Opioid use disorder and overdose in the criminal justice system

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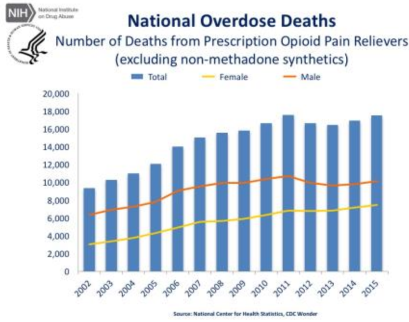
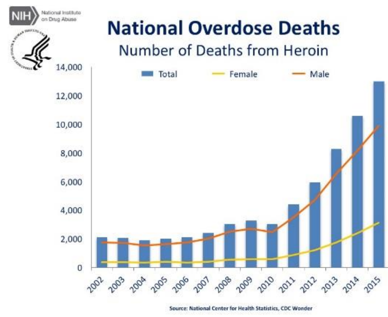
Overview: opioid use disorder and overdose among people in the criminal justice system

1. Definitions
2. Risks
3. Risk factors
4. Effective treatments
5. Prevention





Opioid use disorder criteria (DSM-5)

1. Taking more than or for longer than intended
2. Wanting to cut down or quit but can't
3. Spending a lot of time on obtaining opioids
4. Craving
5. Role failures at work, school or home
6. Using despite interpersonal or social problems
7. Activities limited
8. Use despite knowing that there are physical or psychology consequences
9. Hazardous use
10. Tolerance
11. Withdrawal

What is addiction?

"Continuing to use drugs despite knowledge of negative medical and psychological consequences"

- Learned compulsive behavior
- Complex genetic disease: 50% heritable
- Chronic relapsing disorder
- Preconscious activity, learning and memory involved

Sellman, D. (2010). "The 10 most important things known about addiction." Addiction **105**(1): 6-13.

Addiction

- Old lore about addiction no longer accepted by scientific community, e.g. *"Come back when you're motivated"*
- Learn to engage patients through "empathetic and respectful human relationships"
- Recovery involves practice of new learned behaviors over time

Sellman, D. (2010). "The 10 most important things known about addiction." Addiction **105**(1): 6-13.

What are the risks do people involved in the criminal justice system face?

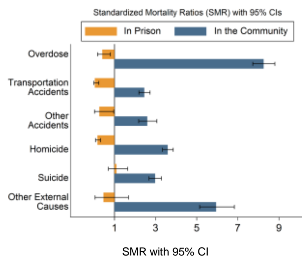
- High rates of opioid use disorders
- High risk of death from overdose
- High risk of relapse after release from prison; relapse can lead to overdose death

Binswanger, NEJM, 2007; Merrall, Addiction, 2010; Lim S. American J Epidemiol. 2012; Zoldre & Fazel, AJPH, 2012 *and others*

Risk of overdose death among individuals sentenced to felony conviction

- Felony convictions in Michigan state 2003-2006 followed through 2012 regardless of sentence type (N=111,110)
- Compared with the general population, risk was 7 times higher, adjusted for age, gender and race
  - Standardized mortality ratio (SMR) 7.35, 95% CI 6.58, 8.18

Injury mortality: standardized comparisons with general population by cause & whether in prison



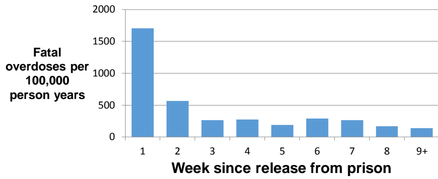
Leading causes of death after release from prison, Washington State (N=76,208)

	No. of deaths 1999-2009	SMR compared with general population*
Overall	2,324	3.6
Drug overdose	533	10.3
CV disease	298	2.5
Cancer	224	1.9
Homicide	202	8.5
Suicide	197	3.2

*Standardized Mortality Ratio compared to other WA state residents, adjusted for age, gender and race; all significant at $p<0.05$

Binswanger, et al. Annals Internal Medicine 2013

Why worry about the early post-release period?



Binswanger, et al. Annals Internal Medicine 2013

Leading causes of substance-related deaths after release, Washington State (N=76,208)

	Deaths (n=2,462)	Deaths per 100,000
Opioids	365	109
Pharmaceutical opioids	259	77
Heroin	123	37
Cocaine	209	55
Psychostimulants	136	41

Opioids involved in 15% of ALL deaths after release
Overdose deaths in people released from prison: 8% of all overdose deaths in Washington state

Binswanger, et al., Annals Internal Medicine 2013

What is associated with overdose death among people released from prison?

