



# Principles of Addiction

## Definitions, Public Health, and Treatment

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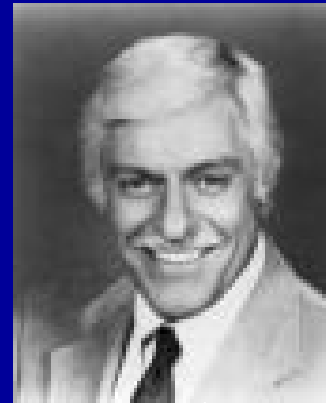
Professor of Medicine and Public Health

Boston University Schools of Medicine and Public Health

**Ray  
Charles**



**Dick  
Van Dyke**



**Tatum  
O'Neal**



**Betty Ford**



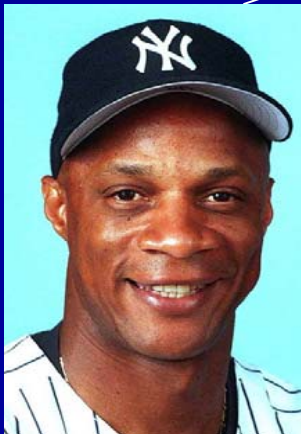
**Franklin D  
Roosevelt**



**Rush  
Limbaugh**



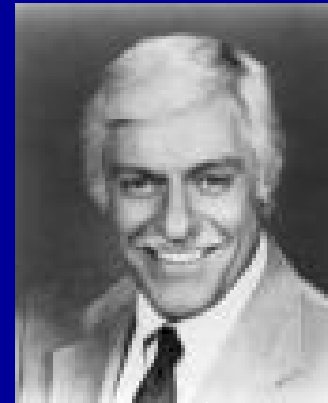
**Darryl  
Strawberry**



**Ray  
Charles**



**Dick  
Van Dyke**



**Betty Ford**



**Addiction**

**Tatum  
O'Neal**



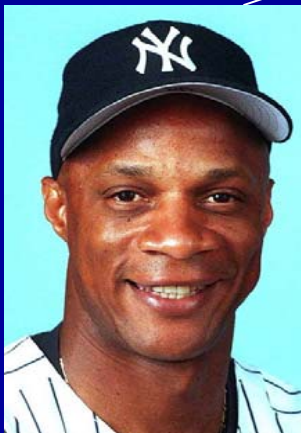
**Rush  
Limbaugh**



**Franklin D  
Roosevelt**



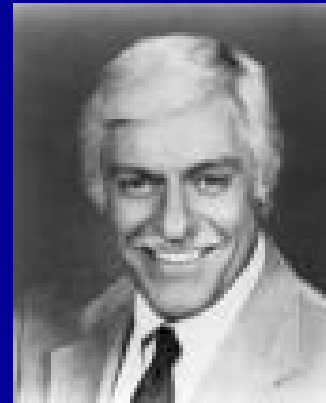
**Darryl  
Strawberry**



**Heroin**



**Alcohol**



**Heroin**



**Alcohol**



**Addiction**

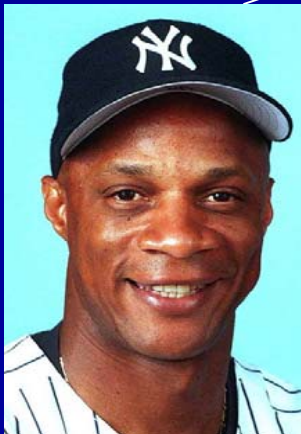
**Tobacco**



**Prescription  
Opioids**



**Cocaine**



# Overview

*Addiction is a chronic, relapsing, brain disease*

- Definitions
- Public health perspective
- Treatment principles



# Case Presentation

(12/99)

- Mr. CB, 42 y/o male, presented to ED with chief complaint “belly pain.”
- Moderately severe mid-abdominal pain increasing over 3 weeks



# Hospitalization

**(11/99) 1 month prior to current admission**

-42 y/o male

- Addiction
  - Injection drug use (IDU) for 10 years
  - Heroin withdrawal symptoms
  - Vague alcohol use
- Endocarditis
  - LVEF 75%, mitral valve vegetation
  - Antibiotics for 6 weeks
- Abdominal pain onset during hospitalization
  - CT abd & KUB unremarkable
  - Dx: constipation
  - Rx: laxatives & manual disimpaction



