CONTINUUM
CLINICS

Addiction 101

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Objectives

1. To understand the fundamentals of the medical model of addiction.

2. To understand the goal of harm reduction.

3. To understand the basics of medication for addiction treatment.

4. To introduce the addiction medicine continuum of care.

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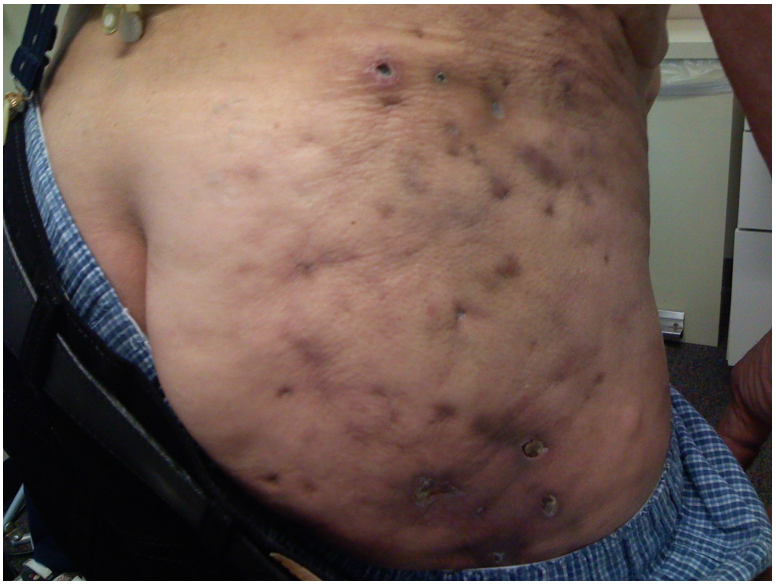
Case: Joe (not real name)



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Facts and Figures

…WHY IT MATTERS

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More than 750,000 people have died since 1999 from a drug overdose.

6

Overdose Deaths

67,367 lethal drug overdoses in 2018

Age Adjusted Rate of OD 20.7 per 100,000

7

Opioid-Involved OD

69.5% involved Opioids

2 out of 3 opioid-involved OD Deaths involved synthetic opioids

8

Cost

Estimated cost of Addiction in US

$700 Billion & climbing

9

Access

20.4 million adults needing treatment

2.3 million received treatment (11%)

10

Pain

30% of Americans have some form of acute or chronic pain

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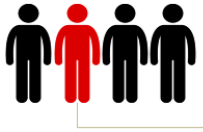
Key figures about the opioid epidemic

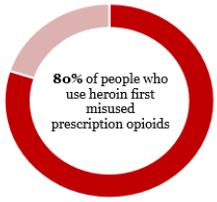
Most people who use heroin initially used prescription opioids

Today, **21-29%** of patients prescribed opioids for chronic pain misuse them



4-6% of people who misuse prescription opioids transition to **heroin**

Of the patients who misuse prescribed opioids, **8-12%** develop an opioid use disorder



Drug overdose is the leading cause of accidental deaths in the U.S.

Every day, an estimated **91 Americans** die due to overdosing on opioids, and a recent study suggests that opioid-related deaths are **drastically underreported**

The CDC estimates that prescription opioid misuse costs the United States **$78.5 billion** each year

- This includes the cost of health care, lost productivity, addiction treatment and criminal justice involvement

Sources: "Opioid Crisis," NIDA, June 2017; "Public Opinion on the Use and Abuse of Prescription Opioids," KFF, November 2015, Schallhorn "Trump declares opioid epidemic national emergency – here's what that means," Fox News, August 11, 2017.

