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# Overview of Medication-Assisted Treatment (MAT) for Older Adults with an Opioid Use Disorder (OUD)

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## Fatal OD Rates in PA

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- PA has one of the highest fatal and non-fatal overdose (OD) rates in the United States
- The OD rate in PA is caused by two overlapping factors:
  1. An abundance of low-cost, highly potent heroin and fentanyl, which have moved into the mid-Atlantic and New England states
  2. Easy access to prescription opioids and benzodiazepines, which can be lethal when combined with heroin, fentanyl, cocaine, or other prescription opioids
    - Many of the prescription medications are being acquired for free from family members

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## Fatal OD Rates in PA

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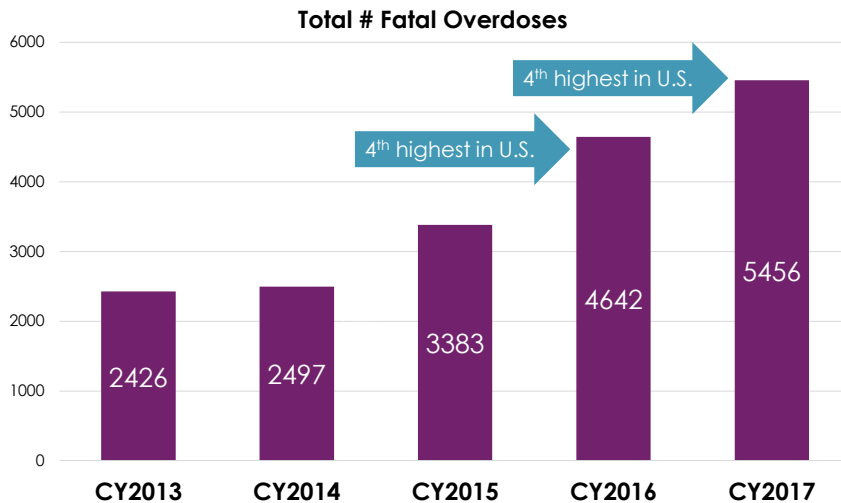
- Between July 1, 2016 and September 30, 2017, PA experienced an 80% increase in the number of patients entering an Emergency Department (ED) because of an overdose to opioids (CDC, 2018)
  - This was the third highest rate among 45 states

## Fatal Overdose (OD) Rates in PA 2017

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- The DEA in Philadelphia released the 2017 data in October 2018 at:  
<https://www.overdosefreepa.pitt.edu/2018/10/11/the-opioid-threat-in-pennsylvania-2017-dea-report/>
  - 5,456 OD deaths were documented in 2017, representing a 6% increase from 2016
  - The overall OD death rate in the U.S. is 22/100,000 and in PA the rate is 43/100,000 or nearly double the national average

## Fatal OD Rates in PA 2013 to 2017



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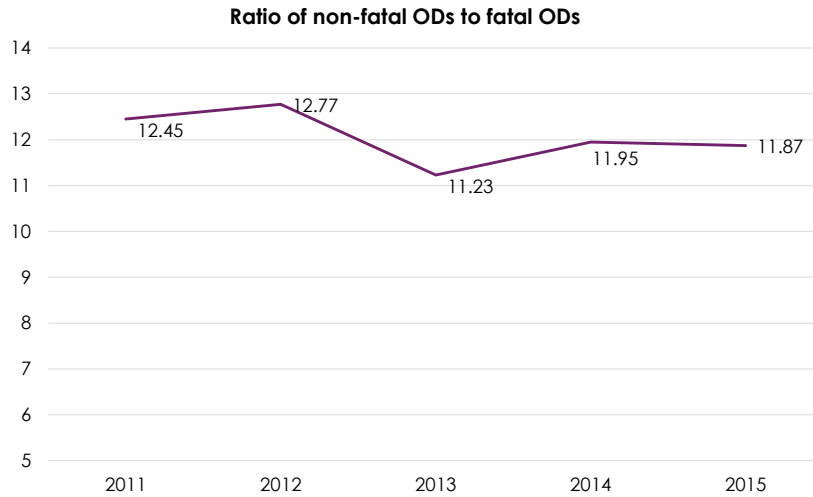
## OD Rates in PA and U.S.

- Non-fatal OD rates are substantially higher than fatal overdose rates
  - Massachusetts reported a ratio of non-fatal ODs to fatal ODs of 11 to 13 over a time period of five years (see the next slide)
  - A study in Philadelphia found that there were 13 ED visits for every 1 fatal overdose in the County
  - A Canadian study found a non-fatal OD rate of 13.64 to 1 fatal OD for IV drug users
  - The non-fatal OD rate in PA could be around **55,000** based on the ratio noted in Massachusetts

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## Non-Fatal OD Rates in MA 2011-2015

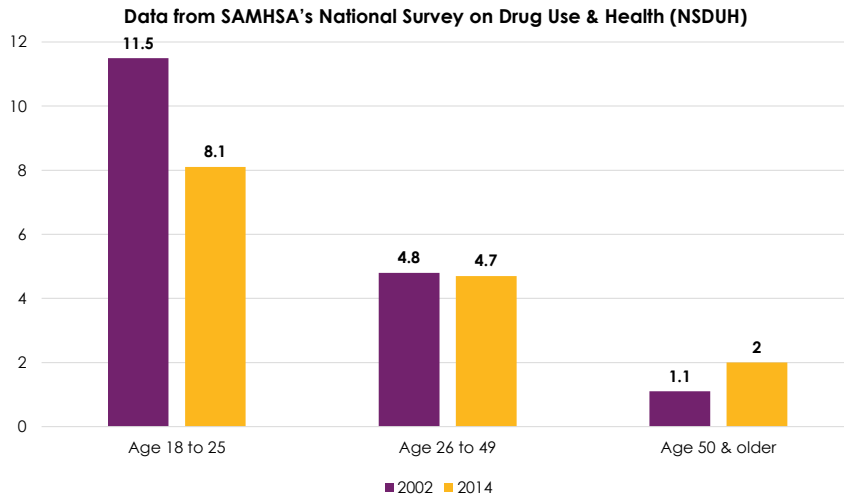


## Older Adults and OUD Rates

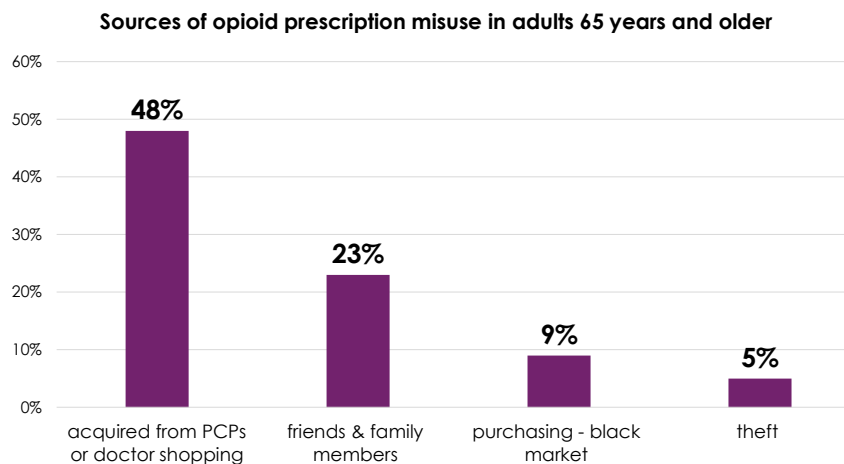
Older adults tend to misuse prescription opioid medications, though the use of heroin is rising at the same rate as younger individuals