# Initial Evaluation

(12/99)

-42 y/o male

-11/99

endocarditis

-LVEF 75%

-12/99-c/c-  
"abd pain"

- “Cramping” pain, constipation, poor PO intake
- Intranasal heroin use “to treat abdominal pain” past 10 days
- No recent IDU
- Smoked 10 cigarettes/day





# Physical Exam

- Pleasant male NAD
- P: 95, R: 18, weight: 120 lbs, afebrile
- Nodes: bilateral cervical and axillary adenopathy
- CV: III/VI holosystolic murmur RUSB radiating to axilla
- Abd: tender RLQ and LLQ without rebound
- Rectal: no focal tenderness; stool brown guaiac negative
- WBC: 5.1, Hct: 26, Plts: 267K

-42 y/o male

-11/99

endocarditis

-LVEF 75%

-12/99-c/c-  
"abd pain"

# Overview

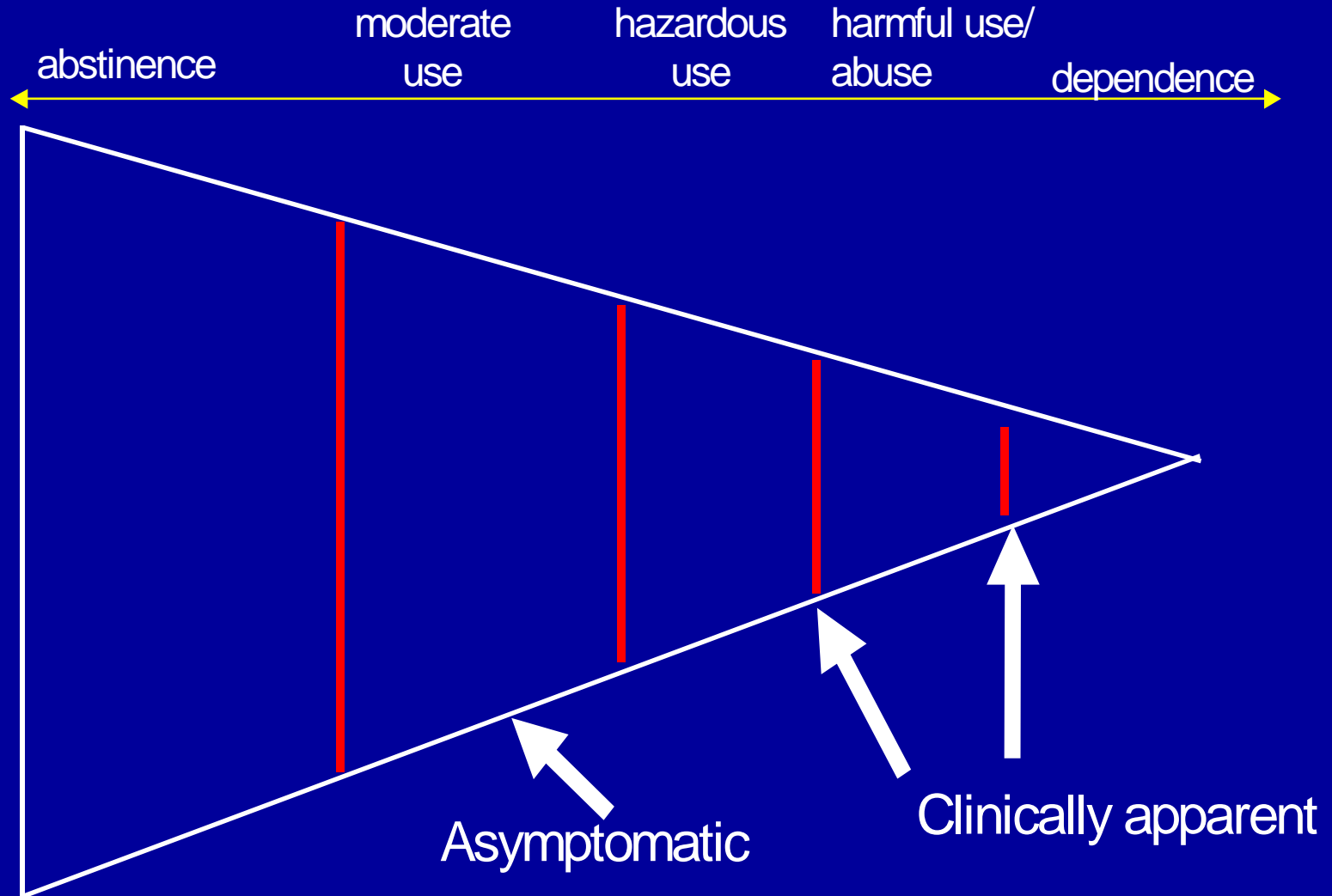
*Addiction is a chronic, relapsing, brain disease*