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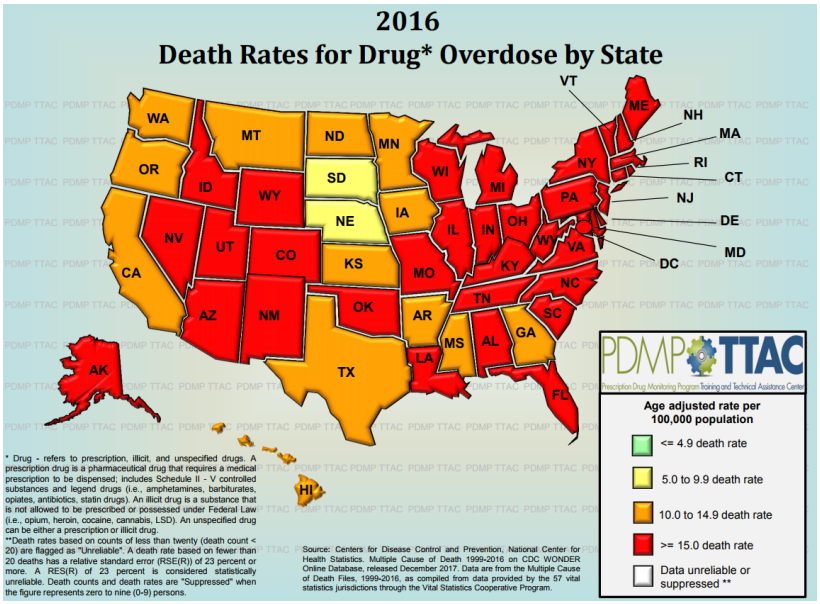
2016
Death Rates for Drug* Overdose by State
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
VT
NH
ME
MA
RI
CT
NJ
DE
MD
DC
AK
HI
PDMP TTAC
Prescription Drug Monitoring Program Training and Technical Assistance Center
Age adjusted rate per 100,000 population
<= 4.9 death rate
5.0 to 9.9 death rate
10.0 to 14.9 death rate
>= 15.0 death rate
Data unreliable or suppressed **
* Drug - refers to prescription, illicit, and unspecified drugs. A prescription drug is a pharmaceutical drug that requires a medical prescription to be dispensed; includes Schedule II - V controlled substances and legend drugs (i.e., amphetamines, barbiturates, opiates, antibiotics, statin drugs). An illicit drug is a substance that is not allowed to be prescribed or possessed under Federal Law (i.e., opium, heroin, cocaine, cannabis, LSD). An unspecified drug can be either a prescription or illicit drug.
**Death rates based on counts of less than twenty (death count < 20) are flagged as "Unreliable". A death rate based on fewer than 20 deaths has a relative standard error (RSE(R)) of 23 percent or more. A RES(R) of 23 percent is considered statistically unreliable. Death counts and death rates are "Suppressed" when the figure represents zero to nine (0-9) persons.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2016 on CDC WONDER Online Database, released December 2017. Data are from the Multiple Cause of Death Files, 1999-2016, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

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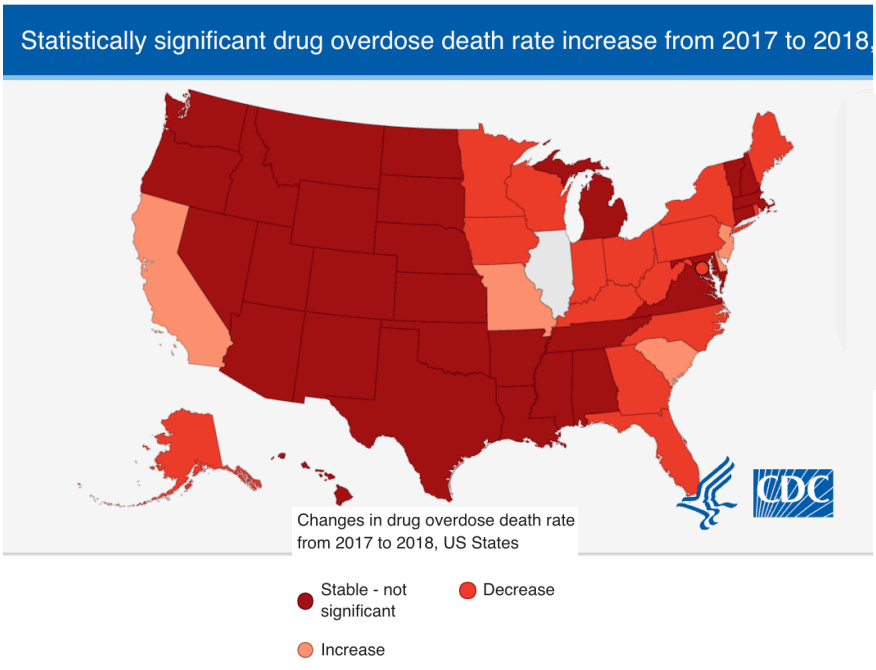
Statistically significant drug overdose death rate increase from 2017 to 2018
Changes in drug overdose death rate from 2017 to 2018, US States
Stable - not significant
Decrease
Increase
CDC

