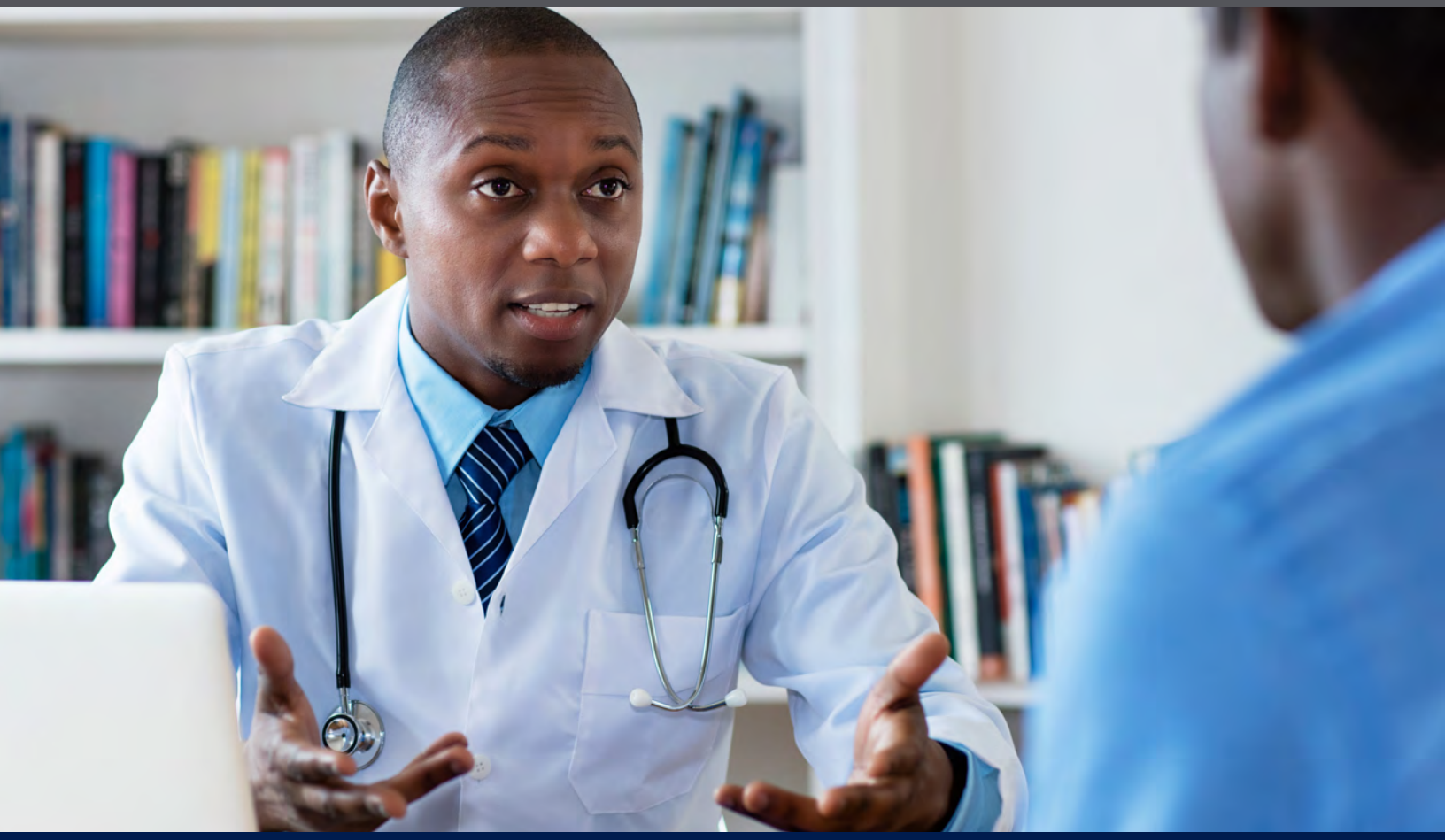
Colorado's Opioid Solution: Clinicians United to Resolve the Epidemic (CO's CURE)

Occupational and Environmental Medicine

Opioid Prescribing and Treatment Guidelines



Rocky Mountain Academy of Occupational and Environmental Medicine in partnership with Colorado Hospital Association, Colorado Medical Society and Colorado Consortium for Prescription Drug Abuse Prevention

COLORADO MEDICAL SOCIETY

COLORADO CONSORTIUM for Prescription Drug Abuse Prevention

c|h|a Colorado Hospital Association

CO's CURE is a proud collaboration of the following sponsoring and participating societies and organizations. The CO's CURE initiative's leadership thanks each for its contributions, expertise and commitment to ending the opioid epidemic together.

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Colorado Chapter of the American College of Surgeons

CPS COLORADO PAIN SOCIETY

ARTS Addiction Research & Treatment Services

COLORADO CHAPTER American College of Emergency Physicians ADVANCING EMERGENCY CARE

ACOG The American College of Obstetricians and Gynecologists

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Dedicated to the clinicians across Colorado and the patients for whom they care

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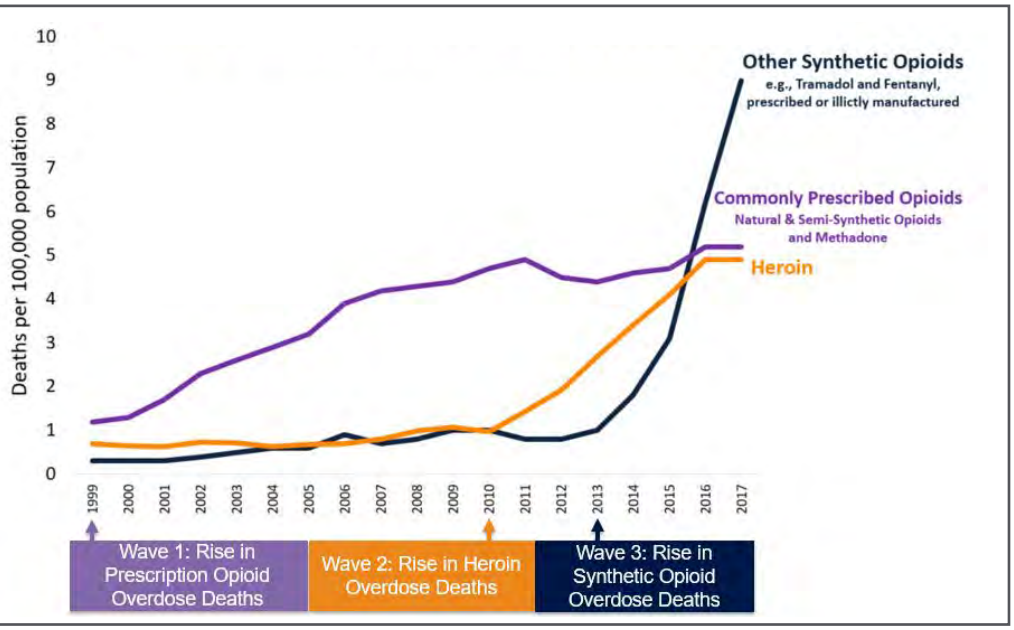
Introduction

Clinicians across Colorado and the nation are facing one of the most devastating public health crises in decades. Opioids, both prescription and illicit, have become the leading cause of accidental death in the United States for adults 50 years of age or younger.[1] Opioid-related adverse drug events (ORADEs), opioid overdose, physical dependence and the development of opioid use disorder (OUD) have become an increasingly common part of medical practice. The number of lives impacted by the crisis is astonishing. The Centers for Disease Control and Prevention (CDC) reports that opioid overdose killed nearly 400,000 Americans between 1999 and 2017, and currently an average of 130 Americans die every day of opioid overdose **(FIGURE 1)**.[2,3] The economic costs of this epidemic are projected to exceed $1.5 trillion by next year; the human costs are incalculable **(FIGURE 2)**.[4]

(FIGURE 1)

Three Waves of the Rise in Opioid Overdose Deaths, 1999-2017



SOURCE: CDC MMWR[5]

More than 10.3 million people over the age of 12 years self-reported misusing opioids in 2018, with 9.9 million misusing prescription pain relievers and 808,000 using heroin.[5] The pharmaceutical use of opioids skyrocketed between 1990 and 1996: prescriptions for fentanyl rose 1,000%, followed by morphine (49%), oxycodone (15%) and hydromorphone (12%).[6] The number of prescription opioids sold in the United States increased five-fold between 1999 and 2017, and prescription opioids were involved in 218,000 overdose deaths over this time period. In 2017, there were 58 opioid prescriptions written for every 100 patients in the United States, with an average prescription length of 18 days.[7]

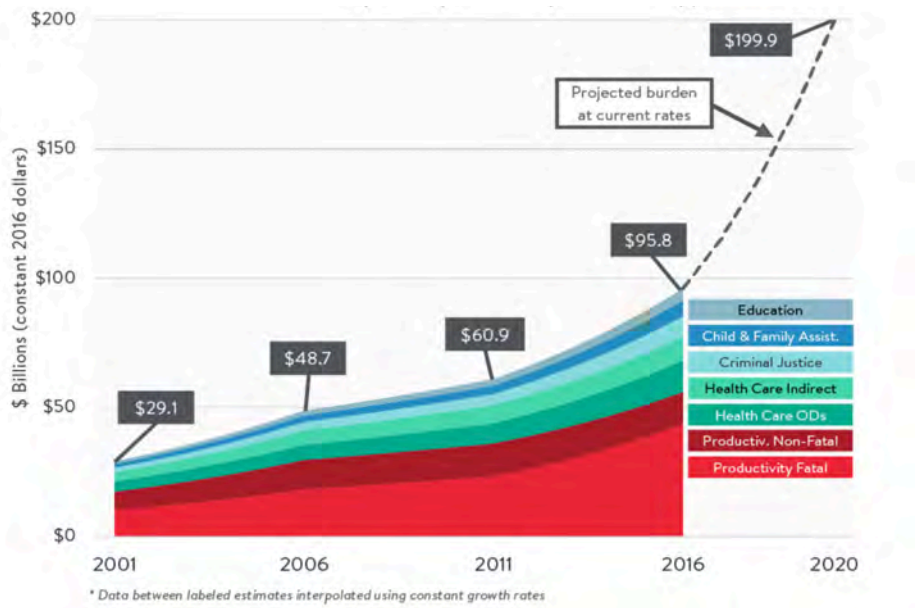
The dire consequences of the widespread availability of prescription opioids emerged over time. The lag period between a patient's first exposure to an opioid (either medical or nonmedical) and their first treatment admission is an average of seven years. For patients who die of an overdose, the time between their first exposure to an opioid and death is between nine and 13 years.[8,9] In 2017, opioids were responsible for 34% of all substance use disorder (SUD) treatment admissions for patients aged 12 years and older.[10]

The economic implications of this epidemic are staggering. The nonmedical use of opioid pain relievers cost society approximately $1 trillion between 2001 and 2016; unless major changes are made, the economic toll is projected to grow by another $500 billion by the end of 2020 **(FIGURE 2)**.[4] The greatest cost comes from lost earnings and productivity from overdose deaths, estimated at $800,000 per person based on an average age of 41 years among overdose victims.[4] This figure is largely composed of lost worker wages and productivity, but it also strains the government in the form of lost tax revenue. The impact of the opioid epidemic on workers, workplaces and employers has been profound, as working-age adults are the demographic most affected by the current epidemic of OUD and overdose death.

Introduction continued

(FIGURE 2)

Total and Projected Costs of the Opioid Epidemic, 2001-2016



SOURCE: Altarum[10]

While a number of external factors have contributed to the liberal use of these potentially lethal drugs, the medical community is compelled to acknowledge its role in creating this crisis. Fortunately, clinicians and health care systems also have the power to reverse these grim statistics by reforming their practices with resolve and innovation.

The Origins of the Opioid Epidemic

Given concerns about potential adverse effects, including addiction and overdose, few physicians prescribed opioids for chronic noncancer pain throughout most of the 20th century.[11] That changed in 1986, however, when pain expert Russell Portenoy published a limited case series of 38 hospital patients that suggested that chronic noncancer pain could be managed safely with high doses of opioids without posing a risk of addiction.[12] Since then, the scientific validity of Portenoy's original work has been called into question; in recent years, the researcher himself has publicly doubted the relative efficacy and safety of long-term opioid use for the treatment of chronic noncancer pain.[13-16] Portenoy's findings were endorsed by both the American Academy of Pain Medicine and the American Pain Society, which further legitimized his assertions about the safety of opioid medications.[17] As a result, many pharmaceutical companies began to aggressively market their opioids for wider use at increased dosages and in extended-release formulations.

This shift in perspective was reinforced by the Veterans Health Administration, which adopted pain as the "fifth vital sign" in 1999.[18] The Joint Commission, a governing body responsible for hospital accreditation, added pain management as a requirement for accreditation in 2000.[2,11] During the same period, a report by the Institute of Medicine, *Relieving Pain in America,* painted pain management as a "moral imperative, a professional responsibility, and the duty of people in the healing professions."[19] In addition to these mounting institutional pressures, patient satisfaction surveys increasingly compelled medical clinicians to place a premium on pain management. These highly subjective scorecards, which were routinely linked to remuneration, used the management of pain as a marker for patients' satisfaction with the care they received.[2,20] Once reserved for the treatment of severe pain, opioid analgesics became routinely prescribed for a wide range of pain complaints.

Introduction continued

These guidelines are meant to inform and augment clinical judgment, not replace it. Although CO's CURE acknowledges the value of opioids in certain clinical situations, such as for end-of-life care and the treatment of pain associated with sickle cell disease, severe trauma, burns and cancer, it advocates using extreme caution in all cases. What follows is a compilation of ideas and suggestions that can be implemented by clinicians to aid in the prevention of opioid misuse and addiction and the identification, treatment and support of patients with OUD. It is unlikely that occupational medicine practices can or will attempt to implement each strategy or idea included in these guidelines. Rather, clinicians are encouraged to consider which of these suggestions are appropriate given their unique processes and resources. The recommendations in these guidelines are not intended to be a substitute for the oversight of legal counsel and compliance leaders.

The Opioid Epidemic in Colorado

Coloradans have been significantly affected by this national public health crisis. Since 2000, Colorado has seen 6,030 overdose deaths from opioids.[21] There were a total of 1,635 prescription opioid-related overdose deaths in the state from 2013 to 2017, which translates to 5.8 deaths per 100,000 residents. Heroin-related opioid overdose deaths have increased by 76% since 2017.[22]

Colorado Statistics

In 2017 in the state of Colorado:

- There were over 3.7 million opioid prescriptions dispensed to one million patients at retail pharmacies **(TABLE 1)**. These numbers were down slightly from a high of 4.3 million opioid prescriptions for 1.1 million patients in 2015.[22]
- There were 1,012 drug overdose deaths, 57% of which involved an opioid.[22]
- 15% of opioid-naive patients were prescribed long-acting opioids.[23]
- 10% of patient prescription days involved overlapping opioid and benzodiazepine prescription use.[23]
- There were 671.3 opioid prescriptions filled per 1,000 residents.[23]
- There were 134.3 treatment admissions for heroin per 100,000 people and 40.6 treatment admissions for pharmaceutical opioids per 100,000 people.[1]

While there is considerable variation from county to county in Colorado, with some rural counties particularly affected, the impact of the opioid crisis is felt in all regions and communities. No county is untouched, and the need to address the effects of the crisis is universal. All Colorado physicians, health care practitioners and hospitals must work together to turn the tide and resolve the crisis.

(TABLE 1)

Characteristics of Opioid Prescriptions Dispensed, Colorado 2014-2017

Characteristics	2014	2015	2016	2017
Number of Prescriptions Dispensed	4,039,048	4,310,254	4,159,575	3,765,253
Number of Unique Patients	1,085,551	1,131,781	1,102,297	1,027,685
Number of Unique Prescribers	25,011	24,784	28,063	27,676
Number of Unique Pharmacies	941	839	1,039	1,097

Excludes buprenorphine drugs commonly used to treat opioid use disorder
In 2014 NPI was used to identify unique prescribers and pharmacies as DEA numbers were not available until 2015
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies Analysis by: Colorado Department of Public Health and Environment, 2018

SOURCE: Colorado Opioid Profile[22]

Introduction continued

(TABLE 2)

High-Risk Prescribing Practices and Patient Behaviors, Colorado 2014-2017

Indicators	2014	2015	2016	2017	2014-2017 % Change
Patients receiving more than 90 MME (%)	10.3	8.9	8.7	8.2	-20.5
Patients with MPEs (rate/100,000 residents)	170.1	124.0	93.6	68.0	-60.0
Patients prescribed LA/ER opioids who were opioid-naive (%)	18.2	17.6	15.8	15.1	-17.3
Patient prescription days with overlapping opioid prescriptions (%)	22.3	21.5	21.4	20.5	-7.8
Patient prescriptions days with overlapping opioid and benzodiazepine prescriptions (%)	12.1	11.6	11.2	9.9	-18.0

Schedule II-IV Controlled Substances
Excludes Buprenorphine drugs commonly used for treatment
Annual percentages are based on average of quarterly percentages
Data Source: Vital Statistics Program, CDPHE and the Colorado Prescription Drug Monitoring Program, DORA
Data Analysis by: CDPHE, 2018

SOURCE: Colorado Opioid Profile[22]

(FIGURE 3)

Number of Drug Poisoning Deaths by Drug Type, 2000–2018

Categories are not mutually exclusive (may total to more than 100% of total drug overdoses) or comprehensive (other drugs not listed).

SOURCE: Colorado Health Institute[24]

Introduction continued

CO's CURE

Faced with one of the greatest public health crises of a generation, Colorado is taking a stand for the benefit of all. CO's CURE is the nation's first set of comprehensive, multispecialty medical guidelines designed to end the opioid epidemic. Within each specialty, there is room for specific nuances of practices, and across all CO's CURE guidelines there is multispecialty collaboration with input from content experts. The unique structure of these evidence-based recommendations is anchored by objectives that can be shared by all medical specialties.

The four pillars of CO's CURE:

1. Limiting opioid usage
2. Using alternatives to opioids (ALTOs) for the treatment of pain
3. Implementing harm reduction strategies
4. Improving treatment and referral of patients with OUD

These pillars were conceived by the Colorado Chapter of the American College of Emergency Physicians (ACEP) and published as part of Colorado ACEP's *2017 Opioid Prescribing & Treatment Guidelines.* When implemented in 10 Colorado emergency departments as part of the Colorado Opioid Safety Pilot by the Colorado Hospital Association (CHA), the approach entailed in those guidelines resulted in a 36% decrease in opioid use and a 31% increase in the use of opioid alternatives for pain management.[25] The success experienced in Colorado emergency departments through those initiatives represents just one front in efforts to address the opioid epidemic in Colorado. To fully resolve the epidemic, Colorado clinicians will need to adopt a more inclusive, coordinated and ambitious approach.

Now is the time for all specialties and clinicians to unite to create better treatment paradigms for the benefit of patients and communities across Colorado. The guidelines developed under CO's CURE represent some of the most forward-thinking and comprehensive strategies in the nation. They belong to not one specialty, but to all specialties; rather than divide clinicians into their respective tribes and silos, they unite them in a common cause—to resolve the opioid epidemic in Colorado and beyond.

Limiting Opioids in Clinical Occupational Medicine Practice

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Limiting Opioids in Clinical Occupational Medicine Practice

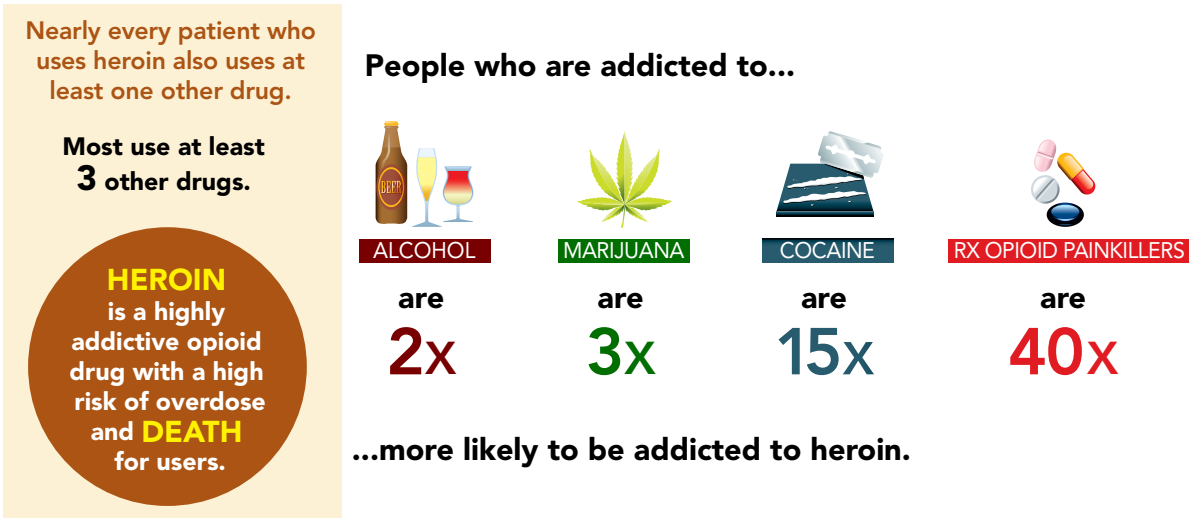
Across Colorado and the United States, it is working-age adults who have felt the greatest impact of the opioid crisis. Occupational and environmental medicine (OEM) clinicians are well positioned to prevent opioid misuse and the development of OUD by limiting inappropriate opioid exposure to injured workers. Opioid exposure, even for short durations, places workers at risk for long-term development of dependence and/or OUD. A retrospective cohort study of more than 9,000 workers' compensation cases with at least one opioid prescription found 28% of these workers still using opioids one year later. Of note, the authors found that persistent opioid use did not correlate well with injury severity.[26] A large national survey of prescribing data and patient outcomes across a range of specialties suggests that after one day of exposure to an opioid prescription, 6% of opioid-naive patients will be persistent opioid users one year later and 2.9% will be persistent users three years later. Patients receiving a ≥ eight-day prescription have a 13.5% risk of persistent use and 29.9% of patients who receive a ≥ 31-day opioid supply will become persistent users.[27] It is advised that OEM clinicians prescribe opioids with a clear awareness of the frequency with which many patients will become persistent opioid users. To prevent future cases of OUD, it is recommended that OEM clinicians limit their opioid prescribing and take advantage of nonopioid multimodal analgesic strategies.[28] In doing so, OEM clinicians serve not only their patients, but also their communities and the employers with whom they work.

The imperative to treat pain has prompted OEM clinicians—like physicians in all specialties—to over-rely on opioid analgesia. In treating pain related to workplace injury, this overreliance on opioids has, in some cases, inadvertently contributed to workers' misuse of, dependence on and addiction to opioids as well as to diversion of opioids into the community. OEM clinicians encounter patients with substance use disorders in a variety of contexts and presentations, including treating workers who develop OUD as a consequence of opioid therapy for a work-related injury, treating workers with a history of SUD who are at risk of relapse with opioid therapy and treating workers with untreated, active SUD. While opioids do have an important role in the treatment of severe pain associated with trauma, burn, sickle cell disease and cancer-related pain, their role in the treatment of many forms of acute and chronic pain is unclear.

While many OEM clinicians are limiting or curtailing their prescription of opioids, there remains significant variability in prescribing practices. Opioid use for pain control in injured workers peaked in 2012, with many of those opioid prescriptions written for long-term use.[29] Of the top 10 most commonly prescribed medications in workers' compensation cases from 2014 to 2016, four were opioids, with sustained-release oxycodone being the most commonly prescribed.[30] Not only did opioid prescription increase in frequency to manage workplace injuries, but the average morphine equivalent dosage continued to grow as well (by 55 mg/year for acute pain and 460 mg/year for chronic pain over the period from 1999 to 2009), further illustrating liberal prescribing patterns and, possibly, lack of efficacy.[31] Roughly half of all workers' compensation claims include opioid prescriptions, although the rate did decrease from 55% in 2012 to 44% in 2016 in a survey based on data from 40 states.[32] Over 75% of injured workers who lost greater than seven workdays without a surgical intervention were prescribed an opioid in 2012.[33] Such prescriptions lead to delayed recovery and more time away from the job. Over $26 billion in lost work time was attributed to misuse of prescription opioids in 2015, and the number continues to grow.[30] Similarly, misuse of alcohol or drugs leading to on-the-job overdoses has risen by 25% annually for the last seven years.[34] When workers who become addicted to prescription opioids are no longer able to acquire or afford prescription drugs, or when tolerance dictates injection to achieve the same effect or to prevent withdrawal symptoms, some will turn to injection opioid use. Heroin use has increased an estimated 37% per year since 2010; four in five new heroin users start by misusing prescription opioids.[35]

(TABLE 4)

Heroin Use as Part of a Larger Abuse Problem[36]



Adapted from the National Survey on Drug Use and Health, 2011-2013

In addition to the human and societal toll untreated OUD takes on patients, families, coworkers and communities, the costs to employers and the health care system are enormous. As noted earlier, the greatest economic losses from the opioid epidemic stem from loss of productivity due to both overdose death and non-fatal consequences of opioid use.[37] Workers with OUD who take prescription pain medication have the highest health care utilization, with average rates of hospitalization twice those of patients with illicit drug use disorders or alcohol use disorder. Their hospitalizations are longer, and their rates of outpatient and emergency department usage far outpace those of patients with other SUDs. Rates of turnover and absenteeism are highest in patients with OUD who take prescription opioids compared with any other SUD type, including use of illicit drugs. It is important to note that workers in recovery have the lowest health care utilization, turnover and absenteeism of all. Simply put, preventing and treating OUD in workers improves lives and reduces costs to employers and society.

Beyond the many long-term harms associated with opioid use, the immediate adverse effects of opioid use as prescribed may impact worker performance and safety. Use of opioids, whether prescribed appropriately or not, creates unique risks in the workplace including injury, errors in work, safety hazards and financial repercussions. Workplace opioid use has demonstrated a dose-response relationship with negative job-related outcomes such as decreased productivity, increased absenteeism and increased health care costs.[38] Workers prescribed opioids have over 300% greater insurance claim costs than nonopioid recipients and three times more time lost from work.[30] In fact, an injured worker who is prescribed an opioid for longer than one week has twice the risk of disability one year later when compared to a worker with similar injuries who was not prescribed opioids.[34] These immediate adverse effects further underscore the importance of limiting opioid use in OEM practice.

