Opioid Use Disorder Treatment and Management

- Omari Peterkin, PMHNP, M.Ed.
- Shawan Johnson, PharmD

Omari Peterkin PMHNP, M.Ed.

RMHRC PMHNP

Shawan Johnson, PharmD

RMHRC Pharmacy

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Agenda

Opioid Abuse Warning Signs

Mechanism of action

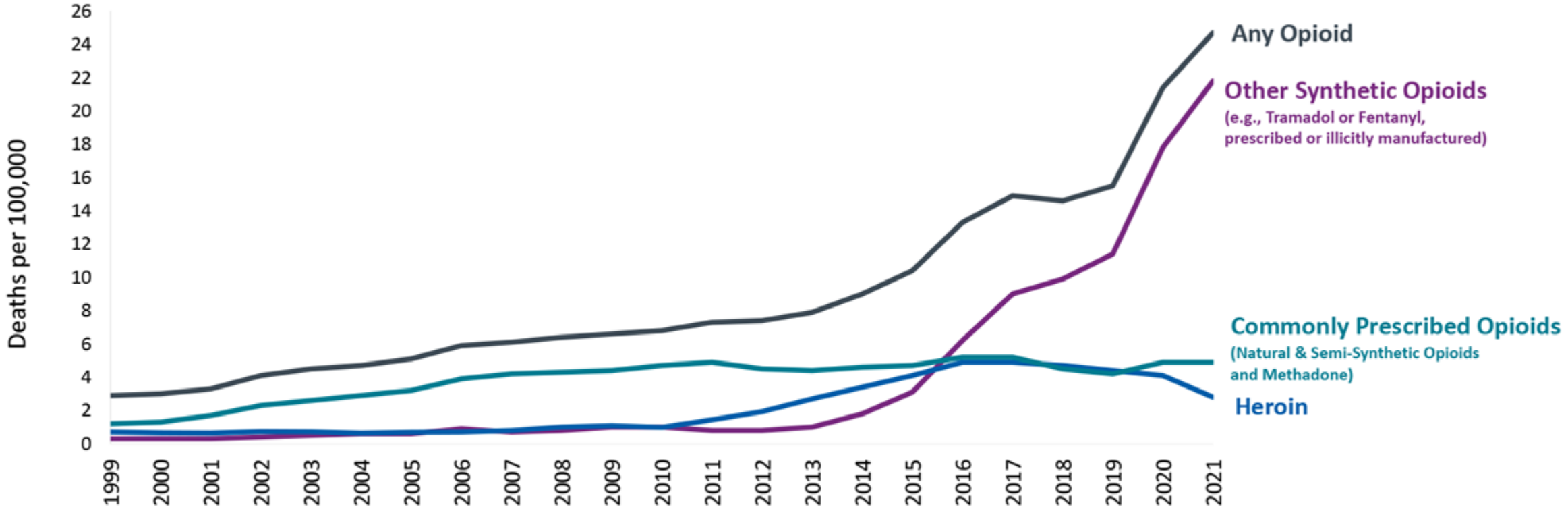
Addiction Cycle

Detox

Treatment Options

Pharmacological vs Non-Pharmacological

Three Waves of Opioid Overdose Deaths



Wave 1: Rise in Prescription Opioid Overdose Deaths Started in the 1990s

Wave 2: Rise in Heroin Overdose Deaths Started in 2010

Wave 3: Rise in Synthetic Opioid Overdose Deaths Started in 2013

SOURCE: National Vital Statistics System Mortality File.

Crisis In The United States

- Since 1999 1 million Americans have died from drug overdose
- 107,000 Americans die from overdoses annually, 156 daily
- 72% of deaths (7 out of every 10) are opioid related
- Drug overdose was the leading cause of injury related mortality in the US
- The number of deaths related to substances laced with synthetic opioids are on the rise
  - Heroine
  - Cocaine
  - Methamphetamine
  - THC

New Regulations

- Removal of X wavier allows providers to prescribe for opioid use disorder
  - New training requirement laws as of June 21st, 2023
    - Total of 8 hours of opioid use disorder education
    - Modules on Suboxone training
  - Exempt
    - Board certified in addiction medicine/psychiatry
    - Graduated within 5 years from APRN, MD, or DO school and had 8 hours of opioid/substance use disorder training during that timing
  - All prescriptions for buprenorphine now only require a standard DEA registration number that includes Schedule III authority; previously used DATA-Waiver registration numbers are no longer needed
  - Limits or patient caps were eliminated on the number of patients a prescriber may treat for opioid use disorder with buprenorphine

Opioid Use Disorder

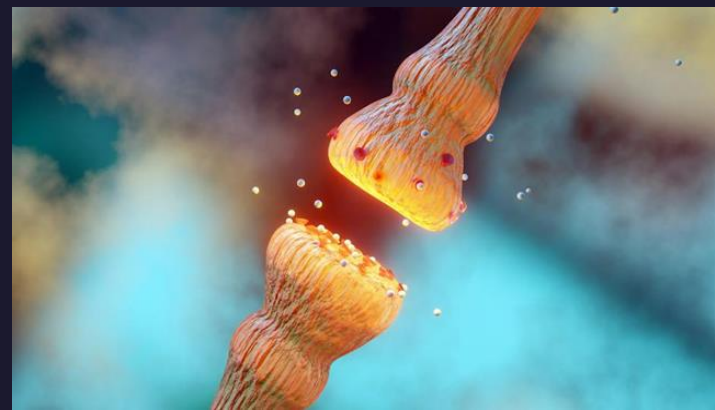
- What is OUD?
  - A chronic relapsing and remitting health disorder
  - Consuming large amounts of opioid over long period of time (weeks/months/years)
  - Spending a great deal of time in activities necessary to obtain, use or recover from effects of use
  - Experiencing withdrawal signs and symptoms
  - Relapsing on opioids to prevent withdrawal symptoms (recurrent use despite knowledge of problem)
  - Experiencing consistent cravings or strong desire to use opioids
  - Recurrent use resulting in failure to fulfill major role obligations (work, home, school)
  - Important occupational, social or recreational activities are reduced or ceased due to use