- **Definitions**
- Public health perspective
- Treatment principles

# Definitions

- Drug/Alcohol abuse
- Drug/Alcohol dependence
- Addiction

# Patterns of Substance Use



# DSM IV Criteria: Drug Abuse

1 or more of the following in a year:

- ✓ Recurrent use resulting in failure to fulfill major role obligations
- ✓ Recurrent use in hazardous situations
- ✓ Recurrent drug-related legal problems
- ✓ Continued use despite social or interpersonal problems caused or exacerbated by drugs

# DSM IV Criteria: Drug Dependence

3 or more of the following in a year:

- ✓ **Tolerance**
- ✓ **Withdrawal**
- ✓ A great deal of time spent to obtain drugs, use them, or recover from their effects
- ✓ Important activities given up or reduced because of drugs
- ✓ Using more or longer than intended
- ✓ Persistent desire or unsuccessful efforts to cut down or control substance use
- ✓ Use continued despite knowledge of having a persistent or recurrent physical or psychological problem caused or exacerbated by drug use

# Addiction

- Characterized by behaviors that include 1 or more of the following:<sup>\*</sup>
  - Loss of control with drug use
  - Compulsive drug use
  - Continued use despite harm
- A condition involving activation of the brain's mesolimbic dopamine system; a common denominator in the acute effects of drugs of abuse<sup>†</sup>

<sup>\*</sup>American Society of Addiction Medicine 2001. [www.asam.org/ppol/paindef.htm](http://www.asam.org/ppol/paindef.htm)

<sup>†</sup>Leshner AI. JAMA. 1999; 282:1314-1316.



# Medical Record Review

-42 y/o male

-11/99  
endocarditis

-LVEF 75%

-12/99-c/c-  
"abd pain"

- Several urgent care and ED visits over past 10 years
- No prior primary care
- No mention of alcohol or drug abuse



# Overview

*Addiction is a chronic, relapsing, brain disease*

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- Detection
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## Estimated Leading Causes of Disability-Adjusted Life-Years (DALYS) in the U.S., 1996

Rank	Cause	DALYs	% of Total DALYs	Deaths
		Men		
	All conditions	18 314 401	100	1 163 569
* 1	Ischemic heart disease	1 969 256	10.75	286 999
* 2	Road traffic collisions	933 953	5.10	29 105
* 3	Lung, trachea, and bronchus cancers	812 675	4.44	102 071
* 4	HIV/AIDS	773 640	4.22	25 307
5	Alcohol abuse and dependence	736 572	4.02	5231
* 6	Cerebrovascular disease	673 877	3.68	63 126
* 7	Homicide and violence	567 322	3.10	17 391
* 8	Chronic obstructive pulmonary disease	545 350	2.98	52 489
* 9	Self-inflicted	541 640	2.96	25 647
*10	Unipolar major depression	477 040	2.60	12
11	Drug use	467 127	2.55	1194

## Estimated Leading Causes of Disability-Adjusted Life-Years (DALYS) in the U.S., 1996

		Women		
	All conditions	15 886 327	100	1 151 120
* 1	Ischemic heart disease	1 181 298	7.45	249 315
* 2	Unipolar major depression	1 073 911	6.77	25
* 3	Cerebrovascular disease	836 345	5.27	98 551
* 4	Lung, trachea, and bronchus cancers	549 963	3.47	66 134
5	Osteoarthritis	521 443	3.24	508
6	Breast cancer	514 729	3.21	46 649
* 7	Chronic obstructive pulmonary disease	510 084	3.19	47 576
8	Dementia and other degenerative and hereditary central nervous system disorders	506 858	3.16	29 139
9	Diabetes mellitus	500 932	2.90	34 489
*10	Road traffic collisions	459 489	2.61	14 630
11	Alcohol abuse and dependence	414 792	3.29	1444

