



# Substance Use Disorders: A Perspective for Change

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Hazelden Betty Ford  
Foundation

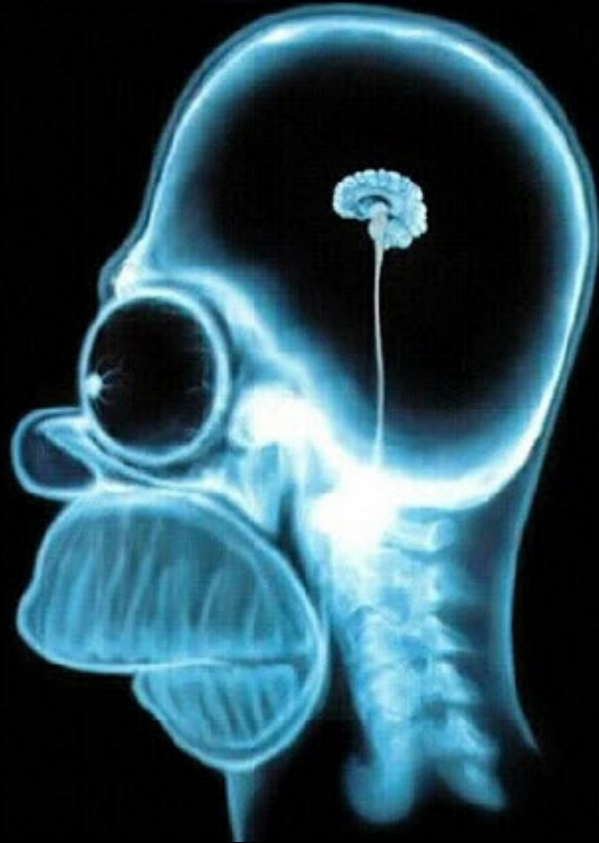
# Objectives

## *Substance Use Disorders: A Perspective for Change*

- To leave with a basic understanding of how neurobiology of addiction results in associated maladaptive behaviors
- To put the Kansas experience with substance use disorders into a context for change
- To leave with a recognition of the necessity of using a public health approach to alter the state's system for prevention, identification and treatment of substance use disorders



# Let's Start With Neurobiology of Addiction



# Addiction is a Brain Disease

## **NOT:**

- Secondary to another psychiatric illness
- A moral or ethical problem
- A personality disorder
- A choice

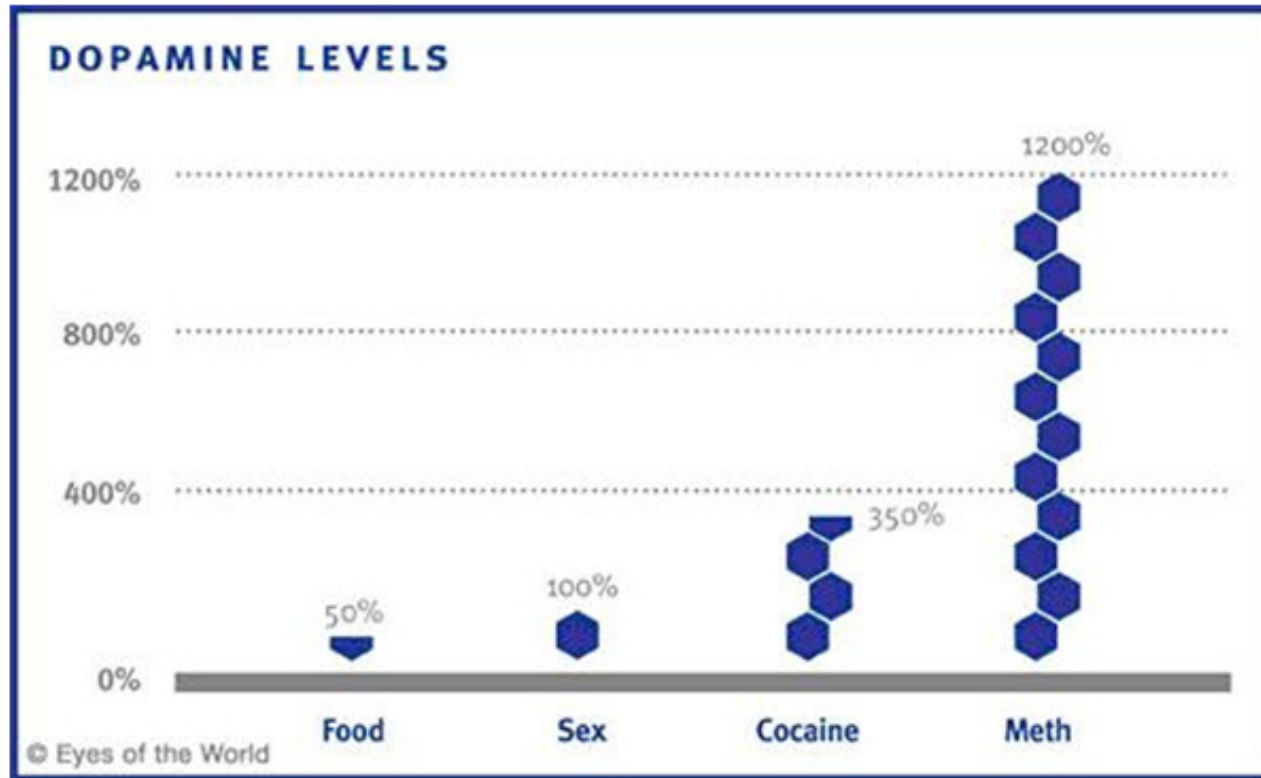
# Acute Intoxication: Primarily Reward Circuitry