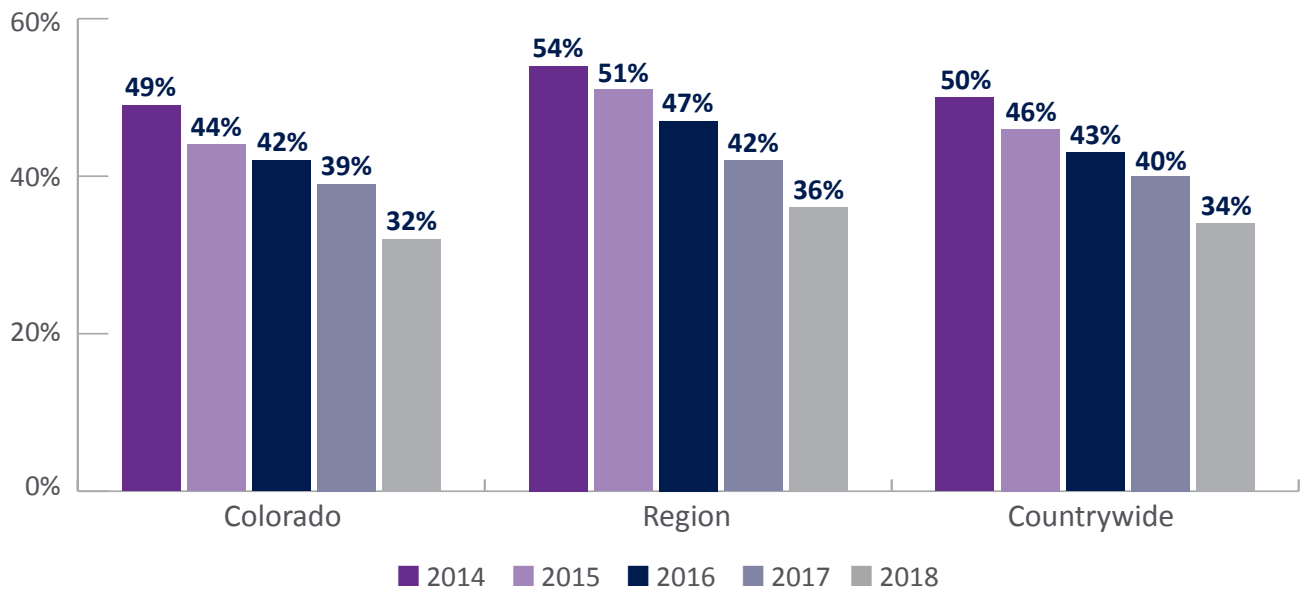
Limiting Opioids in Clinical Occupational Medicine Practice continued

While progress has been made in reducing the number of workers' compensation claims with an opioid prescription **(FIGURE 5)**, the impact of the opioid epidemic on the workers' compensation system continues to be significant. And while Colorado has somewhat lower rates of opioid prescription in workers' compensation claims compared with the national average, one quarter of all prescription spending in the workers' compensation system in Colorado is on opioids. Oxycontin remains the most prescribed opioid in Colorado and the United States and accounts for 2% of all workers' compensation system spending on prescription medications in Colorado. Available data in Colorado do not permit assessment of injury severity, but it is notable that the average cost of prescriptions for claims with an opioid prescription is four times the average cost of a claim without opioids.[39]

The first step in reversing these alarming trends is to decrease the frequency and ease with which opioids are prescribed to opioid-naive or relatively opioid-naive patients. OEM clinicians who care for patients receiving chronic opioid therapy (COT) for pain must carefully weigh the risks and benefits of opioid therapy for chronic pain. Wider use of alternatives to opioids (ALTOs) for the treatment of pain will help reduce use of opioids for the management of acute pain. In all cases, OEM clinicians must be vigilant when screening patients, prescribe opioids conservatively and only when alternative pain treatments have failed and provide thorough counsel on the risks of opioid use.

(TABLE 5)

Share of Drug Claims With at Least One Opioid Prescription by Year



SOURCE: National Council on Compensation Insurance[39]

Practice Recommendations

Deciding When to Prescribe Opioids

1. **Opioids are inherently dangerous drugs with significant potential for misuse and addiction, numerous side effects, lethality in overdose, rapid development of tolerance and debilitating withdrawal symptoms. Clinicians are encouraged to reserve opioids for the treatment of severe pain, pain that has not responded to nonopioid therapy and cases where nonopioid therapy is contraindicated or anticipated to be ineffective.**
   a. Opioids are among the three broad categories of medications with potential for misuse, dependence and addiction, the other two being central nervous system (CNS) depressants and stimulants. Opioids act by attaching to opioid receptors on nerve cells in the brain, spinal cord, gastrointestinal (GI) tract and other organs, triggering a spike in dopamine that not only reduces the perception of pain but can also manufacture a powerful sense of well-being and pleasure by affecting the brain's limbic reward system.
   b. When used repeatedly, opioids induce tolerance and higher doses are required over time to produce the same effects.[40] This mechanism also contributes to the high risk of overdose following a period of abstinence.[41] Tolerance can be lost in times of abstinence, leading relapsed users to take a previously safe dose with disastrous results.[42] The effects of opioids are mediated by specific subtype opioid receptors (mu, delta and kappa) that are also activated by endogenous endorphins and enkephalins. The production of endogenous opioids is inhibited by the repeated administration of exogenous opioids, which accounts for the discomfort that ensues when the drugs are discontinued.
   c. Opioid therapy is associated with a number of common and sometimes serious side effects, including sedation, respiratory depression, constipation, nausea and vomiting **(TABLE 3)**.[43] These complications, which often necessitate additional medical care, can prevent patients from performing daily tasks and remaining active in the workforce.[44]

(TABLE 3)

Common and Serious Side Effects Of Opioids

Common Side Effects	Serious Side Effect of Chronic Opioid Use
• Nausea/vomiting • Constipation • Pruritus • Euphoria • Respiratory depression, particularly with the simultaneous use of alcohol, benzodiazepines, antihistamines, muscle relaxants or barbiturates • Lightheadedness • Dry mouth	• Cardiac abnormalities, including prolonged QTc and torsades de pointes • Sudden cardiac death with the concomitant use of benzodiazepines and methadone • Hormonal disruptions, including decreased testosterone in males • Decreased luteinizing hormone, follicle-stimulating hormone, and fertility in women • Musculoskeletal compromise, including an increased risk of osteoporosis • Immunosuppression • Inhibition of cellular immunity via delta and kappa receptors • Hyperalgesia (i.e., upregulation of receptors and increased tolerance) • Sleep disturbances (e.g., shortened deep sleep cycle) • Delayed or inhibited gastric emptying, increased sphincter tone, and blockade of peristalsis

SOURCE: Martin PR, Hubbard JR. Substance-related disorders. In: Ebert MH, Loosen PT, Nurcombe B: Current Diagnosis & Treatment in Psychiatry. New York: McGraw Hill; 2000:233-259.[43]

Limiting Opioids in Clinical Occupational Medicine Practice continued

2. **OEM clinicians are discouraged from routinely prescribing opioids for acute musculoskeletal injuries (including low back pain), neuropathic pain, post-traumatic headache (headache associated with trauma to the head and/or neck) and previously reduced fractures or dislocations.**
   a. Given the risks associated with opioid use, the risk-to-benefit ratio does not support the routine use of opioids in uncomplicated musculoskeletal injuries, post-traumatic headache, neuropathic pain or previously reduced fractures or dislocations. This is especially true given that nonopioid analgesics, including acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), have been shown to be safer and equally or more effective in managing many types of pain when compared to opioid medications.[45-49]
   b. It is recommended that opioids not be routinely prescribed for low back pain.
      i. Numerous studies have shown the superiority of opioid alternatives, including NSAIDs and acetaminophen, for uncomplicated back pain.[50]
      ii. Opioids are associated with decreased function at six months and prolonged disability at one year in patients with uncomplicated lower back pain.[51,52]
   c. It is encouraged that opioids not be prescribed for post-traumatic headache (headache associated with trauma to the head and/or neck).
      i. Opioids have deleterious effects when used to treat headache, and it is recommended they be avoided. Potential complications include the precipitation of medication-overuse headaches, anxiety, disability and depression.[53]
      ii. Use of opioid analgesia is also associated with the progression of migraine headache from acute to chronic.[54]
      iii. Opioids can render acute migraine medications less efficacious.[55,56]
      iv. The American Academy of Neurology, American Headache Society and ACEP caution against the use of opioids for headache treatment. These agents are best reserved for extraordinary situations in which all other options fail or are contraindicated.[57,58]
      v. Furthermore, the American Academy of Neurology has made opioid reduction for the treatment of migraines a focus of its "Choosing Wisely" campaign.[59]
   d. It is recommended that opioids not be routinely prescribed for previously reduced fractures or dislocations.
      i. A 2017 study comparing two-hour pain levels for acute extremity pain showed no statistically significant or clinically important differences in pain reduction among single-dose treatment with ibuprofen and acetaminophen or with three different opioid and acetaminophen combination analgesics (oxycodone and acetaminophen, hydrocodone and acetaminophen, codeine and acetaminophen).[45]

3. **Prior to prescribing an opioid, OEM clinicians are encouraged to perform rapid risk assessments to evaluate a patient's potential for developing OUD and to identify medical comorbidities that increase the risk of ORADEs. It is recommended that OEM clinicians exercise particular caution and seek alternative methods of pain control when treating patients at elevated risk for OUD and/or ORADEs.**
   a. Multiple agencies, including the Division of Workers' Compensation, the CDC and Colorado Department of Regulatory Agencies, advocate using an opioid risk tool to evaluate for factors that might predispose patients to addiction and misuse **(SEE APPENDIX II)**. While this approach has only been validated in cases of chronic pain, screening tools may help OEM clinicians identify high-risk patients.[60]
   b. Criteria for elevated risk of OUD include:
      i. Personal or family history of SUD (e.g., alcohol, illicit/prescription drugs).
      ii. Age between 16 and 45 years.
      iii. Behavioral health diagnosis (e.g., depression, attention deficit disorder, bipolar disorder, schizophrenia).
      iv. History of sexual abuse or childhood trauma.

c. Patients found to be at higher risk for opioid misuse or addiction warrant a behavioral health evaluation prior to the initiation of opioids and may benefit from multidisciplinary evaluation and care.
d. No validated screening tools exist for the identification of patients at no or low risk for developing OUD. It is important to consider the potential vulnerability of every patient.
e. Comorbid health conditions and patient factors that increase a patient's risk of ORADEs include:[61,62]
   i. Pulmonary comorbidities (e.g., chronic obstructive pulmonary disease [COPD], central or obstructive sleep apnea)
   ii. Cardiac comorbidities (e.g., congestive heart failure)
   iii. Organ dysfunction (e.g., renal or hepatic failure)
   iv. Age > 60[63]
   v. Combining opioids with other sedatives
   vi. Prior SUD diagnosis
f. Opioids may still be cautiously utilized for the management of pain in patients determined to be at increased risk for OUD or ORADEs. If the decision to use opioids for pain management is made in patients with risk factors for either or both OUD and ORADEs, consider a reduced starting opioid dose and closer monitoring for adverse effects.

4. It is recommended that opioids be avoided in patients already taking other opioids, benzodiazepines, gabapentinoids, barbiturates or other CNS depressants.

a. Patients taking opioids and benzodiazepines together have 10 times the risk of fatal overdose of those taking opioids alone.[64]
b. While the number of Colorado workers receiving concurrent prescriptions for benzodiazepines and opioids is relatively small, this risky practice is seen in 2% of workers' compensation claims in Colorado. The average number of prescriptions for these workers is nearly triple that of patients receiving opioids only, and associated health care costs are significantly higher.[39]
c. Long thought to be safe alternatives, gabapentinoids have emerged as a potential drug of abuse. In December 2019, the U.S. Food and Drug Administration (FDA) issued a warning that "Reports of gabapentinoid abuse alone, and with opioids, have emerged and there are serious consequences of this co-use, including respiratory depression and increased risk of opioid overdose death." It also required manufacturers to label gabapentinoids with warnings about the potential for respiratory depression and further ordered manufacturers to conduct clinical trials to evaluate the abuse potential of gabapentinoids, particularly in combination with opioids.[65]
d. Other medications with CNS-depressant properties such as nonbenzodiazepine sedative-hypnotics, muscle relaxants, sedating antidepressants, antipsychotics and antihistamines increase the risk of respiratory depression and/or death when used concurrently with an opioid.[66-68]
e. For some patients these drug combinations are unavoidable, as routine discontinuation of long-standing medications is not advised and the risks of withdrawal and/or worsening of an underlying condition are significant. In these cases, OEM clinicians are encouraged to consider carefully the necessity of each medication with input from the patient's primary care provider(s) and consultation with a pain specialist.[69]

5. OEM clinicians are encouraged to review the information contained in the Colorado PDMP to inform decision making around opioid therapy for work-related injuries.

a. Colorado House Bill (HB) 14-1283 requires all Colorado-licensed prescribing practitioners with Drug Enforcement Administration (DEA) registrations to create an account with the Colorado PDMP.[70]
b. It is required by Colorado Senate Bill (SB) 18-022 to check the PDMP when prescribing a second fill of any opioid prescription, and clinicians are encouraged to review the PDMP before prescribing an opioid for acute or chronic pain.

c. Any controlled substance that is prescribed longer than three days shall be dispensed through a pharmacy in accordance with the Division of Workers' Compensation Rule 18-6(C)(2)(e) to ensure all opioid prescriptions provided by OEM clinicians are documented in the Colorado PDMP.[71]
d. OEM clinicians are discouraged from direct dispensing of controlled substances from OEM clinics. While a 2020 rule revision limits physician dispensing of scheduled medications to a three-day supply, direct dispensing by physicians allows the distribution and use of controlled substances to occur without reflection of this activity in the PDMP and bypasses pharmacist and pharmacy benefit manager oversight, which is vital to patient safety. In addition, direct dispensing increases overall health care costs.[72]
e. Drug-monitoring programs have been shown to influence opioid-prescribing practices, especially in the case of lost or long-term prescriptions.[73]
f. These programs can aid providers in identifying patients with multiple recent prescriptions from multiple providers and help identify those already using other controlled medications on a chronic basis.[74]
g. Data from the Washington state PDMP have suggested that substantial numbers of newly injured workers received opioids or other controlled substances in the 60 days before an injury.[69] This reinforces the importance of checking the PDMP prior to prescribing pain medication for any work-related injury.
h. Although there is limited data to indicate the impact of PDMPs on patient outcomes, these programs can prompt referral to support services, initiation of addiction treatment and/or consultation with a pain management or addiction specialist.
i. Along with information gathered from the PDMP, concerns about possible misuse of controlled substances or the presence of SUD can prompt further conversations between physician and patient.
j. Information from the PDMP does not preclude the use of opioids for treatment of acute pain during hospitalization but can be incorporated into the analysis of the risks and benefits of opioid therapy.

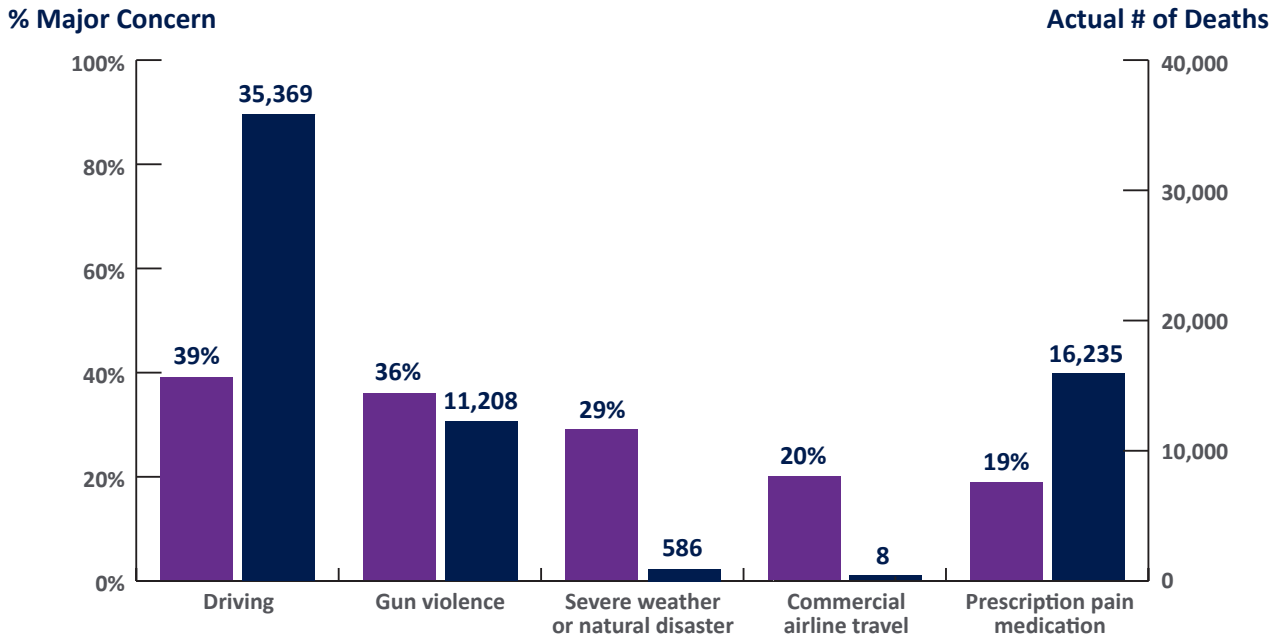
6. It is encouraged that OEM clinicians educate patients regarding the short- and long-term risks and side effects of opioid therapy.

a. Ideally, a discussion of the risks of opioid medications as well as the availability of alternative pharmacologic and nonpharmacologic therapies would be conducted prior to initiating treatment with an opioid.
b. Patients often are not aware of the risks associated with opioid medications or that there may be equally effective treatments for pain available.
c. It is recommended that patients be educated that acetaminophen and NSAIDs have been shown to be equally or more effective than opioid medications for managing many types of pain.[48–50,75–77]
d. Evidence suggests that clinicians often do a poor job of educating patients on the risks of opioids **(FIGURE 6)**.
    i. When prescribing these agents, it is always appropriate to initiate a detailed discussion about the significant risk of adverse effects and addiction.
    ii. It is recommended that patients be educated that anyone is at risk for opioid misuse and addiction. While a prior history of SUD, other behavioral health disorders and younger age all increase this potential, even an opioid-naive patient with no risk factors can develop dependence and/or OUD.[61,62]
e. OEM clinicians are encouraged to inform patients that they may request nonopioid therapy in lieu of opioids, even for severe pain.

(FIGURE 6)

Public Perception of Opioid Risk

Fewer than one in five Americans consider prescription pain medication to be a serious safety threat.



SOURCE: What Americans believe about opioid prescription painkiller use. Presented at the: National Safety Council — Opioid Painkiller Media Briefing; 2015. https://www.nsc.org/Portals/0/Documents/NewsDocuments/031115-Public Opinion-Poll.pdf. Accessed December 16, 2019.78December 16, 2019.[78]

Minimizing Harm with Opioid Therapy

7. If the decision to prescribe an opioid is made, it is advised that a qualifying diagnosis be documented prior to initiation of opioids.

a. It is recommended that documentation of qualifying diagnoses include the following:
   i. Objective evidence of anatomical or physiological abnormalities expected to cause pain.[79]
   ii. Functional limitation and expected improvement in function anticipated with decreased pain.[79]
   iii. Failed pain improvement or patient intolerance with alternative nonopioid modalities.[79]

8. OEM clinicians are encouraged to work with patients to establish realistic goals and expectations of opioid therapy and the anticipated course of recovery.

a. Discussing expectations with patients and their families or caregivers at the start of therapy helps facilitate a clear understanding of how meaningful improvement will be defined and measured during treatment as well as how long the patient is anticipated to require opioid therapy.
b. OEM clinicians are encouraged to discuss with patients, families and/or caregivers that the goal of opioid therapy is tolerability, not elimination, of pain such that meaningful improvement in function can be achieved.
c. It may also be communicated that a decrease in pain intensity with the absence of improved function is not considered meaningful improvement in most situations and, ideally, will prompt reevaluation of the appropriateness of opioid therapy.
d. Discussions regarding the expected course of recovery can also include that acute pain is expected to resolve as the underlying medical condition improves and the patient should expect an associated increase in functional capabilities as a result.

9. If opioids are deemed a necessary part of the analgesic plan, OEM clinicians are encouraged to use the lowest effective opioid dose for the shortest possible duration to manage pain.

a. Receiving higher intensity and/or longer duration opioid therapy in the setting of acute pain has been associated with worse functional outcomes,[64] increased risk of long-term disability, long-term opioid use, elevated risk of overdose (fatal or non-fatal) and tolerance to pain-relieving effects.[38,51,79–82]

b. There is significant evidence that higher doses of opioid therapy are associated with higher incidence of ORADEs, including overdose.[27,83]
   i. Patients on COT who are receiving > 100 mg/day MME have up to nine times the risk of overdosing compared to those receiving 20 mg/day MME, and one out of seven of those overdoses is fatal.[84-86]
   ii. Risk of overdose with 50 mg/d MME is 2.2 to 4.6 times higher than risk with doses < 20 mg/d MME.[69]
   iii. Research has also demonstrated dose-dependent increases in other serious adverse outcomes such as falls, fractures and motor vehicle crashes.[56] At higher opioid doses, patients are at elevated risk for poor functional status, increased pain sensitivity and persistent opioid use.[79,87-89]

c. It is recommended that OEM clinicians limit doses and durations of opioid prescriptions to no more than is anticipated to be required based on their clinical assessment and set expectations for discontinuation of opioid therapy prior to initiation of treatment with an opioid.
   i. Opioid-naive patients who receive opioid prescriptions are at increased risk for future chronic opioid use; that risk increases with every day of opioid exposure.[90]
      1. One large review of persistent opioid use at one and three years following opioid prescription to opioid-naive patients found rates of persistent opioid use of 6% for patients who received one day of opioid analgesia, 13.5% for persons whose first episode of use was for ≥ 8 days and 29.9% in opioid-naive patients whose first episode of use was for ≥ 31 days.[27]
   ii. In no case is it advisable that an opioid-naive patient be prescribed greater than 50 mg/d morphine equivalents, as the risks of overdose and addiction outweigh analgesic benefit at high dosages.[79,90]
   iii. It is suggested that opioid prescriptions be written for "as-needed dosing" versus "scheduled dosing."[80]
   iv. It is recommended that decisions regarding the duration of therapy be made on a case-by-case basis. Clinicians are encouraged to prescribe as little opioid analgesia as deemed necessary; in many cases a one- to three-day supply may suffice. In Colorado, SB 18-022, Clinical Practice for Opioid Prescribing, limits first-time opioid prescriptions for acute noncancer pain to seven days, with the ability to add a discretionary second seven-day fill.[91,92]
   v. For injured workers who require surgery, it is recommended that postoperative opioid prescriptions be limited to the minimum necessary quantity, which for many common procedures is a one- to three-day supply. For some minor procedures, postoperative pain control can be achieved with nonopioid medications and/or nonpharmacological treatment. It is rare that opioid-naive patients will require postoperative opioids for more than one week. While Colorado law permits exceptions for extenuating circumstances, the vast majority of postoperative prescribing will not exceed two weeks in duration.[80]

d. It is recommended that acute pain lasting longer than seven days after appropriate treatment of any existing underlying conditions prompt re-evaluation of the working diagnosis and/or reconsideration of the management approach.

10. If opioids are deemed a necessary part of the analgesic plan, OEM clinicians are encouraged to use immediate-release opioid formulations and avoid initiation of long-acting or extended-release formulations (including transdermal fentanyl) for the treatment of acute pain.

a. Long-acting or extended-release opioids are indicated only for the treatment of chronic pain and are not recommended for the treatment of acute or intermittent symptoms.[93]

b. Long-acting opioids are especially dangerous in opioid-naive patients, even at recommended dosages, as they are associated with increased risk of overdose.[94]

   i. It is recommended that methadone not be used for acute or breakthrough pain; its use for pain management is associated with a significantly higher risk of overdose.[69]

   ii. Clinicians must exercise particular caution with methadone dose conversions because the pharmacokinetics of methadone are complex. OEM clinicians are encouraged to consult a pharmacist as needed to transition patients from methadone to other opioid analgesics.

c. Long-acting and extended-release opioids carry a long-term risk of dependence that is nearly 4.5 times higher than that seen with use of immediate-release formulations.[27]

d. OEM clinicians are cautioned that tramadol is not a "safe" opioid. In Colorado, tramadol is the second-most prescribed opioid in the workers' compensation system.[39] Widely viewed as a "less potent" opioid, clinicians often prescribe tramadol for acute pain in an attempt to avoid "stronger" medications. Tramadol is a Schedule IV drug, a factor that may help reinforce this assumption, but wide variations in the pharmacogenetics of tramadol metabolism can result in significant individual differences in adverse and analgesic effects, including seizures and significant drug-drug interactions not seen with other opioids.[95] It is important to note that tramadol carries a risk of persistent opioid use that is equal or greater than that with other short-acting opioids.[27,96]

e. Although long-acting or extended-release opioids are not recommended for the treatment of acute, noncancer pain in opioid-naive patients, patients on COT for pain and patients receiving medication for addiction treatment (MAT) are frequently encountered in OEM practice; the recommendations for care of opioid-naive patients may not apply to the care of patients receiving COT or MAT.

f. OEM clinicians are encouraged to seek medical co-management as needed for injured workers on existing opioid regimens.

g. Discontinuation of long-acting or extended-release opioids in patients who take these medications for chronic pain or OUD treatment may cause opioid withdrawal and is not recommended. The baseline opioid requirements of patients receiving COT or MAT must be met prior to addressing any acute pain issues.

Limiting Opioids in Clinical Occupational Medicine Practice continued

NOTE: Opioid products with a single ingredient (e.g., oxycodone) are favored over combination formulations (e.g., oxycodone/acetaminophen), as patients are encouraged to take nonopioid analgesics (e.g., acetaminophen, NSAID) consistently prior to resorting to an opioid. Use of monoproducts allows acetaminophen or NSAID to be taken preferentially and used as a first-line agent with a lower risk of supratherapeutic dosing or accidental poisoning. Combination products are indicated by asterisk (*) below.

Short-acting opioids include but are not limited to the following agents:

- HYDROCODONE — immediate release (e.g., Vicodin,* Lorcet,* Lortab,* Norco*)
- HYDROMORPHONE — immediate release (e.g., Dilaudid)
- MORPHINE — immediate release
- OXYCODONE — immediate release (e.g., Percocet,* Percodan,* Roxicodone)
- OXYMORPHONE — immediate release (e.g., Opana)
- TRAMADOL — immediate release (e.g., Ultracet,* Ultram); note caution stated in point 10d., above
- TAPENTADOL — immediate release (e.g., Nucynta)

It is recommended that long-acting and extended-release formulations not be prescribed for acute pain. Examples include but are not limited to the following agents:

- FENTANYL — transdermal (e.g., Duragesic)
- HYDROCODONE — extended release (e.g., Hysingla ER, Zohydro ER)
- HYDROMORPHONE — extended release (e.g., Exalgo)
- METHADONE (e.g., Dolophine)
- MORPHINE — sustained release (e.g., MS Contin, Avinza, Kadian)
- OXYCODONE — sustained release (e.g., OxyContin)
- OXYMORPHONE — extended release (e.g., Opana ER)
- TRAMADOL — extended release (e.g., Ultram ER); note caution stated in point 10d., above
- TAPENTADOL — extended release (e.g., Nucynta ER)

** denotes combination product*

11. It is recommended that patients who receive prescriptions for opioids be educated on their proper use, safe storage methods and the proper disposal of leftover medications.

