Opioid Overdoses

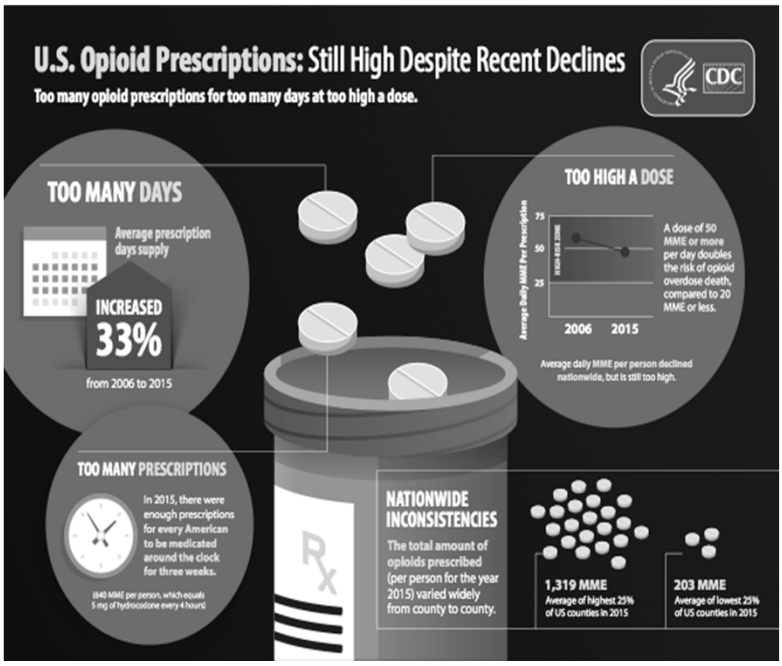
Emily Kauffman, DO, MPH
Clinical Assistant Professor
Department of Emergency Medicine
Division of Hospital Medicine
The Ohio State University Wexner Medical Center

Objectives

- Origin of the opioid epidemic
- Definitions
- Epidemiology: national and local
- Overdose pathophysiology and treatment
- Community initiatives
  - Project DAWN
  - RREACT, Amy Becher, MS, MSW, CNP, APRN

How did we get here?

- **17 year trend: multifactorial**
  - **Pain as a vital sign**
  - **Chronic pain and introduction of oxycontin**
  - **Pharmaceutical companies pushed hard and doctors responded**
  - **Heroin market was ready and responded**
  - ***Dreamland*: Sam Quinones Feb 2015**



Shareable graphics: https://www.cdc.gov/drugoverdose/images/vitalsigns/VS_MME_Prescribing-Graphic_508.pdf

DSM-V Opioid Use Disorder

- Opioids are often taken in larger amounts or over a longer period than was intended
- Persistent desire or unsuccessful effort to cut down or control use
- Great deal of time spent obtaining, using, or recovering from the opioid
- Craving, or strong desire or urge to use

Opioid Use Disorder Definition Continued

- Recurring use leading to failure to fulfill major work, school, or home responsibilities
- Continued use despite worsening interpersonal/social problems
- Giving up or reducing important social, occupational, or recreational activities due to use

DSM-V Definition continued

- Recurrent use in situations that are physically hazardous
- Continued use despite knowledge of having a persistent or recurrent physical or psychological problem exacerbated by the substance

Types of Opioids

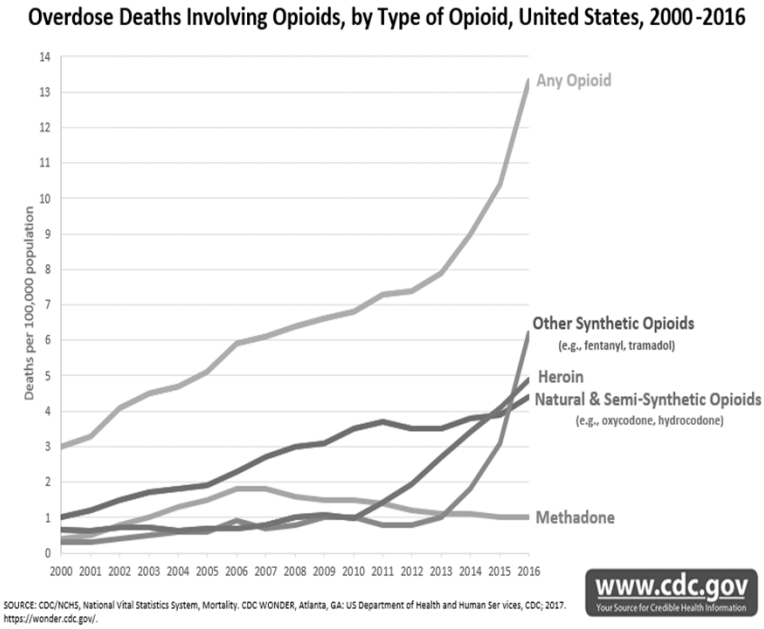
- Natural Opioids (opiates)
  - Morphine, codeine, thebaine (alkaloid)
- Synthetic Opioids
  - Semi-synthetic
    - Heroin, hydromorphone, oxycodone, hydrocodone
  - Synthetic
    - Meperidine, methadone, fentanyl, tramadol