Warning Signs of Abuse

- Taking medication more frequently and in greater quantity to manage pain
- Needle marks on arms and legs from intravenous use
- Constricted “pinpoint” pupils
- Having trouble staying awake or falling asleep at inappropriate times
- Flushed skin
- Anhedonia
- Sudden and dramatic mood swings that seem out of character
- Impulsive or high-risk behaviors
- Visiting multiple providers to obtain prescriptions

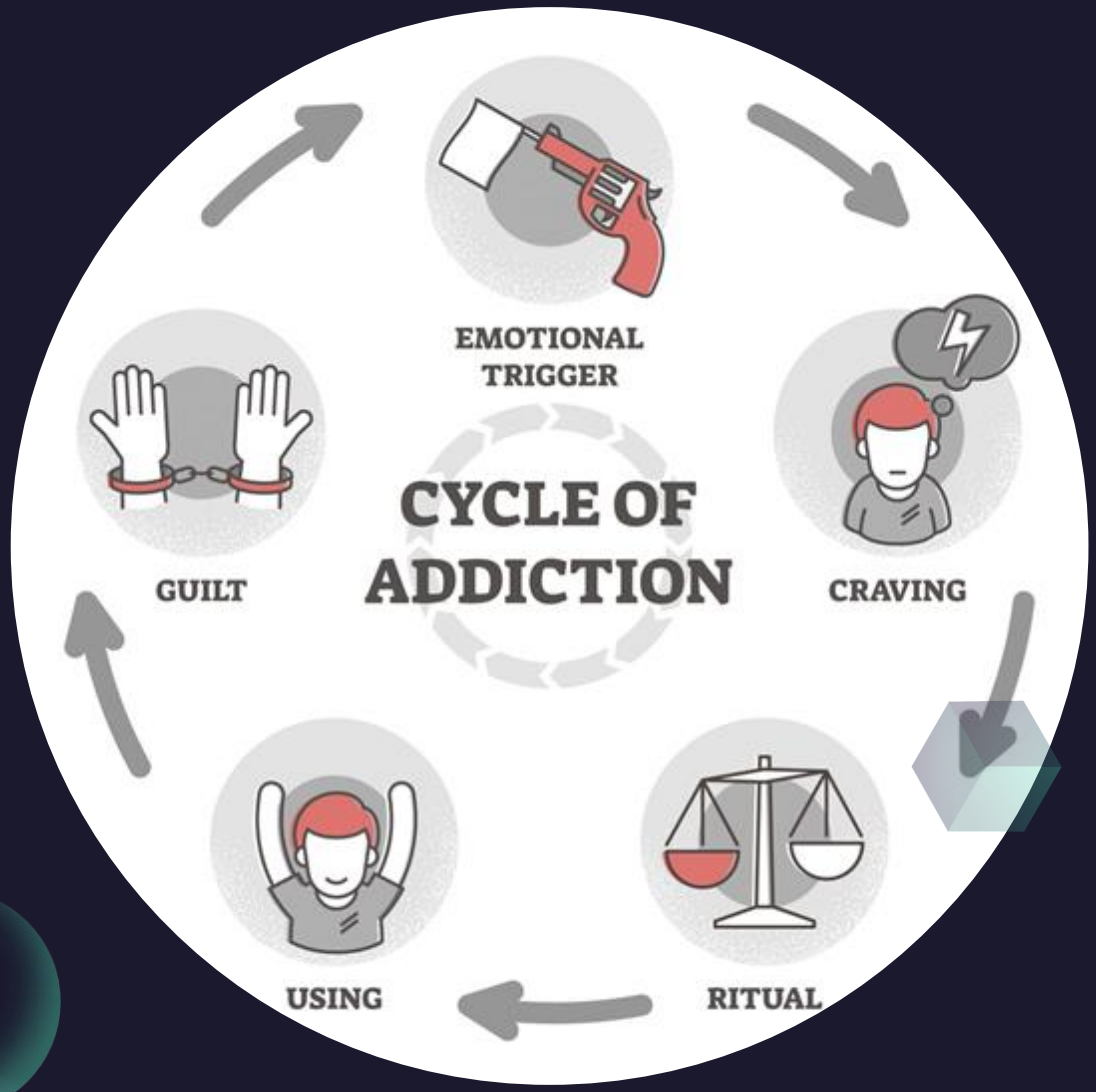
Mechanism of Action

- Opioids bind to receptors of the peripheral and central nervous system (physiological effects)
- Receptors
  - Delta (Analgesia, mu related respiratory depression, physical dependence, antidepressant)
  - Kappa (depression, hallucination, dysphoria, sedation)
  - Mu (respiratory depression, miosis, euphoria, decreased GI motility, vasodilation, suppressed cough reflex)
- Action on receptors causes increased feelings of euphoria leading to addictive tendencies
- Opioids bind to receptors on the brain, spinal cord and GI tract blocking pain messages sent from body through spinal cord to the brain
- Addiction is caused from increased use and elevated dopamine levels
- The body decreases pain sensations naturally with production of endorphins