Adults younger than 50 tend to use more heroin in addition to prescription medications, with the overall rate of OUD continuing to rise

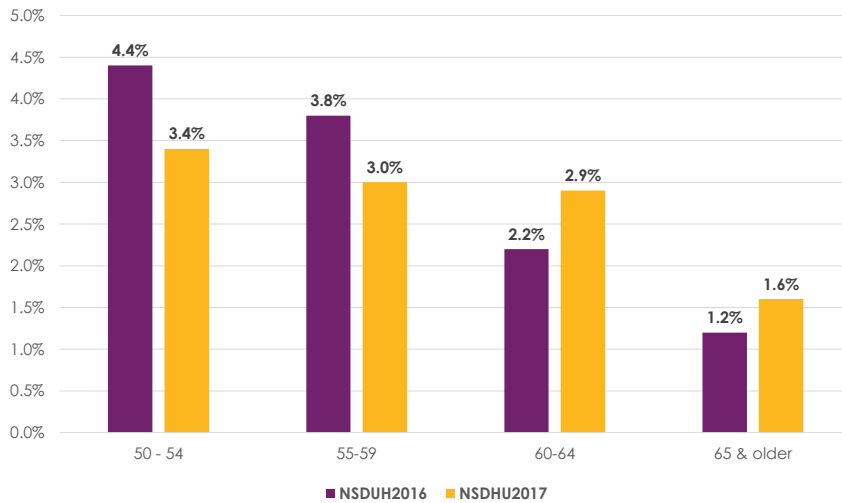
## Older Adults & Misuse of Rx Opioids



## Older Adults and Prescription Misuse



## Older Adults & Misuse of Opioid Meds

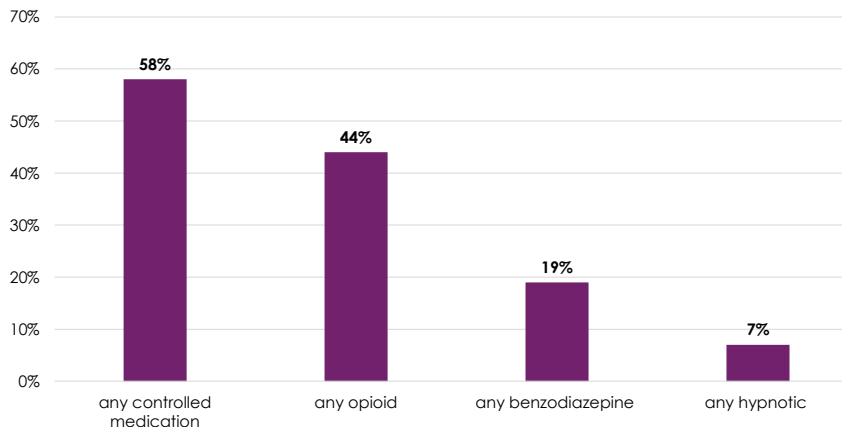


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SAMHSA's NSDUH Data 2017 – Detailed tables, pg. 211

## Older Adults and Medicare

Older adults receiving Medicare home health care & prescriptions of controlled substances  
Medical records of 87,780 Medicaid Beneficiaries >64 years



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# Hydrocodone Prescriptions

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## Hydrocodone prescriptions & Medicare Part D 2013 to 2015 for beneficiaries 65 years & older



The overall rate of hydrocodone & other opioid prescriptions decreased around 4% from 2013 to 2015



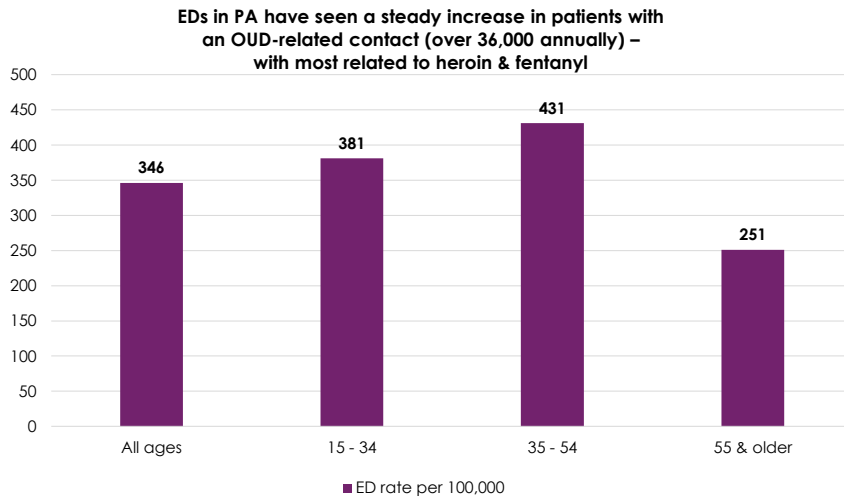
The rate of opioid related hospitalizations for beneficiaries who did not have an opioid prescription increased 24% in the same time period

## Risk Factors for OD with Older Adults

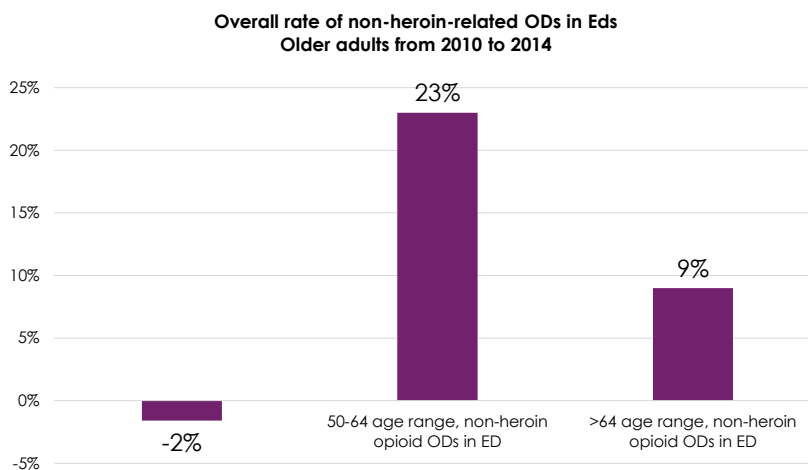
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- The fatal & non-fatal OD rate continues to rise across all age groups, 12 years and older in PA & in the U.S.
- Risk factors for older adults include:
  - History of OUD or other substance use disorder (SUD),
  - Having both Medicaid & Medicare,
  - Being rural white,
  - Having a co-occurring mental illness,
  - Active alcohol use disorder (AUD),
  - Having severe chronic pain, &
  - Receiving polypharmacy with 2 or more controlled substances (class II or III), such as benzodiazepines & opioids