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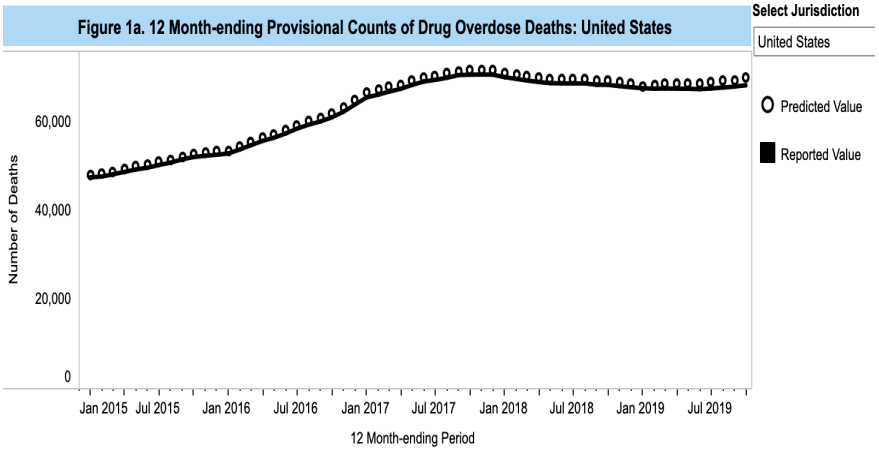
12 Month-ending Provisional Number of Drug Overdose Deaths

Based on data available for analysis on: 5/3/2020



CDC NVSS Vital Statistics Rapid Release
https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm#ref6

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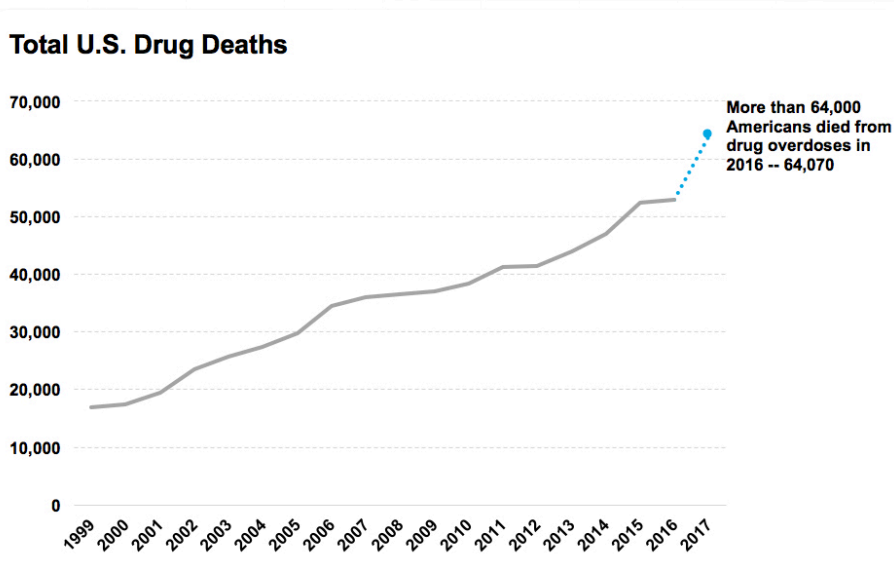

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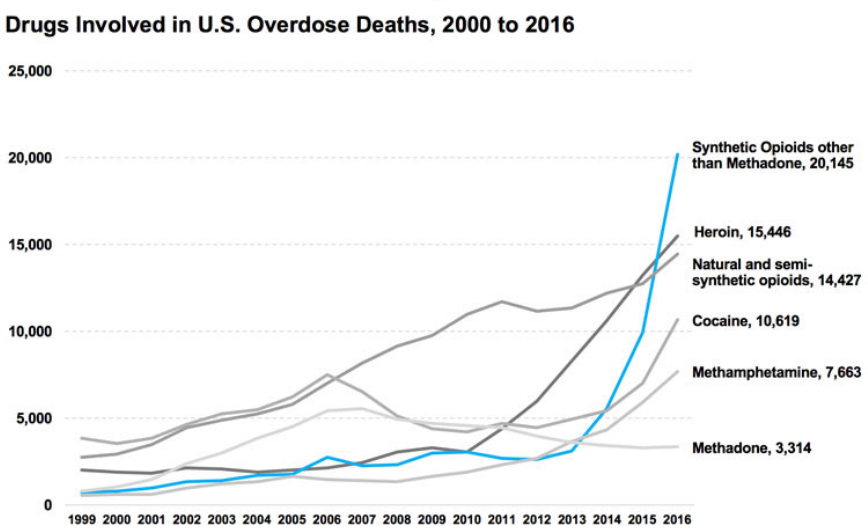