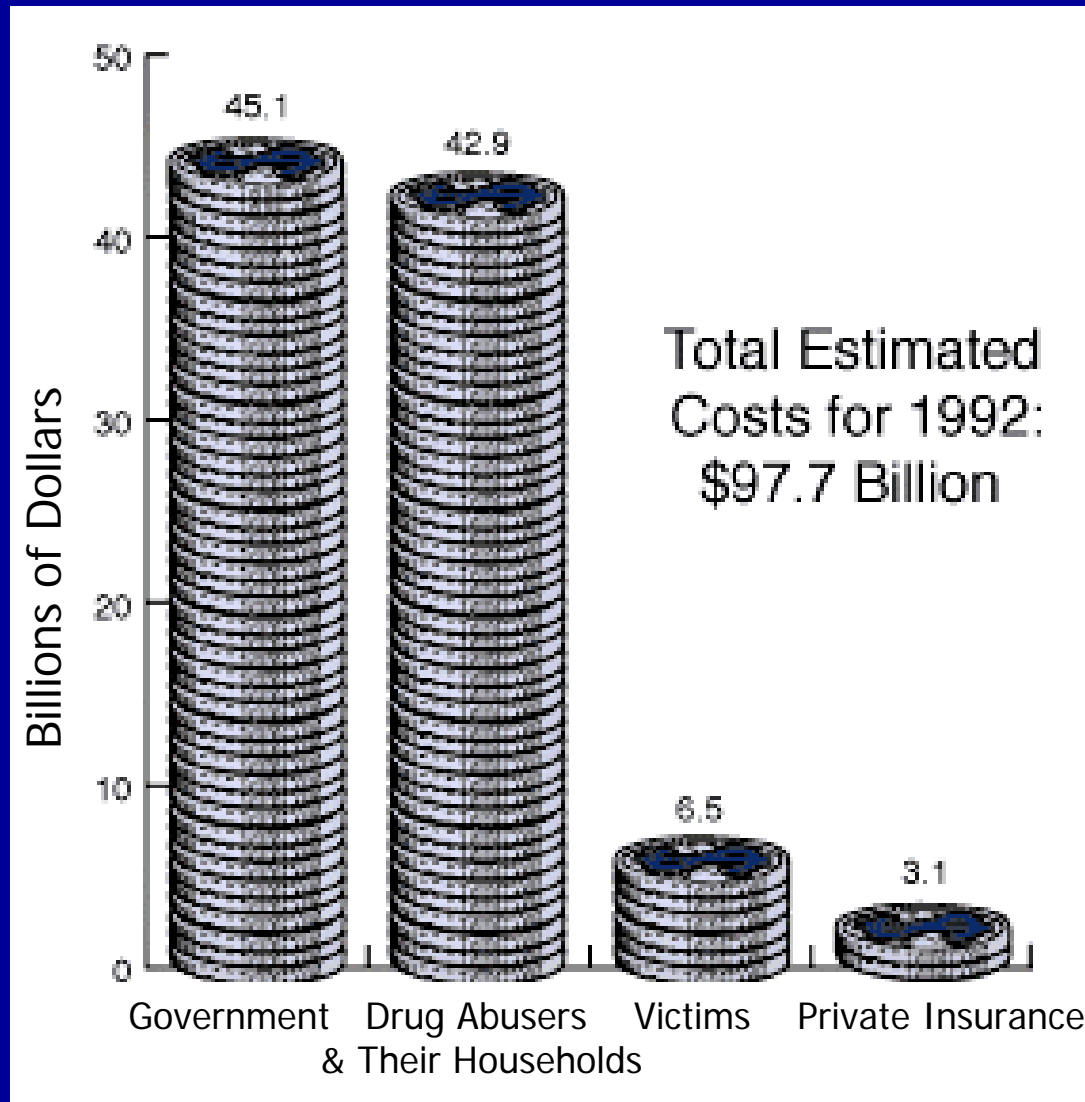
# Estimated Economic Costs of Drug and Alcohol Abuse in the U.S. (in billions)

