OPIOIDS AND OTHER SUBSTANCE USE DISORDER

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SEMINAR OVERVIEW

AT THE END OF THIS TALK YOU WILL BE ABLE TO:

- Identify the diagnostic criteria for substance use disorders
- Describe the epidemiology of substance use disorders
- Describe treatment options
- Discern intoxication/withdrawal of different substances
- Apply the information above to clinical cases
## DSM-5 Criteria for Substance Use Disorder (APA, 2013)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Taking the substance in larger amounts or for longer time than intended</td>
</tr>
<tr>
<td>2.</td>
<td>Persistent desire or unsuccessful attempts to cut down or control use</td>
</tr>
<tr>
<td>3.</td>
<td>Great deal of time obtaining, using, or recovering from substance use</td>
</tr>
<tr>
<td>4.</td>
<td>Cravings and Urges to use the substance</td>
</tr>
<tr>
<td>5.</td>
<td>Failure to fulfill major roles (work, school, home)</td>
</tr>
<tr>
<td>6.</td>
<td>Persistent social or interpersonal problems caused by substance use</td>
</tr>
<tr>
<td>7.</td>
<td>Important social, occupational, recreational activities given up or reduced</td>
</tr>
<tr>
<td>8.</td>
<td>Use in physically hazardous situations</td>
</tr>
<tr>
<td>9.</td>
<td>Use despite physical or psychological problems caused by use</td>
</tr>
<tr>
<td>10.</td>
<td>Tolerance (Needing more of the substance to get the effect you want)</td>
</tr>
<tr>
<td>11.</td>
<td>Withdrawal</td>
</tr>
</tbody>
</table>

### Impaired Control

### Social Impairment

### Risky Use

### Pharmacological Criteria

---

*(APA, 2013)***
# DSM-5 Criteria (Severity & Specifiers)

<table>
<thead>
<tr>
<th></th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity***</td>
<td>2-3</td>
<td>4-5</td>
<td>6 or more</td>
</tr>
</tbody>
</table>

**Severity*** - Depends on # of symptom criteria endorsed

## Specifiers

<table>
<thead>
<tr>
<th>Specifiers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Remission</td>
<td>No Criteria met for &gt; 3 months but &lt; 12 months (EXCEPT CRAVING***))</td>
</tr>
<tr>
<td>Sustained Remission</td>
<td>No Criteria met for &gt; 12 months (EXCEPT CRAVING***))</td>
</tr>
</tbody>
</table>

## Additional DSM-5 Specifiers***

- In a Controlled Environment
- On Maintenance Therapy
SUBSTANCE-INDUCED MENTAL DISORDER

Clinically significant presentation of a mental disorder.

Potentially severe, usually temporary, but sometimes persisting CNS syndromes.

Evidence (Hx, PE, labs)
- During or within 1 month of use
- Capable of producing mental disorder seen

NOT** an independent mental disorder
- Preceded onset of use
- Persists for substantial time after use

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>SUBSTANCE-INDUCED DISORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Intoxication</td>
</tr>
<tr>
<td>2.</td>
<td>Withdrawal</td>
</tr>
<tr>
<td>3.</td>
<td>Psychotic Disorder</td>
</tr>
<tr>
<td>4.</td>
<td>Bipolar Disorder</td>
</tr>
<tr>
<td>5.</td>
<td>Depressive Disorder</td>
</tr>
<tr>
<td>6.</td>
<td>Anxiety Disorder</td>
</tr>
<tr>
<td>7.</td>
<td>Sleep Disorder</td>
</tr>
<tr>
<td>8.</td>
<td>Delirium</td>
</tr>
<tr>
<td>9.</td>
<td>Neurocognitive</td>
</tr>
<tr>
<td>10.</td>
<td>Sexual Dysfunction</td>
</tr>
</tbody>
</table>
Clinical picture of intoxication depends on:

- Substance Type
- Dose
- Route of Administration
- Duration/chronicity
- Individual degree of tolerance
- Time since last dose
- Person’s expectations of substance effect
✓ Substance-specific syndrome problematic behavioral change due to stopping or reducing prolonged use.