Drugs Involved in U.S. Overdose Deaths - Among the more than 64,000 drug overdose deaths estimated in 2016, the sharpest increase occurred among deaths related to fentanyl and fentanyl analogs (synthetic opioids) with over 20,000 overdose deaths. Source: CDC WONDER

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Adolescents and Substances

In 2013, by the time an adolescent is a high school senior

* 70% will have tried alcohol

* Half will have taken an illegal drug

* Nearly 40% will have smoked a cigarette

* Nearly 20% will have used a prescription drug for a non-medical purpose

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Perinatal Addiction

Between 2000 and 2009, opioid use increased from 1.19 per 1,000 hospital births

to 5.63 per 1,000 hospital births in the US

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Neonatal Abstinence Syndrome (NAS)

Between 2000 and 2009, NAS has increased from 1.20 per 1,000 hospital births per year to 3.39 per 1,000 hospital births per year.

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In the past, addiction was about

drugs

The new definition of addiction is about

brains

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Addiction

Addiction is a treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences. People with addiction use substances or engage in behaviors that become compulsive and often continue despite harmful consequences. Prevention efforts and treatment approaches for addiction are generally as successful as those for other chronic diseases.

ASAM, Sept 15, 2019

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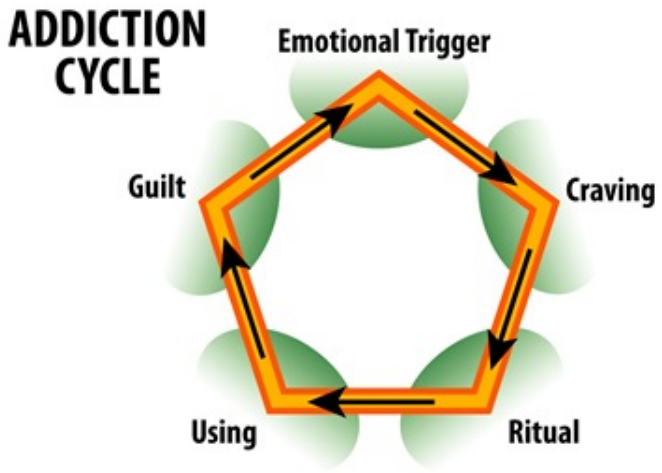

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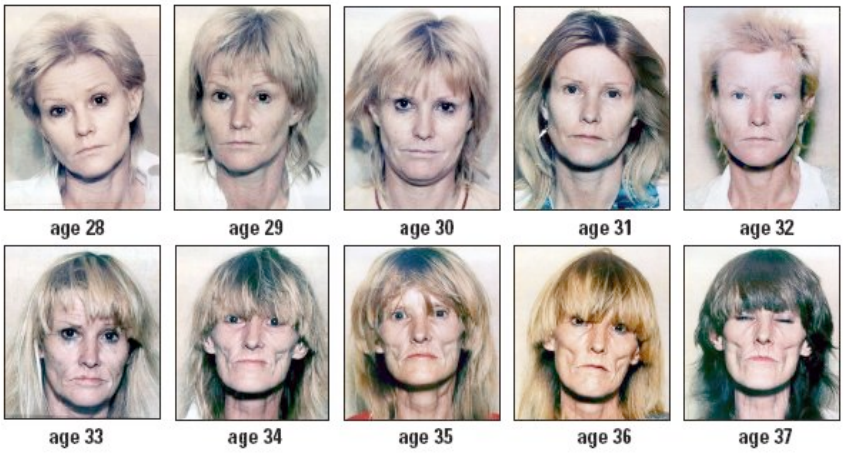
The Face of a Meth User – 10 years



