

Prescription Drug Abuse

Thomas E. Freese, PhD

Pacific Southwest Addiction Technology Transfer Center
UCLA Integrated Substance Abuse Programs
UCLA David Geffen School of Medicine, Dept. of Psychiatry

Prescription (Rx) Drug Abuse: What's the Problem?



What is Misuse?

- Misuse = “Non-medical use” or any use that is outside of a medically prescribed regimen
- Examples can include:
 - Taking for psychoactive “high” effects
 - Taking in extreme doses
 - Mixing pills
 - Using with alcohol or other illicit substances
 - Obtaining from non-medical sources



Prescription Drugs are Easy to Obtain

- Easily obtainable from family, friends, and health care professionals (doctors, dentists, pharmacists)
- Medicine cabinets are likely source
- Internet – online pharmacies
 - Credit card number + access to computer
 - No prescription necessary
 - Inappropriate identify verification
- Unsafe storage and improper disposal

SOURCE: ATTC National Office, CONNECT to Fight Prescription Drug Abuse.

Methods of Prescription Diversion: Four Major Pathways

- Pharmaceuticals manufactured lawfully, but stolen during distribution
- Medications obtained inappropriately from legitimate end-users
- Fraudulent prescriptions written on stolen prescribing pads
- “Doctor shopping” (e.g., a method where individuals see several doctors in an attempt to obtain multiple prescriptions without revealing what they are doing).

SOURCE: ATTC National Office, CONNECT to Fight Prescription Drug Abuse.

The Prescription Drug Epidemic is Unique in Some Ways

- Prescription drugs are not inherently bad
- When used appropriately, they are safe and vitally needed
- Threat comes from misuse, abuse, and diversion
- Just because prescription drugs are legal and are prescribed by an MD, they are not necessarily safer than illicit substances.

Factors Fueling the Epidemic

- Increase in legitimate commercial production and distribution of pharmaceuticals
- Increase in marketing to physicians and public re: pain medications
- Physicians have become more willing to prescribe medications, esp. for pain management
- 150% increase in prescriptions written for controlled drugs

SOURCE: ATTC National Office, CONNECT to Fight Prescription Drug Abuse.

The Fateful Triangle: Pain and Prescription Opioid Abuse

- Under treatment of pain
- Increasing availability of opioid analgesics
- Increased production and distribution
- Increase in the number of prescriptions filled
- Increased internet availability
- Increase in abuse of prescription opioids

Twin Epidemics: Prescription Drug Abuse and Unrelieved Pain

- 50 million Americans live with chronic pain
- An additional 25 million live with acute pain
- Mismanagement of pain has far reaching societal consequences.
- In fighting illicit misuse, must not hinder patients' access to beneficial medical treatments.
- Prescription drugs are potent and must be monitored and managed appropriately (N. Katz, Tufts University).

SOURCE: ATTC National Office, CONNECT to Fight Prescription Drug Abuse.

Nature of the Link Between Increasing Opioid Prescribing for Non-cancer Pain and Abuse

- Chronic use of prescription opioids for NCPC is **much higher** and **growing faster** in patients with MH and SUDs than in those without these diagnoses
- Clinicians should monitor the use of prescription opioids in these vulnerable groups to determine whether opioids are **substituting for** or **interfering with** appropriate MH and substance abuse treatment

Diagnosing Addiction

Opioid-maintained Pain Patients

- No validated diagnostic criteria for addiction in pain patients; only “at risk” behaviors:
 - Control
 - Compulsive use
 - Continue use despite harm
 - Craving
- Identifying “at risk” patients:
 - History
 - Screening instruments
 - Behavioral checklists
 - Therapeutic maneuver



Opioid Risk Tool (ORT)

Mark each box that applies:

Female Male

1. Family history of substance abuse

Alcohol ☐ 1 ☐ 3

Illegal drugs ☐ 2 ☐ 3

Prescription drugs ☐ 4 ☐ 4

2. Personal history of substance abuse

Alcohol ☐ 3 ☐ 3

Illegal drugs ☐ 4 ☐ 4

Prescription drugs ☐ 5 ☐ 5

3. Age (mark box if between 16-45 years) ☐ 1 ☐ 1

4. History of preadolescent sexual abuse ☐ 3 ☐ 0

5. Psychological disease

ADO, OCD, bipolar, schizophrenia ☐ 2 ☐ 2

Depression ☐ 1 ☐ 1

Scoring totals: _____ _____

Administration

- On initial visit
- Prior to opioid therapy

Scoring

- 0-3: low risk (6%)
- 4-7: moderate risk (28%)
- ≥ 8 : high risk (> 90%)

Aberrant Drug-Taking Behaviors

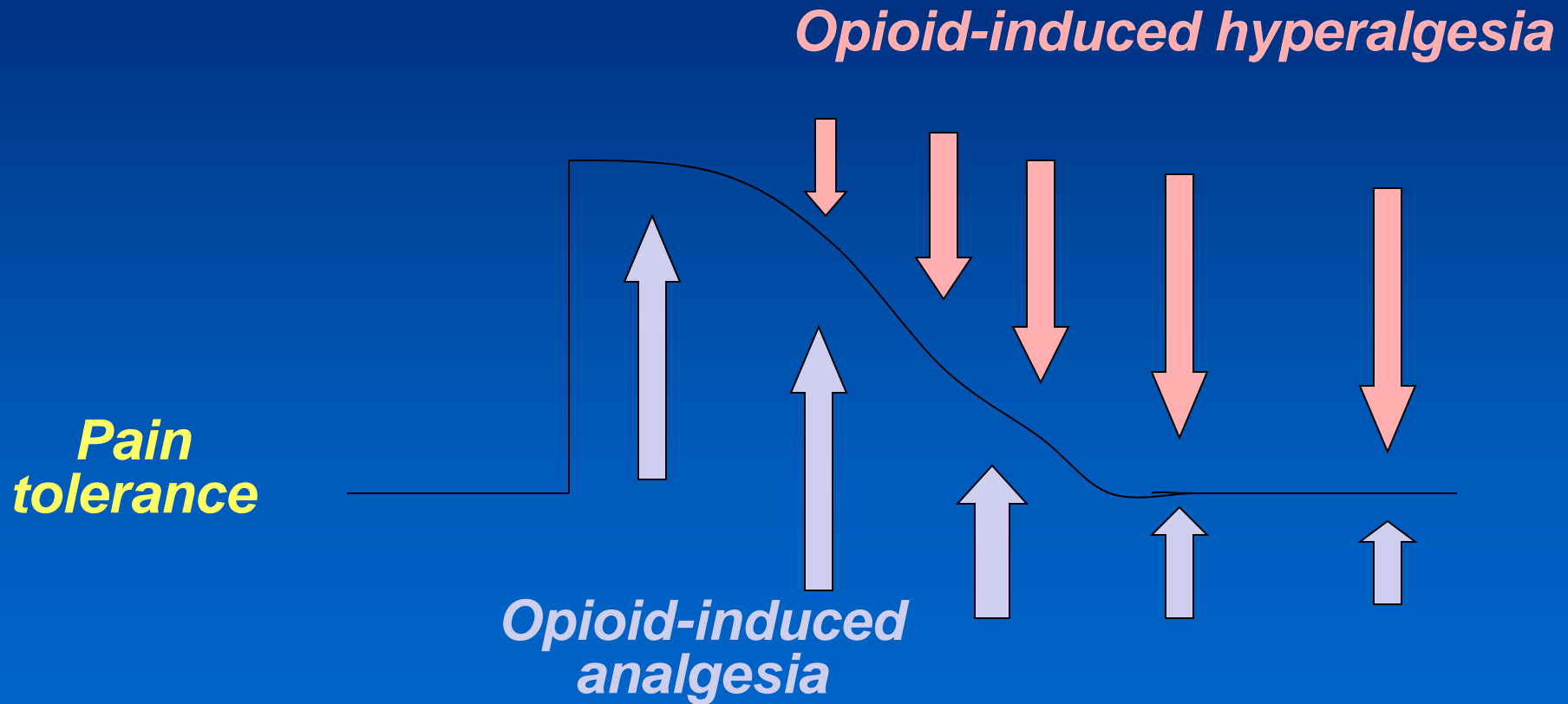
Probably more predictive

- Selling prescription drugs
- Prescription forgery
- Stealing or borrowing another patient's drugs
- Injecting oral formulation
- Obtaining prescription drugs from non-medical sources
- Concurrent abuse of related illicit drugs
- Multiple unsanctioned dose ↑ s
- Recurrent prescription losses

Probably less predictive

- Aggressive complaining about need for higher dose
- Drug hoarding during periods of reduced symptoms
- Requesting specific drugs
- Acquisition of similar drugs from other medical sources
- Unsanctioned dose escalation 1 – 2 times
- Unapproved use of the drug to treat another symptom
- Reporting psychic effects not intended by the clinician

Hyperalgesia (Increased sensitivity to pain) can be opioid induced



Commonly Misused Rx Drugs

Classified in 3 classes

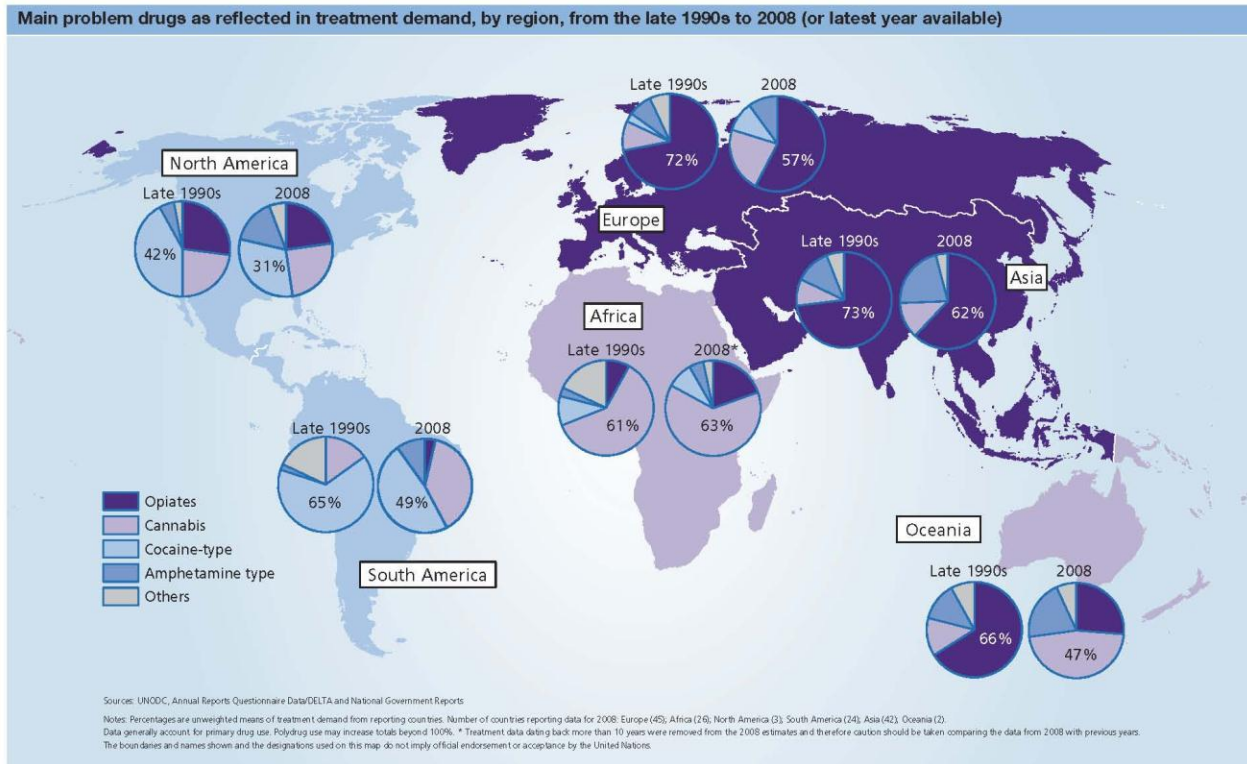
- **Opiates: pain-killers**
 - Ex) Vicodin, OxyContin, Tylenol Codeine
- **CNS Depressants (Sedatives/Tranquilizers):**
treat anxiety and sleep disorders
 - Ex) Xanax, Ativan, Valium, Soma
- **Stimulants: ADHD, weight loss**
 - Ex) Adderall, Ritalin, Concerta, Dexedrine, Fastin



