



## EM CASES SUMMARY

### Episode 117 Emergency Management of Opioid Misuse, Overdose and Withdrawal

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#### **Cardiac arrest in the setting of suspected opioid overdose**

Because these are usually respiratory arrests, Airway should be a priority and Naloxone should be considered a priority early in the resuscitation.

##### **Naloxone dosing in cardiac arrest:**

- 2mg IV or IM
- Repeat dose every 2 minutes, up to at least 12mg

##### **Unclear conditions leading to cardiac arrest?**

Still consider high dose naloxone IV or IM given empirically.

**Pitfall:** A major pitfall is assuming no opioid overdose in the patient with normal or enlarged pupil size. The classic sign of pinpoint pupils is not always present when mixed substances, sometimes without the patient's awareness of drug mixing or contamination, is at play.

#### **Opioid overdose: The pending respiratory arrest & decreased LOA**

Empiric naloxone prevents respiratory arrest.

#### **Naloxone dosing in non-cardiac arrest opioid overdose**

The goal with naloxone administration is to avoid worsening respiratory depression, aspiration and cardiac arrest on the one hand, while on the other hand avoiding sending the patient into severe opioid withdrawal and an agitated state.

##### **Targets of Naloxone dosing**

- RR > 12
- SpO<sub>2</sub> > 90%
- EtCO<sub>2</sub> < 45

Patients often require as much as 12mg of naloxone. Therefore current dosing recommendations are:

**First dose: 0.4mg IV/IM followed by 1mg in 3 minutes if no response. Then double the dose q3mins until targets are reached as outlined above.**

If >12mg naloxone have been given without achieving the above targets, consider endotracheal intubation and mechanical ventilation. Earlier intubation may be required.

**Pitfall:** A major pitfall is sending a patient home soon after clinical stability has been achieved with naloxone. Most opioids last longer than naloxone. It is therefore imperative to observe opioid overdose patients for at least 2 hours after targets have been achieved with naloxone. With naloxone having a short half-life (30-80 mins), the discharged patient could suffer a rebound overdose that could be fatal.

The half life of naloxone ranges from 30-80 minutes depending on liver function. Expect rebound opioid overdose about 1 hour after naloxone was given.

### **Redosing Naloxone in the patient with rebound opioid overdose**

Give a second dose of naloxone at the dose given for response initially. If ongoing doses are needed, consider **naloxone infusion**:  
*1/3 of the effective naloxone dose given, run over 1 hour.*

### **What are the potential harms of giving naloxone?**

If naloxone is overdosed, it can cause opioid withdrawal, which is almost never fatal but is very uncomfortable for the patient. While pulmonary edema is recognized as a side effect of naloxone, it is rare and may be due to other co-morbid factors in the opioid overdose patient.

### **When is it safe to discharge an opioid overdose patient after naloxone?**

#### **Post-Naloxone Care:**

Observe patients for at least 2 hours after the last dose of naloxone was given to assess for recurrent opioid toxicity. Reassess for sedation, respiratory depression, medical complications of overdose and/or drug use (aspiration, pulmonary edema, rhabdomyolysis, compartment syndrome, infections).

A clinical prediction tool was developed in 2000 in a study of 573 patients. Patients with presumed opioid overdose were safely discharged one hour after naloxone administration if they had:

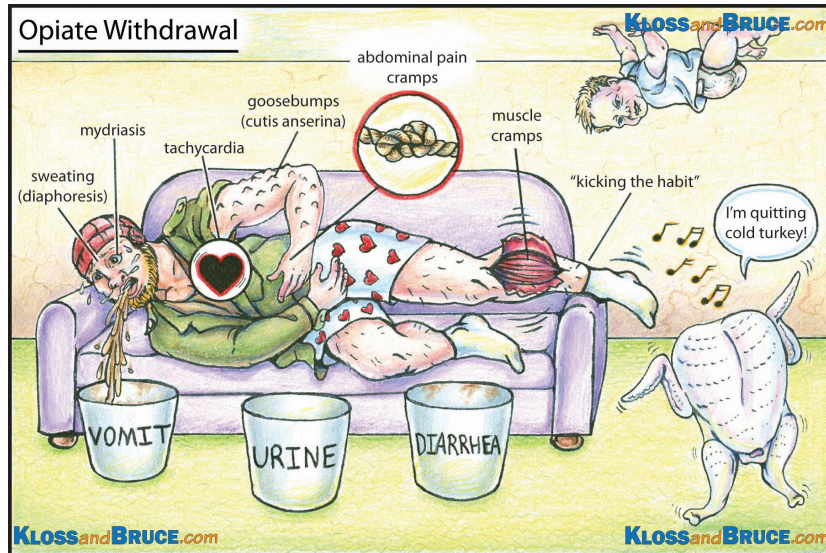
1. Their baseline gait
2. Oxygen saturation on room air of >92%
3. Respiratory rate >10 breaths/min and <20 breaths/min
4. Temperature of >35.0 degrees C and <37.5 degrees C
5. Heart rate >50 beats/min and <100 beats/min
6. GCS = 15.

The rule had a 99% sensitivity and 40% specificity for adverse events within 24 hours.

***Pitfall:** Avoid the temptation to order “discharge when awake and ambulating safely”. This may lead to a fatal rebound opioid overdose and is a missed opportunity for Screening, Brief Intervention and Referral to Treatment (SBIRT) which has potential to save lives and improve functional outcomes (see SBIRT discussion below).*

## Opioid Withdrawal

The clinical features of opioid withdrawal overlap with severe gastroenteritis.



Care of Life in the Fast Lane

Opioid withdrawal is rarely life threatening, however it may precipitate preterm labor in pregnant patients, ACS in patients with coronary artery disease and there are published case reports of temporally related Takotsubo cardiomyopathy.

## Expected onset and peak of opioid withdrawal by drug

DRUG	Onset	Peak
Fentanyl	3-5 hours	8-12 hours
Heroin, Morphine, Percocet, Crushed long-acting opioids	8-12 hours	36-72 hours
Long-Acting Opioid (hydromorphone contin, OxyNeo™)	24 hours	-
Methadone	24-72 hours	4-6 days

Even after just 5 days of taking an opioid, physical and psychological withdrawal symptoms may develop upon cessation. Consider this when prescribing opioids on discharge from the ED and counsel patients appropriately.

## 5 Steps to ED Opioid Withdrawal Management

1. Does the patient meet criteria for opioid use disorder?
2. Assess readiness to quit opioids.
3. Assess severity of withdrawal using COWS.
4. Administer Suboxone™ for patients who fulfill criteria OR treat symptoms of withdrawal for those who do not fulfill criteria for Suboxone™ initiation.
5. Counsel and arrange appropriate follow-up

## Step 1 of ED opioid withdrawal management: Does the patient meet criteria for opioid use disorder?

DSM-5 Criteria for Opioid Use Disorder

1	Opioids are often taken in larger amounts or over a longer period than was intended	The presence of at least 2 of these symptoms indicates an Opioid Use Disorder (OUD)
2	There is a persistent desire or unsuccessful efforts to cut down or control opioid use	
3	A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects	
4	Craving or a strong desire to use opioids	
5	Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home	
6	Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids	The severity of the OUD is defined as:
7	Important social, occupational, or recreational activities are given up or reduced because of opioid use	MILD: The presence of 2 to 3 symptoms
8	Recurrent opioid use in situations in which it is physically hazardous	MODERATE: The presence of 4 to 5 symptoms
9	Continued use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by opioids.	
10	Tolerance,* as defined by either of the following: a) Need for markedly increased amounts of opioids to achieve intoxication or desired effect b) Markedly diminished effect with continued use of the same amount of opioid	
11	Withdrawal,* as manifested by either of the following: a) Characteristic opioid withdrawal syndrome b) Same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms	SEVERE: The presence of 6 or more symptoms

## Step 2: Assess readiness to quit opioids

What are the goals of the patient? Are they ready and willing to start treatment in hopes of stopping their opioid use?

