



May 20, 2021

Opioids in the Treatment of Injured Workers

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Objectives

1. Learn about the relationship between **pain, opioids, and disability**.
2. Understand the **pharmacology, efficacy, and adverse event** profile of opioids.
3. Discuss the **risks** of opioids and **guideline-supported use** in the treatment of work-related pain conditions.
4. Review best practice **opioid management strategies**.
5. Gain a deeper understanding of the **available interventions** that will help injured workers recover function and manage pain.

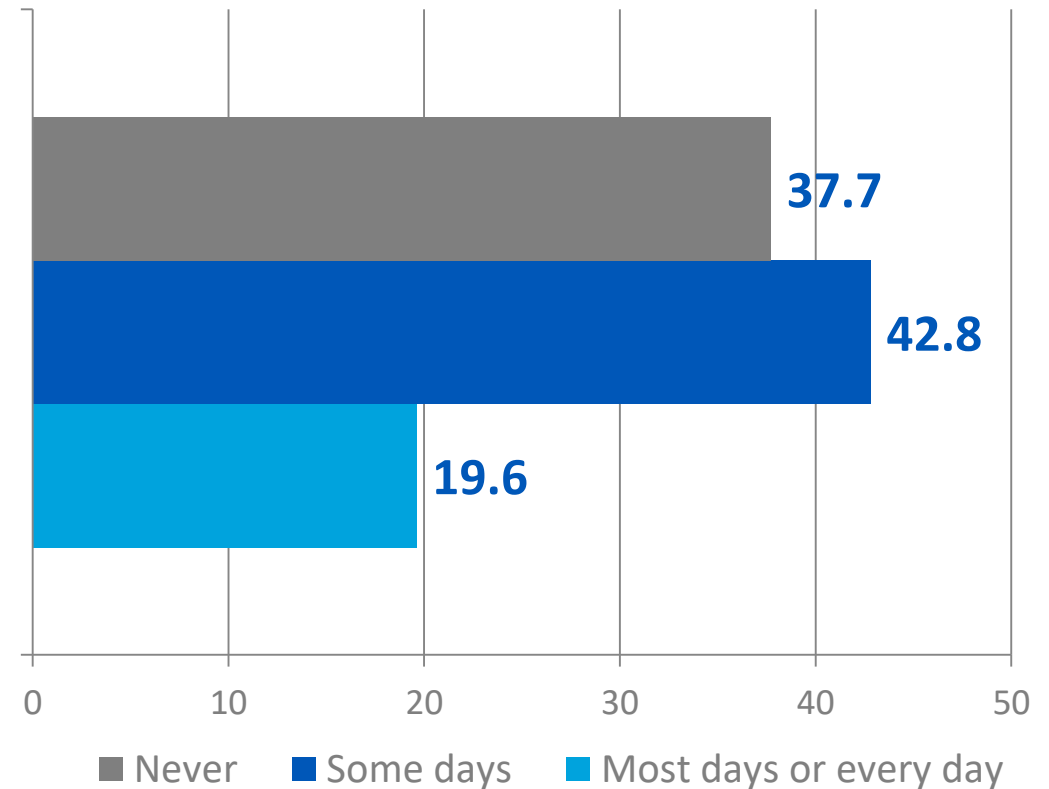
The background of the slide is a close-up, shallow depth-of-field photograph of numerous pills. Most are white, oval-shaped tablets, but one prominent pill in the center-left is a blue, oblong capsule. The pills are scattered across the frame, creating a textured, medical-themed background.

Pain, Opioids, & Disability

The Prevalence of Pain

- **116 million Americans** suffer from chronic pain
- Pain is the most common presenting complaint of patients who seek medical care
- Estimated **40-90%** patients treated in specialized pain treatment facilities receive opioid analgesics

2016 National Health Interview Survey (Adults ≥ 18 years)
Pain frequency in the past 6 months



Sources: The Institute of Medicine, dptbeta.samhsa.gov/doc/NASPER%2009142007.doc, <https://www.cdc.gov/nchs/nhis.htm>

Culture for Treatment

- 1996 - Purdue & Oxycontin “misbranding”
- 1996 - Pain as the 5th vital sign (American Pain Society)
- 2000 - Pain should be assessed in all patients (JCAHO)

“Difficult” Approach

- Lose weight
- Change diet
- Exercise
- Sleep hygiene
- Socioeconomic /psychosocial factors

“Easier” Answers

- Surgical intervention
- Prescription drug therapy

Consequences:

- 74% of all physician office visits result in a prescription¹
- 13% of all visits & 33% of visits for chronic non-cancer pain result in a prescription for an opioid²

Sources: IMS Health, ¹CDC Prescribing data https://www.cdc.gov/nchs/data/ahcd/namcs_factsheet_all_2009.pdf 7/10/2017, ²J of Medical Systems 2014 study <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4271836/> 7/10/2017

Opioids in Workers' Comp

Most injured workers receive opioids for pain relief, up to 70% in some states¹

Disability

- **11-14x** Chronic work loss odds are greater for claimants with opioid Rx compared to those without opioids²
- **3.6x** CA claimants prescribed opioids were out of work longer³
- **251%** longer temporary total disability⁴

Litigation

- **↑60%** CA claimants prescribed opioids had a greater chance of litigation³

Costs

- **17%** Rx drugs proportion of workers' comp medical costs⁵
- **45-50%** Annual Rx cost of older claims⁵
- **3x & 9x** Average cost of claims with a short- or long-acting opioid⁶

¹WCRI 2018 <http://www.wcrinet.org>; Thumala, Wang, and Liu. *Interstate Variations in Dispensing of Opioids*, 5th Edition. Accessed April 2021.

²Volinn E, Fargo JD, Fine PG. Opioid therapy for nonspecific low back pain and the outcome of chronic work loss. *Pain*. 2009;142(3):194-201.

³WCRI 2013 <http://wcinsights.com/wcri-reports-bigger-issue-popping-up-in-comp-opioids/> 7/20/2017

