Science-based Treatment of Opioid-Dependent Adolescents: Summary of Research & Research Needs

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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 8th, 10th, & 12th 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 8th graders, 17% of 10th graders & 27% of 12th graders say heroin is “fairly or very easy to get” (MTF, 2006)

- Many adolescents initiate heroin use by snorting it; however, they are at great risk of becoming injection drug users.

Recreational Heroin & Other Opioid Use Among Youth

- Although past month use of illicit drugs among youth has *decreased* by over 23% since 2001, the prevalence of non-medical use of prescription opioids among adolescents has significantly increased (approx. 542% increase in last decade).

- 2.6%, 3.8% & 4.3% of 8th, 10th & 12th graders, respectively used OxyContin, and 3%, 7% & 9.7% used Vicodin in last year (MTF, 2006)

- About 13% of 8th graders, 22% of 10th graders & 40% of 12th graders say narcotics are “fairly or very easy to get” (MTF, 2006)

- Opioids are currently the second most commonly used illicit drugs among youth in the U.S.

Importance of Interventions Targeting Opioid Abuse among Youth

- Adolescents are the age group at greatest risk for initiating substance use.
- The rate of increase of prescription opioid abuse among teens is more than 4 times the rate of increase among adults.
- The rewarding effects of substances of abuse may be significantly greater in adolescents than adults.
- The adolescent brain is markedly different from both child and adult brains and may display particular vulnerabilities to disruption by drugs.
- The progression from substance abuse to dependence may develop more rapidly among adolescents than adults.

Characteristics of/Evidence-based Treatment for Opioid-Dependent Youth

- Little research has been conducted to date addressing the unique status of the opioid-dependent adolescent.

- Only a few limited reports have been published in the last 30 years reporting on some general characteristics of this population (e.g., Clemmey et al., 2004; Crome et al., 1998; Gordon, 2002; Hopfer et al., 2000; 2002; Marsch, 2006 Review, In Press).

- We launched a line of clinical research to identify effective treatments for this understudied population of youth.

Our Research on Treatment for Opioid-Dependent Adolescents

- Marsch et al., (2005). Comparison of Pharmacological Treatments for Opioid-Dependent Adolescents: A Randomized, Controlled Trial. Archives of General Psychiatry.
- Marsch, L.A. (2007). Treating Opioid Dependence in Adolescents. Child & Adolescent Psychopharmacology News.
- Marsch, L.A. (2007). Combined Behavioral and Pharmacological Treatment of Opioid-Dependent Adolescents: A Randomized, Controlled Trial. In Progress in Neurotherapeutics and Neuropsychopharmacology.
- Marsch, L.A. (2006). Treatment of Adolescents. In E.C. Strain & M.L. Stitzer (Eds.), The Treatment of Opioid Dependence. Johns Hopkins University Press.
- Motamed, Marsch et al. (In Press). Differences in Treatment Outcomes between Prescription Opioid-Dependent & Heroin-Dependent Adolescents. J. of Addiction Medicine.
- Guarino, Marsch et al. (In Press). Methadone Maintenance Treatment for Youth: Experiences of Clients, Staff and Parents. Substance Use and Misuse.
- Marsch, L.A. (2006). Draft Recommendations & Review Paper on Psychosocially-Assisted Pharmacotherapy of Opioid Dependence in Adolescents. Prepared for the WHO.

