MEDICATION ASSISTED TREATMENT

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MAT Overview

1. **Medication assisted treatment** (**MAT**) is the use of pharmacological medications, in combination with counseling and behavioral therapies, to provide a 'whole patient' approach to the treatment of substance use disorders.
2. Some medications are used to replace more harmful substances in order to improve health and functioning; others are used to curb cravings; some are used to prevent drug overdose; others to prevent the drug from having any euphoric or pleasant effect or to produce an aversive unpleasant effect .
3. Common medications used for MAT include: methadone, buprenorphine, naltrexone, naloxone, transdermal nicotine, to name a few.

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What is a substance use disorder (SUD)?

National Institute of Drug Abuse

- Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. It is considered a brain disease because drugs change the brain; they change its structure and how it works. These brain changes can be long lasting and can lead to many harmful, often self-destructive, behaviors.

American Society of Addiction Medicine

- Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors.

- Addiction is characterized by inability to consistently abstain, impairment in behavioral control, craving, diminished recognition of significant problems with one's behaviors and interpersonal relationships, and a dysfunctional emotional response. Like other chronic diseases, addiction often involves cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death.

SUD Prevalence and Cost

- 22.7 million individuals in the US with a SUD
- 2.5 million received treatment
- Of the 20.2 million people that did not receive treatment, 19 million did not think they needed it.
- Total social cost of alcohol and drug misuse is $700 billion annually

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SUD Treatment Interventions

- Aversion therapies
- Institutionalization/incarceration
- Detoxification
- Self-help groups
- Therapeutic Communities
- Minnesota Model
- Assessment driven, evidenced based behavioral interventions
- Integrated treatment for co-occurring disorders
- Gender-responsive, trauma-informed, culturally and linguistically relevant care
- MAT

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Evidenced-based psychosocial interventions

- Motivational interviewing
- Contingency management
- Cognitive behavioral therapy
- Community reinforcement approach
- Seeking safety for trauma survivors

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Treatment works

- Every dollar spent on treatment saves up to $7 in cost of untreated SUD

- Treatment adherence and relapse rate similar to other chronic health conditions:

- Hypertension
  - Adherence rate less than 60%
  - Relapse rate 50 – 60%
- Diabetes
  - Adherence rate less than 50%
  - Relapse rate 30 – 50%
- Asthma:
  - Adherence rate less than 30%
  - Relapse rate 60 – 80%
- Substance Use Treatment
  - Adherence rate 30 – 50%
  - Relapse rate 50 – 60%

- McLellan, T., PowerPoint Presentation, "How Can Treatment be more Accountable and Effective? Lessons from Mainstream Healthcare," San Antonio, TX, 2005.

Neurobiology of Addiction

Drugs of abuse affect various neurotransmitters in the brain

But in the end it's all about the Dopamine!