A Global Look at Drug Abuse: World Drug Report, 2010

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World Drug Report 2010

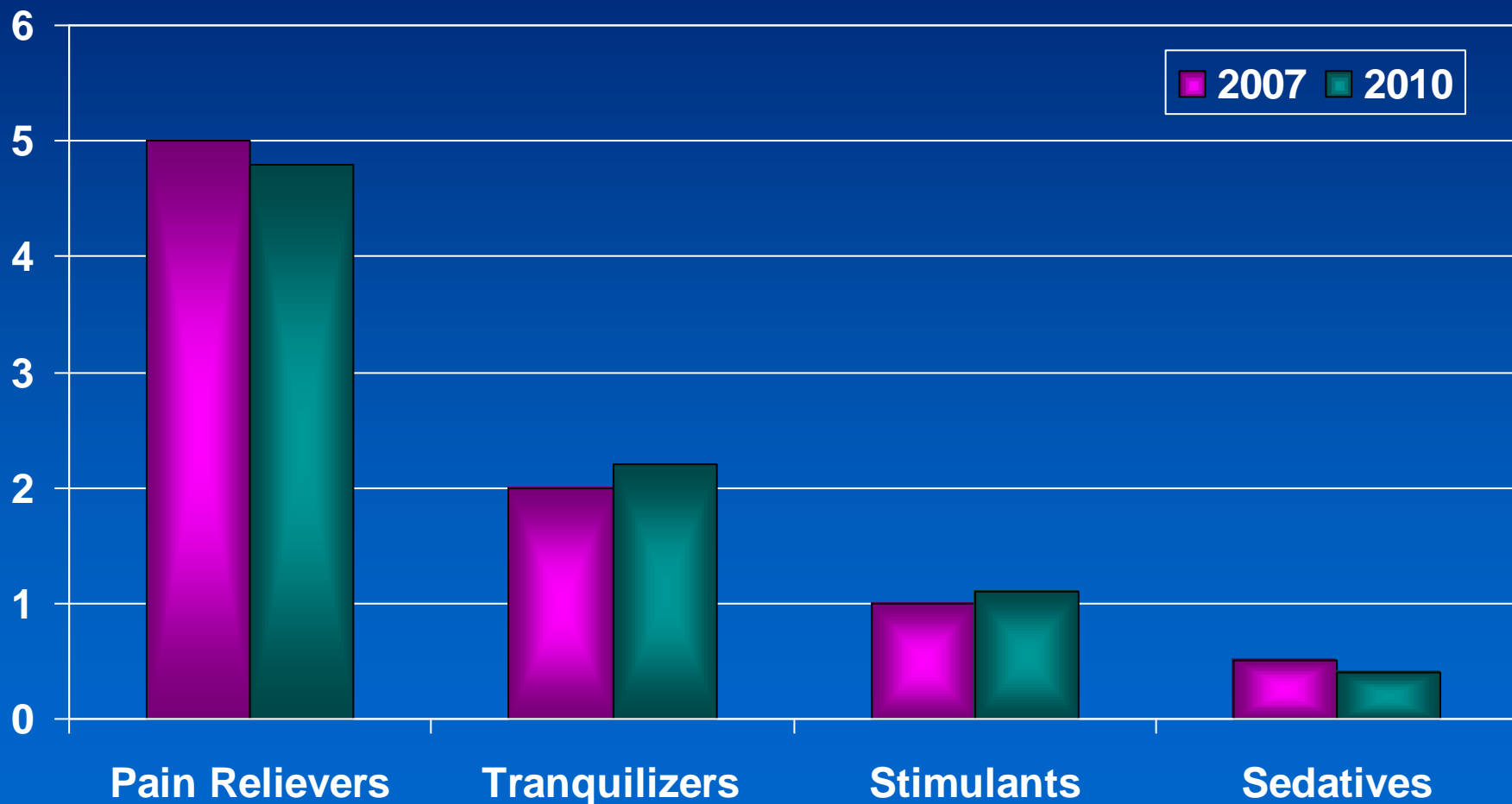


SOURCE: UNODC, World Drug Report, 2010.

Drug Prevalence in the United States

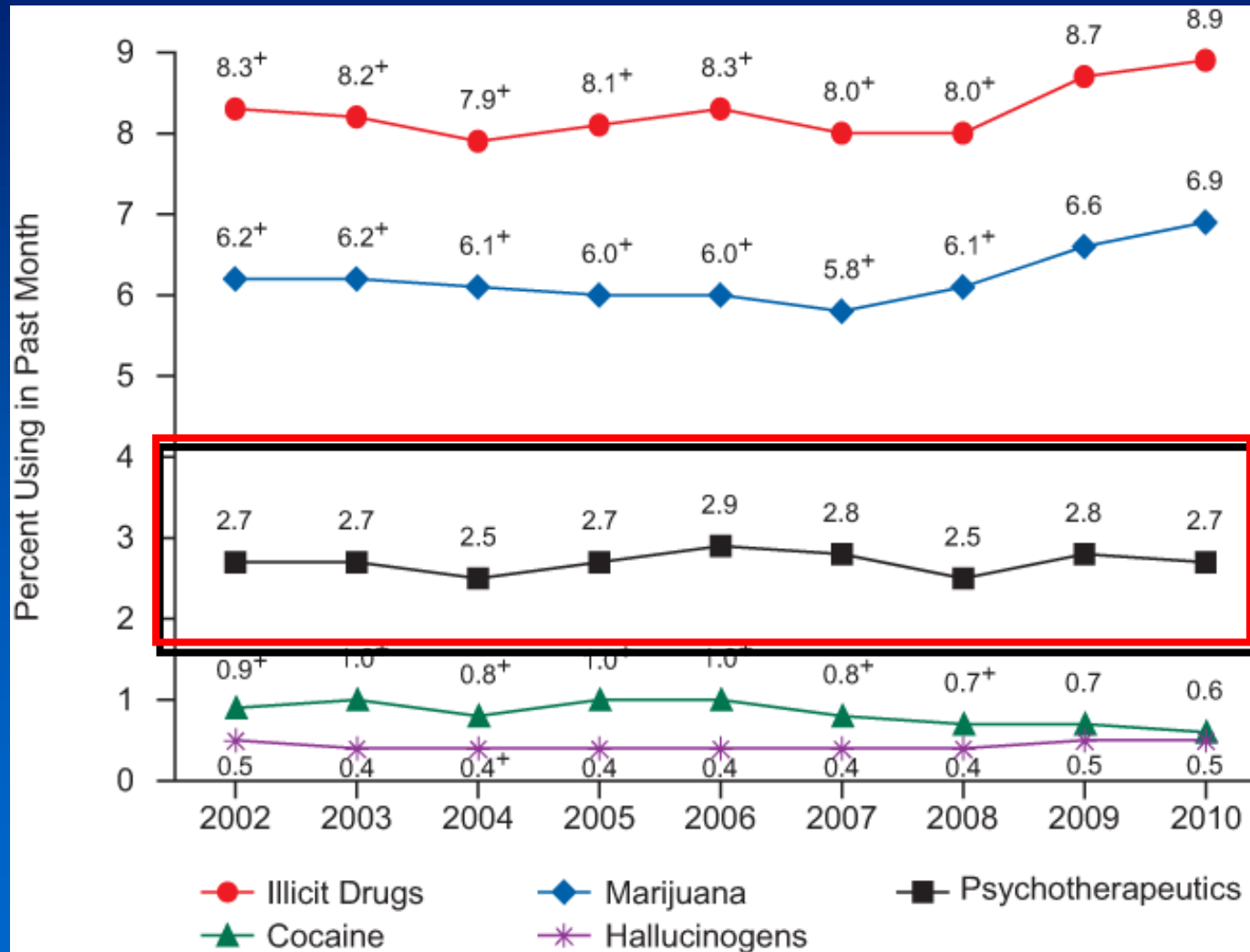
- Marijuana = most commonly abused illicit drug
- Non-medical use of prescription drugs = 2nd most commonly abused drug category
- Prescription drug abuse is 3x more prevalent than illicit use of cocaine, crack, and hallucinogens