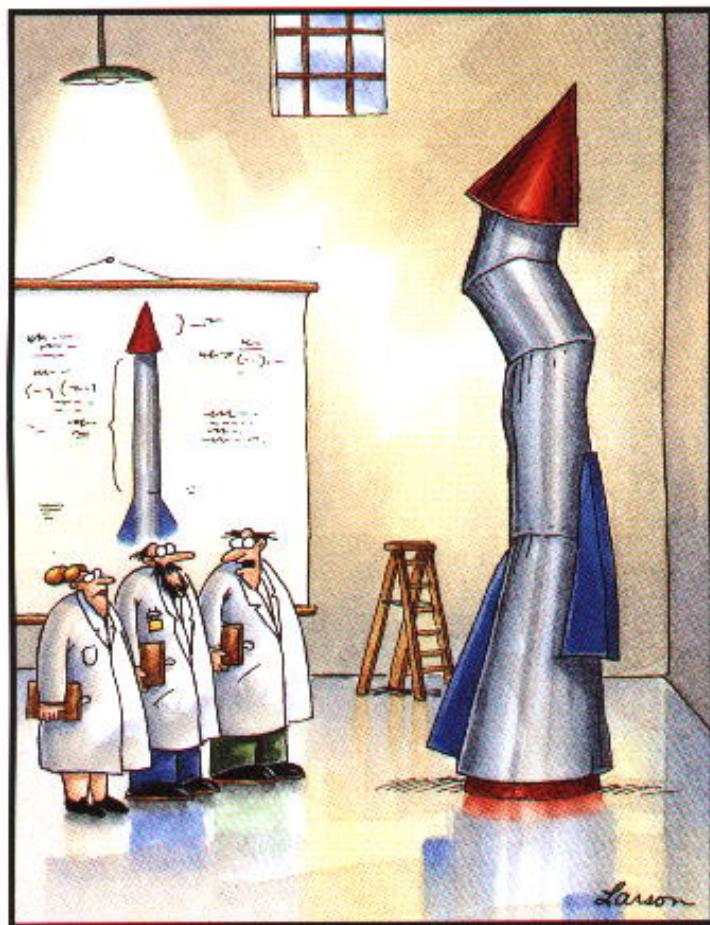
- A Hedonic activity
- Positive reinforcement
- All drugs of abuse enhance dopamine release
- Mesolimbic dopamine system

# Dopamine and Addiction

- All rewarding activities cause an increase in dopamine in the brain's reward circuitry
- The amount of dopamine signals the salience of the stimuli
- All drugs of abuse cause a supraphysiologic increase in dopamine within the reward center

# Dopamine Levels





"It's time we face reality, my friends. ...  
We're not exactly rocket scientists."



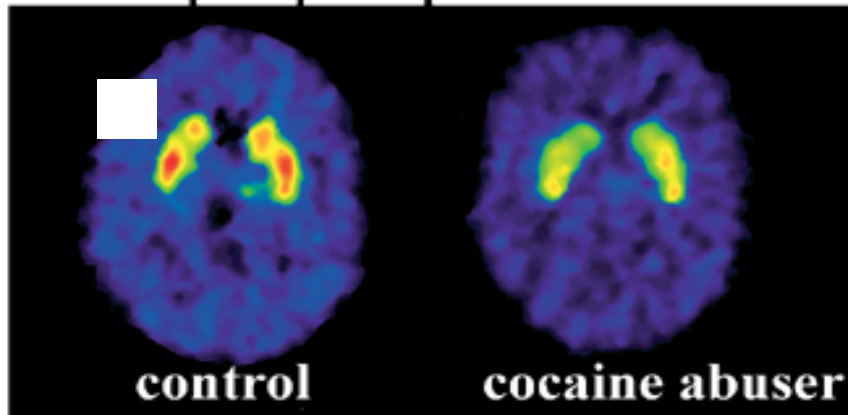
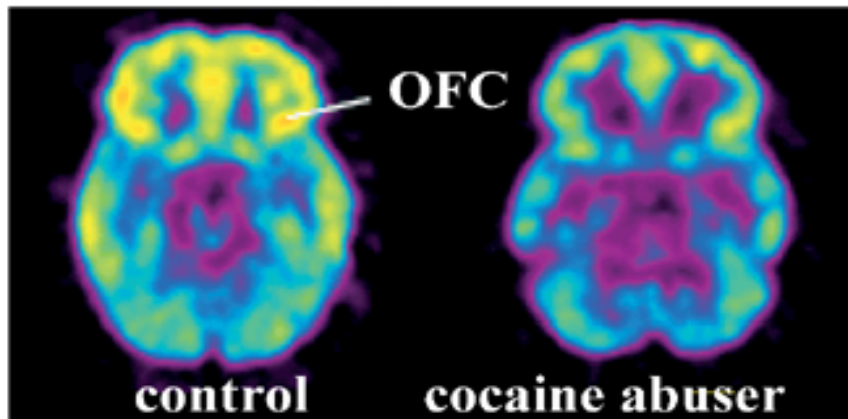
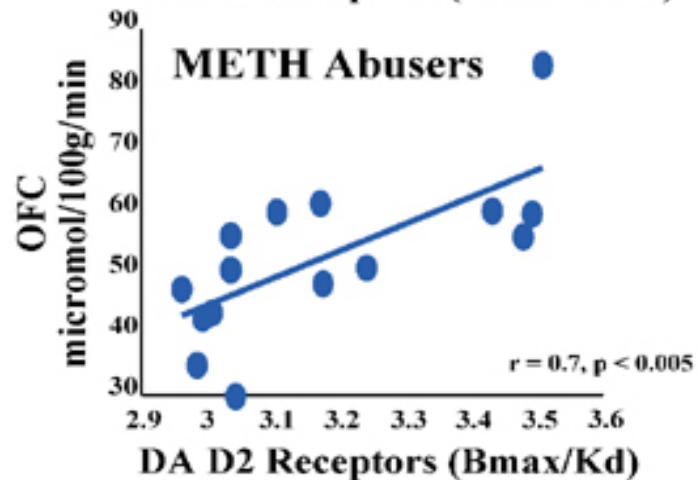
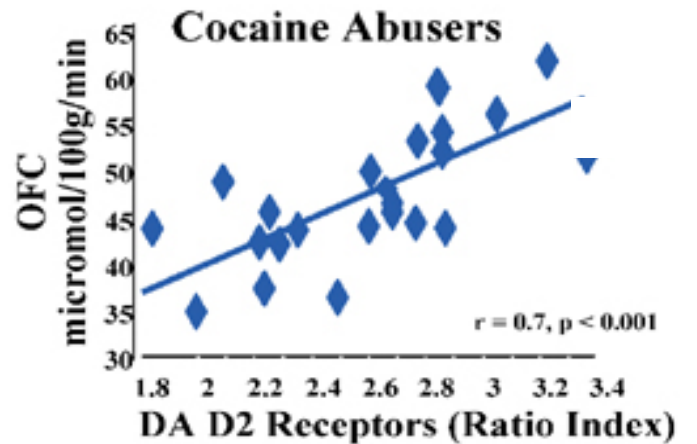
# Establishment of the Addictive Cycle