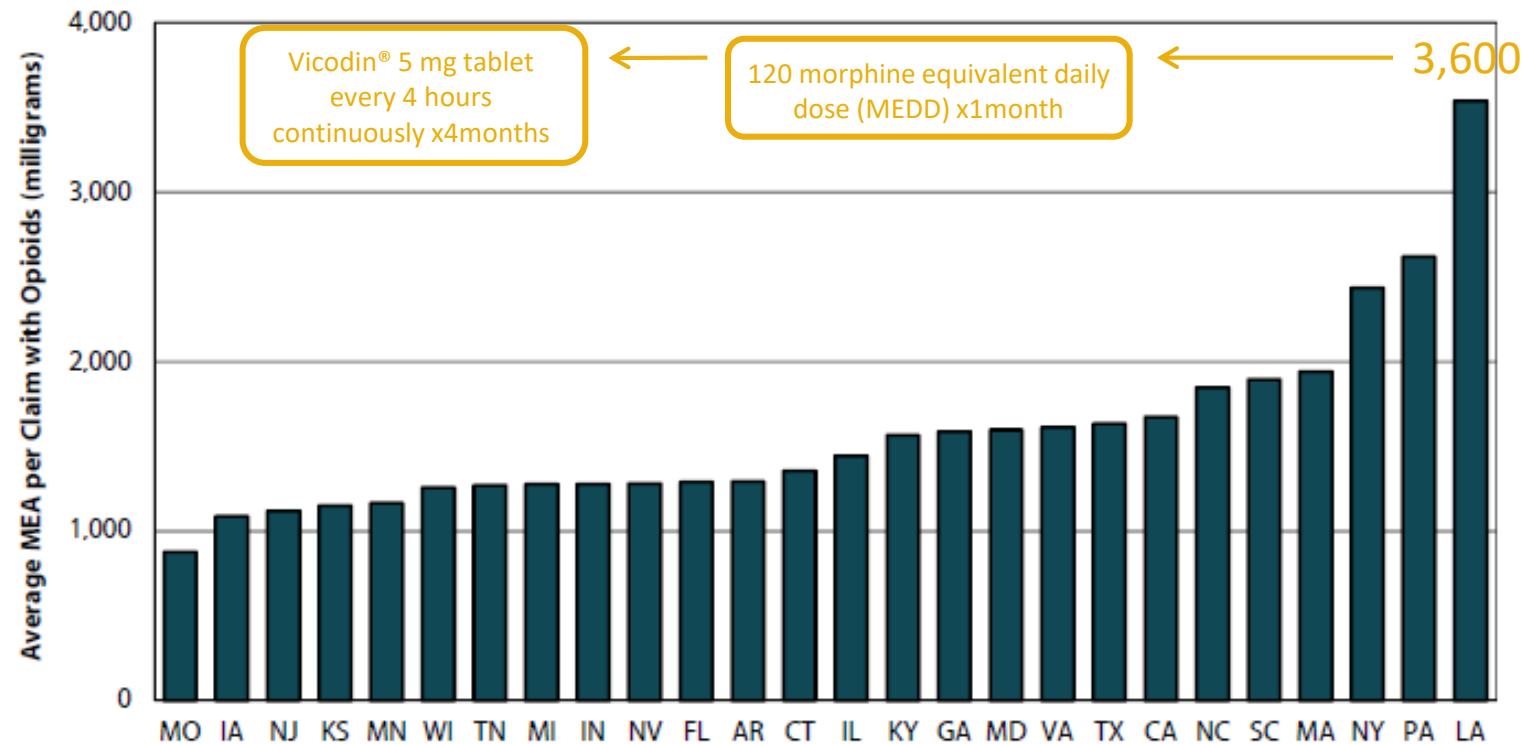
⁴WCRI 2018 <http://www.wcrinet.org> The Impact of Opioid Prescriptions on Duration of Temporary Disability. Bogdan Savych, David Neumark, and Randy Lea. March 2018. WC-18-18.

⁵NCCI, 2016 report https://www.ncci.com/Articles/Documents/IL_ResearchBrief_WC_Prescription_Drugs.pdf 7/20/2017

⁶New York Times report "The Soaring Cost Of the Opioid Economy," www.nytimes.com 6/22/2013

Opioids in Workers' Comp

Figure B Average MEA per Claim with Opioids,^a 2013/2015



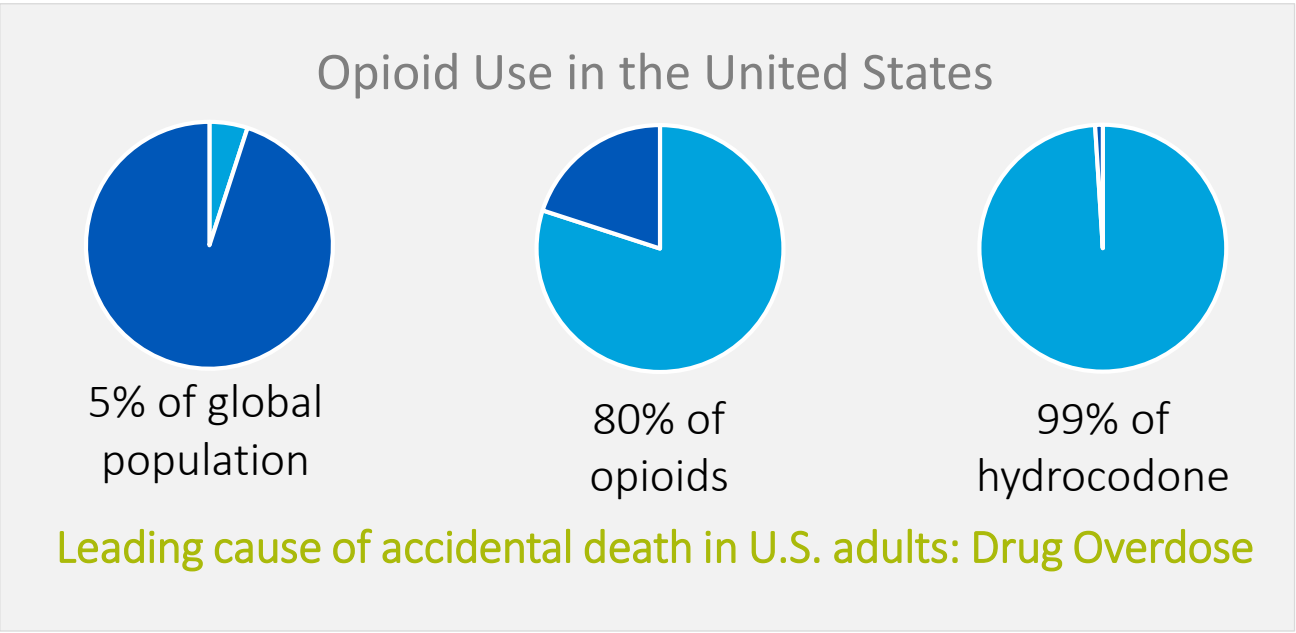
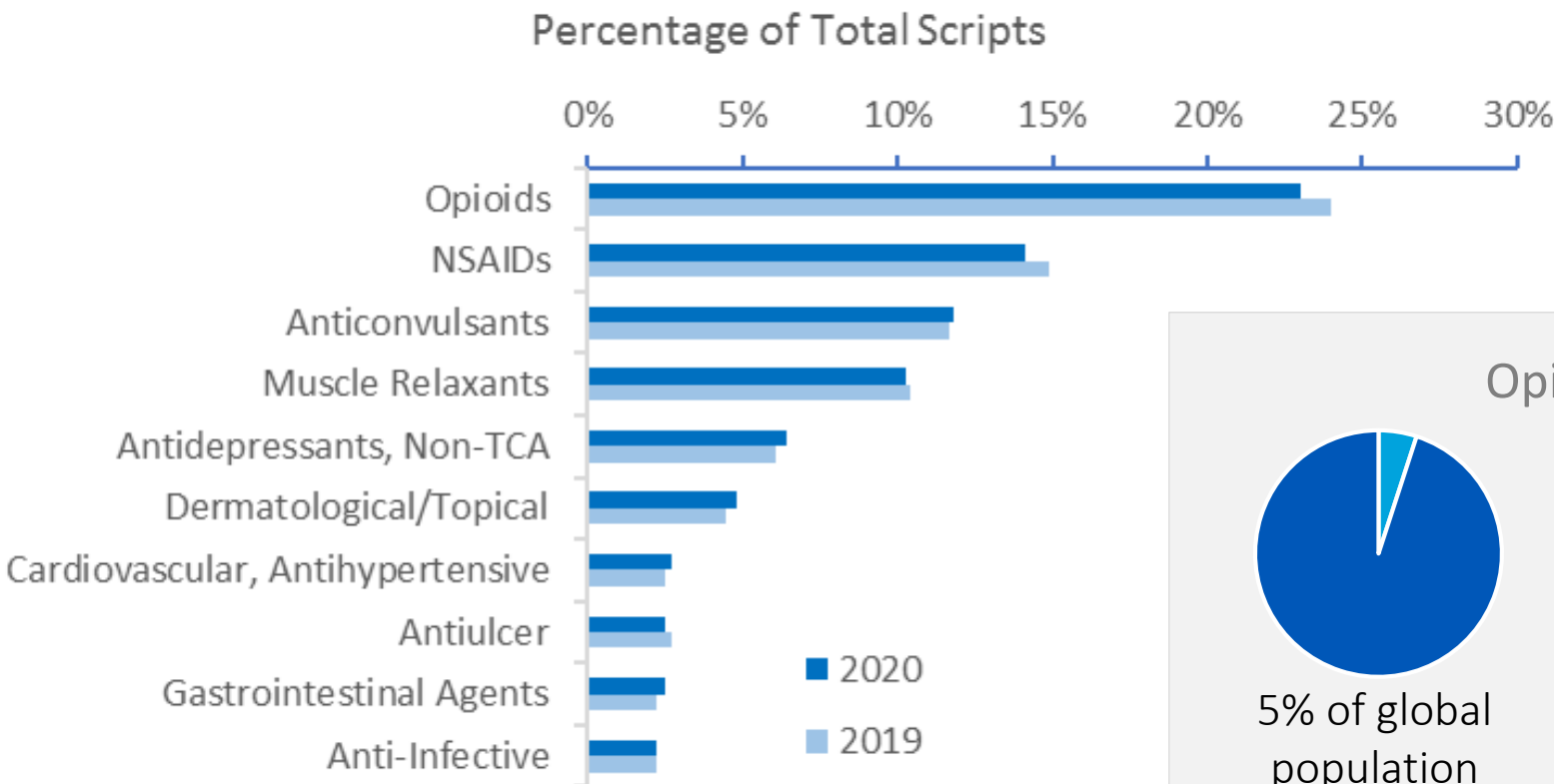
Notes: The underlying data include nonsurgical claims with more than seven days of lost time that had prescriptions filled by injured workers over the defined period and paid for by a workers' compensation payor. 2013/2015 refers to claims with injuries occurring from October 1, 2012, through September 30, 2013, and prescriptions filled through March 31, 2015.

