Managing Opioid Use Disorder: The Nurse Practitioner Addressing the Challenge

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Opioid use disorder (OUD), a common disorder found in primary care settings, can affect patients’ quality of life. The American Psychiatric Association (APA) (2013) defined OUD as a pattern of opioid use that can lead to distress, as manifested by a patient’s meeting specific criteria within a 12-month period. According to the Centers for Disease Control and Prevention (CDC, 2017), a diagnosis of OUD has 11 specific criteria inclusive of drug craving, opioid tolerance, and recurrent opioid use. Two or more of the 11 criteria must be present with the use of the same substance in a year to diagnose OUD (Grant et al., 2016). See Table 1 for more details on diagnostic criteria for OUD.

Long-term use of opioids may put a patient with chronic pain at risk of developing OUD. The CDC (2016) established guidelines for management of chronic pain in patients age 18 and older to prevent addiction. Recommendations from these guidelines are focused on how practitioners can assess and manage opioid addiction to prevent relapse of active use (Dowell, Haegerich, & Chou, 2016). The CDC (2016) recommended non-pharmacological and non-opioid therapies as first-line treatments when managing chronic pain for patients needing palliative and end-of-life care. Care management of patients with OUD by nurse practitioners (NPs) is reviewed in this article.

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TABLE 1.

DSM-5 Diagnostic Criteria for Opioid Use Disorder (OUD)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Opioids are often taken in larger amounts or over a longer period than was intended.</td>
</tr>
<tr>
<td>2.</td>
<td>There is a persistent desire or unsuccessful efforts to cut down or control opioid use.</td>
</tr>
<tr>
<td>3.</td>
<td>A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.</td>
</tr>
<tr>
<td>4.</td>
<td>Craving or a strong desire or urge to use opioids</td>
</tr>
<tr>
<td>5.</td>
<td>Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home</td>
</tr>
<tr>
<td>6.</td>
<td>Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids</td>
</tr>
<tr>
<td>7.</td>
<td>Important social, occupational, or recreational activities are given up or reduced because of opioid use.</td>
</tr>
<tr>
<td>8.</td>
<td>Recurrent opioid use in situations in which it is physically hazardous</td>
</tr>
<tr>
<td>9.</td>
<td>Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.</td>
</tr>
<tr>
<td>10.</td>
<td>Exhibits tolerance</td>
</tr>
<tr>
<td>11.</td>
<td>Exhibits withdrawal</td>
</tr>
</tbody>
</table>

Source: CDC, 2017

Efforts to reduce overdose and misuse of opioid prescription drugs are intensifying due to widespread public health concern. Nurse practitioners can educate and manage individuals with opioid use disorder to provide safe, quality care.
Epidemiology

In the 1990s, pain was added in the vital sign measurement. Practitioners at this time were challenged to treat pain more aggressively. Opioid abuse has increased steadily since 1999. Healthcare providers wrote 259 million opioid prescriptions in 2012, primarily because of chronic pain (Brady, McCauley, & Back, 2015). The number of overdose deaths in 2008 was four times higher than in 1999. The American Society of Addiction Medicine (ASAM, 2015) reported opioids are the major cause of medication overdoses in the United States. In fact, 52,404 deaths related to drug overdoses were reported in 2015, with over 33,000 involving opioids (Rudd, Seth, David, & Scholl, 2016). When treating patients with chronic pain today, NPs must develop successful interventions and follow recommended practice guidelines to prevent opioid addiction from drug prescriptions.

According to a survey by the Substance Abuse and Mental Health Services Administration (SAMHSA), a rapid increase in opioid drug abuse occurred in the United States in the late 1990s as 2.3-2.8 million people annually sought treatment for opioid drug abuse. In 2012, prescription opioids were the second most common type of illicit drugs used in the United States (McHugh, Nielsen, & Weiss, 2015; SAMHSA, 2014). They are known to be the most addictive drugs prescribed by healthcare practitioners as compared to other prescribed Schedule II medications. In 2013, family physicians, internal medicine physicians, and NPs were the three largest groups of healthcare providers prescribing opioids. Among the three groups, NPs ranked third for opioid claims (Chen, Humphreys, Shah, & Lembke, 2016).