Dead at age 38

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DSM V: Opioid Use Disorder

- ✓ ***Tolerance**
- ✓ ***Withdrawal**
- ✓ **Use in larger amounts or duration than intended**
- ✓ **Persistent desire to cut down**
- ✓ Giving up interests to use opioids
- ✓ **Great deal of time spent obtaining, using,** or recovering from **opioids**
- ✓ Craving or strong desire to use opioids
- ✓ Recurrent use resulting in failure to fulfill major role obligations
- ✓ **Recurrent use in hazardous situations**
- ✓ Continued use despite social or interpersonal problems caused or exacerbated by opioids
- ✓ **Continued use despite physical or psychological problems**

*This criterion is not considered to be met for those individuals taking opioids solely under appropriate medical supervision

Mild OUD: 2-3 Criteria
Moderate OUD: 4-5 Criteria
Severe OUD: ≥6 Criteria

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.)

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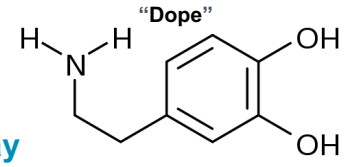
Getting "Addicted" and the Pleasure Reward Pathway

- The Reward pathway in the brain is activated by activities we find pleasurable.

- The common reward pathway in the brain for all pleasurable activities involves the neurotransmitter **Dopamine**



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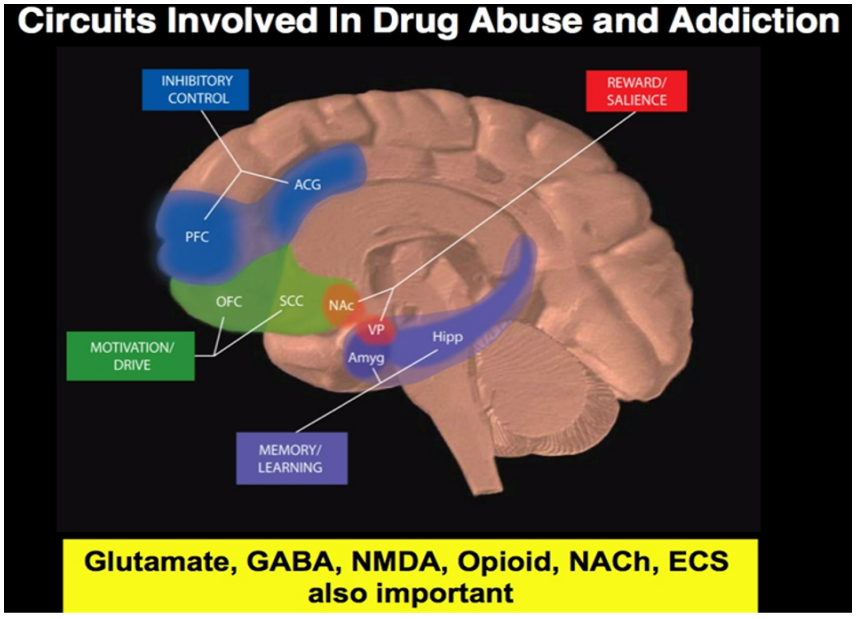

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Getting "Addicted" and the Pleasure Reward Pathway

Drugs that hijack the natural pleasure circuitry of the brain can become "addictive."

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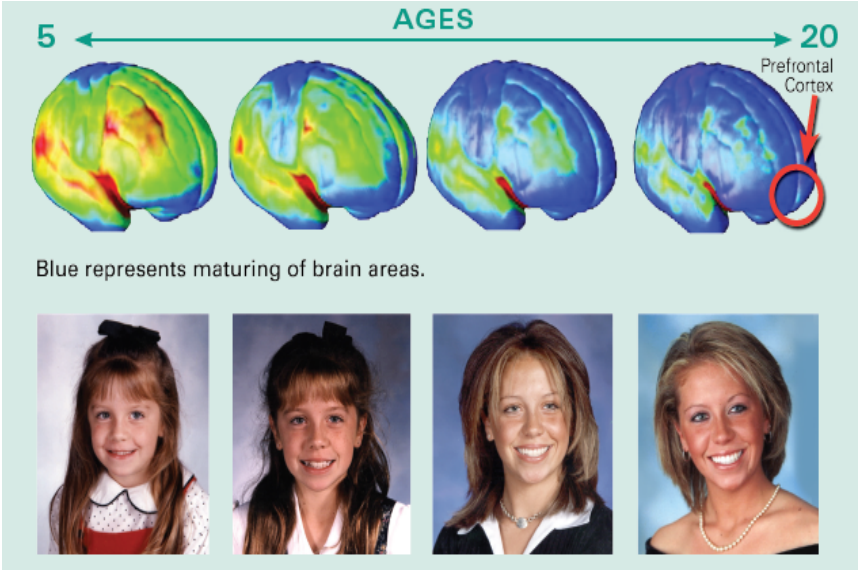