^a Reported are the mean values of MEA per claim with opioids after excluding a small percentage of claims that had unusually high amounts of opioids. See Chapter 2 for a description of how we identified claims with unusually high amounts of opioids.

Key: MEA: morphine equivalent amount.

Prescription Trends in Workers' Comp

Top Therapeutic Classes by Utilization – Retail & Mail Order Prescriptions



Source: 2020 First Script Drug Trend Analysis

Opioids in the Workplace

75% of employers say their workplaces have been impacted by opioid use

- Key Findings from the 2019 National Safety Council Poll
 - **Only 17%** of employers feel well-prepared to deal with the issue
 - 38% have experienced **absenteeism or impaired worker performance**
 - **31% have had an overdose, arrest, near-miss or injury** because of employee opioid use
- 86% of employers believe taking opioids even as prescribed can impair job performance
 - Only 60% have policies in place requiring employees to notify their employer when they are using a prescription opioid
- 41% of employers would return an employee to work after he or she receives treatment for misusing prescription opioid

<https://c212.net/c/link/?t=0&l=en&o=2402980-1&h=1715263883&u=https%3A%2F%2Fwww.nsc.org%2FLinkClick.aspx%3Ffileticket%3DXGzHbNFCfHN0%253d%26portalid%3D0&a=here>

Opioid Analgesics

Opioid Analgesics (a.k.a., “Narcotic Analgesics”)

Natural Opioids:

- Derived from naturally-occurring opiates found in the opium resin of the opium poppy

Semi-synthetic Opioids:

- Hybrid opioids resulting from chemical modifications to naturally-occurring opium alkaloids

Synthetic Opioids:

- Made from other chemicals and molecules unrelated to opium alkaloids

Opioid Ingredient	Common Brand Name Products
hydrocodone	Vicodin*, Norco*, Lortab*, Vicoprofen**
oxycodone	Roxicodone, OxyContin, Percocet*, Endocet*, Combunox**, Percodan***
morphine	MS Contin, Avinza, Kadian
codeine	Tylenol with Codeine*
oxymorphone	Opana
hydromorphone	Dilaudid
meperidine	Demerol
fentanyl	Duragesic, Actiq, Abstral, Fentora, Subsys
methadone	Dolophine, Methadose
tramadol	Ultram, ConZip, Ryzolt, Rybix, Ultracet*
tapentadol	Nucynta
buprenorphine	Butrans, Belbuca, Subutex

*Combined with acetaminophen (“APAP”) **Combined with ibuprofen ***Combined with Aspirin

Opioid Indications and Side Effects

Indications:

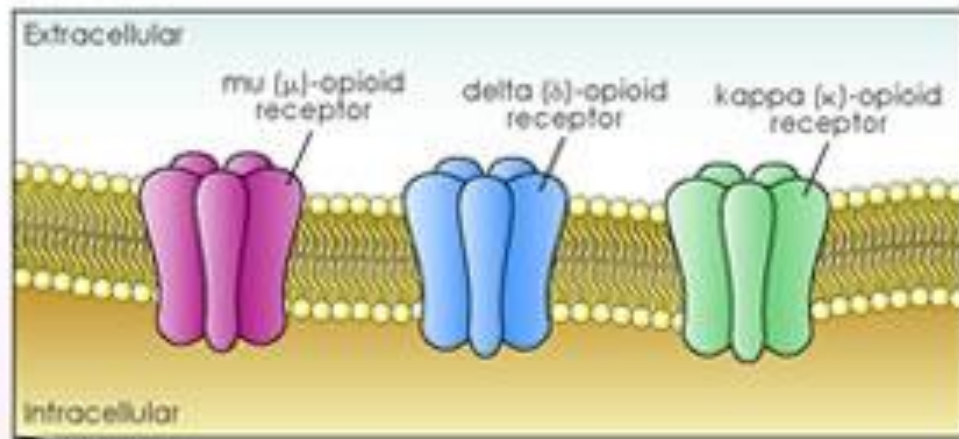
- For the management of pain severe enough to require opioid treatment and for which alternative treatment options (e.g., non-opioid analgesics (or immediate-release or opioid combination products, as appropriate)) are inadequate or not tolerated

General Side Effects:

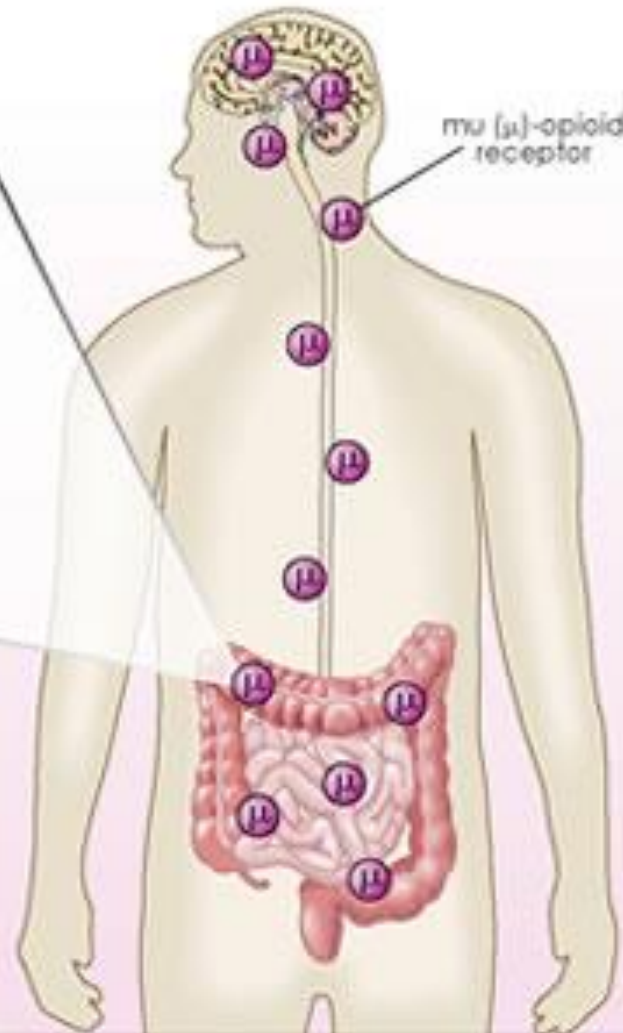
- Gastrointestinal effects (nausea/vomiting, constipation, bowel dysfunction, GERD, bloating, abdominal cramping), respiratory depression, sedation, fatigue, confusion, itching, sweating, cardiovascular effects (sinus bradycardia, palpitations, hypertension, hypotension, syncope)



Opioid Mechanism of Action



- Alter pain perception
- Mimic naturally-occurring endogenous opioid peptides (endorphins, enkephalins, dynorphins)

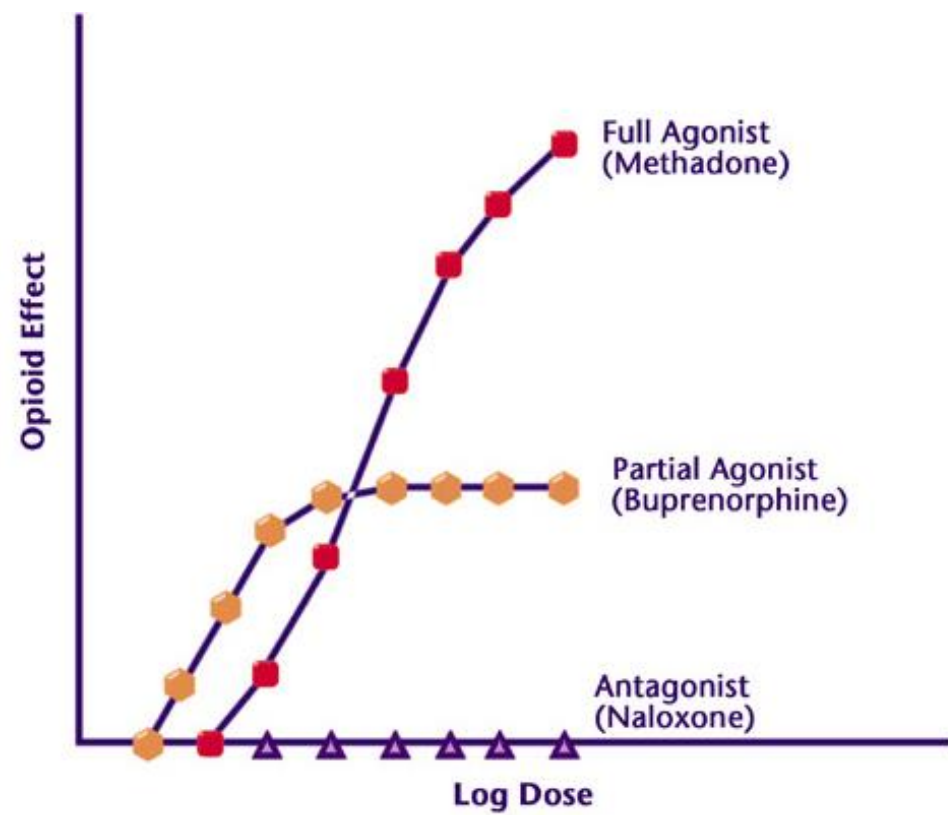
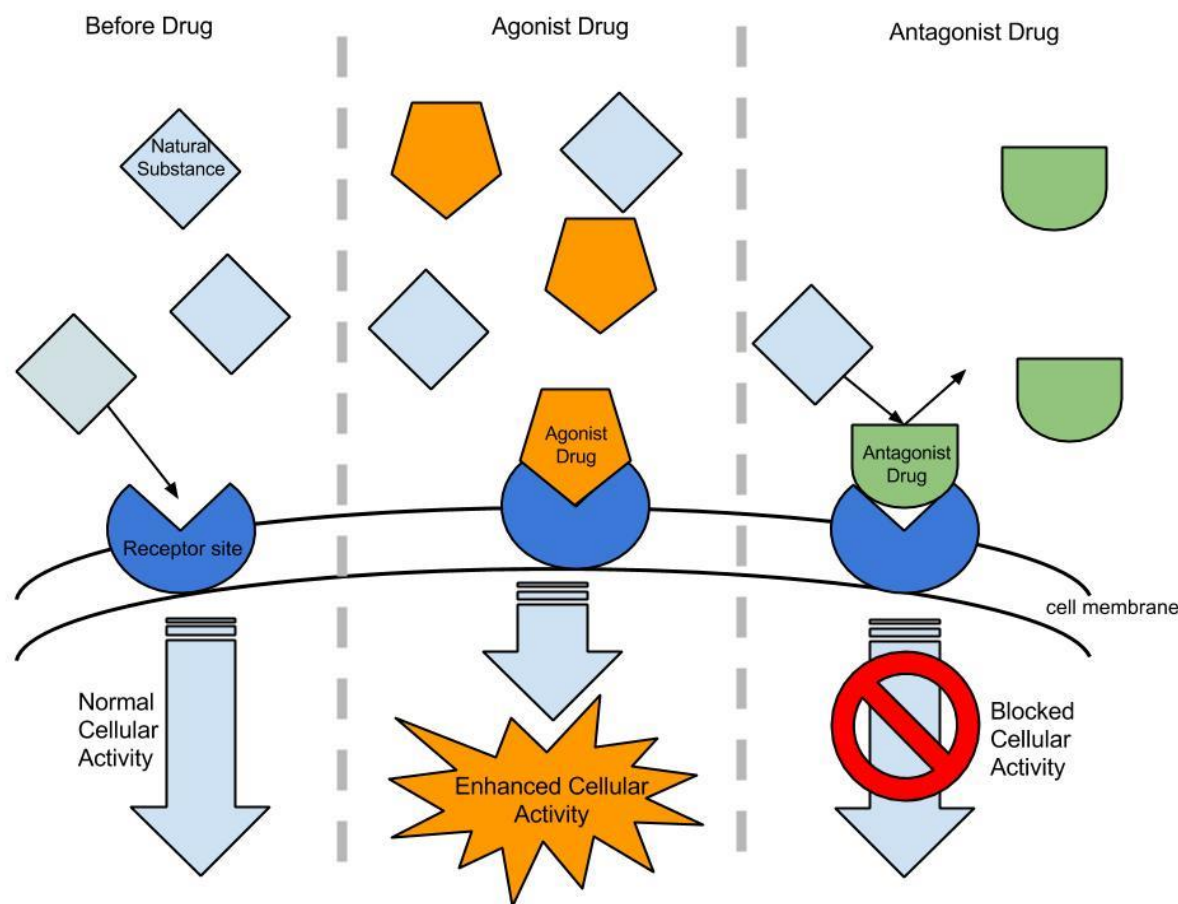