✓ Physiological & cognitive components.

✓ Significant distress in social, occupational or other important areas of functioning.
WITHDRAWAL TIMELINES

COMMONLY ABUSED DRUGS

- Withdrawal timelines vary depending on the drug
- Withdrawal intensity correlates to addictiveness of the drug
- Alcohol and benzos: can cause the most severe physical withdrawal symptoms
- Cocaine: considered the most intense for psychological withdrawal symptoms
WITHDRAWAL SYMPTOMS

VARY DEPENDING ON SUBSTANCE; HOWEVER, THE MOST COMMON SIGNS OF WITHDRAWAL INCLUDE:

- Nausea or vomiting
- Increased irritability
- Sweating
- Shaking in the hands
- Feeling confused or upset
- Abdominal pain
- Hallucinations (both sensory and visual)
- Seizures
TOLERANCE

Need to use an increased amount of a substance in order to achieve the desired effect

OR

Markedly diminished effect with continued use of the same amount of the substance

NEUROADAPTATION

Refers to underlying CNS changes that occur following repeated use such that person develops tolerance and/or withdrawal

- Pharmacokinetic – adaptation of metabolizing system
- Pharmacodynamic – ability of CNS to function despite high blood levels
EPIDEMIOLOGY: PREVALENCE

>22.5 Million; > 12 years – Substance-Related Disorder worldwide.  
(NIDA ’04)

>15 Million Worldwide – Alcohol Dependence or Abuse.  
(NIDA ’04)

- If Start at earlier age (<15 years), more likely to become addicted.
  
  E.g. Alcohol: 18% vs. 4% (if start at 18 years or older)

- Rates of abuse vary by age: 1% (12 years) - 25% (21 years) - 1% (65 years)

- Men; American Indian; Whites; Unemployed; Large metro areas.
# US Economic Costs (2016)

<table>
<thead>
<tr>
<th>Costs of Substance Abuse</th>
<th>Health Care</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>$130 billion</td>
<td>$295 billion</td>
</tr>
<tr>
<td>Alcohol</td>
<td>$25 billion</td>
<td>$224 billion</td>
</tr>
<tr>
<td>Illicit Drugs</td>
<td>$11 billion</td>
<td>$193 billion</td>
</tr>
</tbody>
</table>
Number of Annual Substance Related ER Visits (NIDA ‘09)

1.2 Million: Non-medical use of pharmaceuticals
660K: Alcohol
425K: Cocaine
380K: Marijuana
210K: Heroin
93K: Stimulants
ETIOLOGY

Multiple interacting factors influence behavior and loss of decisional flexibility.

Not all who become dependent experience it same way or motivated by same factors.

Different factors may be more or less important at different stages (E.g. drug availability, social acceptance, peer pressure VS personality and biology).

“Brain Disease” – Changes in structure and neurochemistry??

Changes proven but necessary/sufficient? (drug-dependent person changes behavior in response to positive reinforcers).

Psychodynamic: Disturbed Ego function (Inability to deal with reality).
ETIOLOGY

Self-medication
- Alcohol - Panic; Opioids - Anger; amphetamine – Depression

Genetic (well-established with alcohol)

Conditioning: Behavior maintained by its consequences
- Terminate aversive state (pain, anxiety, w/d)
- Special status
- Euphoria
- Secondary Reinforcers (ex. Paraphernalia)
ETIOLOGY

Too little endogenous opioid activity (Low Endorphins)  
**OR**  
Too much endogenous opioid antagonist activity

RECEPTORS

- Normal endogenous receptor but long-term use modulates, so need exogenous substance to maintain homeostasis.

- Neurotransmitters
  - Opioid
  - Catecholamines
  - GABA
  - Serotonin

Increased risk of dependence
After using drugs or when stop – leads to a depleted state resulting in dysphoria and/or cravings to use, reinforcing the use of more drug.

Response of brain cells is to downregulate receptors and/or decrease production of neurotransmitters that are in excess of normal levels.