- Positive Reinforcement from the drug diminished
- Negative Reinforcement from the drug increases
- Motivational withdrawal syndrome established
- Incentive salience narrows the individuals focus

# The Addictive Cycle

The transition to addiction from casual drug use involves the brain areas associated with these three stages

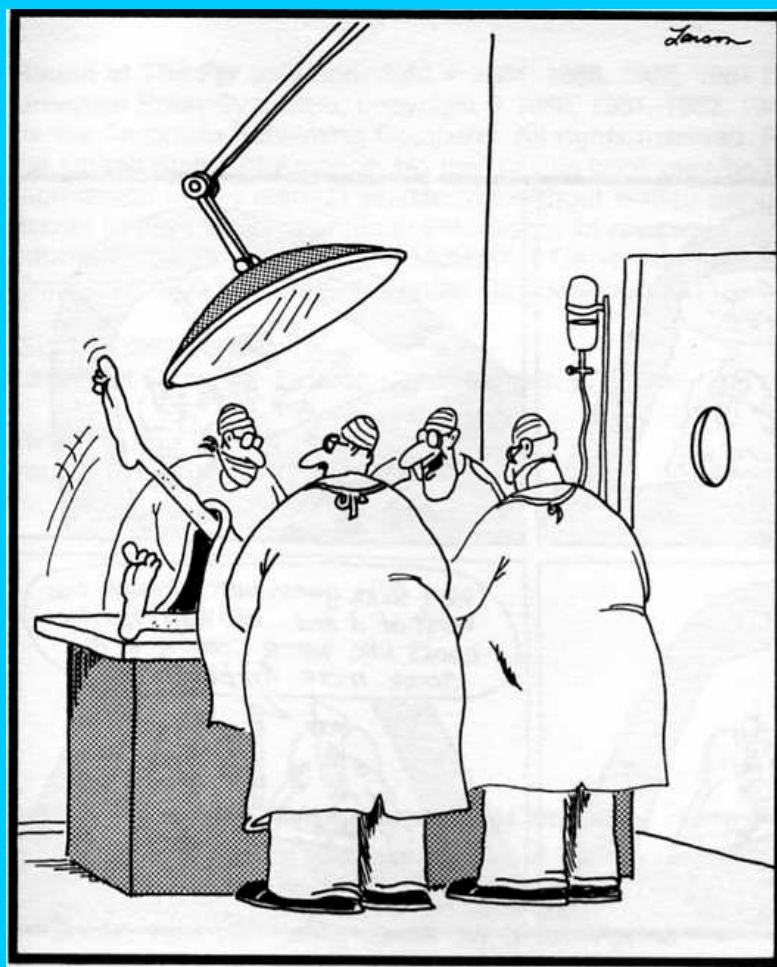
- Binge / Intoxication
- Withdrawal / Negative Affect
- Preoccupation / Anticipation (craving)

**a****[11C]raclopride****FDG****b**

# Addiction is a Disorder of...

- Incentive salience: Re-prioritization of drive states
- Reward deficit: lower reactivity to rewards
- Stress surfeit: enhanced stress responses
- Executive function: weakened recognition of consequences and undermined ability to alter behavior





**"Whoa! That was a good one! Try it, Hobbs — just poke his brain right where my finger is."**

# Genetic Vulnerability

- Estimated genetic risk 40-60% - this is the primary risk factor for addiction
- Multiple genes are involved with drug responses
- A few genes have been identified that are protective



# Environmental Risk Factors

## Consistently Related to Risk of Self Administration

- Low socioeconomic class
- Poor parental support
- Drug availability



# Environmental Risk Factors

- Stress is a common feature among environmental risk factors, both for initiation of use and relapse.
- Co-occurring psychiatric illness and a history of trauma increase the risk of addiction and of relapse.

