

Children at Risk: Parental Substance Use during Pregnancy and Early Childhood – Implications for Attachment and Development

The Center for Addiction and Pregnancy “CAP” Model: Caring for the Child and the Family

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Acknowledgements

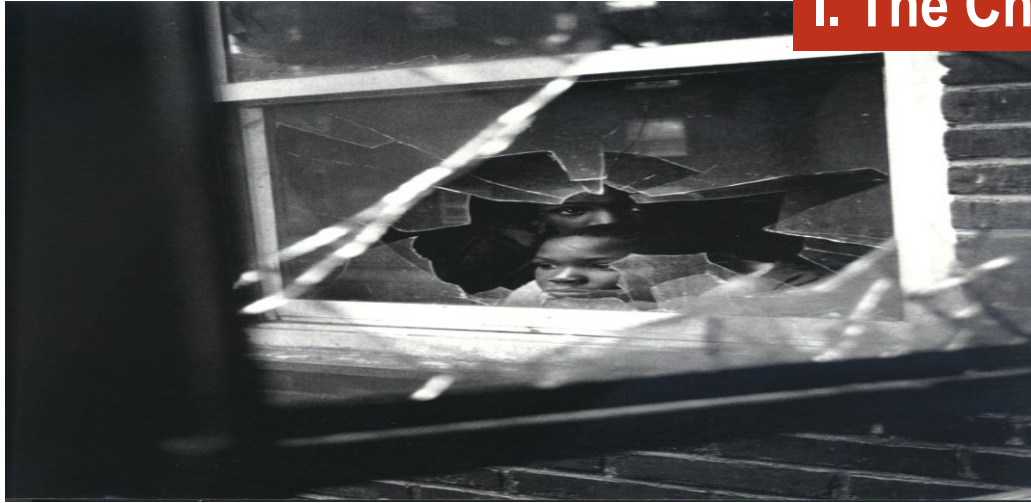
- **Patients and infants**
- **National Institute on Drug Abuse R01s DA15764, 12403 and 14979**
- **Staff at the Center for Addiction and Pregnancy**
- **Johns Hopkins University Co-Investigators and Site PIs and investigative teams**

Outline



- I. The challenges and the story of the Center for Addiction (CAP) and Pregnancy**
- II. Lessons learned from medication and behavioral interventions**
- III. A CAP model for the 21st Century**

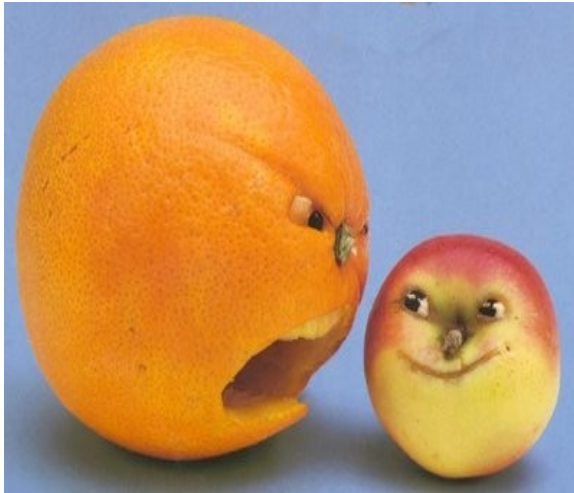
I. The Challenges



Factors Leading to Creation of Center for Addiction and Pregnancy

- Drug-abusing pregnant women fared poorly in standard-care treatment settings
- Infants of untreated women often required intensive medical care in hospital NICUs
- Pilot efforts to integrate primary care with drug treatment offered promising data