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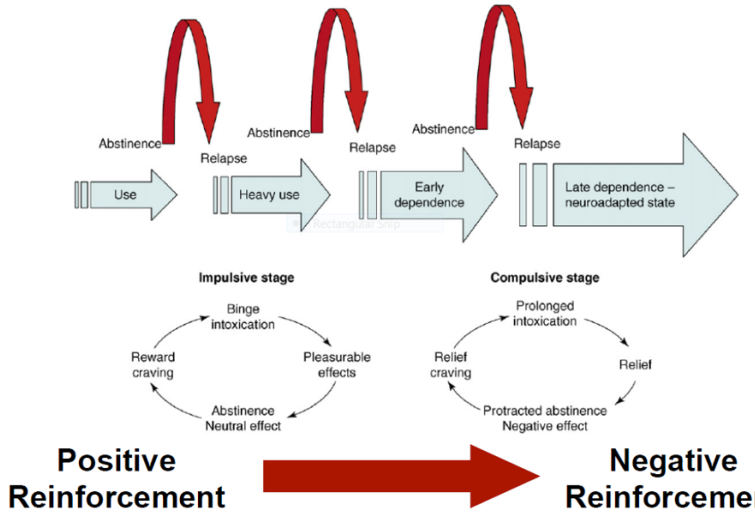
Transition from Positive to Negatively Reinforced Drug Use



From: Koob GF, Alcohol Clin Exp Res, 2003, 27:232-243.

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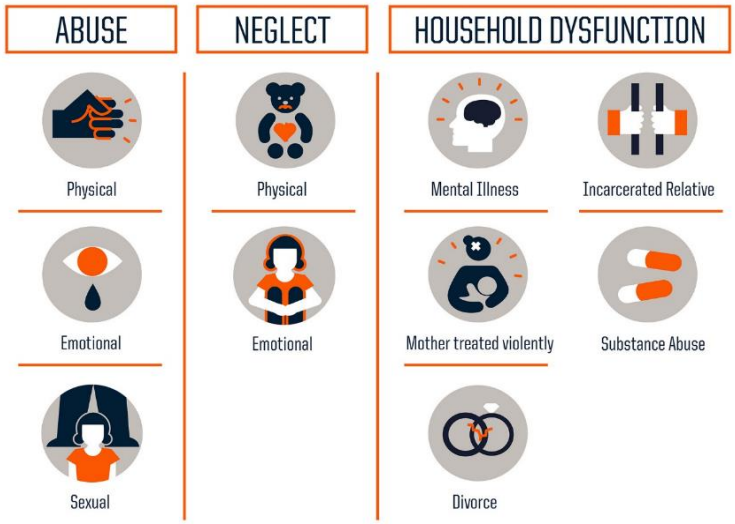
Adverse Childhood Events



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Adverse Childhood Events

Out of 100 people…

33% Report No ACEs	51% Report 1-3 ACEs	16% Report 4-10 ACEs
With 0 ACEs	With 3 ACEs	With 7+ ACEs
1 in 16 smokes	1 in 9 smokes	1 in 6 smokes
1 in 69 are alcoholic	1 in 9 are alcoholic	1 in 6 are alcoholic
1 in 480 use IV drugs	1 in 43 use IV drugs	1 in 30 use IV drugs
1 in 14 has heart disease	1 in 7 has heart disease	1 in 6 has heart disease
1 in 96 attempts suicide	1 in 10 attempts suicide	1 in 5 attempts suicide

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Co-Morbidities

- **Mental Health Disorders** (major depressive disorder, bipolar disorder, psychotic disorders and personality disorders)
- **Communicable Diseases**
  - Viral Hepatitis (B & C)
  - HIV
  - **Sexually Transmitted Infections**
- **Other ID**
  - Endocarditis
  - Abscesses and bacteremia
  - Botulism
- **Trauma**
  - Domestic Violence
  - Physical/Sexual Abuse
  - Altercations
- **Pregnancy/Neonate**
  - Abruptio placentae, Neonatal Abstinence Syndrome, Fetal Alcohol Syndrome, Low birth weight, Stillbirths

