CDS 844
Drug Misuse, Abuse and Dependency

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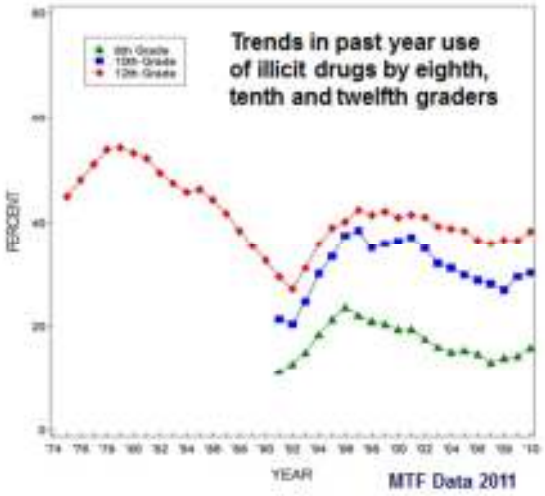
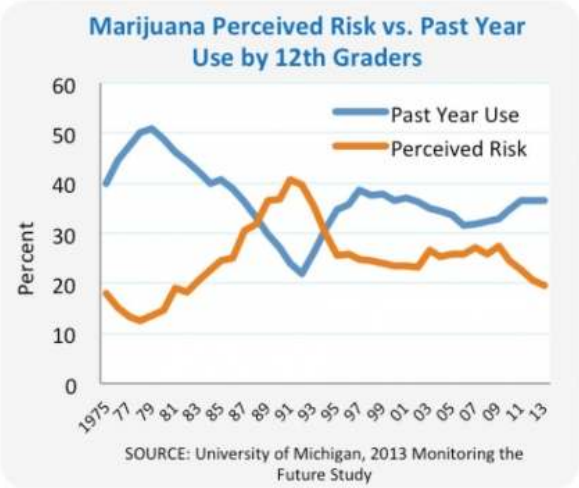
Impact of Alcohol and Other Drug Misuse and Abuse in America National Survey Data: University of Michigan Monitoring the Future & Substance Abuse Mental Health Service Administration National Survey on Drug Use and Health:





Cost of Alcohol and Drug Abuse

$500 billion annually

Lost productivity

- Illness and premature death

Health care expenditures

- Medical consequences and treatment

Motor vehicle accidents

Crime, law enforcement, property destruction, correction services

Crime, law enforcement, property destruction, correction services

ADA Policy Statements, Guidelines and Resolutions on Substance Use Disorders

Shortened policy statements View entire content at www.ada.org:

Res. 8H-2005 Recognizes the extent of problems associated with the abuse of controlled substances, particularly opioids, and guidelines for the use of opioids in the treatment of dental pain

- Appropriate use of opioid pain medications; limit instances of abuse and diversion.
- Be mindful of and have respect for their inherent abuse potential.
- Review compliance with Drug Enforcement Administration recommendations and regulations.
- Ensuring that prescription pain medications are available to patients who need them; prevent drugs from becoming a source of harm or abuse and understand the special issues in pain management for patients already opiate dependent.
- Appropriate education in addictive disease and pain management should be provided as part of the core curriculum at all dental schools.

Res. 14H-2005 Treatment for patients with substance use disorders

- Be aware of each patient's substance use history, and to take this into consideration when planning treatment and prescribing medications.
- Know about substance use disorders — both active and in remission — in order to safely prescribe controlled substances and other medications to patients with these disorders.
- Advise patients who are heavy drinkers to cut back, advise illegal drug users to stop.
- Be familiar with their community's treatment resources and be able to make referrals

- Consult with the patient's physician when the patient has a history of alcoholism or other substance use disorder.
- Be current in your knowledge of pharmacology, including content related to drugs of abuse; recognition of contraindications to the delivery of epinephrine-containing local anesthetics; safe prescribing practices for patients with substance use disorders — both active and in remission — and management of patient emergencies that may result from unforeseen drug interactions.
- Protect patient confidentiality of substance abuse treatment information, in accordance with applicable state and federal law.

Res. 15H-2005 Alcohol and other substance use by pregnant and postpartum patients

- Inquire about pregnant or postpartum patients' history of alcohol and other drug use, including nicotine.
- Advise these patients to avoid the use of these substances and to urge them to disclose any such use to their primary care providers.
- If you become aware of postpartum patients' resumption of tobacco or illegal drug use or excessive alcohol intake encourage patient stop these behaviors. Be prepared to inform the woman of treatment resources, if indicated.

Res. 16H-2005 Policy related to child and adolescent patients

- Be knowledgeable about the oral manifestations of nicotine and drug use in adolescents.
- Know state laws related to confidentiality of health services for adolescents and understand the circumstances that would allow, prevent or obligate the dentist to communicate information regarding substance use to a parent.
- Take the opportunity to reinforce good health habits by complimenting young patients who refrain from using tobacco, drinking alcohol or using illegal drugs.
- Be aware of a young patient's tobacco use and take the opportunity to ask about it, provide tobacco cessation counseling and to offer information on treatment resources.
- Have age-appropriate anti-tobacco literature available in their offices for their young patients.
- Be aware of a young patient's alcohol or illegal drug use (either directly or through a report to a team member) and express concern about this behavior and encourage the patient to discontinue the drug or alcohol use.
- If a parent is supplying illegal substances to a young patient you may be subject to mandatory reporting under child abuse regulations.

Res. 11H–2005 Statement on substance abuse among dentists

- Dentists who use alcohol are urged to do so responsibly. Dentists are also urged to use prescription medications only as prescribed by an appropriate, licensed health care professional and to avoid the use of illegal substances.
- Colleagues, dental team members and the dentists' family members are urged to seek assistance and intervention when they believe a dentist is impaired.
- Early intervention is strongly encouraged.
- Dentists with addictive illness are urged to seek adequate treatment and participate in long-term monitoring protocols to maximize their likelihood of sustained recovery.
- Impaired dentists who continue to practice, despite reasonable offers of assistance, may be reported to appropriate bodies as required by law and/or ethical obligations.
- Dentists in full remission from addictive illness should not be discriminated against in the areas of professional licensure, clinical privileges, or inclusion in dental benefit network and provider panels solely due to the diagnosis and recovery from that illness.
- The ADA encourages additional research in the area of dentist impairment and the factors of successful recovery.

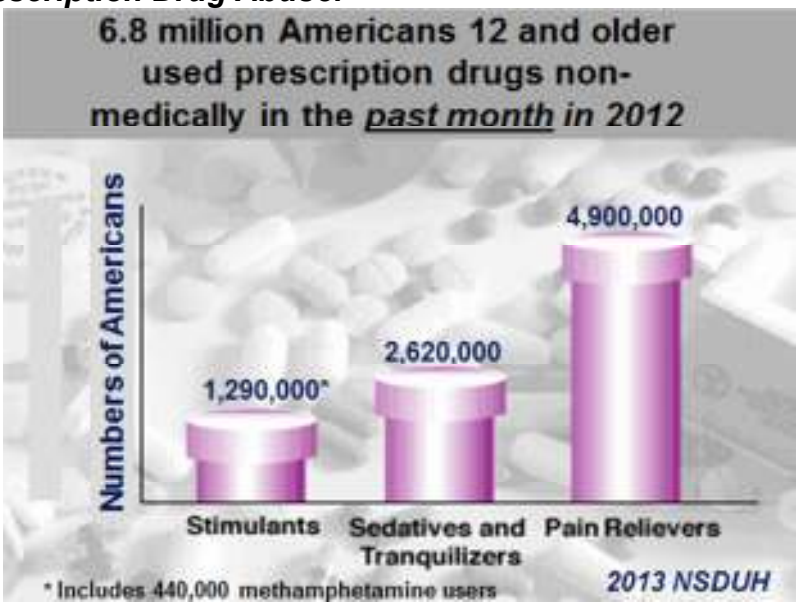
Prescription and OTC Drug Abuse and Diversion

Illegal use of these drugs is responsible for multiple overdoses and fatalities

Opiate addiction is blamed for causing a surge in crime:

- Robberies and break-ins at pharmacies
- Drug shoppers scamming doctors
- Harassments, assaults, and robberies of patients leaving drugstores
- Shoplifting and burglaries to support addiction
- Domestic violence and abuse

Sharp Increase in Prescription Drug Abuse:



Particular concern of prescription drug abuse for:

Adolescents - Sharp increase in 12 to 17 yr. olds and the 18 to 25 yr. olds

Women - Increase rate of use in younger women

Older adults - 17% of 60^{+} yr. olds may be affected by prescription drug abuse

How to Dispose of Unused Medicines:

http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm101653.htm

Why are Prescription Drugs so Popular?

Legal, Easy to Obtain, Cheap and Safe & Non-addictive

Legal: Perception that there is less legal risk than illicit drugs

Easily obtainable:

- From users, diverters, clinics, hospitals, Emergency Departments and practitioners and easy to steal

Cheap: Low or no co-pay cost; may motivate people to use or sell PD's

Safer and Non-addictive:

- Easily identity and less stigma than street drugs
- Higher purity and less risky
- Less HIV or hepatitis risk
- Easier to use, no IV injecting but what about tolerance…and addiction!

Why do People Become Prescription Drug Abusers?

1. Some people who abuse PD's do so intentionally from the outset

2. For others, what began as prescribed use escalates over time

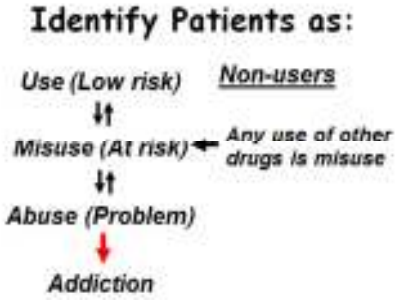
"Started using on their own, self-medicate, take care of their own anxiety, depression, pain …"

This misuse may escalate over time to abuse and addiction

The Science of Addiction: Drugs, Brains and Behavior*:*

From Use to Misuse to Abuse to Addiction

The Continuum Model - **Institute of Medicine:** ***Broadening the Base of Treatment for Alcohol Problems:***



Substance misuse is use of a drug that varies from a socially or medically accepted use.
Substance abuse - any use of drugs that cause physical, psychological, economic, legal or social harm to the individual user or to others affected by the drug use's behavior. It is characterized by recurrent and clinically significant adverse consequences related to the repeated use of substances, such as failing to fulfill major role obligations, use of drugs in situations in which it is physically hazardous, occurrence of substance-related legal problems, and continued drug use despite the presence of persistent or recurrent social or interpersonal problems.

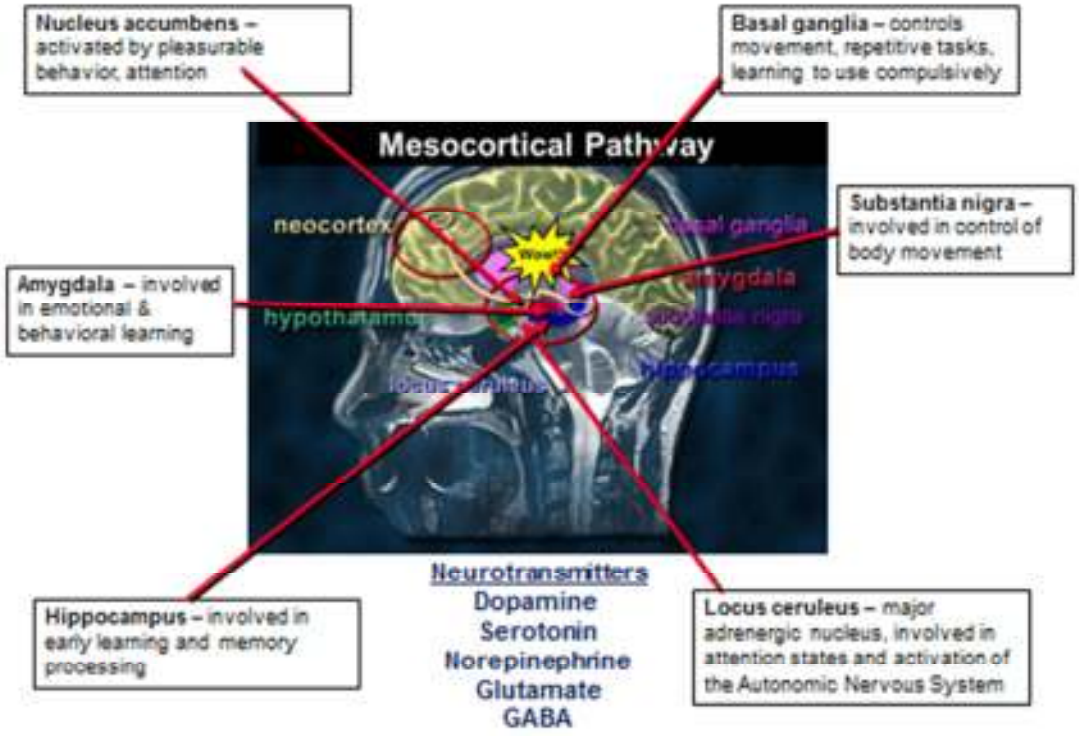
Brain Reward Pathway - *Mesolimbic Dopamine Pathway & Mesocortical System*

Limbic system contains the brains reward circuit, regulates our ability to feel pleasure; also regulates emotions and motivations, particularly those related to survival, such as fear, anger, and is involved in early learning and memory processing,…
Nucleus Accumbens (NAc) is the *"Pleasure Center"* and is activated by pleasurable behavior.
Prefrontal Cortex seat of judgment, reasoning, problem solving; enables us to assess situations, make decisions, plan for the future and keeps our emotions and desires under control (governs impulsivity, aggression)

The "Wow!!!" is a big reason people take drugs but other things happen…

Neurotransmitter	**Normal Functions**
Dopamine (pleasure, learning)	Pleasure (hunger/thirst/sexual), attention, organization of thought, muscle control and motor function
Serotonin (emotional stability)	Mood stability, thought processes, sleep control, appetite, self-esteem
Norepinephrine/ epinephrine (behavioral & physical activity)	Energy, motivation, attention span, alertness, pleasure, assertiveness, confidence, heart rate, blood pressure, etc.
Glutamate	Excitatory neurotransmitter
GABA	Inhibitory neurotransmitter

Psychoactive addictive drugs act directly or indirectly on the Reward Pathway increasing the release of dopamine, and other neurotransmitters



Tolerance and withdrawal*

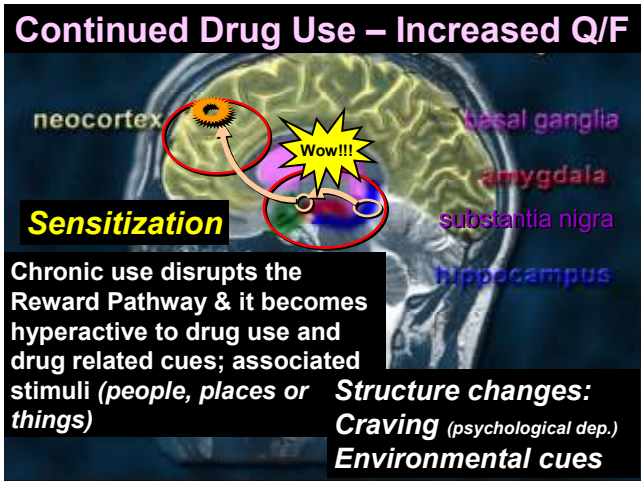
A physiological state of adaptation to a drug or alcohol usually characterized by the development of tolerance to drug effects and the emergence of a withdrawal syndrome during prolonged abstinence.

Tolerance: Physiological adaptation to the effect of drugs, so as to diminish effects with constant dosages or to maintain the intensity and duration of effects through increased dosage.

Withdrawal: Cessation of drug or alcohol use by an individual in whom dependence is established.

"Science has generated a lot of evidence showing that: Prolonged drug use changes the brain in fundamental and long-lasting ways and evidence shows that these changes can be both functional and structural" *Alan Leshner, PhD & Glen Hansen PhD, DMD*

What happens with continued use; increased quantity/frequency of use?



Sensitization refers to persistent hypersensitivity to the effect of a drug in a person with a history of exposure to that drug. Sensitization is one of the neurobiologic mechanisms involved in craving and relapse.
Craving is an intense desire to re-experience the effects of a psychoactive substance. The emotional state of craving a drug either for its positive effect or to avoid negative effects associated with its absence; can range in severity from mild desire to compulsive drug seeking behavior. Craving is the cause of relapse after periods of abstinence.
Relapse is a resumption of drug-seeking or drug-taking behavior after a period of abstinence. Priming, environmental cues (people, places, or things associated with past drug use), and stress can trigger intense craving and cause relapse.

