

# Treatment of Heroin or Other Opioid Addiction in Adolescents

Lisa A. Marsch, Ph.D.

National Development & Research Institutes &  
St. Luke's-Roosevelt Hospital Center,  
Department of Psychiatry,  
New York, NY

# Acknowledgement of Research Funding

---

National Institute on Drug Abuse (NIDA),  
National Institutes of Health (NIH)

Grants #R03DA14570  
#R01DA018297

# Recreational Heroin & Other Opioid Use Among Youth

- Recreational use and dependence on heroin and other opioids among adolescents is a significant and, in some countries, a growing public health concern.
- In the U.S., the prevalence of heroin use among 8<sup>th</sup>, 10<sup>th</sup>, & 12<sup>th</sup> graders increased from 0.4-0.6% a decade ago to 1.0-1.6% in recent years (Monitoring the Future, 2006)
- About 13% of 8<sup>th</sup> graders, 17% of 10<sup>th</sup> graders & 27% of 12<sup>th</sup> graders say heroin is “fairly or very easy to get” (MTF, 2006)

# Recreational Heroin & Other Opioid Use Among Youth

- The increased number of young heroin users has been largely attributed to the decreased price and increased purity of heroin, which allows for intranasal use.
- Purity of heroin in U.S. increased from an average of approx. 7% a couple of decades ago to approx. 69% (DEA, 2003)
- Many adolescents initiate heroin use by snorting it; however, they are at great risk of becoming injection drug users.
- Heroin-using adolescents have the highest rate of injection drug use compared with youth using other substances.



# Recreational Heroin & Other Opioid Use Among Youth

- 2.6%, 3.8% & 4.3% of 8<sup>th</sup>, 10<sup>th</sup> & 12<sup>th</sup> graders, respectively used OxyContin, and 3%, 7% & 9.7% used Vicodin in last year (Monitoring the Future, 2006)
- About 13% of 8<sup>th</sup> graders, 22% of 10<sup>th</sup> graders & 40% of 12<sup>th</sup> graders say narcotics are “fairly or very easy to get” (MTF, 2006)
- Opiates are currently the second most commonly used illicit drugs among youth in the U.S.
- These trends of increased recreational opioid use have paralleled a sizeable and continuing growth of the availability of new prescription analgesics available in the pharmaceutical market.

# Research on Treatment for Opioid-Dependent Adolescents

---

- A few treatment studies were conducted in the 1960s and 1970s with opioid-dependent youth
- These studies typically did not have control groups or use random assignment, most did not specifically focus on youth under age 18, & may not reflect characteristics of the current cohort of opioid-abusing youth.
- We launched a line of clinical research to identify effective treatments for this understudied population of youth.

# Overview of First, Randomized, Controlled Trial

(Marsch et al., 2005, *Archives of General Psychiatry*)

---

- First study in science-based, data-driven effort to produce information needed to effect large-scale change
- Double-blind, double-dummy study designed to compare the relative efficacy of buprenorphine and clonidine in the detoxification of opioid-dependent youth (28-day detoxification; ages 13-18 eligible)
- Informed by the scientific literatures on both effective treatment for opioid-dependent adults & effective treatment of adolescent substance abusers in general



# Behavioral Interventions

- All adolescents were also provided with a multicomponent, behaviorally-based treatment program:
  - Individual behavior therapy, including family therapy (based on efficacious Community Reinforcement Approach)
  - Voucher-based Contingency Management (incentives for drug abstinence as measured via thrice weekly urinalysis and clinic attendance)
  - Outreach component to engage adolescents in recreational and other activities to increase non-drug sources of reinforcement



# Post-Detoxification Interventions

- All adolescents were provided with 2 months of aftercare, including:
  - Individual Counseling
  - Urinalysis (semi-quantitative)
  - Naltrexone - A pure opioid antagonist; prevents receptor activation by other opioid compounds and blocks effects of other opioid drugs
  - Referral to a community-based treatment facility

# Participant Characteristics

(n=36)