Past Year Non-Medical Psychotherapeutic Use: 2007 vs. 2010



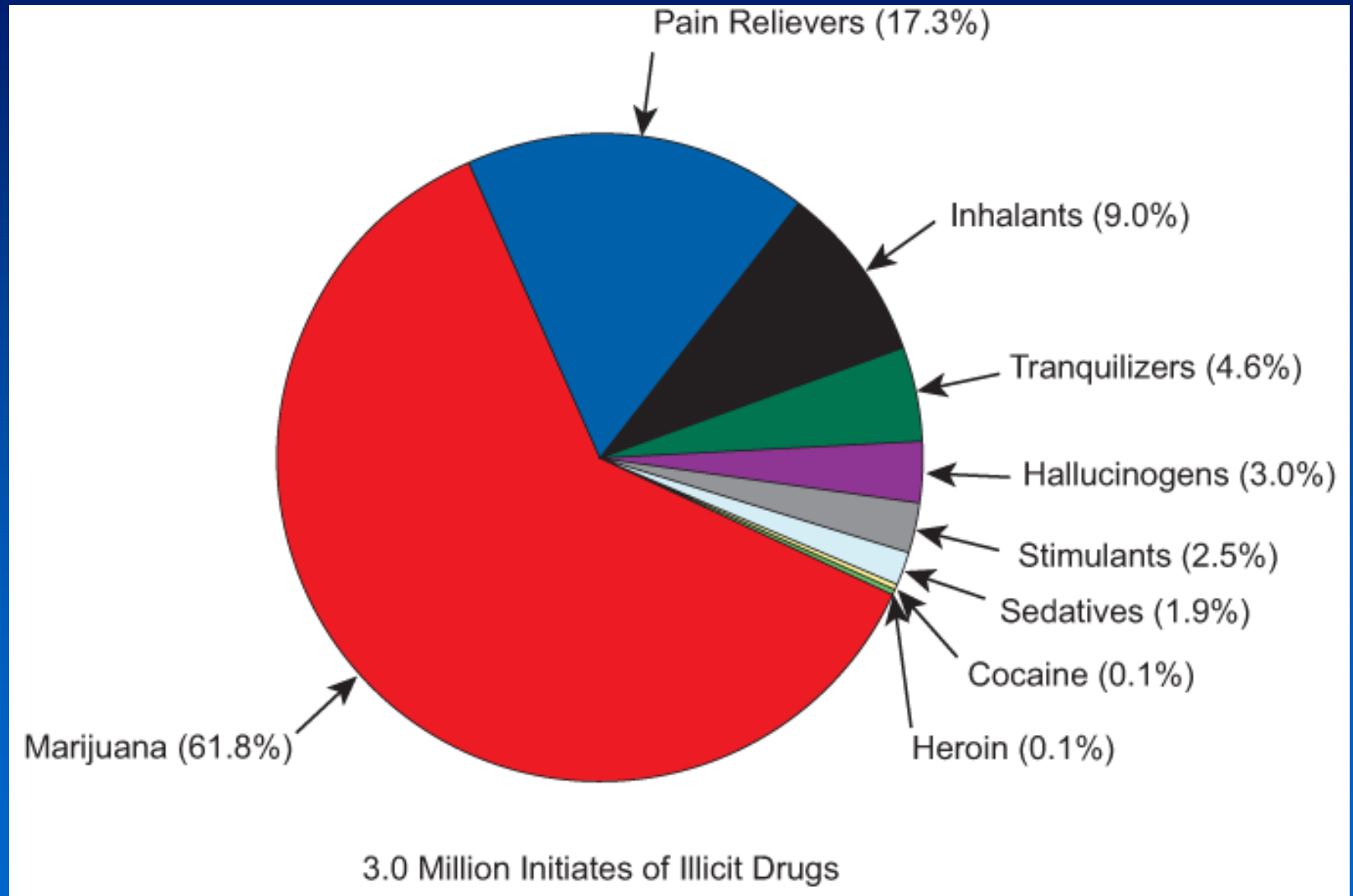
SOURCE: SAMHSA, NSDUH, 2010 Results.

Percentage of US Population with Past Month Drug Use



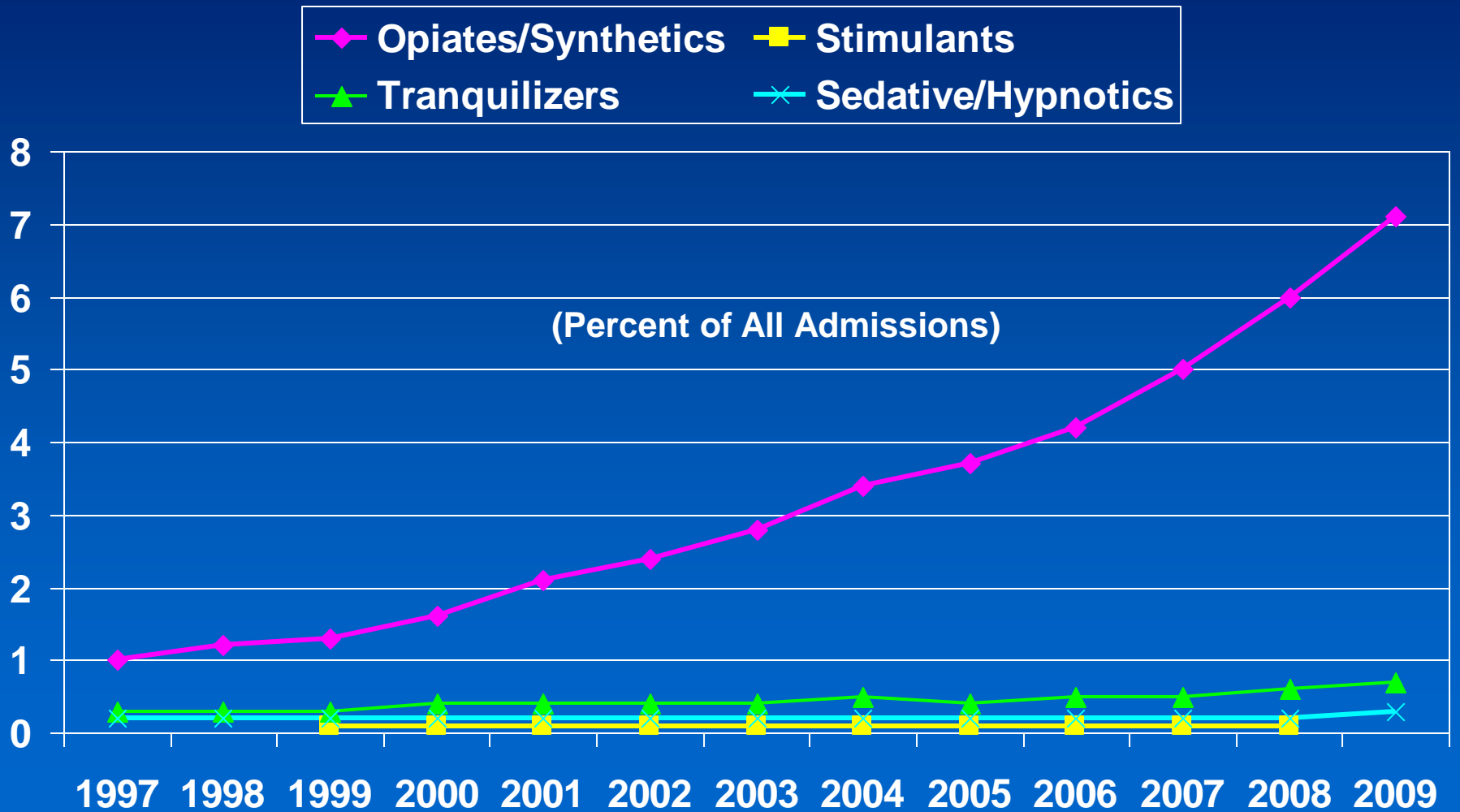
SOURCE: SAMHSA, NSDUH, 2010 Results.

Specific Drug Used When Initiating Drug Use: NSDUH, 2010



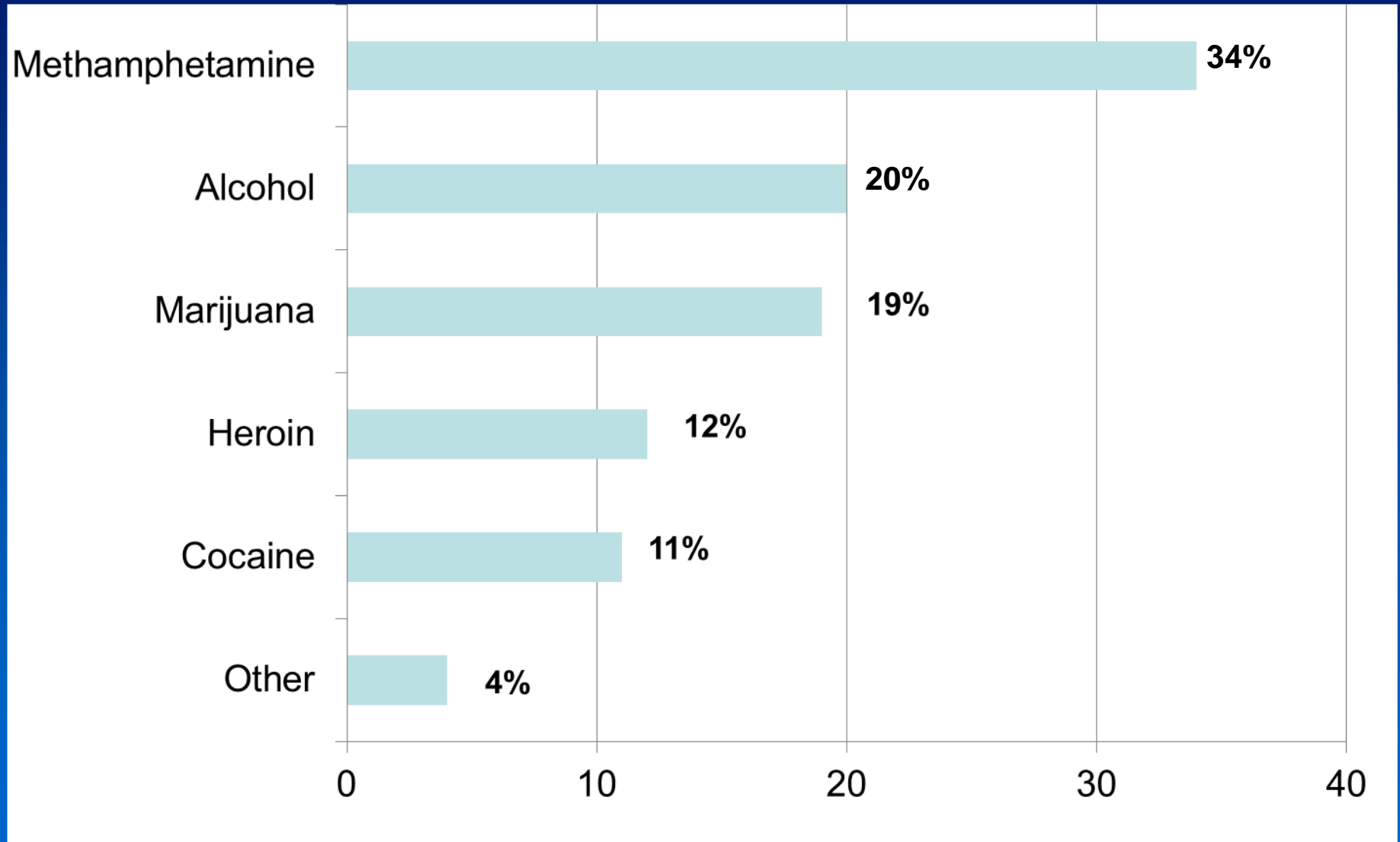
SOURCE: SAMHSA, NSDUH, 2010 Results.

Treatment Admissions for Primary Prescription Drug Abuse: U.S.



SOURCE: SAMHSA, Treatment Episode Data Set, 2009 results.