I. The Challenges

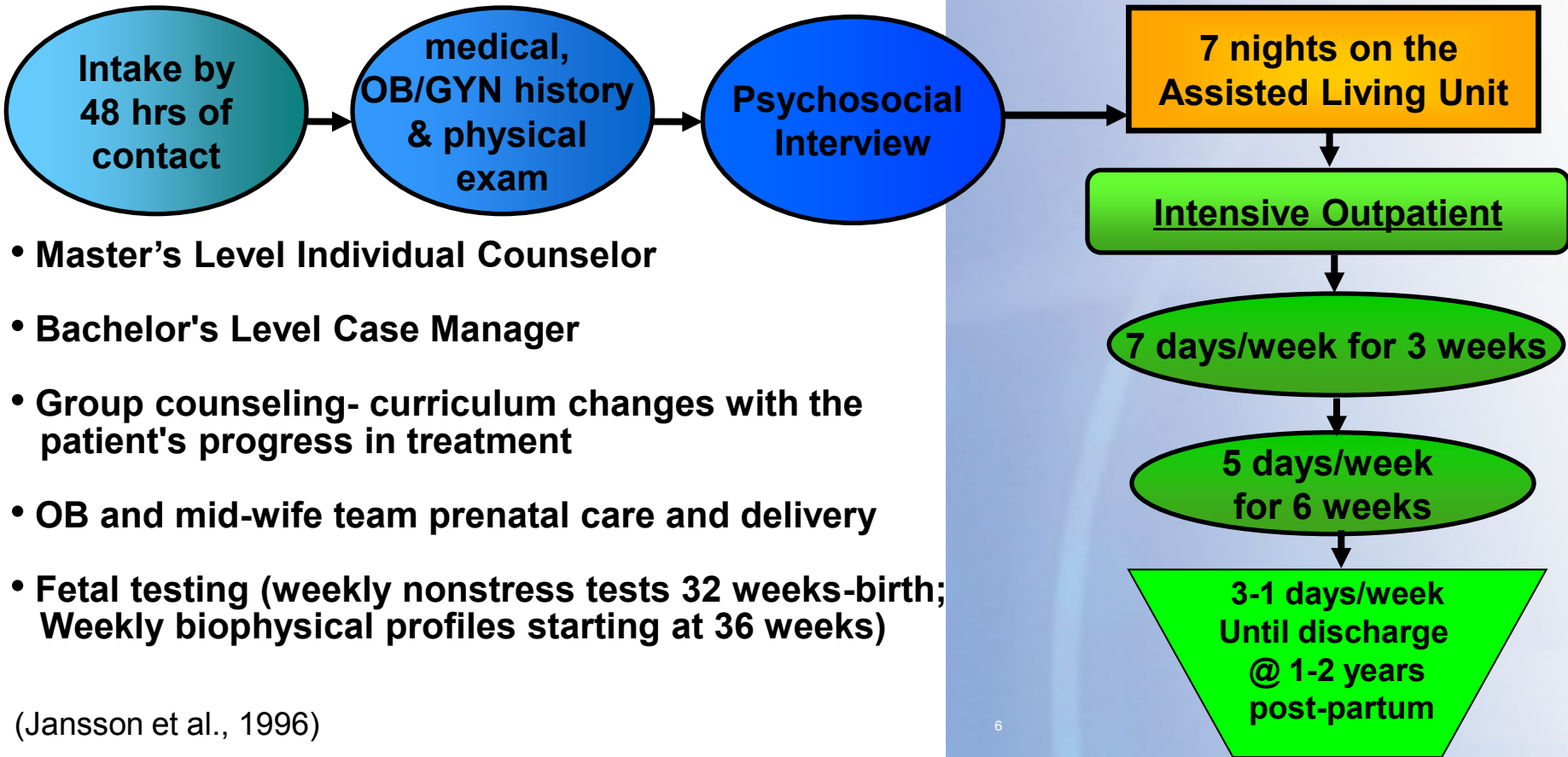


Barriers to Treatment

- Hostile/unfriendly health care system
- Poorly integrated treatment services
- Male-dominated treatment delivery system
- Lack of transportation
- Limited childcare resources
- Insurance issues
- Fear of having baby taken at delivery
- Family and/or partner not supportive of treatment

Treatment Flow

I. The CAP Story



- Master's Level Individual Counselor
- Bachelor's Level Case Manager
- Group counseling- curriculum changes with the patient's progress in treatment
- OB and mid-wife team prenatal care and delivery
- Fetal testing (weekly nonstress tests 32 weeks-birth; Weekly biophysical profiles starting at 36 weeks)

(Jansson et al., 1996)

I. The CAP Story



CAP Mission Statement

- **Address Barriers to Care**
- **Improve maternal and infant outcomes**
- **Conduct clinical research to generate new knowledge to improve maternal *and* neonatal outcomes**

I. The CAP Story



- **Comprehensive Care**
 - Psychiatry
 - Psychology
 - Obstetrics
 - Pediatrics
 - Nursing
 - Social Work



