

Outline

1. Neurobiology of Addiction
2. Major Classes of Drugs
3. Diagnosis and Brief Intervention
4. Psychosocial Treatments
5. Summary

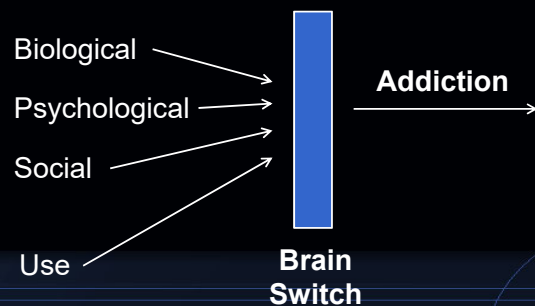
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Neurobiology of Addiction

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The Fundamental Model



Levyounis, *Journal of Medical Toxicology*, 2016.

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The Origins of the Opioid Epidemic

ADDICTION RARE IN PATIENTS TREATED WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients¹ who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,² Percodan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

JANE PORTER
HERSHEL JICK, M.D.
Boston Collaborative Drug
Surveillance Program
Boston University Medical Center
Waltham, MA 02154

1. Jick H, Miettinen OS, Shapiro S, Lewis GP, Siskind Y, Slone D. Comprehensive drug surveillance. *JAMA*. 1970; 213:1455-60.
2. Miller RR, Jick H. Clinical effects of meperidine in hospitalized medical patients. *J Clin Pharmacol*. 1978; 18:180-8.

Porter and Jick, *New England Journal of Medicine*, January 10, 1980.

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... and the Follow-Up

FREEDOM FROM PAIN!

**Extra strength pain relief
free of extra prescribing
restrictions.**

- Telephone prescribing in most states
- Up to five refills in 6 months
- No triplicate Rx required

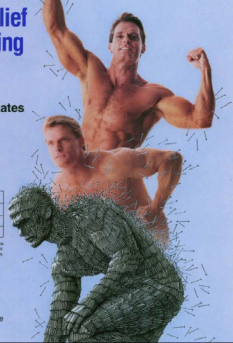
Excellent patient acceptance.
In 12 years of clinical experience, nausea, sedation and constipation have rarely been reported.*

| COMPARATIVE PHARMACOLOGY OF TWO ANALGESICS | | | | |
|--|-------------|---------|-------------|---------|
| Characteristic | Hydrocodone | Vicodin | Hydrocodone | Vicodin |
| HYDROCODONE | X | X | X | X |
| VICODIN | XX | XX | XX | XX |