Tolerance versus Dependence

- Tolerance
  - Requiring increasing dose to gain desired effects
  - Also a markedly diminished effect with continued use of the same dose of opioid
- Physical Dependence
  - Cessation of opioid or use of a full opioid antagonist leads to full withdrawal syndrome

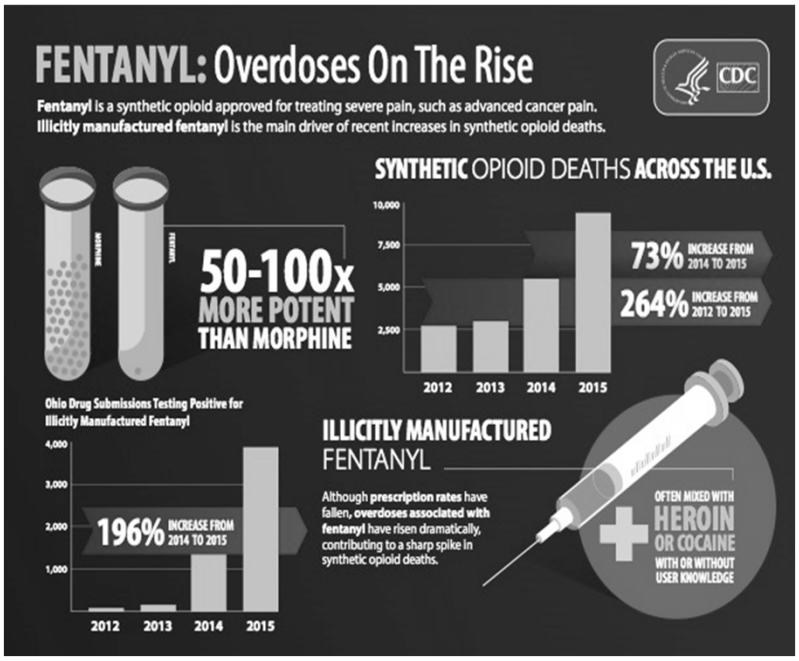
Staggering National Statistics

- 1999-2016 >200,000 people died due to prescription opioid overdose
- 42,249 opioid related deaths in 2016 (5x increase since 1999)
- 2016: >46 people die each day (fentanyl: >89 deaths/day)
- Probable underestimate as 1 in 5 death certificates do not list specific agent related to OD (polysubstance)
- White males 25-44 y/o highest heroin death rate



Fentanyl

- **Synthetic opioid made legally as an analgesic and illegally manufactured to augment heroin**
- **50x heroin and 100x morphine; Carfentanil: 10,000x**
- **Lipophilic, leads to resp depression in 5-15 mins, but can last for hours**
- **Accounts for dramatic surge in opioid related deaths, 100% increase from 2015-2016 (previously undetected)**
- **Often mixed with cocaine and heroin, snorted or injected**
- **DEA reported 400% increase in fentanyl seizure in 2014**



Shareable images: https://www.cdc.gov/drugoverdose/images/pbss/CDC-Fentanyl-overdoses-rise.pdf

2016 Death Rate due to Opioid OD by State

- **1. West Virginia: 52/100,000**
- **2. Ohio: 39.1/100,000**
- **3. New Hampshire: 39/100,000**
- **4. Pennsylvania: 37.9/100,000**
- **5. Kentucky: 33.5/100,000**

Ohio Overdose Data

- 1999-2011 death rate due to opioid related

overdose increased 440%

- 2011: one Ohioan died every 5 hours, or 5 deaths/day
- 2008: 5213 overdoses, 2016: 27,336
- 2017 (missing one quarter): 27,867

Ohio Overdose Data

- Cities (2016)
  - Cincinnati, Cleveland, Akron/Canton/Youngstown, Dayton, Columbus
- Counties (2016)
  - Cuyahoga (2907), Hamilton (2206), Summit (2115), Montgomery (1957), Franklin (1801)
- White males, 18-39 y/o