To prevent opioid abuse, the NP should address multiple factors (e.g., personal, family, or socioeconomic) that may contribute to opioid misuse and act as barriers for abstinence. The NP should understand the effects of these addictive drugs on patients’ health, and know how to implement and improve prevention and control efforts. Given the economic impact of the opioid epidemic at about $78.5 billion per year (Pollack, 2016), practitioners should assess for potential dependence of opioids among patients with acute or chronic pain before and during therapies to prevent addiction.

Assessment

ASAM (2015) offered guidelines and recommendations for prescribing opioid analgesics to assist providers in improving health outcomes for the patient with OUD. First, the provider should perform a risk assessment to prioritize the patient’s care. The Drug Abuse Screening Test is a valid, self-reported risk assessment tool with a reliability of 0.92 (Skinner, 1982). This survey of 10 “yes” or “no” questions can aid practitioners in assessing a patient for OUD. The interpretation of the survey is based on the number of “yes” answers. The scores are ranged from 0 “yes” (no problem) to 9/10 “yes” answers (significant problem level) (Skinner, 1982). Referral to a specialist is recommended for a patient with specific clinical presentations, including psychiatric problems, or urgent or emergent medical conditions (ASAM, 2015).

Other screening recommendations include assessing the patient’s medical history, especially for conditions such as hepatitis, HIV, and tuberculosis (TB) (ASAM, 2015). These conditions are linked to OUD. Various organizations, such as Centers for Medicare & Medicaid Services, SAMHSA, CDC, National Institute on Drug Abuse, and National Institute on Alcohol Abuse and Alcoholism (2014), reported effective treatment for OUD has been found to decrease the risk of developing HIV and hepatitis C. A thorough physical examination is advised before starting any medication-assisted therapy (MAT). Because HIV, TB, and hepatitis may be associated with OUD, initial laboratory tests should include liver function tests and blood counts as well as testing for HIV, TB, and sexually transmitted infections (ASAM, 2015). Although there is no specific recommendation for hepatitis A and B vaccines for patients with OUD, vaccination for hepatitis A and B should be offered to the general population and pregnant women during the screening process. Mental health should be assessed and documented to provide safe, quality care (ASAM, 2015).

Diagnosis

OUD diagnosis should be made before any initiation of pharmacological therapies. All patients with chronic pain should be screened for OUD (ASAM, 2015). The diagnosis is made on the initial patient encounter by obtaining a comprehensive history and performing a physical assessment. Also, to provide adequate care for patients, NPs need to assess withdrawal symptoms with a validated tool for OUD.

Three validated tools have been recommended to assess patients’ withdrawal symptoms for OUD; they are used widely in primary care settings. These tools include the Objective Opioid Withdrawal Scale (OOWS), the Subjective Opioid Withdrawal Scale (SOWS), and the Clinical Opioid Withdrawal Scale (COWS) (ASAM, 2015). They can be retrieved online (https://www.guidelinecentral.com/calculators/). In addition to screening patients for OUD, ASAM suggests an assessment for suicidal ideation should be performed.

Managing Opioid Use Disorder

NPs need the expertise to treat and prescribe evidence-based therapies for their patients. Adequate knowledge and skills also are needed to screen, assess, and counsel patients taking opioids for chronic pain. Patients should be counseled on their opioid regimen to decrease risk for addiction (Cadet & Tucker, 2019). Also, when prescribing an opioid medication, NPs should
apply the shared decision-making process to allow patients to make appropriate decisions concerning their care. NPs are responsible to counsel patients on the risks and benefits of each prescribed opioid to avoid drug abuse. For safe care, medication side effects and contraindications also should be discussed. For example, because opioids are associated with drowsiness, NPs should advise patients to avoid operating any motorized vehicle or machinery while taking opioids (Dowell et al., 2016).