Opioid Use Disorder Addiction Cycle

- First Use to Addiction
  - Initial use is thought to be voluntary or may be related to injury or emotional trigger (prescription)
  - Dopamine D2 receptor threshold is lowered (cravings)
  - Continued use may lead to gradual loss of control
  - Increased compulsivity (ritual use to decrease distress)
  - Increased impulsivity (opioid seeking and high-risk behavior)
  - Severe Guilt related to use and addictive tendencies
- Tolerance
  - A need for increased use of opioids to achieve desirable intoxication
  - Experiencing a diminished effect with continued use

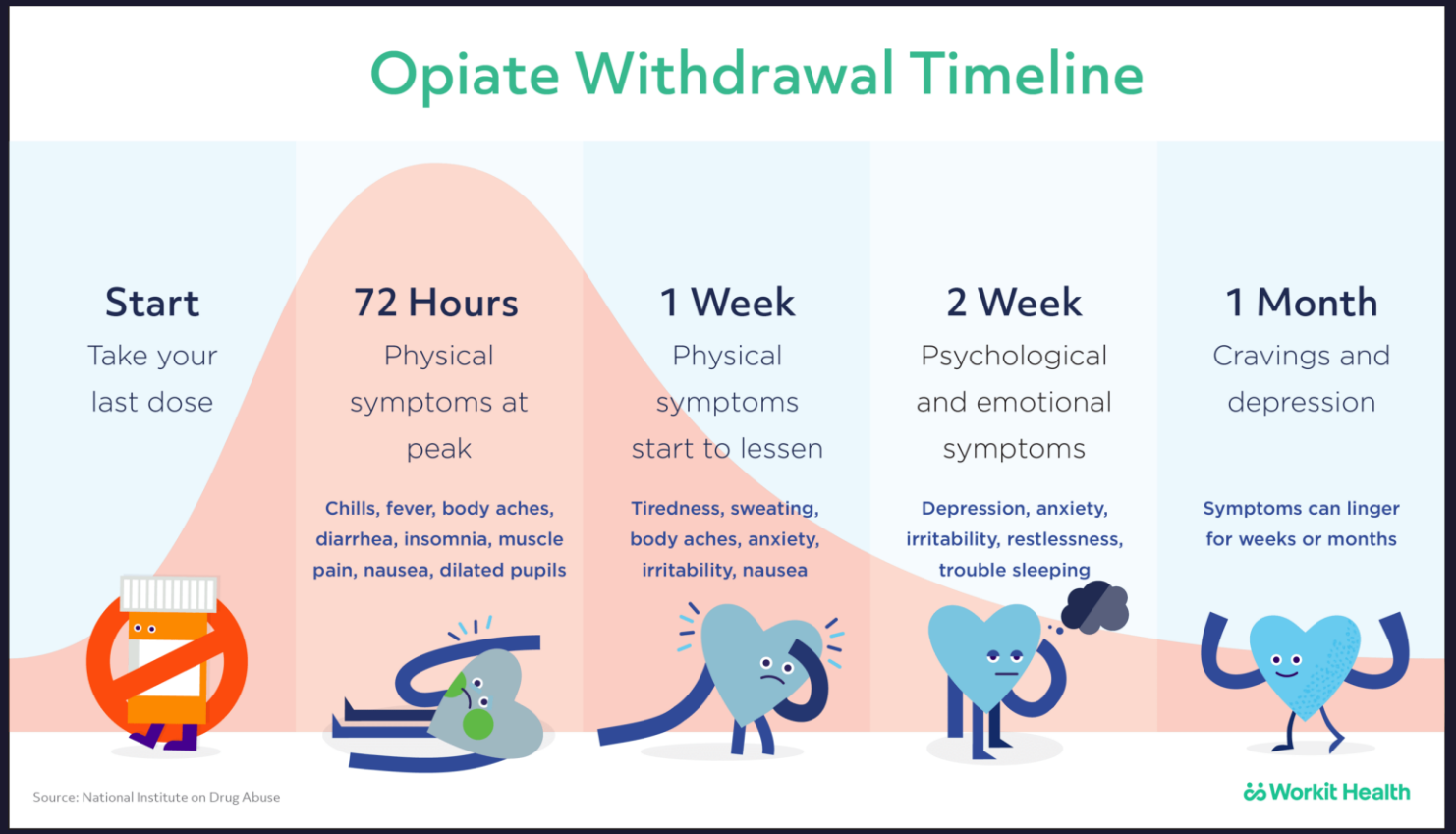


Opioid Withdrawal Symptoms

- Symptoms displayed with the rapid or abrupt cessation of opioids in someone who is physically dependent
- Onset may be dependent on last known exposure
- Stomach Cramps
- Changes in Body Temperature with Chills (Flu like s/s)
- Yawning and Tears
- Weakness
- N/V
- Hyperalgesia (enhanced sensitivity to pain)
- Muscle and Bone pain
  - Aches and Spasms
- Depressive symptoms and Insomnia
- Cravings

Detox and Withdrawal

- Refers to the process of the body releasing substances that have been stored during state of abuse
- COWS (Clinical Opioid Withdrawal Scale)



COWS

Clinical Opiate Withdrawal Scale

Resting Pulse Rate: beats / minute

Measured after patient is sitting or lying for one minute

- (0) *pulse rate 80 or below*
- (1) *pulse 81 to 100*
- (2) *pulse 101 to 120*
- (4) *pulse rate greate than 120*