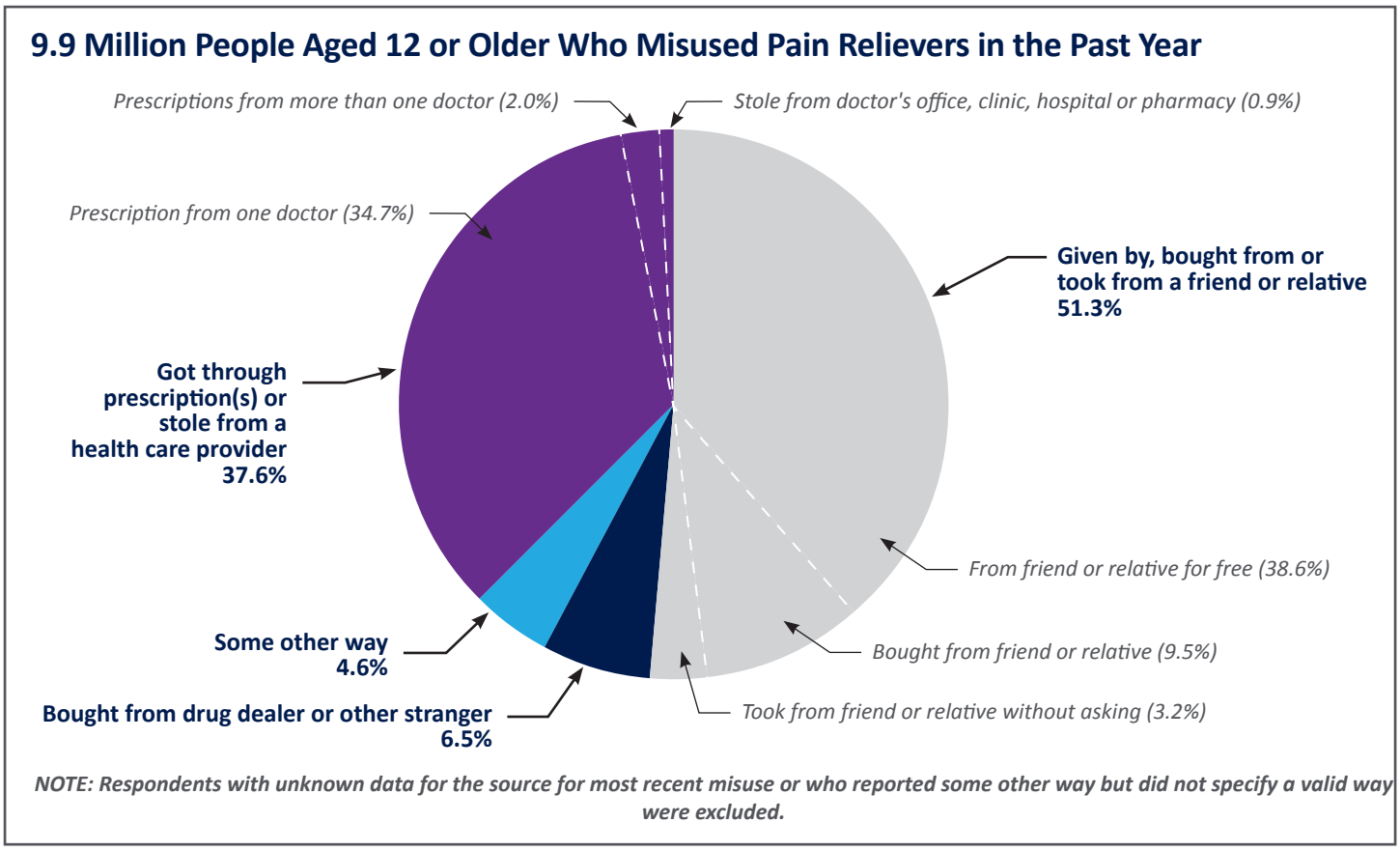
a. The majority of patients who misuse opioids receive or steal them from a friend or relative.[97] Prescriptions should be stored safely, out of view and, ideally, in a locked location. Opioids should not be stored at the work site.

b. Unused and/or unsecured prescription opioids create the possibility of both overdose (when patients take multiple opioids concurrently, intentionally or inadvertently) and diversion.

c. It is recommended that OEM clinicians ask patients about any existing opioid supply at home and encourage patients to safely dispose of unused opioids from prior prescriptions when issuing an opioid prescription.

i. It is encouraged that OEM clinicians ask patients specifically about opioid prescriptions they may have received from their primary care provider or any other health care provider.

ii. The PDMP database can provide information related to the potential existence of any recent prior opioid prescriptions.



SOURCE: SAMHSA NSDUH 2018[98]

d. It is recommended that patients be counseled on the proper administration of opioids, including:
   i. Planned medications, doses and schedule,
   ii. Using only the minimum quantity necessary to achieve tolerable levels of pain and meaningful functional improvement and
   iii. That the dose and/or frequency will be reduced as pain and function improve.
e. It is recommended that patients be made aware of potential harmful interactions with other medications.
   i. Agents that may potentiate the sedative effect of opioids, including sleeping medication, alcohol, other opioids, benzodiazepines, gabapentinoids and other sedating medications should be avoided.
f. OEM clinicians are encouraged to educate patients on the early warning signs of opioid dependence and addiction.
g. It is suggested that patients be advised strongly that opioids should not be shared with others under any circumstances and reminded that sharing opioid medications is a felony.[99]

h. Once the acute pain phase has ended and medication is no longer required, it is critical that patients promptly dispose of unused opioids.
   i. Patients should not retain unused opioids for potential later use.
   ii. Unused medication should be discarded through a safe disposal program.
   iii. An interactive map of collection box locations can be found at www.takemedsback.org.
   iv. All but one of the counties in Colorado offer safe disposal sites for controlled substances, and the number of these facilities is increasing rapidly.
   v. If disposing of the medication at home, it is advised that patients be instructed to:
      1. Remove the medication from its original container and remove any labels or cross out identifying information.
      2. Mix the pills with something that can't be eaten (e.g., kitty litter, coffee grounds, sawdust, home cleanser, etc.).
      3. Place the mixture in a sealable bag, empty can or other durable container that prevents leakage.
      4. Wrap the container in newspaper or a plain brown bag to conceal its contents. Place it in the trash the day your trash is collected.
   vi. In an exception to the general rule, the FDA allows opioids to be flushed down the toilet; however, more environmentally friendly disposal methods are encouraged.[100]

i. Additional Resources
   i. http://www.Takemedsseriously.org
   ii. http://www.corxconsortium.org/wp-content/uploads/Safe-Disposal-Brochure.pdf
   iii. http://www.deadiversion.usdoj.gov/drug_disposal/takeback/index.html

Minimizing Harm with Chronic Opioid Therapy

12. OEM clinicians are encouraged to avoid the use of opioids for chronic pain treatment. It is recommended that patients whose pain has not been adequately managed with fully optimized nonopioid analgesics and nonpharmacologic approaches receive evaluation and care from a pain medicine specialist.

a. Opioids are not recommended for work-related chronic pain, as there is no evidence supporting benefits of opioid use on functional improvement or disability reduction in the setting of chronic pain.[101-104] Studies of workers' compensation claims demonstrate that treatment of chronic noncancer pain with opioids increases the duration and cost of workers' compensation claims, prolongs disability and decreases the functional gain after an injury.[82,88,105-112] Finally, patients receiving long-term opioid therapy are at increased risk of overdose and death.[113]
b. It is difficult to discontinue COT once initiated; more than 60% of patients taking opioids for three months or longer continue to be prescribed opioids five years later.[79]
c. The Colorado Division of Workers' Compensation Chronic Pain Disorder Medical Treatment Guideline notes that current estimates suggest approximately 14-19% of chronic opioid users will develop OUD.[114]
d. OEM clinicians are advised to use extreme caution before a trial or prescription of COT in patients with comorbid behavioral health disorders (particularly posttraumatic stress disorder and major depressive disorder), a family or personal history of SUD, concurrent use of benzodiazepines or sedative-hypnotics or medical conditions that could increase risk of serious ORADEs (e.g., COPD, CHF, sleep apnea, advanced age or renal or hepatic dysfunction).
e. It is recommended that if opioids are trialed, or if COT is initiated, concurrent nonopioid pharmacological and nonpharmacological multimodal analgesia be optimized and opioid monotherapy be avoided.
f. In the rare cases where maintenance is assigned for chronic opioid use, it is advised that the patient be referred to a pain management specialist for medication management.

g. Per the Colorado Division of Workers' Compensation Chronic Pain Disorder Medical Treatment Guideline, a worker should not receive a trial of opioid therapy—which per the guideline should be with a short-acting opioid—for chronic pain unless the following criteria have been met:
   i. Failure of nonopioid multimodal analgesia (including active therapies, cognitive behavioral therapy (CBT), pain self-management techniques and other appropriate medical techniques) to control pain in a motivated patient. Prior to a trial of opioids or to escalating a patient to COT, it is recommended that nonopioid medication options and nonpharmacologic approaches be maximized.[79]
   ii. Physical examination, psychological and/or psychiatric assessment with a full evaluation for SUD. Patients with untreated SUD and/or other behavioral health conditions may benefit from evaluation and treatment by a multidisciplinary team and should be referred as appropriate to specialty care.[79]
      1. Assessments should be performed by the treating physician and a specialist in chronic pain.
      2. The patient's abuse risk potential should be documented as low, medium or high, according to the Colorado Division of Workers' Compensation *Chronic Pain Disorder Medical Treatment Guideline.*[114]
         a. High-risk patients are those with active SUD of any type or a history of OUD. High-risk patients should generally not be placed on chronic opioids; however, if chronic use is necessary, the patient should be referred to an addiction specialist for close monitoring.
         b. Moderate risk factors include a history of nonopioid SUD, prior trauma (particularly sexual abuse), tobacco use, widespread pain, poor pain coping, depression and dysfunctional cognitions about pain and analgesic medications. Pre-existing respiratory or cognitive impairments should also be considered.
   iii. Evaluation of employment requirements to ensure safe working conditions for the patient and co-workers while the patient is receiving COT. Specific considerations should be taken if the employee is required to drive or operate heavy machinery as patients receiving COT may have impaired coordination and capability.
   iv. Urine drug screening for substances with potential for misuse or addiction and substances currently prescribed.
   v. A functional history should be taken, and functional goals should be determined. As discussed further below, function must be assessed and documented throughout the course of treatment for chronic pain to determine if the patient is increasing or decreasing in function.
   vi. Review of the PDMP.
   vii. Patient counseling on safe storage and disposal of opioids.

h. If the decision to initiate COT is made, comprehensive opioid management is recommended.

i. If COT is initiated, it is suggested that a pain contract be created to enhance compliance.
   i. It is recommended that contracts document patient understanding of risks and benefits associated with opioid use; acknowledgement of potential side effects; agreement to comply with workplace drug testing and drug-free expectations; and clear understanding regarding the length of opioid prescription.
   ii. Family members can be involved in contract agreements at the discretion of the patient and physician.
   iii. It is encouraged that contracts be made available in a manner conducive to the employee (i.e., primary language of the employee) and read aloud to patients with literacy challenges.
   iv. A recommended form entitled "Opioid Treatment Agreement" can be found at the Washington Department of Labor and Industries' website **(SEE APPENDIX IV)**.

j. Documentation of sustained improvement in pain and function of at least 30% as compared to the start of treatment or in response to a dose change using validated tools is required for continuation of a trial of a short-acting agent.[114]
k. Per the CDC *Guidelines for Prescribing Opioids for Chronic Pain,* "Clinicians should evaluate benefits and harms with patients within 1 to 4 weeks of starting opioid therapy for chronic pain or of dose escalation. Clinicians should evaluate benefits and harms of continued therapy with patients every 3 months or more frequently."[91]
l. According to the Colorado Division of Workers' Compensation *Chronic Pain Disorder Medical Treatment Guideline,* the Current Opioid Misuse Measure is a tool that can be used for patients on COT to screen for possible aberrant use.[114]
m. If there is no improvement in function with a trial of an opioid for chronic pain or if benefits do not outweigh harms of continued opioid therapy, it is recommended that other therapies be optimized and the opioid tapered to lower dosages or tapered to discontinuation in accordance with protocols that minimize opioid withdrawal symptoms. **(SEE APPENDIX VII, HHS GUIDE FOR CLINICIANS ON THE APPROPRIATE DOSAGE REDUCTION OR DISCONTINUATION OF LONG-TERM OPIOID ANALGESICS.)**[91]

13. It is suggested that opioid therapy be guided by clinically meaningful improvements in function.

a. While pain relief is important, the Colorado Division of Workers' Compensation requires improvement in function in order to continue opioid therapy after an initial trial with a short-acting agent.[114]
b. In order to continue opioid therapy after the initial trial, it is recommended that the patient demonstrate sustained improvements in pain AND in function of at least 30% as compared to the start of treatment or in response to a dose change. It is suggested that pain relief and functional improvement be assessed and documented using validated tools at each visit where opioids are prescribed. Tracking function as well as pain is critical in determining the patient's ongoing response to opioids and whether any improvement supports continuation of opioid therapy.[115]
c. Continuation of opioid therapy in the absence of improved function—even in the presence of pain relief—is not considered appropriate care except in very limited circumstances such as catastrophic injuries (e.g., multiple trauma, spinal cord injury).[115]
d. Discussing expectations with the patient and/or family at the start of therapy is necessary to facilitate a clear understanding of functional goals, how improvements in function will be defined and measured and how long the patient is anticipated to require opioid therapy.
e. It is necessary to establish goals that are specific, measurable, achievable and relevant prior to opioid trial or adjustment to measure changes in activity/function.
f. Assessment and documentation of sustained pain relief and functional improvement is recommended at every appointment, but it is recommended that at minimum they be evaluated at the following increments:
    i. At the end of an acute phase treatment (approximately six weeks post-injury/incident),
    ii. At the end of the subacute phase (approximately three months post-injury/incident) and
    iii. For long-term COT, ongoing review and documentation of pain relief, functional status, appropriate medication use and side effects should be conducted periodically, at a minimum of every three months.[91]
g. Measurement of functional goals may include patient-completed validated functional tools such as those recommended by the Division of Workers' Compensation as part of Quality Performance and Outcomes Payments (QPOP) Program **(SEE APPENDIX V)** and/or the Patient Specific Functional Scale.

14. OEM clinicians are encouraged to have a discontinuation plan prior to prescribing opioids.

a. OEM clinicians are encouraged to develop a longitudinal treatment plan that includes opioid therapy discontinuation for every patient receiving opioid analgesia.[116]

b. It is suggested that tapering and/or discontinuation of opioids be initiated in any worker not demonstrating clinically meaningful improvement in function and in workers experiencing significant adverse effects, noncompliance or inconsistent drug screening results.

i. As for all patients, maximizing use of nonopioid multimodal analgesia (including use of acetaminophen, NSAIDs and/or other nonopioid pain medications and nonpharmacologic modalities as clinically indicated) is recommended during the discontinuation period.

15. OEM clinicians are encouraged to avoid rapid opioid tapers or sudden discontinuation of opioids.

a. It is advised that opioids not be tapered rapidly or discontinued suddenly due to the significant risk of opioid withdrawal.[117]

b. Risks of rapid tapering or sudden discontinuation of opioids in physically dependent patients include acute withdrawal symptoms, exacerbation of pain, serious psychological distress and thoughts of suicide.[118]

c. Patients may seek other sources of opioids, potentially including illicit opioids, as a way to treat their pain or withdrawal symptoms.[118]

d. Unless there are indications of a life-threatening issue, such as warning signs of impending overdose, abrupt opioid dose reduction or discontinuation is not recommended.[117]

e. It is recommended that continuation plans for patients using opioids in a chronic or subacute manner comply with the U.S. Department of Health and Human Services *Guide for Clinicians on the Appropriate Dosage Reduction or Discontinuation of Long-Term Opioid Analgesics*, available at https://www.hhs.gov/opioids/sites/default/files/2019-10/Dosage_Reduction_Discontinuation.pdf.[117]

(SEE APPENDIX VII)

f. Assistance from doctorate-level behavioral health specialists is recommended for all patients who are weaning from opioids in accordance with the Colorado Division of Workers' Compensation *Chronic Pain Disorder Medical Treatment Guideline*.[114]

g. Referral to a pain management or addiction medicine specialist for opioid tapering is recommended for patients with prior withdrawal events, those taking high doses of opioids (> 100 mg/d morphine equivalents) or those with complex medical and/or behavioral health conditions.

h. OEM clinicians may seek co-management with pain or addiction medicine specialists for injured workers on complicated existing opioid regimens who require tapers.

16. It is recommended that OEM clinicians monitor for compliance and aberrant use in patients receiving COT.

a. It is advised that drug testing policies for opioid compliance tracking be transparent and expressly conveyed to all workers receiving opioid therapy.

b. Urine toxicology screening for opioids and other illicit substances as appropriate is the recommended modality to monitor compliance with therapy. It is advised that urine screening assess for the presence of both synthetic (e.g., oxycodone and fentanyl) and non-synthetic opioids.

i. It is suggested that drug screening for patients receiving COT include:

1. A baseline random drug screen prior to initiating COT.
2. A random urine drug screen at termination of COT.
3. Random urine drug screens at regular intervals (minimum of twice yearly, maximum four times yearly unless a diagnosis of OUD is considered) in addition to "for cause" testing.

a. For cause testing includes provider suspicion of misuse, symptoms of over-sedation, on-the-job accidents (such as motor vehicle collision or injury), request for early repeat fill due to any reason, missed appointments or as deemed appropriate by the clinician.

c. It is advised that OEM clinicians review PDMP data when initiating opioid therapy for chronic pain and periodically during the course of opioid therapy for chronic pain, at frequencies ranging from every prescription to every three months or as deemed appropriate by the clinician.[91]
d. Providers who appropriately monitor opioid use for compliance and document such in a written report can bill for it as a separate service using Colorado Division of Workers' Compensation Z-codes.

SEE APPENDIX VI, OPIOID MANAGEMENT TOOL AND RULE 18-9(A) FOR DETAILS.[71]

i. Acute Phase: Z0771
ii. Subacute/Chronic Phase: Z0765

17. It is recommended that patients treated with opioids for either acute or chronic pain receive opioid prescriptions from one practice and one pharmacy. For work-related chronic pain, it is suggested that this be either their authorized treating physician or a workers' compensation pain specialist.

a. OEM clinicians are encouraged to coordinate care with the patient's primary care provider and/or pain specialist whenever possible to identify the clinician who will prescribe opioids.
b. It is recommended that previous patient-physician contracts regarding opioid use be honored or amended as appropriate when there is a change in the primary opioid prescriber.

18. OEM clinicians are encouraged to use caution when asked to replace a prescription for opioids that a patient claims was lost or stolen.

a. Patients who divert or misuse controlled medications may claim their prescription was lost or stolen.
b. OEM clinicians may consider advising patients to consider filing a report with the police if opioid medication has been stolen.
c. If the OEM clinician is not the prescribing physician, it is recommended that the patient be told they must receive the prescription from the prescribing physician. It is advised that the OEM clinician contact the prescribing physician to discuss the request, as such a request may be a violation of the patient's pain contract.

19. OEM physician groups are strongly encouraged to collect and share individual opioid prescribing patterns with fellow clinicians.

a. Opioid prescribing practices vary among OEM clinicians. While little research exists examining provider-level variations of opioid prescribing patterns in occupational and environmental medicine, some Colorado OEM clinicians are minimizing or eliminating use of opioids while others continue to rely heavily on opioid analgesia.
b. Some workers' compensation insurers do provide individualized prescribing data that may be of use to OEM clinicians seeking to reduce their opioid prescribing.
c. Knowledge of current ordering patterns can be critical for protocol implementation, clinician education and quality improvement.
d. Tracking prescribing patterns and providing the comparative data to every clinician within the practice may help reduce discrepancies and identify clinicians who can benefit from further education in multimodal analgesia and opioid stewardship. OEM clinicians are advised to approach opioid prescribing with the same stewardship they employ when making other medical decisions.
e. OEM physicians are encouraged to monitor the opioid prescribing patterns of other clinicians providing care under their license, including resident physicians and advanced practice providers.
f. Information on prescribing patterns should not be used punitively but rather to help clinicians understand their own treatment habits, facilitate change and improve care. Local sharing has been shown to significantly reduce the number of opioids prescribed at discharge in emergency medicine practice.[119]

Alternatives to Opioids for the Treatment of Pain

c|h|a
Colorado Hospital Association

COLORADO
MEDICAL SOCIETY

COLORADO
CONSORTIUM
for Prescription Drug Abuse Prevention

Alternatives to Opioids for the Treatment of Pain

The CDC estimates that 20% of Americans suffer from chronic pain, while millions more experience acute pain on any given day.[120] Pain affects more Americans than cancer, diabetes and heart disease combined and is the most common reason Americans access the health care system. It is a leading cause of disability and a major contributor to U.S. health care costs.[121] Despite the ubiquity of pain in medical practice, the disorder is poorly understood by many medical professionals and seldom taught in medical schools, 96% of which have no dedicated pain medicine modules.[122] A better understanding of pain and the interventions that can be therapeutically applied to alleviate it is among the most important aspects of better opioid stewardship and safer analgesia. **APPENDIX X, UNDERSTANDING PAIN: A COMPLEX BIOPSYCHOSOCIAL PHENOMENON**, provides a brief overview of how clinicians are encouraged to conceptualize pain.

Using nonopioids to address pain management is a relatively new strategy called alternatives to opioids or ALTO. An ALTO-based multidisciplinary approach can transform pain management in Colorado. ALTO uses the CERTA (channels, enzymes, receptors targeted analgesia) framework to treat the physiologic components of pain. By intervening at multiple points in the physiologic pathways involved in pain-signaling transmission, clinicians can leverage the complementary mechanisms of analgesia provided by different medication classes—including Cox-1, 2, 3 inhibitors, N-Methyl- d-aspartate (NMDA) receptor antagonists, sodium channel blockers and GABA agonists/modulators—to treat pain more comprehensively.

ALTO programs also emphasize treating the psychological and social components of pain through nonpharmacologic interventions, psychopharmacological treatments (when appropriate) and education. It is recommended that a stepwise, additive and multimodal approach be deployed in which opioids are used as a last resort and as adjuncts to nonpharmacologic and ALTO medications for the management of uncontrolled pain.

When selecting multimodal analgesia, OEM clinicians must contend with the lack of high-quality, diagnosis-specific evidence for many of the nonopioid pharmacologic agents and nonpharmacologic modalities available.[123] Further research is needed to determine the quality of evidence and strength of recommendation for some of the medications and interventions described below. This lack of evidence must be weighed against the incontrovertible evidence of immediate and long-term harms caused by overreliance on opioid analgesia. It is important that OEM clinicians partner with researchers, pharmacists and nurses to define and implement safe and effective analgesic protocols, taking into account the available and evolving data and integrating it in a way that is compatible with their unique practice settings.

Practice Recommendations

1. **OEM clinicians are encouraged to apply ALTO principles when managing pain:**
   a. Use nonopioid approaches as first-line therapies.
   b . Use several agents for multimodal pain control rather than relying on monotherapies.
   c. Utilize opioids rarely and predominantly as rescue medications after other modalities have failed.
   d. Discuss realistic, functional pain management goals with patients.
   e. Use empathic language when discussing pain.

2. **Occupational medicine practices are encouraged to develop and implement ALTO programs and provide opioid-sparing pain treatment pathways for the following conditions:**
   a. Uncomplicated musculoskeletal pain
      i. Back and neck pain
      ii. Sprains, contusions, tendonitis and bursitis
   b. Neuropathic pain
   c. Post-traumatic headache
   d. Extremity fracture or joint dislocation

3. **Nonpharmacologic options that can be employed by patients, such as distraction and comfort items, ice, heating pad, therapeutic mobility and positional adjustments, can be used concomitantly with pharmacologic options for the treatment of all kinds of pain.**

Alternatives to Opioids for the Treatment of Pain continued

4. **OEM clinicians are advised to develop a familiarity with nonpharmacologic alternative pain management approaches including physical therapy, psychotherapy, manipulation, massage, acupuncture, trigger-point injections, dry needling and TENS. It is recommended that OEM clinicians be able to perform or refer patients for appropriate interventions and that all providers be proficient in nonpharmacologic components of ALTO protocols by learning new skills or developing an appropriate referral network to access these services.**

5. **Topical medications are safe and effective for the treatment of many types of pain and are especially useful in physiologically fragile patients, including the elderly and those with liver, cardiac or renal disease. Topical medications include lidocaine, diclofenac, menthol and capsaicin.**

6. **Occupational medicine practices that use computerized physician order entry systems are encouraged to integrate ALTO treatment strategies and pathways into their ordering systems to facilitate a seamless adoption and the safe delivery of novel medications.**

7. **It is recommended that OEM clinicians' prescribing patterns follow ALTO principles, using multimodal opioid alternatives and nonpharmacologic approaches as first-line therapies. Opioids are best reserved for severe breakthrough pain.**
   a. Strongly consider the concomitant use of acetaminophen and ibuprofen or another NSAID for the treatment of most painful conditions.
   b. Strongly consider the use of topical medications for pain control, including topical lidocaine, capsaicin and diclofenac.
   c. It is encouraged that opioids be used only as rescue therapies and be stopped as soon as pain is tolerable.
   d. If an opioid prescription is warranted, NSAIDs and/or acetaminophen administered as a scheduled, around-the-clock regimen are recommended as an adjunct to opioid treatment when no contraindications exist.[79] The concurrent receipt of opioids and nonopioid analgesic medications can reduce total opioid requirements and improve pain management.[124]
   e. Monoproducts of opioids, such as oxycodone and morphine sulfate, are preferred over combination products that contain acetaminophen. This allows acetaminophen to be taken preferentially and used as a first-line agent with less risk of supratherapeutic dosing or accidental poisoning.

8. **As of this writing, no definitive, high-quality studies support the safety and efficacy of dispensary or pharmaceutical cannabinoids for analgesia. Unless better supporting evidence becomes available, OEM clinicians are discouraged from endorsing the use of cannabinoids for pain management. In addition, OEM clinicians and their patients should be aware that prescriptions for dispensary cannabinoids for pain management will likely not be covered by public or private insurers.** (SEE APPENDIX XI, CANNABINOIDS AND PAIN, FOR A BRIEF REVIEW OF THIS TOPIC AND RECOMMENDATIONS FOR COUNSELING PATIENTS.)

Alternatives to Opioids for the Treatment of Pain continued

Alternative Medications

It is advised that patient allergies, tolerances and risks for each medication be weighed thoughtfully and that any potential drug interactions be investigated fully prior to initiating any medication regimen.

ACETAMINOPHEN

In five randomized controlled trials, acetaminophen significantly lowered pain compared to placebo without increased adverse events; the number needed to treat (NNT) to achieve pain relief is four.[125] It is recommended that acetaminophen dosage not exceed 4 g/day for short-term use or 2-3 g/day for long-term use in healthy patients and that dosing be divided into four times a day when possible.[115]

ANTICONVULSANTS

Studies indicate that four out of 10 patients with neuropathy will achieve 50% pain relief with gabapentin.[126] Pregabalin has also shown benefit and has better oral bioavailability and faster onset of action (one hour versus three hours with gabapentin), although it is more costly.[127] While other anticonvulsants (such as carbamazepine, oxcarbazepine, lamotrigine and topiramate) may have potential success at treating chronic non-neuropathic pain, it is recommended that a physician experienced in pain management be involved in the care when these medications are considered.

