Clinical Practice Guideline: Adolescent Opioid Use Disorder Appendix
For Use in the Monroe Carroll Junior Children's Hospital at Vanderbilt Emergency Department, Outpatient Clinic or Inpatient Hospital

[1] Inclusion Criteria:

AT LEAST ONE of the of the following are true:

1. Patient becomes acutely agitated during admission thought due to opioid withdrawal syndrome (OWS)
2. Patient desires medically supervised withdrawal
3. Patient requires intervention with naloxone due to substance use/intoxication

AND all the following are true:

1. Age: 13 years or greater
2. Patient has diagnosis of opioid use disorder
3. Patient consents/assents to treatment
4. ideally caregiver consents as well but not required
5. Patient has no known risk factors for imminent hypotension, respiratory failure, or metabolic acidosis

   (i.e. they could reasonably be expected to tolerate partial opioid agonist induction or precipitated opioid withdrawal – including severe diarrhea and vomiting w/ fluid loss - without severe decompensation)

6. Patient is not expected to have need for full opioid agonists during admission such as for metastatic cancer, burn, physical trauma, recent major surgery, vaso-occlusive crisis

[2] Initial Orders:

Vital Signs every 4 hours and as needed for acute change in symptoms or physical inspection by nurse

Clinical Opioid withdrawal Scale (COWS) every 4 hours and as needed for an acute change in symptoms or physical inspection by nurse
5-7 = very mild
8-12 = mild
13+ = moderate to severe

Order safety precautions

1. select "Substance Use/Withdrawal from Substance"
2. select "continued observation, including while the patient is in the bathroom".
3. If no concerns for self-harm, no need for other safety precautions such as stripped room or no utensils w/ food

Consult social work

Consult "pediatric psychiatry, child/adolescent"

If already admitted, keep original team, place transfer request for Unit 12-C for nursing team comfort

If not already admitted, admit to “Pediatric Hospital Medicine”, request Unit 12-C if available.

Clinical Opioid Withdrawal Scale (COWS)

Symptoms to Assess:	**Resting Pulse Rate: (bpm)** 0= ≤ 80 1= 81-85 2= 86-90 4= > 90	**Sweating over 30 minutes:** 0= No chills or flushing 1= Patient report of chills or flushing 2= Flushed or moistness on face 3= Beads of sweat on forehead 4= Drenching sweats
Restlessness: 0= Able to sit still 1= Some difficulty sitting still 3= Frequently shifting/moving legs, arms 5= Unable to sit still	**Pupil size:** 0= Pinpoint or normal size in room light 1= Larger than normal in room light 2= Moderately dilated 5= Only rim of iris is visible due to dilation	**Bone or Joint Aches:** 0= No bone or joint pain 1= Mild discomfort 2= Moderately severe aching 4= Constantly rubbing joints/ muscles
Runny Nose or Tearing: 0= Not present 1= Nasal stuffiness or moist eyes 2= Nose running or eyes tearing 4= Nose constantly running/tears streaming	**G.I. Upset:** 0= None reported 1= Stomach cramps 2= Nausea 3= Vomiting or diarrhea 5= Multiple episodes of vomiting/ diarrhea	**Tremor:** 0= Not present 1= Tremor can be felt but not observed 4= Gross tremor or muscle twitching
Yawning: 0= Not present 1= Yawning 1 or 2 times during assessment 2= Yawning 3 or 4 times during assessment 4= Yawning several times per minute	**Anxiety or Irritability:** 0= Not present 1= Patient reports some irritability or anxiousness 2= Patient obviously irritable or anxious 4= Patient so irritable that participation in assessment is difficult	**Gooseflesh Skin:** 0= Skin is smooth 3= Piloerection of skin can be felt or hairs standing up on arms 4= Prominent piloerection present

Laboratory Studies:

Blood:

[ ] Complete Blood Count with Differential
[ ] Comprehensive Metabolic Profile
[ ] Hepatitis B Virus Panel
[ ] Hepatitis C Virus IgG w/ Reflex Polymerase Chain Reaction if Positive
[ ] **<u>If opting in</u>**: Human Immunodeficiency Virus 1 and 2 Combined Antibody/p24 antigen

Urine:

[ ] Drug Screen with confirmatory testing as indicated
[ ] Point of Care fentanyl
[ ] Urine Pregnancy Test if Applicable
[ ] Electrocardiogram

[4] Symptomatic as needed (PRN) Treatment for Opioid Withdrawal Syndrome:

Refers to medications that relieve symptoms associated with opioid withdrawal without addressing the underlying etiology.

