Naloxone Harm Reduction Strategies: Saving Lives and Providing Safe Care

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Objectives

- Explain the severity of the epidemic and the changing demographics of the overdose population
- Describe the utilization of naloxone nasal administration for preventing overdose death
- Discuss the programs and resources available to prevent overdose death and encourage recovery
- Summarize the steps involved in developing an Emergency Department (ED) based naloxone harm reduction program

Situation

- The opioid overdose death epidemic continues to escalate
- In the US, “Since 1999, opiate overdose deaths have increased 265% among men and 400% among women” and the epidemic “killed more than 28,000 people in 2014, more than any year on record”
- Patients identified as “high risk” are not provided with opioid antidote, naloxone, education, training, and resources at discharge from Emergency Departments, despite recommendations to improve access to naloxone

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention [CDCIP], 2016, p. 1; Substance Abuse and Mental Health Services Administration [SAMSHA], 2015, p. 1; Centers for Disease Control and Prevention [CDC], 2016; Martins, Sampson, Cerda, & Galea, 2015.
Background: National Epidemic Worsening

In 2014 U.S. 200% increase in opioid related overdose deaths:
- More people died from OROD than from MVA
- Heroin related deaths tripled, heroin use escalates
- Direct link to Rx opioid misuse and dependence

In 2014 Ohio lead nation in:
- Opioid overdose deaths (top 5 states)
- 514 fentanyl related overdose deaths, compared to 92 in 2013
- More people died from opioid overdoses than from MVA


Changing Demographics

Drug cartels target

Individuals at high risk for opioid overdose
Pathway to Heroin

• Abuse Rx opioids - crush pills to inject or snort
• Number of prescription opioids quadrupled, yet the incidence of pain reported has not changed, and opioid overdose deaths from prescription opioids quadrupled
• Heroin related overdose deaths have quadrupled in US since 2002, taking more than 8,200 lives in 2013
• Greater than 500,000 U.S. citizens, (age 12 or older) were treated for heroin use in 2013, the rate nearly doubling since 2002

Why Heroin?

○ Heroin is cheaper and easier to obtain than Rx.
○ Similar effects as long acting oxycodone hydrochloride (OxyContin), hydrocodone/acetaminophen (Vicodin), oxycodone hydrochloride/acetaminophen (Percocet), immediate release oxycodone hydrochloride
○ Smoke, inject, snort or sniff (white or brown powder, sticky "black tar heroin")
○ All routes deliver drug to brain quickly

Heroin Pharmacokinetics

○ Heroin is rapidly absorbed and crosses the blood brain barrier, but has little affinity for the mu receptors.
○ Heroin is hydrolyzed to 6-monoacetylmorphine (6MAM) which is associated with the rapid euphoria.
○ Morphine and morphine-6-glucuronide (m-6-g) are both active long circulating metabolites.
○ 5% of IV morphine will cross the blood brain barrier compared to 68% of heroin.
**Heroin Pharmacokinetics**

- **Duration of heroin and metabolites**
  - Heroin: 2-5 min
  - 6MAM: 10-30 min
  - Morphine/m-6-g: 30-120 min

- **Co-administration**
  - Benzodiazepines competitively inhibit glucuronidation of morphine
  - Alcohol delays the metabolism of heroin to 6MAM (in vitro studies)
  - Cocaine inhibits the transition of 6MAM to morphine, prolonging the half-life of 6MAM

**Overall onset and duration with injection**
- Onset: 2-4 minutes
- Peak: at 10-30 minutes
- Duration: 120-180 min

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**Defining Substance Use**

- **Substance use disorder:** "Substance use disorders occur when the recurrent use of alcohol and/or drugs causes clinically and functionally significant impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home.

- **Harm reduction:** "a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use. Harm reduction is also a movement for social justice built on a belief in, and respect for, the rights of people who use drugs."

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**Pathways of Addiction**

**Crisis-Pleasure**

"Drug addiction is a chronically relapsing disorder that has been characterized by (1) compulsion to seek and take the drug, (2) loss of control in limiting intake, and (3) emergence of a negative emotional state (e.g., dysphoria, anxiety, irritability), reflecting a motivational withdrawal syndrome when access to the drug is prevented. Drug addiction has been conceptualized as a disorder that involves elements of both impulsivity and compulsivity that yield a composite addiction cycle composed of three stages: 'binge/intoxication', 'withdrawal/negative affect', and 'preoccupation/anticipation' (craving)." (Koob, G.F., Volkow, N.D. 2010, p. 1)
Pathways of Addiction Recovery-Relapse

Commitment to Recovery
Feel Guilty
Trigger or Craving
Resume Previous Rituals
Relapse