## OUD-related ED Events in PA 2017



## Opioid Prescription-related ED Events





## Opioid-related ED Events

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(Older adults from 2000 to 2014)

- Mortality rates for opioid-driven hospitalizations have slowly increased between 2000 and 2014 in the U.S. (Song, 2018)
  - More people are dying after they arrive at the ED, due to opioid poisoning
  - Individuals more likely to die from opioid poisoning after entering the ED were:
    - White,
    - 50 to 64 years in age,
    - Have Medicare because of a disability, and
    - Living in lower income areas

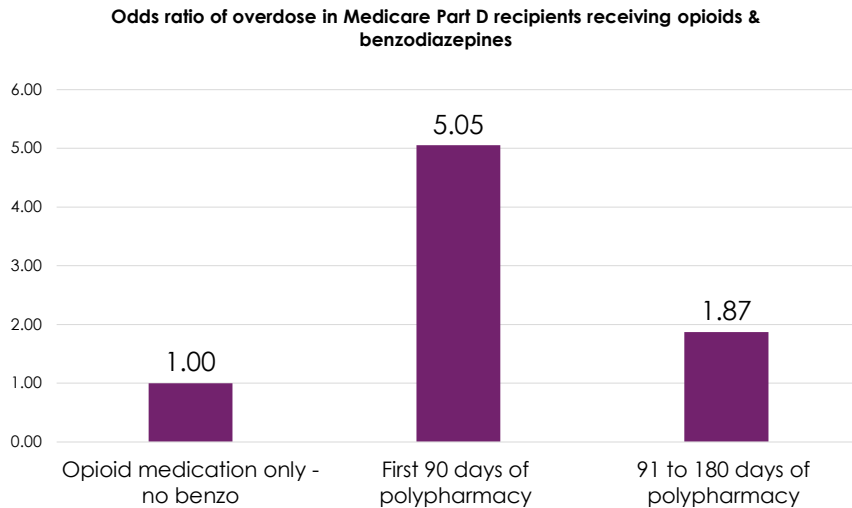
## Misuse of Opioids & Benzodiazepines

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- Intentional misuse of benzodiazepines is even more common than misuse of opioids in the U.S. (Calcaterra et al., 2018)
  - There was a 4.6 fold increase in poisoning associated with the combination of opioids & benzodiazepines between 2000 and 2010
    - Combining benzodiazepines with opioids increases the risk of death by 55%
  - Polypharmacy combining opioids & benzodiazepines are common among individuals with Medicare Part D as well as overdoses caused by this combination (Hernandez et al. 2018) – see the next slide

## Overdose - Medicare Part D

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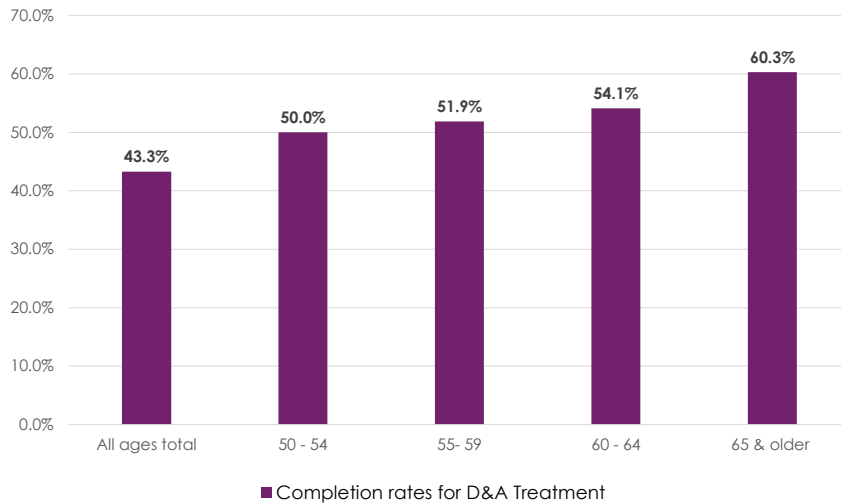


## Older Adults and Addiction Treatment

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- Addiction treatment admissions for older adults are rising in the U.S., with a majority misusing prescription medications or heroin
  - Individuals 50 years & older accounted for 17% of all tx admissions in the U.S. in 2015
  - Alcohol use disorders are also on the rise
  - Older adults tend to have better treatment outcomes than individuals below the age of 50

## Older Adults and Addiction Treatment



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SAMHSA's TEDS CY 2015

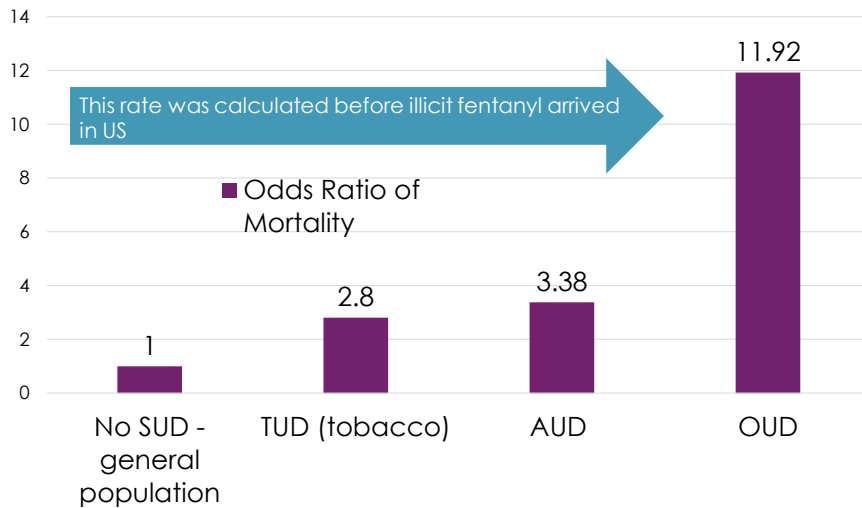
## Recovery Rates by Type of SUD

- Individuals with an OUD have a higher rate of mortality and a lower rate of recovery compared to individuals with other SUDs
  - Recovery rates for individuals with a alcohol use disorder (AUD) or cocaine use disorder (CUD) who require treatment are approximately **46% to 50%** in the U.S. (White, 2012)
  - Recovery rates for individuals with an OUD who require treatment are approximately **30%** (Hser et al., 2015)

