Understanding Opioid Addiction
and Pathways to Recovery

Presented/Recorded Tuesday, April 17, 2018
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Week of Appreciation for Ohio Professionals
On the Frontline of Opiate Epidemic

**Designated by Gov. Kasich, partnering with:**

- Ohio Association of County Behavioral Health Authorities (OACBHA)
- Attorney Gen. Mike DeWine

“...to highlight the tremendous work going on in communities throughout Ohio to address the opiate epidemic and to specifically show appreciation to frontline workers.”

April 09 – 15, 2018
“The United States is experiencing an epidemic of drug overdose (poisoning) deaths. Since 2000, the rate of deaths from drug overdoses has increased 137%, including a 200% increase in the rate of overdose deaths involving opioids (opioid pain relievers and heroin).”

The CDC measuring OD deaths from 2000 to 2014 on January 1, 2016
CDC: Data at that point:

- Total deaths in 2014 from OD: 48,000 (42K unintentional; 6K suicide)
  - 19,000 were from Rx pain relievers
  - 10,500 from heroin

- 1999 to 2014
  - OD opioid deaths have quadrupled
  - Rx for opioids have quadrupled
    - no coincidence
  - Most common drugs involved in Rx OD death
    - Methadone
    - Oxycodone (like OxyContin)
    - Hydrocodone (like Vicodin)
CDC: Two years later – continued rise

• Total deaths in 2016 from OD: 63,632*
  • Opioids – prescription and illicit – were involved with 42,249 of these
  • Heroin was involved with 15,469 deaths
  • Methadone was involved with 3,373 of these
  • Synthetics – other than methadone – were involved with 19,413 of these

• 1999 to 2016
  • OD deaths related to prescription opioids have quintupled
  • Most commonly involved Rx drugs involved with OD death continued:
    • Methadone
    • Oxycodone
    • Hydrocodone

*Males outnumbered females almost 2 to 1
### CDC: Overall and Age-Adjusted Loss 2016

<table>
<thead>
<tr>
<th>Overall number of overdose deaths (all substances)</th>
<th>Overdose deaths per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Florida</td>
<td>4,728</td>
</tr>
<tr>
<td>2. California</td>
<td>4,654</td>
</tr>
<tr>
<td>3. Pennsylvania</td>
<td>4,627</td>
</tr>
<tr>
<td>4. Ohio*</td>
<td>4,329</td>
</tr>
<tr>
<td>5. New York</td>
<td>3,638</td>
</tr>
<tr>
<td>1. West Virginia</td>
<td>52.0</td>
</tr>
<tr>
<td>2. Ohio</td>
<td>39.1</td>
</tr>
<tr>
<td>3. New Hampshire</td>
<td>39.0</td>
</tr>
<tr>
<td>4. Washington DC</td>
<td>38.8</td>
</tr>
<tr>
<td>5. Pennsylvania</td>
<td>37.9</td>
</tr>
</tbody>
</table>

*Ohio is 7th in overall population

U.S. average per 100,000 was 19.8
## CDC: OD Deaths by age group: 2016

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Number of Deaths</th>
<th>Deaths per 100,000</th>
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<tbody>
<tr>
<td>15 to 24</td>
<td>5,376</td>
<td>12.4</td>
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<tr>
<td>25 to 34</td>
<td>15,443</td>
<td>34.6</td>
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<tr>
<td>35 to 44</td>
<td>14,183</td>
<td>35.0</td>
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<tr>
<td>45 to 54</td>
<td>14,771</td>
<td>34.5</td>
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<tr>
<td>55 to 64</td>
<td>10,632</td>
<td>25.6</td>
</tr>
<tr>
<td>65+</td>
<td>3,075</td>
<td>6.2</td>
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</tbody>
</table>
CDC: Ohio Specific - 2016

- 4,329 overall OD deaths
  - Represents over 30% increase from previous year
  - 2,296 deaths involving synthetic opiates (primarily fentanyl) – excluding methadone
  - 1,478 deaths involving heroin
  - 867 deaths involving Rx opioids*

*Deaths involving Rx opioids declined for the 5th straight year – one small bright spot.

This decline was matched by a four-year decline in opioids prescribed in Ohio over the last four years – and a significant increase in prescription monitoring: Ohio Automated Rx Reporting System (OARRS).
Ohio: By County 2011-2016

Strong concentration in SW region

Montgomery County recorded 559 opioid-related overdose deaths in 2017 – a 60% increase from 2016

Identified as the highest age-adjusted OD death rate in the nation
Increase in Fentanyl-Cut Drugs: All street drugs, not just heroin

In early 2018, the Ohio Department of Health issue an advisory to first responders to administer naloxone for all drug overdoses, even when non-opioid drugs are suspected. This is due to the growing proliferation of fentanyl-adulterated drugs beyond opioids.