*** Definitions from:** *Drug Addiction, Mechanism of Disease,* A review; NEJM 349:975, 2003

Addiction is a Brain Disease: *A Biopsychosocial Spiritual Brain Disease*

A "molecular switch" is thrown in the brain

- **Compulsive drug seeking behavior**
- **Sensitization, Craving and Relapse**
- ***Loss of control over drug use***
- **Compulsive drug seeking behavior**

Addiction or Chemical Dependency

A disease characterized by continued use and abuse of a drug despite recurring negative consequences in a person's life

Loss of control over taking a substance or doing a process

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 Addiction is a cluster of cognitive, behavioral, and physiological symptoms indicating that a person is continuing to use a substance despite having clinically significant substance-related problems. DSM IV diagnosis of substance dependence requires the presence of at least three of the following seven criteria:

DSM V: Diagnosis of Addictive Diseases

Moderate: 2-3 criteria positive
Severe: 4 or more criteria positive

1. Tolerance
2. Withdrawal

   <u>*Loss of Control:*</u>
3. Recurrent use resulting in failure to fulfill obligations
4. Recurrent use in physically hazardous situations
5. Continued use despite social or interpersonal problems
6. Used more and longer than planned
7. Unsuccessful attempts to quit or control use
8. Excessive time spent obtaining, using, or recovering from use
9. Important social, occupational, …activities given up
10. Continued use despite having physical or psychological problems
11. Craving or a strong desire or urge to use a specific substance

Dental Professionals Have an Excellent Opportunity To:

- ***Identify/screen for alcohol and other drug use in patients***
- ***Give drug use prevention messages to patients***
- ***Do brief interventions on patients who are misusing and abusing drugs***
- ***Refer addicted patients for assessment and/or treatment***
- ***Support/monitor addicted patients during their recovery***
- ***Minimize relapse in recovering patient***

Intervention, Assessment, Referral, & Treatment

American Society of Addiction Medicine – *2011 definition*

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.

Denial from *Knots* by R.D. Lang:

> There must be something the matter with him because he would not be acting as he does unless there was. Therefore he is acting as he is because there is something the matter with him. He does not think there is anything the matter with him because one of the things that is the matter with him is that he does not think that there is anything the matter with him. Therefore we have to help him realize that, the fact that he does not think there is anything the matter with him is one of the things that is the matter with him.

Progression of the Disease of Addiction (Warning signs):

Family Involvement
↓
Social Involvement
↓
Office/Job Conduct
↓
Health and Physical Status
↓
Job Performance

Referral

Once the problem is identified refer the patient for assessment and/or treatment
Therapist must have demonstrated skills and expertise in helping dependent patients recover

Effective Addiction Therapist

- Abstinence oriented
- Use Alcoholics Anonymous, Narcotics Anonymous and/or group therapy
- Avoid use of addictive psychoactive drugs
- Refer spouse to Al-Anon or family therapy
- Provide regular continuing care

Treatment Options:

Detoxification
Inpatient programs (28 days) - Residential or hospital based
Outpatient programs (8-12 weeks or longer)
Half-way houses (protective environment)
Continuing care:
Alcoholics Anonymous (AA or NA)
Group Therapy
Individual psychotherapy
Family treatment (Al-Anon/family therapy)

Recovery and Relapse Prevention

Dependent is fragile in early recovery and needs support and direction
"Honeymoon period" or “Pink cloud”
Five years of continuing care are necessary before recovery can be secure

Progress in Recovery

Regular AA/NA, group therapy attendance
Dissolution of denial
Coping with crisis
Growth in self-esteem
Social ease
Improved family relationships
Two or five years of abstinence

High-risk Relapse Times

Special occasions, holidays, vacations…
Times of crisis: illness, deaths, and even having a bad day
Unchecked anger, resentments and fears
“Dry drunks” – flare ups of negative emotions and drug behavior
Craving drugs

Alcohol Containing OTC Medications and the Recovering Patient

Caution in recommending mouthwashes, antiplaque rinses, fluoride rinses, cough syrups, elixirs, etc. containing alcohol for recovering patients.

Guidelines for the Use of Psychoactive Addictive Drugs in Recovering Patients

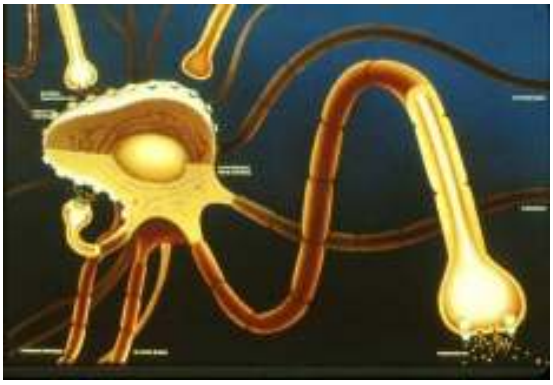
1. Inform patient and a family member of the type of drug being used and possible side effects
2. A family member or AA/NA sponsor should administer the prescription
3. Suggest that the patient intensify their activity in AA, NA or group therapy
4. Prescribe only the amount of drug necessary to cover their acute pain and do not give refills
5. Reassure your patient that you will do everything possible to make them comfortable

Acute Post-operative Pain Relief

Take the following medication exactly
as scheduled for the next **3 days**.
Ibuprofen 200 mg (**3** tablets)
+PLUS+
Tylenol Extra Strength 500 mg (**2** tablets)
A total of **5** tablets **with food** at:
8 am, 1 pm, 8 pm, and 11 pm

Lindroth, J.E.,et.al. The Management of Acute Pain in the Recovering Alcoholic; Oral Surg Oral Med Pathol Oral Radiol Endod 95:432-6,2003

Commonly Abused Prescription & OTC Drugs



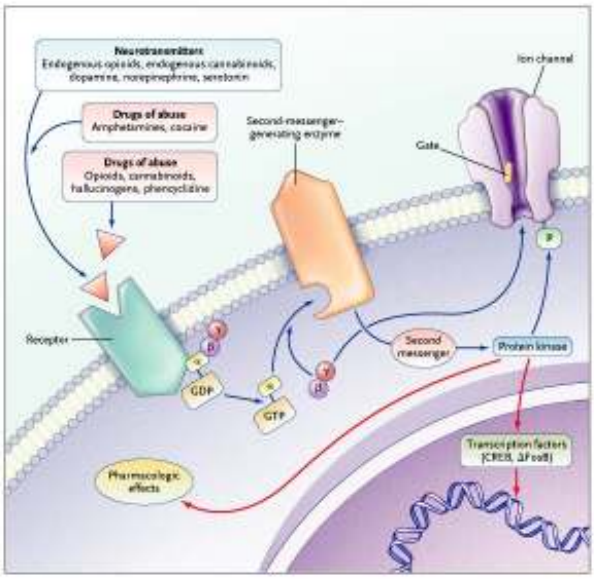
Opioids/Opiates examples: *Vicodin, Tylox, Percocet, OxyContin…*

How they work…

Attach to certain brain and spinal cord receptors
Block the transmission of pain messages to the brain
Increase the level of *dopamine* in the Mesocortical System of the brain

What's the Opiate High?

Euphoria - *Rush of pleasure, sense of relaxation and well being*
Floating sensation & freedom from anxiety and distress, decreased sensitivity to pain
"Feeling of tranquility" - fall into a dreamy state
"Go on the nod" - drowsiness



Codeine – used for mild pain:

Tylenol IV (with codeine) for dental pain
Cough suppressants e.g. Robitussin A-C; Cheracol, terpin hydrate w codeine
4 oz bottle contains enough for a pleasurable experience
Initially available OTC, now restricted in Schedule V because of abuse
Popular to mix with soft drink or sports drink

Dextromethorphan (DXM)

An effective antitussive agent; therapeutic dose is 15-30mg 3-4x/day
Abused on the street; a.k.a. DXM or Robo
Abusers use 300-900 mg (3-9 oz.) all at once
Produces hallucinations or dissociative "out-of-body" effects similar to PCP or Ketamine:
- Stimulation, loss of coordination, visual and auditory hallucinations

Ingredients in OTC Cold preps:

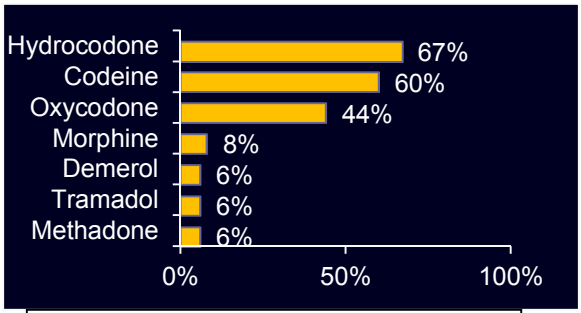
Dextromethorphan, guaifenesin, acetaminophen, phenylephrine, benadryl (diphenhydramine), chlorpheniramine

DXM Effects/Signs & Symptoms

Pupil dilation, skin sensitivity, alters tactile (touch) sensations
Confusion, disorientation, lack of coordination, reduced agility
Robotic, zombie-like walking, "robo-walk"
Dizziness, nausea, vomiting, fever, tachycardia
Dissociative effects may last 6 hours; Hangover/depression lasting 1-2 days

Examples of Abused Opiates

Hydrocodone (Vicodin, Lorcet) CIII
Oxycodone (Percocet, Tylox, Roxicodone, OxyContin) CII
Oxymorphone (Opana ER) CII
Fentanyl (Duragesic, Actiq, Sublimaze, Actiq) CII
Heroin (Big H, Smack) CI



% Reporting Lifetime Nonmedical Use

Classification of Controlled Substances:

Schedules	Potential for Abuse	Medical Use and Prescription Order
Schedule I	High abuse potential.	**No accepted medical use; lack of accepted safety as drug.** E.g. Heroin, LSD, marijuana (cannabis), ecstasy, methaqualone, mescaline
Schedule II	High abuse potential. Severe psychological and/or physical dependency.	**Current accepted medical use. Written prescription only. No refill.** E.g. Morphine, oxycodone, hydromorphone, cocaine, methamphetamine, methadone, fentanyl, Dexedrine, Adderall, and Ritalin
Schedule III	Less abuse potential than Schedule I or II. Moderate or low psychological and/or physical dependency.	**Current accepted medical use. Written or oral prescription. 6-month supply. 5 refills.** E.g. Opioids combined with any non-opioid; hydrocodone/acetaminophen (Vicodin) → **CII**; codeine combinations (Tylenol with codeine), ketamine, anabolic steroids, testosterone
Schedule IV	Less abuse potential than Schedule III drugs.	**Current accepted medical use. Written or oral prescription. 6-month supply. 5 refills.** E.g. Xanax, Valium, Activan, Soma, Talwin, Ambien
Schedule V	Low abuse potential.	**Current accepted medical use.** Limited dependence possible. E.g. cough preparations (Robitussin AC), Lomotil

Hydrocodone - *derived from morphine*

Lorcet, Vicodin - moderately strong opiate, CIII drugs, very widely abused
Combination drugs 5/500, 10/650 w/acetaminophen

Oxycodone - a strong CII analgesic; synthesized from thebaine

Combination drugs:

Percodan - w/aspirin; Percocet, Tylox - w/acetaminophen
Pharmacy price: $0.60 each; Street value: $10 each

OxyContin - a highly potent oxycodone CII analgesic - a time release preparation

Used for severe pain expected to last for extended periods
Boon for patients suffering from cancer, crippling arthritis and other severe chronic pain problems
Time release prep gives extended pain relief

When Abused Oxy Gives a Powerful High

High concentration of Oxycodone in time release pills
Abusers grind pills up and snort or inject them all at once
"Oxy or OC's" gives a "*heroin-like"* high

New Formulations: Tamper Resistant Coating (i.e. polymer coated or gelatinized)

Coating makes pills sticky so they can't be ground up for snorting or dissolved for injected; A.k.a. "OP's"; larger pills are and more difficult to swallow

Oxycodone IR's (immediate release) CII

Abuse of the 30 mg tabs has increased, *i.e.Roxycodone 30mg, A.k.a. "Roxies"*

Opana ER Abuse

Oxymorphone back on market in 2006/2008
30 mg is very popular, crush and snort
A.k.a. "O Bomb", Pink ladies, Stop sign

Zohydro

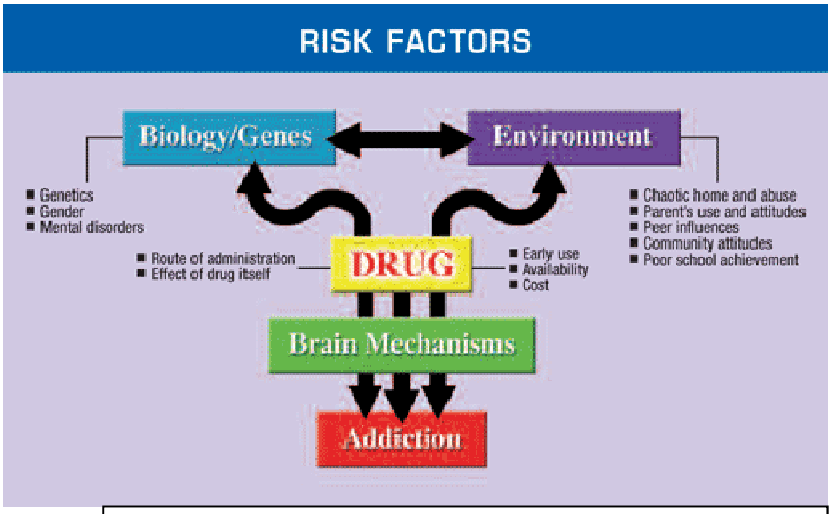
Several pharmaceutical companies have to obtain final stage approval of high strength pure hydrocodone in extended-release formulation w/o tamper-resistant formulation

Risk Factors for Alcohol/Drug Use

Individual/Family/School/Community/Environmental

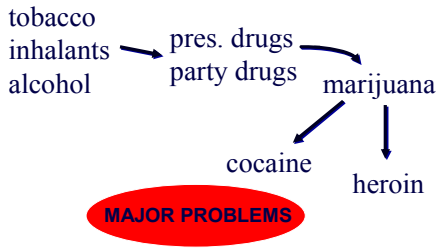
Favorable attitude toward alcohol and other drugs
Family history of drug abuse
Availability and cost of alcohol and other drugs
Early onset of use
Family conflict or stress, chaotic home and abuse
Poor parent-child relationship:
- Lack of caring and support
- Lack of monitoring and supervision
- Inconsistent or excessive discipline

Parental attitudes about drug use
Association with drug-using peers
Lack of involvement in school/community
Little commitment to academic achievement
Portrayal of ATOD on T.V. and in the movies
Poor enforcement of laws concerning alcohol and illegal drug use
Advertising impact on norms and behavior

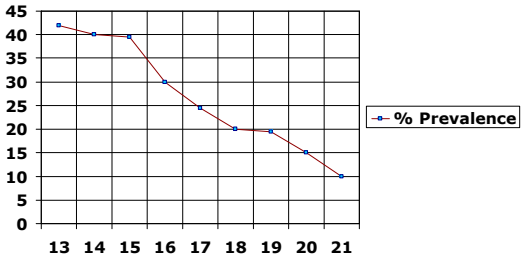


www.drugabuse.org Drugs, Brains and Behavior: The Science of Addiction, 2010

The Progression of Use



Prevalence of Lifetime Alcohol Dependence by Age of Onset of Drinking

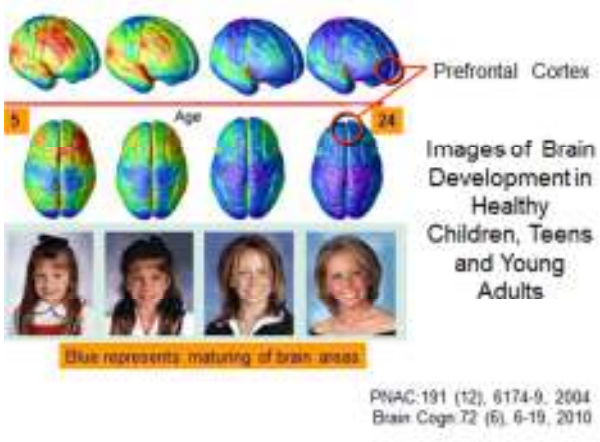


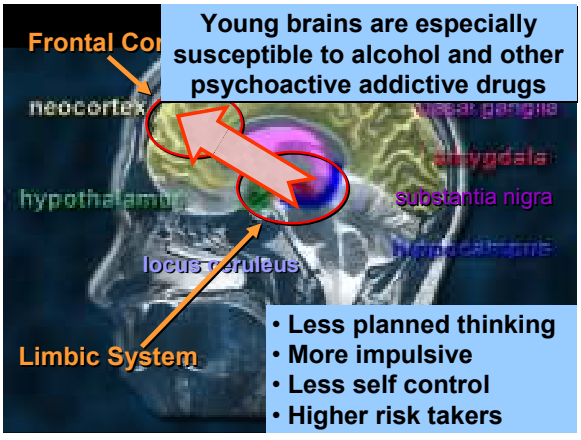
AGE of Drinking Onset in YEARS

Teens who begin drinking before age 13 years are 5X more likely to develop alcoholism

Brain Maturation in Adolescents and Young Adults

Recent brain imaging research shows that brain development is ongoing during adolescence and continues into the early twenties





Research Conclusions:

1. Young brains are more susceptible to drug use than adults
2. Drug use may impact normal brain development and maturation:
   - Learning ability and emotional development
3. Implications of these studies are ***enormous*** for parents