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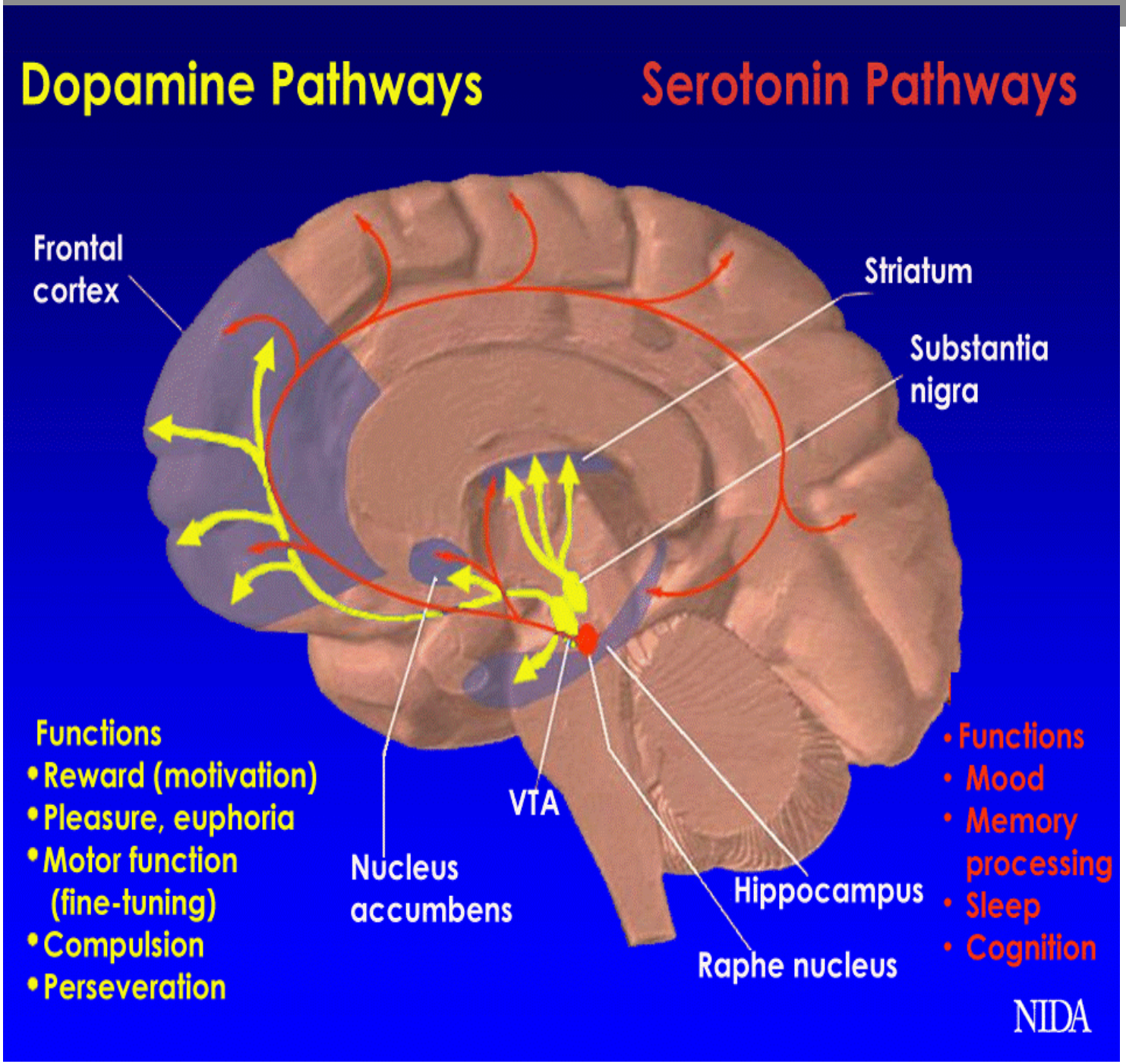