First Line for Autonomic Dysregulation: Clonidine 0.1mg up to every 6 hours as needed
diaphoresis, intestinal cramping, nausea, vomiting, diarrhea, anxiety
hold for BP <80/50, HR <60, sedation

Nausea/Vomiting: Ondansetron 4mg Oral Dissolvable Tablet or Intravenous up to every 4 hours as needed
Second Line: Promethazine 25mg by mouth up to every 4 hours a needed

Headache, Body Aches, Myalgia: Acetaminophen 500 mg by mouth up to every 4 hours as needed

Anxiety Second Line: Hydroxyzine 50mg by mouth up to every 4 hours as needed
Try Clonidine First if there are no contraindications

Diarrhea Second Line: Loperamide 2mg by mouth up to 4 times per day as needed
Try Clonidine first if no contraindications

Insomnia: Trazodone 50 mg by mouth up to 1 time per night as needed

[5] Educational Points when discussing risks, benefits, and alternatives of Medication for Opioid Use Disorder, specifically buprenorphine:

"Buprenorphine / Naloxone prevents withdrawal and cravings, while not causing intoxication, and is superior to all other pediatric treatment options in reducing cravings and preventing return to use, plus overdose protection in the event of return to use"

"It can with daily long-term use induce physiologic dependence if not already present, eg in the case of binge use"

"We don't have good data for 'how long do I have to take this', but longer is safer for at least the first 3-12 months"

"The most common side effects are minor sedation, dizziness, cavities, slow breathing, constipation, and withdrawal. Most of the side effects happen to less than 10% of people"

"If Residential Treatment is the preferred disposition upon discharge from inpatient hospitalization, many residential treatment centers in Tennessee will not continue buprenorphine. Buprenorphine may be most logistically appropriate for disposition of routine outpatient care, intensive outpatient care, or partial hospital"

[6] Documenting Informed Consent

Team that is documenting informed consent, use the ". OUDCPGCONSENT" dot phrase:
*The individual is *** years old and has an opioid use disorder of *** intensity as evidenced by meeting *** of 11 DSM5TR criteria, at least 1 of which is not tolerance or withdrawal, as below (where 2+ = mild intensity, 4+ = moderate intensity, and 6+ = severe intensity):*
*[***] Tolerance, that is, a need for increasing amounts to achieve intoxication*
*[***] Withdrawal syndrome*
*[***] More ingested than the patient intended*
*[***] Unsuccessful attempts to cut down*
*[***] Much time spent in activities related to obtaining or recovering from the effects*
*[***] Craving*
*[***] Use continued despite the patient's knowledge of significant physical or psychological problems caused by its use*
*[***] Important social, occupational, or recreational activities given up or reduced because of use*
*[***] Failure to fulfill major role obligations at work, school, or home*
*[***] Persistent social and interpersonal problems caused by use*
*[***] Recurrent use in situations in which it is physically hazardous*

The individual has been informed about the risks, benefits, and alternatives of treatment options for opioid use disorder, including cognitive behavioral therapy, mutual help groups, no treatment, and medication for opioid use disorder (MOUD), for which MOUD, specifically buprenorphine-naloxone, has the best evidence at reducing mortality and return to use.

The individual, and if relevant, their guardian (in the case of 13–15-year-olds in the state of Tennessee), have consented to starting buprenorphine-naloxone inpatient.

Given all the above, we will proceed with buprenorphine induction once appropriate.

We have also discussed the risk of precipitated withdrawal, and a contingency plan should it occur.

[7] Hydromorphone Bridge:

An option for pregnant individuals or individuals with a history of severe precipitated withdrawal in which case the risk of precipitated withdrawal is either high or with more severe consequences if it were to occur.

Schedule Hydromorphone 0.05mg/kg (if <50kg) or 2-4mg (if 50kg+) by mouth or intravenous every 4 hours while awake.

Stop 12 hours prior to planned buprenorphine initiation

HOLD for BP < 80/50, RR < 12, HR < 60, sedation

Order Hydromorphone 1-2mg by mouth or IV every 4 hours as needed for COWS > 10, timed at the 2-hour mark between scheduled doses. Discontinue this order 12hr before scheduled buprenorphine

Example:
An Adolescent gets 4mg of hydromorphone scheduled at 1200
2mg at 1400 for a COWS score of 12
4mg at 1600
falls asleep so is not given any hydromorphone at 1800
then is given 4mg at 2000, and hydromorphone order is discontinued with plan to start buprenorphine the next morning
Clonidine 0.1mg and Trazodone 50mg are given at 2200 for insomnia and discomfort with sweating
clonidine 0.1mg is given at 0200 when the adolescent awakens uncomfortable
and hydroxyzine is given at 0400 when the adolescent awakens again uncomfortable but with a blood pressure of 78/52
At 0800, COWS is 14, BP is 106/74, so buprenorphine test dose is given.