Young adults may be less likely to develop serious alcohol and other drug problems if the <u>age of first use</u> is delayed beyond childhood or adolescence

Higher Risk for Health Care Professionals

- High Incidence of Familial Alcoholism
- Stress of the Educational Process and Practice
- *Access to Controlled Substances*
- *Tendency to Self-treat*

Well-Being Committee
Brian Fingerson, RPh, Director
Professional Recovery Network
Office: 502/749-8385
Cell: 502/262-9342

Dental Well-Being Advisory Committee
Alison Siwek, Manager
800/621-8099 #2622
siwek@ada.org

<u>Opioids/Opiates continued:</u>

Fentanyl (Sublimaze, Duragesic)

A very fast acting, CII, IV analgesic
Fentanyl patches provide long-lasting pain relief
IV use by addicts commonly causes OD
Addict seeks intense high; a step away from fatal respiratory depression
Street chemists are mixing Fentanyl with heroin

Actiq lozenges

Actiq lozenges used to treat breakthrough cancer pain, transmucosal absorption
Contain sugar, regular use increase the risk of tooth decay
Case of Rampant Carries: 19 yr. old diagnosed with trigeminal neuralgia
Prescribed 800ug Actiq lozenges q.i.d.; patient started abusing lozenges, up to 10 per day; within three years he exhibited total coronal destruction

Heroin - m*ost infamous product of opium poppy*

Current resurgence in use: white powder & black tar heroin
High purity and skyrocketing profits
Cheaper than "Oxy" and other pain meds
Heroin gets to brain faster
Marketing" Black-Tar Heroin
Sales are driven by *"pizza delivery"* marketing strategy:
Dispatchers, drivers, delivery
Cell phones, pagers, modest dress, drive older cars and carry no weapons
Drivers have small amounts of drugs or carry drug filled balloons in their mouth, no drug paraphernalia if arrested

Methods of Opiate Use:

Snorting or Smoking Heroin/Opiates: Since IV injection is more difficult and dangerous many users start by snorting but <u>as tolerance develops</u> progression to IV use becomes <u>necessary!</u>

Intravenous (IV)

Reaches brain in 15-30 sec, *"rush"; e*ffects last 3-5 hours

Addict needs several doses a day to avoid withdrawal, "on the hustle" to find a "connection"
IV drugs are not designed for *"Slamming"*
Grinding up pills and injecting suspension is extremely risky
Pill components do not dissolve well:
Particles may clog blood vessels and block blood flow
Particles irritate blood vessels and may cause vascular inflammation and permanent damage; watch for track marks

Serious Complications of IV use

Danger of bolus injection (injecting drugs all at once)
Damage to blood vessels, viral infections, hepatitis B and HIV, bacterial infections, meningitis, osteomyelitis, endocarditis, abscesses, gangrene

Signs & Symptoms of Opioid Abuse

Pupils constrict - miosis
Breathing slows, lowered respiratory rate
Flushing of the skin, sweating, itching
Lowered blood pressure and pulse
Dry Mouth – Xerostomia
Sedation, drooping eyelids, head nodding
Diminished sensitivity to pain
Dizziness, confusion, memory problems
Lowered sensation of pain
Nausea, vomiting, constipation
Nasal redness and/or small particles in nostrils
Shortened straw or rolled up bill for snorting
Track marks from IV injections
Finding plastic bags, balloons or foil an/or burnt bottoms on spoons
The effects on breathing can be extremely dangerous

Opioid/Opiate Overdose

Overdose can be lethal
Breathing slows to the point that it ceases
It can happen with first time use, not an accumulative effect
Medical intervention is critical

Opiate Withdrawal Syndrome

Begins in 8-10 hours
Earliest signs are watery eyes, running nose, yawning
Restlessness, irritability, loss of appetite
Flu like symptoms appear:
Watery eyes, running nose, yawning
Shivering and sweating, *"cold turkey"*
Abdominal cramps and muscle aches
Involuntary leg movements, *"kicking the habit"*
Diarrhea; an increased sensitivity to pain
Difficulty in sleeping
These intensify over the next several days and then start to diminish

Dysphoria – the ***"just-feeling-lousy feeling"*** lasts for a long time
Opiate addicts just feel bad and bad in a way that they know opiates will solve
The craving for a fix can last for months, long after the physical symptoms

Methadone (Dolophine) – long lasting opiate, can be taken orally for chronic pain
Also used to treat opiate addiction:
- Gradual and mild onset of action keeps addict from getting high and reduces craving
- Addict may avoid IV use and withdrawal; replaces illegally obtained opiates

Recently slipped into the drug abuse scene:
- More methadone clinics for heroin addicts
- Increased prescribing because of Oxy crackdown
- Lower cost
- A popular combo is mixing methadone with Xanax…

Addicts use methadone when heroin and Oxy are unavailable:
- Some use it to keep the *"sick off"*
- New users may chase the *"buzz" but …they don't get the fast high so they may increase the dose…*
- *Seeing increased OD's and fatalities*

Suboxone - Sublingual tabs approved to treat opioid dependency *in the office*

Suboxone: Buprenorphine/Naloxone combos

Used for detox and to treat newly addicted opioids patients

Suboxone is a powerful opioid, alleviates anxiety and depression, and at high doses produces a "feeling good, numbing effect"

Concern rose about patients not wanting to deal with their emotional recovery

Diversion and abuse are becoming a concern

Progression of Warning Signs of Opiate Abuse and Addiction:

Tolerance – Patients may increase dosage, over time, because the original dosage is no longer providing relief. Increased tolerance is also a warning sign for abuse**.**

Continued Use - Patients that complain frequently about "still feeling pain" or request to extend a prescription long after the medical condition has improved should be monitored closely. Patients who complain about physicians refusing to write a prescription show signs of abuse or addiction.

Behavioral Changes - Changes in a person's normal behavior can be a sign of abuse or addiction. Shifts in mood, energy, and concentration occur as the patient continues to misuse and abuse drugs.

Increased Inactivity - Hobbies and activities no longer provide the enjoyment they used to. Those suffering from addiction may feel lethargic and tend to stop engaging in athletic activities.

Social Withdrawal – Withdraw from family, friends, and/or isolation from social activities may indicate a person experiencing a drug problem. Everyday responsibilities and social interactions become secondary to the need for the relief the prescription drug provides.

Desensitized Emotions - An opiate abuser or addict may exhibit an attitude of indifference, a lack of emotion, and demonstrate disinterest in things that previously brought them pleasure.

Going to Great Lengths to Obtain Prescriptions - An addicted person may spend large amounts of time driving great distances and visiting multiple doctors to obtain drugs. Preoccupation with a quest for medication demonstrates that the drug has become a major priority in the patient's life. A hallmark sign of addiction is loss of control over drug seeking behavior.

Defensiveness - Abusers who attempt to hide a drug problem or addiction may lash out and become very defensive if they feel their secret is being discovered.

Change in Physical Appearance and Health – Decreased attention to personal hygiene may occur as a result of a drug abuse and addiction.

Deterioration of health: physical complaints and symptoms, i.e. gastritis, hypertension, gout, impaired nutritional status and frequent visits to physician and/or hospital may occur as the disease progresses. Accidents, trauma injuries, withdrawal symptoms, and emotional crises (anxiety, depression, insomnia...) are also common.

Blackouts and Forgetfulness - Another clear indication of addiction is when the person regularly forgets events that have taken place and appears to be suffering frequent memory lapses.

Diversion of Prescription Drugs & Drug-Seeking Behavior

How do people get these drugs?

Thefts and break-ins from pharmacies and warehouses
Accosting customers in drugstore parking lots
Breaking into homes of patients who use pain medications
Employees stealing from hospitals
Inappropriate prescribing by health professionals
Unscrupulous providers selling drugs
Patients with legitimate prescriptions selling the pills
Drug shoppers/Drug Seekers

The Economics of Drug Diversion

Generic Name	Brand Name	Brand Cost/ 100	Street Value Per 100
Acetaminophen w Codeine 30mg	Tylenol #3	$60	$800.00
Hydrocodone w Acetaminophen	Vicodin/Lorcet 10/650 mg	$150	$1000
Methylphenidate	Ritalin 20 mg	$90	$1,200
Hydromorphone	Dilaudid 4 mg	$90	$10,000
Diazepam	Valium 10 mg	$280	$1,000
Oxycodone	Oxycontin 80 mg	$900	$8,000

Profile of Drug Seeking Behaviors **–** *Drug seeker can play any part they need to play to get drugs: Many are clever professionals determined to feed their own addiction; others collect drugs and divert them on the street for profit. Recognizing clumsy or point blank demands for drugs is obvious but experienced drug seekers are surprisingly difficult to detect.* ***Below are some of their ploys:***

1. Patient Becomes Doctor
2. Emotional Tactics
3. Out of Town Patient
4. Telephone Scams
5. Addiction Confessions

1. **Patient Becomes Doctor** – Drug seeker does your job by trying to control the situation. They describe convincing problems and appropriate treatments which lead towards drugs. They often have an answer for everything *"I can't get it done right now my insurance doesn't start for two weeks."*
   - Patient may not be interested in having a physical examination or undergoing diagnostic tests. They may exaggerate or feign dental/medical problems (complain of toothache, TMJ pain, migraine …).
   - Drug Seekers may also recite textbook symptoms, give vague medical history and have no interest in a referral, just want a prescription now.
   - Patient may show unusual knowledge of controlled substances and be unwilling to try any other treatment*: "I have a splitting pain in the side of my face and can't get the procedure done right now but Tylox works great for me. Could you write a prescription for me?"*
   - They may also try to put pressure on you or your staff by wanting an appointment toward end-of-office hours or arriving after regular business hours and insist on being seen immediately and demand immediate action.

2. **Emotional Tactics** – Be aware of patients who relate to you on an emotional basis to get drugs: Intimidation, guilt and sympathy are extremely effective tools:
   - *"It's a dull throbbing pain, I just can't stand it and can't get anything done; it's going to ruin my vacation. I'll get the procedure done when I get back"*
   - *"I need the pain medication, my husbands in the hospital, everything is on my shoulders, I don't know what to do. I will come back in as soon as things settle down. I just need the pain meds until then."*

3. **Out of Town Patient –** Patient claims to be from out of town and to have lost their prescription, forgotten to pack medication, or says it was stolen are common tactics of drug seekers. You may also hear: *"My dog ate my pills" or "I flush them by mistake".*
   - If you have a patient from out of town who tells you they have an important function to attend and can't be distracted by the pain they are having and need a specific Scheduled II or III opioid, be careful! These are two warning flags: They are from out of town and requesting a scheduled drug. Do your job: Do a medical history, a through exam and you should flush them out. If this information indicates that they may be a drug seeker you could offer to write for an anti-inflammatory drug; if they get angry and start intimidating you, keep control. You might tell them you do not prescribe scheduled drugs for their problem and mention that scheduled drugs are easily abused and some people can become addicted to them. You may also recommend they need help and see someone for a drug assessment. You may also mention if they are going from one doctor to another for drugs it is illegal. Health professionals have powerful influences on changing patient's behaviors and suggestions like these maybe what a drug addict needs to seek help.

4. **Telephone Scams** – Resourceful use of the phone by drug seekers is common. Calls at home during dinner hour or over a weekend are common. Drug seekers will feign being your patient and request pain medication. They will be able to describe clinical procedures and treatments you have performed on them all in an effort to legitimize the phone call. If you do not recognize the individual as one of your patients and do not have access to your patient list there are a lot of options: You may tell them you do not prescribe scheduled pain medication over the phone, you may suggest their taking Tylenol and/or ibuprofen and come in first thing in the morning or have them go to a local hospital emergency department.

5. **Addiction Confessions** – At last resort some drug seekers will confess their drug addiction often with great emotion. They will try to bring the tears out, telling you that they are strung out and really need some help! They are going into treatment next week and are trying to bring themselves down gradually but really need some meds now to get them by until they go in next week. "*You can't let me go into withdrawal!"* Prescribing drugs for a known addict for this reason is illegal. If they were serious about recovery they would not be on the drugs in the first place and if they are worried about withdrawal they should be in a hospital or treatment center. Any certified treatment center will manage drug withdrawal for in coming patients.

You Can Protect Yourself :

1. ***Maintain Control* - you are in charge, you are the dentist providing the best care you can provide for the patient, you make the decisions. Don't let anyone pressure you into doing something you shouldn't do.**
2. ***Do Your Job* - get a medical history, do a drug screen questionnaire on every patient and performing a through exam to arrive at a diagnosis.**
3. ***Prescribe Cautiously* - prescribe minimum dosages.**
4. ***Confront the Patient* - consider confronting a patient if you have a suspicion that he or she is a drug addict, you can do this in a respectful and caring way and recommend they see someone for an assessment and/or treatment.**

Prescription Monitoring Programs

Goals of PMP's:

1. Patient safety: compliance/medication indications
2. Identify Doctor Shopping Patients
3. Evaluate intervention effectiveness
4. Detect pill mills
5. Monitor health care professional's prescribing practices

Electronic Prescription Monitoring: eKASPER Reports

KASPER: Kentucky All Schedule Prescription Electronic Reporting

Dave.Hopkins@ky.gov; KASPER Program Manager
KASPER Web Site: *https://ekasper.chfs.ky.gov*; 502-564-2815 ext. 3333

KASPER is Kentucky's Prescription Monitoring Program (PMP). KASPER tracks Schedule II – V controlled substance prescriptions dispensed within the state as reported by pharmacies and other dispensers

Enhanced KASPER (eKASPER) is the real-time web accessed database that provides a tool to help address the misuse, abuse and diversion of controlled pharmaceutical substances

KASPER was designed as a tool to help address prescription drug abuse and diversion by providing:

- A source of information for health care professionals
- An investigative tool for law enforcement and regulatory agencies

KASPER was not designed to:

- Prevent people from obtaining prescription drugs
- Decrease the number of doses dispensed

Request an eKASPER Report:

Via secure WEB application – accessible from any PC with WEB access
ID Management - must apply for account with supporting documents; delegate option
Practitioners and Pharmacists can receive a report within 15-20 seconds (as long as the report does not require further review by the staff)
Info available 24 / 7
https://ekasper.chfs.ky.gov/accessrequest/

eKASPER Report Processing

92% of reports auto-matched by eKASPER

- Available within 15-30 seconds

Manual Queue:

- Processed 8:00 a.m. to 4:30 p.m. Monday through Friday
- Weekday manual reports typically available within one hour

What if I cannot "query" KASPER

If eKASPER indicates "manual process"
Record the eKASPER report request number in the patient's chart

If the eKASPER system is unavailable or Internet access unavailable
Document circumstances why eKASPER could not be queried
If eKASPER outage, record the date and time, and eKASPER system outage logs will confirm lack of system availability

Help desk e-mail
ekasperhelp@ky.gov

Help desk phone
(502) 564-2703

Account assistance:
ekasper.admin@ky.gov

eKASPER registration is mandatory for Kentucky practitioners or pharmacists authorized to prescribe or dispense controlled substances to humans.

eKASPER Prescriber Usage - KRS 218A.172

eKASPER must be queried:

Prior to initial prescribing or dispensing of a Schedule II controlled substance, or a Schedule III controlled substance containing hydrocodone

No less than every three months

Before issuing a new prescription or refills for a Schedule II controlled substance or a Schedule III controlled substance containing hydrocodone

Does not apply to prescribing of a 3 day supply of a CIII controlled substance following performance of oral surgery by a dentist

Additional rules/exceptions included in regulations

eKASPER reports can be shared with the patient or person authorized to act on the patient's behalf

eKASPER reports can be placed in the patient's medical record, with the report then being deemed a medical record subject to disclosure on the same terms and conditions as an ordinary medical record

eKASPER delegate accounts allowed for:

- An employee of the practitioner's or pharmacist's practice acting under the specific direction of the practitioner or pharmacist

The Master Account Holder is responsible for all usage under the account including delegates!

Do not share your user id/password!

- A subordinate may order an inappropriate report under your name.
- Delegate accounts have their own user id/password and provide you the ability to review all reports delegates request under your master account.

Verify the information in the report!

- KASPER may contain inaccurate data.
- Assume the data on the report is inaccurate before assuming the patient is doing something wrong.

eKASPER Error Correction

- Patient or provider should contact the dispenser to correct records in error
  - Inaccurate KASPER reports due to system errors should be reported to the Drug Enforcement and Professional Practices Branch 502-564-7985

eKASPER Prescriber Reports

CS prescribers can obtain an eKASPER report on themselves (Account Maintenance)

- To review and assess the individual prescribing patterns
- To determine the accuracy and completeness of information contained in eKASPER
- To identify fraudulent prescriptions

What do you do when diversion is suspected?

If you suspect an individual is involved in diverting controlled substances, we ask that you please report them to the proper law enforcement authorities.

If unsure who to contact please call the Drug Enforcement and Professional Practices Branch of the Office of the Inspector General for assistance

(502) 564-7985; http://www.chfs.ky.gov/os/oig/auditsinv.htm

Reporting Provider Shoppers/Diverters

KRS 218A.280 Controlled substances – Communications with practitioner not privileged.

