Managing the Hospitalized Patient with Opioid Use Disorder

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23RD ANNUAL MANAGEMENT OF THE HOSPITALIZED PATIENT CME COURSE
OCTOBER 18, 2019
35 Y man admitted overnight with right upper extremity erythema, pain, and swelling

- Started on empiric treatment for cellulitis
- You are getting sign out from your overnight colleague when you get paged that he is complaining of diarrhea, abdominal pain, headache, and nausea
- You evaluate the patient and note he is yawning and that his pupils are dilated. He endorses last using heroin before being admitted
Objective

1. Diagnose and treat opioid withdrawal and opioid use disorder (OUD) with either methadone or buprenorphine

2. Recognize how to link hospitalized patients to buprenorphine or methadone treatment on discharge

3. Name three options for OUD harm reduction
Outline

- Prevalence, demographics, and characteristics of hospitalized patients with OUD
- Diagnosing OUD
- Medication treatment
- Cases
Three Waves of Opioid Overdose Deaths

Source: CDC, 2017
OUD-related hospitalizations and ED visits almost doubled in the last decade
SUD among hospitalized patients

- Up to 25% of hospitalized patients
- More likely to be admitted from the emergency department
- Longer lengths of stay, costlier, higher readmission
- High AMA rates
- Lowest quartile of income
- Unconnected to care


Why treat OUD in the hospital?

- Eliminate withdrawal and reduce cravings
- If return to use while on treatment occurs, less/no high
- Maintain tolerance
- Root cause of ED visits, admissions, and readmissions
- Patients motivated to cut back or stop use – pivotal touch point
- When addressed:
  - Improved rates of PCP and addiction treatment follow up
  - Reduced substance use after discharge
  - Lower 30-day readmissions
  - Improved patient and provider experiences


Outline

- Prevalence, demographics, and characteristics of hospitalized patients with OUD
- Diagnosing OUD
- Medication treatment
- Cases
Diagnosing OUD

Symptoms
- Withdrawal
- Uncontrolled pain

Diagnoses
- Skin and soft tissue infections
- Endocarditis, osteomyelitis
- Trauma
- Overdose

DSM Criteria
- Chronic pain

Not all who use opioids have OUD
<table>
<thead>
<tr>
<th>DSM-5</th>
<th>In the past year, have you:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control: Exceeded own limits</td>
<td>Had times when you ended up drinking more, or longer, than you intended?</td>
</tr>
<tr>
<td>Failed attempts to quit/control use</td>
<td>More than once wanted to cut down or stop drinking, or tried to, but couldn't?</td>
</tr>
<tr>
<td>Compulsion: Time using, getting, recovering</td>
<td>Spent a lot of time drinking? Or being sick or getting over other aftereffects?</td>
</tr>
<tr>
<td>Craving</td>
<td>Wanted a drink so badly you couldn't think of anything else? <strong>This is new to DSM-5</strong></td>
</tr>
<tr>
<td>Role failure</td>
<td>The presence of at least 2 of these symptoms indicates an Alcohol Use Disorder (AUD).</td>
</tr>
<tr>
<td>Consequences: Relationship trouble</td>
<td>The severity of the AUD is defined as:</td>
</tr>
<tr>
<td>Gave up other meaningful activities</td>
<td>Mild: The presence of 2 to 3 symptoms</td>
</tr>
<tr>
<td>Risk of bodily harm</td>
<td>Moderate: The presence of 4 to 5 symptoms</td>
</tr>
<tr>
<td>Risky Use</td>
<td>Severe: The presence of 6 or more symptoms</td>
</tr>
<tr>
<td>Physical/psychological consequences</td>
<td>Continued to drink even though it was making you feel depressed or anxious or adding to</td>
</tr>
<tr>
<td>Pharmacological Criteria</td>
<td>another health problem? Or after having had a memory blackout?</td>
</tr>
<tr>
<td>Tolerance</td>
<td>Continued to drink even though it was causing trouble with your family or friends?</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>Given up or cut back on activities that were important or interesting to you, or gave you</td>
</tr>
<tr>
<td></td>
<td>pleasure, in order to drink?</td>
</tr>
<tr>
<td></td>
<td>More than once gotten into situations while or after drinking that increased your chances</td>
</tr>
<tr>
<td></td>
<td>of getting hurt (such as driving, swimming, using machinery, walking in a dangerous area,</td>
</tr>
<tr>
<td></td>
<td>or having unsafe sex)?</td>
</tr>
<tr>
<td></td>
<td>Continued to drink even though it was making you feel depressed or anxious or adding to</td>
</tr>
<tr>
<td></td>
<td>another health problem? Or after having had a memory blackout?</td>
</tr>
<tr>
<td></td>
<td>Had to drink much more than you once did to get the effect you want? Or found that your</td>
</tr>
<tr>
<td></td>
<td>usual number of drinks had much less effect than before?</td>
</tr>
<tr>
<td></td>
<td>Found that when the effects of alcohol were wearing off, you had withdrawal symptoms,</td>
</tr>
<tr>
<td></td>
<td>such as trouble sleeping, shakiness, restlessness, nausea, sweating, a racing heart, or</td>
</tr>
<tr>
<td></td>
<td>a seizure? Or sensed things that were not there?</td>
</tr>
</tbody>
</table>
Outline