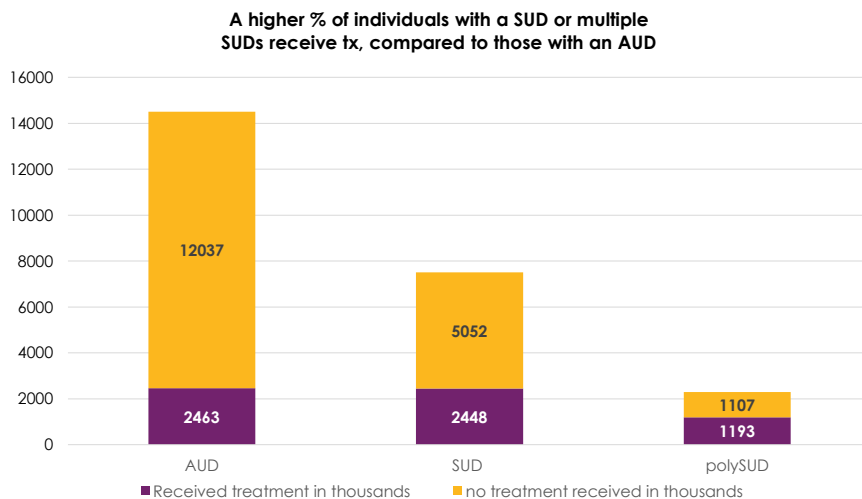
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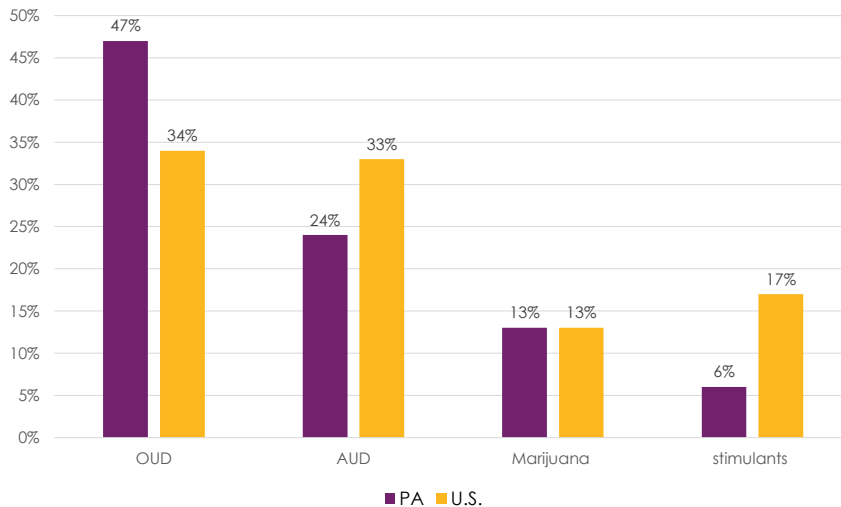
## U.S. Mortality Odds Ratio by SUD type



## Access to Treatment by SUD Category



## D&A Tx Admissions by Diagnosis



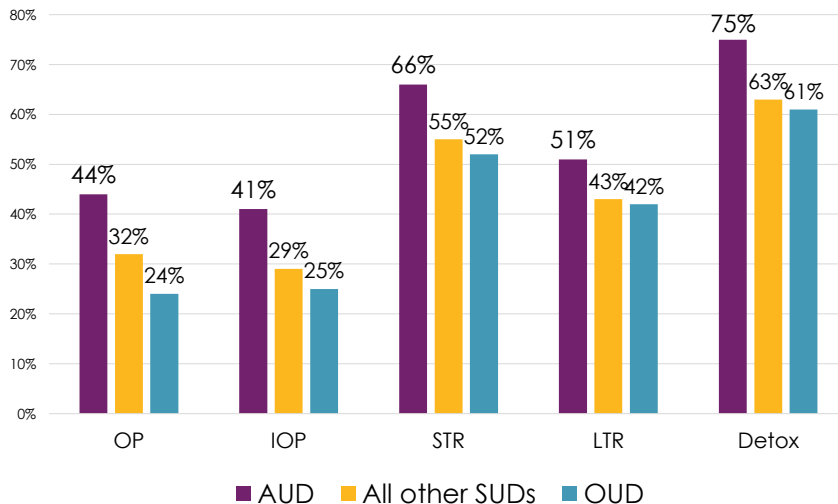
## OUDs and the Treatment System

- People with an OUD represent less than 12% of all SUDs in the U.S., but account for 34% of all admissions in U.S. and 47% in PA
  - In PA, people with an OUD now occupy 60% or more of all residential treatment beds
- Two overlapping factors contribute to the overrepresentation of people with an OUD in the addiction treatment system
  - OUD tends to be the most destructive addiction
  - Abstinence-based treatment (ABT) is least effective for people with an OUD, more effective for those with an AUD

## Tx Completion Rates – TEDS CY2015

- SAMHSA’s Treatment Episode Data Set (TEDS) provides an annual summary of tx admissions & discharges in the U.S.
  - 2018 report for CY2015 includes 1,549,628 discharges (1,339,750 were 18 years or older)
  - Individuals with an AUD (first) or OUD (second) accounted for 68% of all discharges
  - Individuals with an OUD were less likely to complete any level of care, which has been the trend for many years (see the next slide)