ANTIDEPRESSANTS

Antidepressants such as tricyclics (TCAs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) are frequently used for treatment of neuropathic pain.[128-132] Low-dose TCAs have an average NNT of 2.6 (range 2.0-5.0) for neuropathic pain.[133] In addition to pain relief, TCAs can offer added benefit to patients with depression or whose pain is interfering with sleep. Caution should be used when prescribing TCAs to elderly patients or those with cardiovascular disorders due to risk of sinus tachycardia, changes in cardiac conduction time or arrhythmias. The SNRI duloxetine is noninferior to pregabalin for treatment of pain in patients with diabetic peripheral neuropathy and may be more cost effective.[134-136] Duloxetine has also been shown to be effective for fibromyalgia and chronic musculoskeletal pain and is a first-line agent in patients with chronic pain and depression.[137] A systematic review found that there were no differences between venlafaxine and either gabapentin, pregabalin or duloxetine on average pain scores or the likelihood of achieving significant pain relief.[138] Serotonin syndrome has been reported with SNRIs alone and concurrently with other serotonergic agents (e.g. tramadol, fentanyl, triptans, TCAs, lithium, buspirone, St. John's Wort).[115]

CAPSAICIN TOPICAL

Capsaicin topical may reduce pain in patients with arthritis and neuropathy, although evidence supporting its use is limited.[139] It is most commonly used for treatment of postherpetic neuralgia, where capsaicin works primarily as a distractor from neuropathic sensations.[140] Capsaicin patches have shown mild efficacy when applied for 60-minute intervals for up to 12 weeks.[141]

LIDOCAINE TOPICAL

Lidocaine is a powerful anesthetic agent for treating pain and is especially useful when opioids are inefficient or lead to undesirable side effects. Topical (5% transdermal patch) doses are effective for controlling multiple types of musculoskeletal pain, including low back pain.[142,143] Lidocaine 5% patches, topicals or spray can be used for the treatment of a range of pain types that are resistant to other treatment modalities.[142,144-147] There is some information that over-the-counter lidocaine patches with menthol may actually have superior efficacy for pain management than prescription versions that do not have menthol.[148] These have also been shown useful in decreasing pain to a tolerable level for participation in active therapy. Application of a warm steamed towel over patches has shown to increase pain-relieving effects of lidocaine.[149]

MENTHOL TOPICAL

Methyl salicylate and menthol provide significant pain relief of muscle strain compared to placebo.[150] In a small study, menthol was more effective than ice.[151]

Alternatives to Opioids for the Treatment of Pain continued

MUSCLE RELAXANTS/ANTISPASMODICS

Cyclobenzaprine reduces low back pain with an NNT of three.[152] There are many other types of muscle relaxants and antispasmodic options available, including but not limited to baclofen, tizanidine, dantrolene, carisoprodol, orphenadrine, metaxalone and methocarbamol, for which there is mixed supporting literature.[93,153] For working individuals, a short-acting muscle relaxant such as tizanidine or methocarbamol may be more appropriate as a first-line therapy, especially if taken only at night. Carisoprodol, chlorzoxazone and chlormezanone are not indicated due to concerning safety profiles.[154]

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS

When combined with acetaminophen, NSAIDs can reduce acute pain by 50% in seven out of 10 patients.[155] Adding an NSAID to a pain regimen containing an opioid may have an opioid-sparing effect of 20-35%.[156] While a 2015 Cochrane review found that there was insufficient evidence to either support or refute the use of oral NSAIDs to treat neuropathic pain conditions, the American College of Occupational and Environmental Medicine Practice Guidelines recommend the use of generic ibuprofen, naproxen or other older generation NSAIDs as second-line agents for neuropathic pain, after tricyclic or SNRI antidepressants.[79,155] They note that side effect profiles may make NSAIDs preferable to antidepressants for some working-age patients.[157] Though NSAIDs are recommended as second-line treatment for neuropathic pain in working individuals, their side effect profile compared to typical first-line neuropathic agents may warrant their use as first-line therapy in appropriate patients.

TOPICAL NONSTEROIDAL ANTI-INFLAMMATORY DRUGS

To achieve a 50% reduction in musculoskeletal pain, NNT was 3.7 for topical diclofenac solutions, which is comparable to oral NSAIDs.[158] Only about 5% of topical NSAIDs are systemically absorbed compared to oral NSAIDs, but studies show there is local absorption into tissues and synovium. Topical formulations are most effective when the pain is located in a superficial tissue.[159] Topical NSAIDs may be more appropriate for some patients with chronic pain, as there is some evidence that topical NSAIDs are associated with fewer systemic adverse events than oral NSAIDs.[160,161] These can also be used selectively as a later-line agent for the treatment of neuropathic pain. One randomized controlled trial determined effective penetration of topical diclofenac sodium 4% spray gel into the synovial tissue and synovial fluid of the knee.[162] This and several other studies concluded that topical diclofenac presents an effective alternative to systemic NSAID therapy for the treatment of osteoarthritis, soft tissue injury including sprains and strains, and tendon pain particularly in the hands and feet.[162-172] Diclofenac is particularly useful in patients at risk for GI side effects or with hepatic or renal disease who cannot tolerate systemic treatment. Topical ketoprofen offers similar benefits but has been studied infrequently.[164] Topical NSAIDs may be considered in patients who have relative contraindications to oral NSAIDs.

SPECIAL POPULATIONS

Not all patients are appropriate candidates for each agent suggested in the ALTO treatment protocol. It is encouraged that all treatments be used with thoughtful consideration of medication profiles and patient-specific factors such as age, organ function, comorbidities and other medications.

- GERIATRIC — It is advised that great care be taken when treating elderly patients. Some of the therapies suggested may be inappropriate for use in the geriatric population. The Beers List is a well-established resource to be utilized when considering treatment options for patients over 65 years of age.[173] When possible, consider using topicals instead of oral options. Consider recommending heat, massage and physical therapy for musculoskeletal pain.
- RENAL DYSFUNCTION — Not all ALTO agents are safe to use for patients with renal dysfunction, particularly NSAIDs. In those patients who cannot receive systemic NSAIDs, consider prescribing topical NSAIDs such as patches or diclofenac gel at the lowest effective dose.
- HEART FAILURE — Not all ALTO agents are recommended for use in patients with heart failure, particularly NSAIDs. In patients where these agents must be avoided, consider prescribing topical agents to reduce systematic effects.

Alternatives to Opioids for the Treatment of Pain continued

Non-Pharmacologic Alternatives

Although nonopioid medications are recommended as first-line pharmacologic treatment for workplace injury, non-pharmacological therapy is consistently regarded as the preferred initial modality of treatment. There are several non-pharmacologic pain management options outlined in the Colorado Division of Workers' Compensation *Chronic Pain Disorder Medical Treatment Guideline* that are covered under the Colorado workers' compensation system that can be used as effective ALTOs.[174]

PHYSICAL THERAPY

Active therapies such as therapeutic exercise, aquatic therapy, self-directed activity, neuromuscular re-education, activities of daily living, functional activities, spinal stabilization and pain neuroscience education are widely used and accepted methods of care for a variety of work-related injuries. There is moderate to strong evidence proving the efficacy of exercise therapy for pain relief and functional improvement in patients with musculoskeletal pain.[175]

PSYCHOTHERAPEUTIC INTERVENTIONS

Psychotherapeutic interventions are recommended as a component of treatment for patients with chronic pain; they may also have utility for some patients with acute pain. Cognitive and behavioral interventions have a neurophysiological basis and are well established as diagnostic and therapeutic modalities.[176] Patients without behavioral health diagnoses may benefit from interventions that aid in developing better strategies to cope with pain or adjust to disability.

A doctoral-level psychologist or a psychiatrist can perform psychosocial treatment through individual or group therapy. For chronic pain, other licensed mental health providers, licensed health care providers with training in CBT or certified CBT therapists who have experience in treating chronic pain disorders in injured workers may perform treatment in consultation with a psychologist or psychiatrist. For acute pain, there is some evidence that behavioral health interventions delivered by qualified therapists can better enable workers to heal and return to work and aid clinicians in addressing barriers that impede recovery from work-related injury or illness.[177]

Examples of Psychotherapeutic Interventions	
Cognitive Behavioral Therapy (CBT) (The most researched psychotherapeutic treatment)	Relaxation Training
Biofeedback	Mindfulness Training
Hypnosis	Sleep Hygiene Psychoeducation

Alternatives to Opioids for the Treatment of Pain continued

MANIPULATION (CHIROPRACTIC OR OSTEOPATHIC)

Manipulation encompasses a variety of modalities including osteopathic manipulative treatment, chiropractic manipulative treatment, manual therapy, manipulation or mobilization. There is good evidence that manipulation can facilitate pain reduction and improved function for both spinal and extremity injuries.[178-182]

MASSAGE

Massage is the manipulation of soft tissue and may include stimulation of acupuncture points and acupuncture channels (acupressure), application of suction cups and techniques that include pressing, lifting, rubbing, pinching of soft tissues by or with the practitioner's hands. There is good evidence that massage therapy in combination with exercise reduces pain and improves function in the short term for patients with subacute low back pain.[183-185] There is some evidence that 10 weeks of either relaxation massage or structural massage are more effective than usual care and equally effective in improving functional disability and reducing symptoms of pain in people with chronic low back pain with benefits lasting at least six months.[186] There is also some evidence that in the setting of chronic neck pain four weeks of weekly hour-long massage leads to benefits in both pain and function, and there are incremental benefits from multiple massage sessions per week (up to three sessions) over a single massage session.[187]

ACUPUNCTURE

Acupuncture is the insertion and removal of filiform needles to stimulate acupoints (acupuncture points) and is recommended for subacute or chronic pain (including low back and knee pain) patients who are trying to increase function, decrease medication usage and have an expressed interest in this modality. There is evidence supporting acupuncture use in reduction of disability and pain in chronic low back pain patients and there is some evidence that acupuncture is better than no acupuncture for axial chronic low back pain.[188-191] There is also evidence supporting acupuncture for reduction of pain or improvement of function among patients older than 50 years with moderate to severe chronic knee pain from symptoms of osteoarthritis.[192] In summary, there is evidence that acupuncture may be useful for chronic low back pain in patients with high expectations, and it may be used accordingly.[114] If not otherwise within their professional scope of practice and licensure, those performing acupuncture must have the appropriate credentials, such as LAc, RAc or DiplAc.

TRIGGER POINT INJECTIONS

Trigger point injections involve injection of a corticosteroid/anesthetic/saline combination into a tensed muscle. Indications include a palpable taut band or nodule, reproducible pain with palpation and/or a chronic painful condition.[193-196] Trigger point injections also have been found to be a successful treatment strategy for migraines.[197,198]

In the setting of workplace injuries, trigger point injections of corticosteroids are most effective for adhesive capsulitis, rotator cuff tendinopathy, impingement syndrome and tendon disorders; however, due to concern for weakening of connective tissue by corticosteroids, it is recommended that repeat treatment be limited to three injections per site and no more than four injections over a lifetime.

TRIGGER POINT DRY NEEDLING

Trigger point dry needling is a skilled intervention that utilizes a solid filament needle to penetrate the skin and underlying tissues to treat muscular, neural and other connective tissues for the evaluation and management of neuro-musculoskeletal conditions, pain, movement impairments and disability. A 2017 systematic review of 15 studies suggests that dry needling is effective in the short term for pain relief, increases range of motion and improves quality of life when compared to no intervention, sham or placebo.[199]

TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS)

TENS treats pain by delivering small electrical impulses through electrodes that flood pain receptors in the body, reducing their ability to transmit pain signals to the brain. Some good-quality systematic reviews suggest that TENS is effective for musculoskeletal and postoperative pain.[200-203]

Alternatives to Opioids for the Treatment of Pain continued

ALTO Protocols

It is encouraged that all OEM clinicians develop and implement ALTO programs and prepare opioid-free pain pathways for managing the following conditions:

- Musculoskeletal pain
- Post-traumatic headache
- Neuropathic pain
- Outpatient management of extremity fracture or joint dislocation after reduction

It is recommended that all providers be proficient in ALTO protocols by learning new skills or developing an appropriate referral network to access these services.

MUSCULOSKELETAL PAIN

NOTE: This includes sprains, strains, low back pain (with or without a radicular component), neck pain, joint and soft tissue pain, epicondylitis, bursitis, tendonitis, etc.

Musculoskeletal injuries are the most common type of workers' compensation claim. Research has shown that treatment of musculoskeletal injuries with nonopioid analgesics is more effective than treatment with opioids. Safety profiles for nonopioid alternatives are far superior to that of opioids, and long-term use is associated with improved outcomes.[204] Thus, it is advised that first-line pharmacologic treatment for these types of injuries be nonopioid medications such as acetaminophen and/or NSAIDs.

***General Guidelines*:**

- Continued activity is encouraged during treatment of all musculoskeletal pain, including return to work (with medically appropriate work restrictions as needed), activities of daily living and endurance/strengthening exercises.
- A multimodal treatment approach using acetaminophen, NSAIDs, topical medications, trigger-point injections/ dry needling and other non-pharmacologic interventions is recommended for musculoskeletal pain.
- For pain with a neuropathic component, consider gabapentin or duloxetine.
- For pain with a tension component, consider a muscle relaxant.

Uncomplicated Musculoskeletal Pain		
	Pharmacologic Treatment Options	**Non-Pharmacologic Treatment Options**
Backand Neck Pain[6]	Acetaminophen 1000 mg PO q6h **+/-** Ibuprofen 400 mg PO q6h **+/-** Diclofenac 1.3% patch TD BID ***OR*** Diclofenac 1% gel 4 g QID **+/-** Cyclobenzaprine 5 mg PO q8h ***OR*** methocarbamol 750 mg tablet PO q4h **+/-** Lidocaine 4-5% patch TD q24h (up to 3 daily, remove after 12 hours)	Therapeutic exercise **+/-** Passive modalities, such as massage, acupuncture, manipulation, trigger point injections, dry needling, TENS, ice/heat

Alternatives to Opioids for the Treatment of Pain continued

Uncomplicated Musculoskeletal Pain (continued)		
	Pharmacologic Treatment Options	**Non-Pharmacologic Treatment Options**
Sprains, Contusions, Tendonitis and Bursitis	Acetaminophen 1000 mg PO q6h **+/-** Ibuprofen 400 mg PO q6h **+/-** Diclofenac 1.3% patch TD BID ***OR*** Diclofenac 1% gel 4 g QID **+/-** Lidocaine 4-5% patch TD q24h (up to 3 daily, remove after 12 hours) **+/-** Steroid injection of 30-60 mg prednisone equivalent for bursitis/joint pain (No more than 3 injections/area or 4 in a lifetime)	Therapeutic exercise **+/-** Passive modalities, such as massage, acupuncture, manipulation trigger point injections, dry needling, TENS, ice/heat, compression/elevation **+/-** splinting/orthotics *Immobilization is not recommended* ***EXCEPT*** *in fractures or dislocations*

Alternatives to Opioids for the Treatment of Pain continued

NEUROPATHIC PAIN

Neuropathic pain consisting of hyperalgesia and allodynia can result from a variety of causes including metabolic or autoimmune disorders, viral infections and injuries to neural tissue.[205] While pharmacologic treatments are available, they are often limited in use due to their side effect profiles. For this reason, agents to treat neuropathic pain are often started at low doses then titrated up based on clinical response and tolerability. Such medications include gabapentin, pregabalin, amitriptyline, nortriptyline, duloxetine and venlafaxine. Starting doses are provided in the table below.

General Guidelines:

- A multimodal treatment approach using acetaminophen, NSAIDs, topical medications, anticonvulsants, antidepressants, trigger-point injections/dry needling and non-pharmacologic interventions is recommended for neuropathic pain.

Neuropathic Pain	
Pharmacologic Treatment Options	**Non-Pharmacologic Treatment Options**
Acetaminophen 1000 mg PO q6h ***+/-*** Ibuprofen 400 mg PO q6h ***+/-*** Diclofenac 1.3% patch TD BID OR Diclofenac 1% gel 4 g QID ***+/-*** Lidocaine 4-5% patch TD q24h (up to 3 daily, remove after 12 hours) ***AND*** Gabapentin 300 mg PO TID or qhs ***OR*** Amitriptyline or nortriptyline 25 mg PO qhs ***OR*** Pregabalin 75 mg PO BID or qhs ***OR*** Duloxetine 30 mg qd ***OR*** Venlafaxine ER 37.5 mg - 75 mg qd	Therapeutic exercise ***+/-*** Passive modalities, such as massage, acupuncture, manipulation, trigger point injections, dry needling, TENS, ice/heat

Alternatives to Opioids for the Treatment of Pain continued

POST-TRAUMATIC HEADACHE

(Headache attributed to trauma or injury to the head and/or neck)

NOTE: The American Academy of Neurology and the American Headache Society do not recommend the use of opioids for headache treatment except in extraordinary cases in which other agents are contraindicated (e.g., pregnancy). Numerous studies demonstrate that opioids are not as effective as standard treatments for the management of headaches and can render acute migraine medications less efficacious (e.g., triptans). Opioid use can, in fact, promote chronic migraine and medication overuse headaches and increase anxiety, disability and depression in patients who suffer from migraine pain.[53,54,56,59]

General Guidelines

- For post-traumatic headache, a multimodal treatment approach that includes the administration of antiemetics, acetaminophen, NSAIDs, valproic acid, magnesium and triptans is recommended. OEM clinicians may consider cervical or trapezius trigger-point injection or dry needling.[206] Patients may benefit from CBT, mindfulness-based stress reduction, massage, acupuncture, breathing and relaxation exercises, biofeedback and physical therapy.

Treatment Options for Post-Traumatic Headache		
Pharmacologic Treatment Options	**Pharmacologic Options for Prevention**	**Non-Pharmacologic Treatment Options**
Sumatriptan 100 mg PO **+/-** Acetaminophen 1000 mg q6h **+/-** Naproxen 500-550 mg BID OR Ibuprofen 400 mg PO q6h **+/-** Metoclopramide 10 mg PO q6h	Amitriptyline 25 mg PO qhs ***OR*** Nortriptyline 25 mg PO qhs ***OR*** Propranolol 40 mg PO BID ***OR*** Divalproex DR 250 mg PO BID ***OR*** Divalproex ER 500 mg PO qd ***OR*** Topiramate 25 mg PO qhs ***OR*** Magnesium supplementation 600 mg PO qd	CBT **+/-** mindfulness-based stress reduction **+/-** massage **+/-** acupuncture **+/-** breathing and relaxation exercise **+/-** biofeedback **+/-** physical therapy

Alternatives to Opioids for the Treatment of Pain continued

EXTREMITY FRACTURE OR JOINT DISLOCATION

NOTE: Most fractures and dislocations that have been appropriately reduced can be successfully managed in the subacute phase with nonopioid medications.

General Guidelines

- While immobilization is warranted in the settings of fracture or joint dislocations for appropriate time periods based on diagnosis, prolonged immobilization is not recommended as it may increase the risk of adhesions and other complications.
- For outpatient care of an extremity fracture or joint dislocation following reduction, NSAIDs and acetaminophen are first-line therapies.

Treatment Options for Previously Reduced Extremity Fracture or Dislocation	
Pharmacologic Treatment Options	**Non-Pharmacologic Treatment Options**
Acetaminophen 1000 mg PO q6h **+/-** Ibuprofen 400 mg PO q6h **+/-** Diclofenac 1.3% patch TD BID ***OR*** Diclofenac 1% gel 4 g QID **+/-** Lidocaine 4-5% patch TD q24h (remove after 12 hours)	Immobilization for appropriate time period, followed by therapeutic exercise **+/-** passive modalities as indicated, such as massage, acupuncture, manipulation, trigger point injections, dry needling, TENS, ice/heat

Harm Reduction

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Colorado Hospital Association

COLORADO
MEDICAL SOCIETY

COLORADO
CONSORTIUM
for Prescription Drug Abuse Prevention

Harm Reduction

Harm reduction is a set of practical strategies and ideas aimed at reducing negative consequences associated with illicit drug use. The harm reduction approach is predicated on respecting patients and their choices, removing stigma and meeting them where they are without judgment. In an ideal world, patients would discontinue harmful behaviors as the result of logical physician counseling. The simplistic directive to "stop using because you may die" or suffer a complication is ineffective and often deleterious to the physician-patient relationship. Clinicians best serve patients who use illicit substances by building patient trust, which can be accomplished with a harm reduction approach.

The primary tenet of harm reduction in the occupational medicine setting is the appropriate prescribing of naloxone. A potent short-acting opioid antagonist, naloxone acts by outcompeting opioids at the mu-opioid receptor, thereby reversing an acute overdose. Naloxone has become a life-saving medication for patients taking opioids, as well as their families and caregivers. In April 2018, the U.S. Office of the Surgeon General issued an advisory urging health care systems to increase access to naloxone, joining the World Health Organization (WHO), the CDC and the American Medical Association (AMA) in advocating for wider availability of naloxone. The advisory states, "For patients currently taking high doses of opioids as prescribed for pain, individuals misusing prescription opioids, individuals using illicit opioids such as heroin or fentanyl, health care practitioners, family and friends of people who have OUD, and community members who come into contact with people at risk for opioid overdose, knowing how to use naloxone and keeping it within reach can save a life."[207]

By a very conservative estimate based on criteria for people at risk of opioid overdose from the U.S. Surgeon General and the WHO, as many as 250,000 Coloradans are at some level of risk for overdose by virtue of OUD, chronic prescriptions of high-dose opioids and medical or substance use comorbidities.[207] Many more Coloradans, of course, have contact with people at risk. A 2018 national survey by the American Psychiatric Association found that nearly one in three people report knowing someone who is or has been addicted to opioids.[208] While the risk is widespread, the antidote is not. Though the rate of naloxone prescription in workers' compensation claims has steadily increased since 2017, as of 2018 fewer than 0.5% of opioid claims have a prescription for naloxone.[39] Despite their effectiveness, take-home naloxone programs are present in fewer than 10% of U.S. counties and only 12% of counties with the highest opioid overdose rates.[209] The same is true in Colorado, where access to naloxone is limited even in the Colorado counties with the highest rates of opioid overdose.[210] Simply put, the majority of patients who are at risk for overdose do not have naloxone.

Practice Recommendations

1. **It is encouraged that OEM clinicians prescribe naloxone to high-risk patients and inform patients about the availability of naloxone by standing order in most Colorado pharmacies.**
   a. The CDC recommends that individuals meeting any of the following criteria be prescribed naloxone and educated in its use:[211]
      i. Current or past illicit drug use (including opioids),
      ii. Suspected OUD (of any severity),
      iii. Receiving opioids at doses of 50 morphine milligram equivalent (MME) per day or higher,
      iv. Receiving an opioid at any dose concurrent with another CNS depressant,
      v. History of SUD,
      vi. History of opioid overdose or
      vii. At risk of witnessing an opioid overdose.

b. OEM clinicians can provide patients naloxone through direct distribution, by writing a prescription or through referral to a community organization or pharmacy with a standing order agreement. It is suggested that the patient and family be provided education on overdose prevention and the proper use of naloxone.
   i. It is recommended that patients be informed about the wide availability of naloxone and where it can be obtained.
   ii. It is recommended that patients, families and caregivers be informed that anyone can obtain naloxone at most Colorado pharmacies.
   iii. Find participating pharmacies at stoptheclockcolorado.org.
   iv. Naloxone is available in several forms, the easiest of which to use is the nasal spray formulation.
   v. It is recommended that education regarding overdose and naloxone use be provided to all patients prescribed naloxone. A toolkit to prepare practitioners can be found at https://store.samhsa.gov/system/files/sma18-4742.pdf. Other resources for clinicians regarding prescribing, dispensing or educating regarding naloxone can be found at www.prescribetoprevent.org.
c. OEM clinicians are encouraged to support establishment of workplace naloxone programs where appropriate. The National Institute for Occupational Safety and Health's *Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers* is an excellent resource for clinicians and employers **(SEE APPENDIX VIII)**.[212]

2. OEM clinicians are encouraged to be familiar with Colorado's regulations pertaining to naloxone. State laws eliminate liability risk for prescribing the drug, encourage Good Samaritan reporting of overdose and make naloxone legal and readily available over the counter in most pharmacies.
   a. Standing Orders for Naloxone (Colorado SB 15-053): Any medical professional with prescriptive authority can write a standing order for naloxone that can be dispensed by other designated individuals.
      i. With these standing orders, pharmacists and harm reduction organizations can now provide naloxone to any person who requests it. Those who might particularly benefit from having naloxone include:
         1. A family member, friend or other person in a position to assist a person at risk of overdose
         2. An employee or volunteer of a harm reduction organization
         3. A first responder
         4. An individual at risk of overdose
      ii. Additional resources: https://www.colorado.gov/cdphe/naloxoneorders
   b. Colorado State-Specific Policy Summaries Third-Party Naloxone Bill (Colorado SB 13-014). Passed in 2013, the bill removes the following:
      i. Civil liability for prescribers
      ii. Criminal liability for prescribers
      iii. Civil liability for layperson administration
      iv. Criminal liability for layperson administration
   c. Colorado 911 Good Samaritan Law (Colorado Revised Statutes [CRS] §18-1-711) and Immunity When Overdoses Reported (Colorado HB 16-1390):
      i. Samaritan acting in good faith
      ii. No arrest or prosecution for possession
      iii. No arrest or prosecution for paraphernalia and protection from other crimes

Harm Reduction continued

3. **It is encouraged that patients with OUD be managed without judgment; addiction is a life-threatening medical disease and not a moral failing. Clinicians should endeavor to meet patients where they are, infusing empathy into the patient-clinician relationship. Behavioral changes can be encouraged with understanding and patience, incorporating patients' own motivations and goals.**
   a. OEM clinicians are encouraged to seek out educational opportunities to better understand addiction and end the stigma associated with OUD.
   b. A harm reduction perspective, as outlined below, offers a pragmatic approach to mitigate the risks associated with OUD, and in particular with intravenous (IV) opioid use, without casting blame or alienating those who seek help.
   c. Allow patients to seek treatment—or not—at their own pace. Pressuring or forcing patients into treatment for SUD is usually ineffective, violates patient autonomy and creates an adversarial rather than therapeutic relationship.

4. **If injection drug use is known or suspected, it is recommended that OEM clinicians coordinate with the patient's primary care provider and ensure appropriate referral to treatment by an addiction medicine specialist and, where available, support from harm reduction agencies.**
   a. Treatment of underlying SUD is the most direct way to assure a patient's long-term health and to prevent or minimize the harms associated with injection drug use.
   b. Addiction medicine clinicians are trained to help patients access care for SUD, initiate medication for addiction treatment (MAT) where appropriate, educate patients on MAT and educate people who inject drugs (PWID) on safer injection practices **(SEE IDENTIFICATION AND REFERRAL OF PATIENTS WITH OPIOID USE DISORDER)**.
      i. OpiRescue, a free mobile application and website (https://opirescue.com/), provides an up-to-date MAT treatment locator. It ranks providers based on the distance the patient lives from the provider and gives each provider's treatment options (methadone, buprenorphine or naltrexone). Additionally, the Substance Abuse and Mental Health Services Administration (SAMHSA) provides a directory of MAT providers (https://findtreatment.samhsa.gov).

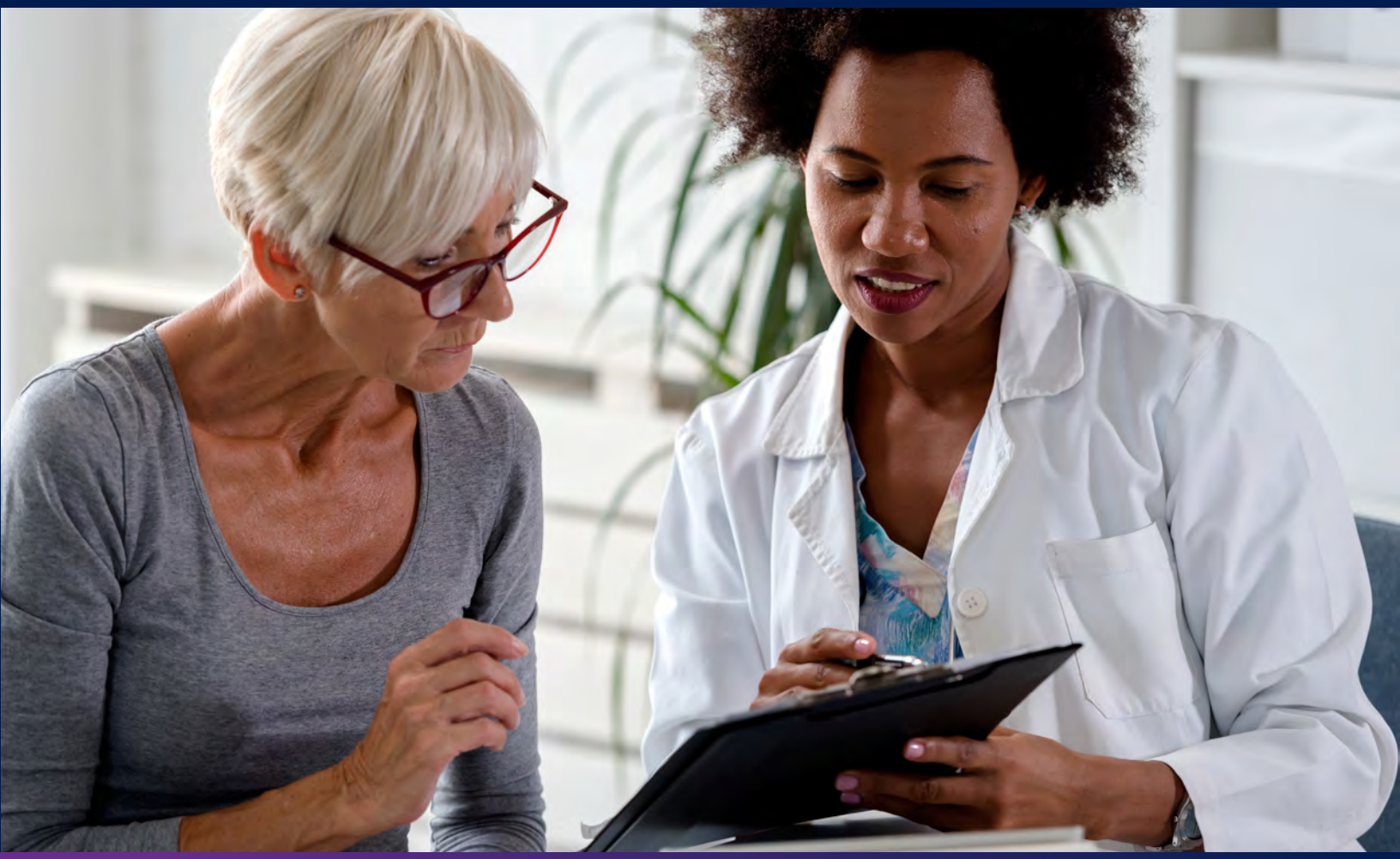
(TABLE 9)

Counseling Patients with Opioid Use Disorders

DO	DON'T
• Use respectful language when discussing patients' drug use. • Assess patients' readiness to change. • Respect patients' decisions regarding treatment. • Encourage patients to be honest with providers about any drug use. • Make information available that is specific to the needs of patients.	• Don't use negative terminology such as "addict" or "junkie." • Don't tell patients they are ruining their lives or are "going to die." • Don't attempt to pressure patients to begin substance abuse treatment. • Don't make assumptions about the mental or physical health of patients with OUD. • Don't let the stigma associated with injection drug use affect how patients are treated.