# Substance Use in Past Year by percentage of population

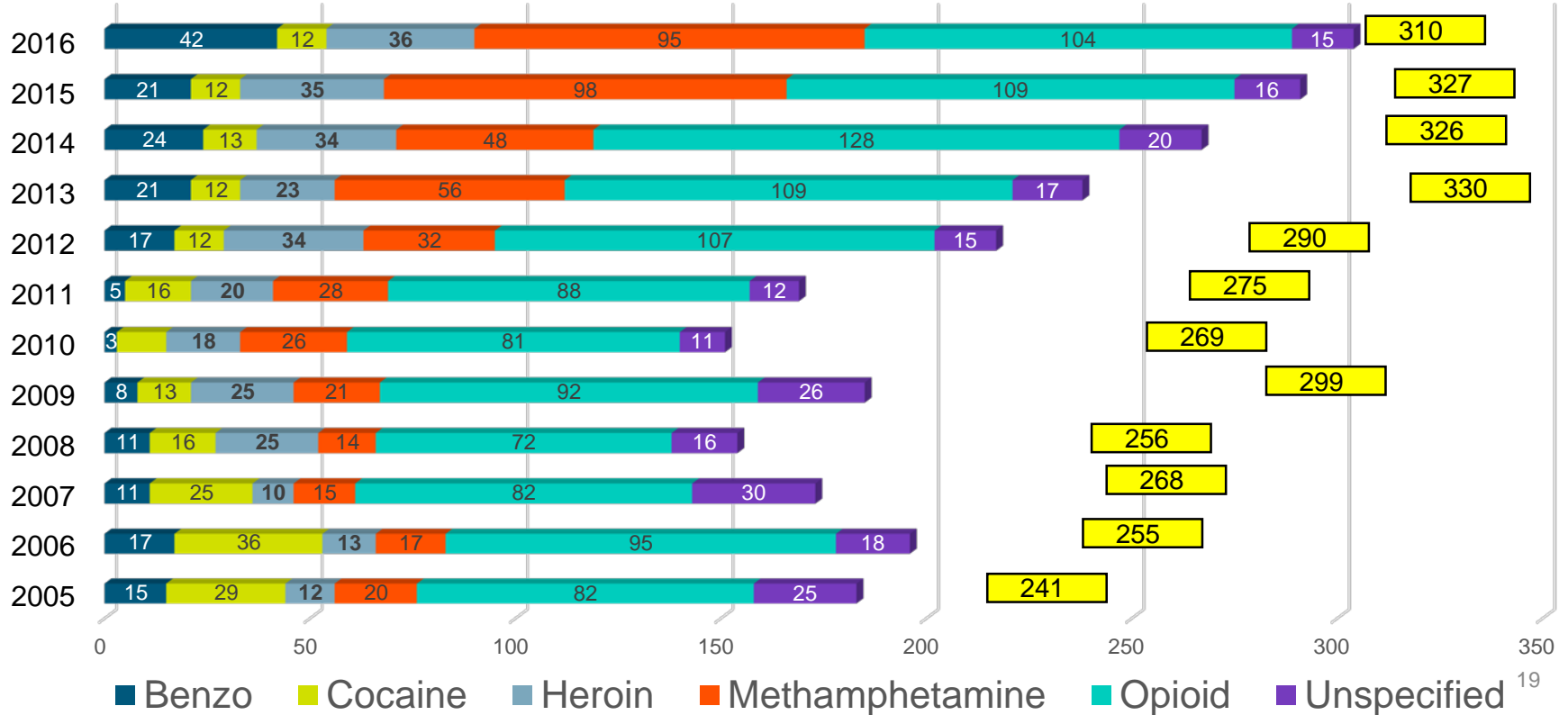
(Alcohol was in past month)

	Kansas > 12 years old	Kansas 18-25	US > 12 years old	US 8-25
Alcohol	55.46	58.72	51.21	57.75
Illicit Drug Use	8.08	17.43	10.36	22.75
Marijuana	11.17	26.92	13.71	32.60
Cocaine	1.24	3.83	1.84	5.46
Prescription Opioids	4.65	7.97	4.66	7.82
Heroin	0.27	0.55	0.33	0.64

# Drug Poisoning Deaths with Mentions of Selected Drugs

2005-2009 and 2011-2016, Kansas residents

Kansas Injury Protection Program  
<http://www.kdheks.gov/idp/index.html>  
 Released August 2017