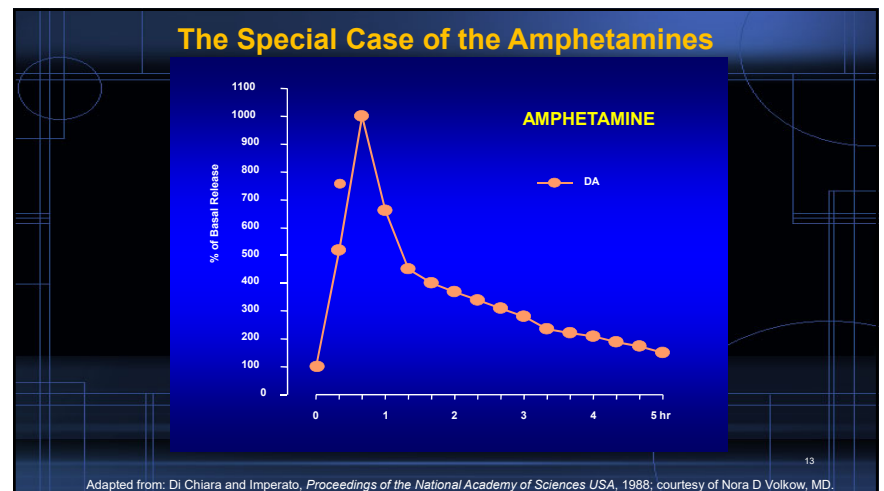
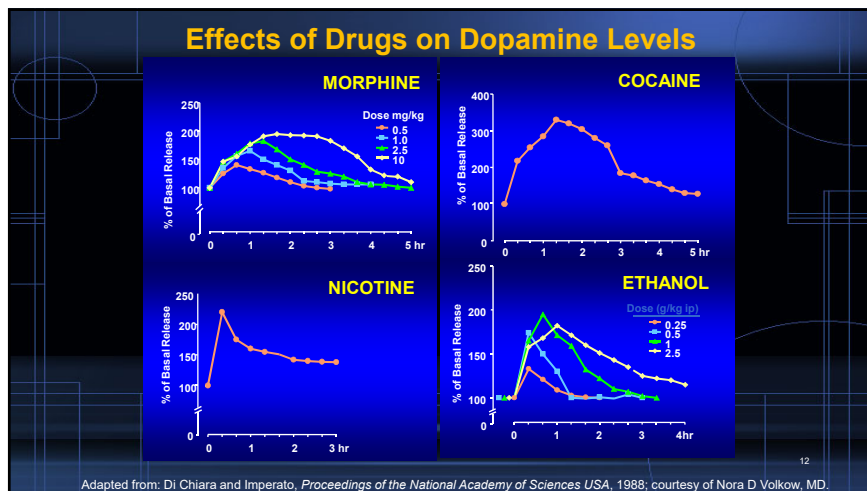
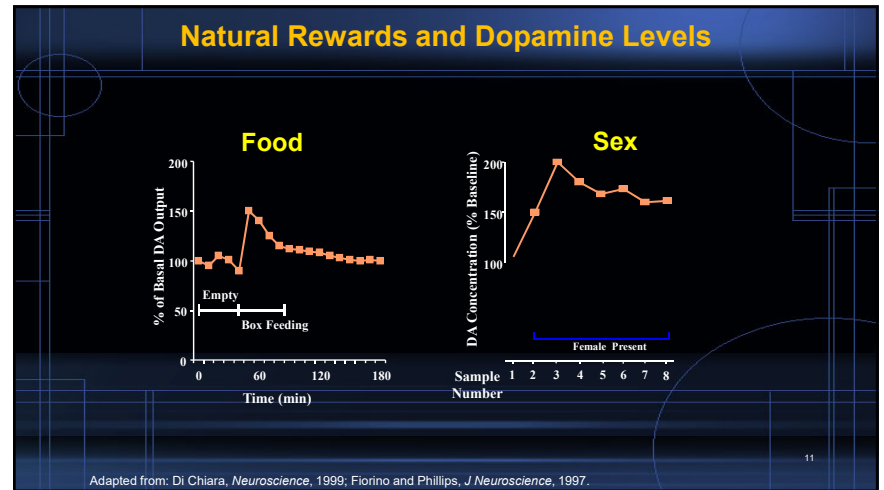
*Data source: Indications Panel in each article, has been reported. Data adapted from Parks and Compansone, 1975, 2:123-124; and Parks, et al., in: The American Academy on Neurology and Neurology, 1975, 2:123-124; and Parks, et al., in: The American Academy on Neurology and Neurology, 1975, 2:123-124.

The heritage of VICODIN[®], over a billion doses prescribed.*

- VICODIN ES provides greater central and peripheral action than other hydrocodone acetaminophen combinations.
- Four to six hours of extra strength pain relief from a single dose
- The 14th most frequently prescribed medication in America*

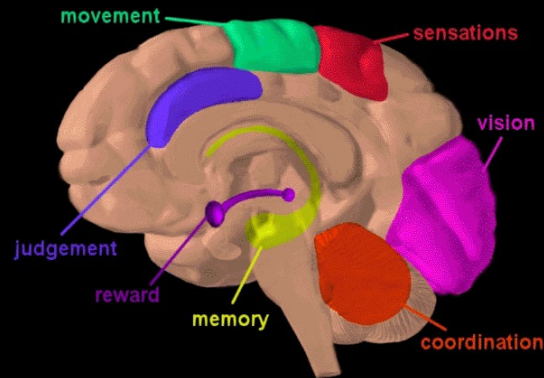


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Pleasure-Reward Pathways



National Institute on Drug Abuse, DrugAbuse.gov.