NPs need to discuss non-pharmacological therapies with patients to ensure successful treatment outcomes for chronic pain. These therapies may include non-opioid agents such as acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs). Other potentially helpful non-pharmacological treatments include exercise therapy, psychological therapies, interprofessional rehabilitation, spinal manipulation, massage, and acupuncture (Chou et al., 2017).

The U.S. Food and Drug Administration (FDA) has approved MAT to treat patients with OUD. Diagnosed patients are eligible for MAT, including neonates unless there are specific contraindications of use (Chavan, Ashford, Wiggins, Lofwall, & Critchfield, 2017; Hyde, 2015). Patients enrolled in a treatment program receive opioid agonists, such as naltrexone (Revia®), buprenorphine (Subutex®), and methadone (Dolophine®) (see Table 2). Naltrexone therapy blocks opioid brain receptors that elicit euphoria, thus reducing opioid cravings. Buprenorphine minimizes withdrawal and opioid cravings. It also blocks opioid receptors in the brain (Chavan et al., 2017). Both drugs can be used in office settings for patients with OUD.

Methadone is an opioid agonist provided to participants in an opioid treatment program for detoxification. Methadone acts by blocking receptors in the brain to decrease cravings and avoid withdrawal. Buprenorphine and methadone also can be used as maintenance drug therapies for the treatment of opioid abuse. Time limit for treatment is not recommended. Both drugs can be used to treat withdrawal symptoms in pregnant women with OUD. Naloxone (Narcan®) is another medication used in the treatment of OUD as well as opioid overdose (ASAM, 2015).

**TABLE 2. Medication-Assisted Treatments**

<table>
<thead>
<tr>
<th></th>
<th>Methadone</th>
<th>Buprenorphine</th>
<th>Naltrexone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Route</strong></td>
<td>• Oral liquid concentrate, tablet</td>
<td>• Oral tablet</td>
<td>• Intramuscular injection</td>
</tr>
<tr>
<td></td>
<td>• Oral solution diskette or powder</td>
<td>• Sublingual film</td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacologic category</strong></td>
<td>• Opioid agonist</td>
<td>• Opioid partial agonist</td>
<td>• Opioid antagonist</td>
</tr>
<tr>
<td><strong>Clinical uses</strong></td>
<td>• Prevention of relapse to opioid use following opioid detoxification</td>
<td>• Detoxification</td>
<td>• Treatment of opioid dependence</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>• Asthma</td>
<td>• Contraindicated in patients with hypersensitivity to buprenorphine and naloxone</td>
<td>• Contraindicated in patients who are prescribed buprenorphine or methadone maintenance therapy</td>
</tr>
<tr>
<td></td>
<td>• Depression</td>
<td></td>
<td>• Contraindicated in patients undergoing opioid withdrawal symptoms</td>
</tr>
<tr>
<td></td>
<td>• Hypercapnia</td>
<td></td>
<td>• Should not be given if allergic to naltrexone</td>
</tr>
<tr>
<td></td>
<td>• Paralytic ileus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** ASAM, 2015

**Opioid Agonist Pharmacological Interventions**

Options for OUD treatment should be discussed with patients before prescribing any interventions. Provider and patient need to develop a plan for shared decision-making during treatments. Treatment preferences, history of abuse, and past drugs used should be addressed in the plan of care, as well as the patient’s risk for treatment diversions, mental health disorders, and psychosocial situations that may interfere with effective treatment outcomes. Additionally, the NP will need to educate the patient about signs and symptoms of opioid withdrawal; if left untreated, some of these may be fatal (ASAM, 2015).