- **Multiple modalities**
 - Medically-assisted withdrawal and aftercare
 - Methadone with behavioral treatment

I. The CAP Story



- 30 full-time staff (3 Medical Directors)
- 16-bed residential unit
- 100+ slot intensive outpatient (day treatment) program
- Phases of care decrease in intensity with continued drug abstinence

CAP Patients

I. The CAP Story

Characteristics (<i>n</i> =108)	1995	2000 (<i>n</i> =132)
Mean age	29	31
% Black	85	96
% Single	88	89
Unemployed	92	95

Past month

Days of opioid use	29	24
Days of cocaine use	12	10

(Jansson et al., 2007)

Patient characteristics have been quite stable since start of CAP

Exceptions include:

- More medical co-morbidities
- More prescription drug use
- More white women

CAP Efficacy

I. The CAP Story

	CAP	No Treatment (n=100)	(n=46)
Clinical measure:			
prenatal visits	8	4	
EGA (mean week)	39	35	
% positive at delivery	37	63	
infant birth weight (grams)	2934	2539	
Apgar scores (1 minute)	8	7	
% NICU use	10	26	
Length of hospital stay (days)	7	39	

All group comparisons are significant $p \leq .05$

(Data adapted from Svikis et al., 1997)

- Investing \$6,639 in prenatal drug treatment services resulted in *net* savings of \$4,644 in NICU costs.

- Although CAP is cost-effective, many women continue to drop out of treatment prematurely and/or do not respond to treatment

II. Lessons Learned

- Found temporal pattern of missed CAP days was related to receipt of social service money
- Found clonidine was abused by pregnant patients
- Improved treatment retention with monetary incentives
- Reduce loss of patients from the Assisted Living Unit with use of a patient advocate

CAP Clinical Research: Early Years

- Published 109 peer-reviewed papers since 1996
- Identified and characterized which subgroups of patients are most at risk for poor treatment outcomes
- Focused on improving short-term treatment outcomes



II. Lessons Learned

- Identified and characterized most severe patient sub-groups (e.g., homeless women, women with Post-Traumatic Stress Disorder)
- Demonstrated homeless and/or depressed patients have worse outcomes
- Improved treatment retention and decreased drug use with Behavioral Incentives
- Showed importance of agonist medication for improving outcomes
- Found a relationship between NAS severity and cigarette smoking severity

CAP Clinical Research: Middle Years



II. Lessons Learned



CAP Clinical Research

More recent focus on RCTs has examined:

- Specific interventions for most at-risk sub-groups of patients
 - Smokers
 - Homeless
 - Patients with drug-using partners

- Medications to treat opioid dependence

- Factors that contribute to NAS severity

II. Behavioral Intervention



- Produce immediate and sustainable results
- Easily implemented on an outpatient basis
- Interventions must be promising and ethical
- Compatible with medication treatment

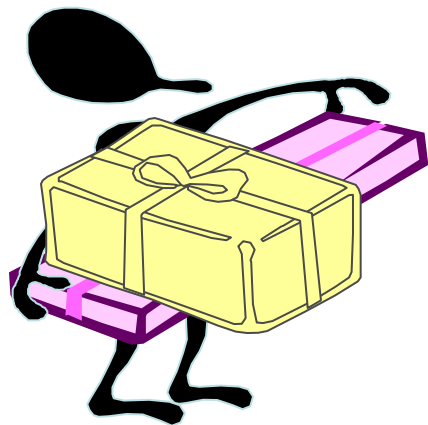
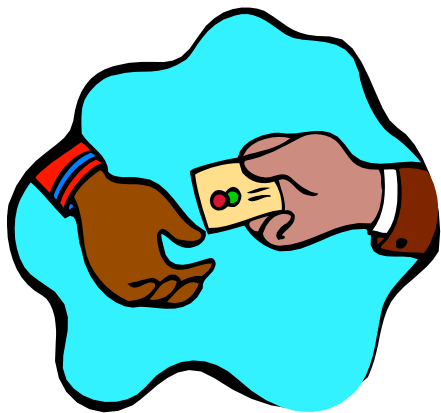
II. Behavioral Intervention