GI Upset:

over last 1/2 hour

- (0) *no GI symptoms*
- (1) *stomach cramps*
- (2) *nausea or loose stool*
- (3) *vomiting or diarrhea*
- (5) *multiple episodes of diarrhea or vomiting*

Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.*

- (0) *no report of chills or flushing*
- (1) *subjective report of chills or flushing*
- (2) *flushed or observable moistness on face*
- (3) *beads of sweat on brow or face*
- (4) *sweat streaming off face*

Tremor:

Observation of outstretched hands

- (0) *no tremor*
- (1) *tremor can be felt, but not observed*
- (2) *slight tremor observable*
- (4) *gross tremor or muscle twitching*

Restlessness:

Observation during assessment

- (0) *able to sit still*
- (1) *reports difficulty sitting still, but is able to do so*
- (3) *frequent shifting or extraneous movements of legs/arms*
- (5) *unable to sit still for more than a few seconds*

Yawning:

Observation during assessment

- (0) *no yawning*
- (1) *yawning once or twice during assessment*
- (2) *yawning three or more times during assessment*
- (4) *yawning several times/minute*

Pupil size:

- (0) *pupils pinned or normal size for room light*
- (1) *pupils possibly larger than normal for room light*
- (2) *pupils moderately dilated*
- (5) *pupils so dilated that only the rim of the iris is visible*

Anxiety or Irritability:

Measured after patient is sitting or lying for one minute

- (0) *none*
- (1) *patient reports increasing irritability or anxiousness*
- (2) *patient obviously irritable or anxious*
- (4) *patient so irritable or anxious that participation in the assessment is difficult*

Bone or Joint aches:

If the patien was having pain previously, only the additinal component attributed to opiates withdrawal is scored

- (0) *not present*
- (1) *mild diffuse discomfort*
- (2) *patient reports severe diffuse aching of joints/muscles*
- (4) *patient is rubbing joints or muscles and is unable to sit still because of discomfort*

Gooseflesh skin:

- (0) *skin is smooth*
- (3) *piloerrection of skin can be felt or hairs standing up on arms*
- (5) *prominent piloerrection*

Runny nose or tearing:

Not acounted for by cold symptoms or allergies

- (0) *not present*
- (1) *nasal stuffiness or unusually moist eyes*
- (2) *nose running or tearing*
- (4) *nose constantly running or tears streaming down cheeks*

Total Score:

The total score is the sum of all 11 items

Initials of person completing assessment:

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

THE DRUGS

THE FDA HAS APPROVED 18 OPIOID DRUGS

The generic names are listed here. Drugs primarily used in surgery (such as alfentanil and remifentanil) were not included.

Opioid Drug Potency Compared With Oral Morphine

-10x	Meperidine
-10x	Tramadol
-6x	Codeine
-5x	Pentazocine
-4x	Dihydrocodeine
-4x	Tapentadol
Similar	Hydrocodone
1.5x	Oxycodone
At least 3x	Methadone
3x	Oxymorphone
4x	Hydromorphone/hydromorphone hydrochloride
7x	Butorphanol/butorphanol tartrate
30x	Buprenorphine
80x	Fentanyl