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Major Classes of Drugs

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ALCOHOL



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Alcohol Addiction

Disulfiram
Naltrexone
Acamprosate

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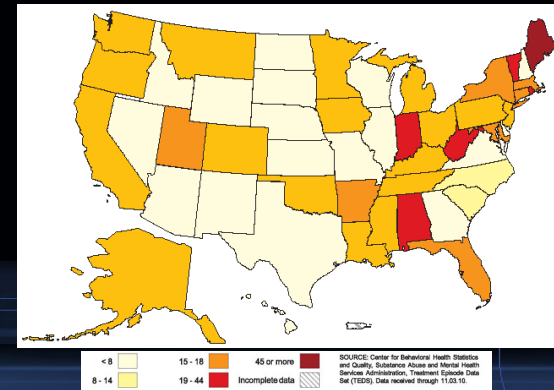
OPIOIDS



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Admissions: 1999

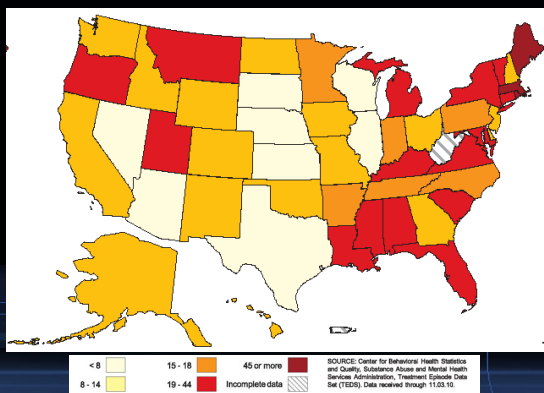
Primary non-heroin opioid admission rates (per 100,000)



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Admissions: 2001

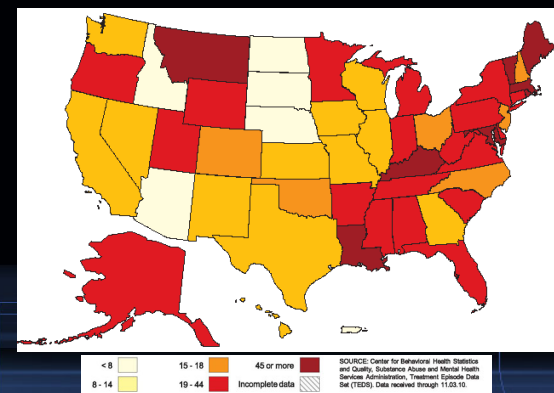
Primary non-heroin opioid admission rates (per 100,000)