Endogenous Opioid System Roles

- Sensory
- Modulatory
- Emotional
- Cognitive

http://2.bp.blogspot.com/-3b3VyZWltCA/TZg8Z0QYB7I/AAAAAAAAAIQ/fJCAO_oimqo/s400/opioid+receptors.jpg (142.250.64.65)

Opioid Receptor Activity



By Dolleyj - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=32459362>

http://www.naabt.org/education/technical_explanation_buprenorphine.cfm

Opioid Receptor Effects:

Signs & Symptoms of Opioid Intoxication and Withdrawal

Intoxication

Euphoria

Dysphoria

Apathy

Motor retardation

Sedation

Slurred speech

Attention impairment

Pinpoint pupils

Decreased respiration



Withdrawal

Watery eyes

Runny nose

Pupil dilation

Goosebumps

Sweating

Diarrhea

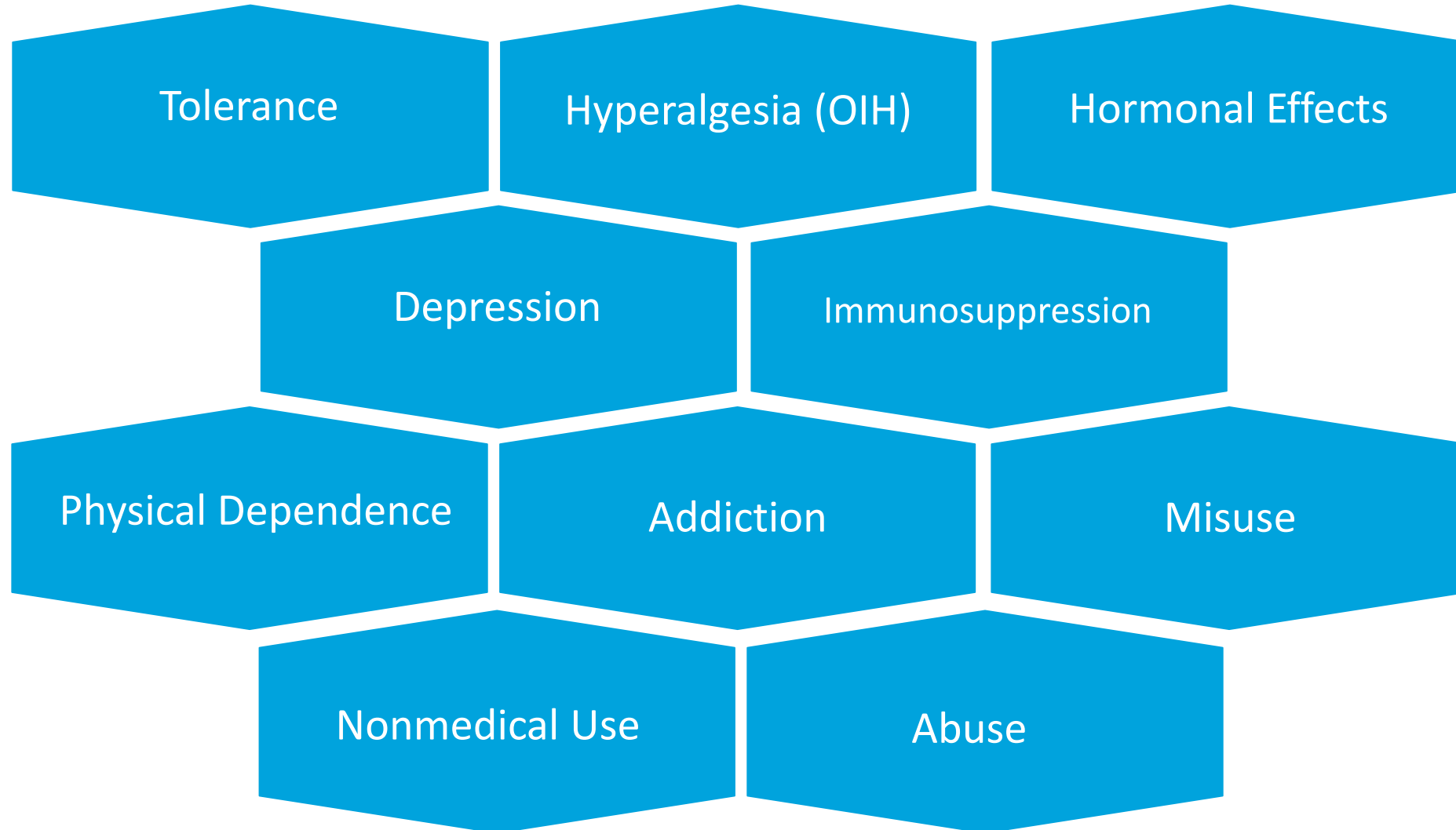
Yawning

Fever

Insomnia

Muscle aching

Opioid Effects



Opioid Analgesics: Evidence for Efficacy

Acute pain

Acute Pain Study (National Safety Council, 2015)

Oxycodone 15mg	NNT 4.7
Oxycodone 10mg + acetaminophen 650mg	NNT 2.7
Naproxen 500mg	NNT 2.7
Ibuprofen 200mg + acetaminophen 500mg	NNT 1.6

Acute Pain Study (JAMA 2017)

Complaint	Moderate to severe extremity pain in the emergency department
Treatment	Ibuprofen + APAP or 1 of 3 different opioids + APAP
Outcomes	No difference at 2 hours

Chronic Pain

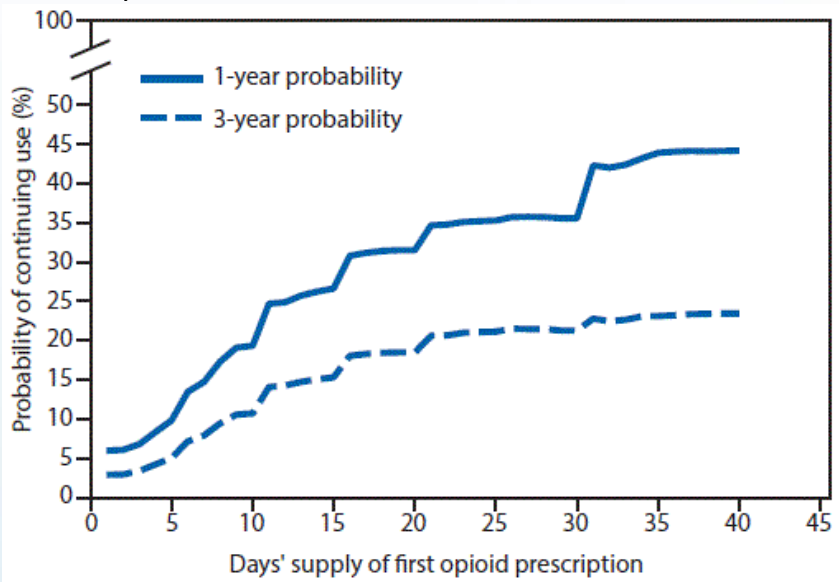
Chronic Pain Study (JAMA 2018)