<u>CHARACTERISTIC (% or M + SD)</u>	<u>BUPRENORPHINE</u>	<u>CLONIDINE</u>
Age	17.3 (0.7)	17.4 (0.7)
Age of First Opiate Use	15.0 (1.6)	14.7 (1.7)
Gender (% Male)	50%	28%
Race (% Caucasian)	100%	94%
Route of Opiate Use (% Injecting)	33%	39%
Primary Opiate Used (% Using Heroin)	55%	50%
# of Days Used Opiates in Last 30 Days	27.7 (3.0)	27.7 (4.8)
# of Prior Outpatient S. Abuse Treatment	0.9 (1.05)	1.1 (1.13)
# of Prior Inpatient S. Abuse Treatment	0.8 (1.06)	0.4 (0.85)

# Other Participant Characteristics/ Life History Variables

- Participants reported significant exposure to risk and high levels of risk behavior. *For example,*

93% had a family member who drank/used drugs regularly; 45% had a family member with significant mental health problems

44% had experienced a significant family crisis and 41% had someone close to them reject them

36% had witnessed severe violence or abuse, and 31% percent of female participants reported having been raped

Over half (53%) had a family member who engaged in illegal activity, and over 70% had witnessed the arrest of a friend, relative, or neighbor



# Other Participant Characteristics/ Life History Variables

- Participants criminal activity included:

91% had committed a crime, most commonly shoplifting (73%) & drug dealing (57%)