**COMORBIDITY**

Up to 50% of addicts have comorbid psychiatric disorder.
- Antisocial PD
- Depression
- Suicide

**LEARNING AND PHYSIOLOGICAL BASIS FOR DEPENDENCE**
## TYPICAL PRESENTATION AND COURSE

### MANIFESTATIONS OF SUBSTANCE USE DISORDER
- Acute intoxication
- Acute/chronic withdrawal
- Substance induced mood, cognitive disorder
- Medical complications due to Substance Use

### ABSTINENCE: Depends on
- Social factors
- Environmental factors
- Internal factors (Presence of other Comorbid Psychiatric Illnesses)

### OUTCOME
- Frequency
- Intensity
- Duration of treatment

*Remission and relapses are the rule* (just like any other chronic medical illness)**
SUBSTANCE CLASSES

1. ALCOHOL
2. OPIOIDS
3. CANNABIS
4. SEDATIVES, HYPNOTICS AND ANXIOLYTICS
5. INHALANTS
6. STIMULANTS
7. CAFFEINE
8. HALLUCINOGENS
9. TOBACCO
10. OTHERS
HEROIN AND OPIOID ADDICTION

Millions of people suffer from opioid prescription abuse every year and hundreds of thousands struggle with heroin abuse yet few seek the help they need.
Chronic exposure to **opioids** may result in brain abnormalities.¹

These brain abnormalities can lead to addiction, also known as opioid use disorder (OUD).²

**Opioid use disorder (OUD)** is a primary, chronic and relapsing brain disease affecting 2 million people in the U.S.² That can be managed long-term with medical treatment.

Heroin
- Sleepiness
- Coma
- Nausea
- Severe itching
- Euphoria
- Breathing problems

Prescription opioids
- Sleepiness
- Confusion
- Nausea
- Pain relief
- Euphoria
- Breathing problems
**OPIOIDS**

Bind to the mu receptors in the CNS to modulate pain.

<table>
<thead>
<tr>
<th>INTOXICATION</th>
<th>WITHDRAWAL (Rarely Fatal***)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euphoria</td>
<td>Dilated pupils</td>
</tr>
<tr>
<td>Pinpoint pupils</td>
<td>Lacrimation/Rhinorrhea</td>
</tr>
<tr>
<td>Constipation</td>
<td>Goosebumps (Due to Piloerection)</td>
</tr>
<tr>
<td>Bradycardia</td>
<td>Nausea and Vomiting</td>
</tr>
<tr>
<td>Hypotension</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Slurred Speech</td>
<td>Myalgias</td>
</tr>
<tr>
<td>Decreased respiratory rate</td>
<td>Arthralgias</td>
</tr>
<tr>
<td>Drowsiness/Coma</td>
<td>Dysphoria or agitation</td>
</tr>
</tbody>
</table>

- Euphoria
- Pinpoint pupils
- Constipation
- Bradycardia
- Hypotension
- Slurred Speech
- Decreased respiratory rate
- Drowsiness/Coma

- Dilated pupils
- Lacrimation/Rhinorrhea
- Goosebumps (Due to Piloerection)
- Nausea and Vomiting
- Diarrhea
- Myalgias
- Arthralgias
- Dysphoria or agitation
Opiate Withdrawal Timeline

**Start**
Take your last dose

**72 Hours**
Physical symptoms at peak
Chills, fever, body aches, diarrhea, insomnia, muscle pain, nausea, dilated pupils

**1 Week**
Physical symptoms start to lessen
Tiredness, sweating, body aches, anxiety, irritability, nausea

**2 Week**
Psychological and emotional symptoms
Depression, anxiety, irritability, restlessness, trouble sleeping

**1 Month**
Cravings and depression
Symptoms can linger for weeks or months
**TREATING OPIOID OVERDOSE**

STEP 1: Ensure an adequate Airway

STEP 2: Slow I.V. Naloxone @ 0.8mg per 70 kg body weight

Gain in Respiratory Rate and Pupillary dilatation usually occurs soon after Naloxone administration

STEP 3: Symptomatic Treatment

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**TREATING OPIOID WITHDRAWAL**

There is substantial evidence for three main types of Pharmacotherapy:

1. Methadone
2. Buprenorphine
3. Alpha-2 Adrenergic Agonists

All are effective in reducing withdrawal symptoms.