Harm Reduction continued

c. Consultation with a behavioral health clinician as appropriate and available may be of benefit to some patients.
d. Ideally, all patients who inject drugs will be referred to local harm reduction and/or syringe access programs, where they can obtain sterile injection materials and support services such as counseling, HIV/hepatitis testing and treatment referrals **(SEE APPENDIX XII)**.
    i. In 2000, the AMA adopted a position strongly supporting the efficacy of these programs when combined with addiction counseling.[213]
    ii. An online list of local syringe access/harm reduction programs can be found through the North American Syringe Exchange Network **(APPENDIX XII, MAP AND LISTING OF SYRINGE ACCESS PROGRAMS IN COLORADO [UPDATED MARCH 2020])**.
    iii. The Guide to Getting Off Right is a good resource for safe injection practices written by and for PWID, with involvement of medical advisors https://harmreduction.org/wp-content/uploads/2011/12/getting-off-right.pdf.
e. Providing effective care for PWID requires a significant investment of time, effort and specialized knowledge. OEM clinicians are encouraged to develop familiarity with harm reduction principles and practice in order to perform effective interventions and referrals. Care of these very vulnerable patients will usually require OEM clinicians to establish referral networks and to enlist appropriate resources and supports as available to meet patients' needs.
f. It is recommended that OEM clinicians consider the potential impact of an active OUD on the patient's ability to work in a safety-sensitive position and work with the patient to develop the most appropriate plan to ensure workplace safety.



Identification and Referral of Patients with Opioid Use Disorder

c|h|a
Colorado Hospital Association

COLORADO
MEDICAL SOCIETY

COLORADO
CONSORTIUM
for Prescription Drug Abuse Prevention

Identification and Referral of Patients with Opioid Use Disorder

Medicine now recognizes that OUD is a chronic, relapsing medical illness. Like patients with other chronic illnesses, patients diagnosed with OUD need ongoing, evidence-based care. The gold standard for treatment of OUD employs one of three FDA-approved medications: methadone, buprenorphine or naltrexone. Overwhelming evidence demonstrates that patients receiving these medications for addiction treatment have lower morbidity and mortality, higher treatment retention rates and lower rates of both opioid-related and non-opioid-related hospital admissions.[214] While a patient receiving MAT with methadone or buprenorphine will be physiologically dependent, it is important to recognize that opioid dependence and opioid addiction are different entities; patients may be physically dependent on buprenorphine or methadone, but when maintained on these medications the risks and behaviors seen in addiction are avoided. People receiving MAT can lead fulfilling, productive lives while maintained on medication. In stark contrast, abstinence-oriented treatments are ineffective for the treatment of OUD and have relapse rates of greater than 80%.[215] It is crucial that OEM clinicians refer their patients with OUD to care that is evidence-based, effective and safe.

Recognizing that OUD is a treatable disease, OEM clinicians are encouraged to coordinate treatment for employees in need of care, whether or not an employee's OUD is work related. The stigma and fear of job loss associated with OUD and SUD more generally may lead many patients to conceal their disease, so it is vital that OEM clinicians be aware of the prevalence of OUD in the working-age population. In some industries, including construction, mining, entertainment and other services, between one and 1.6 in 100 workers have OUD; the average rate of OUD in workers in all sectors is estimated to be eight per 1,000. It is important to realize that the majority of adults with OUD are in the workforce, as more than two-thirds of adults with OUD are employed.[37] Of the estimated 2.1 million people in the United States with OUD, fewer than 20% receive evidence-based treatment with MAT.[216] The consequences of this treatment gap are substantial, including dramatically increased risks of overdose injury and death, transmission of HIV, viral hepatitis, invasive bacterial infections and a range of risky and criminal behaviors.

In the workplace, the consequences of untreated OUD have further important implications. Workers with OUD miss 18.5 more days of work per year than the general workforce and have more frequent job turnover than the general population, with only 58% of workers with OUD remaining with one employer in the previous year.[217] The health care costs associated with OUD—and in particular with nonmedical use of prescription opioids—are substantial **(FIGURE 7)**. A 2017 survey by the National Safety Council found that 70% of employers report the negative impacts of prescription drug misuse and OUD, which include absenteeism, injuries, accidents and overdoses in the workplace.[218]

OEM clinicians may further embrace their role in preventive care by addressing the stigma surrounding OUD and SUD more generally in the workplace. The workplace is a point of daily contact for many Coloradans with untreated OUD, and OEM clinicians are encouraged to advocate for workplace policies, practices and initiatives that facilitate referral of patients with OUD to care. They can help ensure that workers receiving MAT are maintained on their regimens and support the enforcement of legal protections for workers with OUD. An adversarial, punitive approach to OUD and other SUDs in the workplace reinforces the stigma that is an enormous barrier to care for these vulnerable patients. Finally, it is worth noting that while the costs associated with workers with OUD are triple or more than those of workers without, workers in recovery are among the most productive and reliable in the workforce, with rates of absenteeism and turnover lower than those of workers without a history of SUD.[37] OEM clinicians have a vital role to play in ensuring that workers with untreated OUD receive care; in doing so, they serve their patients, their communities and workplaces across Colorado.

Identification and Referral of Patients with Opioid Use Disorder
continued

Making a causality determination on the work-relatedness of an OUD may be complex and challenging to OEM clinicians. Patients with OUD (and/or other SUDs) are encountered in three ways in the workers' compensation system. First, a worker may have an active SUD at the time of injury, in which case the party responsible for treatment of the SUD may be outside of the workers' compensation system. However, if there is no other paying party and the treatment is necessary in order to recover from the current workers' compensation injury, treatment may be covered by the workers' compensation payor. The second possibility is that a patient who is currently in recovery from SUD at the time of the workers' compensation injury relapses as a result of the medications that are prescribed by the treating provider. This relapsed patient will manifest SUD characteristics and symptoms consistent with the diagnosis. The third possibility involves an individual with no history of SUD who is injured as a result of an occupational accident and subsequently develops an addiction to the medications prescribed. This is most likely to occur with the use of opioids but could possibly occur with use of other medications such as benzodiazepines or specific muscle relaxants such as carisoprodol. Careful documentation of the mechanism of injury, patient medical history and examination will aid in the determination of work-relatedness. In all cases, careful justification of the clinician's medical causality determination will be pivotal in the ultimate determination of compensability.

(FIGURE 7)

Employer Health Care Costs Associated with Substance Use DisordersD

Employers' per capita health care costs.

SOURCE: A Substance Use Cost Calculator for US Employers With an Emphasis on Prescription Pain Medication Misuse[37]

Identification and Referral of Patients with Opioid Use Disorder
continued

Practice Recommendations

1. **It is advised that OEM clinicians screen all patients for substance use disorders.**
   a. A non-stigmatizing, medically accurate, empathic approach to the patient interview is most effective in eliciting an accurate substance use history. The stigma surrounding OUD and other SUDs prevents many patients from providing a full history.
      i. While some patients present with a clear diagnosis of OUD, many patients with OUD will conceal their disease. Between 8-29% of hospitalized patients are estimated to have a non-alcohol SUD, but only 64% of these patients are identified as having SUD by their hospital treatment teams.[219]
      ii. The principles and techniques of motivational interviewing can be powerful tools when engaging with patients with SUD. More information about motivational interviewing can be accessed at https://www.integration.samhsa.gov/clinical-practice/motivational-interviewing.
   b. Providers should consider using the Screening, Brief Intervention, and Referral to Treatment (SBIRT) protocol to identify and address risk for substance misuse and SUD in all patients when prescribing opioids.
      i. The screening component of an SBIRT protocol can be any validated screening instrument. Colorado SBIRT (http://www.sbirtcolorado.org/) is an excellent resource for clinicians.
      ii. Properly documented substance abuse screening is covered under the Colorado Division of Workers' Compensation Medical Fee Schedule (CPT code 99408 or 99409).
      iii. When OUD is suspected, use of an opioid-specific screening tool like the Rapid Opioid Dependence Screen (RODS) should be considered to further evaluate patients for OUD. The RODS can be administered and scored in two to three minutes. **(SEE APPENDIX III)**
      iv. OEM clinicians are advised to document the results of a validated SUD screening instrument before prescribing any scheduled substance.
   c. Laboratory data, medical records and the PDMP are not reliable screening instruments for OUD.
      i. Some opioids will not be detected on routine urine toxicology. Urine screening can detect metabolites of morphine and heroin within three days of last use and sometimes longer in chronic users. Not all opioids are detected on routine urine screening with immunoassays. Use of synthetic opioids (oxycodone, hydrocodone, hydromorphone, fentanyl, tramadol) may result in a false negative result; these substances require specific screening. False positive tests can be seen in patients ingesting poppy seeds or taking medications such as quinolones and rifampin.
      ii. It is encouraged that PDMP monitoring be routinely performed, although many patients with OUD will not be flagged by the PDMP. Among non-medical users of opioids, over 70% acquire opioids from friends or family or illicit purchase.[98]

2. **It is recommended that OEM clinicians be well versed in recognizing and diagnosing OUDs.**
   a. OUD and SUD more generally are poorly understood by many medical professionals. The gap in knowledge begins in medical school, where SUD is insufficiently addressed. Despite the fact that overdose is the leading cause of accidental death in Americans under the age of 50, as of 2018 fewer than 10% of medical schools had a formal addiction curriculum.[220]
   b. OUD as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), replaces "opioid addiction" and "opioid dependence" as a diagnostic entity. The DSM-5 defines OUD using the 11 criteria listed in **TABLE 5**. In order to be diagnosed with OUD, a patient must meet two of the 11 criteria within a 12-month period. Two to three criteria indicates mild OUD, 4-5 criteria indicates moderate OUD and 6-7 indicates severe OUD.
   c. Of note, physiologic dependence represents only two of the 11 criteria used to diagnose OUD. Patients receiving COT for chronic pain often exhibit pharmacological dependence but would not necessarily be considered to have OUD.

Identification and Referral of Patients with Opioid Use Disorder
continued

d. Many medical professionals fail to recognize the distinction between dependence and addiction. Addiction includes both physiologic dependence on a substance and the behaviors that surround the use of that substance. These behaviors include the 4 C's of addiction: loss of Control, use despite negative Consequences, Compulsive use and Cravings.

3. **OEM clinicians should be aware that MAT with buprenorphine, methadone or naltrexone is the evidence-based treatment for OUD. It is recommended that OEM clinicians be familiar with the basic principles of addiction treatment with those medications.**
   a. MAT using buprenorphine, methadone or naltrexone is the cornerstone of the treatment of OUD. A Cochrane review found the addition of counseling to medication conferred no added benefit; MAT plays a central, not adjunctive, role in the treatment of OUD.[222]
   b. OEM clinicians are encouraged to be familiar with the three medications approved by the FDA for the treatment of OUD (Table 6). Methadone is a full opioid agonist and buprenorphine is a partial agonist. Naltrexone, in contrast, is a full opioid antagonist.
   c. Most patients with OUD are not adequately treated. As of 2019, the Colorado Office of Behavioral Health estimates a treatment gap of approximately 70%, with only 30% of patients with OUD receiving treatment.

(TABLE 5)

Summarized DSM-5 Diagnostic Categories and Criteria for OUD

CATEGORY	CRITERIA
Impaired Control	• Opioids used in larger amounts or for longer than intended • Unsuccessful efforts or desire to cut back or control opioid use • Excessive amount of time spent obtaining, using or recovering from opioids • Craving to use opioids
Social Impairment	• Failure to fulfill major role obligations at work, school, or home as a result of recurrent opioid use • Persistent or recurrent social or interpersonal problems that are exacerbated by opioids or continued use of opioids despite these problems • Reduced or given up important social, occupational, or recreational activities because of opioid use
Risky Use	• Opioid use in physically hazardous situations • Continued opioid use despite knowledge of persistent physical or psychological problem that is likely caused by opioid use
Pharmacological Properties	• Tolerance as demonstrated by increased amounts of opioids needed to achieve desire effect; diminished effect with continued use of the same amount • Withdrawal as demonstrated by symptoms of opioid withdrawal syndrome; opioids taken to relive or avoid withdrawal

SOURCE: Psychiatric Times, DSM-5[221]

Identification and Referral of Patients with Opioid Use Disorder
continued

d. Like many medical conditions, OUD is a chronic, relapsing disease. It is encouraged that OEM clinicians provide patient education about OUD and its treatment in an accurate and compassionate manner.
   i. Patients with OUD benefit from learning that OUD is a chronic disease in which the brain is changed.
   ii. Analogies with other chronic diseases like diabetes may help providers communicate the idea that OUD is a chronic disease in which biochemical derangements, behavior and medications contribute to disease management and recovery.
   iii. Patients and clinicians alike should be educated that relapse in patients with OUD receiving MAT is common, manageable and not a contraindication to future trials of treatment.
   iv. MAT for OUD can be maintained for years or be a lifelong drug, and it is advised that buprenorphine or methadone for addiction treatment not be prematurely tapered.
   v. Patients on appropriate therapeutic doses of methadone or buprenorphine are cognitively normal and function normally in society.
   vi. MAT is not substituting one addiction for another. While patients may continue to have a physiologic dependence on buprenorphine or methadone, they do not exhibit the behavioral hallmarks of addiction. MAT substitutes dependence for addiction and in so doing decreases morbidity and mortality while improving quality of life.

(TABLE 6)

Characteristics of Medication for Addiction Treatment (MAT)

Characteristic	Methadone	Buprenorphine	Naltrexone
Brand names	Dolophine, Methadose	Subutex, Suboxone, Zubsolv	Depade, ReVia, Vivitrol
Class	Agonist (fully activates opioid receptors	Partial agonist (activates opioid receptors but produces a diminished response even with full occupancy)	Antagonist (blocks the opioid receptors and interferes with the rewarding and analgesic effects of opioids)
Use and effects	Taken once per day orally to reduce opioid cravings and withdrawal symptoms	Taken orally or sublingually (usually once a day) to relieve opioid cravings and withdrawal symptoms	Taken orally or by injection to diminish the reinforcing effects of opioids (potentially extinguishing the association between conditioned stimuli and opioid use)
Advantages	High strength and efficacy as long as oral dosing (which slows brain uptake and reduces euphoria) is adhered to; excellent options for patients who have no response to other medications	Eligible to be prescribed by certified physicians, which eliminates the need to visit specialized treatment clinics and thus widens availability	Not addictive or sedating and does not result in physical dependence; a recently approved depot injection formulation, Vivitrol, eliminates need for daily dosing
Disadvantages	Mostly available through approved outpatient treatment programs, which patients must visit daily	Subutex has measurable abuse liability; Suboxone diminishes this risk by including naloxone, an antagonist that induces withdrawal if the drug is injected	Poor patient compliance (but Vivitrol should improve compliance); initiation requires attaining prolonged (e.g., 7-day) abstinence, during which withdrawal, relapse, and early dropout may occur

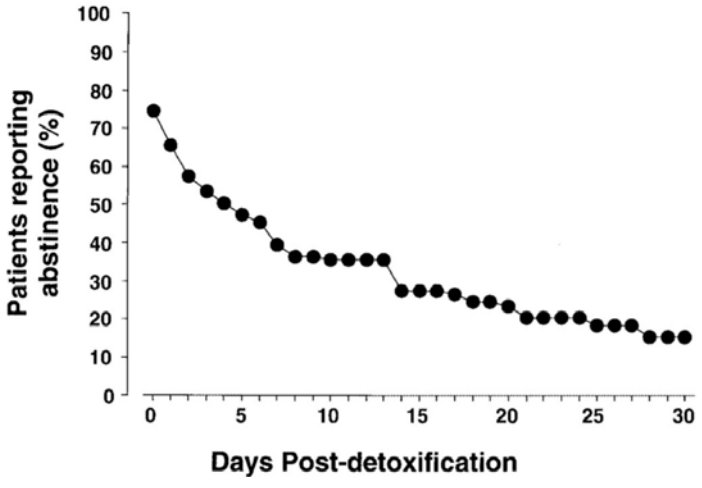
SOURCE: NEJM[223]

Identification and Referral of Patients with Opioid Use Disorder
continued

4. **"Detox" and other abstinence-oriented therapies are ineffective for the treatment of OUD, and OEM clinicians are discouraged from endorsing these treatments for OUD.**
   a. Detox and abstinence-based therapies for the treatment of OUD have unacceptably high failure rates, with markedly elevated risks of relapse and overdose death **(FIGURE 8)**.[224]
      i. The neurophysiology of opioid dependence is such that willpower is rarely sufficient to tolerate opioid withdrawal or override craving for opioids.
      ii. Abstinence-oriented treatments have been shown to be not only ineffective for the treatment of OUD but also dangerous, as they increase the risk of overdose when patients relapse. Relapse rates are greater than 80% where treatment is abstinence based.[225,226]
      iii. A study of IV opioid users comparing detoxification versus buprenorphine treatment highlights the potential harms of abstinence and detoxification care versus MAT. In this cohort, 0% of patients who underwent abstinence-based therapy remained in treatment for over 90 days, and 20% died. In contrast, in the group of patients receiving buprenorphine, 75% remained in treatment at one year, and no patients died **(FIGURE 9)**.[226]
   b. OEM clinicians are encouraged to educate patients, families and caregivers on the high failure rates of "detox" and abstinence-oriented therapies and address any misconceptions and stigma surrounding MAT.
   c. If abstinence is desired by the patient, it is best to achieve this over the course of months or years and through a slow, cautious tapering process.
      i. It is still unknown if discontinuation is a safe, appropriate goal as several studies show relapse rates consistently surpassing 50% at one month after discontinuation of buprenorphine maintenance therapy.[227-229]
      ii. It is recommended that the choice to taper and/or discontinue MAT be a shared decision between the patient and an addiction medicine specialist.

(FIGURE 8)

Inpatient Opioid Detoxification Outcomes (Heroin)

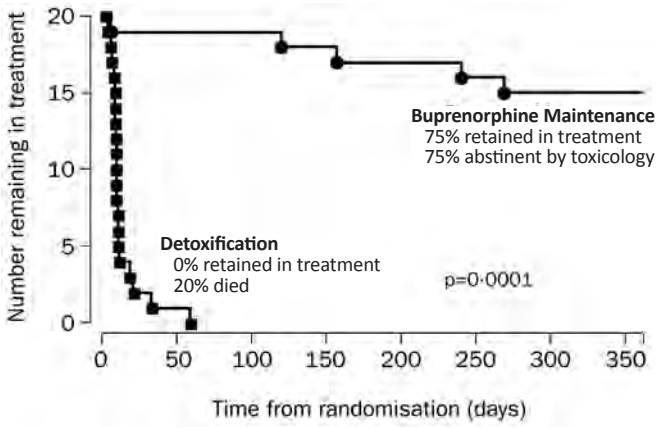


SOURCE: Chutuape MA, Jasinski DR, Fingerhood MI, Stitzer ML. One-, three-, and six-month outcomes after brief inpatient opioid detoxification. The American Journal of Drug and Alcohol Abuse. 2001;27(1):19-44.[224]

Identification and Referral of Patients with Opioid Use Disorder
continued

(FIGURE 9)

One-Year Retention Detox vs Buprenorphine Maintenance



SOURCE: Kakko J, Svanborg KD, Kreek MJ, Heilig M. 1-year retention and social function after buprenorphine-assisted relapse prevention treatment for heroin dependence in Sweden: a randomized, placebo-controlled trial. Lancet. 2003;361(9358):[662-668]

5. **It is advised that occupational medicine clinicians ensure that any patient with OUD receives MAT, whether their OUD is work-related or not.**
   a. It is encouraged that any patient with work-related OUD be referred to an addiction medicine specialist experienced in utilizing MAT.
      i. If an addiction medicine specialist is not geographically accessible for referral, OEM clinicians may consider initiation of treatment under the direction of and consultation with an addiction medicine specialist via telehealth.
      ii. OEM clinicians who are trained and waivered to prescribe buprenorphine may manage care of patients with work-related OUD without assistance from an addiction medicine specialist.
   b. If a non-work-related OUD is suspected, it is recommended that the OEM clinician actively coordinate a referral for care from the patient's primary care team.
      i. It is recommended that OEM clinicians be familiar with MAT providers in their area in order to assist primary care providers with successful referrals to appropriate evidence-based care.
         1. OpiRescue, a free mobile application and website (https://opirescue.com/), provides an up-to-date MAT treatment locator. It ranks providers based on the distance the patient lives from the provider and gives each provider's treatment options (methadone, buprenorphine or naltrexone).
         2. Additionally, SAMHSA (https://findtreatment.samhsa.gov) provides a directory of MAT providers.

Careful justification and documentation of the clinician's medical causality determination will be pivotal in the ultimate determination of compensability.

Identification and Referral of Patients with Opioid Use Disorder
continued

6. **It is recommended that injured workers who are receiving methadone or buprenorphine while being treated for an occupational injury be maintained on their MAT regimens.**
   a. It is suggested that all patients receiving methadone or buprenorphine be continued on their medication even in the setting of acute pain, chronic pain or planned surgical intervention.
      i. Continuing these medications improves pain control, reduces the use of additional opioid analgesia and reduces the risk of relapse.[230,231]
      ii. Discontinuation of MAT in these settings is strongly discouraged, as it may complicate clinical assessment, increase risk of relapse and increase discomfort during reinduction.[1,2]
   b. It is recommended that OEM clinicians verify a patient's methadone or buprenorphine dose and ensure that the patient continues addiction treatment while receiving care for a work injury.
   c. It is recommended that providers ensure that the MAT provider is aware of the work injury and the treatment plan so that continuity of care is maintained.
   d. All patients should be counseled that treatment may not alleviate all pain and that manageable pain can be a useful guide to assessment and recovery.
   e. For guidance in pain management in patients receiving MAT, **SEE APPENDIX IX, MANAGING ACUTE PAIN FOR PATIENTS ON MAT.**
   f. In some cases, referral to and/or co-management by an additional addiction medicine specialist under the workers' compensation claim may be appropriate for patients receiving addiction treatment at the time of their injury. In other cases, co-management with the patient's existing addiction medicine clinician may be covered as part of a workers' compensation claim.

7. **It is advised that injured workers receiving MAT be provided adequate analgesia with ALTOs and, if required, opioid agonists in consultation with an addiction medicine specialist.**
   a. It is recommended that multimodal nonopioid analgesia be the first line of treatment for all patients, including those on MAT.
   b. The use of MAT will often alter the management of pain in the occupational medicine clinic.
   c. Daily dosing of buprenorphine or methadone is generally inadequate for analgesia.
      i. The analgesic effects of both buprenorphine and methadone occur early in dosing and then wear off, so splitting doses provides superior analgesia.[232,233] Splitting dosing of buprenorphine or methadone to three times a day can leverage the short-lived analgesia that follows dosing, though this change will only provide modestly improved analgesia.
      ii. Though buprenorphine is a partial agonist, it does not block the analgesic effects of opioids.[227,234] (The naloxone present in combination products [e.g., Suboxone] is added as a deterrent to IV use; it is not bioavailable with sublingual use.)
   d. It is encouraged that psychosocial support be offered to any patient with OUD, particularly those in pain.
      i. Pain is a biopsychosocial phenomenon **(SEE APPENDIX X)**, and the importance of addressing the cognitive and affective components of pain cannot be understated. Consultation with a behavioral health clinician may help patients better manage pain, anxiety and depression.
   e. It is recommended that patients be counseled that treatment may not eliminate all pain and that manageable pain can be a useful guide to assessment and recovery.
   f. Opioid analgesics may be considered for patients on MAT when ALTOs fail to control pain. Consultation with an addiction medicine and/or pain medicine specialist is recommended.
      i. Patients on MAT may have greater sensitivity to pain and will have higher tolerance to opioids; they often require greater-than-typical doses of opioids to manage pain.[235]
      ii. The prevalence of opioid-induced hyperalgesia (OIH) is unknown but likely complicates pain management for some opioid-dependent patients.

Identification and Referral of Patients with Opioid Use Disorder
continued

8. **While medications used in MAT do not impair intelligence, cognitive ability, physical functioning or employability, side effects may affect some aspects of a worker's performance.**[236]
    a. Particularly at initiation of MAT while medication doses are being stabilized, workers may experience adverse effects of methadone and buprenorphine, including sedation.
    b. Side effects of opioid agonists used for MAT may impair a worker's driving, ability to operate heavy machinery, perform hazardous tasks or perform tasks that require high-level cognitive function.
    c. Workers with safety-sensitive roles may need restrictions or accommodations to reduce risk to themselves and to co-workers, particularly at initiation of MAT with an opioid agonist.
    d. It is recommended that restrictions and accommodations be determined on a case-by-case basis in consultation with an OEM clinician.
    e. Side effects associated with the initiation of MAT generally subside with dose stabilization.[237,238]

The Future and Ending the Opioid Epidemic in Colorado

As clinicians, we stand with our patients and their families who are impacted by opioid use disorder. We have witnessed the devastation this epidemic has wrought across Colorado and are committed to ending the suffering of our patients and communities.

The CO's CURE guidelines offer a vision for how clinicians and health care leaders on the front lines of this epidemic can change how we deliver care to better serve our patients. If we take to heart the need to reduce our opioid usage, we can decrease the number of Coloradans who develop opioid use disorders in our care. If we embrace and continue to innovate alternatives to opioids for pain control, we will be able to manage pain more effectively and safely than ever before. If we integrate harm reduction into our practices and strive to better understand patients who struggle with injection drug use and OUD, we can end the stigma that surrounds this disease and decrease overdose deaths. If we consistently offer medication-assisted treatment to every patient with OUD for whom we care, we can close the treatment gap and ensure that all who yearn for recovery are provided the tools and the resources they need. The time to make these changes is now. In doing so, we can uphold our sacred oath to serve our patients and communities in their times of need and resolve to address this epidemic together.