## Tx Completion Rates – TEDS CY 2015



## Factors Undermining Tx for OUD

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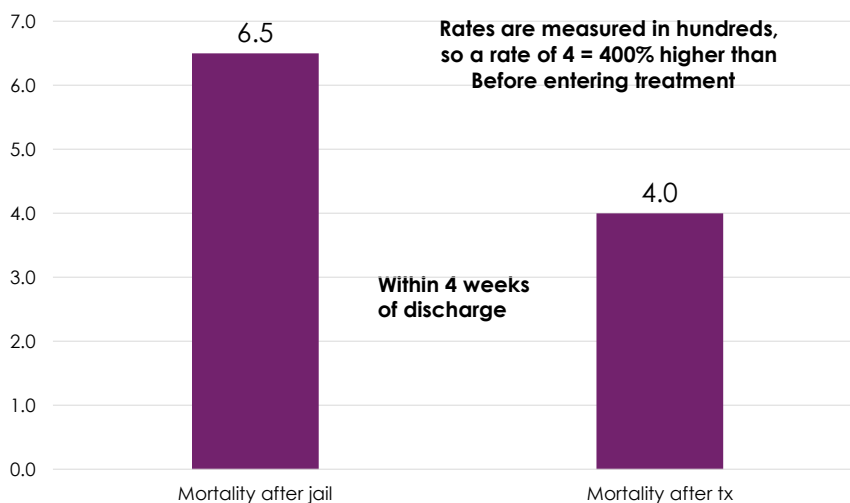
- Individuals with an OUD diagnosis experience rapid returns to using opioids after tx
  - Nearly all individuals will use alcohol or other drugs after tx; however, those with an OUD experience a greater risk of overdose (OD) when they do return to using due to the lethality of illicit opioids, alone or mixed with other powerful medications, such as benzodiazepines
  - OD rates increase after tx because tolerance levels for opioids drops rapidly within 3 to 5 days of abstaining; so a single detoxification episode can lead to a significant reduction in tolerance for opioids

## OUD & Mortality Rates

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- Clients with an OUD who leave treatment have a 2- to 6-fold increase in mortality immediately after treatment compared to individuals who remain in treatment
  - The mortality rate is similar for people leaving residential or MAT programs & for those who graduate or leave AMA
- Incarcerated individuals with an OUD have a 3- to 10-fold increase in mortality within the first 4 weeks of being released compared to the individuals in the community

## Mortality Rates for People with OUD



## MAT vs. Non-MAT Tx

- Abstinence-based treatment (ABT) tends to be more effective for people with AUD and less effective for those with an OUD
- Because of the poor response to ABT combined with the elevated risk of OD after tx, individuals with an OUD need tx interventions that will retain them longer
- Individuals with an OUD stay significantly longer in tx for methadone & buprenorphine, and slightly longer in treatment on XR-naltrexone compared to ABT only (see the next slides)



## MAT – First Line of Tx for OUD

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**MAT should be offered to all individuals with an OUD as a first line of tx with patient choice being the primary criteria for the type of tx provided**

### Methadone

- for those with extensive OUD > 5 years, IV heroin use, multiple prior tx in 3A, 3B or OP, not responding to OBOT tx

### Buprenorphine

- for OUD < 5 years, individuals who are employed, > 2 prior 3A, 3B or OP tx, stabilized in an OTP first

### XR naltrexone

- for OUD < 2 years, stabilized in OBOT or OTP first, relapse prevention in abstinence-based tx, for professionals that cannot work with an agonist medication (e.g., doctors, truck drivers)

## Medication-Assisted Treatment

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- MAT is effective in combination with a continuum of care that can include
  - Detoxification
  - Residential treatment
  - Outpatient treatment
  - Family support (and family counseling)
  - Mutual support (e.g., 12-step meetings)
  - Halfway houses & recovery homes
  - Community-based peer services & case management
  - An array of social supports and other recovery-based services

## **MAT Agonist or Antagonist**

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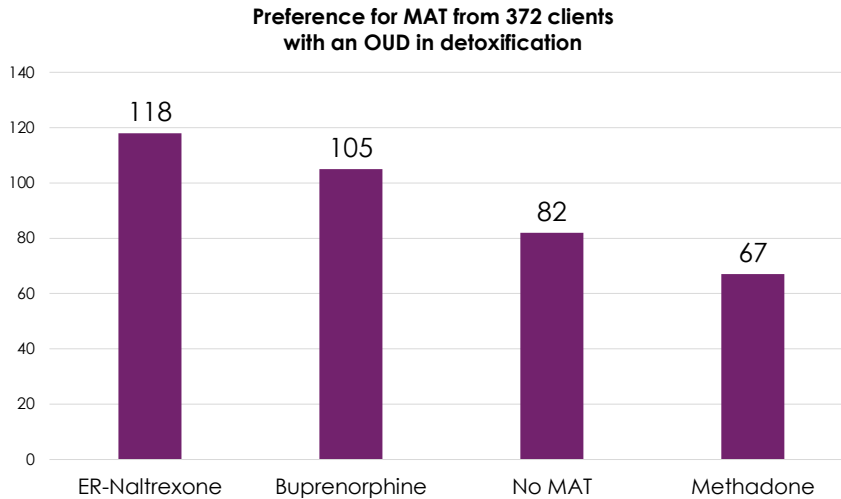
- Agonist medications tend to be more effective for individuals with an extensive OUD history and high intake of opioids at initiation of MAT (e.g., 10 or bags of heroin daily),
  - People treated with an agonist medication have lower relapse rates and longer retention in treatment compared to those without methadone or buprenorphine
- Naltrexone tends to be more effective with individuals who have limited OUD experience, lower levels of daily opioid intake, strong support, and highly motivated

## **Agonist vs. Antagonist MAT**

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- Agonist treatment for an OUD should be provided for a minimum of 12 months and more is preferred
- Extended-release naltrexone can be used for people who do not want to receive agonist medications
- Research has found that nearly 4 out of 5 individuals with an OUD in a detoxification program want MAT, when provided with a comprehensive overview of MAT as well as the risk of selecting ABT (see the next slide)

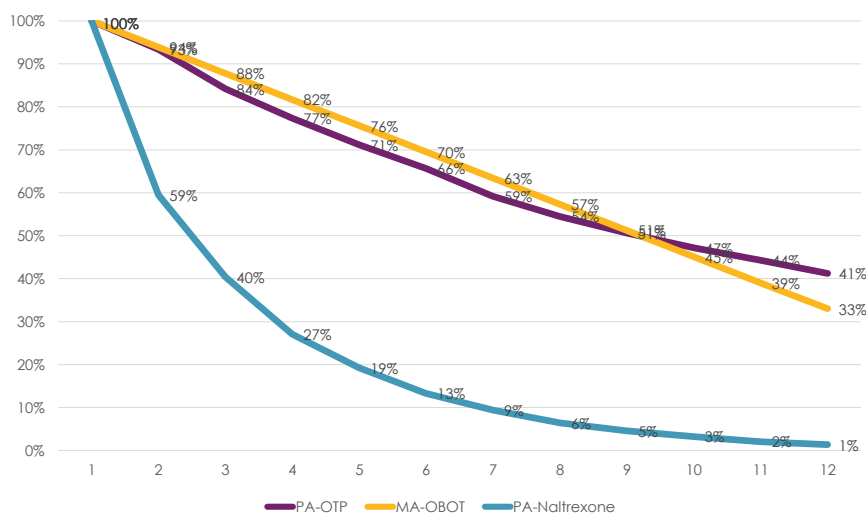
## Client Preferences for MAT



## Extended Release (XR) Naltrexone

- Individuals with an OUD receiving agonist medications, including methadone and buprenorphine, tend to stay in treatment longer than those who are prescribed naltrexone
  - The following line graph includes the average retention over a period of 12 months; i.e., attrition rate for
    - 8,327 community care members with an OUD who were enrolled in an OTP between January 1st 2015 and December 31st 2017 and
    - 3,047 community care members with an OUD (80%) or AUD (20%) who received a XR Naltrexone Injection
    - 18,866 individuals with an OUD who received buprenorphine (OBOT) treatment in MA's Medicaid system