Age of first occurrence of criminal activity was 14 years on average

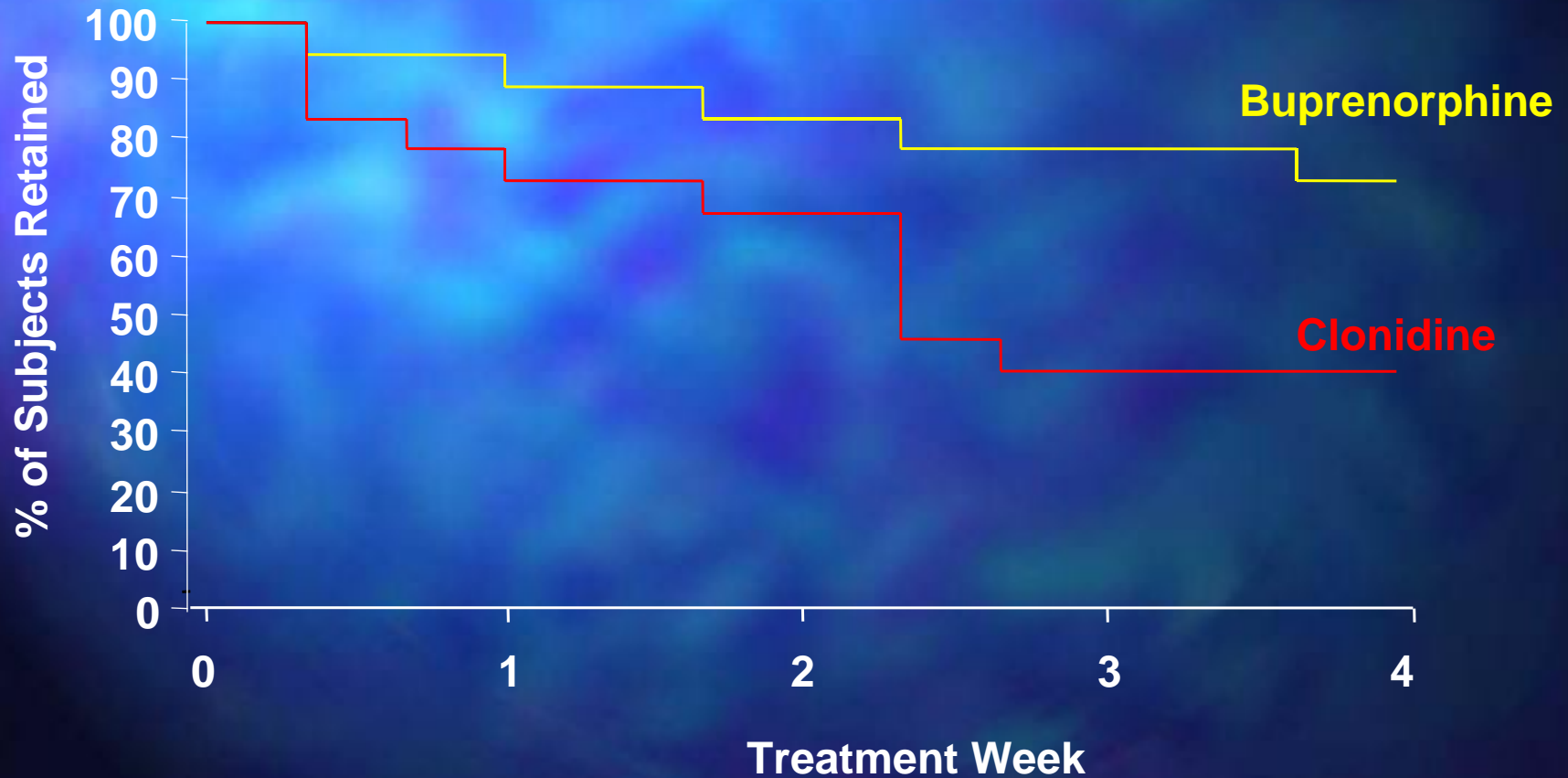
54% had been picked up by police