Drugs cut with fentanyl in Ohio:
- Heroin
- Powder and crack cocaine
- Rx opioids
- Sedative-hypnotics
- Marijuana
- Methamphetamine
- Molly
Perhaps some Hope

Monitoring the Future: yearly, NIDA-funded survey conducted with thousands of 8th, 10th and 12th graders from around the country

Notes quite low levels – especially by comparison to 10-year peak levels of opioid use

Any reported use in last year:

- Heroin 0.3
- OxyContin 1.9
- Vicodin 1.3

MTF and NIDA Director, Nora Volkow, have observed:

The current lower rates of opioid use by youth may be hopefully predictive as ‘they may well take their more cautious behaviors with them into their twenties and thirties...’

The current highest-risk group – young adults – demonstrated much higher rates of opioid use a decade ago while they were teens
About those youth, though

Low Incidence

HIGH RISK

• While the number of youth being introduced to or experimenting with opioids is at very low levels – it is not zero.
  • Early cigarette use, early cannabis and alcohol use: match with early and (where appropriate) intensive treatment (like IHBT)

• Also – youth, children and family systems can be devastated when impacted by opioid use by parents, grandparents, older sibs...
Trends Toward this Epidemic

• Early 1990s – government panel called for more aggressive pain management before, during and after surgery
  • Prior to this, pain was an expected and accepted part of having surgery
  • Expectations for increased abuse or dependence were dismissed as groundless – when opioids are used exactly as prescribed
Trends Toward this Epidemic

• 1998: Federation of State Medical Boards of the United States promoted policy guidelines for treatment of pain

• 1999: pain was added as the ‘5th vital sign’ – adding it to blood pressure, heart rate, respiration rate and temperature. Intended to increase recognition

• Late 90s on: increasingly aggressive marketing by pharmaceutical companies
Growing the Epidemic

• By 2012, 250 million prescriptions were written for pain killers in the U.S. – almost enough for every adult to have their own bottle of pills
• In 2010, Vicodin/hydrocodone was the most prescribed drug in the U.S.
  • As recognition of the growing problem increased and crack-downs started – people dependent on opioids moved to cheaper, more available heroin

Sources: CDC and WebMD
CDC 4 Categories of Opioids

1. **Natural Opioid Analgesics**: such as morphine and codeine. Also included: **Semi-Synthetic Opioid Analgesics**: such as oxycodone, hydrocodone, hydromorphone and oxymorphone.

2. **Methadone**: a synthetic opioid

3. **Synthetic Opioid Analgesics**: (other than methadone), such as tramadol and fentanyl
   - 1 – 3 considered ‘opioid analgesics’ – or the prescription opiates

4. **Heroin**: synthesized from morphine
Opioid Family Tree

• The poppy plant – *papaver somniferum* – contains the alkaloids morphine, codeine and thebaine: these are the naturally occurring opiates

• These three alkaloids can be used as a starting point and modified into semi-synthetic opiates

• There are also full synthetics – with no connection to the poppy – but act in similar ways (and are rightly called ‘opioids’ rather than ‘opiate’)

•
Some Semi-Synthetics

• Heroin: derived from morphine
• Oxycodone: derived from thebaine
  • ex: OxyContin, Percocet
• Oxymorphone: derived from morphine
  • ex: Opana
• Hydrocodone: derived from codeine
  • ex: Vicodin, Lorcet
• Buprenorphine: derived from thebaine
Some Full Synthetics

- Methadone
- Fentanyl
  - ex: Duragesic
- Meperidine
  - ex: Demerol
- Propoxyphene
  - ex: Darvocet: no longer approved
- Tramadol
  - ex: Ultram

**Carfentanil**: an analogue of fentanyl, is the most powerful opioid produced. It is 10,000 times stronger than morphine and 100 times stronger than fentanyl. It is intended only as a large animal tranquilizer – but has been added to batches of heroin.
Carfentanil: Easy to get – and not just in heroin
U-47700 ‘Pink’

DEA: Emergency Schedule

November 10, 2016
Contact: DEA Public Affairs
(202) 307-7977

DEA Schedules Deadly Synthetic Drug U-47700
46 confirmed deaths linked to dangerous opioid in ’15 and ’16 spark emergency action

NOV 10 (WASHINGTON) – Responding to the imminent threat to public health and safety, the U.S. Drug Enforcement Administration (DEA) has placed U-47700 into Schedule I of the Controlled Substances Act, effective on November 14th. Emergency scheduling of dangerous drugs such as U-47700 on a temporary basis is one of the most significant tools DEA can utilize to address the problems associated with deadly new street drugs.