**ULTRA RAPID DETOXIFICATION:**
(General Anaesthesia Required)
# Treatment of Opioid Withdrawal

## Symptomatic Treatment
- Antiemetic
- Antacid
- Antidiarrheal
- Muscle relaxants
- NSAIDS
- Clonidine
- BZD

## Medications
- Methadone (opioid substitution)
- Naltrexone
- Buprenorphine (opioid substitution)

## Non-Rx Interventions
- Support
- Education
- Skills building
- Psychiatric and psychological treatment
# Treatment of Opioid Withdrawal

<table>
<thead>
<tr>
<th>Naltrexone</th>
<th>Methadone</th>
<th>Buprenorphine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opioid blocker</strong></td>
<td><strong>μ-agonist</strong></td>
<td><strong>Partial μ-agonist with a ceiling effect</strong></td>
</tr>
<tr>
<td><strong>μ-antagonist</strong></td>
<td><strong>Start at 20-40mg and titrate up until no craving or using illicit opioids</strong></td>
<td><strong>Any physician can Rx after taking certified ASAM course</strong></td>
</tr>
<tr>
<td><strong>50mg po daily</strong></td>
<td><strong>Average dose 80-100mg daily</strong></td>
<td><strong>Helpful for highly motivated people who do not need high doses</strong></td>
</tr>
<tr>
<td></td>
<td>Needs to be enrolled in a certified opiate substitution program</td>
<td><strong>Start with 4mg/d</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Average 8-16 mg/d</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>As high as 32 mg/d</strong></td>
</tr>
</tbody>
</table>
Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.

Most used at least 3 other drugs.

**Heroin** is a highly addictive opioid drug with a high risk of overdose and death for users.

People who are addicted to...

- **Alcohol**: 2x more likely to be addicted to heroin.
- **Marijuana**: 3x more likely to be addicted to heroin.
- **Cocaine**: 15x more likely to be addicted to heroin.
- **Rx Opioid Painkillers**: 40x more likely to be addicted to heroin.

CANNABIS
CANNABIS

Most commonly used illicit drug in America.

Obtained from the plant *Cannabis Sativa*.

Principal component of Cannabis is $\Delta^9$-THC.

THC levels reach peak 10-30 min, *lipid soluble*; long half life of 50 hours.
CANNABIS

<table>
<thead>
<tr>
<th>Cannabis Preparations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>Marijuana</td>
</tr>
<tr>
<td>Sinsemilla</td>
</tr>
<tr>
<td>Ganja</td>
</tr>
<tr>
<td>Hashish</td>
</tr>
<tr>
<td>Cannabis/Hash Oil</td>
</tr>
</tbody>
</table>

INTOXICATION

<table>
<thead>
<tr>
<th>Impaired Motor Coordination</th>
<th>Euphoria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Withdrawal</td>
<td>Sensation of Slowed Time</td>
</tr>
<tr>
<td>Conjunctival Injection</td>
<td>Increased Appetite</td>
</tr>
<tr>
<td>Dry Mouth</td>
<td>Tachycardia</td>
</tr>
</tbody>
</table>

WITHDRAWAL (Very Rare***)

<table>
<thead>
<tr>
<th>These are usually mild and very rare.</th>
<th>Irritability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insomnia</td>
<td>Anorexia</td>
</tr>
<tr>
<td>Depression</td>
<td>Mild Nausea</td>
</tr>
</tbody>
</table>

NEUROADAPTATION

- CB1, CB2 cannabinoid receptors in brain/body.
- Coupled with G proteins and adenylate cyclase to CA channel inhibiting calcium influx
- Neuromodulator effect; decrease uptake of GABA and DA
CANNABIS

TREATMENT

- Detox and rehab
- Behavioral model
- Pharmacological treatment to treat psychiatric symptoms

STREET NAMES

<table>
<thead>
<tr>
<th>MARIJUANA</th>
<th>WEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRASS</td>
<td>HEMP</td>
</tr>
<tr>
<td>MARY JANE</td>
<td>GANJA</td>
</tr>
</tbody>
</table>