- Information communicated to a practitioner in an effort unlawfully to procure a controlled substance, or unlawfully to procure the administration of any controlled substance, shall not be deemed a privileged communication

Reporting Provider Shoppers/Diverters

902 KAR 55:110 Section 10 (4) (b): In addition to the purposes authorized under KRS 218A.202(8)(e), and pursuant to KRS 218A.205(2)(a) and (6), a practitioner or

pharmacist who obtains KASPER data or a report under KRS 218A.202(6)(e)1. or who in good faith believes that any person, including a patient, has violated the law in attempting to obtain a prescription for a controlled substance, may report suspected improper or illegal use of a controlled substance to law enforcement or the appropriate licensing board

Intervention

Health care providers have an excellent opportunity and a professional responsibility to address concerns about a patient's prescription drug problem.

- Utilize KASPER to screen for potential prescription drug related problems.
- Don't just stop treating or dispensing to the patient.
- Consult with the other prescribers or other dispensers on the KASPER report.

HOUSE BILL 1 for DENTISTS

If you do not prescribe any Scheduled drugs and do not have a DEA number you are exempt from this bill.

If you prescribe any Scheduled drugs you must **Obtain a KASPER account**. Failure to do so will result in a private reprimand with a 30 day grace period to obtain one. After that, non-compliance can result in a fine of not less than $500.00.

Definition of oral surgery:

- Any manipulation or cutting of hard or soft tissues of the oral and maxillofacial area and associated procedures by a licensed dentist within the scope of training and practice.
- Rules on prescribing drugs

1. For any initial prescription, you must obtain a KASPER report on a patient when prescribing any Schedule II drug.
2. If prescribing a Schedule III drug for more than 3 days in duration you must obtain a KASPER report.
3. If prescribing a Schedule IV or V drug from the following list for more than a 3 day supply you must obtain a KASPER report:
    a. Ambien
    b. Anorexics
    c. Ativan
    d. Klonopin
    e. Librium
    f. Nubain
    g. Oxazepam
    h. Phentermine
    i. Soma
    j. Stadol
    k. Stadol NS
    l. Tramadol
    n. Versed
    o. Xanax
4. A refill for the same amount or a lesser drug in the same or lesser amount is allowable without seeing the patient if they are seen again within 30 days.
5. **If a prescription is indicated after the performance of oral surgery and that prescription is for 3 days or less, a KASPER report is not needed for a Schedule III narcotic or for one of the Schedule IV drugs listed above (3.)**.
6. If a second refill is needed the patient has to be clinically reevaluated.
7. A pre-med prescription for treatment anxiety is limited to a **2 day supply** and has no refills.
8. A dentist is not allowed to compound any Scheduled drug or dispense any Schedule I, II or III drug containing hydrocodone for use by the patient outside of the office.
9. If you attempt to obtain a KASPER, but the report is unavailable through the KASPER service, you should document in your chart that you attempted to obtain the report and file it in the chart.
10. Dentists performing IV sedation do not have to run a KASPER for drugs they will administer while in the office.

Penalties:

If convicted of failure to abide by the guidelines a minimum 5 year revocation of prescription writing privileges for controlled drugs will be imposed.

Kentucky Dental Association 502-489-9124; KASPER 502-564-7985

The New Face of Drug Abuse

Performance Enhancing Drugs, Synthetics, Designer Drugs, Party Drugs:

Amphetamines, Meth, Crank, MDMA, Bath Salts, Spice…

Prescription Stimulants

Medical Uses - limited but legitimate medical uses today

Attention Deficit Disorder (ADD or ADHD)
Narcolepsy
Depression – that does not respond to other treatments
Obesity - short-term treatment

How they work…

These drugs enhance brain activity by increasing the release norepinephrine, dopamine and serotonin
Increased alertness, attention and energy
Increases in blood pressure, heart rate, respiration and blood glucose

Ritalin (methylphenidate) or Adderall (amphetamine and dextroamphetamine)

Well known drugs to treat ADHD:

- Increases attention, alertness (helps focusing)
- Also abused: A.k.a. *"Vitamin R", "Vitamin A", "the cramming drug"*

Ritalin, Adderall Abused by Students

Used to help them cram for exams
Others use it to keeps awake at all night parties
Also abused for its high
Users obtain drug from valid prescription users, steal from school nurses offices…
Some sell or trade it for other drugs

"Risky Rise of the Good-Grade Pill"

High use in academically competitive high schools, colleges, graduate schools
Use and abuse can lead to health risks from cardio to depression & psychosis
Scheduled drugs → felony
Gateway to sleep aids and painkillers
Prefrontal cortex and changing brain chemistry
Cheating issue

Adverse Effects of Ritalin Abuse

Abuse comes with serious side effects: Seizure potential, serious cardiac problems, pulmonary granulomas from snorting crushed pills

Cocaine Use on the Decline

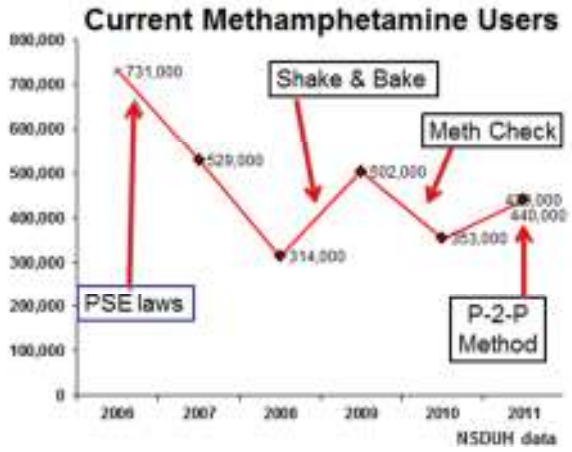
Poison control, treatment, deaths, tox lab indicators all down; price up
Pipeline to and demand up in Europe
Coca cultivation in South America is down
Use of Levamisole as a filler has serious medical consequences
Lidocaine & benzocaine used as adulterants in cocaine to increase profits

- Increases nasal numbness that accompanies snorting coke giving illusion of a more potent drug

Are the shortages of cocaine and increased supply of methamphetamine related?

Methamphetamine – *A powerful CNS stimulant*

Easy to make it
Increased purity - from 12% to 90^{+}% in the last several years
Cheap and long-lasting effects
A.k.a. *"meth, crank, crystal, ice, glass"*



Meth: Illicit manufacturing

Precursor materials and chemicals:
OTC diet pills or decongestants:
Pseudoephedrine, Lithium batteries,
solvents (acetone, ether, etc.),
ammonia, battery acid (sulfuric acid),
hydrochloric acid gas
All these materials can cause serious health risks and the solvents are extremely flammable; cost of clean ups is enormous
Shake and Bake – 2 liter method

Progression of Effects:

Short Term Effects:
Euphoria, enhanced sense of self-esteem & self-confidence, increased alertness, performance, energy, talkativeness, enhanced libido, decreased appetite
Light/sound sensitivity, shakes/tremors, elevated pulse and blood pressure, increased respiratory rate, elevated body temperature, sweating, jaw clenching, teeth grinding, insomnia, and hyperactive behavior

Long Term Effects:
Nervousness/Irritability, anxiety, depression, mood swings, weight loss, hallucinations, paranoia, hyperthermia, body burnout, *"Meth Psychosis"*

Behavior Warning Signs:
Erratic behavior, constantly misplacing things, lying, absenteeism, isolation, paranoia, weird eating & sleeping patterns

Danger signs, things to look for:
Burns on thumb, red or irritated nostrils, butane lighters, cards for crushing, hollowed out pens, straws, gum wrappers

Signs and Symptoms of Methamphetamine Abuse
Headache, dizziness, confusion, muscle aches and pain, nervousness, agitation
"*Meth mouth":* exposure of caustic ingredients causes cavities, periodontal disease, fractures in teeth:
Distinctive pattern of decay on buccal smooth surfaces and interproximal surfaces of anterior teeth
Xerostomia may contribute to increased occurrence of carries due to lack of buffering capacity of saliva:
- Acidic foods and plaque buildup and can wreak havoc w teeth/gums
Drug induced dehydration gives perception of dry mouth and users crave sugar-containing carbonated beverages
Stimulants increase muscle tension which can cause clenching and grinding ware and crack teeth
Drug induced nervousness and anxiety may also cause patients to clench and grind teeth
Smoking or snorting meth exposes the oral cavity to caustic ingredients
Neglect in oral health care in drug users is also a big problem

Clinical Treatment – Drug Abuse Intervention:

Oral exam & medical & drug history:

- Initiate dental treatment if patient is in recovery, *may get medical clearance*
- If patient not interested in recovery, express genuine concern about dental findings & problems if patient continues drug use
- *If addiction is not addressed patient will most likely continue to use drugs*

Provide dentistry as needed if patient is clean and sober

Develop partnership with patient:

- Patient must consent to meticulous oral care and continued sobriety
- Encourage proper nutrition, decrease sugar drinks, brush, floss…
- Monitor patient's compliance:
- Success is determined by patients commitment to oral health care and their continued commitment to recovery
- Document all findings, may prove useful if relapse behavior is suspected

Signs and Symptoms continued…

Increased blood pressure, irregular heart rate (palpitations)

- Increased potential for cardiovascular problems; crisis, seizure, failure

Hyperactivity, weight loss, insomnia - sweating, pallor, body odor

Pupil dilation, eyelid twitches, blurred vision

Hyperthermia, sweating, tremors

Track marks

Psychological disturbances - irritability, agitation, anxiety

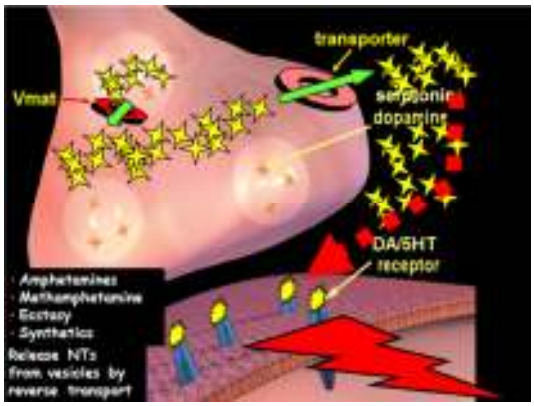
Progression of social and occupational problems

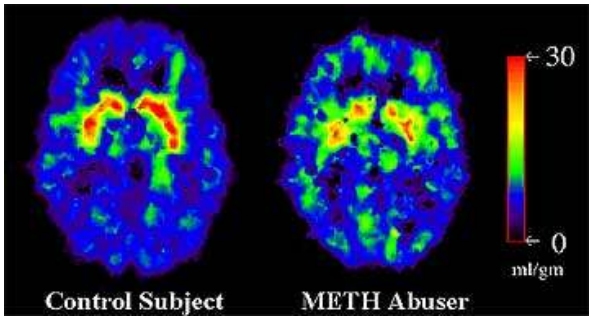
With long term chronic abuse:

Hallucinations, withdrawal from reality

Body "burn out"- severe damage to heart, lungs, liver, brain, kidneys…

"Methamphetamine psychosis": paranoia, compulsive repetitive behaviors, (tics, "crank bugs", "speed bumps")





Ecstasy (MDMA) is the most popular Party Drug

A stimulant - enhances energy, endurance, sociability, sexual arousal, and postpones fatigue and sleepiness

It also has hallucinogenic effects altering perceptions and feelings

Use has spread to a wide variety to age groups and settings:

We are now seeing party drugs at Sports Bars, singles bars, college parties, private parties, in the dorm rooms and around campus

High school students are also using them at social gatherings …

Ecstasy - 3,4-methylenedioxymethamphetamine

A.k.a.: Ecstasy, X, E, XTC, Adam, Smurfs, Clarity, the Love pill, "*The Hug Drug*", Rolls, and other nicknames based on pill imprints; "The pills look so innocent"

Cartoon characters: Flintstones vitamins, Snoopy…

Wide range of logos, colors, shapes

Ecstasy as the "Hug Drug"

Many users also claim increased feelings of emotional closeness to one another

- An *"increased empathy for others"*

Ecstasy has been dubbed the *"Hug Drug*

It's more about a *loving feeling* than increased sexual activity

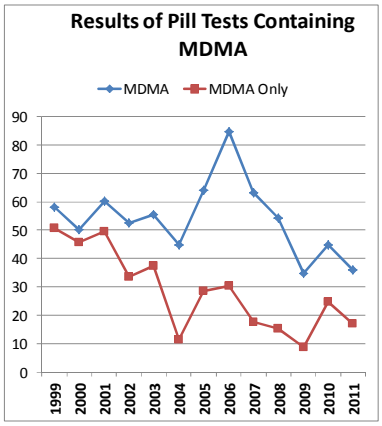
It may not be about sex, but the drug scene certainly opens the door to problems, and to exploitation by sexual predators

"Extreme Ecstasy" - Ecstasy laced with Meth

Increased availability, more lucrative for dealers, but also much more dangerous

Adulterants - no quality control, impurities, substitute drugs, dose unknown

Severe health and neurological dangers



Dwindling Supply of pure Ecstasy

Less pure, more contaminants

Precursor, safrole, in short supply

Other drugs are emerging as users search for a replacement

Molly – *"Poppin Molly at the Dance Scene"*

Surge of interest in last few years by Clubbers

Originally pure MDMA

Then MDMA with lots of caffeine, meth, assorted drugs…

And now MDMC

(3,4-methylenedioxymethcathinone) or What? How knows what's in it!

Reports of desired effects of euphoria, but also paranoia, agitated delirium, hallucinations, psychotic episodes' and even self-destructive behaviors

Adulterants

No quality control, impurities, substitute drugs, dose unknown

Severe health and neurological dangers

Laboratory analysis of "party" pills contained: MDMA, MDA or MDEA

Others contained:

Dextromethorphan (DXM), caffeine, ephedrine, pseudoephedrine

Still others contain highly toxic amphetamine type analogues

"**You don't know what you're getting"**

Bath Salts

"Snorting Bath Salts" - The New Craze appeared in 2009

Synthetic coke/meth analog - referred to as *"legal cocaine"*

Sold as bath salts, fertilizer, insect repellent …on Internet and in Gas Stations & Convenient Stores

A.k.a.: *"White Lightning, Red Dove, Ivory Wave, Vanilla Sky, White Dove…"*
$20-50 a container; *Labeled: "Not for human consumption"*
Young people are swallowing, snorting, and injecting these substances

Derived from Southeast Asia Khat Plant leaves - chewed for its euphoric effects
Cathinones - beta-ketone amphetamines
Bath Salts contain: Cathinone derivatives: Mephedrone, methedrone, and MDPV (methylenedioxy-pyrovalerone)…
Referred to as *"legal cocaine"*
Produce a meth type high with LSD effects
Dose 3-20mg; high risk for overdose
Peak effect 1-2 hrs., drug effects may last 6-8 hrs.

Physical effects: hypertension, rapid heart rate, hyperthermia, seizures
Psychological effects: psychotic episodes, paranoia, hallucinations, suicidal thoughts – reports of several deaths and suicides after using these products

"Bath Salts" Intoxication - Ross, Watson, Goldberger; NEJM 365:967-968, 2011

Comments from NEJM article:

1. Overdose is a real concern – care and monitoring
2. Drug screens do not detect these drugs
3. Patients may need physical restraints and sedatives (IV benzos) to control seizures
4. IV fluids for hyperthermia and suspicion of rhabdomyolysis

Table 1. Physical and Behavioral Effects of Psychoactive "Bath Salts."