DEA received reports of at least 46 confirmed fatalities associated with U-47700 31 of those fatalities occurred in New York and 10 in North Carolina. From October 2015 to September 2016, DEA received 88 reports from State and local forensic laboratories of U-47700 submissions.

This scheduling action will last for 24 months, with a possible 12-month extension if DEA needs more data to determine whether it should be permanently scheduled.

U-47700 is a novel synthetic opioid, and its abuse parallels that of heroin, prescription opioids, and other novel opioids. Law enforcement agencies report seizures of the drug in powder form and counterfeit tablets that mimic pharmaceutical opioids. Abuse of the drug often happens unknowingly to the user, and is encountered as a single substance as well as in combination with other drugs such as heroin and fentanyl. Some bags are marked with stamped logos, imitating a heroin sale. In addition, the drug can be pressed into pill format and marketed as a wide variety of prescription opioids. Because substances like U-47700 are often manufactured in illicit labs overseas, the identity, purity, and quantity are unknown, creating a “Russian Roulette” scenario for any user.
Always Evolving

Spring 2017: Gray Death

This started showing-up early 2017 – and has been linked to several OD deaths.

A changing mix of opioids – synthetic and natural, including (sometimes) U-47700 – and fentanyl.

No one knows where it is coming from – found in many states.

Earned the name from the gray, ‘concrete-mix-like appearance’ – and obviously, its deadly potential.

From: CNN.com 2017/05/12
Heroin
Heroin

Picture from Reddit post: ‘Mister E’ posted asking how much others were getting in a ‘normal bag’ – and attaching a photo of a normal bag amount next to hydrocodone pills.
Heroin

• Diacetylmorphine: named ‘heroin’ in 1874 for its ‘heroic possibilities’
• Most rapidly acting opioid: readily crosses blood-brain barrier where it is converted to morphine

• Bag: about 10 mg: $10
• Bundle: 10 bags
• Brick: 5 bundles
Heroin: black tar

Xalisco network distribution reportedly arrived in Ohio in the late 90s. Black tar heroin has since become more available than the traditional white heroin.
Opioids: OxyContin

- Oxycodone: a semisynthetic opioid
- Controlled-release tablets in 10, 20, 40 and 80 mg
- ‘OP’ version was designed to make crushing for IV and nasal use more difficult

- The tamper-resistant formulation has been linked to an increase in the popularity of heroin and other, similar Rx opioids
Opioids: Opana

• Oxymorphone: seems to be replacing the reformulated Oxycontin as Rx opioid of choice for abuse

• Opana is also being reformulated to discourage abuse: it is expected this will slow Opana’s abuse

• Some suggestions that Opana is more euphoria-inducing than heroin or OxyContin
Fentanyl is a strong, synthetic (man-made) narcotic that is similar to morphine. A 0.1 mg dose of fentanyl is approximately equal to 10 mg of morphine administered by intramuscular injection. Fentanyl stimulates receptors on nerves in the brain to increase the threshold to pain (the amount of stimulation it takes to feel pain) and reduce the perception of pain (the perceived importance of the pain). Fentanyl is available in transdermal (for application to the skin), transmucosal (for application to mucus membranes) and parenteral (injectable) forms. Fentanyl was originally approved by the FDA for injection in 1968.

Source: MedicineNet.com
Fentanyl
Opioids: Vicodin and Zohydro

• Vicodin is a combination of hydrocodone and acetaminophen
• Zohydro is new: first release of hydrocodone-only
  • does not presently have any tamper-resistant features
How Do They Work?

• Opioid receptors are found, meaningfully, in the brain, spinal cord and GI tract
  • When activated, these receptors reduce the perception of pain and increase a sense of well-being
    • Also: drowsiness, mental confusion, nausea and constipation
With Repeated Use

• Tolerance: starts taking more and more to achieve the same effect
• The opioid receptors adapt to the artificial stimulation and the natural (endogenous) opioids are diminished – contributing to withdrawal
Opioids: In and Out

- Acute/Using Effect
  - Euphoria
  - Analgesia
  - Respiratory depression
  - Relaxation and sleep
  - Decreased BP
  - Flushed skin
  - Pupil constriction
  - Constipation
  - Drying of secretions

- Withdrawal Effect
  - Depression/dysphoria
  - Pain – and irritability
  - Hyperventilation
  - Restlessness
  - Increased BP
  - Goosebumps and chills
  - Pupil dilation
  - Diarrhea
  - Runny eyes and nose
Signs of Opiate Abuse

• Becomes increasingly solitary to the addiction from family and loved ones
• Behavior changes or extreme alterations in mood such as frequent expression of hostility, anger, anxiety, or agitation.
• Continued use of the opiate, even after pain has subsided
• Deceitful or illegal behaviors to obtain additional prescriptions or greater quantities of the drug
• Isolation from loved ones and social events
• Decline in overall performance, in work, school, or social life
• Frequently nodding or “doping” off in inappropriate circumstances
• Complaint of physical symptoms, such as cramping, diarrhea, itchy skin, joint and muscle pain, nausea and vomiting, anxiety, insomnia, headaches, etc
• Neglect of personal hygiene, changes in eating habits, or ill-looking appearance
• Ongoing confusion or disorientation

Source: addictionhope.com
Medication-Assisted Treatment (MAT)

Not just medications – but the combination of behavioral counseling and medications to provide a “whole patient” approach.