42% had been on probation

24% spent time in juvenile detention or jail

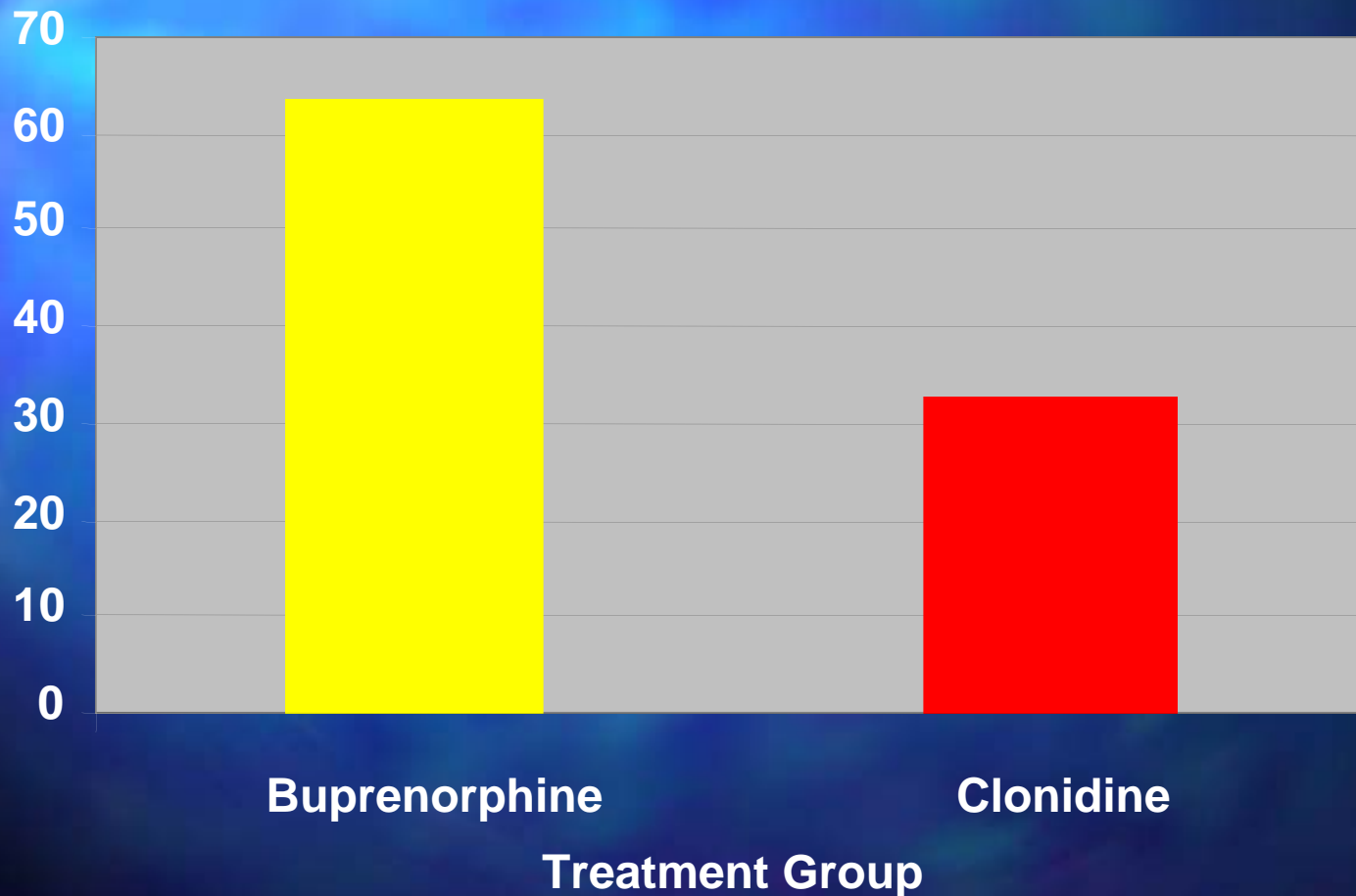
# Treatment Retention

( $p=.04$ )