Complaint	Chronic back pain or osteoarthritis (hip or knee)
Treatment	Opioids vs. other
Outcomes	No superior improvements in function at 12 months; slight increase in pain if on opioid

- “Evidence on long-term opioid therapy for chronic pain is very limited but suggests an increased risk of serious harms that appears to be dose-dependent.” — *Chou et al., AHRQ Review 2014*
- Insufficient evidence of long-term pain reduction with opioids — *Martell et al., 2007; Krashin, Sullivan, & Ballantyne, 2013; NIH Consensus Paper, 2014*

Opioid Analgesics: Evidence for Long-Term Use

One- and 3-year probabilities of continued opioid use among opioid-naïve patients, by number of days' supply* of the first opioid prescription — United States, 2006–2015¹



“Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. **Three days or less will often be sufficient; more than seven days will rarely be needed.**”²

Predicted Longer-Term Opioid Prescribing across Initial Opioid Prescribing Characteristics – WCRI 2020 Report

Variables	Predicted Percentage with Longer-Term Opioids
Initial opioid episode characteristics	
<i>Morphine milligram equivalent amount of opioids</i>	
1 to 99	7%
100 to 249	7%
250 to 499	8%
500 or more	10%
<i>Number of opioid prescriptions</i>	
One	6%
Two	7%
Three or more	12%
<i>Time from injury to initial opioid prescription</i>	
Less than 7 days	6%
7 to 14 days	7%
15 to 30 days	9%
More than 30 days	12%

¹Shah A, Hayes CJ, Martin BC. Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use — United States, 2006–2015. MMWR Morb Mortal Wkly Rep 2017;66:265–269. Available at: www.cdc.gov/MMWR. Accessed: 5/19/2021

²Centers for Disease Control and Prevention; Morbidity and Mortality Weekly Report, Recommendations and Reports, V65, No 1, March 18, 2016 the Amer. Acad. Of Neurology

Despite their risks and the growing scrutiny around their benefit for use in acute in chronic pain patients, opioids remain the most-utilized drug class among the injured worker population.

a) True

b) False

Opioid Risks and Guideline Considerations

Opioid Adverse Outcome Risk

In 2015, there were more than 15,000* deaths related to prescription opioids.¹



42 deaths per day

For every 1 death there are...

11 treatment admissions for abuse²

28 emergency department visits for misuse or abuse³

133 people who abuse or are dependent⁴

689 nonmedical users⁴

* excludes synthetic opioids other than methadone (i.e., tramadol, fentanyl) because reported fatal overdose stats do not delineate between pharmaceutical and illicit fentanyl.

¹CDC Prescription Opioid Overdose Data <https://www.cdc.gov/drugoverdose/data/overdose.html> 7/12/2017

²Treatment Episode Data Set (TEDS): 2002-2012 State Admissions to Substance Abuse Treatment https://www.samhsa.gov/data/sites/default/files/TEDS2012N_Web.pdf 7/12/2017

³Substance Abuse and Mental Health Services Administration, The Drug Abuse Warning Network (DAWN) Report 2011 <http://www.samhsa.gov/data/2k13/DAWN127/sr127-DAWN-highlights.htm> 7/12/2017

⁴Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2014 <https://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf> 7/12/2017

Identifying Opioid Adverse Outcome Risk

Factors Associated with Increased Risk of Overdose

Population

- Men > Women
- Middle-aged adults
- People in rural counties
- Whites and American Indian or Alaskan Natives
- Residents of states with higher sales per person and higher nonmedical use of prescription painkillers

Individual

- **Prior opioid overdose**
- History of substance abuse or diagnosis for opioid dependence or opioid use disorder
- Mental health disorders
- Untreated sleep disorders (sleep apnea)
- Lung disease (asthma, COPD)
- Kidney or liver problems
- Nonmedical use of opioid prescriptions

Risk Index for Overdose or Serious Opioid-Induced Respiratory Depression (RIOSORD)

Medication

- Extended-release or long-acting opioid
- Starting or switching to a new opioid medication
- Resumption of opioid therapy after period of abstinence
- MED > 50 or aggressive opioid dose increases
- Multiple prescriptions or prescribers
- Route of administration (injectable)
- Concurrent CNS depressant medications

Identifying Opioid Adverse Outcome Risk

Opioid Misuse or Abuse Screening

Risk Screening Tools:

- SOAPP-R, ORT, DIRE (Predict opioid abuse)
- PADT, COMM, ABC (Identify opioid misuse in current, long-term users)



Potential Risk Indicators

- Failing to bring in unused medications
- Obtaining a higher dosage without approval of the prescribing physician
- Requesting early refills
- Reporting medication lost or stolen
- Arriving for unscheduled clinical appointments in a state of distress or missing appointments
- Making frequent visits to emergency departments
- Failing to comply with other treatment modalities
- Showing interest only in symptom control rather than rehabilitation
- Hearing reports from family of overuse or intoxication
- In general, failing to show improved function or relief from pain

Identifying Opioid Adverse Outcome Risk

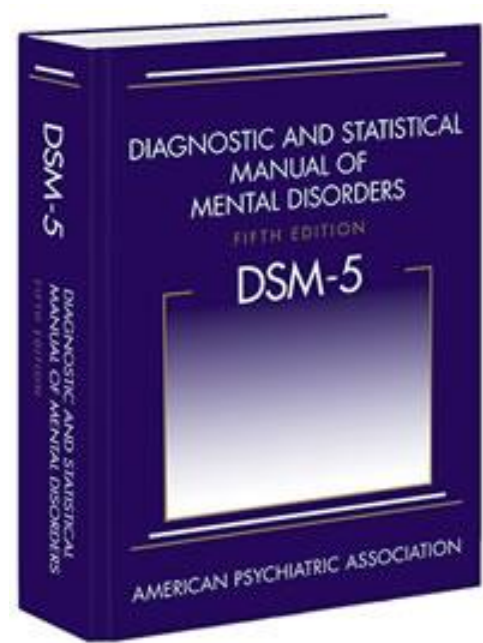
Factors Associated with Risk of Opioid Use Disorder

- Type of opioid (extended-release or long-acting, likability)
- Route of administration
- High dose or quantity
- Long duration of use
- Rapid development of tolerance
- Comorbid psychiatric conditions
- Substance abuse
- Lack of social support



Opioid Use Disorder Diagnosis ≥2

ICD Codes: 304 (F11.2)



[Adapted from The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders \(DSM-5\)](#)

Opioids taken for longer or in larger amounts than intended
Persistent desire or unsuccessful efforts to cut down or control opioid use
Significant time spent obtaining, using, or recovering from opioid effects
Craving, or strong desire to use opioids
Problems fulfilling obligations at work, school, or home
Continued opioid use despite suffering social or interpersonal problems
Discontinuing or reducing activities because of opioid use
Using opioids in physically hazardous situations
Continued use despite physical or psychological problems known to be caused or worsened by opioids
*Tolerance
*Withdrawal

**Criterion not met if individual is taking opioids under appropriate medical supervision*

Which of the following characteristics are associated with an increased risk of opioid overdose?

- a) MED >50
- b) Comorbid lung disease
- c) Middle-aged white male
- d) History of prior opioid overdose
- e) All of the above

Evidence-Based Medicine & Guidelines

Opioids are not recommended for non-severe pain (not first-line). There is little-to-no evidence of long-term benefit for chronic, non-cancer pain.