CO's CURE aims to harness the power of health care professionals across Colorado working together with common purpose. CO's CURE resources are available to any Colorado physician. As you endeavor to change your practice and adopt these guidelines, you can rest assured that medical practices and specialties across our state are doing the same. CO's CURE represents a philosophy of care that is inclusive and collaborative and recognizes that the only way we can end the epidemic in Colorado and across the nation is by acting together.

On behalf of our sponsoring organizations—Colorado Hospital Association, Colorado Medical Society and Colorado Consortium for Prescription Drug Abuse Prevention—as well as the 13 medical specialties that have stepped forward to participate, we offer our gratitude and appreciation for the care and consideration you give these guidelines. The health of our state and its people depends on clinicians and leaders like you who are willing to be agents of change. Together, we can make a profound difference in the lives of Coloradans as we implement new, better standards of care. Together we can bring this deadly epidemic to an end.

Debra Parsons, MD, FACP
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EXECUTIVE DIRECTOR, COLORADO CONSORTIUM FOR PRESCRIPTION DRUG ABUSE PREVENTION

Appendices

I. Resources for Patients
II. Opioid Risk Tool (ORT)
III. Rapid Opioid Dependence Screen (RODS)
IV. Opioid Treatment Agreement
V. Quality Performance Outcomes Payments: Approved Functional Tests
VI. Opioid Management Report
VII. HHS Guide for Clinicians on the Appropriate Dosage Reduction or Discontinuation of Long-Term Opioid Analgesics
VIII. Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers
IX. Bridge to Treatment: Managing Acute Pain for Patients on MAT
X. Understanding Pain: A Complex Biopsychosocial Phenomenon
XI. Cannabinoids and Pain
XII. Map and Listing of Syringe Access Programs in Colorado *(Updated March 2020)*

Appendix I

Resources for Patients

PRESCRIPTION OPIOIDS: WHAT YOU NEED TO KNOW

Prescription opioids can be used to help relieve moderate-to-severe pain and are often prescribed following a surgery or injury, or for certain health conditions. These medications can be an important part of treatment but also come with serious risks. It is important to work with your health care provider to make sure you are getting the safest, most effective care.

WHAT ARE THE RISKS AND SIDE EFFECTS OF OPIOID USE?

Prescription opioids carry serious risks of addiction and overdose, especially with prolonged use. An opioid overdose, often marked by slowed breathing, can cause sudden death. The use of prescription opioids can have a number of side effects as well, even when taken as directed:

- Tolerance—meaning you might need to take more of a medication for the same pain relief
- Physical dependence—meaning you have symptoms of withdrawal when a medication is stopped
- Increased sensitivity to pain
- Constipation
- Nausea, vomiting, and dry mouth
- Sleepiness and dizziness
- Confusion
- Depression
- Low levels of testosterone that can result in lower sex drive, energy, and strength
- Itching and sweating

As many as **1 in 4** PEOPLE*

receiving prescription opioids long term in a primary care setting struggles with addiction.

* Findings from one study

RISKS ARE GREATER WITH:

- History of drug misuse, substance use disorder, or overdose
- Mental health conditions (such as depression or anxiety)
- Sleep apnea
- Older age (65 years or older)
- Pregnancy

Avoid alcohol while taking prescription opioids. Also, unless specifically advised by your health care provider, medications to avoid include:

- Benzodiazepines (such as Xanax or Valium)
- Muscle relaxants (such as Soma or Flexeril)
- Hypnotics (such as Ambien or Lunesta)
- Other prescription opioids

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

American Hospital Association®

CS264107C May 9, 2016

Appendix II

Opioid Risk Tool (ORT)

Opioid Risk Tool — OUD (ORT-OUD)

This tool should be administered to patients upon an initial visit prior to beginning or continuing opioid therapy for pain management. A score of 2 or lower indicates low risk for future opioid use disorder; a score of >/=3 indicates high risk for opioid use disorder.

Mark each box that applies:	**Yes**	**No**
FAMILY HISTORY OF SUBSTANCE ABUSE		
Alcohol	1	0
Illegal drugs	1	0
Rx drugs	1	0
PERSONAL HISTORY OF SUBSTANCE ABUSE		
Alcohol	1	0
Illegal drugs	1	0
Rx drugs	1	0
AGE BETWEEN 16-45 YEARS	1	0
PSYCHOLOGICAL DISEASE		
ADD, OCD, bipolar, schizophrenia	1	0
Depression	1	0
SCORING TOTALS	____	____

SOURCE: Cheatle MD, Compton PA, Dhingra L, Wasser TE, O'Brien CP. Development of the Revised Opioid Risk Tool to Predict Opioid Use Disorder in Patients with Chronic Nonmalignant Pain. J Pain. 2019;20(7):842-851. doi:10.1016/j.jpain.2019.01.011

Appendix III

Rapid Opioid Dependence Screen (RODS)

Rapid Opioid Dependence Screen (RODS)

Instructions: [Interviewer reads] The following questions are about your prior use of drugs. For each question, please indicate "yes" or "no" as it applies to your drug use during the last 12 months.

1. Have you ever taken any of the following drugs?
   a. Heroin ☐ Yes ☐ No
   b. Methadone ☐ Yes ☐ No
   c. Buprenorphine ☐ Yes ☐ No
   d. Morphine ☐ Yes ☐ No
   e. MS Contin ☐ Yes ☐ No
   f. Oxycontin ☐ Yes ☐ No
   g. Oxycodone ☐ Yes ☐ No
   h. Other opioid analgesics ☐ Yes ☐ No
      (e.g., Vicodin, Darvocet, etc.)

If any drug in question 1 is coded "yes," proceed to quesitons 2 to 8.

If all drugs in question 1 are "no," skip to end and code "no" for opioid dependent.

2. Did you ever need to use more opioids to get the same high as when you first started using opioids? ☐ Yes ☐ No
3. Did the idea of missing a fix (or dose) ever make you anxious or worried? ☐ Yes ☐ No
4. In the morning, did you ever use opioids to keep from feeling "dope sick" or did you ever feel "dope sick?" ☐ Yes ☐ No
5. Did you worry about your use of opioids? ☐ Yes ☐ No
6. Did you find it difficult to stop or not use opioids? ☐ Yes ☐ No
7. Did you ever need to spend a lot of time/energy on finding opioids or recovering from feeling high? ☐ Yes ☐ No
8. Did you ever miss important things like doctor's appointments, family/friend activities, or other things because of opioids? ☐ Yes ☐ No

Scoring Instructions: Add number of "yes" responses for questions 2 to 8. If total is > 3, code "yes" for opioid dependent. If total is < 2, code "no" for opioid dependent.

Opioid Dependent: ☐ Yes ☐ No

Appendix IV

Opioid Treatment Agreement

(Washington Department of Labor and Industries)

Department of Labor and Industries
PO Box 44291
Olympia WA 98504-4291

OPIOID TREATMENT AGREEMENT

Patient Name: _____ **Claim No.** _____

Opioid (narcotic) treatment for chronic pain is used to reduce pain and improve what you are able to do each day. Along with opioid treatment, other medical care may be prescribed to help improve your ability to do daily activities. This may include exercise, use of non-narcotic analgesics, physical therapy, psychological counseling or other therapies or treatment. Vocational counseling may be provided to assist in your return to work effort.

I, _____, understand that compliance with the following guidelines is important in continuing pain treatment with Dr. _____.

1. I understand that I have the following responsibilities:
   a. I will take medications only at the dose and frequency prescribed.
   b. I will not increase or change medications without the approval of this provider.
   c. I will actively participate in RTW efforts and in any program designed to improve function (including social, physical, psychological and daily or work activities).
   d. I will not request opioids or any other pain medicine from providers other than from this one. This provider will approve or prescribe all other mind and mood altering drugs.
   e. I will inform this provider of all other medications that I am taking.
   f. I will obtain all medications from one pharmacy, when possible. By signing this agreement, I give consent to this provider to talk with the pharmacist.
   g. I will protect my prescriptions and medications. Only one lost prescription or medication will be replaced in a single calendar year. I will keep all medications from children.
   h. I agree to participate in psychiatric or psychological assessments, if necessary.
   i. If I have an addiction problem, I will not use illegal or street drugs or alcohol. This provider may ask me to follow through with a program to address this issue. Such programs may include the following:
      - 12-step program and securing a sponsor
      - Individual counseling
      - Inpatient or outpatient treatment
      - Other: _____

2. I understand that in the event of an emergency, this provider should be contacted and the problem will be discussed with the emergency room or other treating provider. I am responsible for signing a consent to request record transfer to this doctor. No more than 3 days of medications may be prescribed by the emergency room or other provider without this provider's approval.

3. I understand that I will consent to random drug screening. A drug screen is a laboratory test in which a sample of my urine or blood is checked to see what drugs I have been taking.

4. I will keep my scheduled appointments and/or cancel my appointment a minimum of 24 hours prior to the appointment.

5. I understand that this provider may stop prescribing opioids or change the treatment plan if:
   a. I do not show any improvement in pain from opioids or my physical activity has not improved.
   b. My behavior is inconsistent with the responsibilities outlined in #1 above.
   c. I give, sell or misuse the opioid medications.
   d. I develop rapid tolerance or loss of improvement from the treatment.
   e. I obtain opioids from other than this provider.
   f. I refuse to cooperate when asked to get a drug screen.
   g. If an addiction problem is identified as a result of prescribed treatment or any other addictive substance.
   h. If I am unable to keep follow-up appointments.

Provider:
Keep signed copy in file, give a copy to patient and send a copy to L&I. Must renew Agreement every 6 months.

Patient Signature	**Date**	**Provider Signature**	**Date**

PLEASE READ AND SIGN REVERSE SIDE

If you need more information visit www.lni.wa.gov and search for opioids. **INDEX: MED**

Department of Labor and Industries
PO Box 44291
Olympia WA 98504-4291

OPIOID TREATMENT AGREEMENT

Patient Name: _____ **Claim No.** _____

Your safety risks while working under the influence of opioids

You should be aware of potential side effects of opioids such as decreased reaction time, clouded judgment, drowsiness and tolerance. Also, you should know about the possible danger associated with the use of opioids while operating heavy equipment or driving.

Side effects of opioids

- Confusion or other change in thinking abilities
- Nausea
- Constipation
- Vomiting
- Problems with coordination or balance that may make it unsafe to operate dangerous equipment or motor vehicles
- Sleepiness or drowsiness
- Breathing too slowly – overdose can stop your breathing and lead to death
- Aggravation of depression
- Dry mouth

These side effects may be made worse if you mix opioids with other drugs, including alcohol.

Risks

- Physical dependence. This means that abrupt stopping of the drug may lead to withdrawal symptoms characterized by one or more of the following:
  - Runny nose
  - Abdominal cramping
  - Rapid heart rate
  - Diarrhea
  - Sweating
  - Nervousness
  - Difficulty sleeping for several days
  - Goose bumps
- Psychological dependence. This means it is possible that stopping the drug will cause you to miss or crave it.
- Tolerance. This means you may need more and more drug to get the same effect.
- Addiction. A small percentage of patients may develop addiction problems based on genetic or other factors.
- Problems with pregnancy. If you are pregnant or contemplating pregnancy, discuss with your provider.

Payment of medications

State law forbids L&I from paying for opioids once the patient reaches maximum medical improvement. You and your provider should discuss other sources of payment for opioids when L&I can no longer pay.

Recommendations to manage your medications

- Keep a diary of the pain medications you are taking, the medication dose, time of day you are taking them, their effectiveness and any side effects you may be having.
- Use of a medication box that you can purchase at your pharmacy that is already divided in to the days of the week and times of the day so it is easier to remember when to take your medications.
- Take along only the amount of medicine you need when leaving home so there is less risk of losing all your medications at the same time.

I have read this document, understand and have had all my questions answered satisfactorily. I consent to the use of opioids to help control my pain and I understand that my treatment with opioids will be carried out as described above.

Provider:			
Keep signed copy in file, give a copy to patient and send a copy to L&I. Must renew Agreement every 6 months.			
Patient Signature	**Date**	**Provider Signature**	**Date**

PLEASE READ AND SIGN REVERSE SIDE

If you need more information visit www.lni.wa.gov and search for opioids. **INDEX: MED**

SOURCE: [AMA CITATION: Department of Labor and Industries. Opioid Treatment Agreement. In: Labor and Industries, ed:2.]

Appendix V

Quality Performance Outcomes Payments: Approved Functional Tests

COLORADO
Department of Labor and Employment
Division of Workers' Compensation
633 17th Street, Suite 400
Denver, CO 80202-3660

QPOP: Division Approved Functional Tests

Name of Test/Site Link	Body Part	Description
Quick DASH (Disabilities of the Arm, Shoulder and Hand)	Upper Extremity	Shoulder, elbow and hand assessment
Simple Shoulder Test	Shoulder	Shoulder function only
LEFS (Lower Extremity Functional Scale)	Lower Extremity	Disorders for one or both lower extremities, standing, walking, running (higher functioning)
Lower Limb Questionnaire	Lower Extremity	Brief seven questions with ability to ambulate addressed (lower functioning)
Oswestry Low Back Pain Disability Questionnaire	Lumbar Spine	Functional questions with sleeping, lifting, walking, sitting and standing
Quebec Back Pain Disability Scale	Spine	Functional and emotional questions
Neck Disability Index	Cervical Spine	Ten questions addressing pain, personal care, headaches and functional deficits
SF -36 and SF-12	Physical Health	Assesses ADLs
Dallas Pain Questionnaire	Spine	Chronic pain
Hand/Wrist Symptom Severity Scale	Hand/Wrist	Hand and wrist specific
PREE – Patient Rated Elbow Evaluation	Elbow	Elbow joint specific
Foot and Ankle Outcomes Questionnaire	Foot and Ankle	Lower extremity functional ADLs
Oxford Hip, Knee, Elbow, Shoulder and Shoulder Instability Score	Hip, Knee, Shoulder and Elbow	Functional ADLs
FOTO- Focus on Therapeutic Outcomes, Inc.	Various Body Parts	Functional ADLs specific to body part
Upper Extremity Functional Scale	Upper Extremity	Functional ADLs related to Upper Extremity
Brief Pain Inventory	General	Sleep, walking, ADLs

Appendix V continued

COLORADO
Department of Labor and Employment
Division of Workers' Compensation
633 17th Street, Suite 400
Denver, CO 80202-3660

QPOP: Division Approved Psychological Screens

Name of Test/Site Link	Description
BBHI 2 – (Brief Battery for Health Improvement – 2nd Edition)	Measures pain, functioning, somatization, depression, anxiety and defensiveness; brief measure of risk factors for delayed recovery
DRAM – (Distress and Risk Assessment Method)	Measures depression and somatic symptoms of anxiety, risk factors commonly associated with chronic pain
CES-D (Center for Epidemiological Studies Depression Scale)	Measures depression, 20 items
BDI –II (Beck Depression Inventory -2nd edition)	Measures depression, 21 items
PRIME-MD – (Primary Care Evaluation for Mental Disorders) ***Must be filled out by a provider***	Two components: paper and pencil screen for patient and follow–up interview by physician. Assesses mood, anxiety, somatoform tendencies, alcohol and eating disorders
Zung Depression Inventory	Measures depression, brief measure
PHQ (Patient Health Questionnaire) and PHQ-9	Self-administered version of the PRIME-MD. Assesses mood, anxiety, somatoform tendencies, alcohol and eating disorders
GAD-7 (Generalized Anxiety Disorder Scale)	Assesses generalized anxiety, 7 questions
BHI-MV (Behavioral Health Index Multimedia Version	Screens for addiction

Program with Functional Tests and Psychological Screen:

COMT- Comprehensive Outcomes Management Technologies	Functional and Psychological Assessment Tool
Pain CAS: web-based clinical tool	Assesses Patients with Chronic Pain

** Requests to include additional tests to the above list can be directed to the Provider Education Unit: cdle_dowc_provider_education@state.co.us.

SOURCE: https://www.colorado.gov/pacific/sites/default/files/2018_5_QPOP_Table_of_approved_tests.pdf

Appendix VI

Opioid Management Report

Opioid Management Report

Date:_____ Patient name:_____

Date of birth:_____ Date of test:_____ Specimen number:_____

Reason for ordering of the test

Drug test prior to initial long term drug prescription	☐ Yes	☐ No
Follow up (at least annually)	☐ Yes	☐ No
Concern regarding functional status of the patient	☐ Yes	☐ No
Abnormal results on previous testing	☐ Yes	☐ No
Change in management of dosage or pain	☐ Yes	☐ No
Chronic daily opioid dosage above 50 mg morphine or equivalent	☐ Yes	☐ No

Medication side effects: ☐ Fatigue ☐ Constipation ☐ Cognitive problems ☐ Other

Results of opioid testing: ☐ Expected ☐ Not expected

Results of OTHER medication testing: ☐ Expected ☐ Not expected

PDMP results reviewed:

Results: Medications: ☐ Expected ☐ Not expected
Benzodiazepine use: ☐ Yes ☐ No
☐ Single provider ☐ Multiple provider

Reviewing of the medical records:

Level of functioning:

Past and current functional status for:

Work: ☐ increased ☐ decreased ☐ same

Leisure activities: ☐ increased ☐ decreased ☐ same

Activities of daily living: ☐ increased ☐ decreased ☐ same

Opioid Management Report continued

Discussion of:

Opioid screening results: _____

_____

_____

_____

_____

Other laboratory testing: _____

_____

_____

_____

_____

PDMP: _____

_____

_____

_____

_____

Medication side effects: _____

_____

_____

_____

_____

Level of functioning: _____

_____

_____

_____

_____

Describe what actions, if any, need to be taken: _____

_____

_____

_____

_____

SOURCE: https://www.colorado.gov/pacific/cdle/opioid-information

Appendix VII

HHS Guide for Clinicians on the Appropriate Dosage Reduction or Discontinuation of Long-Term Opioid Analgesics

HHS Guide for Clinicians on the Appropriate Dosage Reduction or Discontinuation of Long-Term Opioid Analgesics

This *HHS Guide for Clinicians on the Appropriate Dosage Reduction or Discontinuation of Long-Term Opioid Analgesics* provides advice to clinicians who are contemplating or initiating a reduction in opioid dosage or discontinuation of long-term opioid therapy for chronic pain. In each case the clinician should review the risks and benefits of the current therapy with the patient, and decide if tapering is appropriate based on individual circumstances.

After increasing every year for more than a decade, annual opioid prescriptions in the United States peaked at 255 million in 2012 and then decreased to 191 million in 2017.[i] More judicious opioid analgesic prescribing can benefit individual patients as well as public health when opioid analgesic use is limited to situations where benefits of opioids are likely to outweigh risks. At the same time opioid analgesic prescribing changes, such as dose escalation, dose reduction or discontinuation of long-term opioid analgesics, have potential to harm or put patients at risk if not made in a thoughtful, deliberative, collaborative, and measured manner.

Risks of rapid opioid taper

- Opioids should not be tapered rapidly or discontinued suddenly due to the risks of significant opioid withdrawal.
- Risks of rapid tapering or sudden discontinuation of opioids in physically dependent[ii] patients include acute withdrawal symptoms, exacerbation of pain, serious psychological distress, and thoughts of suicide.[1] Patients may seek other sources of opioids, potentially including illicit opioids, as a way to treat their pain or withdrawal symptoms.[1]
- Unless there are indications of a life-threatening issue, such as warning signs of impending overdose, HHS does not recommend abrupt opioid dose reduction or discontinuation.

Whether or not opioids are tapered, safe and effective nonopioid treatments should be integrated into patients' pain management plans based on an individualized assessment of benefits and risks considering the patient's diagnosis, circumstances, and unique needs.[2,3,4] Coordination across the health care team is critical. Clinicians have a responsibility to provide or arrange for coordinated management of patients' pain and opioid-related problems, and they should never abandon patients.[2] More specific guidance follows, compiled from published guidelines (the *CDC Guideline for Prescribing Opioids for Chronic Pain*[2] and the *VA/DoD Clinical Practice Guideline for Opioid Therapy for Chronic Pain*[3]) and from practices endorsed in the peer-reviewed literature.

Consider[iii] tapering to a reduced opioid dosage, or tapering and discontinuing opioid therapy, when

- Pain improves[3]
- The patient requests dosage reduction or discontinuation[2,3,5]
- Pain and function are not meaningfully improved[2,3,5]
- The patient is receiving higher opioid doses without evidence of benefit from the higher dose[2,3]
- The patient has current evidence of opioid misuse[3,5]
- The patient experiences side effects[iv] that diminish quality of life or impair function[3]
- The patient experiences an overdose or other serious event (e.g., hospitalization, injury),[2,5] or has warning signs for an impending event such as confusion, sedation, or slurred speech[2,6]
- The patient is receiving medications (e.g., benzodiazepines) or has medical conditions (e.g., lung disease, sleep apnea, liver disease, kidney disease, fall risk, advanced age) that increase risk for adverse outcomes[3,5]
- The patient has been treated with opioids for a prolonged period (e.g., years), and current benefit-harm balance is unclear

[i] https://www.cdc.gov/drugoverdose/maps/rxrate-maps.html

[ii] Physical dependence occurs with daily, around-the-clock use of opioids for more than a few days and means that the body has adapted to the drug, requiring more of it to achieve a certain effect (tolerance). Patients with physical dependence will experience physical and/or psychological symptoms if drug use is abruptly ceased (withdrawal).

[iii] Additional tools to help weigh decisions about continuing opioid therapy are available: Assessing Benefits and Harms of Opioid Therapy, Pain Management Opioid Taper Decision Tool, and Tapering Opioids for Chronic Pain.

[iv] e.g., drowsiness, constipation, depressed cognition

Important considerations prior to deciding to taper

Overall, following voluntary reduction of long-term opioid dosages, many patients report improvements in function, sleep, anxiety, and mood without worsening pain or even with decreased pain levels.[4,7,8,9,10,11] Other patients report increased pain, insomnia, anxiety, and depression.[4,7,9,12] The duration of increased pain related to hyperalgesia or opioid withdrawal is unpredictable and may be prolonged in some patients.[12] Decisions to continue or reduce opioids for pain should be based on individual patient needs.[2,13] Consider whether opioids continue to meet treatment goals, whether opioids are exposing the patient to an increased risk for serious adverse events or opioid use disorder, and whether benefits continue to outweigh risks of opioids.[2,13]

- Avoid insisting on opioid tapering or discontinuation when opioid use may be warranted (e.g., treatment of cancer pain, pain at the end of life, or other circumstances in which benefits outweigh risks of opioid therapy). ***The CDC Guideline for Prescribing Opioids for Chronic Pain does not recommend opioid discontinuation when benefits of opioids outweigh risks.***[2,4,13]
- Avoid misinterpreting cautionary dosage thresholds as mandates for dose reduction.[4] While, for example, the CDC Guideline recommends avoiding or carefully justifying *increasing* dosages above 90 MME/day, it does not recommend abruptly reducing opioids from higher dosages.[2,4] Consider individual patient situations.
- Some patients using both benzodiazepines and opioids may require tapering one or both medications to reduce risk for respiratory depression. Tapering decisions and plans need to be coordinated with prescribers of both medications.[2] If benzodiazepines are tapered, they should be tapered gradually[v] due to risks of benzodiazepine withdrawal (anxiety, hallucinations, seizures, delirium tremens, and, in rare cases, death).[2]
- Avoid dismissing patients from care. This practice puts patients at high risk and misses opportunities to provide life-saving interventions, such as medication-assisted treatment for opioid use disorder.[2,4,13] Ensure that patients continue to receive coordinated care.
- There are serious risks to noncollaborative tapering in physically dependent patients, including acute withdrawal, pain exacerbation, anxiety, depression, suicidal ideation, self-harm, ruptured trust, and patients seeking opioids from high-risk sources.[1,14]

Important steps prior to initiating a taper

- Commit to working with your patient to improve function and decrease pain.[2,7] Use accessible, affordable nonpharmacologic and nonopioid pharmacologic treatments.[2,3,7] Integrating behavioral and nonopioid pain therapies before and during a taper can help manage pain[10] and strengthen the therapeutic relationship.
- Depression, anxiety, and post-traumatic stress disorder (PTSD) can be common in patients with painful conditions, especially in patients receiving long-term opioid therapy.[15] Depressive symptoms predict taper dropout.[7,8] Treating comorbid mental disorders can improve the likelihood of opioid tapering success.
- If your patient has serious mental illness, is at high suicide risk, or has suicidal ideation, offer or arrange for consultation with a behavioral health provider before initiating a taper.[3,5]
- If a patient exhibits opioid misuse behavior or other signs of opioid use disorder, assess for opioid use disorder using DSM-5 criteria.[2,5] If criteria for opioid use disorder are met (especially if moderate or severe), offer or arrange for medication-assisted[vi] treatment.[2,3]
- Access appropriate expertise if considering opioid tapering or managing opioid use disorder during pregnancy. Opioid withdrawal risks include spontaneous abortion and premature labor. For pregnant women with opioid use disorder, medication-assisted treatment is preferred over detoxification.[2]
- ***Advise patients that there is an increased risk for overdose on abrupt return to a previously prescribed higher dose.***[2] Strongly caution that it takes as little as a week to lose tolerance and that there is a risk of overdose if they return to their original dose.[2,3,5,6] Provide opioid overdose education and consider offering naloxone.[2]

Share decision-making with patients

- Discuss with patients their perceptions of risks, benefits, and adverse effects of continued opioid therapy, and include patient concerns in taper planning. For patients at higher risk of overdose based on opioid dosages, review benefits and risks of continued high-dose opioid therapy.[2,5]
- If the current opioid regimen does not put the patient at imminent risk, tapering does not need to occur immediately.[4] Take time to obtain patient buy-in.[14]
- For patients who agree to reduce opioid dosages, collaborate with the patient on a tapering plan.[2] Tapering is more likely to be successful when patients collaborate in the taper.[vii] Include patients in decisions, such as which medication will be decreased first and how quickly tapering will occur.