CDC, DEA recommendations include:
- Increase reporting by EDs
- Expand access and use of naloxone
- Provide naloxone toolkits to people misusing opioids, train how to administer intranasal naloxone, and call 911

Stigma and Consequences - ROL
- Education can improve the negative attitudes and knowledge gaps in health care professionals
- Stigmatization and negative attitudes towards patients with substance use disorders (SUD) by health care professionals are widely documented in the literature
- Stigmatization and negative attitudes perpetuate suboptimal care:
  - Misdiagnosng
  - Lack of trust
  - Unwilling to share important information
Primary Prevention and Harm Reduction

Responding to the Heroin Epidemic

- **Primary Prevention**
  - Prevent people from starting heroin
  - Reduce heroin addiction
  - Reverse heroin overdose

- **Harm Reduction**

Harm Reduction and Legislation

- Individual
- Family and Friends
- Community
- Prenticians
- Medical Environment

Ohio continues to address the epidemic

Many hospitals and emergency departments do not provide naloxone, opioid overdose prevention and harm reduction education.

Intranasal naloxone is available to the public, individuals at risk for overdose, and first responders.

Opioid overdose admissions to Emergency Departments are increasing.

ED RN and providers can screen and identify high risk patients (seek care for other reasons).

Most overdoses occur at home, providing naloxone for home use will save lives.
Nasal naloxone spray saves lives

- 4.6 minutes to arrive at scene
- 18 minutes spent at scene
- 12.2 minutes for transport to hospital
- Average EMS response time in Ohio is 34.8 minutes

Most overdoses occur at home

- 193 people died from opioid overdose in 2014
- Majority of deaths occurred at home

Naloxone Nasal Pharmacokinetics

- Each spray of 4mg is approximately equal to 0.4mg parenteral naloxone
- Onset of action is within 2 minutes, doses may be repeated every 2-3 min until response
- Slightly longer half-life when administered nasally
  - Injected = 1.24hrs
  - Inhaled = 2.08hrs
- Duration of action is usually 30-60 minutes
**Naloxone Nasal Spray**

1. Remove Caps
2. Screw atomizer onto syringe
3. Screw in cartridge

**Education Intervention Naloxone Nasal Spray**

Content:
- Scope and seriousness of problem
- Substance use disorder disease
- Changes in the brain with addiction
- Pathway from prescription opioids to heroin
- Treatment and recovery
- Harm reduction: Intranasal naloxone
- Patient education and training

**Assessment:**
- First Responders carry and administer naloxone (EMS, Law Enforcement, Fire Department)
- Simple training – proven safe and effective
- Limited Project DAWN (Deaths Avoided With Naloxone) sites in Franklin and Marion County
- Most overdoses occur at home
Naloxone story

http://www.ohioattorneygeneral.gov/Media/Videos/Ideas-That-Work-Naloxone

Process- PDSA

Screen
- Screen for high risk ED patients
  - ED RN
  - Pharmacy Intern
  - Social Services

Educate
- EPIC
  - Physician
  - RN
  - Social Services
  - Other

Train
- Identify High risk ED patients
  - Naloxone and harm reduction discharge instructions
  - Staff documentation

Document
- Identify high risk ED patients
  - Naloxone and harm reduction discharge instructions
  - Staff documentation

Evaluate
- Identify high risk ED patients
  - Naloxone and harm reduction discharge instructions
  - Staff documentation

Audit

Emergency Department Intervention

A. Stakeholders
   1. Multi-disciplinary
B. Regulations
C. Naloxone product
D. Finance
E. Staff Education and training
F. Evaluation
G. Documentation, order set
H. Patient Education
1) Collaborate with ED staff
2) Process: Provide naloxone, harm reduction education and training to high risk patients
   A) Screen for high risk ED patients
      Use of illicit opioids and/or misuse of prescription opioids
      Taking high opioid doses for tx of chronic pain; extended-release or long-acting opioids
      Discharged from ED following overdose
      Completed detoxification, incarceration or abstinence programs
   B) Provide Naloxone Toolkit per protocol
      Education and training using teach back per Ohio State Board of Pharmacy Protocol
      Information, recovery resources for patient, family/other
   C) EPIC
      Physician orders
      Documentation
      Discharge Instructions

Cost Savings

Cost to Ohio

“Drug overdoses are associated with high direct and indirect costs. Unintentional fatal drug overdoses cost Ohioans $2.0 billion in 2012 in medical and work loss costs; while non-fatal, hospital-admitted drug poisonings cost an additional $39.1 million. The total cost equaled an average of $5.4 million each day in medical and work loss costs in Ohio.”

Conflict of Interest Disclosure

Authors Conflicts of Interest:
- Paula Kobelt, MSN, RN-BC, No Conflict of Interest
- Michelle Meyer, PharmD. BCPS, BSNSP, No Conflict of Interest