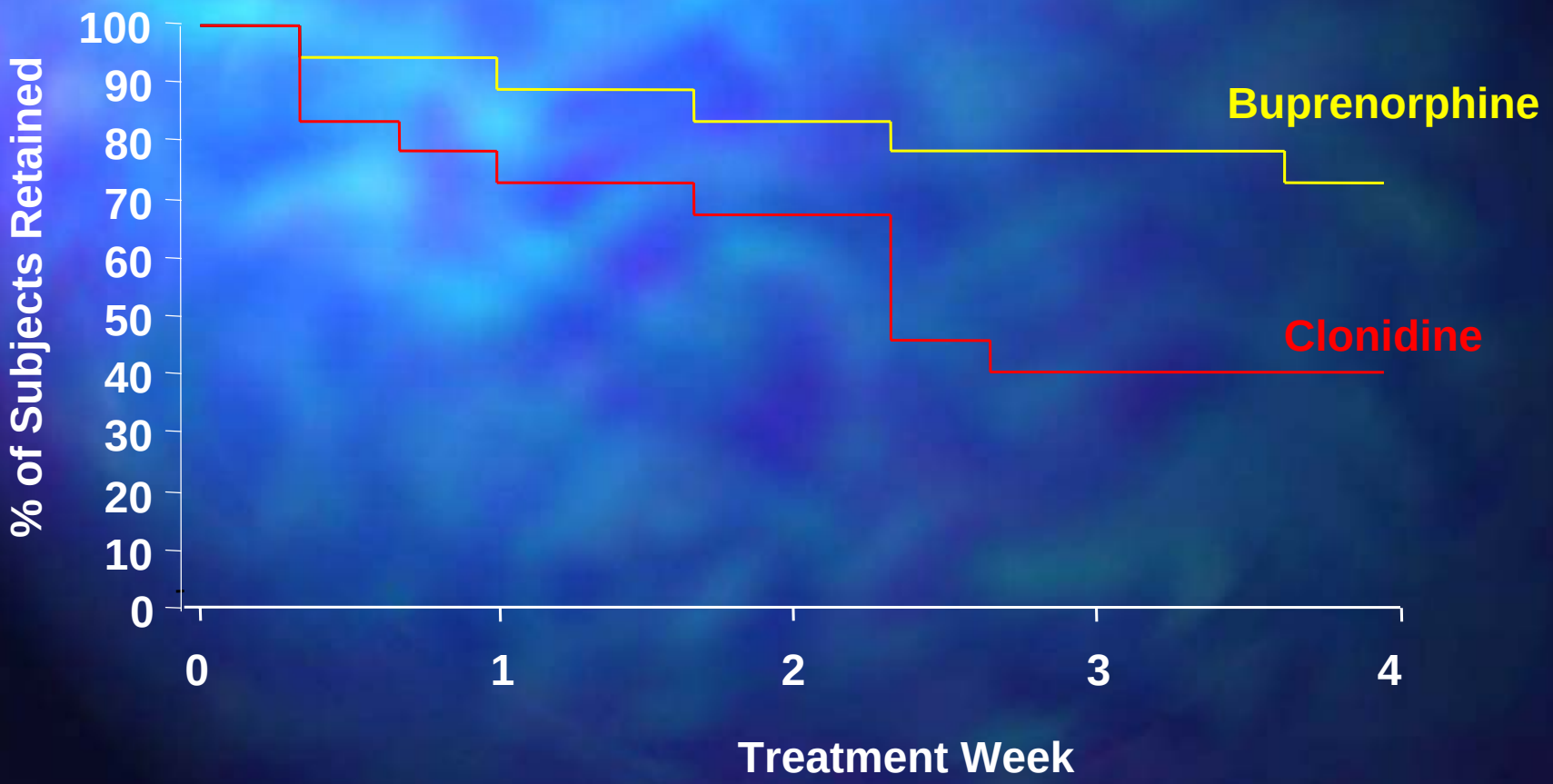
Summary of Findings to Date

- Combining buprenorphine & behavioral treatment was highly efficacious and more efficacious than combining clonidine & behavioral treatments for opioid-dependent adolescents (ages 13-18 eligible), including on measures of retention, opioid abstinence, and withdrawal (in a 28-day outpatient taper).

- Buprenorphine treatment was shown to be safe with this group of youth and also produced significant reductions in HIV risk behavior and significant improvements in psychosocial functioning.