Californians in Treatment



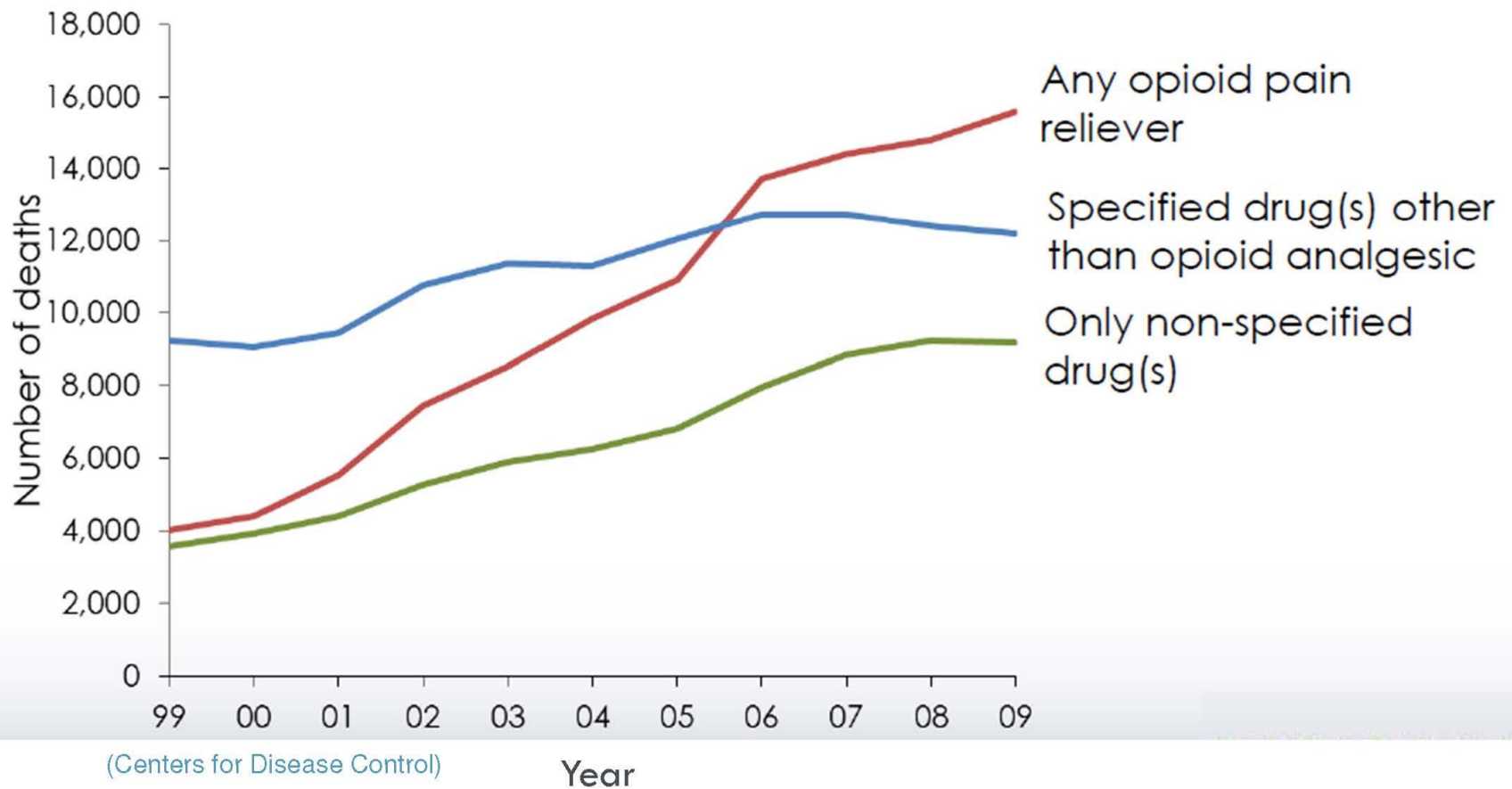
SOURCE: CA ADP, Fact Sheet: Californians in Treatment, FY 2007-08.

Prescription Drug-Related Emergency Department Visits

- Out of 4.5 million drug-related ED visits in 2009:
 - 1.1 million associated with non-medical use of prescription drugs (24.6% of all drug-related visits)
 - Pain relievers (47.8%) were the most common type of medications involved in medical emergencies associated with nonmedical use of pharmaceuticals.
 - Pain relievers seen more commonly were oxycodone (13.7%), hydrocodone (8.0%), and methadone (5.8%).

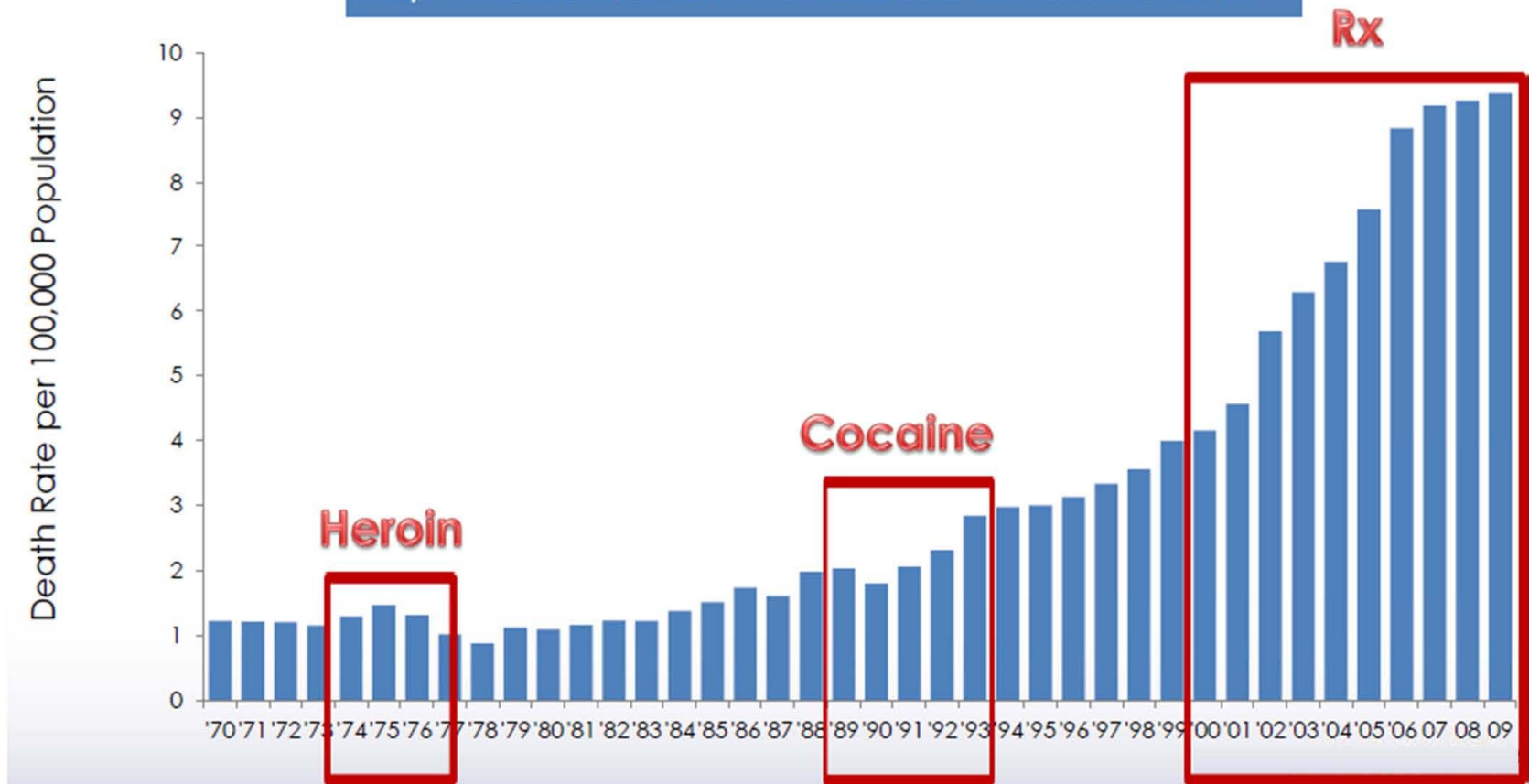
SOURCE: SAMHSA, Drug Abuse Warning Network, 2009 Results.

Drug Overdose Deaths Involving Opioid Pain Relievers and Other Drugs: United States 1999-2009



Unintentional Drug Overdose Deaths: United States 1999-2009

28,578 unintentional overdose deaths in 2009



(Centers for Disease Control)

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AT DRUGFREE.ORG

Prescription Drug Use Among Teens



Young Brains Are Different from Older Brains

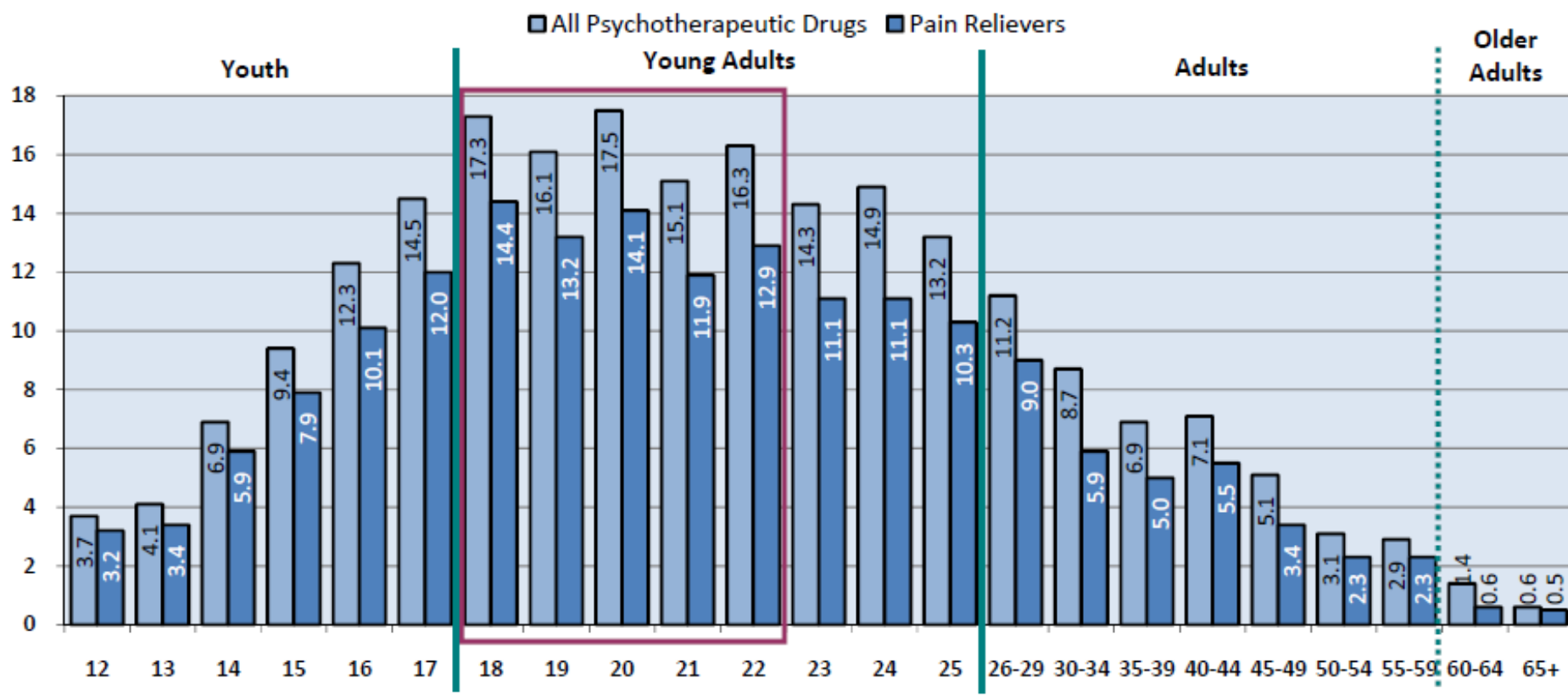
- Alcohol and drugs affect the brains of adolescents and young adults differently than they do adult brains
 - Adolescent rats are more sensitive to the memory and learning problems than adults*
 - Conversely, they are less susceptible to intoxication (motor impairment and sedation) from alcohol*
- These factors may lead to higher rates of dependence in these groups

Prescription Drug Abuse among U.S. High School Seniors

- More than 12% of high school seniors said they had used opioid-based prescription drugs for non-medical purposes at least once in their lifetime.
- Eight percent did so within the past year.
- Reasons for use included: to relax, relieve tension, get high, experiment, relieve pain, or have a good time with their friends.
- Those who used the drugs for reasons other than pain relief were more likely to use other addictive drugs and have signs of addictive disorders.