Use the “Readiness Ruler” to assess stage of change: On a scale of 1-10, how ready are you to make a change today? Ask “Where do you want to go from here?” and “What would make tomorrow better than

today?” Build on their past successes; any positive changes. Describe the discrepancy between current behaviors and their goals. Obtain informed consent for starting Suboxone™ (buprenorphine/naloxone) in the ED for their opioid use disorder. If they are not interested in starting Suboxone™, using a patient-centered approach, gently share your concerns about their ongoing opioid use, the risk of overdose and medical complications, and harm reduction techniques (naloxone kit, clean needles and supplies).

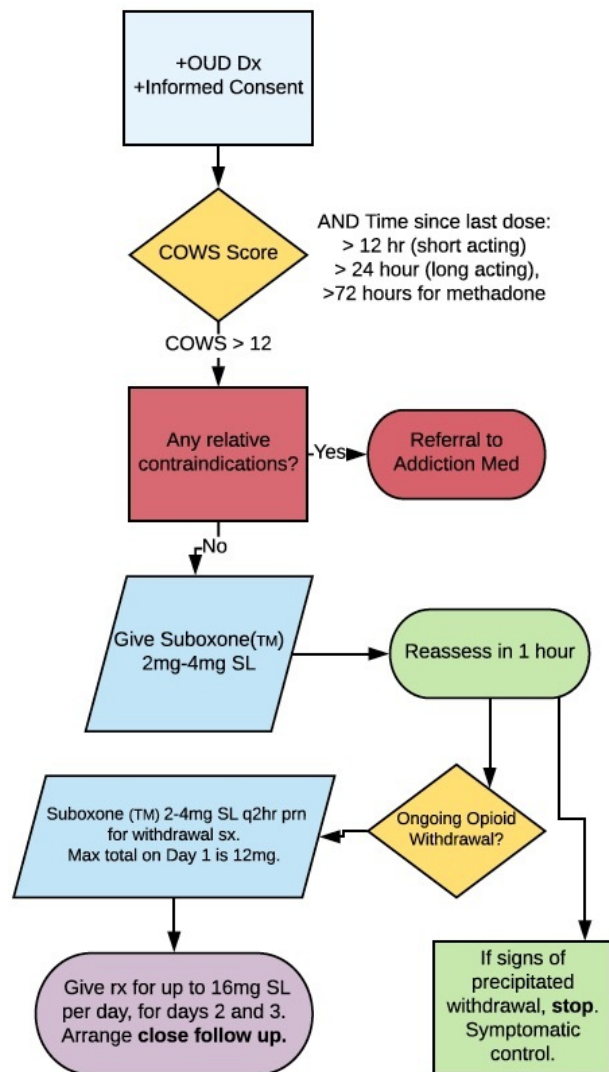
## Step 3: Assess the severity of opioid withdrawal using COWS

Use the validated assessment tool, the *Clinical Opioid Withdrawal Scale (COWS)* to determine the severity of withdrawal. This scale is similar to the CIWA scale used for alcohol withdrawal and is easily administered by ED staff. Points are assigned for the various symptoms and signs of withdrawal (tachycardia, sweating, restlessness, enlarged pupils size, bone/joint aches, runny nose/tearing, GI upset, tremor, yawning, anxiety/irritability, and “gooseflesh” skin). A score of 5-12 = mild; 13-24 = moderate; 25-36 = moderately severe; greater than 36 = severe. Patients must score at least in the moderate range (>12) to be eligible for Suboxone™ therapy.

## Step 4: Suboxone and treatment of withdrawal symptoms

### Prerequisites for starting Suboxone in the ED:

1. Patient has an opioid use disorder (OUD)
2. Patient gives informed consent
3. COWS is >12, AND
4. Time since last opioid >12hr (short acting), >24hr (long acting), >72hr (methadone)



Opioid Withdrawal Management Algorithm. OUD = Opioid Use Disorder, COWS = Clinical Opioid Withdrawal Scale.