**Methadone**

Before receiving a prescription for methadone, a patient needs to provide informed consent. Because the use of methadone is associated with potentially fatal cardiac arrhythmias such as torsades de pointes, a baseline electrocardiogram is recommended to evaluate risks of cardiac conditions.
patient with torsades de pointes may present with a long QT interval. If such a condition was to occur, the methadone dosage needs to be decreased. Other common side effects reported from methadone are nausea, vomiting, constipation, drowsiness, and respiratory depression (Chou et al., 2014).

Methadone has a 3-4 hour peak and a trough of 24 hours (Westermeier, Yoon, Thuras, Batres-y-Carr, & Dickmann, 2016). The initial recommended methadone dosage is 10-30 mg. After the initial dose, reassessment of the patient within 3-4 hours is needed to determine need for dose adjustment, and monitor patient withdrawal symptoms and stability. The regular daily dose is 60-120 mg. The dose of methadone can be increased in 5-10 mg increments every 7 days based on the patient’s clinical response. Methadone may be used with the patient for whom buprenorphine therapy was unsuccessful. Careful monitoring of the patient during MAT treatment is important because diversion and misuse of methadone are a concern (ASAM, 2015).

### Buprenorphine

Buprenorphine therapy should be started at 2-4 mg, with increases of 2-4 mg as needed during opioid agonist treatment. Dose adjustment is based on withdrawal symptoms and can persist to reach patient’s physical and psychological stability with the treatment (ASAM, 2015; Kumar & Saadabadi, 2018). Management of withdrawal symptoms can be started at 4-16 mg and tapered for 3-5 days or extended to 30 days or more (Kampman & Jarvis, 2015). Buprenorphine therapy should not be initiated until 24-72 hours after a patient last used methadone. A dose limit of 24 mg daily is recommended (ASAM, 2015). Buprenorphine has been found to be safe in the treatment of OUD in pregnant women (Dowell et al., 2016).

Because side effects of buprenorphine include respiratory depression, caution is advised when this medication is prescribed. Patients are advised to read the label carefully before taking this medication to avoid misuse, and to store medication safely to avoid exposure to children. Liver toxicity also is a concern; liver enzymes should be monitored serially for the patient receiving buprenorphine. Other side effects include depression, dizziness, headache, nausea, and sleep disorders (Soyka, 2017).

### Naltrexone

Poor adherence to opioid agonist therapy may prompt a prescription of naltrexone for patients with OUD (ASAM, 2015). Naltrexone is recommended to prevent relapse in OUD. It should be used cautiously during pregnancy and while a patient is breastfeeding because it crosses the placenta and is excreted in breast milk. This information must be disclosed to women before considering treatment. The pregnant or breastfeeding patient is required to sign a consent (ASAM, 2015).

Recommended oral dosages are 50 mg daily, or three times weekly as two 100 mg doses followed by a 150 mg dose. Injectable naltrexone may be prescribed for patients who are unable to follow the correct oral regimen. This medication is also suitable for patients who have low adherence to therapy; it should be administered intramuscularly (IM) in the gluteal muscle every 4 weeks at a set dose of 380 mg per injection (ASAM, 2015). Adverse effects include nausea, somnolence, muscle pain, fatigue, headache, and anxiety (Haney et al., 2015).

### Naloxone

Naloxone is approved by the FDA in the treatment of OUD. Naloxone is not recommended for pregnant women except in opioid overdose. It can be administered subcutaneously, intravenously (IV), IM, and intranasally. The recommended dose of naloxone for IV and IM administration is 0.4-2 mg, starting with the smallest dose and increasing to 2 mg if the desired response is not apparent in 2-3 minutes (Morgan & Jones, 2018). NPs need to understand patients with synthetic drugs intoxication (e.g., carfentanyl) may need higher doses (up to 18 mg) to reverse opioid overdose. Morgan and Jones indicated the side effects of naloxone include withdrawal symptoms, such as nausea, headache, and sweating.