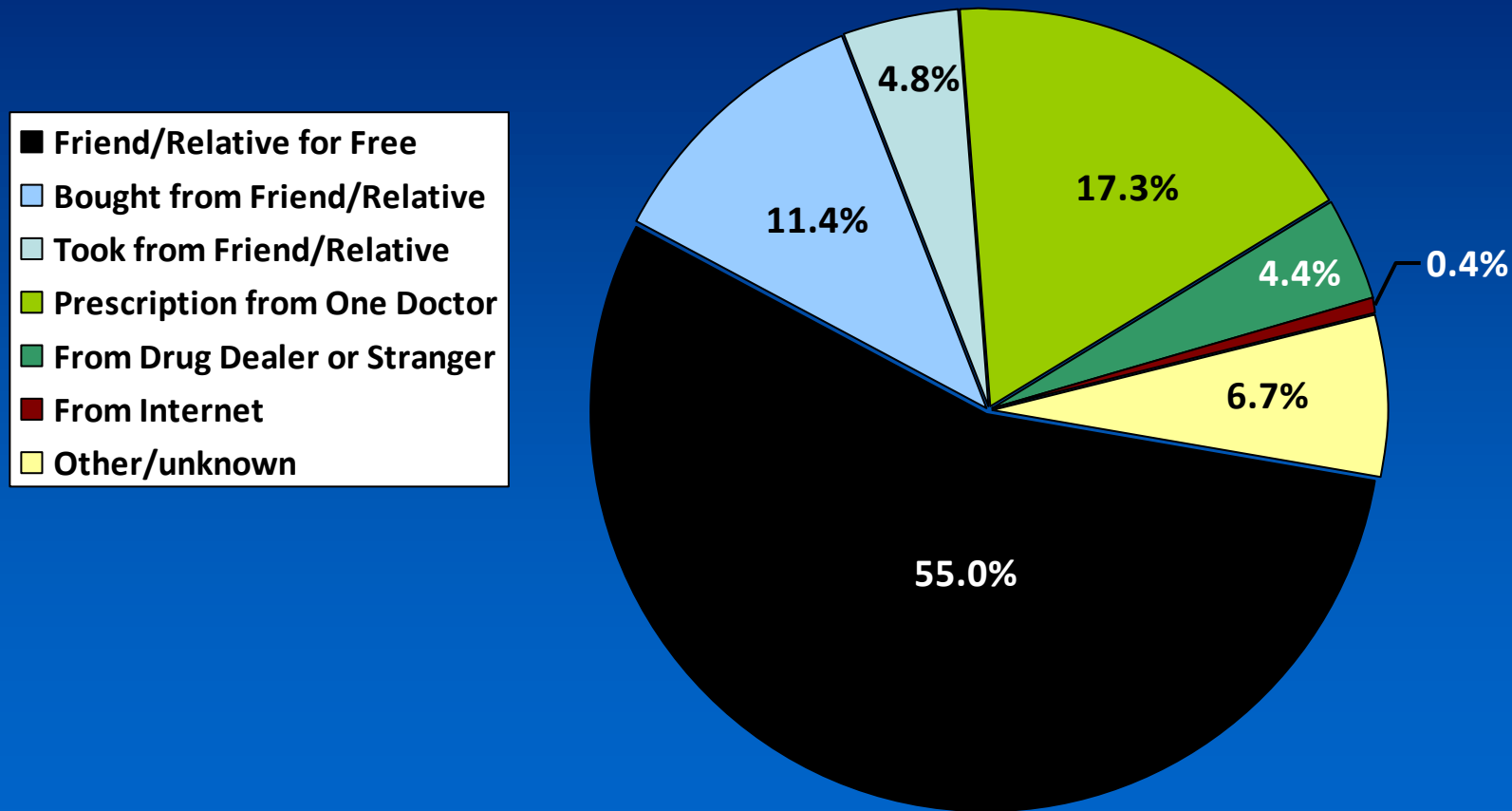
SOURCE: Join Together Online, August 6, 2009; NIDA, MTF Survey, 2008.

Age Distribution of Prescription Drug Misuse in the Past Year

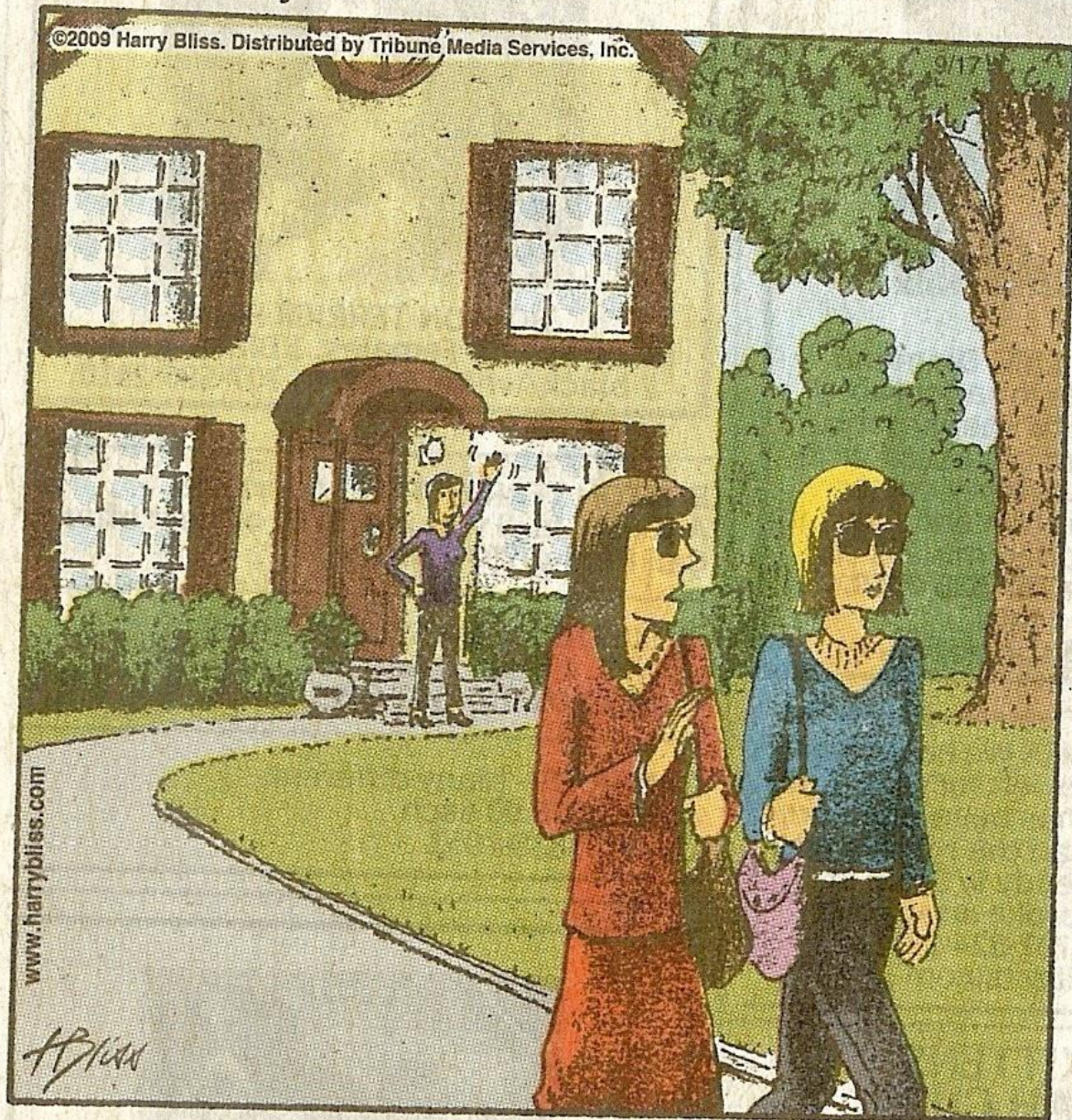


SOURCE: SAMHSA, NSDUH, 2006 Results.

Sources Where Pain Relievers were Obtained: Past Year Non-Medical Users Aged 12 or Older: 2010



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"... And her master bathroom was filthy. I almost couldn't bring myself to raid her medicine cabinet."

Over-the-Counter Drug Misuse among Young Adults

- 3.1 million 12-25 year olds reported lifetime use of OTC cough and cold medications to get high
- 1 million reported past year use
- Even gender distribution
- Female 12-17 year olds more likely to misuse OTC drugs than male counterparts
- 82% of lifetime OTC drug users also reported lifetime use of marijuana
- Lower rates of lifetime use of hallucinogens, ecstasy, or inhalants

SOURCE: CA ADP, Rx Drug Summary Report, 2009.

Prescription Drug Use Among Older Adults



Potential Issues for Older Adults

- Prescription drug abuse begins with misuse due to inappropriate prescribing or lack of compliance
- Age-related physiological changes (metabolism and response)
- Greater likelihood of undiagnosed psychiatric and medical comorbidities
- Difficulties with complying with complex drug regimens
- Drug interactions

Rx Drug Abuse among Older Adults

- Older Adults account for 13% of US population but use 1/3 of all medications prescribed.
- 7.2 million (21.7%) receive at least 1 Rx annually.
- Older adults use Rx drugs 3 times more than the general population.
- On average, older persons take 4.5 medications per day.
- Nationally, 9.2 million (4.9%) of older adults abused Rx drugs in the last year while in California, 812,000 (3.7%).