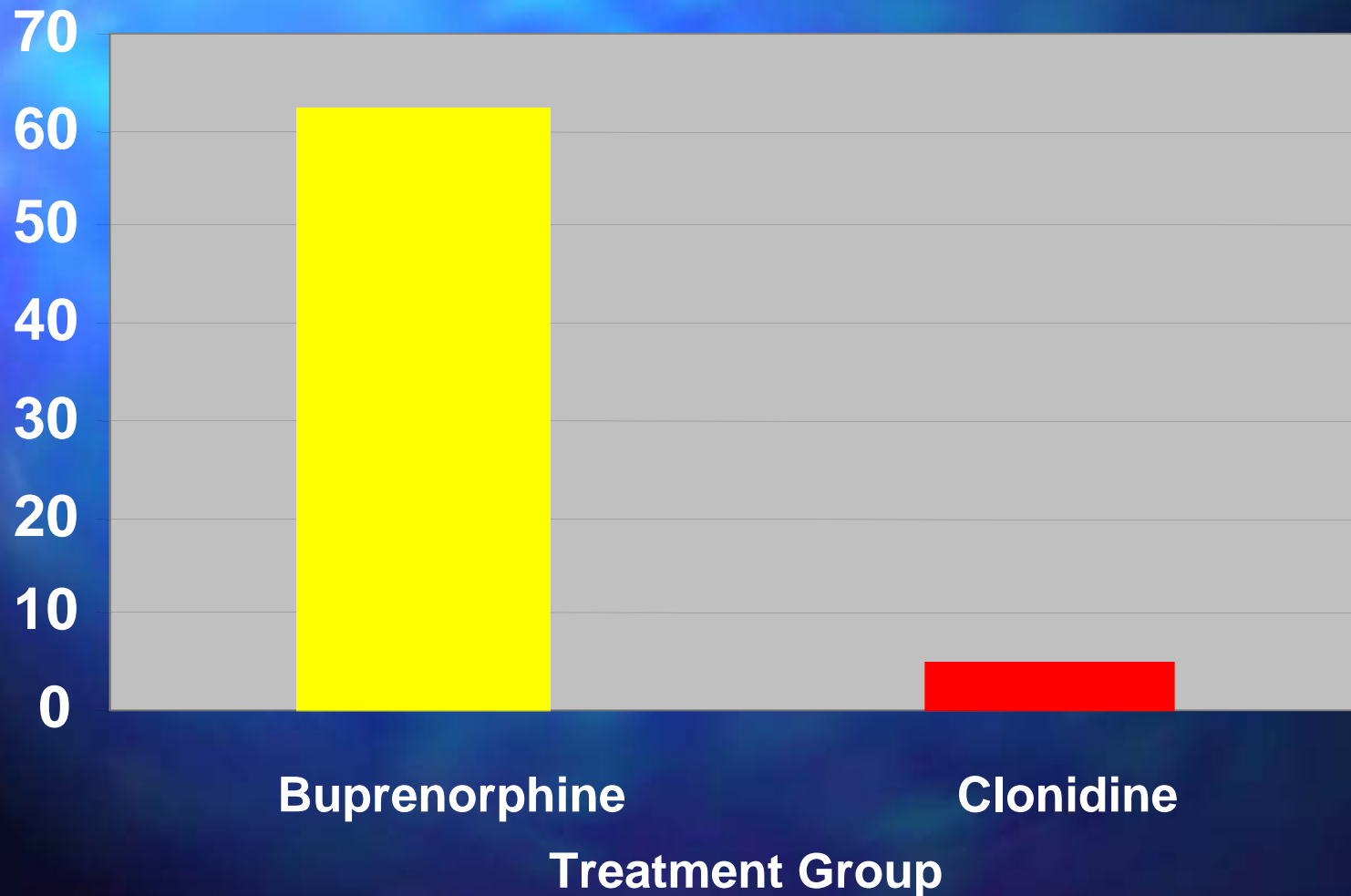
# Mean Percent Opiate Abstinence

( $p=.01$ )





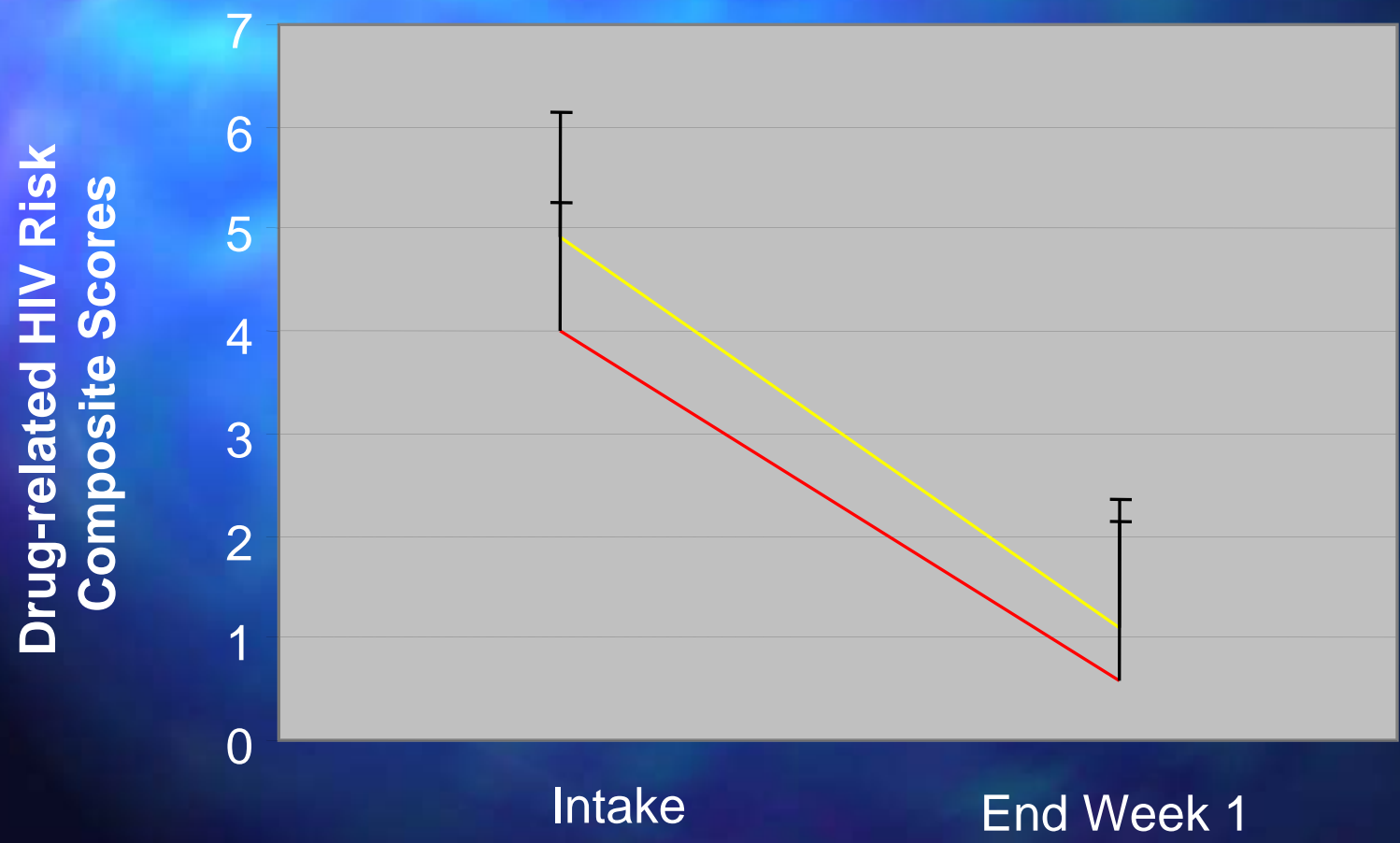
# Percent of Participants Initiating Naltrexone Post-Detoxification