LONG TERM USE

1. COGNITIVE IMPAIRMENT
2. AMOTIVATIONAL SYNDROME***
   - Patients show loss of motivation to persist in a task that requires prolonged attention or effort.
   - May appear Apathetic/ Gain weight.
BENZODIAZEPINES (BZD)
Many of the most commonly prescribed benzos are those which are most readily abused, including:

<table>
<thead>
<tr>
<th>Benzodiazepines</th>
<th>Drug Name</th>
<th>Brand Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPRAZOLAM (Xanax)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLONAZEPAM (Klonopin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHLORDIAZEPoxide (Librium)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIAZEPAM (Valium)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LORAZEPAM (Ativan)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEMAZEPAM (Restoril)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRIAZOLAM (Halcion)</td>
<td></td>
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</tbody>
</table>
## BENZODIAZAPINES

<table>
<thead>
<tr>
<th>BENZODIAZEPINE(S)</th>
<th>t 1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam (Xanax)</td>
<td>6-20 hrs</td>
</tr>
<tr>
<td>*Oxazepam (Serax)</td>
<td>8-12 hrs</td>
</tr>
<tr>
<td>*Temazepam (Restoril)</td>
<td>8-20 hrs</td>
</tr>
<tr>
<td>Clonazepam (Klonopin)</td>
<td>18-50 hrs</td>
</tr>
<tr>
<td>*Lorazepam (Ativan)</td>
<td>10-20 hrs</td>
</tr>
<tr>
<td>Chlordiazepoxide (Librium)</td>
<td>30-100 hrs (less lipophilic)</td>
</tr>
<tr>
<td>Diazepam (Valium)</td>
<td>30-100 hrs (more lipophilic)</td>
</tr>
</tbody>
</table>

*Oxazepam, Temazepam & Lorazepam- Metabolized through only glucuronidation in liver and NOT affected by age/ Hepatic insufficiency.
**Benzodiazepines**

<table>
<thead>
<tr>
<th>INTOXICATION</th>
<th>WITHDRAWAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similar to alcohol but less cognitive/motor impairment.</td>
<td>Similar to alcohol with:</td>
</tr>
<tr>
<td>Variable rate of absorption (lipophilia), onset of action and duration of action in CNS</td>
<td>Anxiety</td>
</tr>
<tr>
<td>The more lipophilic and Shorter the duration of action, the more “Addictive&quot; they can be.</td>
<td>Irritability</td>
</tr>
<tr>
<td></td>
<td>Insomnia</td>
</tr>
<tr>
<td></td>
<td>Fatigue</td>
</tr>
<tr>
<td></td>
<td>Tremor</td>
</tr>
<tr>
<td></td>
<td>Sweating</td>
</tr>
<tr>
<td></td>
<td>Poor concentration.</td>
</tr>
</tbody>
</table>

*Time frame depends on half life***
**BENZODIAZEPINES**

**MANAGEMENT**

- Common detox mistake is tapering too fast; symptoms worse at end of taper
- Replace short elimination BZD to longer elimination half life drug and then slowly taper

**Outpatient taper-**
- Decrease dose every 1-2 weeks
- Not more than 5 mg Diazepam dose equivalent

  “5 diazepam = 0.5 alprazolam = 25 chlordiazepoxide = 0.25 clonazepam = 1 lorazepam”

- May consider carbamazepine or valproic acid especially if doing rapid taper
The Deadly Side Effects of Inhalants
**INHALANTS**

Inhalants are volatile substances that can be inhaled to induce a mind-altering or psychoactive effect.

Although other abused substances can be inhaled, the term 'inhalants' is used to describe a variety of substances which are rarely, if ever, taken by any route other than inhalation.