Economic Costs

- **\$72.5 Billion in healthcare costs**
- **Opioid abusers generate, on average, annual direct health care costs 8.7 times higher than nonabusers**



(Centers for Disease Control)



Opium

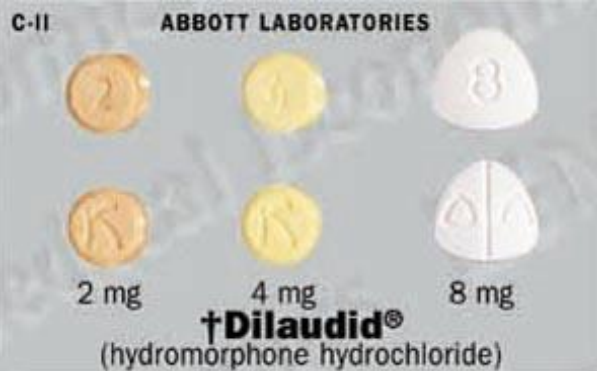


Opioids

Heroin



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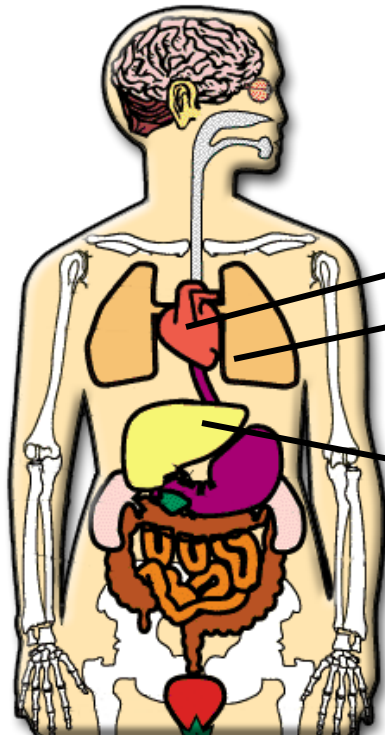
Opioids: Acute Effects

- Euphoria
- Pain relief
- Suppresses cough reflex
- Histamine release
- Warm flushing of the skin
- Dry mouth
- Drowsiness and lethargy
- Sense of well-being
- Depression of the central nervous system
(mental functioning clouded)

Effects of Opioids

- Sedation
- Pupil constriction
- Slurred speech
- Impaired attention/memory
- Constipation, urinary retention
- Nausea
- Confusion, delirium
- Seizures
- Slowed heart rate
- Respiratory depression

Long-Term Effects of Opioids



- Fatal overdose
- Collapsed veins
- Infectious diseases
- Higher risk of HIV/AIDS and hepatitis
- Infection of the heart lining and valves
- Pulmonary complications & pneumonia
- Respiratory problems
- Abscesses
- Liver disease
- Low birth weight and developmental delay
- Spontaneous abortion
- Cellulitis

Pain: The Fifth Vital Sign

- JACHO Guidelines 2000:
 - Mandated pain assessment and treatment
 - Nurse and physician education required
- When opioids prescribed properly for pain, addiction rare in patients without underlying risk factors
 - Vulnerabilities same as for other addictions: genetic, peer and social influences, trauma and abuse history

Pain Control and Addiction

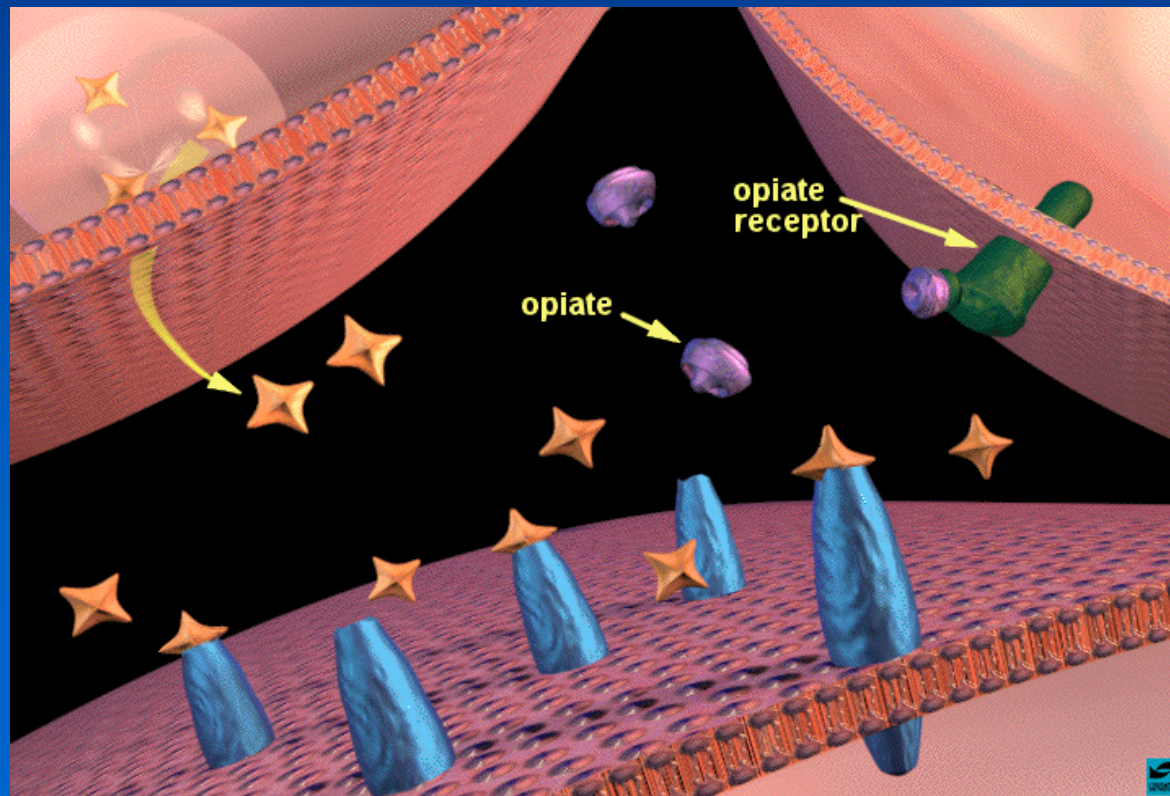
- “Pseudoaddiction”:
 - Presence of drug-seeking behavior in context of inadequate pain control
 - Behavior stops with adequate pain relief
 - Description of a clinical interaction (not a true diagnosis)
- Physical dependence
 - with continued use, withdrawal syndrome produced by rapid dose reduction; occurs via neuroadaptation
 - *Not synonymous with addiction*

Opioid Withdrawal

- Dysphoric mood
- Nausea or vomiting
- Diarrhea
- Tearing or runny nose
- Dilated pupils
- Muscle aches
- Goosebumps
- Sweating
- Yawning
- Fever
- Insomnia

Opiates and Reward

Opiates bind to opiate receptors in the nucleus accumbens: increased dopamine release







Sedative-Hypnotics

- Used to treat anxiety and sleep disorders
- Mechanism: enhances GABA
 - acts to slow normal brain function
- Barbiturates
 - Phenobarbital®
 - Pentobarbital®
 - Fioricet® (butalbital/acetaminophen/caffeine)



Sedative-Hypnotics Cont'd

- Benzodiazepines
 - Librium® (chlordiazepoxide HCL)
 - Valium® (diazepam)
 - Restoril® (tempazepam)
 - Klonopin® (clonazepam)
 - Ativan® (lorazepam)
 - Xanax® (alprazolam)
- Non-benzo hypnotics
 - Ambien® (zolpidem)
 - Sonata® (zaleplon)
 - Lunesta® (eszopiclone)
- Soma® (carisoprodol)
- Cross-tolerance with alcohol (GABA related)

Sedative-Hypnotic Effects

- Sedation
- Slurred speech
- Incoordination
- Unsteady gait
- Impaired attention or memory
- Stupor or coma
- Overdose risk increased with opioids or in combination with other sedatives, including alcohol

Sedative-Hypnotic Withdrawal

- Increased pulse, blood pressure, or sweating
- Hand tremor
- Nausea or vomiting
- Transient hallucinations or illusions
- Agitation
- Anxiety
- Seizures



Prescription Stimulants

- Stimulants (i.e., amphetamines) are often prescribed to treat individuals diagnosed with attention-deficit hyperactivity disorder (ADHD).
- Substantial amounts of pharmaceutical amphetamines are diverted from medical use to non-prescription use.
- Amphetamines increase wakefulness and alertness and have been used by:
 - The military, by pilots, truck drivers, and other workers to keep functioning past their normal limits

Short-Term Effects

- Euphoria
- Increased energy/productivity
- Increased concentration
- Decreased appetite
- Increased libido
- Decreased sleep

Medical Risks

- Norepinephrine release causes constriction of blood vessels, elevated blood pressure and rapid heart rate
- Increased activity levels
- Dangerously high body temperatures
- Increased risk of seizures
- Potentially fatal arrhythmias, heart attack, or stroke

Stimulants: Withdrawal Symptoms

- Dysphoric mood (sadness, anhedonia)
- Fatigue
- Insomnia or hypersomnia
- Psychomotor agitation or retardation
- Craving
- Increased appetite
- Vivid, unpleasant dreams

Over-the-Counter Drugs

- Available without a doctor's prescription
- Increasingly used among adolescents and young adults
 - Cough and cold medications containing Dextromethorphan (DXM)
 - Coricidin®, Robitussin®, Nyquil®
 - Sleep aids
 - Unisom®
 - Antihistamines
 - Benadryl®
 - Anti-nausea agents
 - Gravol®, Dramamine®

Dextromethorphan

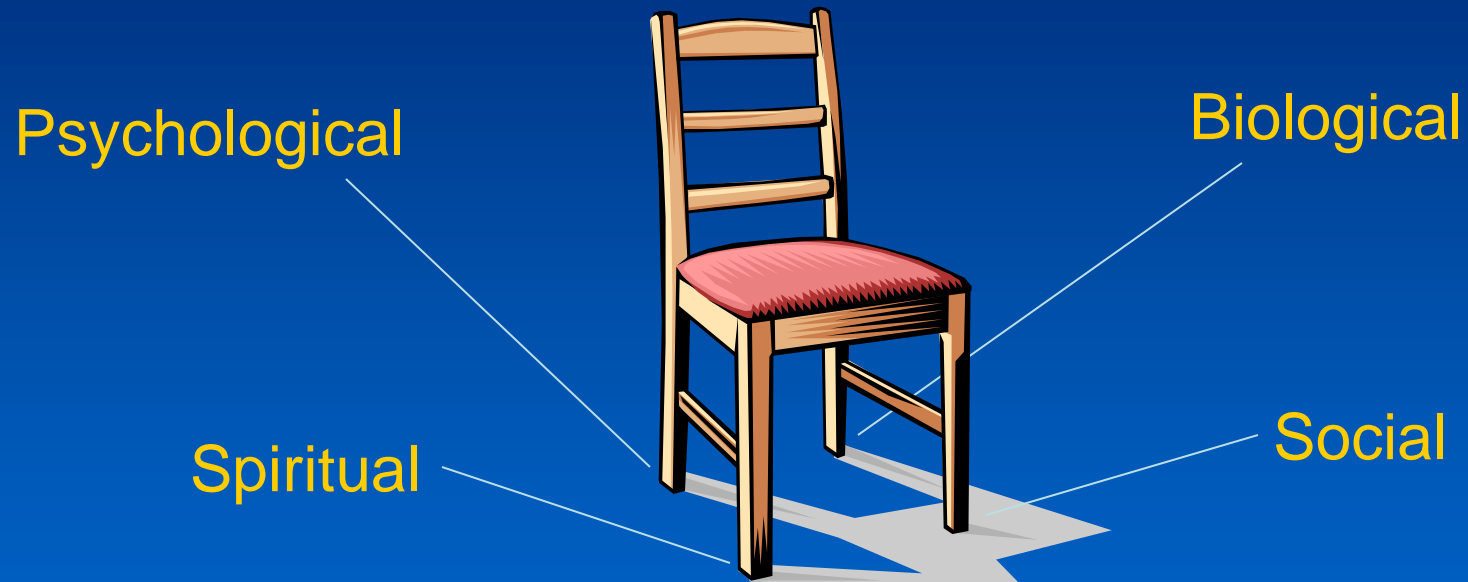


- Over-the-counter cough suppressant
- Structurally related to morphine
- Mechanism: NMDA antagonist
- Dissociative psychedelic properties in excess doses (like ketamine, PCP)