- Prevalence, demographics, and characteristics of hospitalized patients with OUD
- Diagnosing OUD
- Medication treatment
- Cases
**Opioids:** full agonist
heroin, oxycodone, fentanyl, etc

**Methadone:** full agonist
Activates receptor

**Buprenorphine:** partial agonist
High affinity, ceiling effect

**Extended-release naltrexone, naloxone:**
Full antagonist, high affinity
## Medications for OUD

<table>
<thead>
<tr>
<th></th>
<th>Methadone</th>
<th>Buprenorphine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment retention</strong></td>
<td>Higher than buprenorphine</td>
<td>Retention improves at doses &gt;16mg</td>
</tr>
<tr>
<td><strong>Office visits</strong></td>
<td>Daily visits to treatment program</td>
<td>Daily-monthly; can also provide as DOT in some settings</td>
</tr>
<tr>
<td><strong>Who can prescribe in acute care?</strong></td>
<td>Any inpatient provider during hospitalization. Any provider in ED: up to 72 hours dosing</td>
<td>Any inpatient provider during hospitalization. Any provider in ED: up to 72 hours dosing</td>
</tr>
<tr>
<td><strong>Who can prescribe at discharge?</strong></td>
<td>Opiate Treatment Program (methadone clinic)</td>
<td>Any provider with DATA2000 X waiver</td>
</tr>
<tr>
<td><strong>Sedation</strong></td>
<td>Yes at high doses, non-tolerant patients or slow metabolizers</td>
<td>Ceiling effect for respiratory depression</td>
</tr>
<tr>
<td><strong>Withdrawal when starting</strong></td>
<td>Takes time to reach comfortable dose</td>
<td>Need to be in withdrawal</td>
</tr>
</tbody>
</table>
Buprenorphine: precipitated withdrawal

- Must be in withdrawal prior to induction
- High affinity
Decreased Mortality

All cause mortality per 1000 person years

Source: Sordo et al, BMJ, 2017
Hospital Initiation of Buprenorphine

- 72% of patients initiated buprenorphine in hospital
- 12% of patients initiated buprenorphine in detox

Days in bup over 6 months

Source: Liebschutz et al, JAMA Internal Medicine, 2014
Detox Doesn’t Last

Outline

- Prevalence, demographics, and characteristics of hospitalized patients with OUD
- Diagnosing OUD
- Medication treatment
- Cases
# Opioid Use Disorder (OUD), Opioid Withdrawal, and Linkage to Treatment

## Methadone Guide for OUD Treatment and Withdrawal

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Methadone Guide for OUD Treatment and Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>qUtox, pregnancy test, consider QTc, CURES, COWS, confirm OUD</td>
<td>qGive 20mg methadone</td>
</tr>
<tr>
<td>qEvery 4 hours -&gt; COWS, if having cravings or withdrawal, give 10mg more. Do not exceed 40mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 2</th>
<th>Methadone Guide for OUD Treatment and Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>qGive total Day 1 dose in am</td>
<td>qEvery 4 hours -&gt; COWS, if having cravings or withdrawal, give 10mg more. Do not exceed 40mg</td>
</tr>
<tr>
<td>qGive total Day 2 dose in am and follow same protocol. Do not exceed 50mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 4</th>
<th>Methadone Guide for OUD Treatment and Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>qGive Day 3 max dose. Continue protocol until reaching 60mg daily. Then hold for 5 days before increasing by 10mg every 5 days</td>
<td></td>
</tr>
</tbody>
</table>