Physical Effects	Behavioral and Mental-Status Effects
Tachycardia	Panic attacks
Hypertension	Anxiety
Vasoconstriction	Agitation
Arrhythmias	Paranoia
Hyperthermia	Hallucinations
Sweating	Psychosis
Mydriasis	Aggressive behavior
Muscle tremor and spasms	Violent behavior
Seizures	Self-destructive behavior
Stroke	Self-mutilation
Cerebral edema	Suicidal ideation
Respiratory distress	Insomnia
Cardiovascular collapse	Anorexia
Myocardial infarction	Depression
Death	

"Life-threatening necrotizing fasciitis due to 'bath salts' injection"
www.orthosupersite.com Jan, 2012
34-year-old women presented in ER with right arm pain and infection
Broad-spectrum antibiotic therapy
Infection continued to progress rapidly
Diagnosis of necrotizing fasciitis and surgery indicated

Synthetic Drug Abuse Prevention Act of 2012
Bath Salt Drugs in C1:
4-methylmethcathinone (Mephedrone)
3,4-methylenedioxypyrovalerone (MDPV)

New Designer Bath Salt
Alpha-PVP, similar to MDPV but not scheduled
Sold on internet sites, hookah bars, novelty and head shops
A real headache for law enforcement :
New, legal, *"not for human consumption"*, no testing…

2C Series Synthetic Psychedelics

Hallucinogenic stimulants replacing Bath Salts:
2C-I, 2C-B or Nexus, 2CT-7 or Blue Mystic, 2C-E
3C-bromo-dragonfly, *etc...*
Internet Sales - *Lighting speed sales has changed the playing field…*

DMT - Dimethyltryptamine

Another designer/hallucinogen drug originally from South American plant; tribes called it *yopo*
Popularity has grown recently with use at *"Spiritual Retreat Weekends"*
Rapid onset of action, resembling LSD in effects, lasts about an hour:

- Produces mystical experiences in some individuals; others have had terrifying experiences
- Users have reported anxiety attacks after these *"retreat weekends"*
- At high doses individuals may become catatonic and lose consciousness

Salvia Divinorum

Hallucinogenic herb grown in Mexico, around for centuries, recently gaining in popularity
Leaves contain the extremely potent Salvinorin A
Usually smoke but can be chewed or drank in tea
Produces short out of body experiences with sense of traveling thru time and space
Aka: Sally-D, Magic or Mexican Mint and Diviner's Sage
One ounce of leaves sells for $30 on Internet, liquid extract also available
Big problem with use is judgment impairment
Poorly studied psychedelic drug
Several states working to criminalize its use

These Party Drugs are <u>Not</u> "Fun Drugs"

There are a multiple of physical and psychological side effects that point out the ***extreme*** danger of their use

Drugs releases neurotransmitters producing feelings of well-being and euphoria, along with stimulation: Dopamine, adrenalin, serotonin…

"Dopamine Rush": *Users claim: the intoxicating high enhances the party or trance experience*
"Adrenalin Rush": *Users claim: Heightened awareness and desire to dance*
Sustains them through long sessions of dancing or gyrating
"Rolling" – spaced out on Ecstasy
"Serotonin Rush": Many users also claim sensory enhancement:
Fascinated by light shows, strobe lights, glow sticks
Touch and smell sensations enhanced

Physical Signs and Symptoms

Increased heart rate and blood pressure
Faintness, sweating, chills, dehydration, exhaustion
Hyperthermia
Generalized muscle tension and spasms:

- Neck and lower-back aches and pains
- Bruxism - teeth grinding, clenching
- Trismus - jaw muscle spasm/locking; use pacifiers to alleviate the clenching

Psychological Signs and Symptoms

Disorientation and confusion
Agitation, anxiety, irritability, mood swings
Depression – may last several days
Hallucinations, depersonalization and insomnia
Panic attacks and delirium, even psychotic episodes have occurred

Warning Signs of Stimulant Abuse – What to look for:

Possession of hollowed out pens, pacifiers, lollipops, glow sticks
Red irritated nostrils, increased heart rate and blood pressure
Dilated pupils, blurred vision, rapid eye movement, headaches, dizziness
Dry mouth, muscle aches, clenching of the jaw, grinding teeth
Nausea, vomiting, weight loss
Change in sleep pattern; awake for extended periods of time
Chills or sweating, high body temperature, dehydrated
Faintness, confusion, trance-like state
Depression, anxiety, panic attacks and paranoia

GHB - Gamma Hydroxybutyrate *and its precursor drugs:* GBL - Gamma Butyrolactone & 1,4-BD - 1,4 Butanediol

All are rapidly acting, strong CNS depressant type drugs
Abused for their intoxicating, euphoric, and sedative effects
GHB was sold in health food stores as a performance-enhancing additive in bodybuilding formulas until the Food and Drug Administration banned it after concern for its safety; respiratory depression cases
GHB was put in Schedule 1 in 2000 after reports of overdoses, deaths, and use in sexual assaults
When ingested GBL and 1,4-DB are rapidly metabolize to GHB
Same physical and behavioral effects and serious health hazards as GHB
Commercially available as industrial cleaning solvents
Also sold over the internet as nutritional supplements
Advertised as: Sports and nutrition supplements, anti-aging drugs, sleep aids, mood enhancers, for anxiety & depression, weight loss aids, and sexual stimulants

GHB, GBL, & 1,4-BD as *Date-rape Drugs*

Sexual predators use these drugs to lower the inhibitions & defenses of women:
Clear, odorless, nearly tasteless liquid, easily slipped into a drink w/o detection
These drugs have been used for date-rape, facilitated sexual assault…
Victims become *s*leepy and lethargic, disorientated, confused, experiences extensive muscle relaxation and amnesic
Less able to resist or ward off unwanted sexual advances or assaults

The Dos and Don'ts

Do not take a drink from a stranger
Do not leave your drink unattended
Don't drink from opened containers like punch bowls
Be wary of drinks that taste salty or soda that is flat; these can be signs of GHB
If you think you have been drugged call 911

Ketamine (Ketalar, Ketaset)

Short acting analgesic
Used in critical care settings and veterinary medicine
Chemically similar to PCP
Abused at nightclubs and at various party settings
Ketamine - Dissociative anesthetic
Produces feeling of dissociation, *"Out-of-Body" experience,* hallucinations
Users develop impaired memory & executive function; schizophrenic-like symptoms*

Overdose can lead to respiratory depression; cardiovascular and central nervous systems problems

Nitrous Oxide

Dissociative anesthetic - fast-acting, rapid recovery
Physical & Neurological Consequence of Nitrous Oxide Abuse:
Produces a *"rush"*

- Intoxicated/euphoric state
- Uninhibited and impulsive behavior

Powerful hallucinogen

- Distorted perception
- Spiritual and demoniac experiences

Dizziness, confusion, slurred speech, staggered gait, impaired motor skills, paresthesia and neuropathy
Death - aspirate, asphyxiation

Inhalants – They're just under your nose

Many parents are unaware of the potential dangers of some common household products if they are inhaled by their children
Young people abuse inhalants because they are readily available, easy to get, legal….
"Sniffing", "Bagging" or "Huffing" volatile substances – many are common household products; others are industrial solvents or medical products:
Liquid paper, felt-tipped markers, correction fluid, model glue, contact cement, deodorants, nail polish remover, air freshener, hair spray
Aerosol spray paints (metallic), toluene, benzene, gasoline, paint thinner, carburetor cleaner, octane booster, Freon, dry cleaning fluid, butane lighter fuel
Commercial solvents and anesthetics - acetone, ethyl acetate, methyl chloride, methyl ethyl ketone, chloroform, ether, halothane, nitrous oxide

Effects of Inhalants

Produce a "rush", intoxicated/euphoric state
Uninhibited and impulsive behavior
Dizziness, distorted perception, slurred speech
Confusion, inability to coordinate movements
Impaired judgment

Impairment Problems

Inhalant abuse puts users at high risk for injury or accidents:

- Serious injuries from being involved in inappropriate activities
- Injuries from falls
- Motor vehicle accidents and fatalities

Long term Health Consequences

Damage lungs, brain, liver, kidneys, etc. - from mild and temporary to severe and permanent damage

- interfer with the oxygenation of the blood, cause difficulty in breathing and even asphyxiation
- toxic to the nervous system, may produce serious memory, motor and sensory problems
- may produce erratic heartbeat and cardiac arrest
- "Sudden sniffing Death" Syndrome

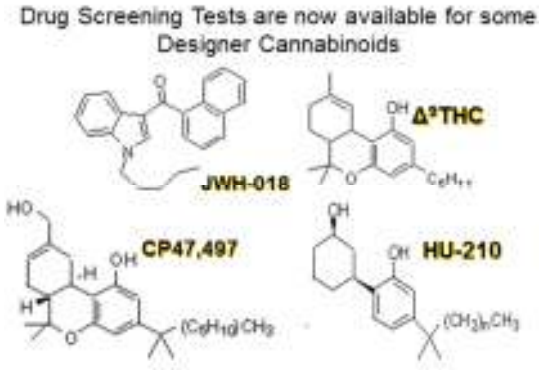
Signs and Symptoms of Inhalant Abuse - What to look for:

Unusual breath odor
Chemical odor or stains on clothing
Discover cache of rags, bags, cans…
Flu-like symptoms: headache, nausea, vomiting, loss of appetite, congestion, coughing, abnormal drowsiness

Red/runny nose and eyes
Skin around mouth can be irritated or sore
Dazed or dizzy, slurred speech, lack of coordination, tremors, inability to concentrate
Chronic abusers may exhibit anxiety, restlessness, excitability, irritability

"Spice": Incense and Herbal Smoking Blends

New products, incense and herbal smoking blends, popped up on the internet and in head shops in 2002 under a variety of trade names: Spice, Spice Silver ®, K2®, Buddha Melt, Yucatan Fire, Genie, & Fire n Ice…
Smokers claimed they produced strong marijuana-like effects
Analysis could not detect any chemical responsible for alleged effects
In Dec. 2008 a synthetic cannabinoid JWH-018 was discovered in Spice®
Other synthetic cannabinoids: HU-210, HU-211, and JWH-073 have been found in these products and are responsible for the psychoactive effects
Therefore the term Synthetic Cannabinoids was designated
Sold online, in head shops, gas stations, convenience stores for $30-40 for 3 gm bags
Manufactures spray herbs with synthetic marijuana analogues



Synthetic Cannabinoids

Poison control centers and hospitals have reported multiple cases of people becoming ill after smoking these products
Much more dangerous than marijuana itself:
Significantly greater potency than Δ^9 THC
Greater binding affinity for CB receptors
Effects last 6-8 hours

Signs & symptoms:

Racing heart rate, elevated blood pressure, agitation, anxiety, paranoia, vomiting, confusion
hallucinations, seizures, psychosis, loss of consciousness
Really don't know what you're getting
Users say they act more like crack or meth
Loss of consciousness, paranoia, agitation, hallucinations, psychosis
"Couch lock" term used to describe inability to move despite being conscious

Synthetic Drug Abuse Prevention Act of 2012

Put 31 synthetic drugs into Schedule I of the Controlled Substances Act:
No currently accepted medical use
Illegal to manufacture, distribute, dispense, or possess
Scheduled 20 synthetic marijuana compounds:
Many current marijuana analogues: CP-47,497, JWH-018, JWH-073, JWH-200, AM2201, AM694, SR-19, RCS-4…
Also restricted a variety of substitutions and specific ring structures; *all potential active products.*

But spice manufacturers continually change recipe to skirt the laws; K3, Scooby Snax, Mad Hatter, Head Trip, …

Marijuana – cannabis sativa

Most widely abused and readily available illicit drug in the U.S.
Over 90 million lifetime users in the U.S.
16.7 million current users in the U.S.

Medical Marijuana Debate

Proponents say marijuana can:

Help control glaucoma
Ease the nausea brought on by cancer chemotherapy
Forestall the AIDS-related wasting syndrome
Relieves some of the pain and muscle spasms associated with movement disorders (multiple sclerosis, ...)

Institute of Medicine Report

Marijuana and Medicine: *Assessing the Science Base*
National Academy Press; www.nap.edu

American College of Physicians

Position Paper: *Supporting Research into the Therapeutic Role of Marijuana*
2008; www.acponline.org

Medical Value of Marijuana – IOM Science Based Study

Glaucoma
Cancer chemotherapy
AIDS wasting syndrome
Pain and Neurological Disorders

Current drugs on the market:

The pharmaceutical industry is showing increased interest in synthetic modulators of the endogenous cannabinoid system and is funding clinical studies with cannabis whole plant extracts:

Dronabinol/Marinol - Treatment of nausea and vomiting for patients in cancer treatment; Appetite stimulant for AIDS patients; Analgesic to ease neuropathic pain in multiple sclerosis patients

Nabilone/Cesamet - Treatment of nausea and vomiting in patients undergoing cancer treatment
Sativex - Treatment of neuropathic pain and spasticity in patients with Multiple Sclerosis (MS); Analgesic treatment in adult patients with advanced cancer who experience moderate to severe pain.not approved in the U.S.

American College of Physicians

Recommends continued research into the medical use of marijuana for:

- For AIDS patients as an appetite stimulant and pain reliever
- For chemotherapy patients who suffer nausea and appetite loss
- For patients with muscle spasticity and movement disorders

Milestones in Cannabinoid Research

Cannabinoid receptor sites found: CB1 and CB2
Identified endogenous cannabinoids, *endocannabinoids*
Brain receptors located in the reward pathway, hippocampus, amygdala, cerebellum, basal ganglia, and neocortex
The *Endocannabinoid System* was discovered:

- *Involved in memory and learning, motor coordination, eating behavior, immune and inflammatory responses, pain sensations, reproduction, …*
- *This system is thought to plays a role in: relaxation, eating, sleeping, forgetting, and protecting from stress and more…*

Abusing marijuana overstimulates the cannabinoid receptors and disrupts this system

The "High!!!" is a big reason kids take drugs but other things also happen…

Marijuana affects the mood, emotions, senses, thought processes, decision making, and more

The Marijuana *"High" – dose dependent*

Initial sense of euphoria in some individuals
Enhanced physical and emotional sensitivity
Users claim:
Auditory and visual enhancement
Time seems to passes very slowly
Feelings of interpersonal closeness
-"relaxed dreamlike state"
Followed by drowsiness, lethargy and sedation

Early onset of marijuana use is a huge risk factor for problems

Nucleus Accumbens (NAc) is the *"Pleasure Center"* and is activated by pleasurable behavior
Frontal Cortex is involved in inhibitory control and assigns value to stimuli

Mind-alterations effects in:

Sensory functions
Motor control and coordination
Cognitive (decision-making) processes
Disinhibitory effect

Psychomotor tasks and cognitive functions are all impaired:

Poor coordination
Harder to sustain attention
Errors in judgment, time and space coordination
Distorted perception (sights, sounds, time, touch)
Delayed reaction times
Increased risk for accidents
Impaired Driving Performance
- Decreased tracking ability
- Divided attention problems
- Decreased alertness

Health and Impairment Risks of Marijuana Use

Cannabis sativa - ground up hemp plant material
There are 66 cannabinoids in the plant
Δ^9-THC (tetrahydrocannabinol) – primary psychoactive ingredient
Lipophilic - fat soluble

Marijuana - *high-potency forms*

Commercial grade – over 9% Δ^9-THC
Sensimilla - buds and flower of female; as high as 15-20%
Higher potency means stronger effects

Heart and Circulatory System

Increased heart rate and blood pressure and reduces oxygen-carrying capacity of blood
Risk for middle age and older individuals with coronary artery and vascular disease
Dizziness may occur on standing
Red and blood shot eyes due to dilation of the blood vessels – *watch for eye drops*

Respiratory System

All the effects of smoking and more …
High concentrations of tar and carcinogens
Increases inflammation, cellular changes and secretions in the airways
Chronic cough and bronchitis, …
Decreased pulmonary function and exercise tolerance

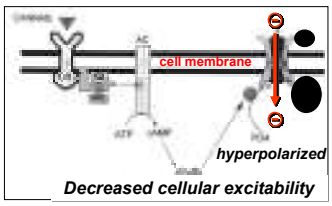
Immune System

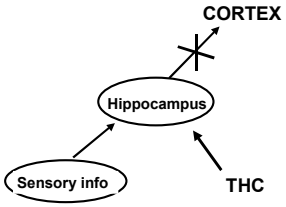
Marijuana has immunosuppressant activity:
- Decreases some antibody production
- Decreases resistance to infection (fungal and bacterial)
- May interfere with inflammatory reactions
- May increase the risk for cancer

Marijuana and Memory

Marijuana interferes with the formation of "new memory" in the hippocampus
Impairment of learning ability – chronic exposure may hasten nerve cell loss

Cellular Mechanism of Action





Impairment of Learning Ability

Marijuana compromises the ability to learn and remember information
Students who smoke marijuana get lower grades and are less likely to graduate from High School
Loss of interest and desire to study, work…
Decreased energy, productivity
Generalized apathy
Sullenness, moodiness and inability to concentrate
Slovenly habits and appearance
Life-style revolving around procurement and use of marijuana
Long term cognitive impairment is one of the most important consequences associated with cannabis use:
This may be a serious drawback for therapeutic use of marijuana

Cannabinoids block hippocampal long term memory mediation

"Cognitive impairment is one of the most important negative consequences associated with cannabis use"
Marijuana triggers cellular signaling pathways which lead to memory loss, "*amnesic effect"*
"This is a <u>serious</u> drawback for therapeutic use of marijuana"

Marijuana Affects Daily Living and Social Life:

Depression, anxiety, and personality disturbances
Makes a person's existing problems worse
Continued use causes intellectual, job, or social skills to diminish
Several studies have shown workers who smoke marijuana have:
Increased absences, more tardiness, higher accident rates and injuries, more workers' compensation claims, higher job turnover

Cognitive Functioning and Marijuana Use in Adults

Long-term heavy users performed significantly less well than short-term users on standardized learning testing:
- Impaired learning
- Retention
- Retrieval

Impairments in memory and attention worsened with increasing years of use

Cognitive Effects of Heavy Marijuana Use by <u>College Students</u>

Heavy smokers performed poorly on standardized learning tests:
- Abstract ability
- Sustained attention
- Verbal fluency
- Ability to learn and recall

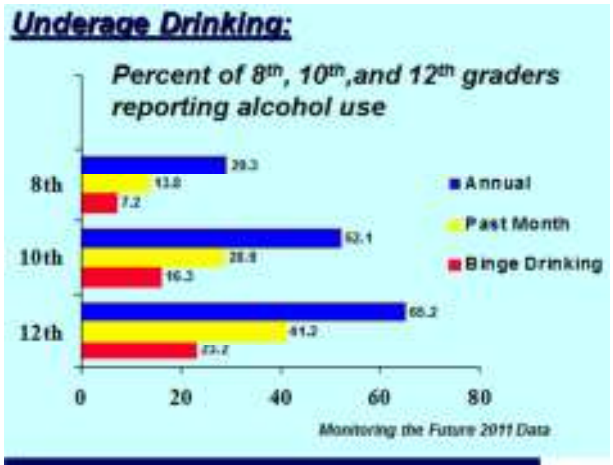
"Someone who smokes once daily may be functioning at a reduced intellectual level all of the time"