Contingency Management *Theory*

- Operant conditioning principles and social learning theory
- Rewards (verbal and tangible) for good behavior empower and motivate patients for sustained behavior change



II. Behavioral Intervention

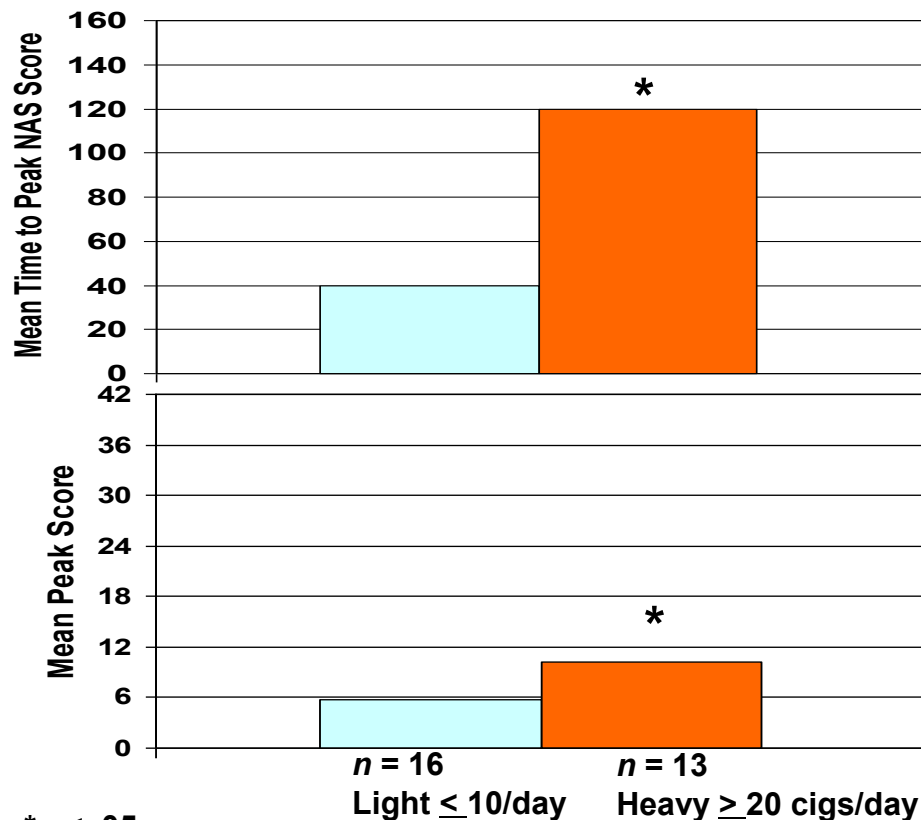


Examples of Randomized Trials that used contingency management

- Reduce/eliminating smoking in methadone-maintained pregnant women
- Improve outcomes in non-methadone treated women using drug-abstinence contingent housing and “Job Club”
- Provide treatment to partners of women

Cigarettes/Day: NAS Severity with Methadone

II. Behavioral Intervention



Set stage for attempting to answer the clinical questions:

1) Can contingency management reduce cigarette smoking in CAP patients?

2) Will reductions in cigarette smoking lead to less NAS and improved birth outcomes?

* $p < .05$

(Choo et al., 2004)

II. Behavioral Intervention

<u>Treatment Entry</u>	Mean (SD) or %
Black	37%
Age (years)	31 (6)
Weeks pregnant	16 (7)
past-month cocaine use	62%
injection drug use	70%
lifetime nicotine use	181 (35)
Cigarettes/day	18 (9)

Randomized

(n=38) tobacco-abstinence contingent

(n=28) non-contingent

(n=32) usual care

Shaped Smoking Behavior from Reduction to Cessation

- **All patients received one session of individual counseling in Motivational Interviewing style**
- **Carbon monoxide and urine cotinine verification**
- **Tobacco-abstinence contingent**
monetary rewards for meeting smoking reduction targets 10%-100%
- **Non-contingent**
monetary rewards *not* linked to smoking outcomes

Sample Escalating Voucher Schedule (no reset)