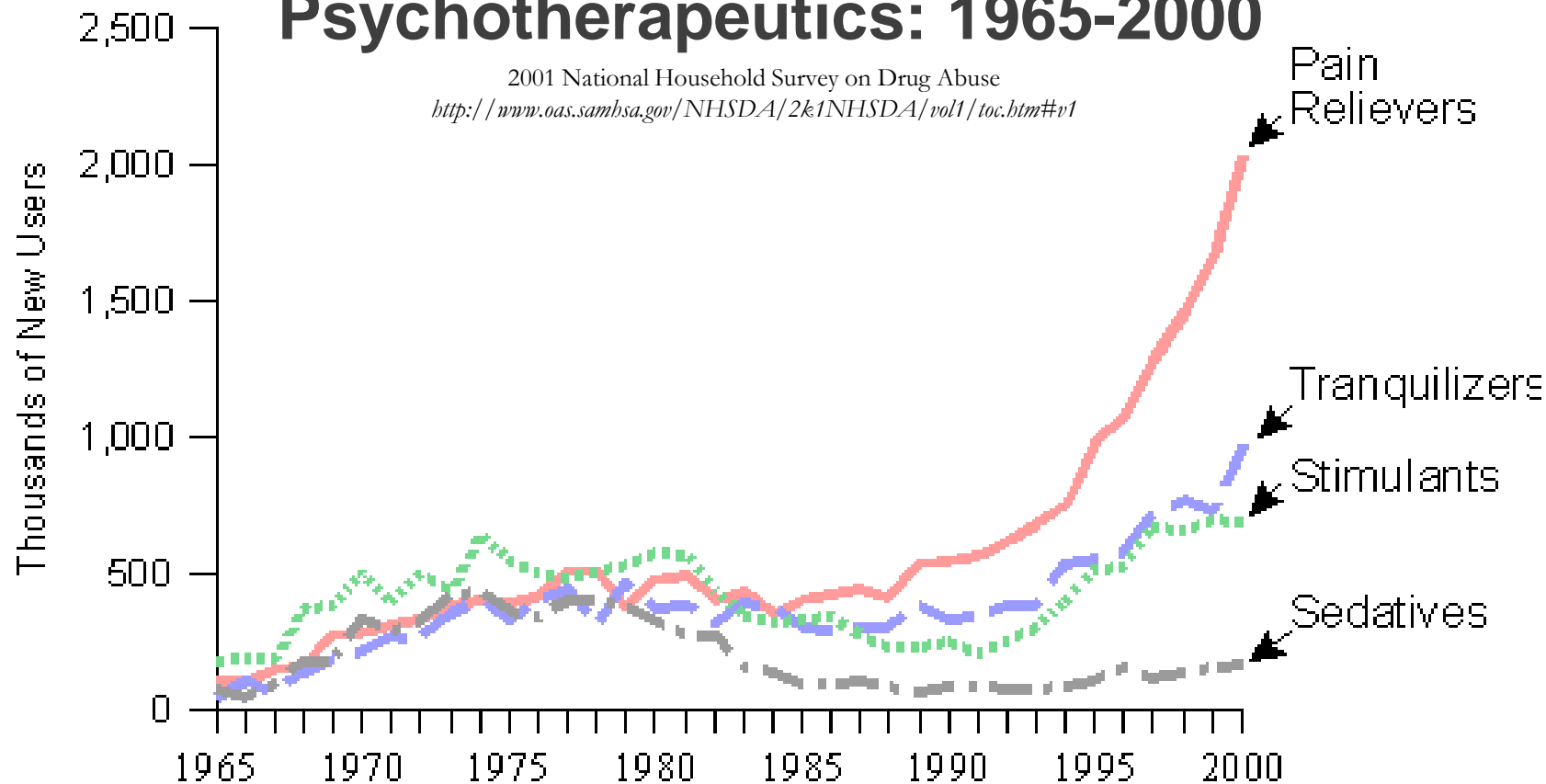
# Kansas

- In the lower ¼ of the 50 states in illicit drug use, slightly higher than average in alcohol use
- However, the Kansas Dept. of Health and Environment described a 121.6 % increase in drug poisoning deaths since 2000
- Kansas is at the national average in prescription opioid use
- Kansas healthcare providers prescribe more opioids per person than most states (National Prescription Audit 2012)
- Opioids are the number one cause of drug poisoning deaths
- The increase in use of methamphetamine with associated deaths is very concerning