[v] Example benzodiazepine tapers and clinician guidance are available at https://www.pbm.va.gov/PBM/AcademicDetailingService/Documents/Benzodiazepine_Provider_AD_%20Risk_Discussion_Guide.pdf

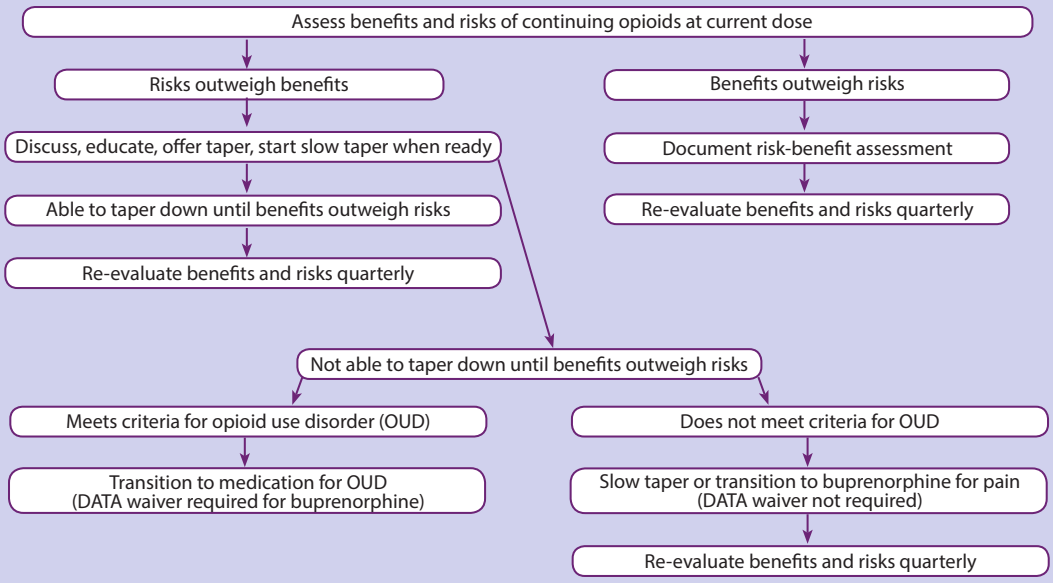
[vi] See SAMHSA's TIP 63: Medications for Opioid Use Disorder, SAMHSA's Buprenorphine Practitioner Locator, and SAMHSA's Opioid Treatment Program Directory

[vii] A recent systematic review found that when opioids were tapered with buy-in from patients who agreed to decrease dosage or discontinue therapy, pain, function, and quality of life improved after opioid dose reduction.[10]

Individualize the taper rate

- When opioid dosage is reduced, a taper slow enough to minimize opioid withdrawal symptoms and signs[viii] should be used.[2] Tapering plans should be individualized based on patient goals and concerns.[2,3,5,6]
- The longer the duration of previous opioid therapy, the longer the taper may take. Common tapers involve dose reduction of 5% to 20% every 4 weeks.[3,5]
  - **Slower tapers** (e.g., 10% per month or slower) are often better tolerated than more rapid tapers, especially following opioid use for more than a year.[2] Longer intervals between dose reductions allow patients to adjust to a new dose before the next reduction.[5] Tapers can be completed over several months to years depending on the opioid dose. See "slower taper" example here.
  - **Faster tapers** can be appropriate for some patients. A decrease of 10% of the original dose per week or slower (until 30% of the original dose is reached, followed by a weekly decrease of 10% of the remaining dose) is less likely to trigger withdrawal[7] and can be successful for some patients, particularly after opioid use for weeks to months rather than years. See "faster taper" example here.
- At times, tapers might have to be paused and restarted again when the patient is ready.[2] Pauses may allow the patient time to acquire new skills for management of pain and emotional distress, introduction of new medications, or initiation of other treatments, while allowing for physical adjustment to a new dosage.[3,5]
- Tapers may be considered successful as long as the patient is making progress, however slowly, towards a goal of reaching a safer dose,[2] or if the dose is reduced to the minimal dose needed.
- Once the smallest available dose is reached, the interval between doses can be extended.[2,5,7] Opioids may be stopped, if appropriate, when taken less often than once a day.[2,7] See "example tapers for opioids" here.
- More rapid tapers (e.g., over 2-3 weeks[16]) might be needed for patient safety when the risks of continuing the opioid outweigh the risks of a rapid taper (e.g., in the case of a severe adverse event such as overdose).
- Ultrarapid detoxification under anesthesia is associated with substantial risks and ***should not be used***.[2]

Opioid Tapering Flowchart



Adapted from Oregon Pain Guidance. Tapering – Guidance & Tools. Available at https://www.oregonpainguidance.org/guideline/tapering/.

DSM-5 Opioid Use Disorder

A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least 2 of the following, occurring within a 12-month period:

1. Opioids are often taken in larger amounts or over a longer period than was intended.
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, use, or recover from the effects of opioids.
4. Craving, or a strong desire or urge 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.
7. Important social, occupational, or recreational activities are given up or reduced because of opioid use.
8. Recurrent opioid use in situations in which it is physically hazardous.
9. Continued opioid use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10. Tolerance, as defined by either of the following:
    a. A need for markedly increased amounts of opioids to achieve intoxication or desired effect, or
    b. Markedly diminished effect with continued use of the same amount of an opioid.

    Note: This criterion is not considered to be met for those taking opioids solely under appropriate medical supervision.
11. Withdrawal, as manifested by either of the following:
    a. The characteristic opioid withdrawal syndrome, or
    b. Opioids (or a closely related) substance is taken to relieve or avoid withdrawal symptoms.

    Note: This criterion is not considered to be met for those taking opioids solely under appropriate medical supervision.

Mild: Presence of 2-3 symptoms
Moderate: Presence of 4-5 symptoms
Severe: Presence of 6 or more symptoms

Treat symptoms of opioid withdrawal

- If tapering is done gradually, withdrawal symptoms should be minimized and manageable.
- Expectation management is an important aspect of counseling patients through withdrawal.
- Significant opioid withdrawal symptoms may indicate a need to pause or slow the taper rate.
- Onset of withdrawal symptoms depends on the duration of action of the opioid medication used by the patient. Symptoms can begin as early as a few hours after the last medication dose or as long as a few days, depending on the duration of action.[7] Early withdrawal symptoms (e.g., anxiety, restlessness, sweating, yawning, muscle aches, diarrhea and cramping[viii]) usually resolve after 5-10 days but can take longer.[5]
- Some symptoms (e.g., dysphoria, insomnia, irritability) can take weeks to months to resolve.[5]
- Short-term oral medications can help manage withdrawal symptoms, especially when prescribing faster tapers.[5] These include alpha-2 agonists[ix] for the management of autonomic signs and symptoms (sweating, tachycardia), and symptomatic medications[x] for muscle aches, insomnia, nausea, abdominal cramping, or diarrhea.[5]

Provide behavioral health support

- Make sure patients receive appropriate psychosocial support.[2,3,6,11] Ask how you can support the patient.[5]
- Acknowledge patient fears about tapering.[5] While motives for tapering vary widely, fear is a common theme. Many patients fear stigma, withdrawal symptoms, pain, and/or abandonment.[13,18]
- Tell patients "I know you can do this" or "I'll stick by you through this." Make yourself or a team member available to the patient to provide support, if needed.[3,6] Let patients know that while pain might get worse at first, many people have improved function without worse pain after tapering opioids.[7,8,9,10,11]
- Follow up frequently. Successful tapering studies have used at least weekly follow up.[10]
- Watch closely for signs of anxiety, depression, suicidal ideation, and opioid use disorder and offer support or referral as needed.[2,3,6] Collaborate with mental health providers and with other specialists as needed to optimize psychosocial support for anxiety related to the taper.[2]

[viii] Acute opioid withdrawal symptoms and signs include drug craving, anxiety, restlessness, insomnia, abdominal pain or cramps, nausea, vomiting, diarrhea, anorexia, sweating, dilated pupils, tremor, tachycardia, piloerection, hypertension, dizziness, hot flashes, shivering, muscle or joint aches, runny nose, sneezing, tearing, yawning, and dysphoria.[7] Worsening of pain is a frequent symptom of withdrawal that may be prolonged but tends to diminish over time for many patients.[7]

[ix] Alpha-2 agonists clonidine and lofexidine are more effective than placebo in ameliorating opioid withdrawal.[17] There is not similar research in patients tapering from long-term opioid treatment for pain.[7] Lofexidine has an FDA-approved indication for use up to 14 days for "mitigation of opioid withdrawal symptoms to facilitate abrupt opioid discontinuation in adults."

[x] NSAIDs, acetaminophen, or topical menthol/methylsalicilate for muscle aches; trazodone for sleep disturbance; prochlorperazine, promethazine, or ondansetron for nausea; dicyclomine for abdominal cramping; and loperamide or bismuth subsalicylate for diarrhea.[5]

Special populations

- If patients experience unanticipated challenges to tapering, such as inability to make progress despite intention to taper or opioid-related harm, assess for opioid use disorder using DSM-5 criteria.[2] If patients meet criteria for opioid use disorder (especially if moderate or severe), offer or arrange medication-assisted treatment.[2,3]
- If patients on high opioid dosages are unable to taper despite worsening pain and/or function with opioids, whether or not opioid use disorder criteria are met, consider transitioning to buprenorphine.[4,12] Buprenorphine is a partial opioid agonist that can treat pain as well as opioid use disorder,[19] and has other properties that may be helpful,[3] including less opioid-induced hyperalgesia[12] and easier withdrawal than full mu-agonist opioids,[3] and less respiratory depression than other long-acting opioids.[20] Buprenorphine can then be continued or tapered gradually.[12] Transitioning from full-agonist opioids requires attention to timing of the initial buprenorphine dose to avoid precipitating withdrawal.[xi]

  Consultation with a clinician experienced in use of buprenorphine is warranted if unfamiliar with its initiation. SAMHSA's Providers Clinical Support System offers training and technical assistance as well as mentors to assist those who need to taper opioids and may have additional questions.

- Closely monitor patients who are unable or unwilling to taper and who continue on high-dose or otherwise high-risk opioid regimens. Mitigate overdose risk (e.g., provide overdose education and naloxone). Use periodic and strategic motivational questions and statements to encourage movement toward appropriate therapeutic changes.[14]

[xi] To avoid precipitating protracted withdrawal from full agonist opioids when starting buprenorphine, patients need to be in mild to moderate withdrawal (including Clinical Opioid Withdrawal Score (COWS) objective signs) before the first buprenorphine dose.[12] To do this, wait at least 8 to 12 hours after the last dose of short-acting full agonist opioids before the first dose of buprenorphine.[12] Buprenorphine buccal film (Belbuca) and buprenorphine transdermal system (Butrans) have FDA-approved indications for "the management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate." The full Belbuca prescribing information and the full Butrans prescribing information include instructions for conversion from full agonist opioids. More time should be allowed before starting buprenorphine following the last dose of long-acting full agonist opioids (e.g., at least 36 hours after last methadone dose); in addition, transition from methadone to buprenorphine is likely to be better tolerated after methadone is gradually tapered to 40mg per day or less.[12] Because the duration of action for analgesia is much shorter than the duration of action for suppression of opioid withdrawal,[21] "split dosing" (e.g., 8mg sublingual tablet twice a day) rather than once a day dosing is used when buprenorphine is provided for pain management.[3,12]

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Appendix VIII

Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers

Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers

Introduction

Opioid misuse and overdose deaths from opioids are serious health issues in the United States. Overdose deaths involving prescription and illicit opioids doubled from 2010 to 2016, with more than 42,000 deaths in 2016 [CDC 2016a]. Provisional data show that there were more than 49,000 opioid overdose deaths in 2017 [CDC 2018a]. In October 2017, the President declared the opioid overdose epidemic to be a public health emergency.

Naloxone is a very effective drug for reversing opioid overdoses. Police officers, emergency medical services providers, and non-emergency professional responders carry the drug for that purpose. The Surgeon General of the United States is also urging others who may encounter people at risk for opioid overdose to have naloxone available and to learn how to use it to save lives [USSG 2018].

The National Institute for Occupational Safety and Health (NIOSH), part of the Centers for Disease Control and Prevention (CDC), developed this information to help employers and workers understand the risk of opioid overdose and help them decide if they should establish a workplace naloxone availability and use program.

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Background

What are opioids?

Opioids include three categories of pain-relieving drugs: (1) natural opioids (also called opiates) which are derived from the opium poppy, such as morphine and codeine; (2) semi-synthetic opioids, such as the prescription drugs hydrocodone and oxycodone and the illicit drug heroin; (3) synthetic opioids, such as methadone, tramadol, and fentanyl. Fentanyl is 50 to 100 times more potent than morphine. Fentanyl analogues, such as carfentanil, can be 10,000 times more potent than morphine. Overdose deaths from fentanyl have greatly increased since 2013 with the introduction of illicitly-manufactured fentanyl entering the drug supply [CDC 2016b; CDC 2018b]. The National Institute on Drug Abuse [NIDA 2018] has more information about types of opioids.

What is naloxone?

Naloxone hydrochloride (also known as naloxone, NARCAN® or EVZIO®) is a drug that can temporarily stop many of the life-threatening effects of overdoses from opioids. Naloxone can help restore breathing and reverse the sedation and unconsciousness that are common during an opioid overdose.

Side effects

Serious side effects from naloxone use are very rare. Using naloxone during an overdose far outweighs any risk of side effects. If the cause of the unconsciousness is uncertain, giving naloxone is not likely to cause further harm to the person. Only in rare cases would naloxone cause acute opioid withdrawal symptoms such as body aches, increased heart rate, irritability, agitation, vomiting, diarrhea, or convulsions. Allergic reaction to naloxone is very uncommon.

Limitations

Naloxone will not reverse overdoses from other drugs, such as alcohol, benzodiazepines, cocaine, or

amphetamines. More than one dose of naloxone may be needed to reverse some overdoses. Naloxone alone may be inadequate if someone has taken large quantities of opioids, very potent opioids, or long acting opioids. For this reason, call 911 immediately for every overdose situation.

Opioids and Work

Opioid overdoses are occurring in workplaces. The Bureau of Labor Statistics (BLS) reported that overdose deaths at work from non-medical use of drugs or alcohol increased by at least 38% annually between 2013 and 2016. The 217 workplace overdose deaths reported in 2016 accounted for 4.2% of occupational injury deaths that year, compared with 1.8% in 2013 [BLS 2017]. This large increase in overdose deaths in the workplace (from all drugs) parallels a surge in overall overdose deaths from opioids reported by CDC [2017]. Workplaces that serve the public (i.e. libraries, restaurants, parks) may also have visitors who overdose while onsite.

Workplace risk factors for opioid use

Opioids are often initially prescribed to manage pain arising from a work injury. Risky workplace conditions that lead to injury, such as slip, trip, and fall hazards or heavy workloads, can be associated with prescription opioid use [Kowalski-McGraw et al. 2017]. Other factors, such as job insecurity, job loss, and high-demand/low-control jobs may also be associated with prescription opioid use [Kowalski-McGraw et al. 2017]. Some people who use prescription opioids may misuse them and/or develop dependence. Prescription opioid misuse may also lead to heroin use (Cicero et al. 2017]. Recent studies show higher opioid overdose death rates among workers in industries and occupations with high rates of work-related injuries and illnesses. Rates also were higher in occupations with lower availability of paid sick leave and lower job security, suggesting that the need to return to work soon after an injury may contribute to high rates of opioid-related overdose death [MDPH 2018, CDC 2018c]. Lack of paid sick leave and lower job security may also make workers reluctant to take time off to seek treatment.

Considering a Workplace Naloxone Use Program

Anyone at a workplace, including workers, clients, customers, and visitors, is at risk of overdose if they use opioids. Call 911 immediately for any suspected overdose. Overdose without immediate intervention can quickly lead to death. Consider implementing a program to make naloxone available in the workplace in the event of an overdose. The following considerations can help you decide whether such a program is needed or feasible:

- Does the state where your workplace is located allow the administration of naloxone by non-licensed providers in the event of an overdose emergency?
- What liability and legal considerations should be addressed? Does your state's Good Samaritan law cover emergency naloxone administration?
- Do you have staff willing to be trained and willing to provide naloxone?
- Has your workplace experienced an opioid overdose or has there been evidence of opioid drug use onsite (such as finding drugs, needles or other paraphernalia)?
- How quickly can professional emergency response personnel access your workplace to provide assistance?
- Does your workplace offer other first aid or emergency response interventions (first aid kits, AEDs, trained first aid providers)? Can naloxone be added?
- Are the risks for opioid overdose greater in your geographic location? The National Center for Health Statistics provides data on drug overdose deaths in an online state dashboard. [CDC 2018a.]

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- Are the risks for opioid overdose greater in your industry or among occupations at your workplace? [See MDPH 2018 and CDC 2018c.]
- Does your workplace have frequent visitors, clients, patients, or other members of the public that may be at increased risk of opioid overdose?

Review the above questions periodically even if a program is not established right away. Ideally, a naloxone program is but a part of a more comprehensive workplace program on opioid awareness and misuse prevention.

Establishing a Program

You will need policies and procedures for the program. These should be developed in consultation with safety and health professionals. Involve the workplace safety committee (if present) and include worker representatives. You also will need a plan to purchase, store, and administer naloxone in case of overdose. Additional considerations for establishing a program are described below.

Risk assessment

Conduct a risk assessment before implementing the naloxone program.

- Decide whether workers, visiting clients, customers, or patients are at risk of overdose.
- Assess availability of staff willing to take training and provide naloxone.
- Consult with professional emergency responders and professionals who treat opioid use disorders in your area.

Liability

Consider liability and other legal issues related to such a program.

Records management

Include formal procedures for documenting incidents and managing those records, to include safeguarding the privacy of affected individuals. Maintain records related to staff roles and training.

Staff roles

Define clear roles and responsibilities for all persons designated to respond to a suspected overdose. Include these roles and responsibilities in existing first aid or emergency response policies and procedures (first aid kits, AEDs, training for lay first-aid providers, and/or onsite health professionals).

Training

Train staff to lower their risks when providing naloxone. Staff must be able to:

- Recognize the symptoms of possible opioid overdose.
- Call 911 to seek immediate professional emergency medical assistance.
- Know the dangers of exposure to drug powders or residue.
- Assess the incident scene for safety concerns before entering.
- Know when NOT to enter a scene where drug powders or residues are visible and exposure to staff could occur.
- Know to wait for professional emergency responders when drug powders, residues, or other unsafe conditions are seen.
- Use personal protective equipment (PPE; nitrile gloves) during all responses to protect against chemical or biological exposures including opioid residues, blood, or other body fluids.
- Administer naloxone and recognize when additional doses are needed.
- Address any symptoms that may arise during the response, including agitation or combativeness from the person recovering from an overdose.
- Use additional first aid, CPR/basic life support measures. Opioid overdose can cause respiratory and cardiac arrest.

Prepare for possible exposure to blood. Needles or other sharps are often present at the scene of an overdose. Provide bloodborne pathogen training to responding staff members and consider additional protection, such as hepatitis B vaccination.

Purchasing naloxone

Naloxone is widely available in pharmacies. Most states allow purchase without a prescription. Choose nasal sprays or injectable forms that can be delivered with an auto-injector, a pre-filled syringe, or a standard syringe/needle. Customize training to fit the formulation stocked at your workplace.

Consider the nasal spray formulation for its safety to lay providers and its ease of administration. Research shows that people trained on intranasal spray reported higher confidence both before and after training compared with people trained on injectable forms [Ashrafioun et al. 2016].

Stock a minimum of two doses of naloxone. Some workplaces may choose to stock more. In some cases, one dose of naloxone is inadequate to reverse an overdose. The size, layout, and accessibility of the workplace may require placement of doses in multiple locations. Consider the time needed to replace supplies when determining the number of doses to stock.

Naloxone storage

Follow manufacturer instructions for storing naloxone. Keep in the box or storage container until ready for use. Protect from light and store at room temperature (59-77°F or 15-25°C). Naloxone can expire and its potency can wane over time. Note the expiration date for timely replacement.

PPE and other equipment storage

Store personal protective equipment, such as disposable nitrile gloves, and other first aid equipment, such as a responder rescue mask, face shield, or bag valve mask (for use in rescue breathing or CPR) close to the naloxone for quick response. Include sharps disposal containers if injectable naloxone is used.

Follow-up care planning

Develop a plan for immediate care by professional healthcare providers, referral for follow-up care, and ongoing support for any worker who has overdosed. Include emergency assistance and support (i.e. Employee Assistance Program, mental health services) for lay staff responders and bystanders if necessary.

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Maintaining a program

Re-evaluate your program periodically. Assess for new risks. Plan for maintaining equipment and restocking of naloxone (including replacement of expired naloxone), other first aid supplies, and PPE.

Check for updates to procedures and guidance

Incorporate new medical and emergency response guidance regarding naloxone purchase, storage, and administration.

Training review and update

Schedule refresher training annually. Training on opioid overdose and naloxone use can be combined with other first aid/CPR training and certifications.

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Resources

Burden of opioid use

edworkforce.house.gov/news/documentsingle.aspx?DocumentID=402497

Commonly abused drugs

drugabuse.gov/drugs-abuse/commonly-abused-drugs-charts

Confidentiality

hhs.gov/hipaa

Emergency response resources

cdc.gov/niosh/topics/emres/responders
hhs.gov/about/news/2018/04/05/surgeon-general-releases-advisory-on-naloxone-an-opioid-overdose-reversing-drug
cdc.gov/niosh/docs/wp-solutions/2010-139

Fentanyl

cdc.gov/niosh/topics/fentanyl/risk
cdc.gov/niosh/ershdb/emergencyresponsecard_29750022
cdc.gov/drugoverdose/opioids/fentanyl

Liability Issues

drugpolicy.org/sites/default/files/Fact%20Sheet_State%20based%20Overdose%20Prevention%20Legislation%20%28January%202016%29
shrm.org/resourcesandtools/legal-and-compliance/employment-law/pages/employers-naloxone
networkforphl.org/_asset/qz5pvn/legal-interventions-to-reduce-overdose

Naloxone

samhsa.gov/medication-assisted-treatment/treatment/naloxone
drugabuse.gov/related-topics/opioid-overdose-reversal-naloxone-narcan-evzio
tn.gov/health/health-program-areas/health-professional-boards/csmd-board/csmd-board/naloxone-training-information
ccohs.ca/oshanswers/hsprograms/firstaid_naloxone

Naloxone access

drugabuse.gov/publications/medications-to-treat-opioid-addiction/naloxone-accessible
narcan.com/availability
getnaloxonenow.org

NIOSH resources on opioids

cdc.gov/niosh/topics/opioids
cdc.gov/niosh/topics/fentanyl

Overdose prevention

surgeongeneral.gov/priorities/opioid-overdose-prevention
surgeongeneral.gov/priorities/opioid-overdose-prevention/naloxone-advisory
cdc.gov/drugoverdose/prevention

To receive documents or other information about occupational safety and health topics, contact NIOSH:
Telephone: 1-800-CDC-INFO (1-800-232-4636)
TTY: 1-888-232-6348
CDC INFO: www.cdc.gov/info

or visit the NIOSH website at http://www.cdc.gov/niosh
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Appendix IX

Managing Acute Pain in Patients on Medication for Addiction Treatment (MAT)

1. The use of methadone, buprenorphine or naltrexone for the treatment of OUD may complicate acute pain management.
2. Analgesia should be offered to patients receiving MAT who are in pain. A patient's usual dose of buprenorphine or methadone is generally inadequate to provide adequate pain control.
   - Splitting home doses of buprenorphine or methadone three times per day leverages the early analgesic effects of these medications; however, the analgesic effect is inadequate to address moderate or severe pain.
3. The use of pharmacologic and procedural alternatives to opioids should be maximized in patients receiving MAT.
4. Consider consulting anesthesia or pain medicine for the use of neuraxial or regional anesthetic techniques in patients with difficult-to-manage acute pain that may benefit from these procedures.
5. The following agents may be of particular value for the treatment of patients receiving MAT:
   - Any patient in pain should receive scheduled APAP and an NSAID, except when clinically contraindicated.
   - Gabapentinoids: Gabapentin (300-600 mg PO three times per day) OR pregabalin (75-150 mg PO twice daily) can reduce pain and opioid consumption in hospitalized patients; careful monitoring for over-sedation and respiratory depression is required.
   - Alpha-2 agonists: Clonidine is anxiolytic and analgesic with significant opioid-sparing effects (e.g., clonidine 0.1-0.3 mg PO every six to eight hours as needed for pain or anxiety [NTE 1.2 mg/day, hold if blood pressure <100/70]).
   - NMDA antagonists: Ketamine is the most potent nonopioid analgesic for opioid-tolerant patients. A brief infusion of 0.1-0.3 mg/kg IV over 15 minutes is followed by 0.1-0.3 mg/kg/hr IV infusion. In addition, magnesium is an NMDA receptor antagonist with analgesic and opioid-sparing effects (e.g., 30-50 mg/kg IV bolus followed by 6-20 mg/kg/hr IV infusion).
   - IV lidocaine: A bolus of 1.5 mg/kg can be followed by a 1-3 mg/kg/hr infusion. Contraindications include cardiac dysrhythmias and hepatic failure.
6. Patients on MAT whose pain is not controlled with nonopioid approaches should be offered opioid analgesia; no patient should be denied adequate pain relief. Due to cross-tolerance and increased pain sensitivity, higher-than-typical doses of opioids should be anticipated.
   - As with any patient receiving opioids, these patients should be monitored closely.
   - For patients receiving buprenorphine for addiction treatment, consider treating acute pain with additional buprenorphine doses.
     - There is no clinical ceiling on buprenorphine for analgesia. Sublingual buprenorphine can be given as frequently as every two hours. IV buprenorphine is a potent analgesic. Start at 0.3 mg IV and titrate as needed. Respiratory depression does occur at higher doses, but it has a ceiling effect that reduces the baseline by about 50%.
     - Buprenorphine is a partial agonist with a high affinity for the mu-opioid receptor. Thus, for patients receiving buprenorphine with severe acute pain for whom additional opioids are required, clinicians should select agents with affinity for the mu-opioid receptor sufficient to displace buprenorphine, such as fentanyl, sufentanil or hydromorphone.
7. As a full opioid antagonist, naltrexone blocks the analgesic effects of most opioids. If naltrexone is still present and opioids are necessary, high-dose, high-potency opioids can be used to out-compete naltrexone at the opioid receptor. Patients must be closely monitored, at minimum with pulse oximetry and telemetry, to prevent over-sedation and unintentional overdose.

SOURCE: Adapted from Project Shout.
For complete guide visit www.ColoradoMAT.org

Appendix IX continued

CA BRIDGE
TREATMENT STARTS HERE

Acute Pain Management in Patients on Buprenorphine (Bup) Treatment for Opioid Use Disorder

Emergency Department / Critical Care

Continue Maintenance Bup
Divide dose q4-8hrs
(e.g 4mg Bup SL QID)

↓

Non-opioid analgesia

↓

- **Promote calm and comfort**
- **Regional Anesthesia**
- **Acetaminophen and NSAIDs**
- **Gabapentinoids**
- **Alpha-2 Agonists**
- **Ketamine & Magnesium**
- **IV Lidocaine**

↓

Additional opioids

↓

Option 1 High affinity full agonist opioids
- **Fentanyl**
- **Hydromorphone**

Option 2 Additional Bup
- **Increase SL Bup**
- **Start IV Bup**

↓

Taper down to maintenance dose Bup

Promote calm and comfort

Anxiety, fear, depression are common: Instill sense of control, provide education on self-management techniques such as mindfulness meditation. Reduce noise, uncertainty, confusion. Positioning, splinting, and physical comfort should be maximized. Minimize unnecessary NPO status.

TREAT UNPLEASANT SYMPTOMS:

Diphenhydramine 25-50mg PO q8h prn insomnia/anxiety
Tizanidine 2-4mg q6h prn muscle spasms
Ondansetron 4mg PO q6h prn nausea
Trazadone 50mg PO qhs prn insomnia
Melatonin 3mg PO qhs prn insomnia
Lorazepam 0.5-1mg PO prn anxiety
Antipsychotics prn psychotic disorder symptom control
Nicotine replacement prn tobacco dependence

Regional Anesthesia

Peripheral nerve blocks: superficial cervical plexus, brachial plexus, radial/median/ulnar, PECS, erratus plane, TAP, femoral, sciatic, posterior tibial.
Spinal and Epidural anesthesia

Acetaminophen and NSAIDs

Acetaminophen and **NSAIDs,** when not contrainidicated, should are the foundation of a multimodal analgesic strategy.

Gabapentinoids

In opioid depenent patients, the calcium channel inhibitors, gabapentin and pregabalin reduce postoperative pain and reduce opioid consumption. Gabapentin 300-600mg PO TID.

Alpha-2 agonists

Clonidine and Dexmedetomidine are anxiolytic and analgesic with significant opioid sparing affects. e.g. **Clonidine** 0.1-0.3mg PO q6-8h prn pain or anxiety (NTE 1.2mg/day, hold if BP <100/70).

Ketamine & Magnesium (NMDAR antagonists)

Ketamine is the most potent non-opioid analgesic for opioid tolerant patients. A brief infusion of 0.3mg/kg IV over 15min is followed by 0.3-1mg/kg/hr as needed.
Magnesium is also an NMDAR with analgesic and opioid sparing effect. eg. 30-50mg/kg bolus followed by 10-mg/kg/hr.