## Dosing Suboxone

**Suboxone 2mg/0.5mg x 1-2 tabs SL repeated in 1-2hrs for ongoing withdrawal symptoms, total max 12mg.**

Suboxone™ is buprenorphine and naloxone in a sublingual tablet. Naloxone is not active unless injected; it is a taper-resistance medication. The Buprenorphine component of Suboxone™ is a partial agonist that acts on the opioid mu receptor, it has a high binding affinity but only partial intrinsic activity on the receptor (enough for pain and withdrawal but with less risk of respiratory depression and side effects). Compared to heroin, it binds stronger, but it is not as activating.

**There is moderate evidence to suggest that Suboxone™ decreases mortality, improves withdrawal symptoms, decreases drug use, improves follow-up rates and decreases crime rates.**

### Relative Contraindications to ED Suboxone Initiation

- Allergy to either buprenorphine or naloxone
- Hepatic dysfunction
- Respiratory distress currently
- Decreased LOC currently
- Concurrent active alcohol use disorder
- Concurrent benzodiazepine use

### Treatment of opioid withdrawal symptoms for those who do not fulfill criteria for Suboxone

If the patient either does not meet criteria for opioid use disorder, or does not want to start Suboxone, counsel them regarding their risks and provide symptomatic relief for withdrawal symptoms. Even brief counselling and referral to follow-up services (i.e. drop in clinics, addiction medicine teams, harm reduction centers in the community) has

been shown to lead to 37-45% patient engagement in treatment at 30 days.

**For bone/joint pain:** NSAIDs, IV or Oral +/- Acetaminophen; given the high toxicity of illicit opioids, consider a small, controlled prescription for short-acting opioid. Fax the prescription to the pharmacy and consider daily dispensed or observed dosing in the pharmacy until they can see appropriate follow up.

**For tachycardia, hypertension, sweating, anxiety and restlessness:** Clonidine (beware hypotension)

**For nausea/vomiting:** Ondansetron (beware prolonged QT in patients taking methadone)

***Pitfall:** A common pitfall is giving benzodiazepines for symptoms associated with opioid withdrawal. Benzodiazepines in this setting portend a very high risk for respiratory depression in overdose if the patient relapses, as well as a high likelihood when the patient is in uncomfortable withdrawal. Use caution when treating alcohol withdrawal and opioid withdrawal in tandem and consider consultation with an addiction specialist.*

#### **Take Home Suboxone Initiation from the ED**

If the patient has good insight into the level of their withdrawal symptoms (i.e. the reported severity correlates with the COWS score) and they aren't meeting criteria to start in the ED, consider having them go home with suboxone doses to start at home once they are in significant, moderate-severe, withdrawal.

Set up a tight referral pathway for rapid follow-up of suboxone starts. A patient should be seen in a rapid access addiction medicine clinic or similar community clinic the next 1-2 days as possible. Provide a prescription for daily observed dosing in pharmacy, at the appropriate dose up to 16mg SL per day until follow up.

## **Step 5: Counsel and arrange appropriate follow-up**

### **Counseling the opioid use disorder patient**

You can save a life by choosing to intervene on patients that present for other issues related to substance use – post-trauma, psychiatric, found down “intoxicated.”

**Screening, Brief Intervention and Referral to Treatment (SBIRT)** is an excellent way to make a difference for this large subset of patients we see in the emergency department. Even without starting medication, 37-45% of patients in one study that underwent SBIRT in the ED, engaged with treatment at 30 days.

Ask for permission to discuss substance use and overdose, to discuss goals, and to express your concerns with their current use.