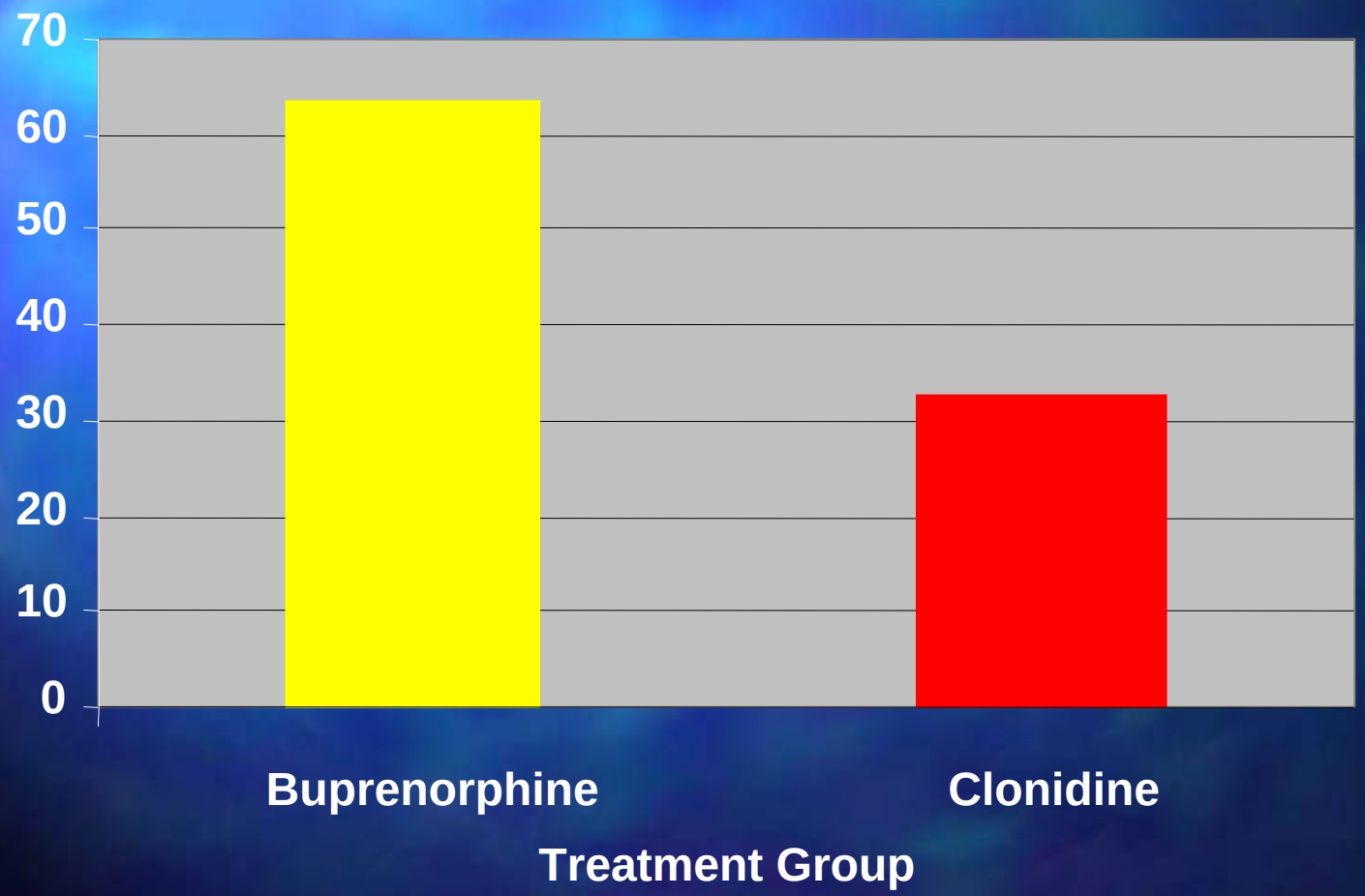
Treatment Retention

(p=.04)