Risk factors
- Psychiatric disorders, esp. panic disorder
- Substance use disorders
- Problems with opioids and sedatives
- History of injection drug use

Protective factors
- Having children
- Increasing years of incarceration
- Substance use treatment in prison

Binswanger, et al., Drug and Alcohol Dependence, 2010;
Binswanger et al, Addiction, 2016

Deaths among people released from prison are preventable

- Behavioral treatment delivered in prison associated with reduced risk of overdose death after release
  Odds ratio 0.57, 95% CI 0.36, 0.90
- Pharmacologic treatment in 4 weeks after release associated with reduced rate of death
  Hazard ratio 0.25, 95% CI 0.12, 0.53

Binswanger, et al., Annals Internal Medicine 2013;
Binswanger et al, Addiction, 2016; Degenhardt et al., Addiction, 2014

General population mortality from untreated opioid use disorders: results from a systematic review of 58 studies

- All-cause crude mortality: 2.1 per 100 person-years (95% CI 1.9, 2.3)
- Pooled standardized mortality ratio: 14.7 (95% CI 12.8, 16.5)

Degenhardt, et al., Addiction 2011

How can we prevent overdose deaths?

1. Access to evidence-based drug treatment in prisons and during transition to release
2. Overdose education and naloxone at release from prison

Zaller et al., J Subst Abuse Treat, 2013, Magura, et al., Drug and Alcohol Dependence, 2009; Strang et al., J Urban Health, 2007, Bird et al., Addiction, 2015, Binswanger, et al., Addiction Sciences Clinical Policy, 2012, Wang et al., AJPH, 2012, Binswanger et al., Substance Abuse journal, 2015, *and others*

Treatment options

- Psychosocial
- Pharmacotherapy
  - Methadone
  - Buprenorphine
  - Naltrexone

In the general population, best evidence supports methadone or buprenorphine + psychosocial interventions for opioid detoxification

Amato, L., S. Minozzi, et al. (2011). Cochrane Database Syst Rev(9): CD005031

Psychosocial treatment: Evidence-based interventions

1. Contingency management
2. Individual, group and family counseling
3. Motivational interviewing
4. Case management
5. 12-step interventions

In the general population, best evidence supports contingency management and counseling

Amato, L., S. Minozzi, et al. (2011). Cochrane Database Syst Rev(9): CD005031

Benefits of pharmacologic treatment in the general population

- Reduced illicit use, injection drug use
- Retention in treatment
- Reduced criminality
- Improved functioning
- Public health gains, esp. prevention of HIV, Hepatitis
- Health care cost savings
- Reduced mortality, esp. if ≥ 12 months use

Cornish, R., J. Macleod, Bmj 2010; Gowing Cochrane Database Syst Rev, 2011; Mattick et al., Cochrane Database Syst Rev, 2014

Buprenorphine

- Buprenorphine may be combined with naloxone to prevent injection (Suboxone™) -- naloxone has no effect orally or sublingually
- Buprenorphine is a partial opioid agonist with high affinity for receptor
- In the community, available for use in office-based treatment by primary care providers
- Prescribing physician must have a DEA waiver
- Generally daily dosing

Buprenorphine: outcomes in the general population

- Decreased use of illicit opioids and cocaine
- High satisfaction
- Reduced HIV risk behavior
- Retention in treatment
- Higher fixed dosing (>7 mg) equivalent to methadone (>40 mg)
- Few adverse events

Sullivan, J Subst Abuse Treat, 2008; Fiellin, Am J Addict, 2008, Alford, Arch Intern Med, 2011; Rowe, Addict Sci Clin Pract, 2012; Mattick et al., Cochrane Database Syst Rev, 2014

Methadone

- In the community, methadone for addiction only can be administered through licensed treatment center
- For maintenance: > 1 year history of dependence
- Initially attend clinic 6 days per week and then earn take-out privileges (phases)

Naltrexone for opioid use disorders

- Opioid antagonist, blocks opioid effect
- Oral and depot naltrexone (Vivitrol™, monthly dosing) approved for alcohol and opioids
- Evidence for treatment of opioid use disorders and in criminal justice settings is emerging

Lobmaier, P., H. Kornor, et al. (2008). Cochrane Database Syst Rev(2): CD006140;
Minozzi, S., L. Amato, et al. (2006). Cochrane Database Syst Rev(1): CD001333

Naloxone to prevent opioid overdose deaths

- An effective opioid antidote approved by the U.S. Food and Drug Administration since 1971 via intramuscular and intravenous routes
- Recently approved by intranasal route
- Reverses all signs of opioid intoxication
- Onset of action: approx. 3 minutes
- Duration 20-60 minutes
- No abuse potential

Rationale for naloxone for take-home use

- Prevent deaths and medical complications of overdose through earlier treatment
- Distributed with education and training, including how to:
  - Identify an overdose
  - Administer naloxone
  - Call 911
  - Provide rescue breathing
  - Stay with the victim

Wheeler et al., MMWR 2012; Albert et al., Pain Med 2011; Baca et al., Addiction 2005; Wakeman et al., J Addictive Dis., 2009

Summary

- Individuals with opioid use disorders in criminal justice settings are at high risk for death, especially in community settings and soon after release
- Criminal justice populations represent the most at-risk populations for the complications of opioid use disorders
- All criminal justice settings are important sites of preventive interventions
- Such interventions will improve population health and help address the opioid epidemic

Thank you and contact information

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