Alcohol Health & Impairment Issues:

Alcohol – Most widely abused OTC drug

2010 National Survey on Drug Use and Health – <u>Alcohol Use</u>

59 million Americans (23.3%) ages 12 and older <u>binge drank</u> in the last 30 days
17 million Americans (7%) are <u>heavy drinkers</u> (binge drinking on at least 5 days in past month)



By 12th grade, almost two-thirds of students have used alcohol in the past year
41% are current drinkers and 23% are binge drinkers

Over 82% of college students have used alcohol in the past year
69% are current drinkers and
40% binge drank in the last two weeks

Impairment Consequences of Alcohol Misuse and Abuse

Impairment - any slowing of thought or physical reaction beyond the initial relaxation effect of alcohol

<u>BAC .08 - .40%</u>

0.08	ataxia, decreased mentation, poor judgment, labile mood
0.15	major physical and mental impairments: ataxia, slurred speech, combativeness
0.20	marked alteration of mental state, marked ataxia, unrestrained behavior, nausea, vomiting
0.30	memory lapse, anesthesia
0.40	respiratory failure, coma, death

0.03% Blood Alcohol Level

- impairment begins
- divided attention problems
- impaired eye/balance coordination
- slower eye tracking ability

0.05% Blood Alcohol Level

- impaired cognitive functions and coordination
- information-processing problems
- impaired visual perception
- increased reaction time

ALCOHOL IMPAIRMENT CHART

NEVER DRINK AND DRIVE

APPROXIMATE BLOOD ALCOHOL PERCENTAGE

Drinks	Body Weight in Pounds									
	90	100	120	140	160	180	200	220	240	
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	ONLY SAFE DRIVING LIMIT
1	.05	.05	.04	.03	.03	.03	.02	.02	.02	Impairment Begins
2	.10	.09	.08	.07	.06	.05	.05	.04	.04	Driving Skills Affected
3	.15	.14	.11	.10	.09	.08	.07	.06	.06	Possible Criminal Penalties
4	.20	.18	.15	.13	.11	.10	.09	.08	.08	
5	.25	.23	.19	.16	.14	.13	.11	.10	.09	
6	.30	.27	.23	.19	.17	.15	.14	.12	.11	Legally Intoxicated — Criminal Penalties
7	.35	.32	.27	.23	.20	.18	.16	.14	.13	
8	.40	.36	.30	.26	.23	.20	.18	.17	.15	
9	.45	.41	.34	.29	.26	.23	.20	.19	.17	
10	.51	.45	.38	.32	.28	.25	.23	.21	.19	

Your body can get rid of one drink per hour.
Each 1½ oz. of 80 proof liquor, 12 oz. of beer or 5 oz. of table wine = 1 drink.

ALCOHOL IMPAIRMENT CHART

NEVER DRINK AND DRIVE

APPROXIMATE BLOOD ALCOHOL PERCENTAGE

Drinks	Body Weight in Pounds								
	100	120	140	160	180	200	220	240	
0	.00	.00	.00	.00	.00	.00	.00	.00	ONLY SAFE DRIVING LIMIT
1	.04	.03	.03	.02	.02	.02	.02	.02	Impairment Begins
2	.08	.06	.05	.05	.04	.04	.03	.03	
3	.11	.09	.08	.07	.06	.06	.05	.05	Driving Skills Affected — Possible Criminal Penalties
4	.15	.12	.11	.09	.08	.08	.07	.06	
5	.19	.16	.13	.12	.11	.09	.09	.08	
6	.23	.19	.16	.14	.13	.11	.10	.09	
7	.26	.22	.19	.16	.15	.13	.12	.11	Legally Intoxicated — Criminal Penalties
8	.30	.25	.21	.19	.17	.15	.14	.13	
9	.34	.28	.24	.21	.19	.17	.15	.14	
10	.38	.31	.27	.23	.21	.19	.17	.16	

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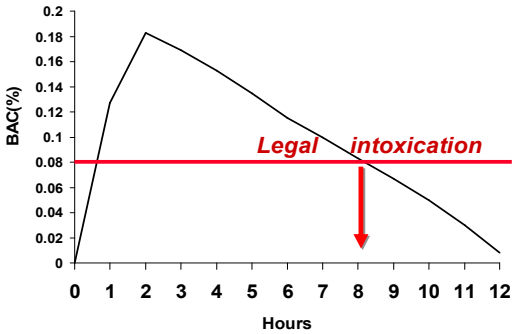
Blood Alcohol Concentration vs Time After Consumption



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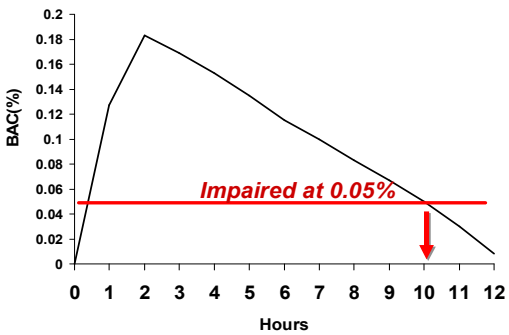


2010 U.S. DIETARY GUIDELINES ON ALCOHOL BEVERAGES

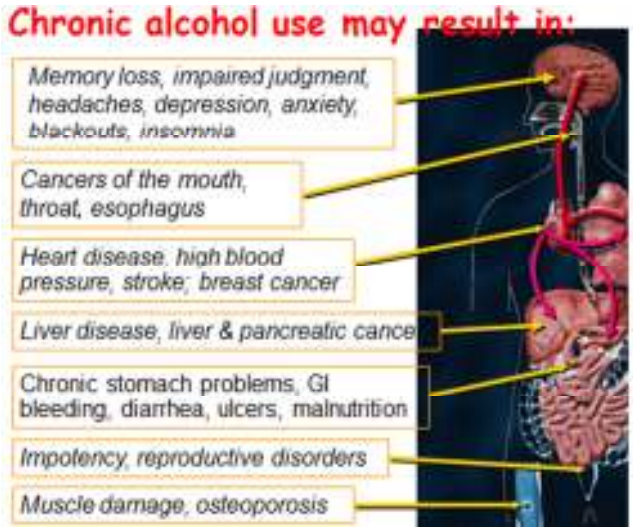
Alcohol consumption may have beneficial effects when consumed in moderation. Strong evidence has shown that moderate alcohol consumption is associated with a lower risk of cardiovascular disease; also reduced risk of all-cause mortality among middle-aged and older adults and may help to keep cognitive function intact with age. However, it is not recommended that anyone begin drinking or drink more frequently on the basis of potential health benefits because moderate alcohol intake also is associated with increased risk of breast cancer, violence, drowning, and injuries from falls and motor vehicle crashes.
The consumption of alcohol can have beneficial or harmful effects, depending on the amount consumed, age, and other characteristics of the person consuming the alcohol. Alcohol consumption may have beneficial effects when consumed in moderation.

Moderate alcohol consumption is defined as up to 1 drink per day for women and up to 2 drinks per day for men. Not more than 7 per week for women and 14 per week for men. **However**, it is not recommended that anyone begin drinking or drink more frequently on the basis of potential health benefits because moderate alcohol intake also is associated with increased risk of breast cancer, violence, drowning, and injuries from falls and motor vehicle crashes.

Heavy or high-risk drinking is the consumption of more than 3 drinks on any day or more than 7 per week for women and more than 4 drinks on any day or more than 14 per week for men.

Binge drinking is the consumption within 2 hours of 4 or more drinks for women and 5 or more drinks for men.

No drug produces such a variety of physiological disturbances and tissue damage as alcohol when it is abused:



Alcohol abusers are at high risk:
Have slower rates of healing
Have increased bleeding times
Higher rates of infection
More adverse drug reactions

Cancer risks linked to drinking (*Risks vary with amount consumed*)

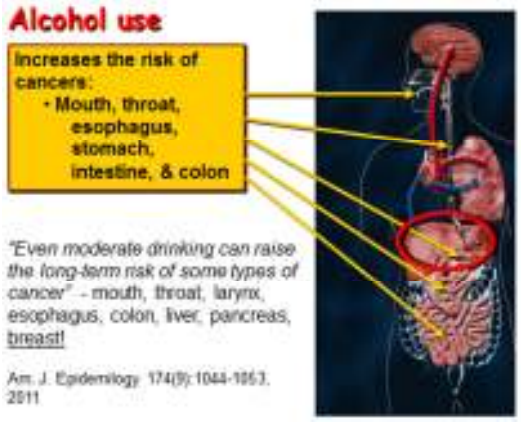
- People who have one or fewer drinks a day raise their risk of oral and pharyngeal cancer by 20% and risk of breast cancer by 8%
- People who drink two to three drinks per day raises risk of:
  Liver cancer by 20%
  Breast cancer by 31%
  Oral cancers by 73%
- People who have four or more drinks per day have a fivefold increase in risk of oral, pharyngeal and esophageal cancers
- Four or more drinks per day raises the risk of:
  Colorectal cancer by 52%
  Pancreatic cancer by 22%
  Breast cancer by 46%

Nutrition and Cancer, 2011; Alcohol Research & Health, 2001; U.K.'s Million Women Study, 2009

Light Drinking Linked to Breast Cancer:

- 30 year longitudinal study of 105,986 nurses
- 3-6 drinks/week increased risk of breast cancer 15%
- *"Moderate drinking's protection against heart disease vs. risk of breast cancer is a personal choice…"*

Moderate alcohol consumption during adult life, drinking pattern and breast cancer. JAMA 306(17):1884-1890, 2011 & JAMA 306(17)1920-1921, 2011



U.S. 2010 Dietary Guidelines on Alcohol Consumption

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Binge drinking is the consumption within 2 hours of 4 or more drinks for women and 5 or more drinks for men.

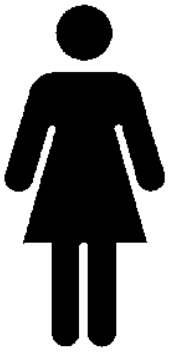
One drink is defined as:

12 fl. oz. of regular beer (150 calories)
5 fl. oz. of wine (100 calories)
1.5 fl. oz. of distilled spirits (100 calories)

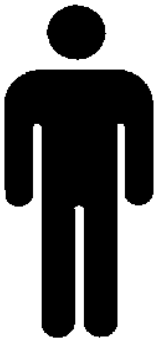
There are many circumstances in which people should not drink alcohol:

- **Individuals who cannot restrict their drinking to moderate levels.**
- **Anyone younger than the legal drinking age. Besides being illegal, alcohol consumption increases the risk of drowning, car accidents, and traumatic injury, which are common causes of death in children and adolescents.**
- **Women who are pregnant or who may be pregnant. No safe level of alcohol consumption during pregnancy has been established.**
- **Individuals taking prescription or over-the-counter medications that can interact with alcohol.**
- **Individuals with specific medical conditions (e.g., liver disease, hypertriglyceridemia, pancreatitis).**
- **Individuals who plan to drive, operate machinery, or take part in other activities that require attention, skill, or coordination or in situations where impaired judgment could cause injury or death (e.g., swimming).**

If you drink alcoholic beverages, do so in moderation, with meals, and when consumption does not put you or others at risk.



Women
Up to 1 drink per day; no more than 7 drinks/week



Men
Up to 2 drinks per day; no more than 14 drinks/week

Screening for Drug Use, Misuse, and Abuse:

CAGE Questions Adapted to Include Drugs (CAGE-AID) *

C. Have you felt you ought to **cut down** on your drinking or drug use?
A. Have people **annoyed** you by criticizing your drinking or drug use?
G. Have you felt bad or **guilty** about your drinking or drug use?
E. Have you ever had a drink or used drugs **first thing in the morning** to steady your nerves, or get rid of a hangover, or get the day started?

*** One affirmative answers is a positive screen. A score of two or more positive answers indicates probable drug addiction patient needs a referral for an assessment.**

CRAFFT Questions for Adolescents*

C Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?
R Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?
A Do you ever use alcohol/drugs while you are by yourself, ALONE?
F Do your family or FRIENDS ever tell you that you should cut down on your drinking or drug use?
F Do you ever FORGET things you did while you were using alcohol or drugs?
T Have you gotten into TROUBLE while you were using alcohol or drugs?

**** Screen positive score = 2+***

For the following question:

Have you used marijuana, cocaine, methamphetamine or any other drug for recreation more than 5 times in your lifetime?
If yes, when was the last time? _____

(Use of illicit drugs more than 5 times and within the past year requires more extensive assessment.)

Obtain an alcohol and other drug history:

- Type of drugs (prescribed or not)
- Quantity and frequency of use
- Changes in pattern of use - increased frequency, binge use, stress relief use
- Consequences of use - Is use interfering with patient's life?
  - Marital, social, legal, job problems
  - Family violence/child abuse
  - Check medical, family and occupational history

Drug Use Health History

Name_____

1. List all medications, drugs, pills you are taking (or suppose to be taking) and the dosage of each:

   _____
   _____
   _____
   _____
   _____.

		Yes	No
2.	Do you use tobacco products? If yes, how many packs, or cans per day? _____ If yes, how many years have you used tobacco products? _____	☐	☐
3.	Do you drink alcohol? ***If no**, skip to question 7.*	☐	☐
4.	***If yes***, how many drinks of alcohol do you have on a typical day? _____ A drink is defined as 12 oz. of regular beer or 5 oz. of wine (12% alcohol) or 1.5 oz. 80 proof distilled spirits.		
5.	On average, how many days a week do you drink alcohol? _____		
6.	On any day in the past year, have you had: • For **men** more than 4 drinks in a few hours? • For **women** more than 3 drinks in a few hours?	☐ ☐	☐ ☐
7.	In the past year have you used prescription or over-the-counter drugs for non-medical reasons, on your own, without a doctor's prescription, or in greater amounts or more often than prescribed?	☐	☐
8.	Have you felt you ought to cut down on your drinking or drug use?	☐	☐
9.	Have people annoyed you by criticizing your drinking or drug use?	☐	☐
10.	Have you felt bad or guilty about your drinking or drug use?	☐	☐
11.	Have you ever had a drink or used drugs first thing in the morning to steady your nerves, get rid of a hangover, or get the day started?	☐	☐
12.	Have you used stimulant drugs (methamphetamine, cocaine, etc.) in the last 24 hours?	☐	☐
13.	Are you recovering from alcohol or other drug addiction?	☐	☐
14.	Is there any member of your family with a history of problem drinking, alcoholism, or other drug problems?	☐	☐
15.	Have you used marijuana, cocaine, methamphetamine or any other drug for recreation more than 5 times in your lifetime? If yes, when was the last time? _____	☐	☐

Adolescents Drug Use Health History Name_____

1. List all medications, drugs, pills you are taking (or suppose to be taking) and the dosage of each:

   _____

   _____

   _____

		Yes	No
2.	Do you use tobacco products? If yes, how many packs, or cans per day? _____ If yes, how many years have you used tobacco products? _____	☐	☐
3.	Do you drink alcohol? ***If no**, skip to question 7.*	☐	☐
4.	***If yes***, about how old were you the **first time** you had alcoholic beverages to drink, more than just a few sips? _____		
5.	Have you had any alcoholic beverages in the past month?	☐	☐
6.	On any day in the past year, have you had more than 4 drinks? A drink is defined as 12 oz. of regular beer or 5 oz. of wine (12% alcohol) or 1.5 oz. 80 proof distilled spirits.	☐	☐
7.	In the past year have you used prescription or over-the-counter drugs for non-medical reasons, on your own, without a doctor's prescription, or in greater amounts or more often than prescribed?	☐	☐
8.	Have you ever ridden in a car driven by someone (including yourself) who was "high" or had been using alcohol or drugs?	☐	☐
9.	Do you ever use alcohol or drugs to relax, feel better about yourself, or fit in?	☐	☐
10.	Do you ever use alcohol or drugs while you are by yourself, alone?	☐	☐
11.	Do you ever forget things you did while you were using alcohol or on your drinking or drug use?	☐	☐
12.	Do your family or friends ever tell you that you should cut down	☐	☐
13.	Have you gotten into trouble while you were using alcohol or drugs?	☐	☐
14.	Have you used stimulant drugs (methamphetamine, cocaine, etc.) in the last 24 hours?	☐	☐
15.	Are you recovering from alcohol or other drug addiction?	☐	☐
16.	Is there any member of your family with a history of problem drinking, alcoholism, or other drug problems?	☐	☐
17.	Have you used marijuana, cocaine, methamphetamine or any other drug for recreation more than 5 times in your lifetime? If yes, when was the last time? _____	☐	☐