	<u>Day 5</u>	<u>Day 8</u>	<u>Outpatient Baseline (OB)</u>	<u>%smoking reduction from baseline</u>	<u>Cumulative Subtotals</u>
Week 1	\$ 7.50	\$ 8.50	no payment	any reduction from ALU baseline	\$ 16.00
	<u>Day 10</u>	<u>Day 12</u>	<u>Day 14/15</u>		
Week 2	\$ 9.50	\$10.50	\$11.50	%10 from OB	\$ 47.50
	<u>Monday</u>	<u>Wednesday</u>	<u>Friday</u>		
Week 3	\$12.50	\$13.50	\$14.50	%10 from OB	\$ 88.00
Week 4	\$15.50	\$16.50	\$17.50	%10 from OB	\$137.50
Week 5	\$18.50	\$19.50	\$20.50	%25 from OB	\$196.00
Week 6	\$21.50	\$22.50	\$23.50	%25 from OB	\$263.50
Week 7	\$24.50	\$25.50	\$26.50	%25 from OB	\$340.00
Week 8	\$27.50	\$28.50	\$29.50	%50 from OB	\$425.50
Week 9	\$30.50	\$31.50	\$32.50	%50 from OB	\$520.00
Week 10	\$33.50	\$34.50	\$35.50	%75 from OB	\$623.50
Week 11	\$36.50	\$37.50	\$38.50	%75 from OB	\$736.00
Week 12	\$39.50	\$40.50	\$41.50	%100 from OB	\$857.50

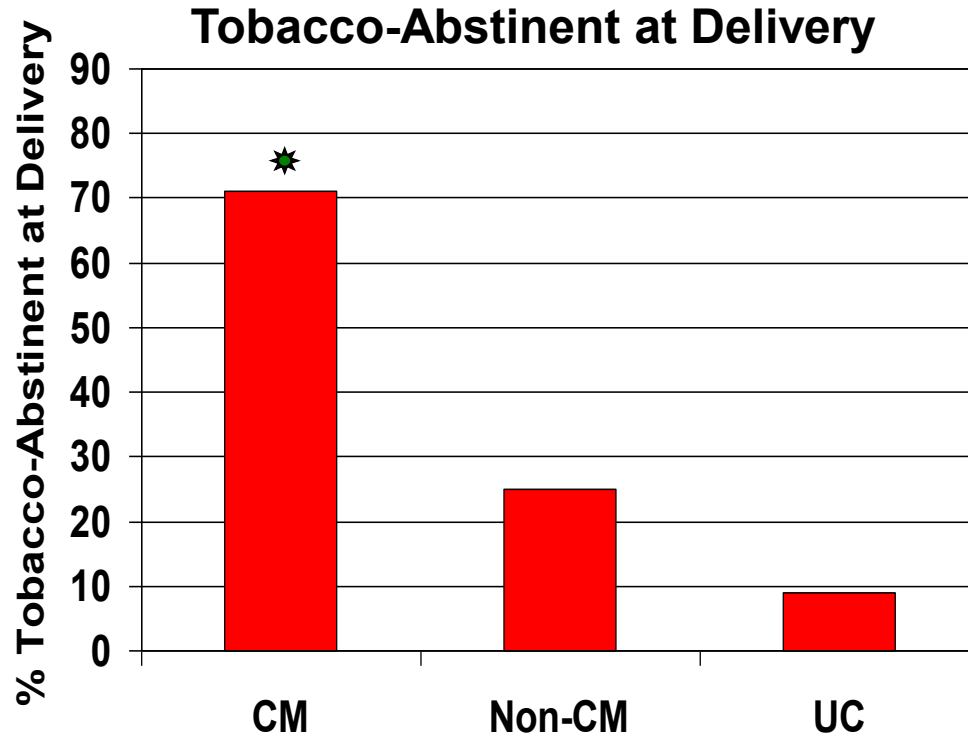
Week 13	\$42.50	\$42.50	\$42.50	%100 from OB	\$985.00 total for pregnancy
	(delivery)				