Opioid Overdose

- Overwhelmed CNS opioid receptors (especially mu)
- Unresponsive, apneic to gurgling respirations, cyanotic
- Thready pulse, to pulseless depending on down time
- Consider seizure or aspiration depending on additional substances
- Pupils pinpoint bilaterally

Opioid Overdose

- Collateral information: bystanders, track marks, needles, residue in nares
- Overdose death often occurs 1-3 hours after use, but depends on route of administration, type of opioid; often witnessed
- Highest risk: abstinence then use (rehab, incarceration, hospital release)

Costs related to opioid overdose

- In 2014 medical cost of a fatal drug overdose: $2,980
- In 2008, inpatient hospital costs $10,488
- Average cost of intranasal Narcan kit: $40-$50

Narcan (naloxone)

- Full opioid antagonist available since 1971
- rapidly (2-8 mins) displaces opioid (>50%) reversing respiratory depression; duration 30-90 mins
- 0.4mg/0.1ml (IV); SC, IM, intranasal, atomizer
- 164%↑ in Narcan use by EMS 2003-12
- generally safe, can be repeated with rare significant adverse events (0.03%) aside from withdrawal

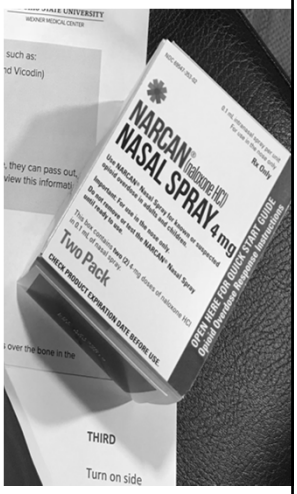
Atomizer (MAD)

- mucosal atomization device
- luer lock syringe barrel (needless)
- 2mg/2ml (1ml per nostril)
- bioavailability unknown, "off-label"
- widely used by EMS (Columbus Fire)
- safe, fast and easy to do
- $40-50/kit

Evzio and Narcan Spray

Evzio
- approved by FDA in 2014
- IM/SC, 0.4mg/0.4ml, auto- injector
- $$$, $575 when released, now >3k

Narcan Nasal Spray
- 4mg/0.1ml
- one spray per nostril
- 47% bioavailability compared to IM
- cost may range $120-140, but with insurance closer to $20



Project DAWN (Deaths Avoided With Naloxone)

- Ohio's first Overdose Reversal Project to provide education and naloxone: 2012
- Funded by Ohio Department of Health, Violence and Injury Prevention Program modeled after national Overdose Education and Naloxone Distribution Programs (OENDPs)
- Housed in Scioto county, Portsmouth Health Department
- Essentially now linked to the majority of counties in Ohio

Opioid Overdose Prevention Training

- Prevention
- Recognizing overdose
- Call 911
- ABCs, rescue breathing, recovery
- Naloxone use
- Reporting and refills
- Follow up care

Targeted Populations

- ED settings for overdose or high risk behaviors
- Chronic pain (>80mg MED/day)
- Illicit/illegal use
- Methadone to opioid naïve patient
- Opioid use and comorbidities
  - COPD, renal or liver impairment, HIV/AIDS

Targeted Populations

- Released prisoners, released from detox/rehab/abstinence
- Sedating substance use: ETOH, benzos
- Initiating MAT (methadone, buprenorphine)
- Use of SSRIs or TCAs

DAWN kit

- 2mg/2ml (2 doses) naloxone in a pre-filled syringe (luer lock/nasal adaptors)
- rescue breathing mask
- DVD (education)
- reference guide, referrals to rehab/MAT, instructions

Project DAWN resources

- www.odh.ohio.gov/health/vipp/drug/ProjectDawn.aspx

Opioid Overdoses

Amy Becher, MS, MSW, CNP, APRN
Program Director
Rapid Response Emergency Addiction and Crisis Team (RREACT)

Rapid Response Emergency Addiction and Crisis Team (RREACT)

- **Linkage to mental health/detox services while in the ER after an opioid overdose**
- **Southeast healthcare services**
- **All ER's (not freestanding) covered in Franklin County M-Sa 9a-9p, Sun: 9a-5p**
- **Engage at bedside: options for immediate detox, MAT programs, linkeage and follow up**

CONTACT

Amy E. Becher, MS, MSW, CNP, APRN
RREACT Program Director
524-B West Broad Street
Columbus, OH 43215
bechera@southeastinc.com

Origin of RREACT?

How RREACT is funded?

Community Partners?

Overview of the RREACT team in action

Logistics

Outcomes?

Future directions?