Nearly 80 percent of individuals with an opioid use disorder do not receive treatment. In the 2014 National Survey on Drug Use and Health (NSDUH), 435,000 respondents ages 12 or older reported current use of heroin. Nonmedical use of pain relievers continues to be more widespread than heroin use—4.3 million NSDUH respondents reported nonmedical use of pain relievers in the past month. Medication-assisted treatment (MAT) is an effective response to opioid use disorder. It is the use of medications, in combination with behavioral therapies, to provide a whole-patient approach to the treatment of substance use disorders. Individuals receiving MAT often demonstrate dramatic improvement in addiction-related behaviors and psychosocial functioning.

The first barrier to accessing treatment is failure to recognize substance use disorder. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an approach in which screening is followed up as appropriate with brief intervention to promote healthy behavior change and with referral to treatment for those needing more extensive care. (www.samhsa.gov/sbIRT)

Produced by the Substance Abuse and Mental Health Services Administration (SAMHSA).
Medications

Naloxone
This is not under the heading of one of the medications associated with MAT: but it may well be the medication that saves a life to enter treatment

Naloxone is a strong opioid antagonist – administered to counter an overdose, it strips opioids from receptor sites – and is short acting.

I, Surgeon General of the United States Public Health Service, VADM Jerome Adams, am emphasizing the importance of the overdose-reversing drug naloxone. For patients currently taking high doses of opioids as prescribed for pain, individuals misusing prescription opioids, individuals using illicit opioids such as heroin or fentanyl, health care practitioners, family and friends of people who have an opioid use disorder, and community members who come into contact with people at risk for opioid overdose, knowing how to use naloxone and keeping it within reach can save a life.

BE PREPARED. GET NALOXONE. SAVE A LIFE.
Medications

• Methadone
  • An opiate agonist: it has been used for decades
  • Comes in pill, liquid and wafer forms
  • Taken once a day: must be dispensed through an opioid treatment program (OTP) certified by SAMHSA
  • Greatly lessens symptoms of withdrawal and blocks euphoric effects of other opioids

• Naltrexone
  • An opioid antagonist: it actively blocks opioid receptors (similar to Naloxone – but is much longer acting)
  • Injectable, extended release formulation: Vivitrol: IM injection once per month
  • Does not require special programming or extra licensing to Rx
  • Does require completed detox prior to start
Medications

• Buprenorphine
  • An opiate partial agonist: it produces opioid effects, but at weaker levels and with a limiting ceiling. It can be diverted and misused, but the potential for getting high is much lower: diversion appears mostly related to withdrawal mitigation.
  • May be prescribed by qualified physicians: not just in OTPs

• Buprenorphine products
  • Suboxone (with naloxone) film
  • Bunavail (with naloxone) film
  • Zubsolv (with naloxone) sublingual tablets
  • Sublocade: recently approved monthly injection
  • Probuphine: six-month, subdermal implant
MAT

• NIDA states that MAT is ‘underutilized’
  • Stigma – even among treatment providers:
    • “Trading addictions”
    • Insufficient dosing and length of treatment

• MAT is targeted to:
  • Decrease overdose death
  • Decrease infectious disease spread
  • Increase treatment retention
  • Decrease criminal activity

• SAMHSA (TIP 63) notes:
  • Medication increases treatment retention and decreases illicit use
  • Stabilization with medication assistance is better when a long-view and course is used: short-term withdrawal management is not effective at preventing return to use
Behavioral and Counseling Additions

• “Dedicated counseling can help clients address the challenges of extended recovery” (TIP 63)

• And from NIDA (in TIP 63):
  • No single treatment is effective for everyone
  • Effective treatment attends to multiple needs of the individual, not just his or her drug abuse

Multiple levels of research in addition to the experience of most providers clearly demonstrate:
Substance Use Disorders rarely exist in a vacuum

• Co-Occurring Mental Health
• Comorbid physical conditions
• Family and System issues
• Legal and Community
Biopsychosocial and Behavioral

• Behavioral therapy considerations:
  • MI/MET
  • CBT
  • Case Management
  • Family and relational inclusion
  • Considerations about readiness to change across multiple dimensions
  • Integrated Treatment Planning
Some Resources

Resources
Resources