BASIC CONCEPTS IN ADDICTION

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The Problem

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol (one or more drinks /day)</td>
<td>198 million</td>
</tr>
<tr>
<td>Tobacco</td>
<td>173 million</td>
</tr>
<tr>
<td>Caffeine</td>
<td>201 million</td>
</tr>
<tr>
<td>Illicit drugs</td>
<td>110 million</td>
</tr>
<tr>
<td>Total Population</td>
<td>296 million</td>
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</tbody>
</table>
Who Uses Illicit Drugs?
There is a growing consensus that there is no single reason for a person to begin using drugs, no single pattern of abuse, and no inevitable outcome. In short, compulsive drug users are a heterogeneous group in which multiple factors interact to sustain drug use and predispose repetitive relapse.

J. Jaffe
Percentages Reporting Lifetime Use of Any Illicit Drug by Detailed Age Categories in 2000
Percentages Reporting Lifetime Use of Any Illicit Drug Among Persons Aged 12 or Older by Demographic Characteristics in 2000

- Hispanic
- Mixed
- Asian
- Native American/Native Alaskan
- African American
- Caucasian
Estimated Percent of Lifetime Users of Illicit Drugs Among Persons Aged 12 or Older: 1999 and 2000

- Illicit Drugs Except Marijuana
- Non-Medical Use Psychotherapeutic Drugs
- Inhalants
- Hallucinogens (LSD, PCP)
- Heroin
- Cocaine
- Marijuana
- All Illicit Drugs

0 10 20 30 40 50
Estimated Percent of Lifetime Non-Medical Use of Psychotherapeutic Drugs Among Persons Aged 12 or Older: 1999 and 2000
Drug Abuse

Refers to the use of drugs usually by self-administration in a manner which deviates from approved medical or social patterns. Conveys the concept of social disapproval.
Drug Addiction

A behavioral pattern of drug use, characterized by overwhelming involvement with the use of a drug (compulsive use), the securing of its supply, and a high tendency to relapse after withdrawal.
Drug Dependence

This term connotes a "need", "craving" or "compulsion" to use a drug in the absence of any therapeutic indication.
Physical Dependence

An altered physiological state such that the repeated administration of a drug is necessary to prevent the appearance of a withdrawal or abstinence syndrome, i.e. the drug becomes essential for normal physiological function.
Psychological Dependence

An altered behavioral state in which drug seeking behavior is determined by the reinforcing or rewarding properties of a drug or by the ability of the drug to permit its taker to escape an undesirable physical or environmental situation.
Opioids
- Heroin
- Morphine
- Codeine
- Meperidine
- Dextropropoxyphene

Psychomotor Stimulants
- Cocaine
- Amphetamine
- Methamphetamine
- Caffeine

Miscellaneous
- Nicotine
- Marihuana
- Phencyclidine
Sedative/Hypnotics
Alcohol
Barbiturates
Antianxiety agents

Volatile Intoxicants
Toluene
Paint thinner
Nitrous oxide
Ether

Hallucinogens
Lysergic acid diethylamide (LSD)
Dimethyltryptamine (DMT)
Psilocybin
Dimethoxymethylamphetamine (DOM, STP)
Mescaline
Factors Leading to Drug Abuse

Drug availability

Social attitudes
Peer pressure
Factors Leading to Drug Abuse

Personality (psychopathology)

High anxiety or stress
Low self esteem
Poor family relationships
Low socioeconomic and educational status
Poor academic performance
Novelty or sensation-seeking behavior
Factors Leading to Drug Abuse

Genetic factors
Acute subjective effects of drugs
Positive reinforcing actions of drugs
Prior drug history
Pharmacological Concepts Related to Drug Abuse

Tolerance
Cross-Tolerance
Dependence
Cross-dependence
Abstinence and withdrawal
Patterns of Drug Use

Experimental/sporadic use
Regular intermittent use/controlled
Chronic use
   Patterns of self-administration
   Physical versus behavioral dependence
Problems Associated with Drug Abuse

Composition of drug preparations
Routes of administration
Primary drug toxicity
Secondary medical problems
  Infections (AIDS, hepatitis, septicemia, endocarditis, tetanus, pulmonary, cerebral and subcutaneous abscesses)
  Foreign body emboli, granulomata
  Neurological, musculoskeletal and other lesions due to hypersensitivity reactions or toxic impurities
Drug Withdrawal

Degree of physical dependence

Presence of complicating medical problems

Use of drugs to treat withdrawal symptoms

Drug substitution (e.g. methadone for heroin users)
Behavioral Modification - Reinforcement

Reducing the positive reinforcing effects of drugs

Example: "Pharmacological extinction"

Naltrexone - mechanism: competitive antagonist

Methadone - mechanism: cross-tolerance
Behavioral Modification - Reinforcement

Altering the negative reinforcing properties of drugs, i.e. situations in which drug-taking is reinforced by termination of a withdrawal state.