# Annual Numbers of New Nonmedical Users of Psychotherapeutics: 1965-2000

2001 National Household Survey on Drug Abuse

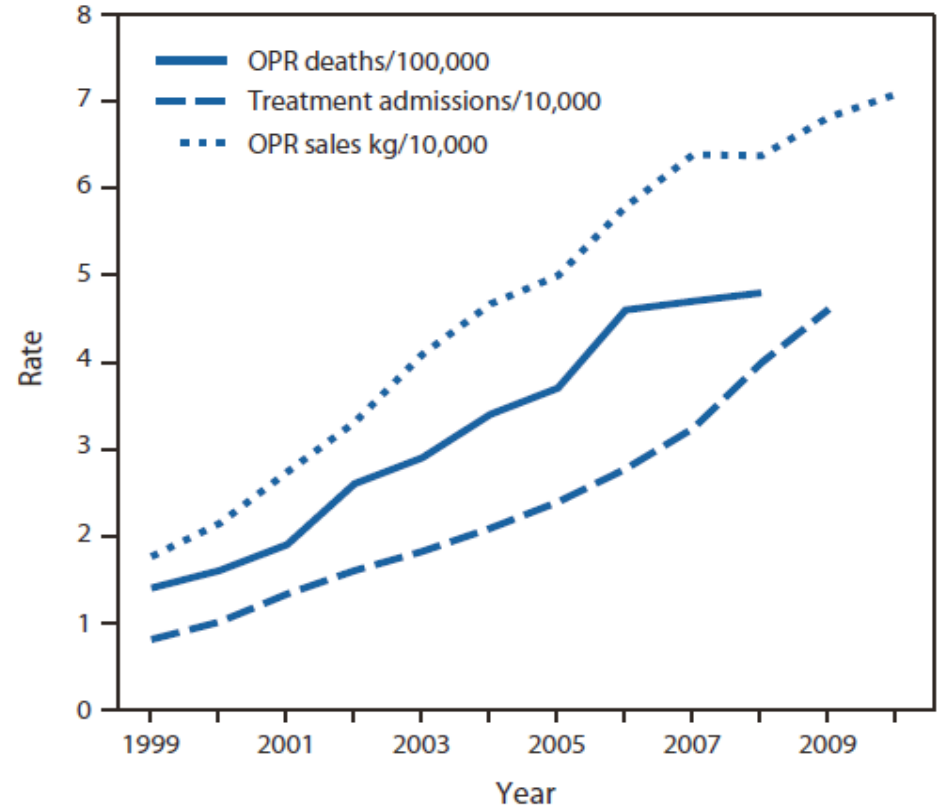
<http://www.oas.samhsa.gov/NHSDA/2k1NHSDA/vol1/toc.htm#v1>



# Rates\* of opioid pain reliever (OPR) overdose death, OPR treatment admissions, and kilograms of OPR sold: United States, 1999-2010

\* Age-adjusted rates per 100,000 population for OPR deaths, crude rates per 10,000 population for OPR abuse treatment admissions, and crude rates per 10,000 population for kilograms of OPR sold.

[www.cdc.gov/mmwr/preview/mmwrhtml/mm6043a4.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6043a4.htm)



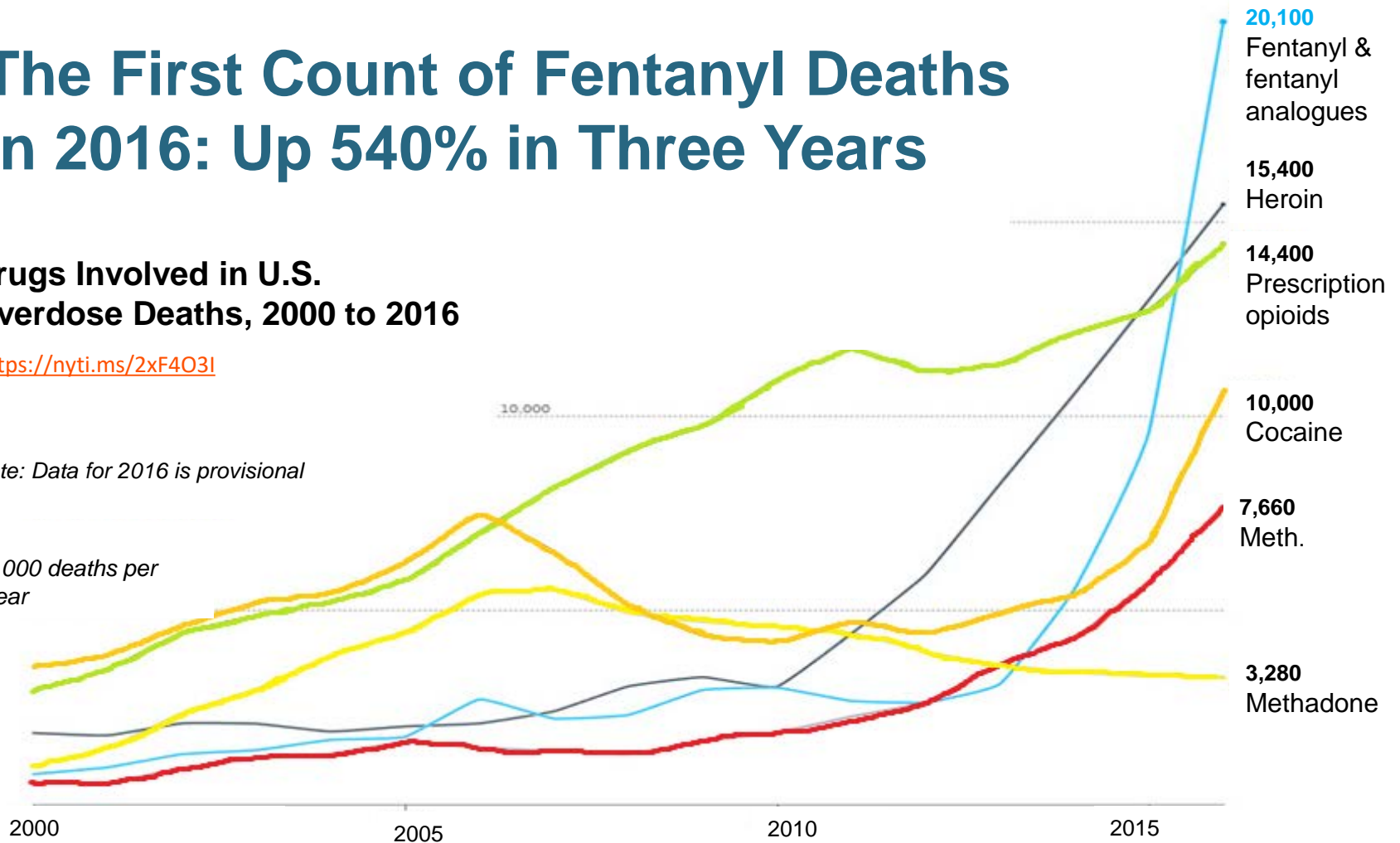
# The First Count of Fentanyl Deaths in 2016: Up 540% in Three Years