-10x | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80

LESS POTENT — MORE POTENT

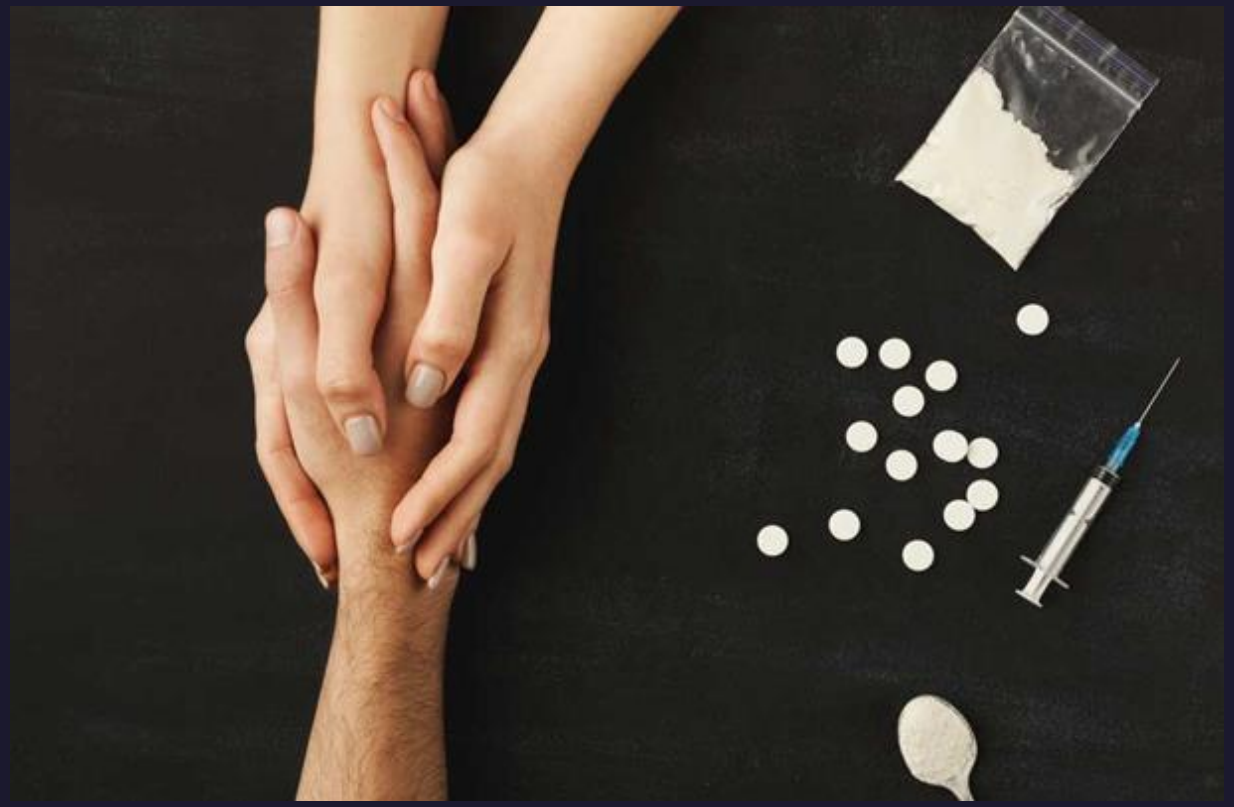
Opioid Abuse Side Effects

- Acute
  - Respiratory depression
  - Constipation
  - Risk of hepatic/renal organ toxicity – Check LFT's
  - Central nervous system sedation
  - Cognitive dysfunction

Opioid Abuse Side Effects

- Long term
  - Endocrine system - Hypothalamus, Pituitary and Adrenal glands
  - Immune System may be compromised
  - Hormones - Growth, Prolactin, Luteinizing, Estradiol, Oxytocin, TSH, Vasopressin
  - Androgen deficiency (low testosterone) may lead to depressive symptoms including fatigue, erectile dysfunction and decreased libido in males
  - Gonadotropin dysfunction (lower FSH) may lead to amenorrhea in females, increased risk of osteoporosis

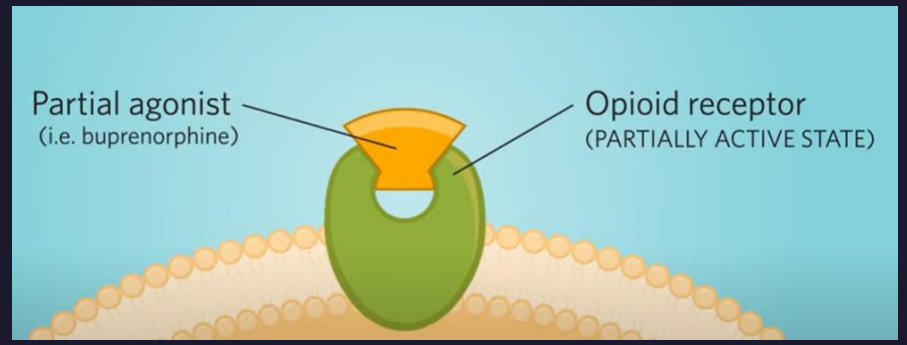
Pharmacological Treatment Options



- Medication management is primary treatment method
- It is not recommended to abruptly discontinue opioids
- There should be no limit for how long a patient is in treatment
- Treatment goal is to reduce risk factors and improve overall health

Treatment Options

- Full Opioid Agonist – Methadone
- Partial Opioid Agonist – Buprenorphine
- Partial Opioid Agonist/Antagonist – Buprenorphine/Naloxone
- Opioid Antagonist – Naltrexone



Methadone – Full Opioid Agonist

- Advantages
  - Data for pregnant patients
  - Cheaper
  - More effective at managing craving
  - Full opioid so no additional heroin or pain medication used by patient
- Disadvantages
  - Small increase in arrhythmias or respiratory depression
  - Higher risk of overdose
  - Treatment inpatient or at OTP
  - Long half-life means faster accumulation vs elimination