<b>Health care expenditures</b> (e.g., Specialty treatment, prevention, research, and medical consequences)	<b>\$42.1</b>
<b>Productivity losses</b>	<b>\$262.8</b>
<b>Other effects</b> (e.g., criminal justice, property)	<b>\$60.5</b>
<b>Total costs</b>	<b>\$365.4</b>

Office of National Drug Control Policy. 2004. The Economic Costs of Drug Abuse in the United States, 1992-2002. [http://www.whitehousedrugpolicy.gov/publications/economic\\_costs/](http://www.whitehousedrugpolicy.gov/publications/economic_costs/)

Harwood H. Updating Estimates of the Economic Costs of Alcohol Abuse in the United States. The Lewin Group for the NIAAA, 2000. [www.niaaa.nih.gov/publications/economic-2000/#table3](http://www.niaaa.nih.gov/publications/economic-2000/#table3)

# Who Bears the Cost of Substance Abuse?





# Week 1—Hospitalization

## (12/99)

-42 y/o male

-11/99  
endocarditis

-LVEF 75%

-12/99-c/c-  
"abd pain"

- Blood cultures negative
- Methadone
- Pain medications
- Abd w/: surg consult, imaging studies UGI SBFT
  - “Focal area of small bowel dilatation and loss of mucosal folds within the mid to distal ileum. Differential diagnosis includes a small bowel lymphoma, however, inflammatory bowel disease and mastocytosis can also be considered.”
- Cardiac Echo LVEF 70%; vegetation no longer visible



# Week 2—Hospitalization

(12/99–1/00)

-42 y/o male  
-11/99  
endocarditis  
-LVEF 75%  
-12/99-c/c-  
"abd pain"  
-UGI-  
abnormal

- Abd pain and poor PO intake persisted
- HBsAg<sup>-</sup>, HBCAb<sup>+</sup> (past Hepatitis B, resolved)
- HCV Ab<sup>+</sup> (Hepatitis C)
- HIV<sup>+</sup>, CD4 503, HVL 15,085



## Mr. CB

-42 y/o male  
-11/99  
endocarditis  
  
-LVEF 75%  
  
-12/99-c/c-  
"abd pain"  
  
-UGI-  
abnormal  
  
-HIV<sup>+</sup>, HCV<sup>+</sup>  
CD4 503

- What is your leading diagnosis?
- What is your next diagnostic test?