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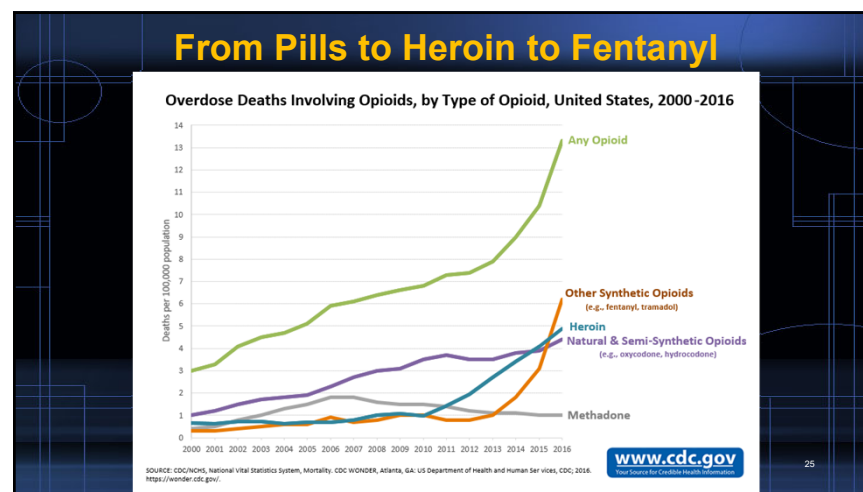
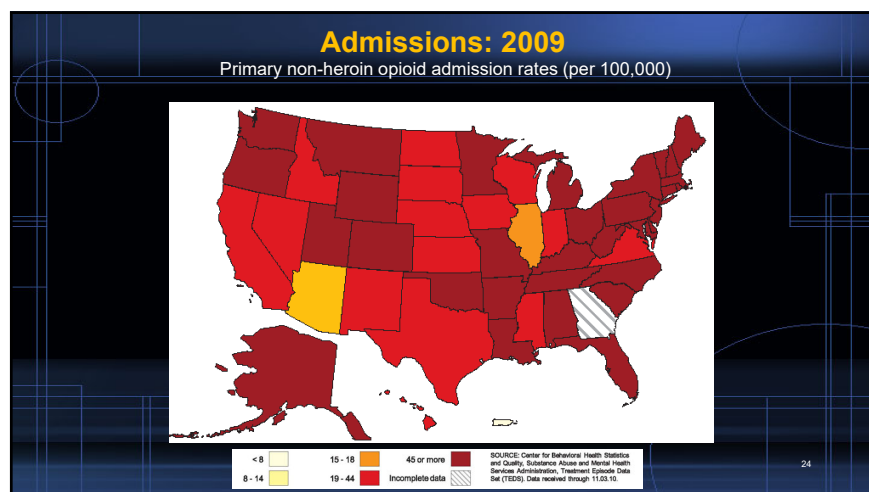
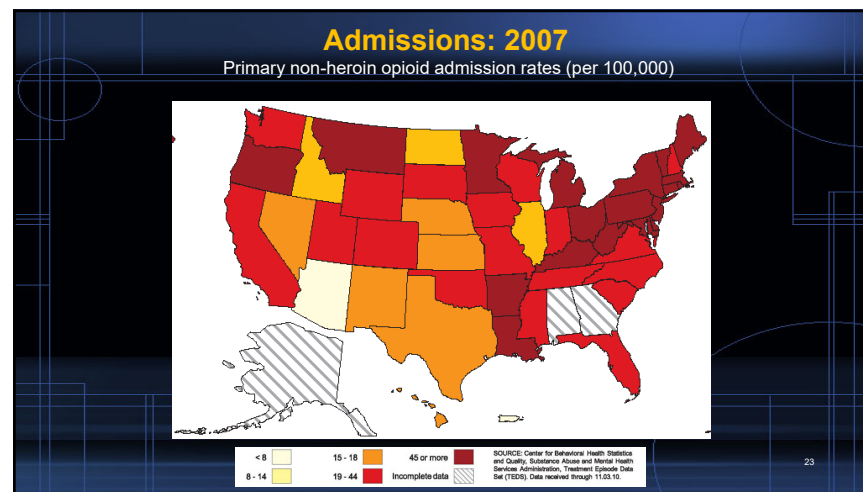
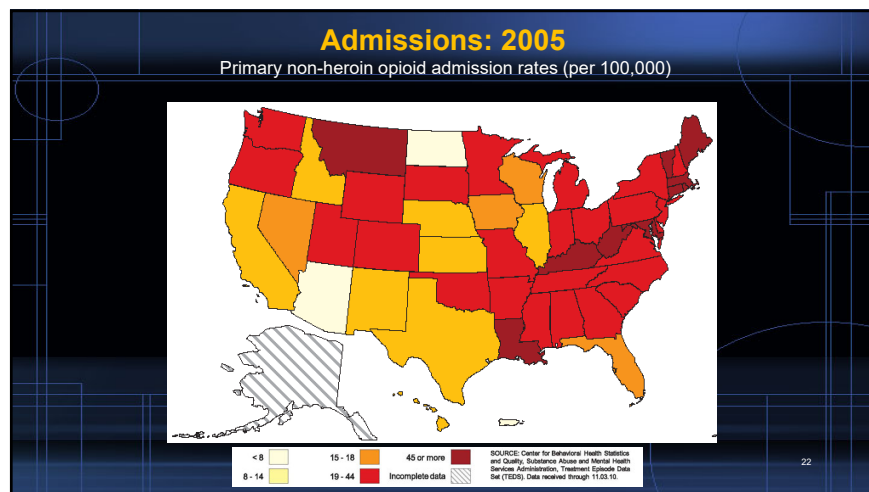
Admissions: 2003