## Drugs Involved in U.S. Overdose Deaths, 2000 to 2016

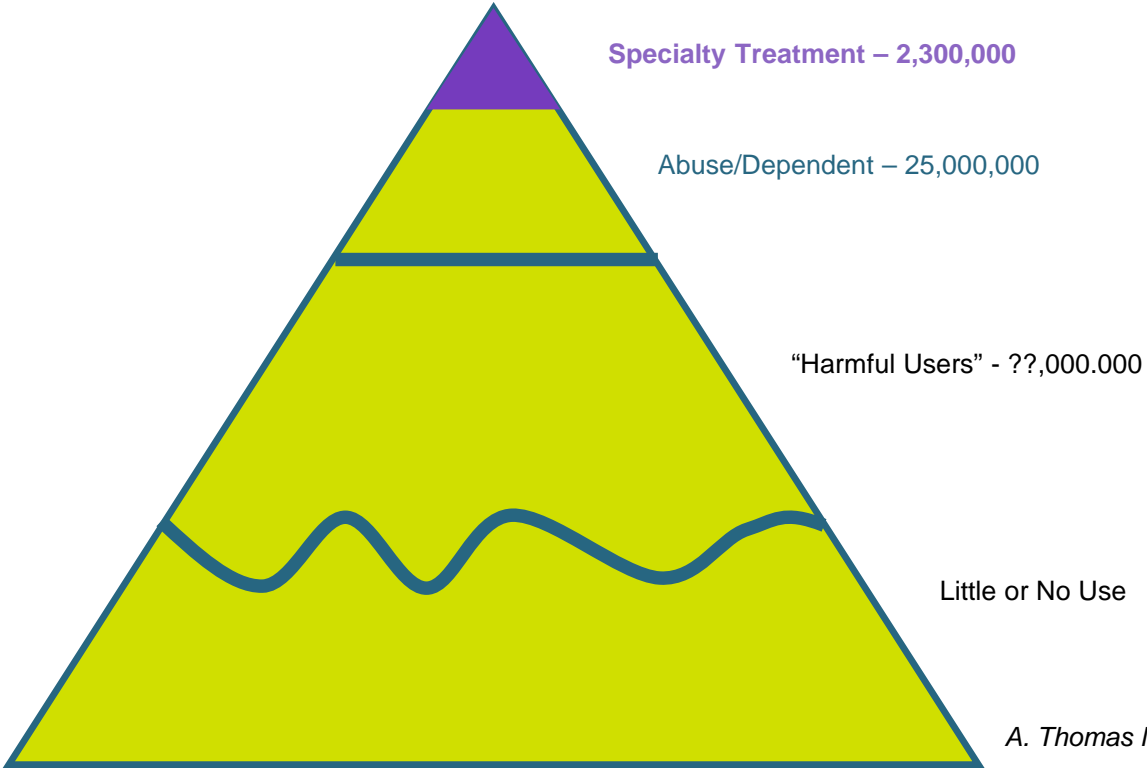
<https://nyti.ms/2xF4O3I>

Note: Data for 2016 is provisional

5,000 deaths per year



# Substance Use Disorders

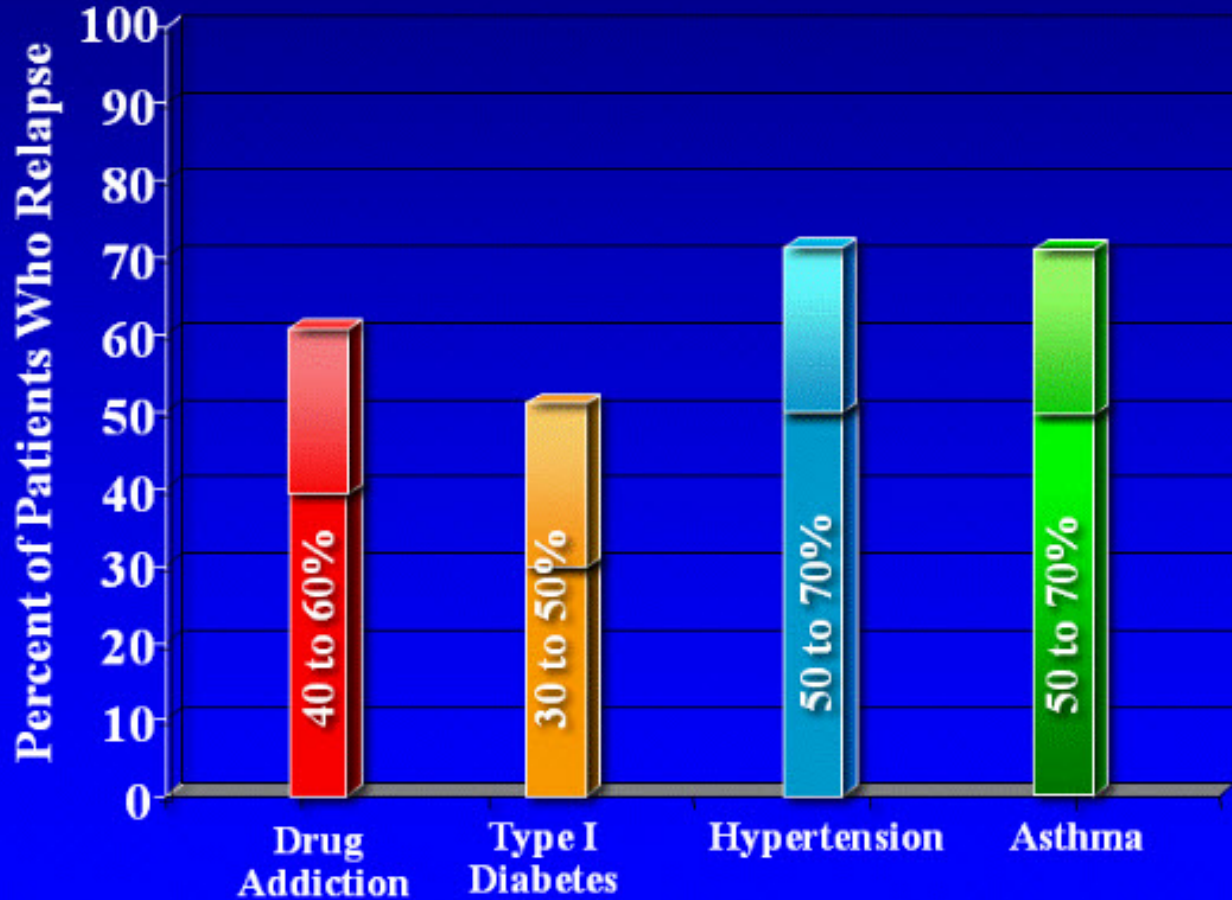




# How Well Does Addiction Treatment Work

Relapse Rates  
Are Similar for  
Drug  
Dependence and  
Other Chronic  
Illnesses

Source: McLellan, A.T. et al, JAMA, Vol 284(13),  
October 4, 2000.



# A Comprehensive Approach to Substance Use Disorders

- Enhanced public education to improve awareness about substance use problems and demand for more effective policies and practices to address them;
- Widespread implementation of evidence-based prevention policies and programs to prevent substance misuse and related harms;
- Improved access to evidence-based treatment services, integrated with mainstream health care, for those at risk for or affected by substance use disorders;
- Recovery support services (RSS) to assist individuals in maintaining remission and preventing relapse; and
- Research-informed public policies and financing strategies to ensure that substance misuse and use disorder services are accessible, compassionate, efficient, and sustainable.

# Key Elements of a Public Health Approach to Substance Misuse

- Define the problem through the systematic collection of data on the scope, characteristics, and consequences of substance misuse
- Identify the risk and protective factors that increase or decrease the risk for substance misuse and its consequences, and the factors that could be modified through interventions
- Work across the public and private sector to develop and test interventions that address social, environmental, or economic determinants of substance misuse and related health consequences
- Support broad implementation of effective prevention and treatment interventions and recovery supports in a wide range of settings
- Monitor the impact of these interventions on substance misuse and related problems as well as on risk and protective factors

# Key Objectives for States

## 1. Conduct a needs assessment specific to your state

- Determine the extent of the problem and its scope in your state