Acute Pain Management in the Drug Abusing Patient

The Dentist's Role: *Evidence & Strategies*

Current Practice Patterns

ADA Survey, 2006: prescribing practices after third molar extractions

- 563 oral maxillofacial surgeons (NEng, Wcentral states)
- Performed avg 53 3rd molar extractions on 20 year olds
  → 3.5 million ext/yr (extrapolated in US)
- Avg prescription: hydrocodone/acetaminophen x 20 tab with instruction to take "prn"

Denisco, et al. JADA, 2011

CDCP Utah Study, 2008

- 72% of patients prescribed opioids had left over medication
- 71% of those patients with left over opiates – did not dispose of them

Denisco et al. JADA, 2011

WV Statewide Survey, 2010

79% General Dentist

- If not opiates → NSAIDs (64%), acetaminophen (28%)
- If opiates hydrocod/acetamin (73%)
- 3rd molar ext, 10-20 tabs for 2-5 days
- 41% of dentist expected patients to have left over drugs

Denisco, et al. JADA, 2011

Opioid Prescribing in Dentistry

Factors contributing to prescribing frequency/dosage

- Habit
  - Based on clinical experiences with patients
  - Relay more on CS the longer in practice
  - Many do not acknowledge efficacy of non-opioids
- Patient expectations
  - Expect high degree of post-op pain and want opioids
  - Lead to unpleasant disagreements, more chair time

Golubic, et al. Dent Today, 2011

Preemptive v Preventive

Preemptive

- Block central sensitization from initial incision → reduce post-op pain intensity

Preventive

- Aggressive management of noxious perioperative stimuli to prevent peripheral/central sensitization
- Preoperatively
- Intraoperatively
- Postoperatively

Reduces pain and postoperative analgesic requirements

Multimodal Analgesic Approach

- Advocated by ASA Task Force on Acute Pain Mgmt
- Combing different analgesics that act by different mechanisms at different sites in the peripheral and CNS resulting in synergistic analgesia
- More effective than single agent therapy
- Fewer side effects than high dose, single agent
- Reduces opioid consumption

Buvanendran, 2009

Preoperative Guidelines

Educate and Reassure

- Briefly describe in lay terms the diagnosis and treatment plan
- Reduce fear and anxiety
- Lessens perceived pain
- Improves patient's mood and attitude

Do words hurt? Brain activation during the processing of pain related words

Richter, et al. Pain, 2010

- fMRI study, 16 healthy volunteers (8 males, 8 females), early 20's
- Pain related descriptors: excruciating, cramping, drilling
- Positive: warming, refreshing, elating
- Negative: disgusting, smelly, dirty

Words presented for 4 seconds and subjects imagined a situation or sensation associated with each word during MRI imaging

RESULTS: Pain-related (and negative) words activate regions of the brain associated with pain processing. Increased with pain relevence

CONCLUSION: Attentional and emotional states, expectation, and hypnotic suggestion can change pain perception in humans

Predictors of pain associated with routine procedures performed in a general dental practice

Tickle, et al. Com Dent Oral Epidem, 2012

- 451 dental patients self-reported pain experience during the procedure (LA, scaling, RSD, RCT, ext) and one day following procedure
- 75% reported no pain during procedure
- Higher pain scores with ext and RCT
- 15% reported next day pain (ext) – no difference by age/gender

Pain predictors during procedure:

- Pre-op dental anxiety, LA use, extractions

Pain predictors day after:

- Pain during procedure, LA use

Level of pain at start of procedure is predictive of subsequent pain regardless of procedure and pain relief

Findings suggest: Pre-op assessment of anxiety and appropriate management of anxious patient are key requirements for high quality dental care

Anxiety Control

Sedative/Anxiolytic

Indications?

- Fear
- Anxiety
- Medically compromised, especially patients with cardiovascular disease who are fearful or anxious

When to administer?

- 1 hour before appointment
- *Possibly* the night before to ensure a good night's rest

Suggested Anxiolytic Medications

- Short-Acting Benzodiazepines
  - Triazolam (Halcion) 0.125-0.250 mg
    - Onset of action 30 minutes
    - Duration 6-7 hours
- Phenothiazine (with antihistaminic properties)
  - Hydroxyzine (Vistaril) 50-100 mg
    - Onset of action 15-30 minutes
    - Duration of action 4-6 hours

Sedation Guidelines (ADA)

"Minimal sedation" [for adults]

- Minimally depressed level of consciousness produced by a pharmacologic agent
- Patient can independently and continuously maintain an airway
- Patient can respond *normally* to tactile stimulation and verbal command

- Appropriate dosing of a *single* enteral drug is no more than the maximum recommended dose prescribed for unmonitored home use
- Not indicated for use in children 12 and under

Nitrous oxide/oxygen may be used in combo with a single enteral drug for minimal sedation

Preventive Preoperative Analgesics

Analgesics classified as:

- Opioids (narcotics)
- Non-opioids (non-narcotics)
  - Nonsteroidal anti-inflammatory drugs (NSAIDs)
  - Acetaminophen (APAP)

Both classes known to act centrally and peripherally

Malmberg, et al. Science, 1992 ; Graham, et al. Amer J of Therap, 2005

Review Article: Single dose oral analgesics for acute postoperative pain in adults

Moore, et al. The Cochran Lib, 2011

- Overview included 35 separate reviews of 38 different oral analgesics
- High quality standardized placebo trials - randomized, double-blind
- How effective at relieving moderate to severe pain following 3rd molar surgery
- 350 individual studies that involved 45,000 participants (29,000 dental)
- Number needed to treat (NNT) to achieve at least 50% pain relief over 4-6 hours following a single dose of analgesic compared with placebo

Summary Points

1. No drug produced high levels of pain relief in all participants
   - Best drug = good relief in 70% of participants
   - Worst drug = only 30% relief
   - Period of pain relief varied from 2 to 20 hours
2. 5-15% placebo for dental conditions
3. Most effective drugs fail to deliver good analgesia in more than half the patients treated
4. Drugs with longer durations of action had lower NNT (better)
   - Implies that extended release more effective
5. No difference in adverse event rates between active and placebo groups

NSAIDs – safe and effective (Ibuprofen is Prototype)

Contraindications

- Active ulcer/GI erosive disorder (IBS, Crohn's)
- Anticoagulant therapy (warfarin, plavix)
- Pregnant (3rd trimester)
- NSAID or ASA intolerent
- Bleeding disorders (von Willebrand disease)
- Current kidney problems
- Increases serum levels of methotrexate, lithium

Coxibs v NSAIDs (Review)

Wickerts, et al. Minerva Anestes, 2011

- Low risk: GI side effects, gastritis, ulcerations and GI bleeding associated with short-term (<1 week) post-op pain treatment
- Albeit, Coxibs have less adverse events in ST
- All NSAIDs carry a potential CV risk
- ST use of either has min impact on bone healing
- Both are opiate sparing after surgery
- Coxibs have lower incidence of hypersensitivity
- Coxibs have anti-tumor effects

Acetaminophen - hepatotoxicity

- Accumulation of active metabolite (NAPQI)
  → direct, widespread damage to liver cells
- Toxicity in adults = single dose >10 grams or 200mg/kg (91mg/lb)

Dart, et al. Clinic Toxicol, 2006
Max daily dose (healthy) = 4 grams/day
USDHHS FDA (CDER), 2012
Suspected chronic alcoholism = 2 grams/day Whitcomb, et al. JAMA, 1994

Preoperative Analgesic Strategies

Prescribe NSAIDs / acetaminophen one hour before the procedure for preemptive analgesia

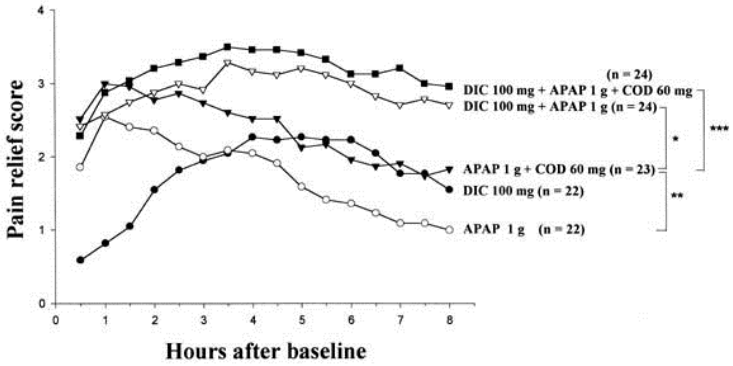
- Lower postoperative pain/swelling
- Decrease opiate consumption
- Near 70% success rate

Combining diclofenac with acetaminophen or acetaminophen-codeine after oral surgery: a randomized, double-blind single- dose study

Breivek, et al. Clin Pharm Therap, 1999

120 patients with moderate to severe pain following surgical removal of asymptomatic 3rd molars under local anesthetic

- Mean pain intensity over 8 hours
- Mean pain relief score over time
- % of patients taking rescue medications



Additional Preoperative Approaches

Glucocorticoids

- Not indicated for routine use
- Anticipate moderate to severe inflammation
- Receptors in every cell/organ of body
- Receptor-steroid complex → acts as transcription factor to change gene expression
- Onset of anti-inflammatory effects not for several hours (initiate oral dosing the day before)

Glucocorticoid single dose lasts ≈ 24 hours

- Post-op edema peaks 48-72 hours post surgery
- Maintain steroid dose 3-5 days
- Adverse effects very rare <5 days
- Mild HPA suppression

For max effect, use dose equivalent to 300mg cortisol (normal is 15-25mg/day)
Medrol Dose Pack (Methylprednisolone): 4mg x 21 blister pack

Preoperative

Preoperative infiltration of long-acting bupivacaine (0.5%, 1:200,000 epi) in vestibule significantly lessened Fos expression (marker of sensitization) in trigeminal nucleus caudalis → decreased postoperative pain

Locker-Claus, et al. JOE, 2005

Intraoperative Guidelines

Preventative Intraoperative Analgesia

Nitrous oxide

- N_2O (30-50%) significantly increased success rate of IANB compared with room air/O_2

Stanley, et al. JOE, 2012

Obtain profound local anesthesia

- IANB fails 44-86% of the time with symptomatic irreversible pulpitis

Kreimer, et al. JOE 2012

Cause of the "Hot Tooth"

Pulpal inflammation induces ↑ activity of NaV1.9 channels on 1° afferent nociceptors → allodynia and hyperalgesia

NaV1.9 channels are 4 times more resistant to the effects of lidocaine
Nav1.9 channels inactivate slowly and incompletely
Eugenol can block lidocaine resistant Na^+ channels
Associated with TRPV1 receptor sensitization

Managing the "Hot Tooth"

- Supplemental injection techniques: Used when the usual blocks or infiltration do not provide adequate anesthesia; this is most commonly encountered in mandibular molars
  - intraligamental (PDL)
  - intraseptal
  - mylohyoid
  - intrapulpal
  - *intraosseous*
- Inflammation/infection (alters pH and Na^+ channel) decreases effectiveness of local anesthetic
- Use regional block away from area of infection/inflammation

<u>Intraligamental</u> (PDL) Injection

- 27 ga short needle aligned along the
- long axis of tooth
- Penetrate to depth of sulcus (mesial *or* distal root of single-rooted teeth;
- mesial *and* distal for multi-rooted teeth)
- Administer 0.2ml (thickness of rubber stopper) over 20 seconds under pressure
- Anesthetic fluid spreads primarily along the outer surface of the alveolar plate and under the periosteum, moving into crestal marrow spaces along vascular channels
- Onset in ≈ 30 seconds
- 75% successful with re-injection at 95%

Walton R, et al. J Am Dent Assoc, 1981; Cohen H, et al. J Endod, 1993

<u>Intraseptal Injection</u>: (Similar to PDL injection)

- 27 ga short needle
- Injection site in center of interdental papilla mesial *and* distal adjacent to tooth to be treated
- Advance needle until bone contacted, then push slightly deeper (1-2 mm) into bone
- Inject 0.2-0.4 ml over 20 seconds with significant resistance to deposition of solution and notice blanching to tissue
- Onset in ≈ 30 seconds

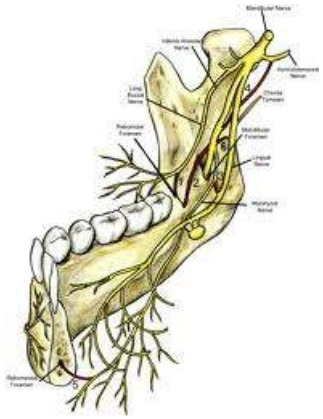
<u>Mylohyoid Injection</u>

- 27 ga long needle directed toward the apex of the next distal tooth lingual aspect of mandibular ridge
- Penetrate about 1 cm
- not to bone
- Deposit about 1/3 carpule
- Mylohyoid n. innervates mandibular molars ≈ 60% of the time

Haveman er al. J Prosthetics Dent, 1976

- No significant increase of pulpal anesthesia of IANB

Clark S, et al. OOO, 1999



<u>Intrapulpal Injection</u>

- 30 ga short needle (may need to be bent)
- Enter chamber through small opening and wedge needle
- Deposit solution under pressure (0.5-1.0 ml) with resistance to flow of the solution

- Momentary pain followed by immediate relief of pain within ≈ 5 seconds

Intraosseous

- Hypo, Stabident, X-Tip
- Make small penetration through bone interproximal to tooth
- Remove penetrator and replace with needle
- Deposit 1cc of anesthetic under pressure
- Plasma levels same as infiltration, but ↑HR during and 2 min after

Wood, et al. JOE, 2005

Intraosseous injection using 4% articaine with 1:100,000 epi is successful 86% of the time in achieving pulpal anesthesia in mandibular posterior teeth with irreversible pulpitis

Bigley et al. JOE, 2006

Supplemental infiltration with articaine along with IANB decreases pain of irreversible pulpitis 58%.

Aggarwal, et al. JOE 2011
Mathews, et.al, JEndod, 2009

Intraoperatively
One for the road…

- As post-op pain is anticipated, consider giving an injection of a long-acting bupivacaine before dismissing patient

Postoperative Guidelines

- Continue the NSAID/acetaminophen that was initiated preoperatively

Post-operative Pain Relief

www.uky.edu/~pjsamm1/Directions for Pain Relief

Take the following medication exactly as scheduled for the next **___ days**.

Ibuprofen 200 mg (**2, 3, 4** tablets)
+**PLUS**+
Tylenol Extra Strength 500 mg (**1, 2** tablets)

A total of **__** tablets **with food and 20 oz water** at:

__ am, **__** pm, **__** pm, and **__** pm

Management of pain may require the use of opiates to achieve adequate pain control
In selecting a specific opioid analgesic, achievement of effective pain relief should guide decision

- Has been suggested that partial agonist-antagonist, pentazocine (sched IV), less abuse potential – but not as effective and has unpleasant psychomimetic adverse effects
- Use of tramadol (sched IV in Ark, KY) for acute pain questionable – can initiate physical dependency and is a weak mu equivalent
- Propoxyphene (sched IV)– weak mu agonist – has low analgesic efficacy and some abuse potential

Use opioid/non-opioid compound to treat moderate to severe pain

Administration of opioids should be **clock regulated** – not PRN

- Prevents delays in receiving medication
- Provides timely & effective pain relief
- Dependent on time and less on symptoms

Persistent Pain

Predictors

- Severity of preoperative pain

- Other chronic pre-op pain
- Nerve injury → neuropathic pain
- Psychosocial factors
- Severity of postoperative pain
- Specific procedure (RCT, dental alveolar)
- Extent of surgery

Literature strongly suggests that following a multimodal approach significantly reduce the risk of postoperative persistent pain

Persistent tooth pain following RCT is 5.3%, but 64% of these are non-odontogenic pain not requiring further endodontic therapy

- Referred musculoskeletal pain
- Neuropathic pain
- Headache disorder presenting in dent-alv area
- Sinus, salivary gland, angina, cancers

Addiction is a debilitating and chronic illness

- When understood as a medical disorder, it can be addressed in the same manner as any other medical condition – with respectful, but matter of fact, concern
- Use an open, non-judgmental approach with the patient - don't just express concerns among your colleagues

Individuals in recovery are in remission

Patients with addiction disorders often fear that awareness of their problem will *negatively* affect the manner in which health care providers approach their case

- 8-10% of the population are problem drinkers or alcoholics
- 19.7 million abuse illicit drugs

Because of this prevalence of drug abuse, there is increase likelihood that the clinician will need to manage acute pain in the recovering drug abuser

Patients with addiction to alcohol and other drugs are at special risk for undue suffering due to inadequate or undermanagement of their pain.