Primary non-heroin opioid admission rates (per 100,000)



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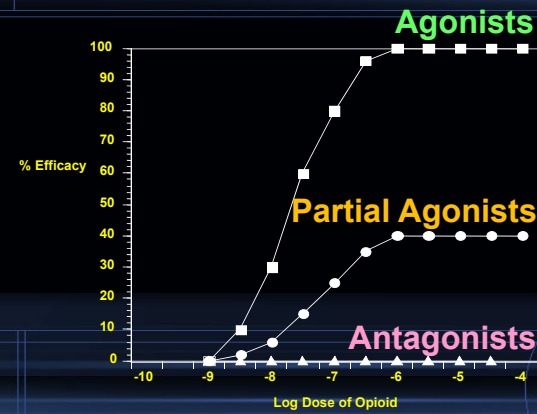
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Opioid Addiction

Methadone
Naltrexone
Buprenorphine

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Addiction Medications



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STIMULANTS



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Stimulant Addiction

No Medications

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CANNABIS



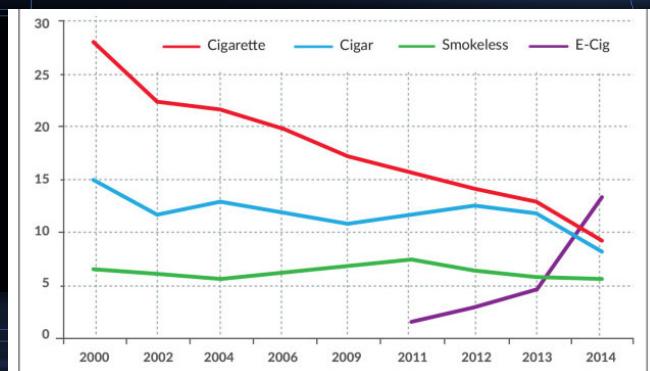
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Cannabis Addiction

No Medications

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TOBACCO



American Lung Association, *High School Tobacco Use (%) by Type*, based on CDC data, 2015.

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Tobacco Addiction

Replacement (NRT)
Bupropion
Varenicline

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BENZODIAZEPINES

- Antidepressants are the first-line treatments of anxiety disorders.
- Convert shorter-acting agents to clonazepam or chlordiazepoxide and taper.
- The longer the taper, the greater the chance of success (6-12 weeks minimum).

Ries et al, *Principles of Addiction Medicine*, 5th Edition, American Society of Addiction Medicine, 2014.

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THE BEHAVIORAL ADDICTIONS

- | | |
|-------------------------|----------------|
| 1. Exercise | 7. Kleptomania |
| 2. Food | 8. Love |
| 3. Gambling | 9. Sex |
| 4. Internet Gaming | 10. Shopping |
| 5. Internet Surfing | 11. Tanning |
| 6. Texting and Emailing | 12. Work |

Ascher and Levounis, *The Behavioral Addictions*, APA Publishing, 2015.

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Diagnosis and Brief Intervention

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The DSM-5

PHYSIOLOGY

Tolerance
Withdrawal

THE CORE PROBLEM OF SUBSTANCE USE

Knowledge of adverse consequences, yet continued use

INTERNAL PREOCCUPATION

Desire to cut down
Time—a great deal of time—spent using
Larger amounts or longer periods of use than intended
Craving

EXTERNAL CONSEQUENCES

Activities given up
Role obligations neglected
Social or interpersonal problems
Hazardous use

Levounis, *Academic Psychiatry*, 2015.

