Opioid Overdose: Risks, Clinical Features, Treatment, and Reduction of Negative Consequences

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Outline

1. Epidemiology of opioid-related overdose
2. Risk factors for opioid-related overdose
3. Strategies to reduce overdose
4. Clinical features of opioid overdose
5. Treatment of overdose
6. Reduction of risk of an overdose
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Drug Overdose Deaths Involving Opioids, By Type of Opioid, United States, 2000-2014

Deaths per 100,000 population

- Deaths involving any opioid
- Natural & semi-synthetic opioids (e.g., oxycodone, hydrocodone)
- Heroin
- Other synthetic opioids (e.g., fentanyl, tramadol)
- Methadone

https://www.cdc.gov/drugoverdose/data/analysis.html
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Case Study: John

John is a 56-year-old man with a history of chronic knee pain, depression, anxiety, and alcohol and opioid use disorder in sustained remission. He works as a handyman.
Case Study: John

He is currently taking:

• Fluoxetine 20 mg daily
• Lorazepam 1 mg BID
• Oxycodone 10 mg q6 for his pain (40 mg total daily dose).

He has been on this regimen for about 12 months. He has not provided any aberrant urine results, and the prescription monitoring program has not shown any aberrant findings.
Risk Factors for Opioid-Related Overdose

Patient Factors

- Age
- Respiratory problems
- Renal/hepatic impairment
- History of depression
- History of any overdose and receipt of naloxone

Volkow and McLellan NEJM 2016; Darke and Hall 2003; Strang 2003; Gomes et al 2011; Dilokthornsakul et al 2016
Risk Factors for Opioid-Related Overdose

Medication Factors

- Daily opioid (for chronic pain) dose > 50 MME
- Combining opioids and benzodiazepines
- Long-acting or extended release opioid use
- Recently (< 2 wks) initiating opioid treatment
Risk Factors for Opioid-Related Overdose

Addiction-Related Factors

- History of any addiction
- Undergoing opioid detoxification
- Being discharged from medication treatment for opioid use disorder
- After a period of forced abstinence (i.e., being released from jail)
Opioid Dose Prescribed for Chronic Pain Directly Relates to Risk of Death

<table>
<thead>
<tr>
<th>Dose Range</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;200 mg</td>
<td>2.88 (1.74-4.63)</td>
</tr>
<tr>
<td>100-199 mg</td>
<td>2.04 (1.28-3.24)</td>
</tr>
<tr>
<td>50-99 mg</td>
<td>1.92 (1.30-2.85)</td>
</tr>
<tr>
<td>20-49 mg</td>
<td>1.32 (0.94-1.82)</td>
</tr>
</tbody>
</table>

Gomes et al 2011
Majority of Opioid-Related Overdoses Occur While Also Using Other Drugs, Especially Benzodiazepines (Massachusetts 2010)

Top 5 drugs involved: Drug-related deaths, 2010

- Opiates/opioids: 592
- Cocaine: 240
- Alcohol: 216
- Antidepressants: 90
- Benzodiazep.: 86

Multi-drug deaths
Single drug deaths
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Case Study: John, Continued (1)

To minimize the risk of an opioid-related overdose, the PCP reviews the treatment agreement with John, and reviews the various risk factors for unintentional overdoses.

They discuss strategies to reduce his overall oxycodone dose and to explore nonopioid treatment options for his pain. They also discuss the need to reduce the need for benzodiazepines.
Case Study: John, Continued (2)

The PCP educates John about overdoses, and provides a prescription for a naloxone rescue kit. The PCPs asks John who he thinks should have the kit. John says:

My wife should have the kit. If anything were to happen, she’d be the one to notice. But is she allowed to legally give me a medication that’s prescribed to me? Shouldn’t that be done by an EMT or someone at the hospital?
Strategies to Reduce Opioid Overdose

1. Safe prescribing of opioids for acute and chronic pain
2. Naloxone rescue kits for all high-risk patients
3. Treatment with medications for patients with OUD
4. Supervised injection facilities

CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016

Deborah Dowell, MD, MPH; Tamara M. Haegerich, PhD; Roger Chou, MD

**IMPORTANCE** Primary care clinicians find managing chronic pain challenging. Evidence of long-term efficacy of opioids for chronic pain is limited. Opioid use is associated with serious risks, including opioid use disorder and overdose.

**OBJECTIVE** To provide recommendations about opioid prescribing for primary care clinicians treating adult patients with chronic pain outside of active cancer treatment, palliative care, and end-of-life care.

**PROCESS** The Centers for Disease Control and Prevention (CDC) updated a 2014 systematic review on effectiveness and risks of opioids and conducted a supplemental review on benefits and harms, values and preferences, and costs. CDC used the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework to assess evidence type and determine the recommendation category.
Naloxone Nasal Spray Kits
John Smith

For
100 Main St, Anytown USA

Address

Narcan Nasal Spray 4 mg
# 1 (two pack)
2 refills

Administer as directed PRN for suspected overdose, call 911, and repeat with second spray if no response in 3-5 minutes.
Opioid Antagonist Access

States with opioid antagonist access laws

Good Samaritan Overdose Immunity Laws

States with overdose immunity laws

Heroin overdose deaths and opioid agonist treatment: Baltimore, MD, 1995-2009
Supervised injection facilities promotes safer injection conditions, enhance access to primary care, reduce HIV and hepatitis C transmission, and reduce overdoses.