Guidelines
Available
Online

- [CDC](#)
- [ODG](#)
- [ACOEM](#)
- State-based
- Medical Societies

- Evaluate benefits and harms frequently,
- Establish goals for pain and function
- Offer treatment for Opioid Use Disorder (OUD)

- Mitigate risk
 - MED < 50
 - Review PDMP, utilize UDT, evaluate substance use disorder, naloxone
 - Avoid or use extreme caution
 - CNS depressants (benzodiazepines, alcohol, antihistamines, etc.)
 - Illicit substances
 - Mental health disorders
 - Respiratory disorders
 - Untreated sleep disorders

Medication-Assisted Treatment (MAT) Overview

- MAT is the use of medications in combination with counseling and behavioral therapies, which is effective in the treatment of opioid use disorders (OUD) and can help some people to sustain recovery.¹
- CDC: Drugs for opioid use disorder (Recommendation 12)
 - Methadone and buprenorphine
- ODG: Drugs for opioid dependence
 - Buprenorphine (Y drug for detox, N drug for pain): Recommended for select patients
 - Methadone (N drug): May be first-line when used by addiction specialists
- WHO: Model List of Essential Medicines
 - Buprenorphine and methadone for OUD



¹<https://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm600092.htm>

MAT: Pharmacotherapy Treatment Options

FDA-approved products indicated for the treatment of opioid dependence/use disorder

Active Ingredient(s)	buprenorphine	buprenorphine and naloxone	methadone	naltrexone
	<ul style="list-style-type: none">• Probuphine subdermal implant• Sublocade subcutaneous injection• Subutex sublingual tablet	<ul style="list-style-type: none">• Bunavail buccal film• Cassipa sublingual film• Suboxone sublingual or buccal film• Zubsolv sublingual tablet	<ul style="list-style-type: none">• Dolophine tablet• Methadose oral concentrate	<ul style="list-style-type: none">• Vivitrol intramuscular injection

<https://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm600092.htm>

Opioid Treatment Programs (OTP)

- Goals of Therapy
 - Reduce illicit or unwanted drug use and health risks
 - Improve vocational and psychosocial functioning
 - Enhance quality of life
- Length of treatment
 - Ranges from hours to months
 - Inpatient / outpatient / MAT
- Check it out: TIP

Federal Guidelines for Opioid Treatment Programs (Jan 2015), CSAT, SAMHSA, HHS
<https://store.samhsa.gov>



Which of the following is NOT an FDA-approved drug ingredient(s) for Medication-Assisted Treatment (MAT) of Opioid Use Disorder?

- a) methadone
- b) oxycodone
- c) buprenorphine
- d) buprenorphine + naloxone

The background of the slide is a close-up, slightly blurred image of numerous pills. Most are white, but one pill in the upper center is a distinct blue color. The pills are scattered across the frame, creating a textured, medical-themed background.

Opioid Management Strategies

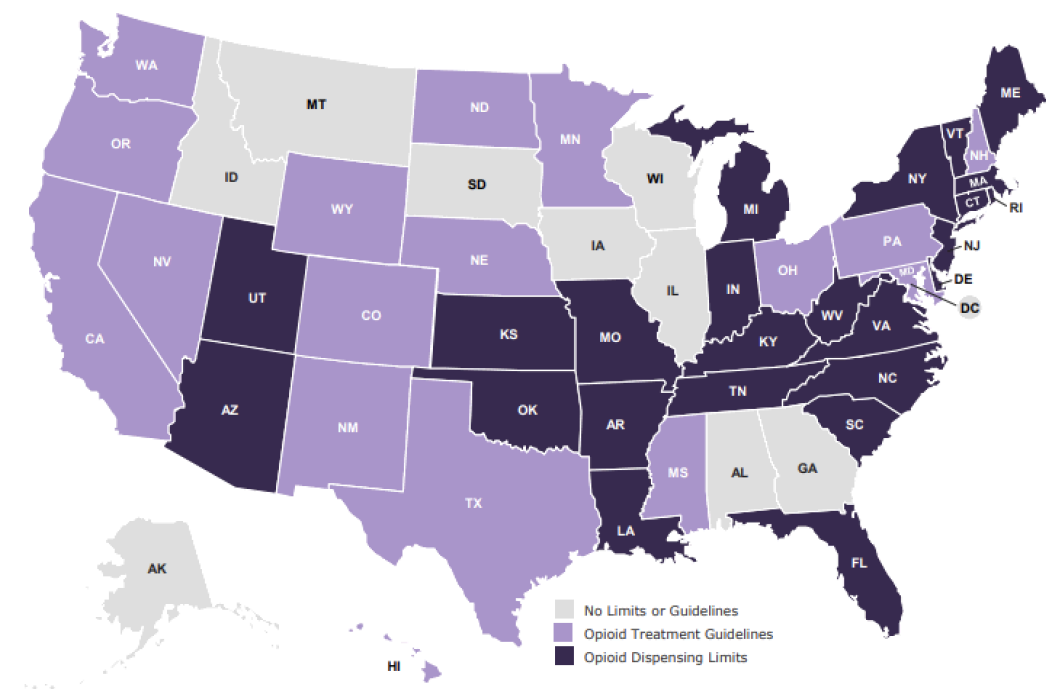
Opioid Management Strategies

- Promote adherence to best-practice prescribing
- Limit physician-dispensing and re-packaged drugs
- Establish and enforce drug formularies
- Monitor for at-risk individuals
- Look for opportunities for early intervention
- Ensure evidence-based recommendations followed for ongoing opioid therapy
- Engage the clinician and patient; provide continued oversight and education
- Refer patients for a drug utilization assessment / peer-to-peer review / utilization review (UR)
- Support Urine Drug Monitoring & frequent follow-up
- Partner with Pharmacy Benefits Manager (PBM)

☐ Prevention ☐ Intervention ☐ Support

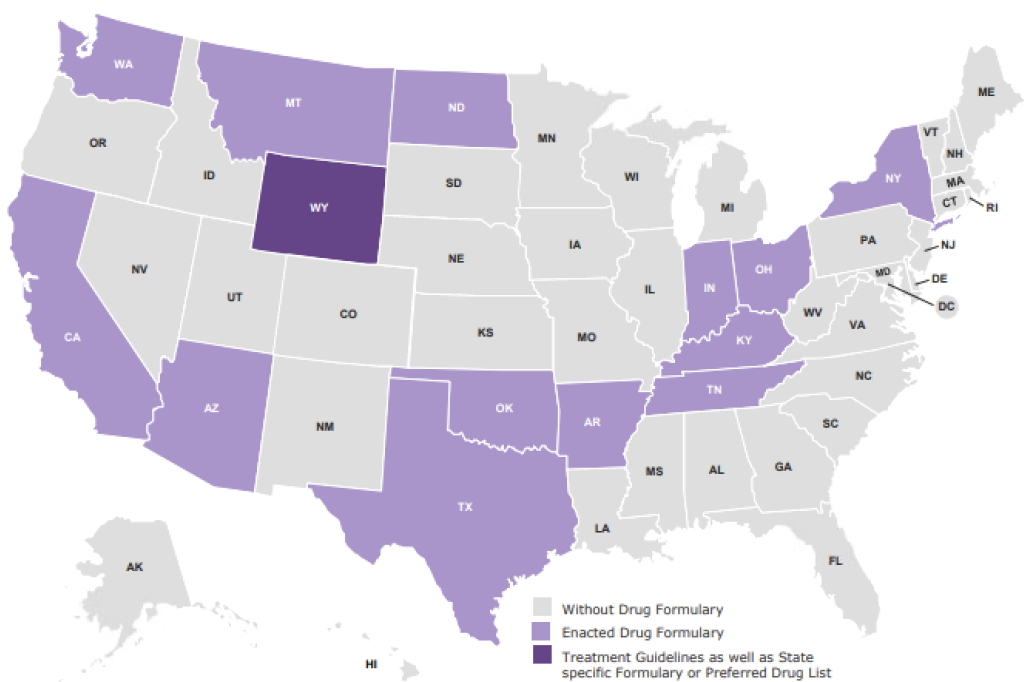
Juris Rules, Regulations, and State-Based Formularies