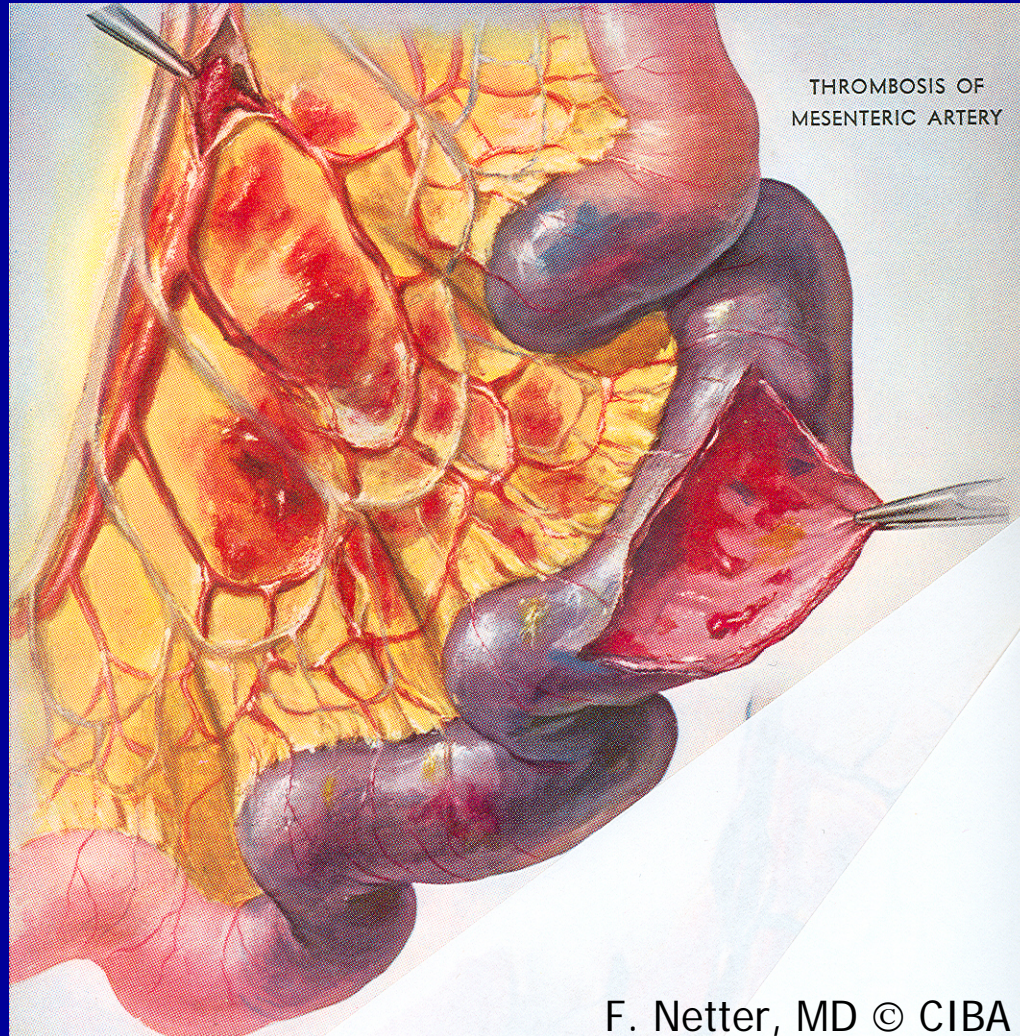
# Week 2—Hospitalization

## (1/00)

-42 y/o male  
-11/99  
endocarditis  
-LVEF 75%  
-12/99-c/c-  
"abd pain"  
-UGI-  
abnormal  
-HIV<sup>+</sup>, HCV<sup>+</sup>  
CD4 503

- CT with angiogram
  - Superior Mesenteric Artery (SMA) occlusion possibly secondary to mitral valve vegetation embolus
  - Dx: ischemic colitis
  - Transferred to surgery for partial colectomy

# Mesenteric Vascular Occlusion



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# Treatment Effectiveness

- 50% to 80% return to previous pattern of substance use during the first year after treatment.
- Most important predictors of relapse:
  - Low socioeconomic status
  - Comorbid psychiatric conditions
  - Lack of family and social support



PRINCIPLES OF  
DRUG ADDICTION  
TREATMENT

A RESEARCH-BASED GUIDE

National Institute on Drug Abuse  
National Institutes of Health

# Principles of Effective Drug Addiction Treatment

## National Institute on Drug Abuse (NIDA), 1999

1. No single treatment is appropriate for all individuals.
2. Treatment needs to be readily available.
3. Effective treatment attends to multiple needs of the individual, not just his or her drug use.
4. An individual's treatment and services plan must be assessed continually and modified as necessary to ensure that the plan meets the person's changing needs.
5. Remaining in treatment for an adequate period of time is critical for treatment effectiveness.



# Principles of Effective Drug Addiction Treatment

## National Institute on Drug Abuse (NIDA), 1999

6. Counseling and other behavioral therapies are critical components of effective treatment for addiction.
7. Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies.
8. Addicted or drug-abusing individuals with coexisting mental disorders should have both disorders treated in an integrated way.
9. Medical detoxification is only the first stage and by itself does little to change long-term drug use.

# Principles of Effective Drug Addiction Treatment

## National Institute on Drug Abuse (NIDA), 1999

10. Treatment does not need to be voluntary to be effective
11. Possible drug use during treatment must be monitored continuously.
12. Treatment programs should provide assessment for HIV/AIDS, Hep B & C, TB, and other infectious diseases, and counseling to help patients modify or change behaviors that place themselves or others at risk of infection.
13. Recovery from drug addiction can be a long-term process and frequently requires multiple episodes of treatment.



# The Most Effective Treatment Strategies Will Attend to All Aspects of Addiction:

- Biology
- Behavior
- Social Context

# Principles of Addiction

## CONCLUSIONS

- Addiction is a chronic, relapsing brain disease and comes at a high cost to society.
- There are multiple treatment approaches for addiction and they are most effective when used in combination.
- NIDA's "Principles of Effective Drug Addiction Treatment" offers useful guidelines for physicians.