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OPIATES & OPIOIDS

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Universal Precautions

- **Misuse risk assessment and stratification**
  - ORT - Opioid Risk Tool
  - SOAPP - Screener and Opioid Assessment for Patients with Pain
- **Patient Provider Agreements (PPA)**
  - Informed consent (risks and benefits)
  - Plan of care including medication management
- **Monitor for benefit and risk**
  - Regular face-to-face visits
  - Reports from others
- **Monitor for adherence, addiction, diversion**
  - Urine drug testing
  - Pill counts
  - Prescription Drug Monitoring Program data

Gourlay DL *Pain Med* 2005

*
- APS/AAPM
- American Society of Interventional Pain Physicians
- American Academy of Neurology
- FSMB
- Canadian National Pain Centre
- CDC

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Pharmacologic Therapies

FDA

- Varenicline
- Bupropion
- Nicotine-Replacement Therapy
- Acamprosate
- Disulfiram
- Naltrexone
- Buprenorphine
- Methadone

Symptom Targeted

- Clonidine
- Buspirone
- SSRI / SNRI /TCAs
- Muscle relaxants (not carisoprodol)
- Anticonvulsants (i.e., gabapentin, levetiracetam)
- Sedative Hypnotics (i.e., benzodiazepines & barbiturates)
- Antiemetics (i.e., ondansetron, promethazine)
- Antihistamines (i.e., hydroxyzine)
- Non-narcotic analgesics

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Full-Agonist Therapy

Methadone

- Full Agonist at mu opioid receptor
- Usually dispensed as liquid
- **Requires Opioid Treatment Program**
- May be euphorigenic
- Safety: No ceiling effect, complicated by QTc prolongation
- Long half-life
- Reduces variations in opioid levels
- Protects patient (and fetus) from withdrawal & improves obstetric outcomes
- Allows for anticipation of NAS
- Dose may change during pregnancy
- Barriers: daily dosing at center

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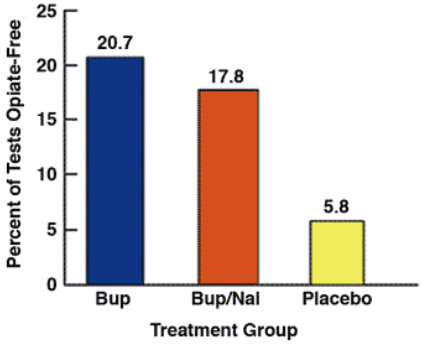
Partial-Agonist Therapy

Buprenorphine

- Partial Agonist at mu receptor and antagonist at kappa receptor
- In pregnancy, use monotherapy
- Not significantly euphorigenic
- Safety: Ceiling effect on respiratory depression
- Long half-life
- When properly dosed, blocks other opioids (higher affinity)
- Protects mother & fetus from withdrawal
- Distinct on drug screening
- Higher risk of diversion
- Treatment setting can be in outpatient office: Physician, NP, PA with waiver
- Requires "INDUCTION"



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Partial-Agonist Therapy

Buprenorphine

- To suppress opioid Withdrawal
- To block the effects of illicit opioids
- To reduce opioid craving and stop or reduce the use of illicit opioid
- To promote and facilitate patient engagement in recovery-oriented activities including psychosocial intervention

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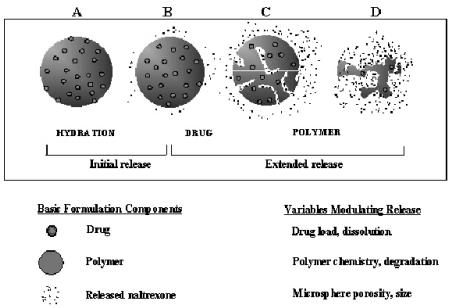
Antagonist Therapy

Naltrexone

- Opioid antagonist
- Indication: Alcohol and/or Opioid dependence (Cravings management vs blockade)
- Available in oral (daily) and injectable form (Long-Acting, dosed monthly)
- Injectable form expensive but associated with improved compliance
- Low side-effect profile
- Easy to use in Alcohol Dependence
- Can be difficult to use in Opioid Dependence due to precipitated withdrawal risk
- Treatment results in reduced opioid tolerance and **increased** risk of opioid overdose on relapse once blockade wears off



Dean, R. The Preclinical Development of Medisorb Naltrexone, a once a month long-acting injection, for the treatment of alcohol dependence. Frontiers in Bioscience 10, 643-655, January 1, 2005.