<table>
<thead>
<tr>
<th>INHALANT ABUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined as ‘Intentional inhalation of volatile substance that produces chemical vapors in order to achieve euphoria’.</td>
</tr>
<tr>
<td>Affects all demographic, ethnic, &amp; socioeconomic groups.</td>
</tr>
<tr>
<td>Important, yet-under recognized form of substance abuse, causing significant morbidity and mortality.</td>
</tr>
</tbody>
</table>
## Mode of Administration

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
</table>
| Direct Application | Sprayed into mouth/nose  
Applied onto nasal mucosa  
Over Fingernails/shirt collar/cuff |
| Bagging       | Paper/plastic bag containing the inhalant held to the mouth and nose       |
| Glading       | Inhalation of air freshener aerosols, computer/electronic cleaning products |
| Huffing       | Inhalant-soaked rag kept over mouth                                        |
| Sniffing/Snorting | Breathing in through mouth/ nose while inhalant in original container       |
| Dusting       | Abuse of computer cleaning products by placing the canister straw into the mouth or nose |
INHALANTS

WHY ARE INHALANTS POPULAR?

Cheap, easily/legally available, easy to hide (items of daily use), faster onset of action and a regular high.

The high is instant and lasts for 5–15 minutes.

(Johnston et al. 2002)

Products are so common, many do not perceive them as harmful and do not understand the consequences of using them.

(Signs of Intoxication)

1. Euphoria
2. Dizziness
3. Nystagmus
4. Incoordination
5. Slurred Speech
6. Unsteady/Ataxic Gait
7. Lethargy
8. Psychomotor Retardation
9. Tremors
10. Blurred Vision/Diplopia
11. Stupor/Coma

NOTE:
No dependence syndrome described;
No withdrawal noted as per DSM-5
VOLATILE SOLVENTS (MC)

Also termed as “glue-sniffing”

Prototypic compounds are

- Toluene and
- Trichloroethane (TCE)

Others: Methyl Butyl Ketone, n-Hexane, acetone, methylene chloride, ethyl acetate,

Usually found in commercial products like:

- Glue, Paint thinner, Correction fluid,
- Permanent markers, Nail polish remover,
- Carburetor cleaner
INHALANTS

TREATMENT:

No universal approach.

Little research exists on treatment modalities specific to inhalants abuse.

Clinicians rely on applying methods that are used to treat other addictive disorders.

SUGGESTED APPROACHES: (Jumper-Thurman et al. 1995)

• Early identification and intervention
• A detailed history for other inhalants & drugs
• Detoxification periods could extend for a month
• Long duration of treatment (up to 2 years)

COUNSELLING***: Intervention to improve parenting or bonding skills or treatment of parental substance abuse may be needed.
TOBACCO USE DISORDER
TOBACCO

Most important preventable cause of death / disease in USA

25%- current smokers, 25% ex smokers

20% of all US deaths

45% of smokers die of tobacco induced disorder

Second hand smoke causes death / morbidity

Psychiatric patients at risk for Nicotine dependence

Approximately 75%-90 % of Schizophrenics smoke
Cigarette smoking remains high among certain groups:

- Men
- Adults 25-64 years old
- Lower education
- Below poverty level
- Midwest and South
- Uninsured or Medicaid
- Disabled
- Serious psychological distress
- American Indians, Alaska Natives and Multiracial
- Lesbians, gays, and bisexuals

Strategies essential to continue reducing cigarette smoking overall.
<table>
<thead>
<tr>
<th>DRUG INTERACTIONS</th>
<th>INTOXICATION</th>
<th>NEUROADAPTATION</th>
<th>TOLERANCE</th>
<th>WITHDRAWAL</th>
</tr>
</thead>
</table>
| **Induces CYP1A2**| **No Intoxication diagnosis**              | Nicotine acetylcholine receptors on DA neurons in ventral tegmental area release DA in Nucleus Accumbens | **Rapid**                        | **Dysphoria**  
|                   | Watch for interactions when start or stop (ex. Olanzapine) |                                                                                                  |                                 | Irritability  
|                   |                                             |                                                                                                  |                                 | Anxiety  
|                   |                                             |                                                                                                  |                                 | Decreased concentration  
|                   |                                             |                                                                                                  |                                 | Insomnia  
|                   |                                             |                                                                                                  |                                 | Increased appetite  
|                   |                                             |                                                                                                  |                                 |
TREATMENT TOBACCO USE DISORDER