## Attrition-Retention by MAT for OUD



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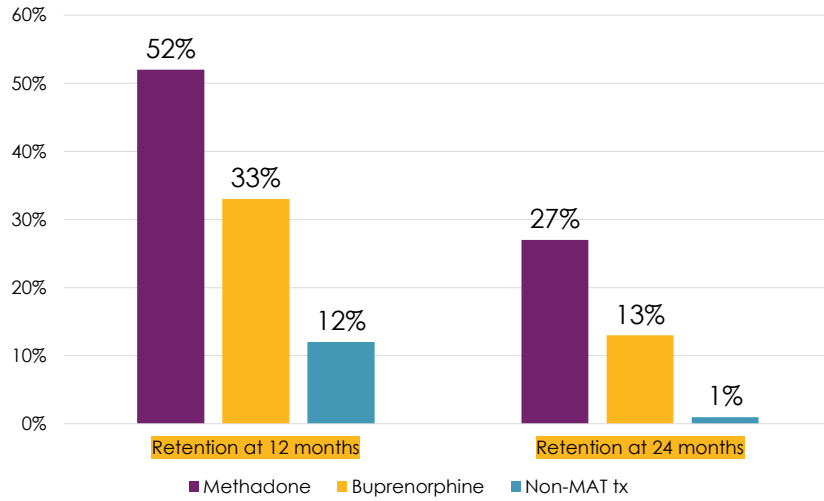
## MAT vs. Non-MAT Tx

- The Massachusetts (MA) Medicaid data set also revealed that individuals with an OUD who remained in treatment for 12 or more months, in any level of care, MAT or non-MAT, showed a nearly 30% reduction in relapse rates
  - Individuals in MAT were significantly more likely to remain in treatment at 12 or 24 months, with methadone tx showing the highest retention rates and buprenorphine showing the second highest retention rates
  - Mortality rates were the lowest for those enrolled in methadone or buprenorphine and 75% higher for those in abstinence-based treatment

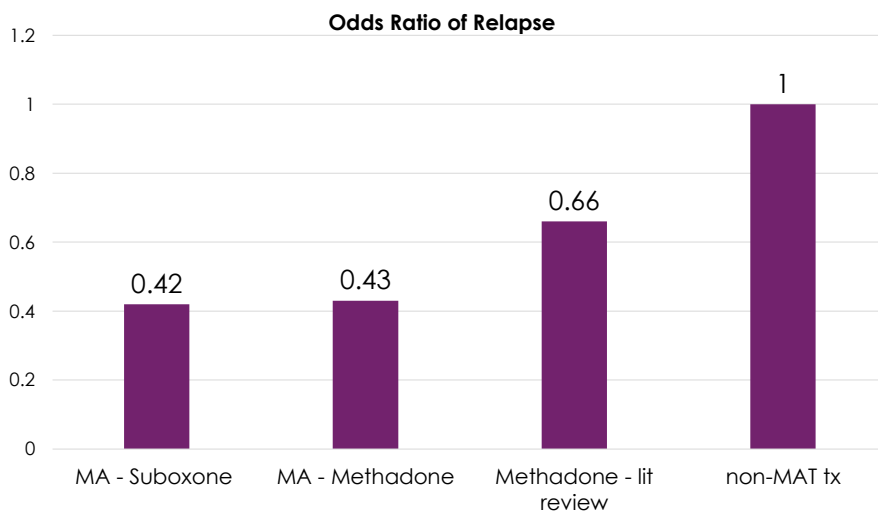
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## MA Retention in OUD Treatment



## MAT vs. Non-MAT Tx



## Centers of Excellence Grant Program

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- The PA Department of Human Services (DHS) launched a grant program in 2016 to create 45 Centers of Excellence (COEs)
  - COEs are designed to rapidly engage individuals with an OUD in treatment, including rapid access to MAT
  - COEs provide assertive outreach, such as engaging people in EDs or jails to improve engagement, with the goal of retaining them for a minimum of 12 months
  - Data in the following slides includes a subset of individuals enrolled in 8 COEs

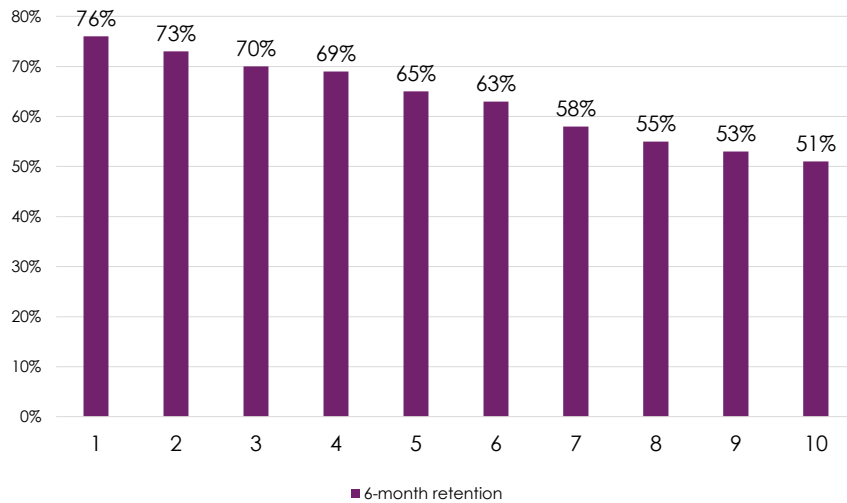
## COE Data

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- Ten COE agencies provided detailed data on the number of Community Care members enrolled
  - Enrollments include all COE members from Community Care who were enrolled from 1/1/2017
    - We used an algorithm to identify members at one COE
  - The count does not include individuals from other BHMCOs enrolled in the COE at each agency
  - 2525 Community Care members were counted in the data with a range of 110 to 486 across agencies
    - 15 COE members were counted in two COEs; therefore, the unique count of members is 2510