*Uncomplicated = no methadone for 5 days, no acute pain or surgery, not altered, no severe illness

**If concerned for precipitated withdrawal, start with 2mg

## Buprenorphine Guide for OUD Treatment and *Uncomplicated Withdrawal

<table>
<thead>
<tr>
<th>Day 1</th>
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</thead>
<tbody>
<tr>
<td>qUtox, pregnancy test, CURES, COWS, confirm OUD, consider QTc &amp; LFTs</td>
<td>qStart buprenorphine (bup) when mild withdrawal (COWS&gt;8) or no opioids for 5 days. If received opioids:</td>
</tr>
<tr>
<td>qShort acting → wait 12 hrs</td>
<td>qGive **bup 4-8mg (ensure sublingual)</td>
</tr>
<tr>
<td>qLong acting → wait 24-48 hrs</td>
<td>q1 hour later → recheck COWS. If ≥ 8 give 4mg more</td>
</tr>
<tr>
<td>qMethadone in last 5 days → request help</td>
<td>q6 hours later (sooner if withdrawing) → recheck COWS. If ≥ 8 give 4mg. Max dose 16mg on Day 1</td>
</tr>
</tbody>
</table>

## Adjunctive Support

- **Clonidine** 0.1-0.3 mg PO q6-8 hours PRN (NTE 1.2 mg/day) → Sweating, restlessness, hot flashes, watery eyes, anxiety
- **Loperamide** 4 mg PO x 1, then 2 mg PRN (NTE 16 mg/24 hours) → Loose stools
- **Zofran** 4 mg PO q 6 hours PRN → Nausea
- **Trazodone** or **Melatonin** → Insomnia
- **Diphenhydramine** 25-50 mg, PO q 8 hours PRN → Insomnia or anxiety
- **Tylenol** and/or **Ibuprofen** 650 mg PO q 6 hours PRN → Pain

## Bup and Methadone Quick Facts

- Inpatient providers can order bup or methadone for OUD, opioid withdrawal, or to continue outpatient tx
- X-waivered providers can prescribe bup on discharge
- Inpatient providers cannot prescribe methadone for OUD on discharge
Case 1

45-year-old man with a history of injection heroin use is admitted with cellulitis of his right upper extremity.

Two hours after admission, he feels achy and nauseous. His pulse is 102, he is sweating, and moving frequently in bed. Assume his sepsis is adequately addressed, and his symptoms are from opioid withdrawal.

- What medications would you offer him?
- How would you decide when to start these medications?
- How would you dose these medications?
- What do you do with his OUD medications at discharge?
Buprenorphine

- COWS ≥8, Must be in withdrawal prior to induction
- Initial dose 8-12h after short acting, 24-48h post long acting
- Transitioning from methadone—ask for help
Buprenorphine

When COWS ≥8, give 4-8 mg
Max day 1: 16 mg
Max day 2: 24 mg

Therapeutic dose 16-24mg/day

Increase dose: craving, withdrawal, pain
Decrease dose: insomnia/mania, sedation
Precipitated withdrawal: more buprenorphine OR short acting full agonist
**Withdrawal Assessment**

**COWS shortcut:** Subjective symptoms AND at least 1 objective withdrawal sign

- **Subjective:** Nausea, abdominal pain, myalgias, chills
- **Objective** (at least 1): Restlessness, sweating, rhinorrhea, dilated pupils, watery eyes, tachycardia, yawning, goose bumps, vomiting, diarrhea, tremor

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**COWS**


**Clinical Opiate Withdrawal Scale**

<table>
<thead>
<tr>
<th>Subjective Symptoms</th>
<th>Objective Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea, abdominal pain, myalgias, chills</td>
<td>Restlessness, sweating, rhinorrhea, dilated pupils, watery eyes, tachycardia, yawning, goose bumps, vomiting, diarrhea, tremor</td>
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**Rating Scale**

<table>
<thead>
<tr>
<th>Subjective Symptoms</th>
<th>Objective Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

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**Score:** 5-12 mild; 13-24 moderate; 25-36 moderately severe; more than 36 = severe withdrawal
Methadone