Sample Escalating Voucher Schedule with 2 Relapse-Induced Resets

	<u>Day 5</u>	<u>Day 8</u>	<u>Outpatient Baseline (OB)</u>	<u>%smoking reduction from baseline</u>	<u>Cumulative Subtotals</u>
Week 1	\$ 7.50	\$ 8.50	no payment	any reduction from ALU baseline	\$ 16.00
Week 2	<u>Day 10</u> \$ 9.50	<u>Day 12</u> \$10.50	<u>Day 14/15</u> \$11.50	%10 from OB	\$ 47.50
	<u>Monday</u>	<u>Wednesday</u>	<u>Friday</u>		
Week 3	\$-----*	\$ 7.50	\$ 8.50	%10 from OB	\$ 79.50
Week 4	\$ 9.50	\$10.50	\$11.50	%10 from OB	\$111.00
Week 5	\$12.50	\$13.50	\$14.50	%25 from OB	\$151.50
Week 6	\$15.50	\$16.50	\$17.50	%25 from OB	\$201.00
Week 7	\$-----**	\$-----**	\$ 7.50	%25 from OB	\$208.50
Week 8	\$ 8.50	\$ 9.50	\$10.50	%50 from OB	\$237.00
Week 9	\$17.50	\$18.50	\$19.50	%50 from OB	\$292.50
Week 10	\$20.50	\$21.50	\$22.50	%75 from OB	\$357.00
Week 11	\$23.50	\$24.50	\$25.50	%75 from OB	\$430.50
Week 12	\$26.50	\$26.50	\$27.50	%100 from OB	\$513.00

Week 13	\$28.50	\$29.50	\$30.50 (delivery)	\$601.50 total for pregnancy	

II. Behavioral Intervention



* $p < .05$ v. non-CM and UC

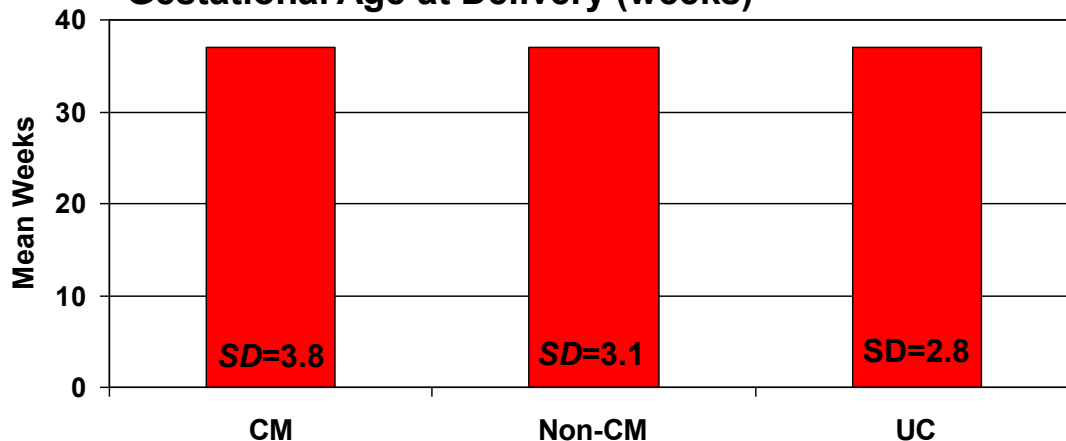
Good News

Contingency management
successfully improved tobacco
abstinence rates at delivery

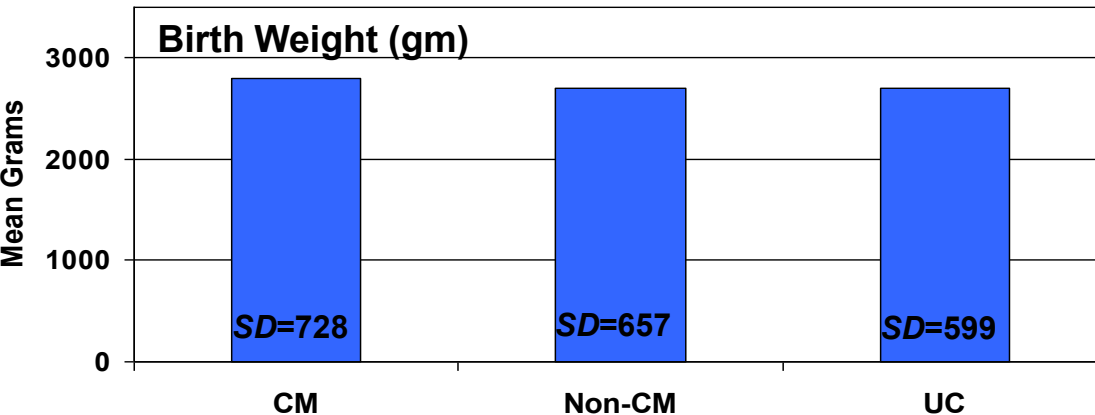
Bad News.....