# HIV Risk Behavior (HRBS)

(time effect:  $p = .0005$ )

- Buprenorphine
- Clonidine



# Sub-group Analyses: Outcome by Gender

---

- Baseline characteristics of males & females were similar.
- Both males & females had significantly better outcomes from buprenorphine & behavioral treatment compared to clonidine & behavioral treatment.
- However, females achieved greater opioid abstinence and reductions in HIV risk behavior relative to males during buprenorphine/behavioral treatment.



# Current Clinical Research in New York City

- Can treatment outcomes be improved if duration of medication taper is increased?

*Phase 1: Random Assignment to 28 or 63-day buprenorphine taper*

- Can incentives contingent on naltrexone consumption increase compliance with naltrexone and reduce relapse?

*Phase 2: Random Assignment to receive/not receive voucher incentives contingent on naltrexone*

- Do various sub-populations of opioid-dependent youth have differential treatment outcomes (e.g., based on demographics, other drug use, psychological variables)?

# Summary of Research Results to date

- Expanded science-based prevention & treatment interventions are needed for the emerging cohort of opioid-dependent adolescents
- Although both clonidine and buprenorphine were shown to be quite safe, results indicate that combined behavioral & buprenorphine treatment is more efficacious than combined behavioral & clonidine treatment
- Due to the nature and pharmacology of opioid drugs, pharmacotherapy appears to be a critical component of successful treatment of opioid dependence (to stabilize brain neurochemistry).

# Summary of Research Results to date

---

- Naltrexone appears to have considerable utility in preventing relapse to opioid use after an adolescent is no longer dependent.
- Treatment outcomes appear optimal when medication is provided along with intensive behavioral therapy (to promote alternative rewarding behaviors & strengthen inhibitory control).
- Psychotherapy should address adolescent-specific issues (e.g., school re-entry, securing a degree, self-control training)
- Psychosocial treatment should address high rates of psychiatric comorbidity to be optimally effective



# Summary of Research Results to date

- Early intervention is key (to prevent transition from abuse to dependence or from intranasal to injection opioid use)
- Extended therapeutic treatment may be important for relapse prevention.
- Given this group's extensive involvement in the criminal justice system, there may be many opportunities for offering effective treatment to youth within this system
- Providing science-based treatment to this young population greatly reduces their likelihood of continued and escalating substance involvement and may prevent a substance-abusing life trajectory.