## Six-Month Retention Rate by COE

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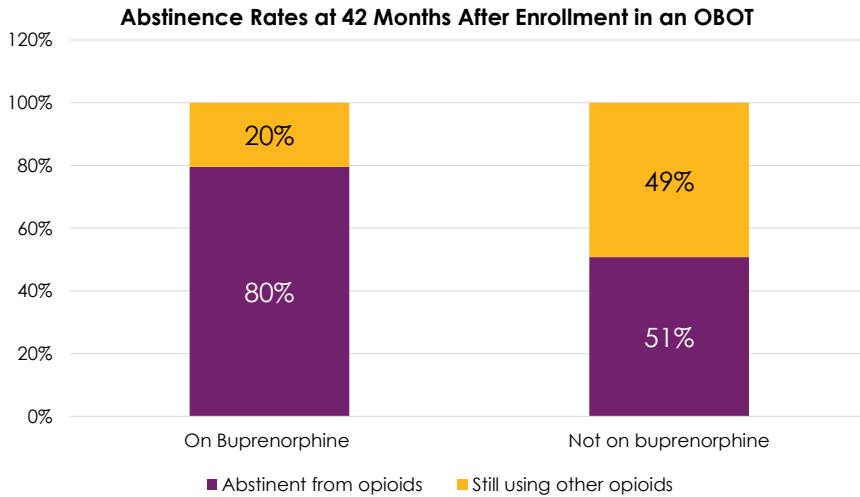


## Agonist Medications for OUD

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- Research over the past 50 years have found methadone to be the most effective tx for people with long-term OUD
  - Buprenorphine is a very close second and can be selected as the first line of agonist treatment, based on consumer choice

## Long-term Outcomes - Buprenorphine



## Challenges of Engaging People in ED

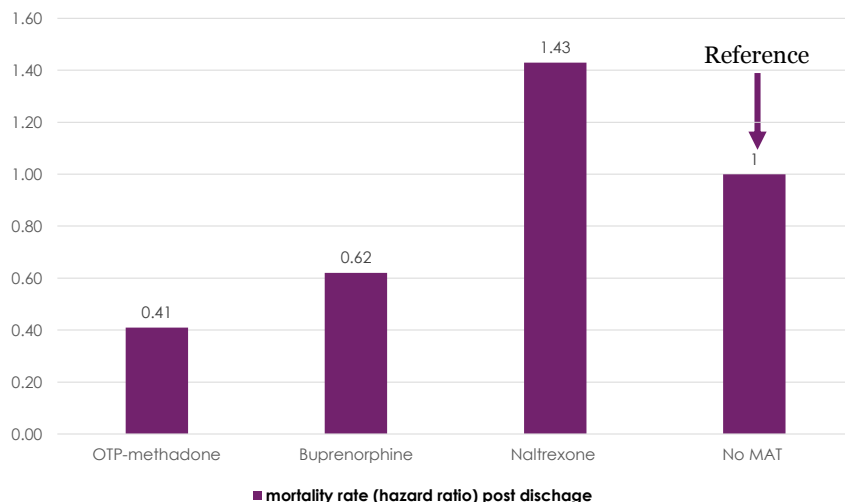




## Providing MAT after an Overdose

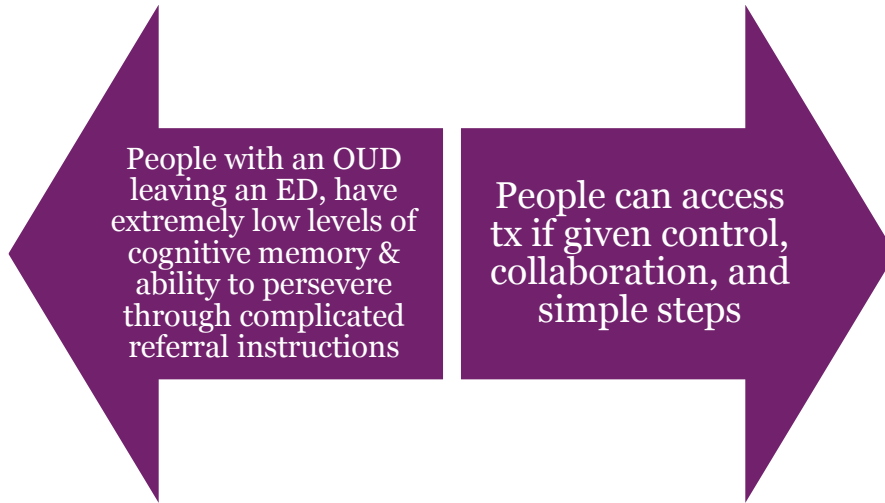
- Researchers in Massachusetts tracked 17,568 individuals for 12 months after a non-fatal overdose recorded at an ED (Laroche et al., 2018)
  - After the OD event:
    - 30% received some type of MAT and a mix of other traditional services, such as detox or residential care,
    - 9% received detoxification services within the first month,
    - 4% received short-term residential services and 3% received long-term residential services, and
    - Approximately 58% received no behavioral health services
  - Mortality rate after the OD event:
    - The 12-month all-cause mortality rate was 4.7/100 person years after discharge or approximately 235 times the rate for the State

## Mortality Rate after OD Event by MAT



## Challenges of Engaging People in ED

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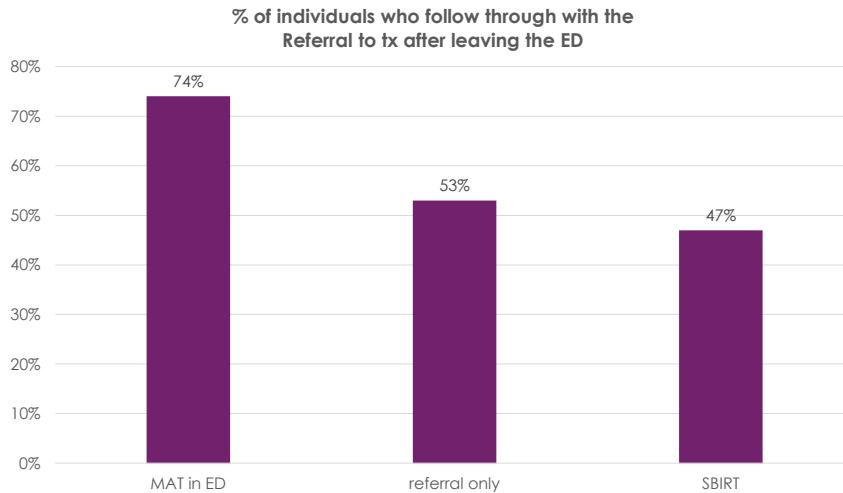