Cognitive Behavioral Therapy (CBT)

Agonist substitution therapy:
- Nicotine gum or lozenge,
- Transdermal patch,
- Nasal spray

Medications:
- Bupropion (Zyban) 150mg po bid,
- Varenicline (Chantix) 1mg po bid
STIMULANTS
**STIMULANTS**

<table>
<thead>
<tr>
<th>INTOXICATION (ACUTE)</th>
<th>PHYSICAL SIGNS</th>
<th>CHRONIC INTOXICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PSYCHOLOGICAL SIGNS</strong></td>
<td><strong>Tachycardia, Pupillary dilation, HTN, N/V, Diaphoresis, Chills, Weight loss, Chest pain, Cardiac arrhythmias, Confusion, Seizures, Coma.</strong></td>
<td>Affective blunting</td>
</tr>
<tr>
<td>Euphoria, enhanced vigor, Hyperactivity, Restlessness, Interpersonal sensitivity, Anxiety, Tension, Anger, Impaired judgment, Paranoia</td>
<td></td>
<td>Fatigue</td>
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<tr>
<td></td>
<td></td>
<td>Sadness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social withdrawal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bradycardia</td>
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<tr>
<td></td>
<td></td>
<td>Muscle weakness</td>
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</tbody>
</table>

**WITHDRAWAL**

- Not severe but have exhaustion with sleep (crash)

  Treat with rest and support
COCAINE:

CNS Stimulant

Vasoconstrictor***

Tactile Hallucinations:
COCAINE BUGS/ MAGNAN’S SIGN

<table>
<thead>
<tr>
<th>SNIFFING</th>
<th>ORAL INTAKE</th>
<th>ANTIDOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal Septum Perforation</td>
<td>Black Jet Tongue</td>
<td>Amyl Nitrate</td>
</tr>
</tbody>
</table>

Symptoms of an Overdose:
- Hallucinations or delirium
- Rise in body temperature
- Sweating
- Increased heart rate
- Anxiety and panic
- Confusion and paranoia
- Chest pain
- Seizures
- Black Jet Tongue
- Amyl Nitrate
ROUTE: Nasal, IV or Smoked

Has vasoconstrictive effects that may outlast use and increase risk for CVA and MI (Obtain EKG).

Can cause Rhabdomyolysis with compartment syndrome from hypermetabolic state.

Can cause psychosis associated with intoxication that resolves subsequently.

NEUROADAPTATION: Cocaine mainly prevents reuptake of DA.

TREATMENT INCLUDES:
- Support
- Education skills
- Abstinence
- Pharmacotherapy

PHARMACOTHERAPY:
- No medications FDA-approved for treatment
- If medication used, also need a psychosocial treatment component as well
The longer you use amphetamines, the more of the drug you need to get high. That can lead to a fatal overdose.
AMPHETAMINES

Similar intoxication syndrome as cocaine but usually longer.

**Route** - Oral, IV, nasally, smoked

**No Vasoconstrictive effect***

Chronic use results in neurotoxicity possibly from glutamate and axonal degeneration

Permanent amphetamine psychosis with continued use

Treatment similar as for cocaine but no known substances to reduce cravings

**Neuroadaptation**

- Inhibit reuptake of DA, NE, SE - greatest effect on DA
HALLUCINOGENS: THE ULTIMATE ESCAPE DRUGS
# Hallucinogens

<table>
<thead>
<tr>
<th>Naturally Occurring</th>
<th>Synthetic Agents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peyote cactus (Mescaline)</td>
<td>LSD (lysergic acid diethylamide) – oral</td>
</tr>
<tr>
<td>Magic mushroom (Psilocybin)</td>
<td>DMT (dimethyltryptamine) - smoked, snuffed, IV</td>
</tr>
<tr>
<td></td>
<td>STP (2,5-dimethoxy-4-methylamphetamine) – oral</td>
</tr>
<tr>
<td></td>
<td>MDMA (3,4-methyl-enedioxymethamphetamine) – oral</td>
</tr>
</tbody>
</table>
MDMA (ECSTASY)

Designer club drug.