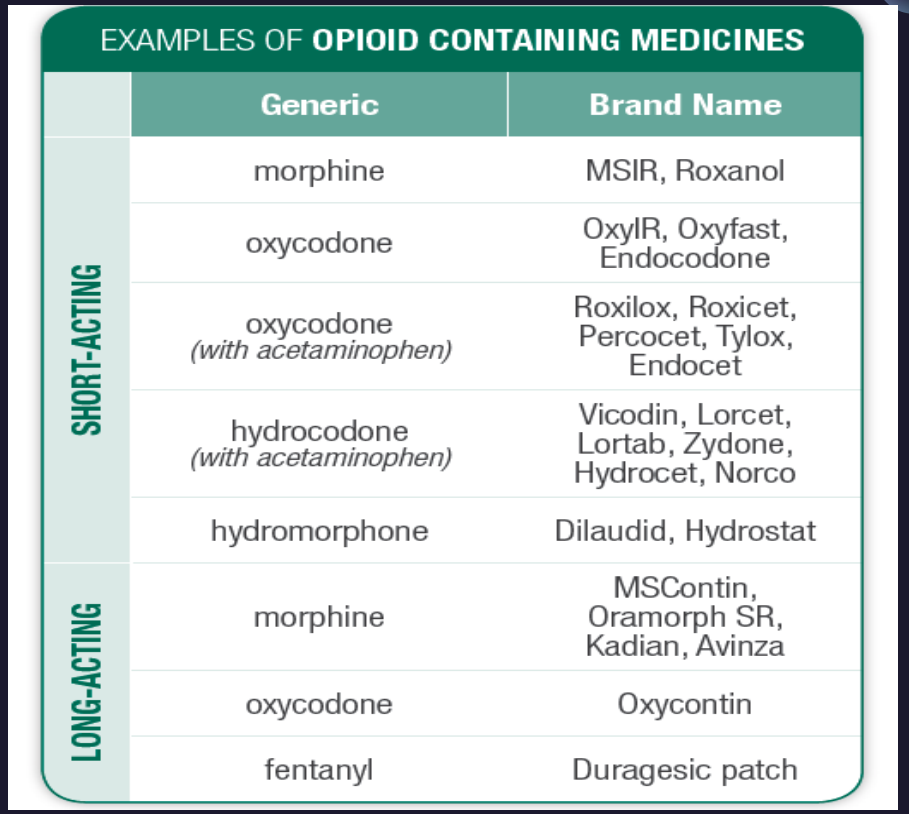
Methadone – Full Opioid Agonist

Induction

- Day 1: Start with 10-20 mg. After 2 hours, if COWS 6-12, give 5 mg and if COWS >12, give 10 mg; Max 40 mg
- Day 2: If COWS <6, give total dose of day 1. If COWS 6-12, increase dose 20%, max 40 mg. Add adjunct meds if COWS not <6 in 2 hours. If COWS >12, consider period of maintenance
- Taper after day 2, 20% per day inpatient, or every 1–2-week taper outpatient.

Start Buprenorphine When Withdrawal Symptoms Appear

Body System	Symptoms
Gastrointestinal	Nausea, abdominal cramps, vomiting, diarrhea
Nervous	Twitching, tremors, shaking
Musculoskeletal	Joint, bone, muscle pain
Mental	Anxiety, irritability, nervousness, insomnia
Visual	Large pupils, runny nose, weeping eyes, goosebumps



Short Acting: 6-12 hours
Long Acting: 24 hours
Methadone: 36 hours – 3 days

Buprenorphine – Partial Opioid Agonist

Virginia Board of Medicine Regulation

18VAC85-21-150. Treatment with Buprenorphine for addiction.

A. Buprenorphine without naloxone (buprenorphine mono-product) shall not be prescribed except:

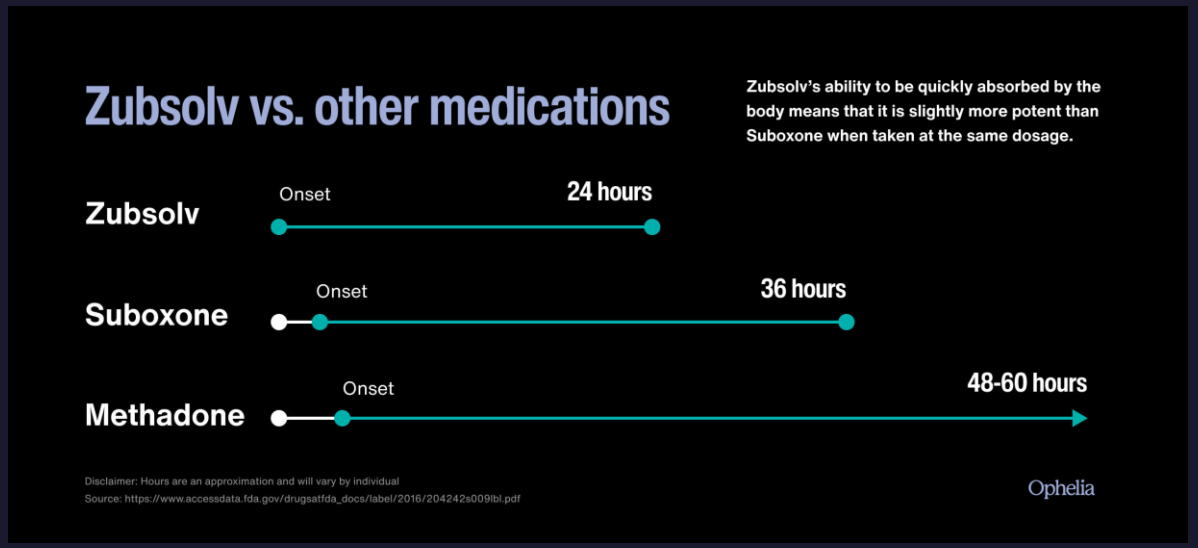
1. When a patient is pregnant;

2. When converting a patient from methadone or buprenorphine mono-product to buprenorphine containing naloxone for a period not to exceed seven days;

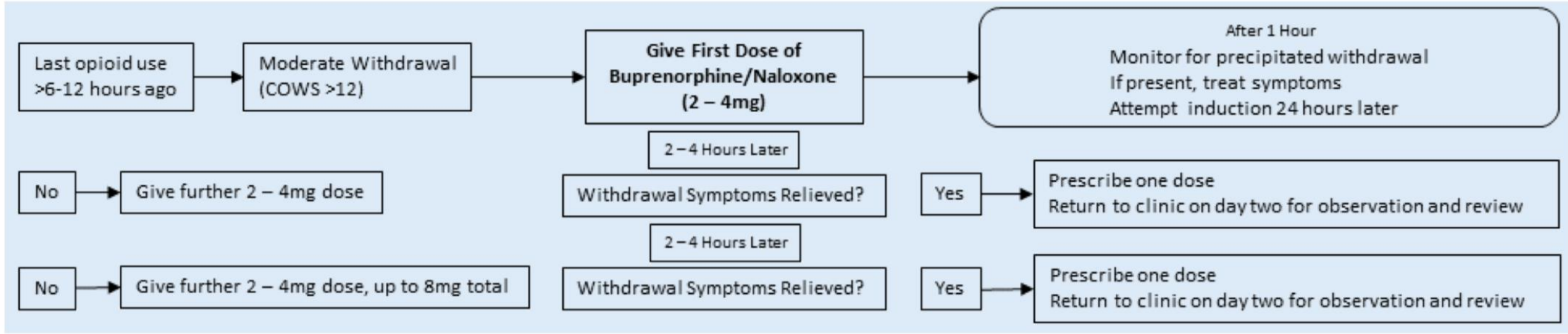
3. In formulations other than tablet form for indications approved by the FDA; or

4. For patients who have a demonstrated intolerance to naloxone; such prescriptions for the mono-product shall not exceed 3.0% of the total prescriptions for buprenorphine written by the prescriber, and the exception shall be clearly documented in the patient's medical record.