## Immediate MAT Reduces OD Rates

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- Researchers at Yale tested a rapid tx model for people entering an ED who were identified as having an OUD (D’Onofrio et al., 2015)
  - Individuals were randomized to one of three methods for referring them to addiction treatment after they left the ED, including:
    1. Immediate initiation of buprenorphine in the ED with a warm handoff to an OBOT for ongoing tx,
    2. A Screening, Brief-Intervention and Referral to Tx (SBIRT) protocol – an evidence-based engagement protocol based on motivation interviewing, or
    3. A referral-only group – individuals were provided with a referral to an addiction treatment program upon discharge

## Initiating Buprenorphine in the ED



## Initiating Buprenorphine in the ED

- The Yale study demonstrated that initiating buprenorphine in the ED can lead to significantly high engagement rates
  - At two months post ED, individuals who received buprenorphine in the ED, had lower substance use & higher tx retention than the two groups who were referred to tx, without initiating buprenorphine in the ED
  - However, the Yale study included only 10 weeks of buprenorphine followed by a taper;
    - at 6 and 12 months, all three groups had higher substance use patterns & lower tx retention, including the exp group (D’Onofrio et al., 2017)

***The takeaway message is to keep people on the buprenorphine***

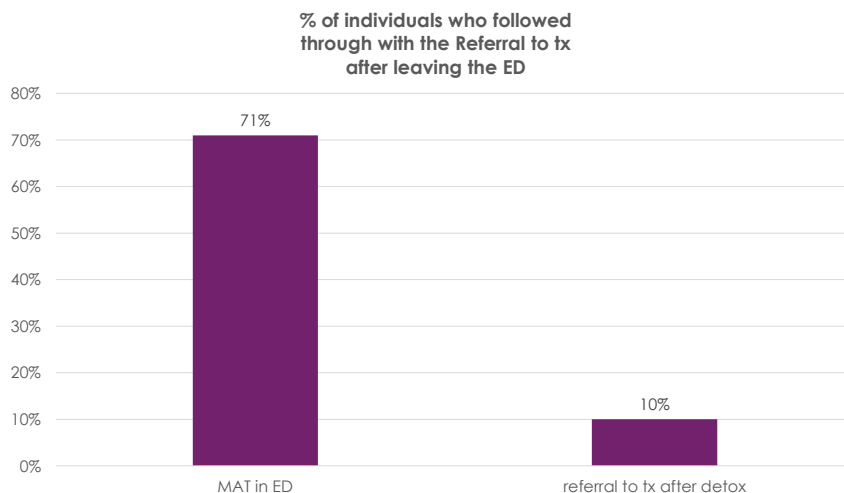
## Immediate MAT Reduces OD Rates

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- Researchers in Boston tested a similar rapid tx model for people entering an ED who were identified as having an OUD
  - 113 Individuals were randomized to receive either buprenorphine induction in the ED or a 5-day detoxification with buprenorphine in the hospital
  - Both groups were referred to treatment after discharge and those assigned to the ED induction group received daily dosage of buprenorphine until they enrolled in an OBOT

## Initiating Buprenorphine in the ED

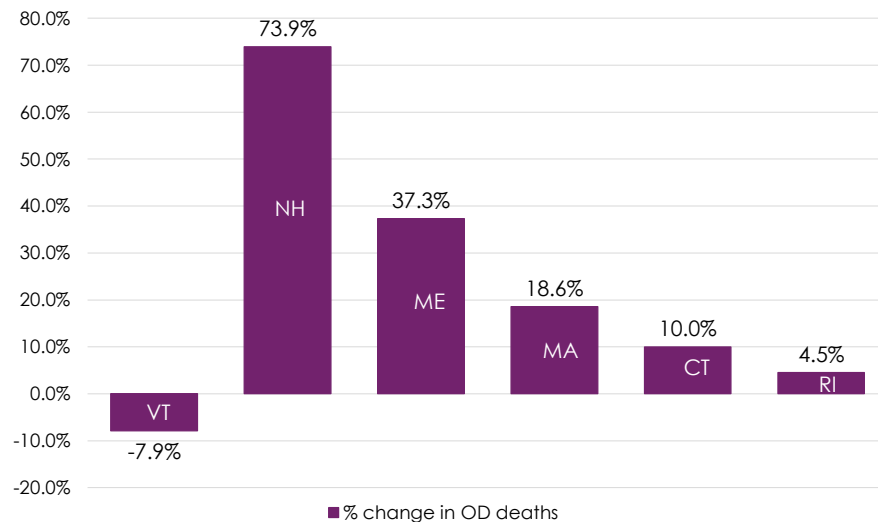
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## MAT vs. Non-MAT Tx

- Vermont launched a statewide program to expand MAT for people with an OUD through a hub and spoke model in 2013
- The model created 5 regional hub-spoke programs that could triage individuals by need & type of MAT
  - The model was highly effective at rapidly increasing enrollments to methadone & buprenorphine
  - The model also found minor savings in overall health care dollars after controlling for the increased cost of MAT
  - The model also found a steady decline in fatal ODs

## OD Deaths, New England 2013-2014



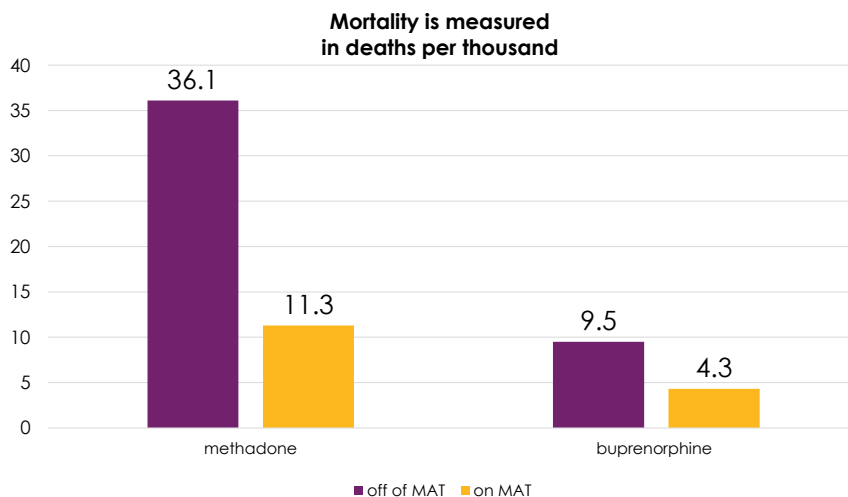
## MAT vs. Non-MAT Tx

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- A meta analysis of mortality rates in and out of methadone or buprenorphine treatment revealed significant reductions in mortality for those who remained on MAT compared to those who stopped either methadone or buprenorphine
  - The meta analysis included **122,885** individuals grouped into 19 cohorts treated with methadone in multiple countries and
  - **15,831** individuals treated with buprenorphine in multiple countries

## Mortality Rates with MAT

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## Questions About the Research Noted

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