Fitting Pharmacotherapies into Treatment

Four Legs of Addiction

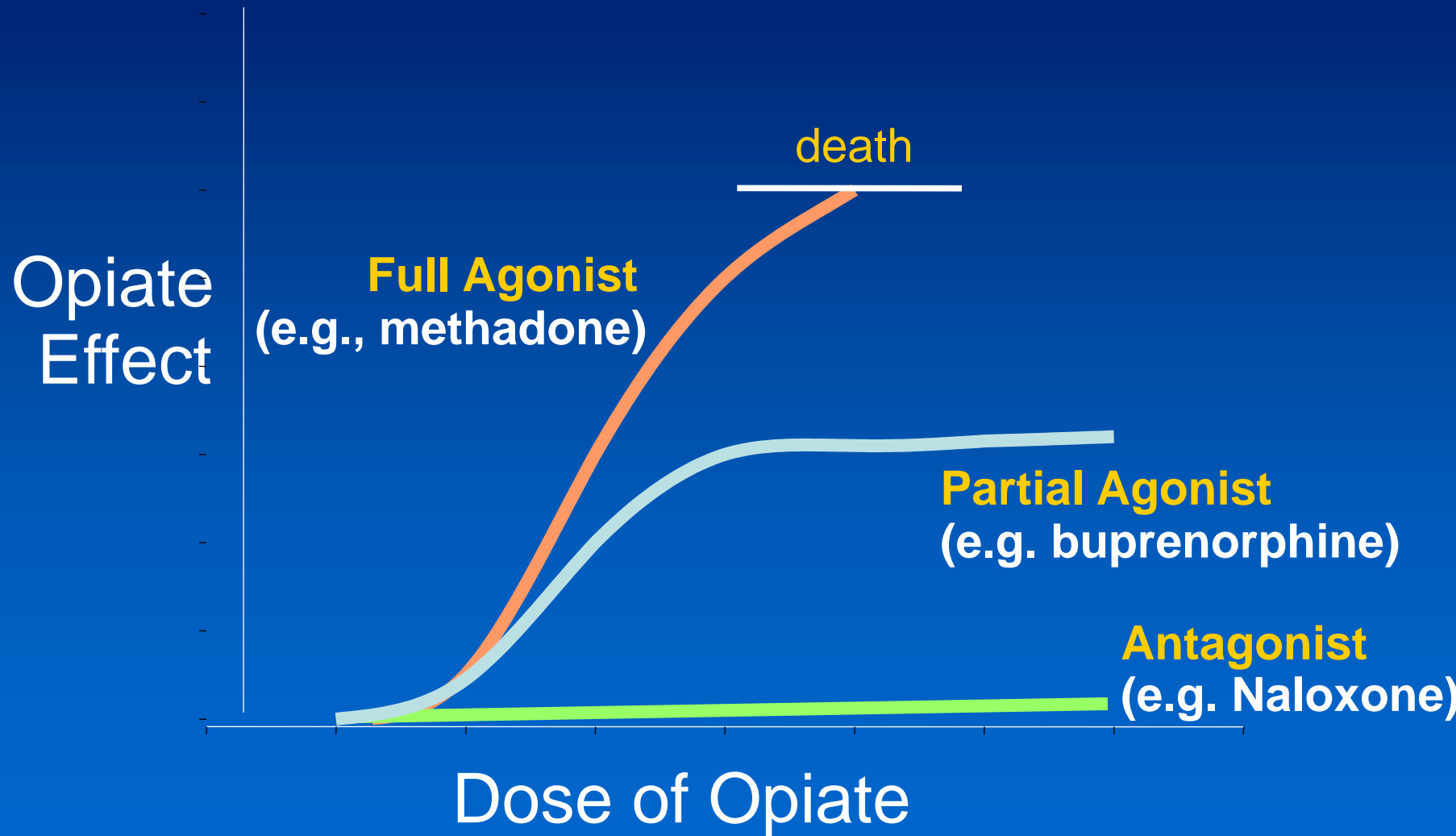
Think of this concept as a chair, with each leg representing a component of a patient's treatment plan.



All four legs are required to “support” the patient, and if one leg is missing, the chair will be unstable and unable to accomplish its goal.

Medical Treatments for Opioid Addiction

Partial vs. Full Opioid Agonist



Medications to Treat Addiction

- Addiction is a **chronic, relapsing brain disease** characterized by **compulsive use** despite harmful consequences
- Medications as part of *comprehensive* treatment plan
- Treatment approaches:
 - Medications (Bio)
 - Therapy, lifestyle changes (Psycho-Social)
- **Thorough evaluation and diagnosis essential**

Pharmacotherapy in Substance Use Disorders

- Treatment of withdrawal (“detox”)
- Treatment of psychiatric symptoms or co-occurring disorders
- Reduction of cravings and urges
- Substitution therapy

Naltrexone

Naltrexone General Facts

- **Generic Name:**
naltrexone hydrochloride
- **Marketed As:**
ReVia (oral), Depade(oral), Vivvitrol (long acting injectable)
- **Purpose:**
To discourage opioid use by reducing or eliminating the euphoric effects experienced by consuming exogenous administered opioids.
- **Indication:**
In the treatment of alcohol dependence and for the blockade of the effects of exogenous administered opioids.
- **Year of FDA-Approval:** 1984

Appropriate Populations

Age Range:

- 18 to 65 years old

Adolescents:

- Has not been tested or FDA-approved.

Elderly:

- Has not been tested or FDA-approved.

Pregnancy:

- Has not been adequately tested on pregnant or nursing women; **Pregnancy Category C designation**, used only if the potential benefit justifies the potential risk to the fetus.

Polysubstance Abusers:

- Has not been adequately tested with this population.

Opioid Replacement Goals

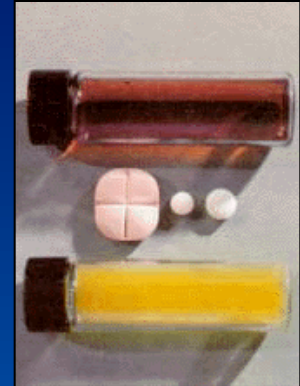
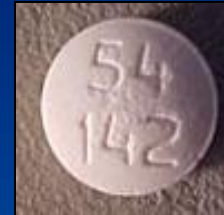
- Reduce symptoms & signs of withdrawal
- Reduce or eliminate craving
- Block effects of illicit opioids
- Restore normal physiology
- Promote psychosocial rehabilitation and non-drug lifestyle

Methadone

Methadone General Facts

(information from medication package insert)

- **Generic Name:**
methadone hydrochloride
- **Marketed As:**
Methadose® and Dolophine®
(among others)



- **Purpose:**
To discourage illicit opioid use due to cravings or the desire to alleviate opioid withdrawal symptoms.
- **Indication:**
For the treatment of moderate to severe pain not responsive to non-narcotic analgesics; for detoxification treatment of opioid addiction; for maintenance treatment of opioid addiction, in conjunction with appropriate social and medical services.
- **Year of FDA-Approval:** 1964

Methadone General Facts

(information from medication package insert)

- **Amount:** maintenance dose of 80 to 120mg
- **Method:** mouth
- **Frequency:** once a day
- The effect of consuming food with methadone has not been evaluated and therefore, is not recommended.
- **Abstinence requirements:** must be abstinent from opioids long enough to experience mild to moderate opioid withdrawal symptoms.
- Initial dose will vary depending upon the client's usage pattern, but should not exceed 40mg.

Risk of Overdose: Just like with any opioid, overdose is possible. In the event of an overdose, appropriate medical treatment should be sought.

Methadone General Facts

(information from medication package insert)

- **Pregnancy:**

Methadone is the preferred method of treatment for medication-assisted treatment for opioid dependence in pregnant women. An expert review of published data on experiences with methadone use during pregnancy concludes that it is unlikely to pose a substantial risk. But, there is insufficient data to state that there is no risk.

Methadone has not been adequately tested on pregnant women. Therefore, methadone has a **Pregnancy Category C** designation, meaning that it should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Caution should be exercised when using methadone with this population.

Methadone General Facts

(information from medication package insert)