Example: Methadone - maintains a steady-state dependence without frequent, severe withdrawal.
Behavioral Modification

Change the stimulus control of drug self-administration

Increase the aversive consequences of drug-taking

Increase the probability of alternative behavior

Make treatment procedure reinforcing
Behavioral Modification Approaches

Detoxification programs
Verbal psychotherapy
Treatment communities
Methadone maintenance procedures
Pharmacological Approaches

I. Subacute/acute problems

a. Opioid overdose
   1. Naloxone
   2. Naltrexone

b. Suppression of opioid withdrawal syndrome
   1. Methadone
   2. Propoxyphene napsylate
   3. Clonidine
Pharmacological Approaches

II. Chronic abuse

1. Methadone maintenance

2. Long-acting antagonists (e.g. Naltrexone)

3. Buprenorphine (partial agonist)
DEA Schedules

Schedule I  High potential for abuse and no currently accepted medical use (heroin, marihuana, mescaline).

Schedule II  High potential for abuse with severe liability to cause dependence (amphetamines, cocaine, morphine).

Schedule III  Potential for abuse. Might produce low physical and high psychological dependence (some opioids, some amphetamines).
DEA Schedules

Schedule IV  Low potential for abuse. Limited physical or psychological dependence (phenobarbital, meprobamate).

Schedule V  Least potential for abuse. Many drug mixtures which contain opioids.
# Cannabinoids

<table>
<thead>
<tr>
<th>Substance</th>
<th>Commercial/ Street Name</th>
<th>DEA Schedule/ Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>hashish</td>
<td>boom, chronic, gangster, hash, hash oil, hemp</td>
<td>I/swallowed, smoked</td>
</tr>
<tr>
<td>marijuana</td>
<td>blunt, dope, ganja, grass, herb, joints, Mary Jane, pot, reefer, sinsemilla, skunk, weed</td>
<td>I/swallowed, smoked</td>
</tr>
</tbody>
</table>
Cannabinoids

<table>
<thead>
<tr>
<th>Intoxication Effects/ Potential Health Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Euphoria</td>
</tr>
<tr>
<td>• Slowed thinking and reaction time</td>
</tr>
<tr>
<td>• Confusion</td>
</tr>
<tr>
<td>• Impaired balance and coordination</td>
</tr>
<tr>
<td>• Cough</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>• Frequent respiratory infections</td>
</tr>
<tr>
<td>• Impaired memory and learning</td>
</tr>
<tr>
<td>• Increased heart rate</td>
</tr>
<tr>
<td>• Anxiety</td>
</tr>
<tr>
<td>• Panic attacks</td>
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</tbody>
</table>
## Depressants

<table>
<thead>
<tr>
<th>Substance</th>
<th>Commercial/Street Name</th>
<th>DEA Schedule/Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>barbiturates</td>
<td><em>Amytal, Nembutal, Seconal, Pheno-barbital</em>; barbs, reds, red birds, phennies, tooies, yellows, yellow jackets</td>
<td>II, III, V/injected, swallowed</td>
</tr>
</tbody>
</table>
# Depressants

## Intoxication Effects/
Potential Health Consequences

<table>
<thead>
<tr>
<th>• Reduced pain and anxiety</th>
<th>• Confusion</th>
</tr>
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<tbody>
<tr>
<td>• Feeling of well-being</td>
<td>• Fatigue</td>
</tr>
<tr>
<td>• Lowered inhibitions</td>
<td>• Impaired coordination, memory, judgment</td>
</tr>
<tr>
<td>• Slowed pulse and breathing</td>
<td>• Respiratory depression and arrest</td>
</tr>
<tr>
<td>• Lowered blood pressure</td>
<td>• Addiction</td>
</tr>
<tr>
<td>• Poor concentration</td>
<td></td>
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</table>