Enhanced empathy, personal insight, euphoria, increased energy.

Effect last for 3-6 hours.

<table>
<thead>
<tr>
<th>INTOXICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illusions</td>
</tr>
<tr>
<td>Hyperacusis</td>
</tr>
<tr>
<td>Sensitivity of touch, taste/ smell altered</td>
</tr>
<tr>
<td>Paranoia</td>
</tr>
<tr>
<td>Euphoria</td>
</tr>
<tr>
<td>Panic/Tearfulness</td>
</tr>
<tr>
<td>Feeling of &quot;oneness with the world&quot;</td>
</tr>
</tbody>
</table>

Tolerance develops quickly and unpleasant side effects with continued use (teeth grinding) so dependence less likely.
PHENCYCLIDINES (PCP) “ANGEL DUST”

Dissociative anesthetic
Similar to Ketamine used in anesthesia

**Intoxication:** Severe dissociative reactions – Paranoid delusions, hallucinations, can become very agitated/violent with decreased awareness of pain.

**Cerebellar symptoms** - Ataxia, Dysarthria, Nystagmus (vertical and horizontal).

With severe Overdose - Mute, catatonic, muscle rigidity, HTN, hyperthermia, rhabdomyolysis, seizures, coma and death.
PHENCYCLIDINES (PCP) “ANGEL DUST”

Treatment
- Antipsychotic drugs or BZD if required
- Low stimulation environment
- Acidify urine if severe toxicity/coma

Neuroadaptation
- Opiate receptor effects
- Allosteric modulator of glutamate NMDA receptor

No tolerance or withdrawal
## OPTIONS FOR WHERE TO TREAT

### HOSPITALIZATION (Indications)
- Drug Overdose
- Severe withdrawal
- Medical comorbidities
- Requires restricted access to drugs
- Psychiatric illness with suicidal ideations

### RESIDENTIAL TREATMENT UNIT
- No intensive medical/psychiatric monitoring needs
- Require a restricted environment
- Partial hospitalization

### OUTPATIENT PROGRAM
- No risk of medical/psychiatric morbidity and highly motivated patient
## NON-PHARMACOLOGICAL MANAGEMENT APPROACHES

<table>
<thead>
<tr>
<th>BEHAVIOURAL INTERVENTIONS</th>
<th>APPROACH (Example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation to change (MI)</td>
<td>Explore desire to stop drinking/using versus perceived benefits of ongoing use.</td>
</tr>
<tr>
<td>Group Therapy</td>
<td>Gentle confrontation with education (risks to health) / therapeutic alliance</td>
</tr>
<tr>
<td>Individual Therapy</td>
<td></td>
</tr>
<tr>
<td>Contingency Management</td>
<td>Involve family and friends for support</td>
</tr>
<tr>
<td>Self-Help Recovery Groups (AA)</td>
<td></td>
</tr>
<tr>
<td>Therapeutic Communities</td>
<td>Education about substance dependence and need for rehabilitation plan</td>
</tr>
<tr>
<td>Aversion Therapies</td>
<td></td>
</tr>
<tr>
<td>Family Involvement/Therapy</td>
<td></td>
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<tr>
<td>Twelve-Step Facilitation</td>
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<tr>
<td>Relapse Prevention</td>
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<tr>
<td>Motivational Interviewing</td>
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</tbody>
</table>
Drug education and prevention efforts aimed at children and adolescents can be effective in reducing drug misuse. Learn more at apapsy.ch/addiction.

**RISK FACTORS**

- Aggressive behavior in childhood
- Poor social skills

**PROTECTIVE FACTORS**

- Good self-control
- Positive relationships
FURTHER READING/WEBSITES

SAMHSA – www.samhsa.gov
  • Substance Abuse and Mental Health Services Administration

NIDA – www.drugabuse.gov
  • National Institute on Drug Abuse

AAAP – www.aaap.org
  • American Academy of Addiction Psychiatry

ASAM – www.asam.org
  • American Society of Addiction Medicine
THANK YOU!