<table>
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<tbody>
<tr>
<td>Start with 10-30 mg, reassess in 3-4 hrs, may add 10mg PRN w/d sx, max 40 mg</td>
</tr>
<tr>
<td>Document COWS, sedation scores @ 0 min, 4 h. Goal COWS &lt;5</td>
</tr>
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<table>
<thead>
<tr>
<th>Day 2</th>
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<tr>
<td>Total Day 1 + 5-10 mg PRN, max 50 mg</td>
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<th>Day 3</th>
</tr>
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<tbody>
<tr>
<td>Today Day 2+ 5-10 mg PRN, max 60 mg</td>
</tr>
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Monitor on 60mg daily for 5 days before increasing again by 5-10mg, then hold that dose for 5 days, etc

Target daily dose 80-120mg
Methadone

- Days at steady dose:
  - Peak: 3-4 hours
  - Half life: 24-36 hours
  - Steady state: 3-7 days
  - Risk of overdose with induction
Start medication in the acute setting and communicate with PCP or OTP!

Methadone
Cannot prescribe on discharge for OUD

Buprenorphine
Prescribe at d/c if waived and bridge to outpatient plan

Opioid Treatment Program
Partner with local methadone clinic

Telemedicine

Primary Care
(SAMHSA website lists waived providers)

Bridge Clinic

OTP
(Some carry bup)
Case 2

60-year-old woman with a history of tricuspid valve endocarditis and anxiety is admitted for acute encephalopathy. Urine toxicology shows morphine, alprazolam, and cocaine. Shortly after admission, she wakes up sweating, tremulous, agitated, and vomiting and is asking to leave. Assume her symptoms are from opioid withdrawal.

- What medications would you offer for her withdrawal if she does not want to continue OUD treatment after discharge?
- What harm reduction measures would you provide if she is interested in treating the OUD but not stopping benzos or cocaine?
- What bloodwork could you obtain to look for complications of OUD?
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<table>
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<th>Give total Day 2 dose in am and follow same protocol. Do not exceed 60mg</th>
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<td></td>
<td>- Give Day 3 max dose. Continue protocol until reaching 60mg daily. Then hold for 5 days before increasing by 10mg every 5 days</td>
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<td>- Give <strong>bup 4-8mg (ensure sublingual)</strong></td>
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<td>- 1 hour later → recheck COWS. If ≥ 8 give 4mg more</td>
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<td>- 6 hours later (sooner if withdrawing) → recheck COWS. If ≥ 8 give 4mg. Max dose 16mg on Day 1</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Day 2</th>
<th>Give total Day 1 dose in am. TID dosing if patient has pain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- 1 hour later → if having cravings, pain, or withdrawal increase total daily dose by 4-8mg</td>
</tr>
<tr>
<td></td>
<td>- Goal daily dose 16-24mg/day. If greater, request help</td>
</tr>
</tbody>
</table>

### Adjunctive Support

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Harm Reduction

- Buprenorphine or methadone
- Needle exchange programs
- Review injection practices
- Supervised injection facilities
- Buddy system
- HCV and HIV education, screening, and treatment
- HAV, HBV, & TDaP vaccines prn
- Naloxone
Stop Overdose Deaths

Universal **naloxone** prescribing

- OUD
- Opioids
- Any drug use
Buprenorphine

Post Discharge Linkage

- Primary Care if PCP is X waivered. If not, check *SAMHSA to find bup provider. Give enough bup to bridge to appointment. Communicate d/c plan with PCP.
- SUD Bridge Clinic if available
- Some OTPs have DOT for bup
- Telemedicine
- Emergency administration (ie in ED) for up to 72 hours
- Some available formulations:
  - Bup-naloxone SL films
  - Bup-naloxone SL tabs
  - Buprenorphine tabs

Methadone

- OTP (methadone clinic) -> refer to one in your community. Establish partnerships to ease transitions. Great for patients who need more structure.

For patients with acute pain and OUD

- DO treat acute pain on top of OUD
- PRN opioids work even if on bup
- Split bup into TID or QID dosing to treat acute or chronic pain
- DO continue methadone or bup dosing before and after surgery
- DO use adjunctive medications, regional, ketamine, etc

Withdrawal Assessment

COWS shortcut: Subjective symptoms AND at least 1 objective withdrawal sign

- Subjective: Nausea, abdominal pain, myalgias, chills, runny nose
- Objective (at least 1): Restlessness, sweating, rhinorrhea, dilated pupils, watery eyes, tachycardia, yawning, goose bumps, vomiting, diarrhea, tremor