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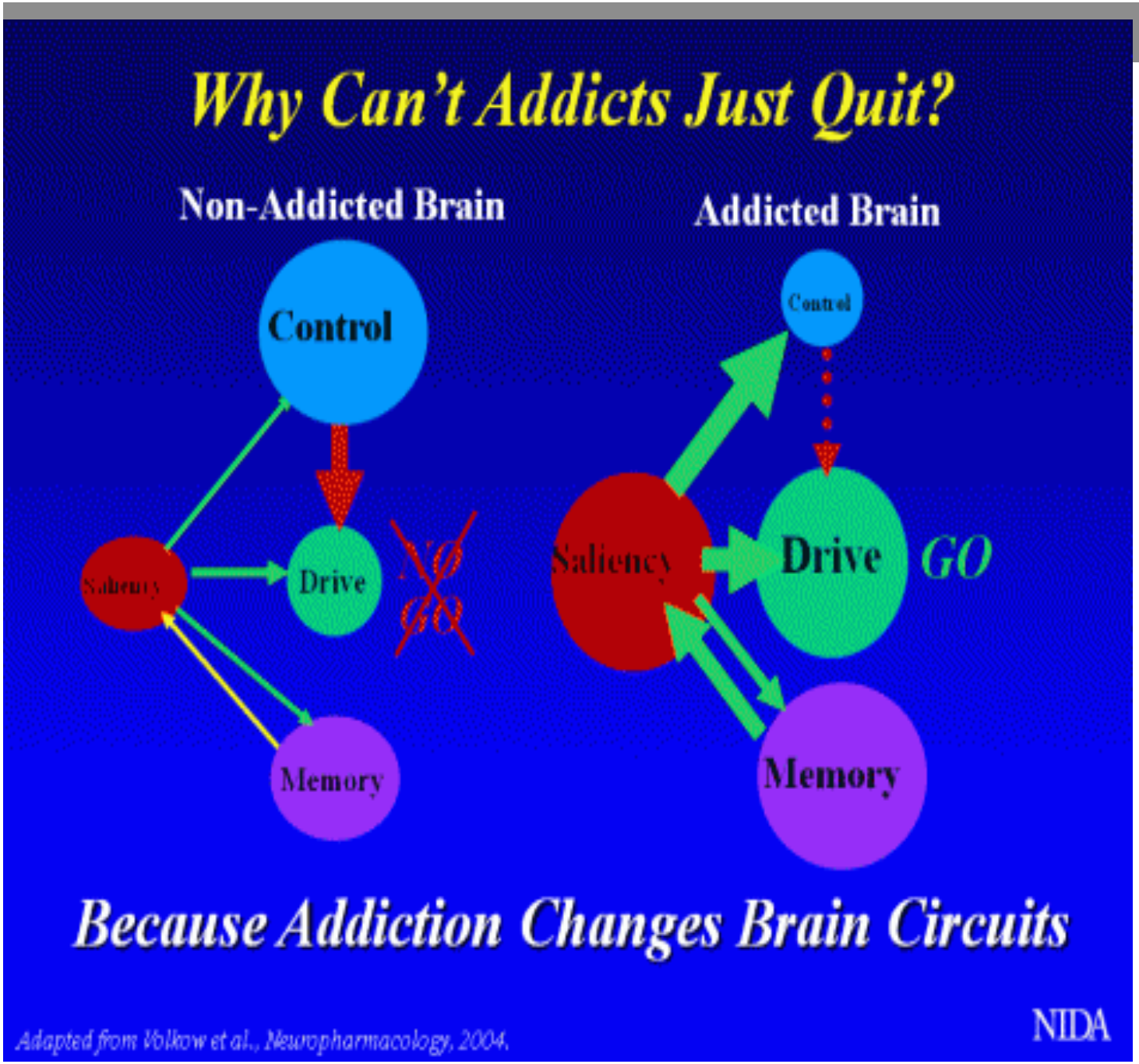
http://addictionrecoveryaustralia.blogspot.com/2014/09/the-addictive-brain.html

Neurobiology of Addiction cont.

- Chronic drug use results in long term changes to the brain
- The primary area affected by drugs of abuse is the Pleasure – Reward pathways
- Increase in dopamine is in the Pleasure-Reward pathway
- Abnormally high and protracted levels of Dopamine results in corrupted messages about reward prediction, stimulus-response, approach behavior, learning, and decision making
- Facilitates conditioned learning – previously neutral stimuli increase dopamine and elicit desire for drug



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http://gatest.iqscloud.net/publications/addiction-science/treatment/addiction-changes-brain-circuitry-making-it-hard-to-apply-brakes-to-detrimental-beha

Positive v. negative reinforcement

Early in addiction

Later in addiction

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12/02/15

Healthcare is changing

- New recognition of the need for substance use disorder (SUD) treatment
- Models for treatment for SUD have evolved to **integrated models of care** that include:
  - Mutual help groups
  - Cognitive behavioral therapy
  - Motivational interviewing
  - Family therapy
  - Medication assisted treatment
  - Primacy care
  - Mental health
  - Addressing social determinants
  - Aftercare

So how do we treat addiction?