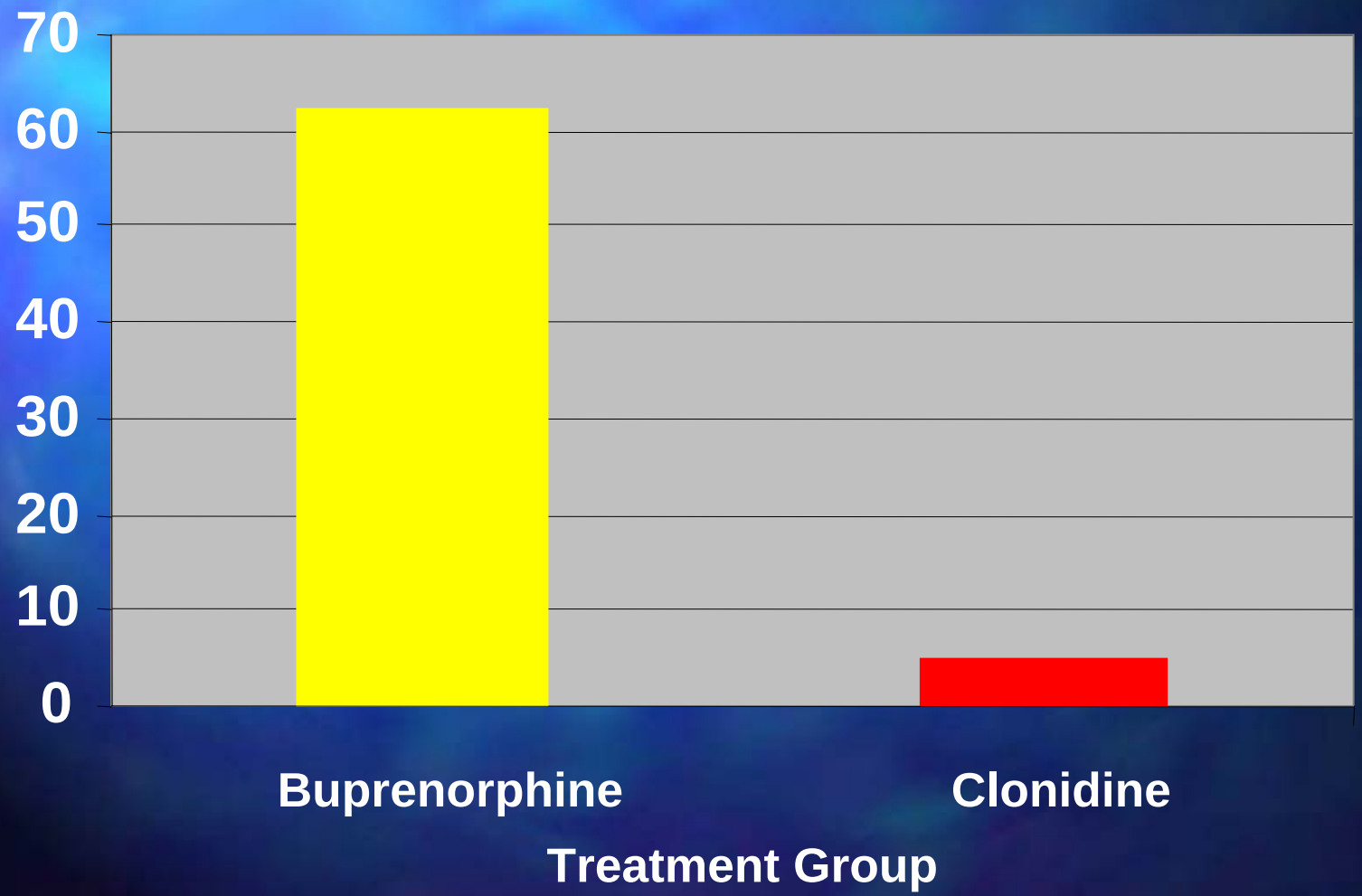


Mean Percent Opiate Abstinence

(p=.01)



Percent of Participants Initiating Naltrexone Post-Detoxification



Summary of Findings to Date

- Both heroin- and prescription opioid-dependent youth had better treatment outcomes from combined buprenorphine and behavioral treatment vs. clonidine and behavioral treatment.

- Heroin and prescription-opioid using youth generally showed comparable treatment outcomes on measures of retention and opioid abstinence (despite higher baseline HIV risk behavior and self-reported withdrawal among heroin-using youth)

Summary of Findings to Date

- Both male & female adolescents 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)?

Future Research Needs

- Expanded science-based prevention & treatment interventions are needed for the emerging cohort of opioid-dependent adolescents
- Optimal buprenorphine doses, dosing regimens and treatment duration need to be further examined.
- The acceptability of various *models* of treatment for youth needs to be systematically examined.
- An examination of strategies for best integrating science-based treatment into community-based care for youth is critical.
- Examining buprenorphine-behavioral treatment as part of HIV & Hepatitis prevention interventions for youth is clinically important.

Future Research Needs

- Treatment outcomes appear optimal when medication is provided along with intensive behavioral therapy (to promote alternative rewarding behaviors & strengthen inhibitory control). Examining which models of psychosocial interventions best optimize treatment outcomes, when combined with buprenorphine treatment, is warranted.

- Psychosocial treatment which concurrently addresses high rates of psychiatric comorbidity should be further investigated.

- An increased understanding of the effects of opioid exposure on the developing brains of adolescents, along with an assessment of brain changes that may occur during treatment, may have important clinical implications.

Concluding Comments

- No effective standard of care exists for the population of opioid-dependent youth and thus there is a demand for novel & effective interventions.

- 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.