, and Tango & Cash
- How long to wait between doses of Narcan?
 - 3 to 5 minutes

Pop Quiz!

- The amount of time an overdose can take when using fentanyl
 - 5 to 10 minutes
- These are the signs of an overdose
 - Not responsive, not breathing, blue/gray coloring
- Three risk factors for opioid overdose
 - Not knowing the content, mixing drugs, periods of abstinence, new route of using, having a previous overdose, etc.
- These are the 3 steps to take when someone is overdosing
 - Call 911, deliver Narcan, begin rescuing breathing
- These are the potential adverse reactions of using naloxone on someone who is not overdosing
 - None



Thank You!



C4
Innovations