- Psychosocial Interventions
- MAT
- Build social supports
- Link to healthcare
- Address social determinants of health
- Follow-up care

What is Medication Assisted Treatment (MAT)?

- Different from treatment provided for acute intoxication, withdrawal or dependence.
  - Goal: treat acute symptoms and prevent patient from having adverse outcome
- MAT is sustained treatment, maintained over time.
  - Goal: to treat the core symptoms of addiction – drug craving and relapse

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Why is MAT necessary?

Before we jump in . . .

Let's take a step back . . .

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Medication Assisted Treatment, specifics

Major categories:

Block drug targets

- Naloxone, Naltrexone

Mimic drug action

- Methadone, Buprenorphine

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MAT for Alcohol

Reduce alcohol consumption

Naltrexone (Vivitrol)

- Modulates Reward – Pleasure pathway
- Reduces craving for alcohol,
- Reduces alcohol's reinforcing properties,
- Reduces positive experience of intoxication,
- Reduces chances of continued drinking after slip
- Effective in reducing relapse to heavy drinking

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MAT for Alcohol, cont.

Reduce alcohol consumption

Acamprosate

- Reduces relapse rates,
- For those who do relapse they have less quantity and frequency of drinking,
- Reduces risk of heavy drinking
- Reduces negative reinforcement (abstinence craving)
- Effective in improving abstinence

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MAT for Alcohol, cont.

Reduce or stop alcohol use

Disulfiram (Antabuse)

- Inhibits an enzyme that breaks down alcohol
- Need to really educate patients because Ingesting alcohol while taking this medication leads to disulfiram-ethanol reaction (DER)
  - Leads to symptoms that can affect heart rate, blood pressure, cause much discomfort in patients and even lead to confusion
  - Usually self limited but can occur up to 2 weeks after last disulfiram dose
- Lack of evidence showing efficacy in relapse prevention
- Reduces frequency in patients who cannot remain abstinent or those with special effort to enforce compliance

MAT for Opioids

Naloxone (Narcan)

- Short acting medication used to counter opioid overdose
- Can be taken by mouth, under the tongue, or as a nasal spray
- Also used under the tongue in combination with Buprenorphine for withdrawal and long term maintenance
- Rescue kits

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MAT for Opioids, cont.

Naltrexone (Vivitrol)

- Initiated after acute withdrawal
- Modulates Reward – Pleasure pathway
- Poor adherence with oral version of medication
- Effective in highly motivated subsample, otherwise medication adherence problematic, early drop out common

MAT for Opioids , cont.

Methadone

- Oral, Long acting
- In use for long time, thus most experience with this medication
- Produces tolerance to effects of exogenous opioid compounds
- Blocks euphoric effects of opioids
- Must have special license to dispense (Opioid Treatment Center)
- Patients must present daily for dosing
- Patients may experience stigma of having to go to special clinic
- New regulations allowing take home dosing

MAT for Opioids , cont.

Buprenorphine

- Under the tongue, tablet, or film
- Long acting
- Produces tolerance to effects of exogenous opioid compounds,
- Blocks euphoric effects
- Evaluate before treatment for concurrent use of sedatives such as benzodiazepines or alcohol
- Patient given a prescription and can take medicine at home, reducing stigma or inconvenience of having to go Methadone clinic

MAT for Nicotine

Replacement therapy

- **Nicotine gum**
  - Can be used alone or with long acting replacement therapy to treat symptoms
- **Nicotine lozenge**
  - Can be used alone or with long acting replacement therapy to treat symptoms
- **Nicotine nasal spray**
  - Deliver nicotine more rapidly
  - Reduces withdrawal symptoms more rapidly than gum
- **Nicotine inhaler**
  - Can be used alone with enough doses