IV Lidocaine (Na channel antagonist)

Opioid sparing analgesic. A bolus of 1-1.5mg/kg is followed by 1.5-3 mg/kg/h. Contraindications include cardiac dysrthymias. Must monitor serum levels after 24hrs.

High Affinity Full agonist Opioids

Hydromorphone, fentnayl, and sufentanil can be added to maintenance Bup to provide synergistic analgesia. Titrate to analgesia and side effects. This will NOT cause withdrawal.

Additional Bup

There is no clinical ceiling on Bup analgesia. SL Bup can be given as frequently as q2h. IV Bup is a potent analgesic start at 0.3mg IV and titrate as needed. At higher doses respiratory depression does occur.

Guidelines are options for multimodal analgesic therapy. Use clinical judgement and avoid use if contraindicated.

NOVEMBER 2019

PROVIDER RESOURCES

California Substance Use Line
CA Only (24/7)
1-844-326-2626

UCSF Substance Use Warmline
National (M-F 6am-5pm; Voicemail 24/7)
1-855-300-3595

SOURCE: Bridge To Treatment

Appendix X

Understanding Pain: A Complex Biopsychosocial Phenomenon

The United States is experiencing not only an epidemic of OUD but also an epidemic of pain. Despite the fact that the United States consumes a disproportionately large fraction of the world's opioids, one-fifth of Americans suffer from pain. Pain, common sense and neuroscience agree, is not simply a process defined by receptors, neurological afferents and the interactions with the spinal cord and brainstem. Instead, it is an experience that incorporates all these biological elements and integrates them with psychological and social conditions to produce the experience of pain. To an extent not seen with other conditions, the biology of pain, the psychology of the patient and the social circumstances of a patient are intertwined and indivisible. Whether it is acute or chronic, easily treated or intractable, pain is a complex interplay of peripheral and CNS processes. The experience of pain is literally "all in the head," and it is hugely influenced by the context of a painful experience, past experiences of pain, genetics, mental health comorbidity, culture and patients' life experiences. One helpful model of conceptualizing pain is the biopsychosocial model, which incorporates elements of biology, psychology and social context into an understanding of the pain experience.

The Biology of Pain

Most physicians are aware of the distinctions between nociceptive pain, which can be somatic or visceral, neuropathic pain, inflammatory pain and types of pain less easily categorized, such as cancer pain, headache syndromes and fibromyalgic pain. Pain also differs in its duration, intensity, location and etiology. Sensorimotor pathways relay information about the nature of the pain stimulus. The cognitive and affective pathways incorporate sensorimotor information and evaluate it, integrating it with information based on prior experience and emotions. Because the biology of pain differs, it is recommended that treatments be targeted wherever possible to the type of pain. OEM physicians are encouraged to use opioid-sparing multimodal analgesia as outlined in these guidelines, consulting pain specialists whenever pain is not well managed. Regrettably, the indiscriminate prescription of opioids may have contributed to an epidemic of chronic pain. OIH, in which sensitization of pronociceptive mechanisms occurs, resulting in a decrease in the pain threshold, may contribute to persistent pain for many patients.[239-241]

Advances in the neurobiology of pain shed light on the physiological explanations for individual differences in pain thresholds and analgesic responses. While it goes without saying that every patient is different, fresh insights into the genetic and molecular basis of pain perception from model organisms and human twin studies underscore that there are significant genetic contributors and polymorphisms in pain tolerance and analgesic responsiveness.[242-245] Gender differences in pain processing are another important area of ongoing research, consistently demonstrating differences between males and females in pain threshold, susceptibility to chronic pain and analgesia sensitivity.[246] EEG studies, too, have identified measurable EEG signatures that predict differences in pain tolerance between individuals.[247]

The Psychology of Pain

Neuroimaging studies demonstrate the significant extent to which cognitive and affective factors impact the experience of pain. The anticipation of pain, attention or distraction, mood, catastrophizing and perceived control over pain can modulate peripheral, spinal and central activity before, during and after a painful experience. The context of a painful stimulus and a person's prior life experiences greatly affect pain experiences.

For example: A woman who grew up loving dogs is at home with her new puppy. If she is suddenly nipped in the middle of the night with intensity "x," she will experience pain. However, her prior positive experiences with dogs, being safe at home, and knowing the nip probably came from the puppy modulates her negativity of the experience. The same woman, who has always been wary of the ocean, is now at the beach. She had gotten up the courage to swim when a lifeguard shouts "shark!" If she feels a nip at her ankles with the same intensity "x" she will now have a drastically different pain experience.

Expanding upon this example, a woman who loves dogs will not be as upset by a mild dog bite as a woman who witnessed her father being mauled by a dog. Anticipation of pain, expectations surrounding painful experiences and expectations of relief impact the experience of pain on neuroimaging and by patient report. Studies of normal subjects demonstrate the power of both the placebo effect and the nocebo effect; the same noxious stimulus can produce markedly different neuroimaging and patient experiences. Accordingly, a host of psychological interventions have demonstrated evidence for relieving the negative effects of the pain experience. These range from the use of supportive therapy, CBT, acceptance and commitment therapy, virtual reality therapy and mindfulness-oriented interventions which leverage insights into the cognitive and affective components of pain signaling.

Mental health and SUDs are often major contributors to the experience of pain.[248] The association between mental and behavioral health disorders and chronic pain is well established. The vicious cycle of pain begetting depression and anxiety, which then impair a patient's effective management of his or her pain, is familiar to most physicians. Functional neuroimaging demonstrates shared neural mechanisms for pain, depression and anxiety.[248-250]

Finally, when pain is viewed as a cognitive, affective and sensory phenomenon, it is unsurprising that physician empathy has been identified as promoting pain relief.[251] The psychology of the patient-doctor interaction impacts the experience of pain and analgesia. Physician desensitization to patient pain complaints may play a significant role not just in undermining quality of care, but also in decreasing physicians' professional satisfaction.[252] When physicians recognize that treating pain can be emotionally draining, that self-awareness can help restore empathy. Physicians who find themselves frustrated in treating a patient with intractable pain should consult with specialists in pain medicine and mental health.

Social Determinants of Pain

While few physicians are equipped to address the deeply rooted social factors that contribute to their patients' pain, it is important to understand that poverty, racism, social stress and isolation have been shown to affect patients' experiences of pain.[253] Pain, while universally experienced, it is not universally understood. Patients, families and communities all value and understand pain differently. Types of pain can be influenced by their social repercussions—genital pain for example is perhaps more isolating than back pain as the former cannot be easily talked about with others. This isolation itself can intensify the pain experience. It is interesting to note that brain activation by social rejection or exclusion is very similar to that seen in physical pain. In an age of ever-widening income inequality and persistent racial disparities in health status, physicians should know that the complex stresses of poverty and racism have studied, measurable impacts on pain perception.

The Biopsychosocial Model of Pain: Implications for Clinicians

The biopsychosocial model of pain underscores the importance of valuing and addressing each of these components when treating patients in pain. While a review of the state of pain neuroscience is beyond the scope of these guidelines, clinicians should be aware that functional neuroimaging suggests that there is far more interconnection between the sensory-discriminative and the cognitive-affective circuits than previously appreciated. The model in which "real" pain is biological and the psychological or affective components of pain are secondary, and implicitly or explicitly perceived as less valid, is inaccurate and misleading. Researchers theorize that the neural networks involved in pain processing may integrate the sensory, cognitive and affective aspects of pain into a "common currency" which gives rise to one unified pain experience.[254] To an extent not seen with other conditions, the biology of pain is the socio-psychology of pain. It is vital that physicians educate patients that the experience of pain is distinct for every individual and that the psychological and social determinants of pain are just as real to pain as tissue injury. Physicians and patients alike need to understand that all pain is in our heads, and all pain deserves care.

Physicians serve their patients best when they recognize the complexity of pain and involve pain specialists, mental health providers, physical therapy and social workers for patients with complex pain presentations.

Appendix XI

Cannabinoids and Pain

Cannabinoids and Pain: Counseling Patients

- Any patient with chronic pain should be encouraged to seek care from a pain medicine specialist.
- As of this writing, no definitive, high-quality studies support the safety and efficacy of dispensary or pharmaceutical cannabinoids for analgesia in chronic, noncancer pain. Until better evidence is available, physicians are discouraged from endorsing the use of cannabinoids for pain management.
- Patients should be counseled that the use of any drug that lacks rigorous FDA drug development and safety profiles carries inherent risks.
  - The testing and regulation of dispensary cannabis is poor to nonexistent.
  - Products purchased at dispensaries may be mislabeled, of undetermined content and/or contaminated with harmful substances.
  - It is important to remind patients that cannabis dispensary workers are not trained to give medical advice.
- Adverse effects associated with cannabinoid use include:
  - The development of cannabis use disorder (CUD)
    - Historically, one in 10 cannabis users—and one in six users under the age of 18 years—will develop a cannabis use disorder.[255,256]
    - Dispensary cannabinoid products available now are far more potent that those sold even a few years ago. Rates of CUD associated with use of potent dispensary cannabinoids may be as high as 30%.[257]
  - Cannabis use disorders are associated with an increased likelihood of developing other SUDs.[258]
  - Cognitive and behavioral
    - Short-term adverse effects include deficits in attention, memory and learning. Chronic use of cannabinoids may cause permanent cognitive deficits.[259,260]
    - Daily use or high doses of Δ9-tetrahydrocannabinol can cause anxiety, paranoia and psychosis. Chronic cannabis use is associated with an increased risk of developing schizophrenia.[261-270]
    - Cannabis use is associated with higher rates of depression, anxiety and suicidality.[271-273]
  - Cardiovascular
    - Smoking or vaping cannabinoids increases the risk for stroke and heart disease.[274-277]
  - Pulmonary
    - Smoking or vaping cannabis in any form can harm lung tissues, scar small blood vessels and expose patients to many of the same toxins, irritants and carcinogens found in tobacco smoke.[278,279]
    - Second-hand cannabis smoke is harmful to the health of exposed contacts, particularly children and adolescents.[280]
  - Malignancy
    - Chronic cannabis use may increase the risks of testicular cancer and human papilloma virus (HPV)-related head and neck squamous cell carcinoma (HNSCC).[281,282]
  - Studies suggest that chronic use of cannabis may complicate pain management.[283,284]
- Pregnant or breastfeeding patients are strongly advised to avoid cannabis use due to known and unknown risks to the developing brain, potential birth defects, possible autism or spectrum disorders, future drug-seeking behavior and other behavioral abnormalities.[285]
- Despite the cautions above, medical clinicians may counsel their patients that many physicians, researchers, the American Medical Association and the organizations represented in CO's CURE advocate for better scientific research into the safety and efficacy of cannabinoids for pain management.

Introduction

The opioid epidemic has motivated physicians, researchers and patients to seek alternatives to opioids for the management of pain. Legalization and wider societal acceptance of cannabinoids, a broad term that describes the drugs derived from the plants of the genus Cannabis, has prompted some to ask whether cannabinoids might offer a safer, less-addictive alternative to opioid analgesia. While cannabinoids carry little risk of overdose death, their opioid-sparing potential and analgesic efficacy are unproven. Two ecological studies raised the possibility that medical cannabis legalization might reduce the use of opioids and rates of overdose death; however, subsequent individual-level research has challenged this hypothesis, and some states have seen rates of opioid-related harms increase after enactment of medical cannabis legislation.[286-288]

Research into the safety and efficacy of cannabinoids for analgesia has been largely limited to the study of chronic, neuropathic and cancer pain. Most of the existing studies of cannabinoids for medical use have been underpowered, unblinded or uncontrolled. A small number of observational studies of patients who use medical cannabis suggest that a subset of patients with chronic pain may successfully substitute cannabinoids for opioid analgesics.[289] Evidence regarding the efficacy of cannabinoids, including dispensary cannabis, for the management of acute pain is nonexistent.[284] Despite the lack of persuasive data, and the significant adverse effects associated with cannabinoids, in vitro research, animal studies, preclinical experience and case reports suggest that the analgesic and opioid-sparing potential of cannabinoids warrant human studies with rigorous design, larger sample sizes and more consistent measures of outcome.[290-292]

Though cannabinoids have been studied for decades, the barriers to cannabinoid research are many. In particular, plant-derived cannabinoids in the United States are classified as Schedule I substances for which research is tightly regulated. Furthermore, the pharmacokinetics of these substances are complex and depend on the composition of the synthetic or herbal product and the route of administration. The chemical content of unprocessed botanical cannabis varies significantly; there are more than 100 pharmacologically active cannabinoids, the most widely studied of which are Δ9-tetrahydrocannabinol (THC) and cannabidiol (CBD). The remaining cannabinoids and terpenes contribute to the smell, taste and possible pharmacologic effects of cannabis.[293] The three FDA-approved cannabinoids—CBD (Epidolex), nabilone (Cesamet) and dronabinol (Marinol)—are isolated substances. The sale and possession of CBD products that contain no more than 0.3% THC (and thus lack psychoactive effects) are now legal under federal law.[294] While the AMA stands firmly against the legalization of recreational cannabis, it calls for "adequate and well-controlled studies of marijuana and related cannabinoids in patients who have serious conditions for which preclinical, anecdotal or controlled evidence suggests possible efficacy and the application of such results to the understanding and treatment of disease."[295]

Evidence for Analgesic Properties of Cannabinoids

Well-described, shared neuropharmacological features and the substantial interactions of the mammalian endogenous cannabinoid system and endogenous opioid systems make an analgesic, opioid-sparing effect of cannabinoids physiologically plausible.[290,291,296-299] The human endocannabinoid system is composed of the cannabinoid receptors CB1 and CB2 and the endogenous human cannabinoids N-arachidonoylethanolamine (AEA), also known as anandamide, and 2-arachidonoylglycerol. CB1 receptors are concentrated in presynaptic neurons in areas of the brain that regulate appetite, memory, fear and motor responses, as well as in the spinal cord, dorsal root ganglia, the gastrointestinal tract, liver, fat cells and skeletal muscle, while CB2 receptors are primarily found in macrophages and tissues that modulate inflammation.[271,300]

Both cannabinoid receptors and endocannabinoids are involved in the regulation of pain sensation, with modulatory actions at all stages of pain processing pathways.[301] The signal transduction systems of cannabinoid and opioid receptors are similar, and both are expressed in brain regions involved in antinociception, including the periaqueductal gray, raphe nuclei and central-medial thalamic nuclei.[303] Mu-opioid receptors and CB1 receptors are both found in the dorsal horn of

the spinal cord at the first synaptic contact for peripheral nociceptive afferent neurons.[302,303] In vitro and animal studies provide ample evidence to support the analgesic effects of cannabinoids; some studies also suggest that these substances may work synergistically to enhance opioid analgesia.[290-292]

Most meta-analyses of cannabinoids and pain in humans are limited by small sample sizes and the wide heterogeneity of cannabinoid products, patient populations, outcomes and study designs. A 2018 systematic review of 104 studies (47 randomized controlled trials (RCT) and 57 observational studies, of which 46 were low or very low quality, 43 were moderate quality and 15 were high quality, per GRADE system) found moderate evidence of a 30% reduction in pain in patients using cannabinoids (29.0%) when compared with placebo groups (25.9%). The number needed to treat (NNT) to achieve a reduction in pain was 24. A 50% reduction in pain was reported by 18.2% of subjects in the cannabinoid groups compared to 14.4% in the placebo groups; however, these findings were statistically insignificant. The number needed to harm (NNH), notably, was 6. For comparison, the NNT for opioids is 4, and the NNH is 5. The authors note that the change in pain intensity seen with cannabinoids was equivalent to a 3-mm greater reduction on a 100 mm visual analogue scale when compared with placebo – well below the 30-mm threshold needed to represent a clinically significant difference. They acknowledge that their analysis is limited by the small sample sizes of the studies surveyed, with only 21 studies having more than 100 patients per treatment arm. They also note the short duration of most studies and observe that the efficacy of cannabinoids for pain appeared to wane over even a few days. The authors express concern that the short duration of most studies means that long-term adverse events, including the risk of iatrogenic dependence, cannabinoid tolerance and cannabinoid withdrawal syndrome, was not assessed by their review. They conclude that, while cannabinoids show modest benefit for the treatment of some pain conditions, they are unlikely to be effective for the management of chronic noncancer pain given their high NNT and low NNH.[304]

These findings of the Stockings review closely mirror those of a 2018 Cochrane review of cannabinoids for the treatment of chronic neuropathic pain, which similarly concludes that "there is a lack of good evidence that any cannabis-derived product works for any chronic neuropathic pain," while noting a high incidence of adverse effects.[305] A subsequent 2019 scoping review assessed data from 72 systematic reviews of medical cannabinoid use.[306] Notably, it judged only one review to be of high-quality and highlighted the occurrence of adverse effects in more than 80% of patients taking cannabinoids, including 36% reporting serious adverse effects.[306] The authors conclude that while a small number of reviews suggested analgesic benefit with cannabis use, most were unable to draw conclusions due to inconsistent findings, and, finally, that the harms of cannabinoid use may outweigh potential benefits.[306] Until larger, more methodologically rigorous studies are conducted, the results of meta-analyses will be of limited value in guiding patients and clinicians.

Adverse Effects of Cannabinoids

Although the legalization of medical and recreational cannabis has likely led some patients to consider these compounds as generally safe, the studies discussed above note significant adverse effects with cannabinoid use, including dizziness, dry mouth, tachycardia, fatigue, somnolence, nausea, vomiting, disorientation, confusion, anxiety, cannabis hyperemesis syndrome, paranoia and hallucinations. A recent survey of Colorado EDs describes increased frequency of patient visits for significant cannabis-related adverse effects, including psychosis, suicidality, concomitant substance abuse, decrements in complex decision-making, motor vehicle collisions, cardiovascular and pulmonary complications, inadvertent pediatric exposures and hash-oil burn injuries (sustained when preparing drug concentrates). Contaminants found in cannabis can also expose users to infectious agents, heavy metals and pesticides.[307] A retrospective review of adolescent ED and urgent care visits found a significant increase in cannabis-associated visits.[308] Another retrospective review found significant increases in cannabis-related hospitalizations, ED visits and poison center calls in Colorado both after local medical

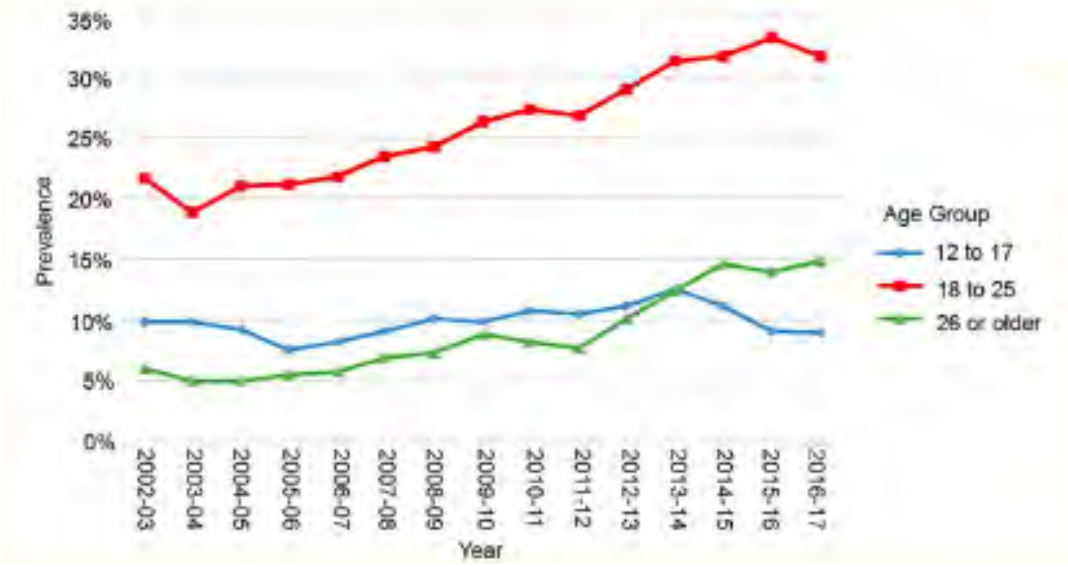
marijuana policy liberalization and after local recreational legalization. Of note was the high prevalence of mental illness presenting in patient visits cannabis-related codes, an association that warrants further investigation.[309]

While the long-term adverse effects of cannabinoids require further research, a number of studies have associated THC exposure with the later development of schizophrenia,[261-270] depression,[272,274] anxiety[271] and suicidal ideation, attempts and completion.[273] A large prospective cohort study also linked cannabis use to a substantial risk for the later development of cannabis use disorder,[310] estimating that 9% of adults and 17% of adolescent users will develop the disorder.[255] Both grey- and white-matter changes have been found in chronic cannabis users, as have volume reductions in the amygdala and hippocampus.[259,311-314] National reporting systems and rigorous research into the short- and long-term adverse effects of cannabinoids are urgently needed.

Clinicians in Colorado are likely aware of the high incidence and prevalence of cannabis use in the state **(TABLE 10)**. An estimated 39% of patients who receive chronic opioid therapy for pain report also using cannabis.[315,316] When the opportunity arises, clinicians are encouraged to advise patients that current evidence does not support the use of cannabis as a safe, effective analgesic and that further research is warranted. Patients with chronic pain who inquire about cannabis for analgesia should be referred to a pain management specialist.

(FIGURE 10)

Cannabis Use In the Past Month In Colorado, by age group

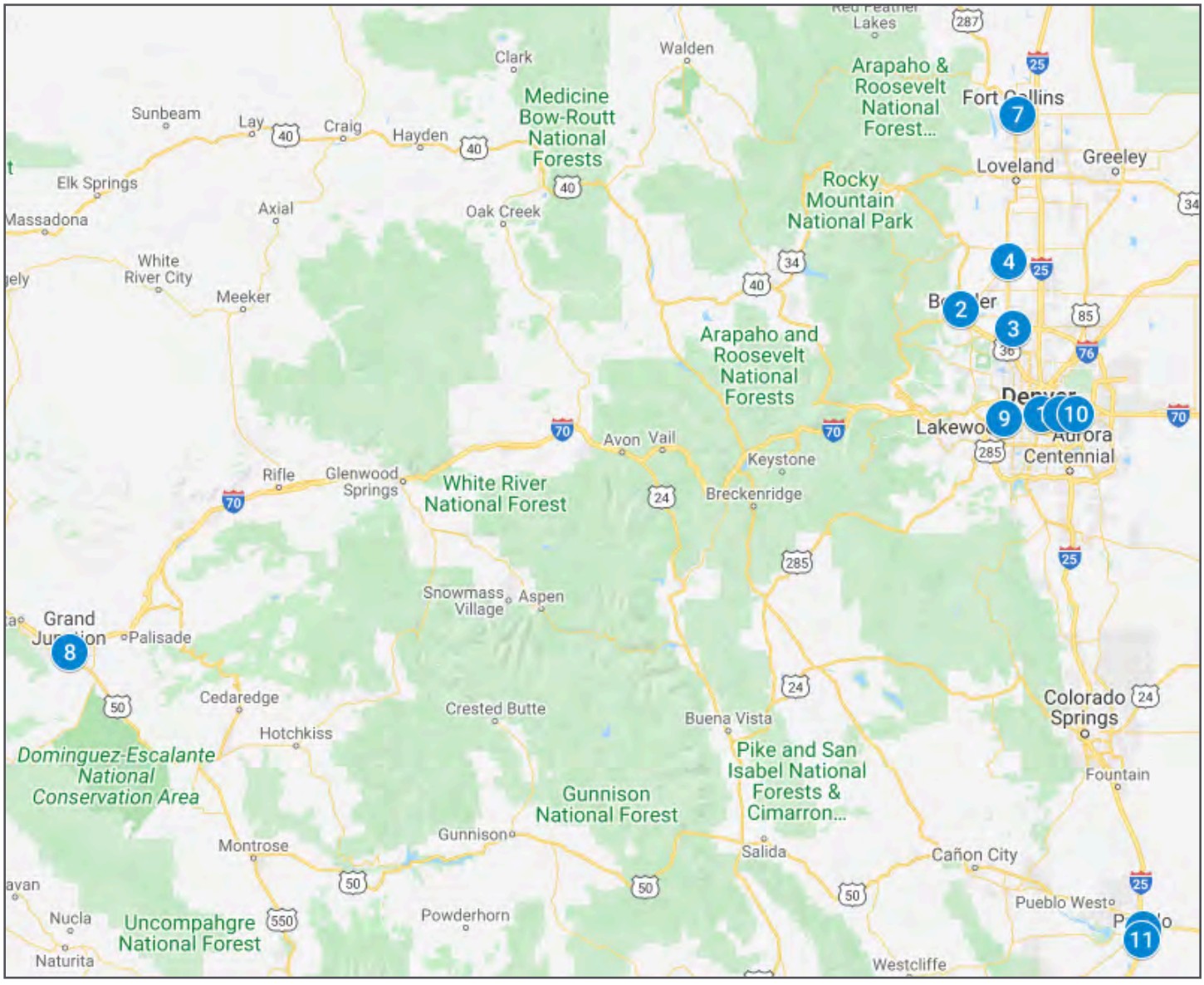


SOURCE: Reproduced from Substance Abuse and Mental Health Services Administration National Survey on Drug Use and Health: State Estimates. Available at https://pdas.samhsa.gov/saes/state. Accessed November 2018

Appendix XII

Map and Listing of Syringe Access Programs in Colorado

(updated March 2020)



Appendix D continued

	Name	Address	Hours	Phone
1	Harm Reduction Action Center	112 E. 8th Avenue Denver, CO 80203	Mon–Fri 9 a.m.–12 p.m.	303.572.7800
2	The Works	3482 Broadway Boulder, CO 80304	Mon–Fri 10:30 a.m.–4:30 p.m.	303.413.7533 303.441.1100
3	Boulder County Public Health	1735 S. Public Road Lafayette, CO 80026	Tues & Thurs 10:30 a.m.–4:30 p.m.	720.564.2706
4	Boulder County Public Health	515 Coffman Street, #200 Longmont, CO 80501	Mon–Fri 10:30 a.m.–4:30 p.m.	303.678.6166
5	Southern Colorado AIDS Project	807 N. Greenwood Street Suite 200 Pueblo, CO 81003	Mon–Fri 10 a.m.–12 p.m. & 1:30–4 p.m.	719.621.1105
6	Denver Colorado AIDS Project	6260 E. Colfax Avenue Denver, CO 80220	Mon–Thurs, 1–6 p.m. Fri, 12–5 p.m.	303.837.0166
7	Northern Colorado AIDS Project	400 Remington Street, #100 Fort Collins, CO 80524	Mon, Thurs & Fri 1–5:45 pm Tues, 2–5:45 p.m. Wed, 1–6:45 p.m.	970.484.4469
8	Western Colorado AIDS Project	805 Main Street Grand Junction, CO 81501	Mon, Wed & Fri 12–4:45 p.m.	970.243.2437
9	Points West Syringe Service Program	645 Parfet Street Lakewood, CO 80215	Mon & Thurs 8 a.m.–6 p.m. Wed & Fri 8 a.m.–5 p.m.	303.239.7078
10	Aurora Syringe Access Services	1475 Lima Street Aurora, CO 80010	Mon–Thurs 1–4 p.m.	303.363.3077
11	Southern Colorado Harm Reduction Association	1249 E. Routt Avenue Pueblo, CO 81004	Sat 12:30–4:30 p.m.	719.289.7149
12	Rocky Mountain Cares LifePoint	Mobile SAP for DenverArea	Mon, Wed & Fri Mobile Outreach Exchange; hours vary	720.385.6898

Colorado Department of Public Health & Environment keeps an updated list of SEPs which may be accessed at https://www.colorado.gov/pacific/cdphe/reducing-infections-injection-drug-use

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