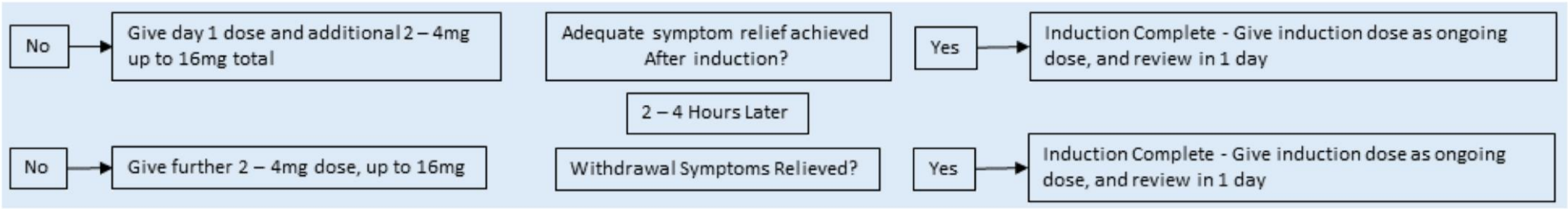
First Line: Buprenorphine/Naloxone – Partial Opioid Agonist and Opioid Antagonist



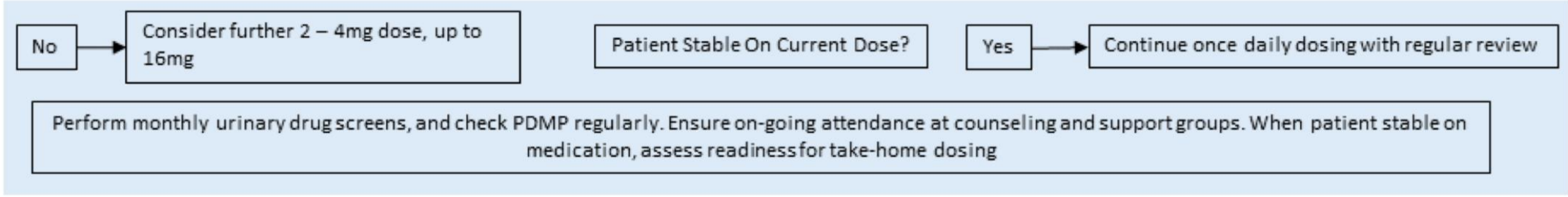
Day One (Induction)



Day Two



Maintenance



Buprenorphine/Naloxone Side Effects

- Dental: cavities and tooth loss (range 5-77 months, mean 45.7)
- Opioid Induced Constipation (OIC): onset 5-25 mins, defined as 7+ days; avoid anticholinergics
- Opioid Induced Respiratory Depression (OIRD): onset 2-6 hours for SL; avoid other CNS depressants
- Opioid Induced Withdrawal (OIW): 2-15 days after discontinuation, decreases over 4-7 days
- Opioid Precipitated Withdrawal: 30-120 minutes after discontinuation, decreases 6-24 hours
- Diaphoresis: 14%
- Headache: 7-37%

Naltrexone – Opioid Antagonist

- Available as a pill, capsule, liquid which last 24 hour for alcohol use disorder
- Vivitrol 380 mg/4 mL injection is FDA indicated for opioid use disorder that last 30 days

- Refrigerated, leave out for 45 minutes
- Mix 3.4 mL of diluent to create 380 mg/4 mL
- Injection intramuscularly in gluteal with 1.5- or 2-inch needle provided
- Wait at least 7 days (short acting) or 10-14 days (long acting) after their last use before starting naltrexone.

Order Sets at RMHRC

Tramadol Taper

- Tramadol 100 mg three time a day for 5 doses
- Tramadol 50 mg three times a day for 3 doses
- Tramadol 50 mg two times a day for 2 doses

Clonidine Taper

- Day 1-2: Clonidine 0.1 mg every 4 hours prn for COWS 13-24 (0.2 mg if COWS >25)
- Day 3: Clonidine 0.1 mg every 6 hours prn for COWS 13-24 (0.2 mg if COWS >25)
- Day 4: Clonidine 0.1 mg every 8 hours prn for COWS 13-24 (0.2 mg if COWS >25)
- Day 5-7: Clonidine 0.1 mg every 12 hours prn for COWS 13-24 (0.2 mg if COWS >25)

If COWS is greater than 25, notify provider
If SBP is less than 90 or DBP is less than 60 or Pulse is less than 55, hold clonidine and notify the provider

Adjunct Therapies

Indication	Medication(s)
Anxiety/Restlessness	Clonidine Diphenhydramine (PO, IM) Hydroxyzine (PO, IM)
Pain	Acetaminophen Ibuprofen
Abdominal Cramps	Dicyclomine
Nausea/Vomiting	Ondansetron (ODT, IM) Prochlorperazine (IM) Promethazine (PO, PR)
Diarrhea	Loperamide
Muscle Spasms	Cyclobenzaprine Methocarbamol
Neuropathy	TCA (amitriptyline, nortriptyline) SNRI (duloxetine, venlafaxine)