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The Briefest Intervention

1. Be empathic and curious.
2. State your medical findings.
3. Educate about problematic use and addiction.
4. Advise.
5. Follow up.
6. Refer, if necessary.

National Institute on Alcohol Abuse and Alcoholism, NIAAA.NIH.gov.
Levounis, *Academic Psychiatry*, 2018.

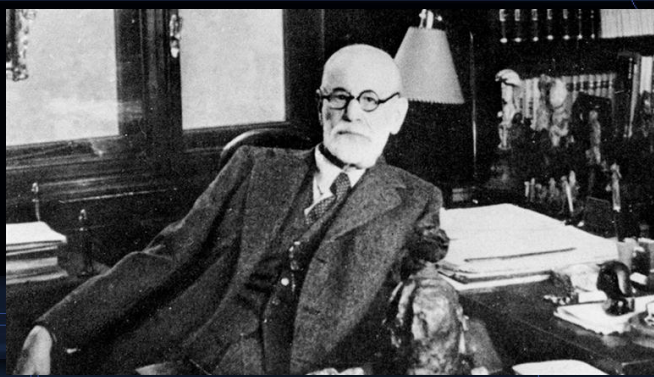
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Psychosocial Treatments

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1st Wave: Psychoanalysis



Levounis, *Journal of Medical Toxicology*, 2016.

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2nd Wave: Boot Camps



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3rd Wave: The Current Approach

1. Mutual Help (12-step programs)
2. Counseling and Psychotherapy
3. Medications

Nunes, Selzer, Levounis, Davies, *Substance Dependence and Co-Occurring Psychiatric Disorders*, 2010.
 Levounis, Arnaout, and Marienfeld, *Motivational Interviewing for Clinical Practice*, 2017.
 Renner, Levounis, and LaRose, *Office-Based Buprenorphine Treatment of Opioid Use Disorder*, 2nd Ed., 2018.

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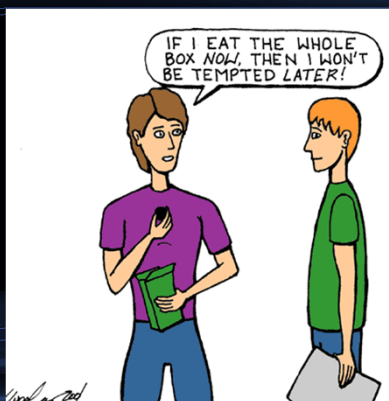
Mutual Help

| MEDICAL STAFF | PATIENTS | What Medical Staff Think Patients Think |
|---------------------|---------------------|---|
| 1. Housing | 1. Inner peace | 1. Housing |
| 2. Gov't Services | 2. God | 2. Outpatient Tx |
| 3. Medical Services | 3. Medical Services | 3. Medical Services |
| 4. Outpatient Tx | 4. AA | 4. Job |
| 5. Job | 5. Housing | 5. Trusting People |
| 6. Community | 6. Spirituality | 6. AA |
| 7. Trusting People | 7. Outpatient Tx | 7. Inner Peace |
| 8. Inner peace | 8. Community | 8. Community |
| 9. God | 9. Gov't Services | 9. Gov't Services |
| 10. Spirituality | 10. Trusting People | 10. Spirituality |
| 11. AA | 11. Job | 11. God |

Goldfarb, *American Journal of Drug and Alcohol Abuse*, 1996.

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Motivational Interviewing



Levounis, Arnaout, and Marienfeld, *Motivational Interviewing for Clinical Practice*, 2017.

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4th Wave: Mindfulness



Zerbo, Schlechter, Desai, and Levounis, *Becoming Mindful*, 2017.

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Summary

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SIX TIPS FOR TREATING ADDICTION

1. Alcohol → AA
2. Opioids → Buprenorphine
3. Stimulants → CBT
4. Cannabis → MI
5. Tobacco → Varenicline
6. Benzos → Switch & Taper

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