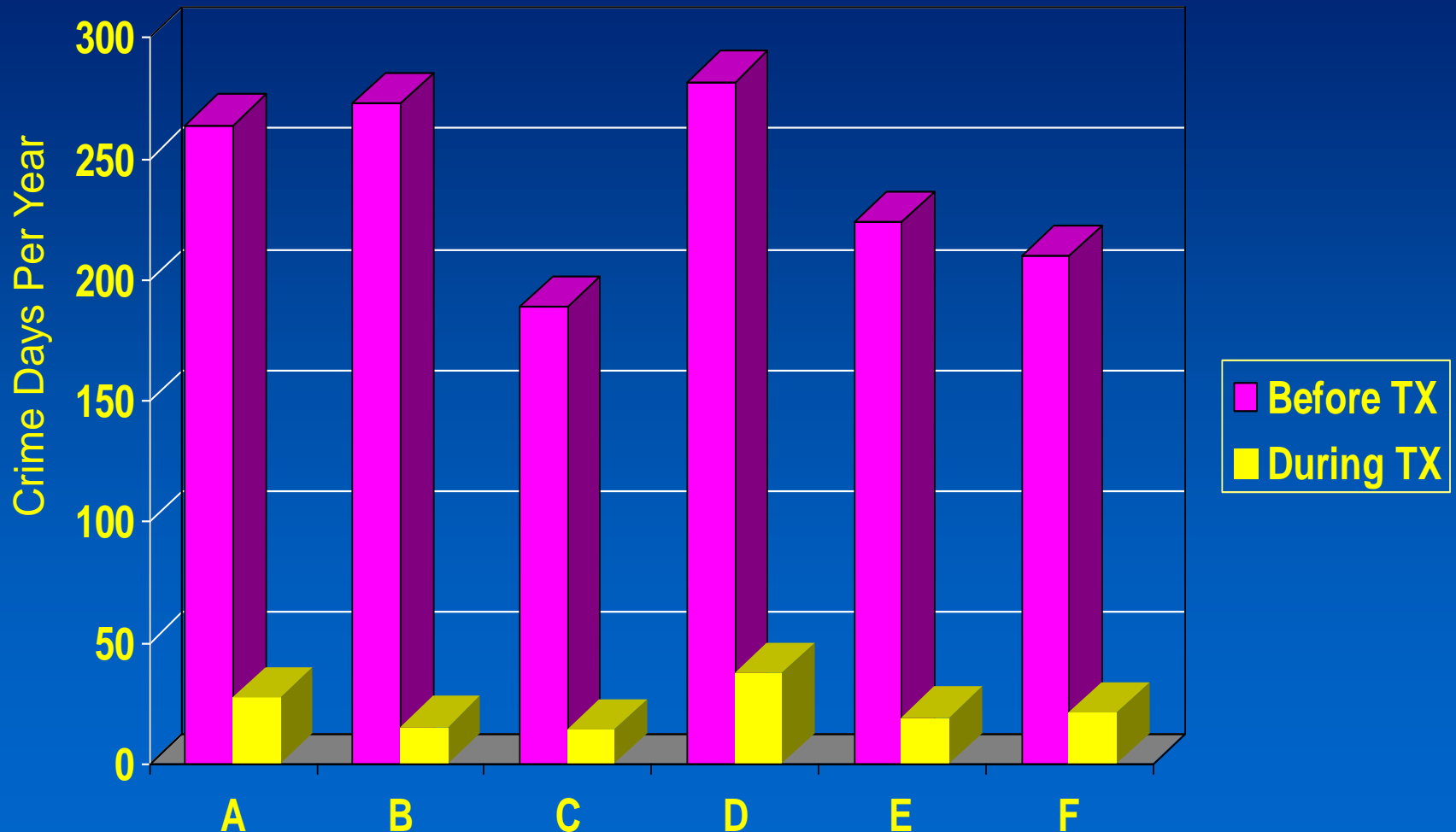
- Pregnancy:
- Detoxification is relatively contraindicated unless done in hospital with monitoring.
- Babies born to mothers who have been taking opioids regularly prior to delivery may be physically dependent and may experience opioid withdrawal symptoms. It is known that methadone is excreted through breast milk, and a decision should be made whether to discontinue nursing or to discontinue the medication, taking into account the importance of the medication to the mother and continued illicit opioid use.

What does the research say?

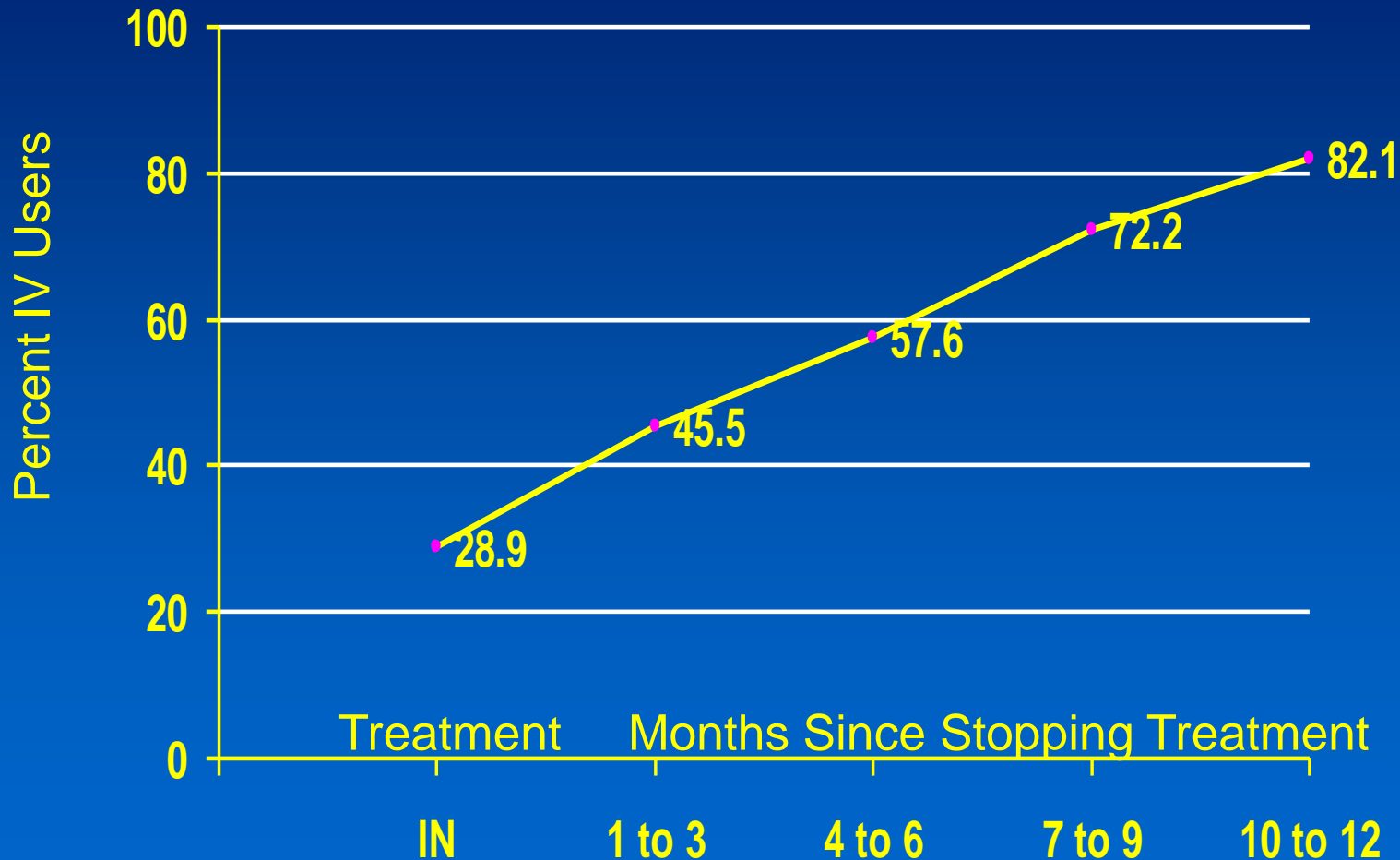
Methadone is the most studied medication for opioid addiction.

- 8-10 fold reduction in death rate
- Reduces opioid use
- Reduces crime
- Improves family and social functioning
- Increases likelihood of employment
- Improves physical and mental health
- Reduces spread of HIV
- Low drop-out rate compared to other treatments

Crime before and during Methadone Treatment at 6 programs



High Rate of Relapse to IV drug use after drop-out from Methadone Treatment



Buprenorphine

Development of Tablet Formulations of Buprenorphine

- Buprenorphine is marketed for opioid treatment under the trade names of Subutex® (buprenorphine) and Suboxone® (buprenorphine/naloxone)
- Over 25 years of research
- Over 5,000 patients exposed during clinical trials
- Proven safe and effective for the treatment of opioid addiction

Buprenorphine: A Science-Based Treatment

Clinical trials have established the effectiveness of buprenorphine for the treatment of heroin addiction. Effectiveness of buprenorphine has been compared to:

- Placebo (Johnson et al. 1995; Ling et al. 1998; Kakko et al. 2003)
- Methadone (Johnson et al. 1992; Strain et al. 1994a, 1994b; Ling et al. 1996; Schottenfield et al. 1997; Fischer et al. 1999)
- Methadone and LAAM (Johnson et al. 2000)

The Role of Buprenorphine in Opioid Treatment

- Partial Opioid Agonist
 - Produces a **ceiling effect** at higher doses
 - Has effects of typical opioid agonists—these effects are dose dependent up to a limit
 - **Binds strongly** to opiate receptor and is long-acting
- Safe and effective therapy for opioid maintenance and detoxification

Advantages of Buprenorphine in the Treatment of Opioid Addiction

1. Patient can participate fully in treatment activities and other activities of daily living easing their transition into the treatment environment
2. Limited potential for overdose
3. Minimal subjective effects (e.g., sedation) following a dose
4. Available for use in an office setting
5. Lower level of physical dependence

Advantages of Buprenorphine/Naloxone in the Treatment of Opioid Addiction

- Combination tablet is being marketed for U.S. use
6. Discourages IV use
 7. Diminishes diversion
 8. Allows for take-home dosing

Why Combining Buprenorphine and Naloxone Sublingually Works

- Buprenorphine and naloxone have different sublingual (SL) to injection potency profiles that are optimal for use in a combination product.

SL Bioavailability

Buprenorphine 40-60%

Naloxone 10% or less

Injection to Sublingual Potency

Buprenorphine \approx 2:1

Naloxone \approx 15:1

Role of Medical Community

- An estimated 70 percent of Americans (approx 191million) visit their primary care physician at least once every two years.
- Care for patients by prescribing needed medications
- Identify prescription drug abuse when it exists
- Help patients recognize abuse problems
- Support patients in seeking appropriate treatment.



Role of Prescription Drug Monitoring Program Community

- Collection and analysis of controlled substance data
- Identification and investigation of illegal prescribing, dispensing and procurement
- Physician access can help decrease extent of doctor shopping
- Operational in 37 states



CURES: CA's Prescription Drug Monitoring Program

- **Name:** Controlled Substance Utilization Review and Evaluation System (CURES)
- **Overseen by:** CA Dept. of Justice, Bureau of Narcotic Enforcement
- **Schedules Monitored:** II, III, and IV
- **Number of Prescriptions Collected Annually:** 21 million (100 million entries to date)
- **Number of Controlled Substance Dispensers:** 155,000
- **Website:** <http://caag.state.ca.us/bne/trips.htm>

Safe Drug Disposal



- **Medicine Take-Back Programs**
 - Contact household trash and recycling service or pharmacist
- **Disposal in Household Trash**
 - Mix medicines with an unpalatable substance such as kitty litter or used coffee grounds
 - Place the mixture in a container or sealed plastic bag
 - Throw the container in your household trash
- **Flushing of Certain Medicines**
 - A small number of medicines that are especially harmful if misused
 - Includes Opioid Medications
 - FDA has a list of Medications that should be flushed
 - Studies now showing that does not significantly impact water

Safe Drug Disposal



Throwing unused prescription drugs in trash may be best for environment: A new study

- Throwing away unused prescription drugs in the trash may be the most environmentally friendly option.
- The researchers compared the environmental impact of flushing medication, throwing it in the trash, and burning it.
- The study took into account how much of the drugs would enter the environment, as well as emission impacts from water treatment, transportation and burning of waste materials.

Safe Drug Disposal



Throwing unused prescription drugs in trash may be best for environment: A new study

- Flushing allows the highest levels of drugs to enter the environment, and creates more air pollution.
- Drug collecting and burning produce far greater emissions of greenhouse gases and other pollutants, largely due to the travel required for people to come to drop-off points, and to ship drugs for incineration.
- Throwing drugs out at home, uses an infrastructure that already exists for collecting household trash.

For more information, contact:

Thomas E. Freese, PhD
tfreese@mednet.ucla.edu



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