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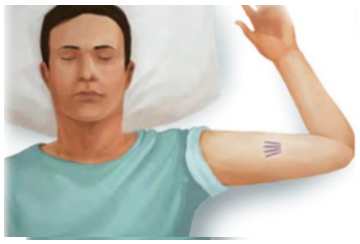
Buprenorphine



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Naloxone

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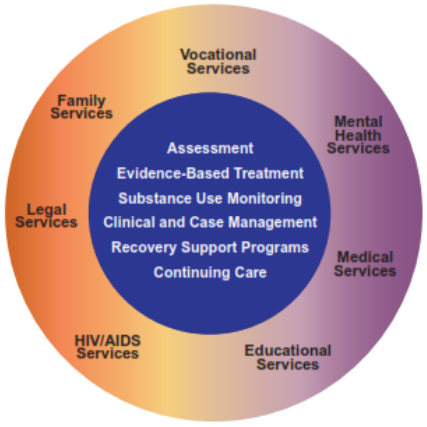
Components of Comprehensive Drug Abuse Treatment



Address Whole Person

* Psychological
* Social Well-being
* School
* Family dynamics
* Tools to interface with risky peer group
*Address Mental Health Issues

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Evidence Based Treatments

CBT	Multisystemic Therapy	Multidimenstional Family Therapy
12-Step Approach	Therapeutic Communities	Motivational Treatment
Contingency Management	Pharmacotherapy	Relapse and Monitoring

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ASAM Criteria

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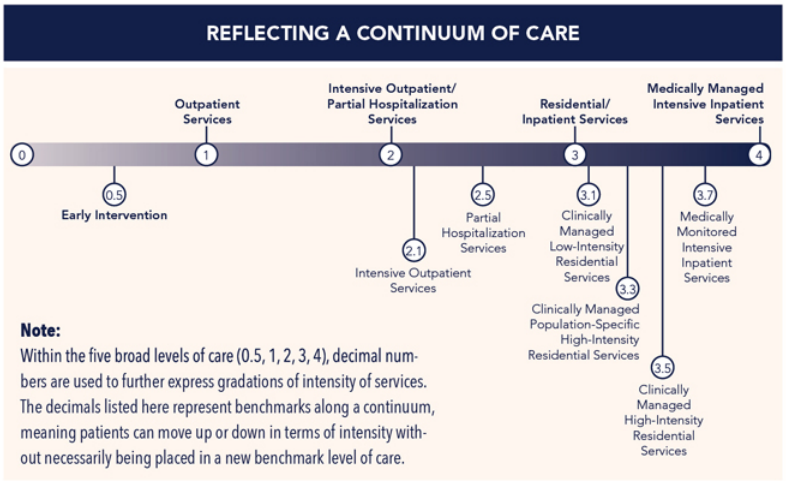
ASAM Criteria



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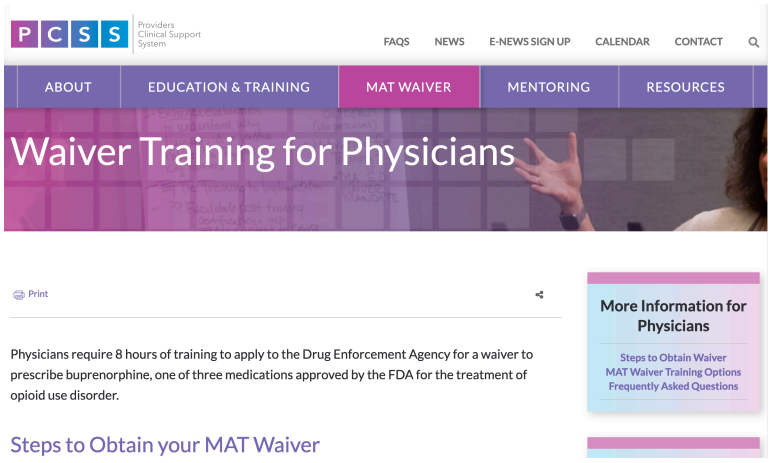
X-waiver DEA



https://pcssnow.org/medication-assisted-treatment/waiver-training-for-physicians/

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