

The **Robert Wood Johnson Foundation** has identified **Substance Abuse** as the Nation's **Number One Health Problem**

Substance Abuse



The
Nation's
Number One
Health
Problem

Key Indicators for Policy **Update**
February 2001

Opioid Pharmacology

OPIOID: Any chemical compound with pharmacologic actions similar to those of morphine. The term “narcotic analgesic” is often used to refer to opioids.

Sumerians (6000 years ago) called poppy “joy plants.” Morphine and codeine are alkaloids of the poppy plant, obtained as opium, referred to as **OPIATE**.

Opioid Actions

CNS: analgesia, euphoria (dysphoria), sedation, respiratory depression, release of prolactin, nausea, anti-tussive effect

C-V: peripheral vasodilatation

EYE: pupil constriction

LUNGS: respiratory depression

GI: decrease in propulsive contractions in the small intestine and colon. Spasms.

Pain -- Opioids -- Analgesia

Primary medical use

entire group - morphine, etc.

acute and chronic severe pain

cancer pain --- addiction

Non-medical use = euphoria

Opiate Dependence

- **Nationally =**
- **Heroin but also pharmaceutical opioids fentanyl, oxycodone (esp.. Oxycotin®)**
- **Male vs. female**
- **Urban**

- **2.3 million Americans reported using heroin \geq once (1998)**
- **149,000 new users (1999)**
- **980,000 persons using at least weekly (1998)**
- **810,000–1 million chronic users of heroin**
- **Only 170,000–200,000 receiving treatment**

(National Household Survey on Drug Abuse, 1999; Office of National Drug Control Policy, 1997; SAMHSA, Office of Applied Studies, National Household Survey on Drug Abuse, 2000 and 2001)

- **Abuse of Prescription analgesics has risen**
- **OxyContin®, Vicodin®, Demerol®**
- **Dramatic press coverage**
- **Emergency Department visits 1994–2001:
41,687 to 90,232 (117% increase)**
- **Significant diversion and abuse of methadone**

What is the cost to society?

- **\$20 billion per year total cost of heroin abuse**
- **The economic cost of drug use and dependence estimated to be \$98 billion (Harwood *et al*, 1998)**
- **Figures do not take into account social impact of drug addiction**
 - **Crime / legal costs**
 - **Absenteeism from work / unemployment**
 - **Welfare / medical costs**

Basic Terms 1

- **Abuse — culturally disapproved use**
- **Addiction — meaning varies**
- **Dependence — physiological changes, maladaptive behavior, neuroadaptation, repeat doses or withdrawal
(see lecture notes for DSM-IV diagnosis)**

Basic Terms 2

- **Tolerance —**
- **Withdrawal Symptoms — abrupt stop ---
craving, dysphoria,
nervous system over-activity**
- **Cross-Tolerance — another drug substitutes**
- **Rebound — abrupt stop --- exaggerated
original symptoms**

Basic Terms 3

- **Detoxification — slow taper to prevent withdrawal**
- **Withdrawal Symptoms — craving, dysphoria, nervous system over-activity**
- **Relapse — return to abuse following full detoxification and stabilization**
- **“slip” —**

Basic Terms 4

- **Agonist — stimulates receptor same as abused drug**
- **Partial Agonist — stimulates but “ceiling” effect**
- **Antagonist — blocks receptor and prevents abused drug effect**

Substance Abuse signs -- General Physician

Medical: infection, nasal/pulm, scars, drug requests

Behavior: poor school/work, marital, family discord

Laboratory: urine*, blood, (hair **, etc.)

* No info regarding tolerance/dependence

** huge issues re: privacy issues, validity

Opioid

- **Detoxification** — agonist, taper and/or clonidine
(transcranial electro-stimulation -- inc. endorphin)
- **Substitution** — methadone, buprenorphine
- **Antagonist** — naltrexone
- **Relapse Prevention** — naltrexone
- **New** — long-acting buprenorphine, naltrexone

Withdrawal symptoms

- **Sweating**
- **Yawning**
- **Anxiety**
- **Increased BP and respiratory rate**
- **Cravings**
- **Lacrimation**
- **Piloerection**
- **Rhinitis**
- **Gastrointestinal symptoms**
Abdominal cramps, Diarrhea