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MAT for Nicotine, cont

Replacement therapy

Nicotine patch

- Doses 7mg, 14mg, or 21mg daily
  - <10 cigs/d – 7-14mg/d
  - 10-20 cigs/d – 14-21mg/d
  - 21-40 cigs/d – 21-42mg/d
  - >40 cigs/d – >42mg/d

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MAT for Nicotine, cont

Non-nicotine medications

Bupropion SR (Zyban)

- Antidepressant
- Effective in certain subpopulations such as patient with cardiovascular disease, COPD, or who are previously unable to achieve long term abstinence

Varenicline (Chantix)

- Blocks effects of nicotine
- Reduces craving and withdrawal symptoms

Pain and Addiction

Why is it so hard?

- Many drugs of abuse have analgesic properties
  - Opioids, sedative-hypnotics (benzodiazepines), alcohol (high doses)
- Addiction can lead to negative affect which in turn augments subjective discomfort associated with pain
- Opioid addiction treatment and opioid pain treatment work at the same receptor
- Methadone patients have a poor tolerance for pain
- Pain is a symptom of opioid withdrawal
- Opioid induced hyperalgesia - theoretical

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How do I know if my patient is addicted?

Symptoms that suggest addiction:

- Persistent sedation or euphoria
- Deteriorating function despite relief of pain
- Increase in anxiety, sleep disturbance, or depressive symptoms
- Loss of control over use
  - Early refill requests - due to loss or unsanctioned dose escalation
  - Obtaining opioids from multiple sources
- Formulation misuse
- Preoccupation with opioid use for pain

Pseudoaddiction v. Addiction

- Addictive behaviors that result from inadequate analgesia
  - Hoarding meds when symptoms controlled
  - Requesting specific drugs
  - Complains that medication isn't working
- Resolve with adequate pain control
- May be very difficult to distinguish one from the other, usually found in retrospect

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How do I deal with addiction in my pain patients?

KEY! – very careful SUD and mental illness history

- CAGE
- Prescription Drug Use Questionnaire
- Drug Abuse Screening
- Opioid Risk Tool
- Screener and Opioid Assessment for Patients with Pain

- Past addiction can increase risk for relapse

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How do I treat pain in the presence of addiction?

- Must address both the addiction and the pain
- Must adequately treat pain
- Be aware that patients with addiction may need higher levels of analgesic for adequate relief
- Try other non-opiate modalities first!
  - Physical therapy
  - Fitness
  - Yoga
  - Biofeedback and stress reduction
- Multidisciplinary pain program and team

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Non-opiate treatments for pain

Non-opioid meds:

- NSAID's (Ibuprofen, Motrin, Advil, etc.)
- Gabapentinoids
- Antiepileptics
- Selective Norepinephine Reuptake Inhibitors (Venlafaxine, Duloxetine)
- Tricycle antidepressants (Amitriptyline, Imipramine, Doxepin)
- Topical medications

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Known opiate addiction or on MAT

Methadone efficacious for both opioid addiction and pain

Buprenorphine can be used off label for pain

So if patient is not on MAT, may try to put them on it to address both issues.

If on MAT, may need to adjust dose of medications to cover pain.

Goal is to taper off of opioid medications for pain, should only be used in short term

Resources

- ASAM Essentials of Addiction Medicine, Second edition, Abigail J. Herron, Timothy Koehler Brennan.
- ASAM Review Course in Addiction Medicine. July 30-Aug 1, 2015.
- http://addictionrecoveryaustralia.blogspot.com/2014/09/the-addictive-brain.html
- http://gatest.iqscloud.net/publications/addiction-science/treatment/addiction-changes-brain-circuitry-making-it-hard-to-apply-brakes-to-detrimental-beha
- http://gatest.iqscloud.net/publications/addiction-science/introduction


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