Inform the individual of risks of this procedure such as:
adverse effects (eg over sedation)
no overdose protection as would be the case for partial mu agonist
possibility of undertreatment if underdosed
Risk of delaying MOUD initiation with possibility of discharge against medical advice before starting MOUD

[8] Criteria to Start Buprenorphine:

[ ] COWS 8+ (better if 13+)
Not required in the absence of tolerance or withdrawal as these individuals are at decreased risk of precipitated withdrawal
[ ] 12+ hours since any opioid
[ ] 72+ hours since methadone or possible fentanyl
in certain individuals, 24 hours since last fentanyl exposure may be appropriate
72 hours since last methadone exposure should always be adhered to.
[ ] Verbalizes “I want to start buprenorphine at this time” after having verbalized inform consent

[9] Buprenorphine Induction:

1. Give Buprenorphine 2mg / Naloxone 0.5mg sublingual
2. Score COWS again after 1 hour
   Mild Nausea or Dysgeusia are expected and appropriate
   an increase of 5 or less in COWS is appropriate and likely reflects continued worsening of withdrawal unresponsive to low dose buprenorphine and in need of higher dose

An acute change of appearing far more ill on mental status exam with a 6+ point increase in COWS may reflect precipitated withdrawal

3a. If precipitated withdrawal is not suspected, continue giving Buprenorphine 2mg / Naloxone 0.5mg sublingual every hour until ONE of the following conditions are met:
1. Subjective Distress Resolves
2. COWS < 5 (even if the individual is still experiencing distress)
3. 12mg total has been given

3b. If precipitated withdrawal is suspected, give Buprenorphine 8mg / Naloxone 2mg sublingal and page pediatric psychiatry for further assisstance

[10] Buprenorphine Stabilization

If 10mg or less of buprenorphine was needed to achieve stability the day before, start buprenorphine 8mg / naloxone 2mg daily

If 12mg was needed to achieve stability the day before, start buprenorphine 12mg / naloxone 3mg daily

If 12mg was given the day before but stability was not achieved, start buprenorphine 8mg / naloxone 2mg twice daily

[11] Buprenorphine Taper

For individuals who needed buprenorphine for stabilization of withdrawal syndrome in the hospital but have no intention to continue in the outpatient setting, lack access to outpatient buprenorphine prescribers, or are going to a resident treatment center that does not allow controlled prescriptions to be administered

Day 1: buprenorphine-naloxone 2-0.5 mg sublingual 4 times daily
Day 2: buprenorphine-naloxone 2-0.5 mg sublingual 3 times daily
Day 3: buprenorphine-naloxone 2-0.5 mg sublingual 2 times daily
Day 4: buprenorphine-naloxone 2-0.5 mg sublingual daily
Day 5: buprenorphine-naloxone 1-0.25 mg sublingual daily
Day 6: Taper complete, discontinue buprenorphine-naloxone

[12] Coordinating Outpatient Care

Previously and still in many parts of Tennessee, outpatient prescribers experienced in managing buprenorphine remains a major barrier to MOUD. Fortunately, Vanderbilt Recovery Clinic is now accepting adolescent outpatients.

Prior to discharge, if a patient and family are interested in outpatient buprenorphine and have transportation access to Nashville regularly, the following to Dr. Michael Levin, found in Vanderbilt's internal email server (not publishing online for privacy):
- Patient Name
- Patient Medical Record Number (MRN)
- A best phone # at which to contact the family

[13] Discharge Checklist:

[ ] Patient has intranasal naloxone in hand or has documented informed refusal of naloxone

[ ] Patient has all relevant follow-up appointments schedule including but not limited to:
Pediatric Medicine
Child and Adolescent Psychiatry
Psychotherapy

If suboxone was given while inpatient...
[ ] Patient has enough suboxone to not run out prior to outpatient hospital follow-up appointment, or to complete taper if tapering
This should be ordered to the Vanderbilt Pediatric Outpatient Pharmacy, though demand has historically been too low for them to consistently stock. Advise patients and family that their prescription may be transferred to the VUMC East Pharmacy.

References:

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