Opioid State Limits/Guidelines



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State Formularies



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Other Pain Management Interventions

Pharmacological Alternatives to Opioids

- Non-opioid analgesics
 - Acetaminophen
 - NSAIDs, Aspirin
- Adjuvant analgesics
 - Antidepressants
 - Anticonvulsants
 - Topicals
 - Corticosteroids
- Other
 - Targeted therapies (e.g., anti-infectives, psych, musculoskeletal pain, intra-articular injections/joint pain, etc.)
 - Cannabis / cannabinoids

Pharmacologic Developments for Pain

Local anesthetics / peripheral nerve blocks

procaine

bupivacaine

lidocaine

mepivacaine

tetracaine

Neurotoxins

botulinum toxin

Botox®

Dysport®

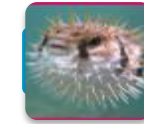
Myobloc®

Xeomin®



conopeptides

• Prialt®



tetrodotoxin



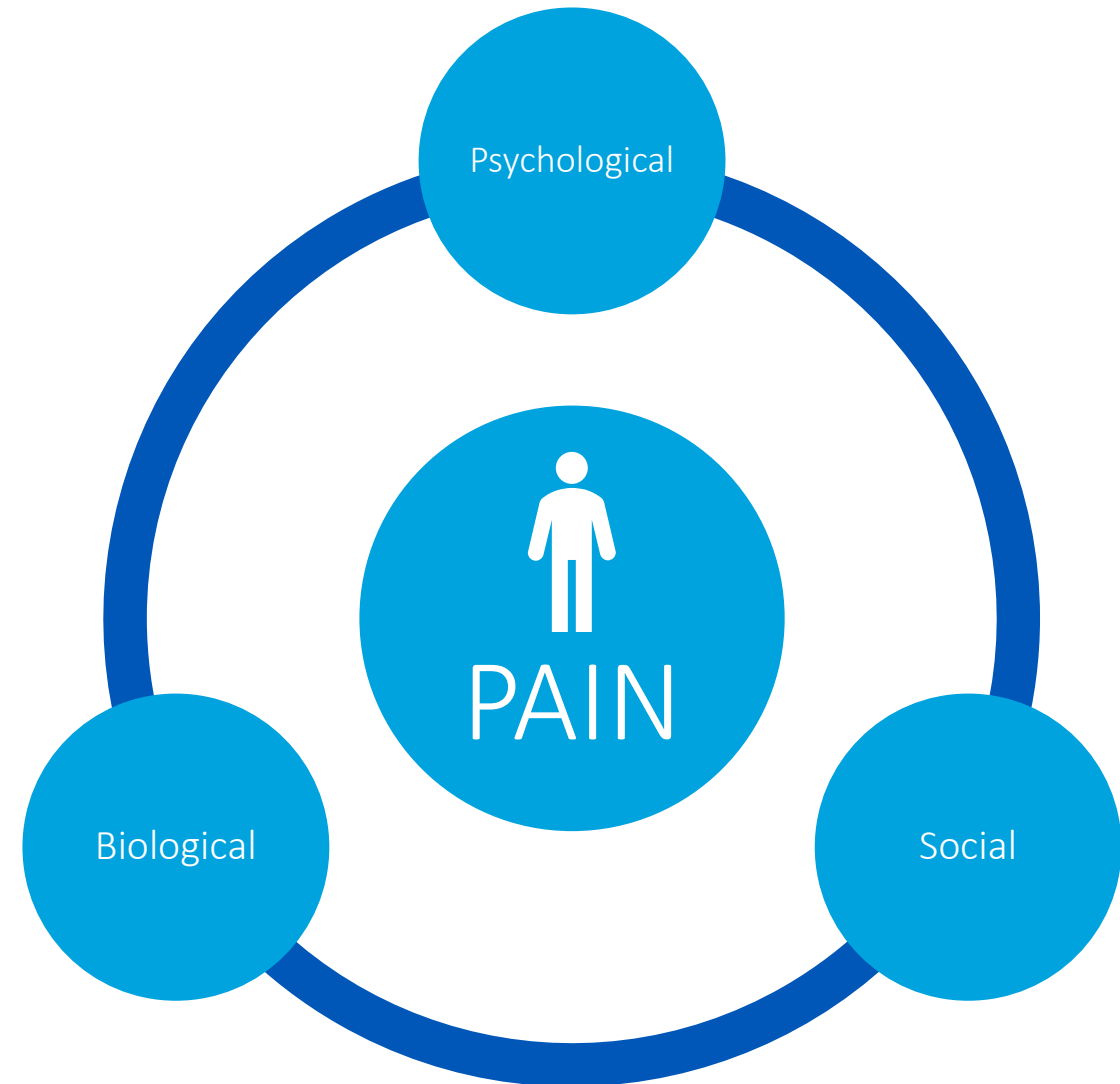
resiniferatoxin

Future Developments: “Euphoria-Sparing Analgesics”

Drug Category	Example
Nerve Growth Factor (NGF) Inhibitors	tanezumab
Kappa Opioid Receptor Agonists (KORAs)	CR845
G Protein-Coupled Receptor (GPCR) Drugs	oliceridine
N-methyl-D-aspartate (NMDA) Receptor-Blocking Drugs	ketamine
Transient Receptor Potential Vanilloid Type 1 (TRPV1) Inhibitors	capsaicin

A Patient-Centered Approach to Pain Management

- Physical medicine
- Activity
- Behavioral Approaches
- Education



Where We're Headed: Federal Support & Focus

Key Points from 2019 HHS Draft Report on Pain Management Best Practices

- Biopsychosocial model of care
- Individualized, patient-centered care
- Opioid risk assessment for safe prescribing
- Multi-disciplinary approach to include a focus on comorbidities
- Addressing drug shortages
- Access to care
- Stigma as a barrier to treatment
- Education
- Innovative solutions
- Research
- Special populations



Source: <https://www.hhs.gov/ash/advisory-committees/pain/reports/index.html> 4/9/2019

Takeaways

1. Pain is the most common cause of disability in America, with opioid analgesics representing the most-prescribed medications in workers' comp
2. The efficacy of opioids in acute and chronic pain is not superior to other drug or non-drug treatments, but their side effect profile is much less favorable
3. Concerns around opioid overdose and opioid use disorder should be considered as a part of opioid treatment
4. Non-opioid and non-drug treatments for pain are available and in development, and it is important to understand their appropriate place in therapy along with the risks and benefits of each
5. A biopsychosocial approach to the injured worker in pain is best
6. We have the opportunity to partner with health care professionals and invested stakeholders to achieve optimal outcomes