Diagnosing OUD

1. Does the patient use heroin and have signs and symptoms of withdrawal? If YES -> OUD.
2. If unsure OR no signs of withdrawal OR patient using prescription drugs, refer to DSM criteria below

Harm Reduction Checklist

- HIV and HCV testing and treatment
- HAV, HBV, & TDaP vaccines prn
- Review safe injection practices
  - Don’t use alone
  - Clean injection site
  - Inject slowly or use test shot
  - Use clean needle and other supplies ("works")
  - Don’t share needles or works
- Needle exchange programs
- Bup or methadone as harm reduction
- Naloxone for every patient
- PrEP/PEP
- Treat withdrawal even if patient is ambivalent or may not want bup or methadone after discharge

Other Resources

- UCSF Substance Use Warmline: Call 855-300-3595, weekdays PST 6 am-5 pm for Addiction MD, RN, or pharmacist
- ED-Bridge: Detailed resources at: https://ed-bridge.org
- SAMHSA: Find waivered providers at: https://www.samhsa.gov

For patients with acute pain and OUD

- DO treat acute pain on top of OUD
- PRN opioids work even if on bup
- Split bup into TID or QID dosing to treat acute or chronic pain
- DO continue methadone or bup dosing before and after surgery
- DO use adjunctive medications, regional, ketamine, etc

Risk of bodily harm
- Exceeds own limits
- Role failure
- Relationship trouble
- Unable to cut down
- Time spent getting
- Using despite health
- Gives up activities
- Craving
- Tolerance
- Withdrawal

This Toolkit Belongs To:
Case 3

40-year-old man with a history of OUD in recovery x 2 months on buprenorphine 16 mg daily is admitted after a motor vehicle accident and found to have multiple fractures requiring operative repair.

- What do you do with his buprenorphine before surgery? What if he was on methadone?
- What do you do with his buprenorphine after the surgery to manage his pain? What if he was on methadone?
<table>
<thead>
<tr>
<th>Dose verification</th>
<th>Before surgery</th>
<th>After surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methadone</strong></td>
<td>Call methadone clinic</td>
<td>Continue full dose</td>
</tr>
<tr>
<td><strong>Buprenorphine</strong></td>
<td>Medical record, PDMP, outpatient pharmacy</td>
<td>Continue full dose</td>
</tr>
<tr>
<td></td>
<td>Rarely, decrease to 12 mg 2-3 days prior to surgery</td>
<td>Continue full dose, consider splitting TID</td>
</tr>
<tr>
<td>Intensity</td>
<td>Intervention</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Very mild pain</td>
<td>Split methadone/buprenorphine TID</td>
<td></td>
</tr>
<tr>
<td>Mild pain</td>
<td>• Ibuprofen, acetaminophen, or topical analgesics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Neuropathic pain: gabapentin, TCAs, SNRIs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Spastic pain: tizanidine, baclofen, cyclobenzaprine (not carisoprodol)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Anxiety/PTSD: sedating SSRIs or SNRIs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pregnancy: Nitrous oxide for labor pain, avoid ibuprofen, tizanidine, some SSRIs</td>
<td></td>
</tr>
<tr>
<td>Moderate-severe pain</td>
<td>• Neuraxial, regional, and local anesthesia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Opioids: may need higher doses than patients without OUD due to tolerance—opioid requirements are lower if home methadone/buprenorphine is continued than if it is stopped</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ketamine or dexmedetomidine</td>
<td></td>
</tr>
</tbody>
</table>
What can you do at your institution?

- Dispense naloxone for all patients who use opioids or drugs
- Ensure buprenorphine and methadone are on formulary, continued during hospitalization/surgery
- Create hospital order set or guideline for new starts
- Partner with stakeholders
- Start prescribing!
- Disseminate your knowledge with colleagues
Objective

1. Diagnose and treat opioid withdrawal and opioid use disorder (OUD) with either methadone or buprenorphine

2. Recognize how to link hospitalized patients to buprenorphine or methadone treatment on discharge

3. Name three options for OUD harm reduction
Reflections

Take 1 minute to write down (or tweet):

● What concept or tool you are taking away from this workshop?

● What is one aspect of OUD or harm reduction that you can speak to providers at your home institution about to raise awareness?
Thank you!

Email me at Marlene.Martin@ucsf.edu

Additional Resources:
UCSF Substance use warmline: (855) 300-3595, 6am-5pm PT
SAMHSA, TIP 63: Medications for OUD
www.ed-bridge.org