- Screen for other substance use (see below)
- Screen for safety (the opioid overdose could be a suicide attempt!)
- Assess the goals of the patient, and stage of change
- Offer referral to resources in community or hospital appropriately around goals (i.e. housing, detox, addiction medicine clinic, family doctor services, safe injection facilities)
- Discuss and offer naloxone kits, clean injection supplies
- Counsel around high risk of accidental overdose given withdrawal and/or decrease in tolerance

***Pitfall:** Sending an opioid patient directly to a detoxification center who is not psychologically ready to quit opioids can have devastating consequences. If the patient is not ready, do not push or force the patient to attend detox. Going to detox can put them at increased risk for overdose if they leave prematurely and relapse, given the decrease in their tolerance. Be sure to counsel your patient around this overdose risk.*

## Screening for alcohol and opioid use disorder

Use validated tools such as the CAGE questionnaire. An even briefer screening tool has only 2 questions:

“In the past year, how often have you drank 5 or more drinks per day?”  
“Have you used prescription drugs for non-medical purposes or illegal drugs within the last year?”

## Brief Intervention: Brief negotiated interview

- Build rapport, ask permission to discuss substance use and goals
- Open ended questions, non-judgmental
- Give feedback and share concern if patient gives permission
  - Identify the problem and your concern, and tie it to ED presentation
- Use the “Readiness Ruler” to assess stage of change
  - On a scale of 1-10, how ready are you to make a change today?
- “Where do you want to go from here?”
- “What would make tomorrow better than today?”
- Build on their past successes, any positive changes
- Develop discrepancy between current behaviors and their goals
- Avoid arguing, telling them what to do. Instead roll with resistance.
- Avoid stigmatizing language: getting “clean”, addict, junkie

## Why not use methadone for opioid withdrawal in the ED?

Despite Health Canada lifting the exemption needed to prescribe methadone, provincial requirements will vary and EM physicians should proceed carefully with any prescribing. **There is no role for ED methadone initiation.** The only role for giving methadone in the ED is for a patient who has been clinically stable on methadone, with a good reason to be missing one or two doses (i.e. clearly in custody of police, or in hospital) with a well documented dose history and stable dose amount. If 3 or more days consecutively of methadone have been missed, a dose adjustment is necessary and they are **not considered stable on their dose**. Proceed with caution.

## Precipitated opioid withdrawal

### What is precipitated withdrawal?

Precipitated withdrawal is a relative decrease in the activity at the opioid receptor due to suboxone kicking off any opioid currently bound, but not activating the receptor as well. The patient will feel sudden worsening of their withdrawal symptoms within 30 minutes of their first suboxone dose. Timing is key. Suboxone must be at least 12 hours since any short acting opioid, 24 hours for any long acting opioid, and at least 72 hours from any methadone.

### How do I treat precipitated withdrawal?

This is very difficult to treat and can often dissuade the patient from continuing with opioid agonist therapy. Do not treat with escalating doses of opioids to overcome the buprenorphine (dangerous for overdose). It is also not always effective to keep escalating the suboxone dosing. In most cases, treat symptomatically and wait until 24 hours to restart. Consider specialty consultation and follow up if available.

## Key Take home points for Opioid Misuse, Overdose and Withdrawal

- Total naloxone dose of more than 12mg is sometimes required for opioid overdose treatment, especially for fentanyl analogues.
- The absence of pinpoint pupils does not rule out opioid overdose.
- Observe patients for at least 2 hours after the last dose of naloxone and use the clinical prediction tool for disposition decisions; avoid “discharge when awake and ambulating safely”.
- The clinical features of opioid withdrawal overlap with severe gastroenteritis.
- Withdrawal symptoms can develop after only 5 days of taking an opioid.
- Avoid benzodiazepines in the treatment of opioid withdrawal.
- Be sure that your patient fulfills the criteria for opioid use disorder before starting Suboxone in the ED.
- A COWS score >12 is an important prerequisite for prescribing Suboxone to avoid precipitated withdrawal.
- There is moderate evidence to suggest that Suboxone™ decreases mortality, improves withdrawal symptoms, decreases drug use, improves follow-up rates and decreases crime rates.
- SBIRT – Screening, Brief Intervention and Referral to Treatment has been shown to increase the rates of engagement in treatment at 30 days.
- Avoid discharge to a detoxification center for opioid use disorder patients who are not ready to stop opioids.
- There is no role for ED methadone initiation.

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