### Non-Opioid Treatments

Non-opioids are preferred as the first-line treatment for patients with chronic pain at high risk for opioid abuse. Non-opioid medications, such as tricyclic antidepressants and NSAIDS, have been beneficial in managing anxiety, depression, gastrointestinal disturbances, and pain (Schuckit, 2016). Gabapentin (Neurontin®) also has been found to be beneficial in the management of substance withdrawal symptoms, such as tremors and anxiety disorders (Wilens, Zulaf, Ryland, Carrellas, & Catalina Wellington, 2015). See Table 3 for examples of non-opioid treatments.

### Non-Pharmacological Interventions

Non-pharmacological or psychosocial interventions, such as cognitive behavioral therapies, contingency management, and relapse prevention therapies, have been effective treatment modalities for patients with OUD (Murphy, Polsky, Meisel, & Mitchell, 2016). A single modality has not been shown to be successful but combining therapies has been credited as effective treatment to manage patient addictions. They should be used in conjunction with other treatments or as an alternative therapy (SAMHSA, 2018). Psychosocial interventions also should be used as adjuncts to pharmacological therapies (Boyuan, Yang, Ke, Xueyong, & Sheng, 2014; SAMHSA, 2018).

### Cognitive Behavioral Therapy

A randomized controlled trial by Pan and colleagues (2015) included a sample of 240 participants assigned randomly to weekly cognitive behavioral therapy (CBT) or to methadone maintenance treatment.
(MMT). The goal of the study was to evaluate if a combination of CBT and MMT can produce a positive result in the treatment of OUD. Researchers tried to determine if opioid abusers would have an opioid-negative urine test after treatment retention between 12 and 26 weeks. They also monitored combined scores of the Addiction Severity Index (ASI) and Perceived Stress Scale (PSS) between 12 and 26 weeks. PSS and ASI scores in the control group and CBT group decreased from the baseline. Additionally, the CBT group had a further decrease in the ASI score at week 26, and another decrease in the PSS total score at weeks 12 and 26. Findings suggested CBT is effective in reducing opioid use, decreasing stress, and improving employment function among individuals with OUD.

**Acupuncture**

Acupuncture entails application of needles into the skin. It works as an electrical activator to endorphin and encephalin production (Wu, Leung, & Yew, 2016). Wu and co-authors performed a meta-analysis of clinical trials that investigated acupuncture as a non-pharmacological therapy to manage withdrawal symptoms among opioid users. Findings from these trials supported acupuncture to diminish opioid-associated anxiety and depression as an adjunctive treatment. Authors suggested more research is needed to confirm the efficacy of acupuncture in the management of opioid addiction.

In a systematic review and meta-analysis, Boyuan and colleagues (2014) investigated the efficacy of acupuncture on psychological symptoms associated with opioid addiction. They failed to find acupuncture to be an effective treatment for psychological symptoms associated with opioid addictions. Authors recommended more research to substantiate the role of acupuncture in treating psychological symptoms associated with opioid addiction.

**Implications for Practice**

Understanding how to manage the care of patients with OUD is crucial to prevent relapse and addiction. Adequate knowledge of management strategies may help the NP lessen the incidence of complications associated with the medication and increase patients’ quality of life. Further, NPs need far-reaching knowledge to meet the complex needs of patients who are initiating treatment for OUD. Patients need to be assessed for readiness to start MAT and their ability to adhere to specific agonist regimens during detoxification (Cadet & Tucker, 2019).

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### TABLE 3. Opioid Withdrawal Medications