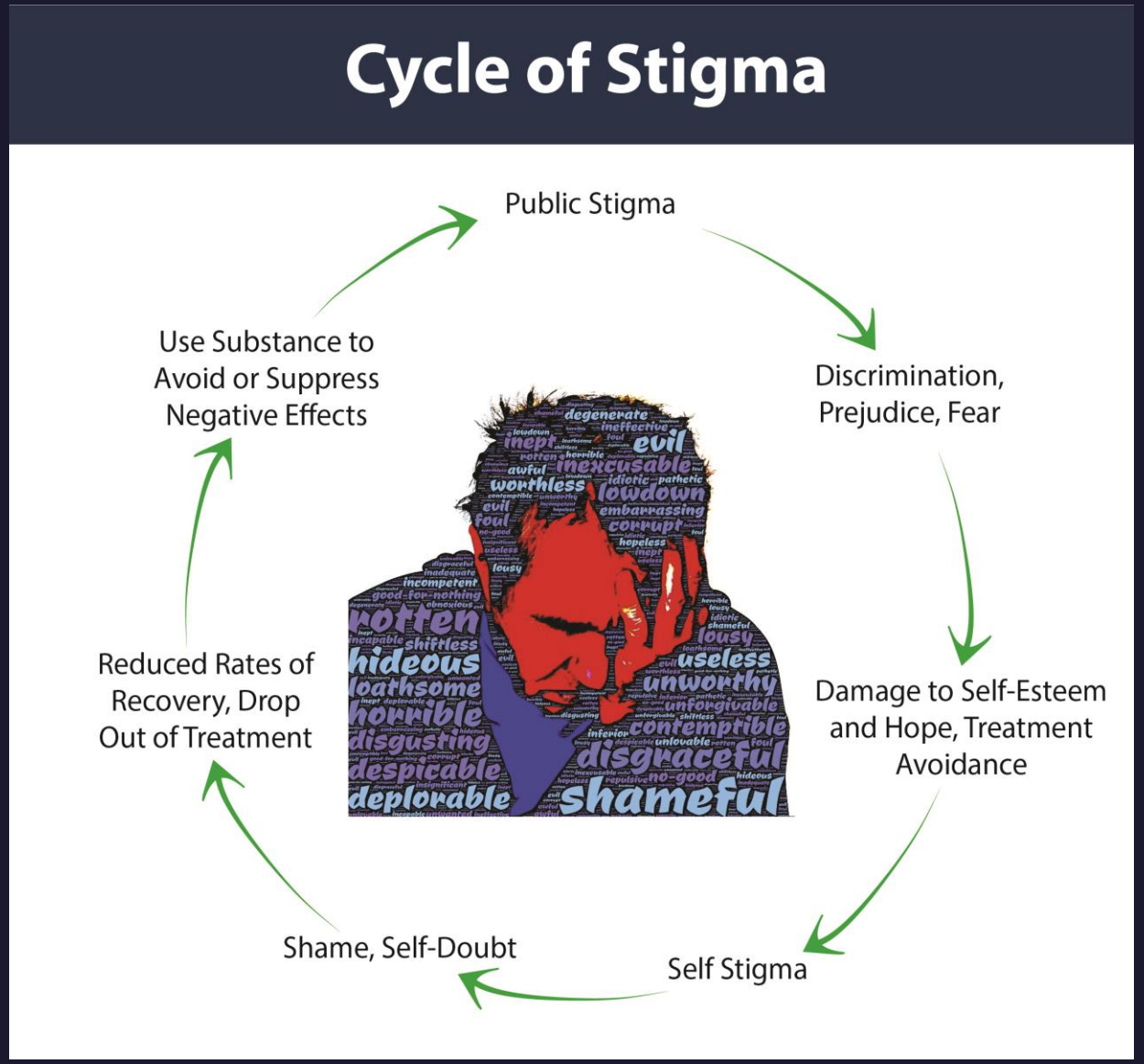
Non-Pharmacological Treatment Options

- Heat therapy
- Ultrasound Cold Therapy
- Electrical Stimulation Therapy
- Aquatic therapy posture
- Lumbar and Cervical stabilization
- Occupational therapy
- Posture and Body mechanics
- Therapy does not have to be mandated with medications
- The goal is to keep patient involved in treatment

Opioid Abuse Additional Facts and Info

- Over 150 people die daily from overdoses related to synthetic opioids
- Increased risk for relapse, overdose and death immediately post hospitalization for detox
- If patient is not interested in SUD medications (order a Narcan kit and provide education on use) even if they are not using fentanyl there is high risk chance of them using it in other substances THC and methamphetamines
- Substance abuse and Pregnancy risk vs benefit of opioid dependent mothers and breastfeeding vs removal of bonding period to prevent withdrawal of substance dependent infant
- Pregnancy - consider changing dosing schedule
  - Metabolism may change during pregnancy make sure OB team is aware for after birth coordination
- Fentanyl added to drug tox screen
  - Fentanyl very high affinity for mu receptors, stored in fat (can see in tox screens for days to weeks) - similar look to Oxycodone on street
  - Use fentanyl test strips and Narcan (safety)

- Stigma is highly lethal in Opioid Use Disorder
- A patient's level of hopelessness can turn into crisis quickly
- Barriers to treatment before x waver were prescribing resources, insurance limitations with covering and availability, federal and state regulation, challenging population,
- Important to validate patient and what they are going through to continue to build rapport so they will continue treatment
- "Always here when you are here to help when YOU are ready"
- Cannot force treatment



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