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John accepts the prescription for naloxone, and agrees to try and reduce his overall opioid and benzodiazepine dose. However, John experiences a set-back a few months later when his depression worsens and he relapses to alcohol.

He begins to consume more than a pint of vodka daily, and his prescription monitoring program indicates he has obtained several prescriptions for opioids from other physicians in the community.
You call John to ask him to come to the clinic to discuss your concerns, and in the waiting room, you observe John to be slumped in a chair. You immediately go over to him, but he is difficult to arouse, breathing rate is less than 10/min, pupils are 1 mm in size, skin is clammy, and his lips and fingertips appear slightly blue.
Common Signs of Opioid Intoxication Include the Following:

- “Nodding off”
- Feelings of euphoria and well-being
- Decreased anxiety
- Inability to concentrate
- Constricted pupils
- Dry mouth
- Respiratory depression
- Decreased cough
- Nausea
- Constipation
- Pruritis
- Sweating
- Urinary retention
Opioid Overdose Should be Suspected in the Following:

- Shallow, slow, or no breathing
- Stupor, unresponsive to verbal and tactile stimuli
- Constricted pupils
- Gurgling sounds, or snoring ("death rattle")
- Cold and clammy skin
- Lips and fingertips are cyanotic
- Bradycardia
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Based on the presentation, you suspect an opioid overdose. You immediately ask your staff to call 911. The PCP takes out the naloxone kit that he has been carrying for these eventualities.

4 mg of naloxone is administered intranasally. John is placed in a recovery position, and after 2 minutes the PCP administers another 4 mg. After a total of 6 minutes, John begins to stir and finally opens his eyes. The EMS arrives on the scene.
Responding to an Opioid Overdose by a Bystander

- Call 911 to activate EMS
- Perform rescue breathing if needed
- Administer naloxone
- Stay with person until help arrives
FDA-Approved Naloxone Nasal Spray

Remove NARCAN Nasal Spray from the box. Peel back the tab with the circle to open the NARCAN Nasal Spray.

Hold the NARCAN nasal spray with your thumb on the bottom of the plunger and your first and middle fingers on either side of the nozzle.

Gently insert the tip of the nozzle into either nostril.
- Tilt the person’s head back and provide support under the neck with your hand. Gently insert the tip of the nozzle into **one nostril**, until your fingers on either side of the nozzle are against the bottom of the person’s nose.

Press the plunger firmly to give the dose of NARCAN Nasal Spray.
- Remove the NARCAN Nasal Spray from the nostril after giving the dose.
Compounded Naloxone Nasal Spray Kit

How to Give Nasal Spray Naloxone

1. Pull or pry off yellow caps

2. Pry off red cap

3. Grip clear plastic wings.

4. Gently screw capsule of naloxone into barrel of syringe.

5. Insert white cone into nostril; give a short, vigorous push on end of capsule to spray naloxone into nose: one half of the capsule into each nostril.

6. If no reaction in 2-5 minutes, give the second dose.
Administering Naloxone

• Spray into one nostril, and repeat if needed in 3–5 minutes

• Sometimes, it can take 8–10 minutes for the naloxone to take effect

• Fentanyl-related overdose may need much larger dose to reverse

• Naloxone effects will last for 30 to 90 minutes

• Naloxone could wear off before the effects of the opioid wears off
Recovery Position While Waiting for Help to Arrive

Hand supports head

Knee stops body from rolling onto stomach

https://sossafetymagazine.com/drugs-alcohol/overdose-survival-guide/
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After presenting to the emergency room, John agrees to enter inpatient treatment for his depression, alcohol and opioid use disorders.

He is also started on medications for his opioid use disorder, and agrees to attend 12-step meetings in his community.

You meet him at the clinic after completing a residential treatment program.
That was such a wake-up call. I almost died. But now I’m really worried about a buddy of mine. He’s been dabbling with heroin for years, but recently he’s gone downhill. He won’t go to treatment, and I’m afraid he’s going to overdose any day now. What can I do to help him?
Reducing the Risk for an Overdose (1)

- Not using alone
- Plan ahead with other users to decide what to do in case of an overdose
- Start low, go slow
- PO, IN, IM all carry risk for OD, but IV most dangerous
Reducing the Risk for an Overdose (2)

- Using bathrooms with doors that open outwards
- Not using opioids with benzodiazepines
- Tabs/pills may be counterfeit drugs that contain fentanyl
- Never assume the material is safe to use or not, based on observation alone
Unit Resources

- CDC - Opioid Data Analysis
- SAMHSA - Emergency Department Data
- CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016
- National Conference of State Legislatures - Drug Overdose Immunity and Good Samaritan Laws
- Video: Naloxone Nasal Spray Demonstration (Boston Herald)
• **What Is NARCAN® Nasal Spray** ** Link provided for educational purposes only. HMS, course instructors and partner organizations do not endorse any commercial brands or products **

• **Harm Reduction Coalition - How to Administer Naloxone**

• **SOS Safety Magazine - Overdose Survival**

• **Harm Reduction Coalition - Overdose Prevention: Tools & Best Practices**