Possible reasons:

- Limited knowledge of appropriate pain management
- Fear of initiating a relapse
- Lack of knowledge about addiction
- Societal prejudices against addiction
- Fear of regulatory sanctions related to opioid use

When managing acute pain in individuals with substance-use disorders, awareness of the risk of under-treatment is imperative

Unrelieved or unremitting pain is a significant risk factor for relapse creating craving, anxiety, frustration, anger (negative emotional state) that feed addiction

Therefore, pain control in the patient recovering from the disease of addiction should be adequate and appropriate to their perception of the severity of the noxious stimulus

Preoperative Guidelines

Determine your patient's status in the recovery process through a pretreatment interview

- Use of a support group (AA, NA)
- Involvement and success in 12-step program
- Frequency of contact with their sponsor

A firm foundation in recovery will reduce the risk of relapse

Conversely, abstaining without the support of a recovery program, or if just beginning recovery process, the overall risk of relapse is greater

Openly discuss patient's concerns about the surgical procedure and postoperative pain management
Reassurance that their disease of addiction will not be a deterrent to adequate pain relief
Effective pain management is not likely to lead to relapse
Encourage the patient to intensify his or her involvement in a recovery program

- Attending more meetings
- Share with the recovery group plans for surgery
- More frequent contact with sponsor
- If possible, include the patient's sponsor or trusted group member in the pretreatment interview. Accompany the patient to the appointment for moral and spiritual support

Involve the patient in the decision process of medication choices, dosing, and scheduling

- Ask which pain medications have been effective in the past
- Reassure the patient that he or she will receive adequate pain relief
- Provides patient with a sense of control and helps allay anxiety about inadequate pain treatment

Discuss the risk of relapse when using mood-altering medications
Use a trusted other to dispense each dose of potentially intoxicating medication
If the patient is not a member of a support group, consult with the patient's primary care physician or addiction medicine specialist

Use Preoperative Analgesia

- Prescribe NSAIDs / acetaminophen one hour before the procedure
  - Lower postoperative pain
  - Decrease opiate consumption
- Consider glucocorticoids
- Infiltration of bupivacaine (0.5%, 1:200,000 epi)
- Conscious sedation or general anesthesia
  - Consider ketamine or dextromethorophan

Potential hepatotoxity with acetominophen use in alcoholic patients

- Questionable concern with active alcohol abuse
- No evidence of liver impairment with abstinence (≤ 4gm/day)

Intraoperative Guidelines
Encourage non-pharmacologic relaxation techniques for stress and anxiety control

- Biofeedback, imagery, meditation, soothing music through personal earphones

Opinions differ among addictionologists regarding premedication for stress and anxiety control in recovering patients. Sedatives and anxiolytics should be avoided to prevent euphoric state vs.use as adjunct to resisting relapse

Most recovering patients aware of mood-altering and abuse potential associated with drugs used for premedication and may refuse them for this reason.

Obtain profound local anesthesia

- Anecdotal reports of difficulty in achieving adequate anesthesia in recovering alcoholics are common
- Extended periods of recovery respond as normal population
- Higher than normal doses of LA attributed to anxiety or depression

The use of nitrous oxide for anxiolysis may be considered

- Opioid-like action via the DA mesolimbic system
- Risk for recovering patient associated with mood-altering properties

Assuring the patient throughout the procedure is beneficial, as is a slower, more gentle approach to help reduce postoperative iatrogenic pain.
Possible use of long-acting anesthetic (e.g., bupivicaine) directly following the procedure

- Prolonged anesthesia will aid in an improved psychological state by reducing post-operative anxiety and stress

Postoperative Guidelines

- Continue the NSAID/acetaminophen that was initiated preemptively
- Post-op pain management may require the use of opioids to achieve adequate pain control
    - Caution with pentazocine, tramadol, and propoxyphene
    - Use opioid/non-opioid compounds

Alcoholic patient may be taking relapse prevention medication

- Antabuse (disulfiram)
- Naltrexone (ReVia) – do not prescribe opiates; consult physician if need ops.
- Acamprosate – lowers neural excitab.
- Antiepileptic medications
- SSRIs

Administration of opioids should be **clock regulated** – not PRN

- Prevents delays in receiving medication
- Provides timely & effective pain relief
- Helps avoid pain and drug craving
- Dependent on time, and less on symptoms

Persons in recovery commonly require higher than usual and more frequent doses of analgesics

- If drug seeking behavior is evident or more than prescribed amounts are taken – consider **pseudoaddiction**
- Dosing should be appropriately adjusted for adequate pain control
- After acute post-op pain is resolved, if opioid used for 48-72 hours, it can be abruptly stopped
- Continue clock regulated NSAIDS
- Dispose of any unused opioid and keep accurate records
- If pain persists beyond appropriate healing period, search for underlying cause (abscess, osteitis)
- If suspect physical dependency and pain from W/D, reinitiate opioid via trusted other at previous dosing and contact physician to taper medication
- Intensify involvement in recovery program to prevent relapse

Acute Pain Management with Preexisting Opioid Dependency

<u>Four Misconceptions</u>

1. Maintenance opioid (methadone or buprenorphine) provides analgesia
    - Tolerance and hyperalgesia. Analgesia = 4-8 h, W/D = 24-48 h
2. Use of opioids for analgesia may cause addiction relapse
    - Stress from unrelieved pain more likely to trigger relapse than adequate analgesia
3. Additive effects of opioid analgesics and OAT may cause respiratory and CNS depression
    - Never clinically been demonstrated. Tolerance to resp/CNS depress is rapid and reliable
4. Reporting pain may be manipulation to obtain opioid meds, or drug seeking, because of opioid addiction
    - Reports of acute pain with objective findings less likely to be manipulative than vague chronic complaints
    - Psuedoaddiction

Alford, et al. Ann Intern Med, 2006

Acute Pain Management with Preexisting Opioid Dependency

- Physically dependent on opioid (prescribed for pain or for addiction or dependent on street opioids) must have their baseline opioid requirements met plus additional opioids for acute pain treatment
- Aggressively treat the pain - don't under treat
    - Makes subsequent pain management more difficult

Wesson, et al. J Pain Symptom Manage, 1993

Recommendations

- Verify with patient's provider or program
- Multimodal approach
- Provide a different opioid – short-acting
    - Usually higher doses, shorter intervals
- Clock regulated
- Patient controlled analgesia → ↓ anxiety
- Avoid pentazocine (displaces maintenance opioid) → W/D

Alford, et al. Ann Intern Med, 2006

Suboxone (2 mg - 0.5 mg and 8 mg - 2 mg)

Buprenorphine (4-24 mg/day sublingually)
Partial mu agonist and kappa antagonist
0.3 mg = 10 mg morphine (can displace full opioid agonist analgesics)
37 hr. elimination half-life (slow dissociation from μ)

Naloxone
Mu antagonist (1.1 hr. elimination half-life)
4:1 ratio buprenorphine to naloxone

Treatment of Acute Pain in Patient Receiving Buprenorphine

- Physicians Clinical Support System (PCSS), 2005
- USDHHS, Clinical Guideline, TIP 40, pp. 75-76
    - Consult with prescribing physician or program
    - Single doses of opioid analgesics (e.g. post dental extraction) may be effective even if bup/nx has not been discontinued. However, patients should be cautioned to avoid bup/nx dosing during period that opioid analgesic is likely to be occupying receptors.
      or
    - D/C bup/nx 24-36 h before anticipated need for analgesia
    - Multimodal analgesia
    - Following surgery, provide adequate opioid analgesia – set amount, clock regulated
    - Patient's physician will re-induce bup/nx

Urgent Care

- Same guidelines apply
- Involve patient's sponsor post-op
- Attempt to consult Addiction Medicine Specialist

How to Prevent Prescription, OTC and Other Drug Health and Impairment Problems

What can we do?

- ***Know the Risk Factors***
- ***Adopt a Risk/Resiliency Approach***
- ***Look for Early Signs and Symptoms***
- ***Give Prevention Messages***

Resiliency/Protective Factors

Individual Protective Factors

A positive temperament, manner of thinking, acting and behaving
- A sense of purpose and future
- Healthy expectations and a positive outlook

A belief in one's ability to control what happens and to adapt to change

A positive social orientation
- Engaging in activities that contribute to healthy personal development
- Having an opportunity to contribute and being seen as a resource

Accepting rules and community values

Identifying with school and choosing friends who do not use drugs

Family Protective Factors

A relationship with a caring adult role model
- Unity, warmth, and attachment between parents and children

Parental supervision – support and monitor activities, practice consistent discipline

Supportive networks and social bonds among parents and children

Environmental Protective Factors

Positive emotional support by friends, neighbors, and elders

School attitudes, beliefs, and standards against substance use

Schools characterized to academic achievement and students who are committed to that goal

Community norms and public policies that support non-use

Early Signs and Symptoms of Teen Use/Abuse

Behavioral changes – erratic behavior

Pay attention to child's attitude
- Argumentative, hostile

Disregard for household rules, curfews

Isolating and withdrawing from family and friends

Change in friends, deteriorating relationships

Evidence of lying or secrecy

Decline in academic performance

Decreased interest in sports, activities

Changes in weight, eating/sleeping patterns

Depression and fatigue

Missing household money, medication or alcohol

Bloodshot eyes or consistently runny nose, coughing, bronchitis
- Use of incense or deodorizers, eye drops, odors on clothing, hair or in bedroom

Dizzy and trouble walking

Difficulty in remembering recent events

Carelessness with grooming

Drug paraphernalia
- Clothing, posters, jewelry,… promoting drug use

PREVENTION MESSAGES*

Parents
Adolescents
Women
Pregnant women
Adults
Older Adults

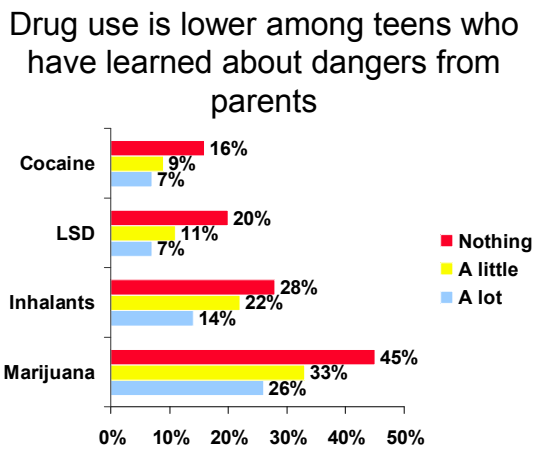
* Adapted from *ATOD Problem Prevention Curriculum*, Medical Specialists CSAP Training System

General Approach to Prevention Messages:

- Support healthy lifestyle choices for the individual and the family: doing well in school, getting a job, and being productive. Encourage good health habits (e.g., eating a healthy low fat diet, exercising, stress reduction, getting enough sleep, relaxing, bonding activities with family and friends.
- Incorporate age and gender-appropriate prevention activities wherever possible.
- Express concern about health problems and life consequences related to alcohol, tobacco and other drug **(ATOD)** misuse and abuse.
- Allow patient to describe his/her understanding and/or concerns about problems related to **ATOD** misuse and abuse.
- Correct misunderstandings (non-judgmental) and establish a partnership of trust

For Parents:

- Talk to parents about the ***resiliency factors*** and encourage them to support their adolescents in school performance, setting goals, positive expectations, structuring free time, evaluating peer groups, build self-esteem, become involved in community service and church, enhance social skills, and decision-making ability.
- Educate parents about the risks of ATOD misuse and abuse in their children: impairment risks – judgment problems, drinking/driving, increased risks for accidents, risky sexual practices; health risks and life consequences.



What to tell kids:

- ***High potency***
  - ***—altered state – no longer in control***
  - ***—disinhibitory effect***
- ***Adulterants***
- ***Unpredictable effects***
- ***Problems in sporting activities***
  - ***—decreased coordination and performance ability***
  - ***—reduced exercise tolerance***
- ***High risks for:***
  - ***—impairment and accidents***
  - ***—health problems***
  - ***—addiction***
- ***Effects on the mind and emotions***

For Parents con't:

- Educate parents regarding there own use as a risk factor for future ATOD use in their children. This could be an opportunity to present the Guidelines on Alcohol Consumption.
- Caution about use of tobacco around children and the dangers of secondary smoke inhalation.

Tips for Parents

- *Be a good listener*
- *Give clear no-use messages about alcohol and other drugs*
- *Help your child deal with peer pressure to use drugs*
- *Get to know your child's friends and parents*
- *Monitor your child's whereabouts*
- *Supervise teen activities*
- *Maintain an open and honest dialogue with your child*

Past Month Use vs. Parents' Feelings About Substance Abuse

Past Month Substance Use	Strongly Disapprove	Somewhat Disapprove or Neither Approve nor Disapprove
Marijuana	4.9%	26.9%
Cigarettes	8.3%	45.3%
Alcohol	13.0%	40.0%

SAMHSA 2002 data

For Adolescents

- Talk to adolescents about their intentions and attitudes, their friends and peer pressure: "Do any of your friends use alcohol or other drugs?" "Have you ever been tempted to try alcohol or drugs with your friends?" (Role-play situations of refusing to use ATOD.) *Take the time with parents to discuss the importance of role-playing drug refusal situation with their adolescents.*
- Educate adolescents about the risks of ATOD use such as:
  - Drinking and drug use affects your judgment and is associated with serious incidents (e.g. motor vehicle, drowning, boating accidents), illegal acts (e.g. shoplifting) and high-risk sexual behavior (e.g. sexually transmitted diseases and AIDS).
  - The number one cause of death in teens is alcohol-related crashes. Teens should not ride in an automobile with a driver who has been drinking or using drugs. (Contingency plans should be made for transportation home.)
  - If you have a family member who has an ATOD problem, you may be at greater risk yourself and should consider not using alcohol or drugs.
  - There is no safe limit for tobacco use. Even chewing tobacco and snuff can cause serious health problems including cancer of the mouth, throat, esophagus...
  - Not everyone drinks and does drugs. Many young people do not use mood-altering substances. Many youth take pride in personal responsibility. ***"Everyone isn't doing it."*** Many misleading and deceptive advertisements make smoking and drinking look glamorous, macho, successful, or athletic.

For Women:

- Support healthy lifestyle choices.
- Present information about sensible limits. Present the Guidelines for Alcohol Consumption.
- Educate regarding increased risk. Counsel about the effect of ATOD use on fertility, (e.g. fetal alcohol syndrome and effects), risk of osteoporosis, breast cancer, and

liver failure at lower doses than men. Counsel about slower rates of alcohol metabolism than men, higher peak blood alcohol levels during the menstrual cycle and greater risk for impairment.
- Women may be more susceptible to high-risk sexual behaviors when they are under the influence of alcohol and other drugs, which may result in an unwanted pregnancy or a sexually transmitted disease including AIDS.

For All Adults:

- Support healthy lifestyle choices. Encourage good health habits and achieving stress reduction through exercise and other creative activities.
- Reinforce sensible limits. Present the Guidelines for Alcohol Consumption.
- Educate about health and impairment risks associated with increased use or use in high risk situations (e.g. driving, operating machinery,...).
- If the patient is an adult child of an alcoholic tell them that they are at greater risk for alcohol problems.
- Inform patient about medication interactions between alcohol and other drugs and to avoid concurrent use.
- Warn about the high risk of hepatitis and HIV/AIDS, with use of IV drugs.
- Educate that the use of alcohol and other drugs reduces people's ability to use safe sexual practices.
- If a patient is concerned about his/her spouse's (or other family member's) alcohol or drug use offer to make a referral for help.

For Older Adults:

- Support healthy lifestyle choices. Stress positive choices.
- Inform patient about changes in physiology with aging (e.g. decrease in water content of the body, slower metabolism) that can result in increased health consequences associated with mild to moderate regular use of alcohol (e.g., falls, confusion, memory problems, insomnia, depression, etc.).
- Inform patient about medication interactions between alcohol, OTC or prescription drugs and to avoid concurrent use.
- There are benefits to smoking cessation for all patients regardless of their age or number of years they have been smoking.

Additional Reading, References and Web Sites

U.S. 2010 Dietary Guidelines on Alcohol Consumption: http://www.uky.edu/~pjsamm1/Alcohol Guidelines

Drug use Health History Screening: http://www.uky.edu/~pjsamm1/Screening Que

Prevention of Alcohol and Other Drug Problems *What We Can Do!* A Program for Parents: http://www.uky.edu/~pjsamm1/PtPrevProg.ppt

Drug Information Web Sites:
www.drugfree.org – Partnership for a Drug Free America: Support & Resources for Parents Dealing with Teen Drug and Alcohol Abuse; Prevention tips, intervention tools, treatment referrals, and recovery resources
www.samhsa.gov - SAMHSA's, Substance Abuse Mental Health Service Administration, mission is to reduce the impact of substance abuse and mental illness on America's communities.
www.whitehouse.gov/ondcp/2013-national-drug-control-strategy – Office of National Drug Control Policy; portal to information on our federal government's – and the current presidential administration's – official policies, priorities and objectives related to substance abuse – enforcement, prevention, treatment and trends
www.casacolumbia.org The National Center on Addiction and Substance Abuse at Columbia University has a lot of excellent information. This report may be of interest: *"Family Matters: Substance Abuse and The American Family"*
The CASA report: *"Under the Counter: The Diversion and Abuse of Controlled Prescription Drugs in the United States"* 2005 publication can be obtained off the National Center on Addiction and Substance Abuse at Columbia University Web Site: http://www.casacolumbia.org/

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National Institute of Drug Abuse Web site: http://www.clubdrugs.org/ Excellent information on Club Drugs including: Alcohol, LSD (Acid), MDMA (Ecstasy), GHB, GBL, Ketamine (Special-K), Fentanyl, Rohypnol, amphetamines and methamphetamine.

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