- What population groups are primarily affected
- Current resources
- Resource gaps

# Key Objectives for States

## 2. Implement a comprehensive approach

- Prevention
- Overdose reduction
- Identification
- Treatment
- Recovery support

# Key Objectives for States

## **3. Utilize data-informed and evidence-based practices, and align your state programs around them**

- Prevention programs
- Overdose reduction
- Identification
- Addiction treatment
- Criminal justice initiatives

# Key Objectives for States

## 4. Evaluate the results of initiatives, strategies and interventions

- Plan, fund and provide infrastructure to measure your outcomes
- Make sure your efforts work and get the results you want

# Key Objectives for States

## 5. Provide adequate funding and resources

- Insure you have the financial support necessary
- Wisely use the federal dollars you obtain, and seek more now
- Use your leverage to insure that dollars are used appropriately
- Seek successful implementation for real results
- Insure adherence with the structure you implement



# President Donald J. Trump's Initiative to Stop Opioid Abuse and Reduce Drug Supply and Demand

- President Trump's Initiative will confront the driving forces behind the opioid crisis
- Reduce Drug Demand and Over-prescriptions: President Trump's Opioid Initiative will educate Americans about the dangers of opioid and other drug use and seek to curb over-prescribing
- Cut Off the Supply of Illicit Drugs: President Trump's Initiative will crack down on international and domestic illicit drug supply chains devastating American communities
- Help Those Struggling with Addiction: President Trump's Initiative will help those struggling with addiction through evidence-based treatment and recovery services

# Summary

- Substance Use Disorders need to be examined and treated just like other chronic diseases
- A public health approach organized across state departments can significantly improve your services and your outcomes
- There are Federal dollars available for the opioid crisis, use them to improve your entire system
- Take advantage of this crisis knowing that you have a different demographic and that other “crises” will come along