<table>
<thead>
<tr>
<th>Medications</th>
<th>Clonidine (Catapres®)</th>
<th>Alprazolam (Xanax®)</th>
<th>Ibuprofen (Motrin®)</th>
<th>Gabapentin (Neurontin®)</th>
<th>Ondansetron (Zofran®)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Alpha-2-adrenergic agonist</td>
<td>Benzodiazepine</td>
<td>NSAID</td>
<td>Anticonvulsant</td>
<td>Antiemetic</td>
</tr>
<tr>
<td>Form</td>
<td>Oral Patch</td>
<td>Oral</td>
<td>Oral</td>
<td>Oral</td>
<td>Oral</td>
</tr>
<tr>
<td>Dosage</td>
<td>0.4-1.2 mg PO per day in divided doses</td>
<td>0.75-10 mg PO per day in divided doses</td>
<td>Up to 2,400 mg/day in divided doses</td>
<td>300-400 mg/day PO to 800-1,200 mg/day PO in divided doses</td>
<td>24-32 mg PO per day in divided doses</td>
</tr>
<tr>
<td>Symptoms covered</td>
<td>Anxiety</td>
<td>Anxiety</td>
<td>Pain</td>
<td>Headaches</td>
<td>Nausea/vomiting</td>
</tr>
<tr>
<td></td>
<td>Irritability</td>
<td>Panic disorder</td>
<td>Inflammation</td>
<td>Hiccups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agitation</td>
<td>Depression</td>
<td></td>
<td>Alcohol withdrawal</td>
<td></td>
</tr>
<tr>
<td>Common side effects</td>
<td>Hypotension</td>
<td>Drowsiness</td>
<td>Heartburn</td>
<td>Dizziness</td>
<td>QT-interval prolongation</td>
</tr>
<tr>
<td></td>
<td>Drowsiness</td>
<td>Dizziness</td>
<td>Stomach cramps</td>
<td>Ataxia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dry mouth</td>
<td>Tiredness</td>
<td>Ilching</td>
<td>Fatigue</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Drowsiness</td>
<td></td>
</tr>
</tbody>
</table>

**Sources:** Duber et al., 2018; Schuckit, 2016; Wilens et al., 2015
Clinical

NPs have the knowledge and clinical training to provide a variety of preventive health services (American Association of Nurse Practitioners [AANP], 2018). They can promote health-related counseling and educate patients on the best treatments for OUD. Also, they can help patients maintain a state of well-being, prevent illness, and preserve healthy lifestyles. For example, in clinical practice, NPs can review and use evidence-based practice treatment guidelines from the CDC (2016), the National Institute on Drug Abuse (2019), SAMHSA (2014), and other government agencies to manage and treat patients with OUD safely and effectively (SAMHSA, 2015).

Research

NPs have the knowledge to conduct well-designed studies concerning potentially effective interventions for patients with OUD and adherence to opioid therapy. Their research may focus on how to assess and identify patients at risk for non-adherence therapies. Other crucial areas of research include how patients can achieve optimal care when taking opioids during induction and maintenance therapy to prevent relapse (AANP, 2018). Research also can address how to educate patients effectively, evaluate harmful effects of drug interactions, administer MAT, and monitor withdrawal symptoms to achieve successful health outcomes. NPs can follow guidelines from ASAM (2015) and other regulatory agencies to assess patients’ readiness, obtain a comprehensive history, perform a physical examination, and evaluate other potential barriers that can prevent adherence to therapy before starting an opioid agonist treatment.

Education

Trained NPs can develop educational sessions that include information on opioid agonist therapy indications, contraindications, and adverse effects, with a goal of increasing retention in treatment programs and decreasing drug use (AANP, 2018). Education may help increase patients’ treatment adherence to prevent relapse. If adherence is a problem, NPs will address factors contributing to therapy non-adherence with the knowledge that delivery of effective treatments will be beneficial and promote better health outcomes.

Conclusion

NPs must understand the process of MAT to provide care for patients with OUD. MAT is an effective method to assist patients with OUD for detoxification (Cadet & Tucker, 2019). Patient assessment and monitoring are important during maintenance therapy, as they can reduce illicit drug use. However, side effects should be anticipated and maintenance therapy carefully monitored. Recommendations and guidelines by ASAM (2015) should be incorporated into patient-centered care, facilitating the development and use of effective management strategies that can promote healthy lifestyles and positive health outcomes. 

REFERENCES


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Pollack, H.A. (2016). So prescription opioid disorders are a $78.5 billion problem. Medical Care, 54(10), 899-900.