II. Behavioral Intervention

Gestational Age at Delivery (weeks)



Birth Weight (gm)



Treatment Conditions were similar on:

- Gestational age at delivery
- Birth weight
- Apgar scores
- Proportion of neonates treated for neonatal abstinence syndrome
- Length of hospital stay

II. Behavioral Intervention

Clinical Question

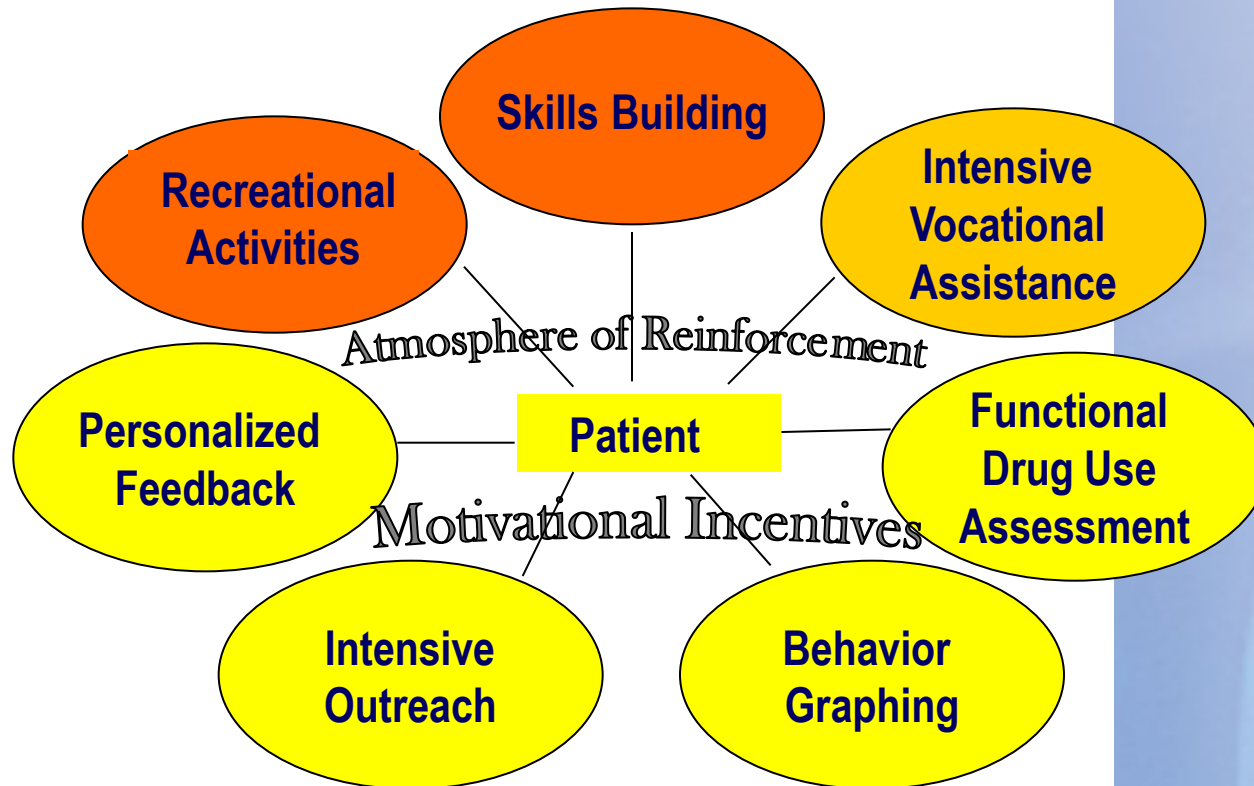
**Non-methadone treated patients at
CAP drop out of treatment quickly:**

**What about the CAP treatment
approach can be changed to
minimize or eliminate this
problem?**

PURPOSE

**Evaluate the efficacy of
reinforcement based
treatment counseling (RBT)
+ drug-abstinent-contingent
housing compared to
standard care treatment in
pregnant patients receiving
medication free
comprehensive care**

II. Behavioral Intervention

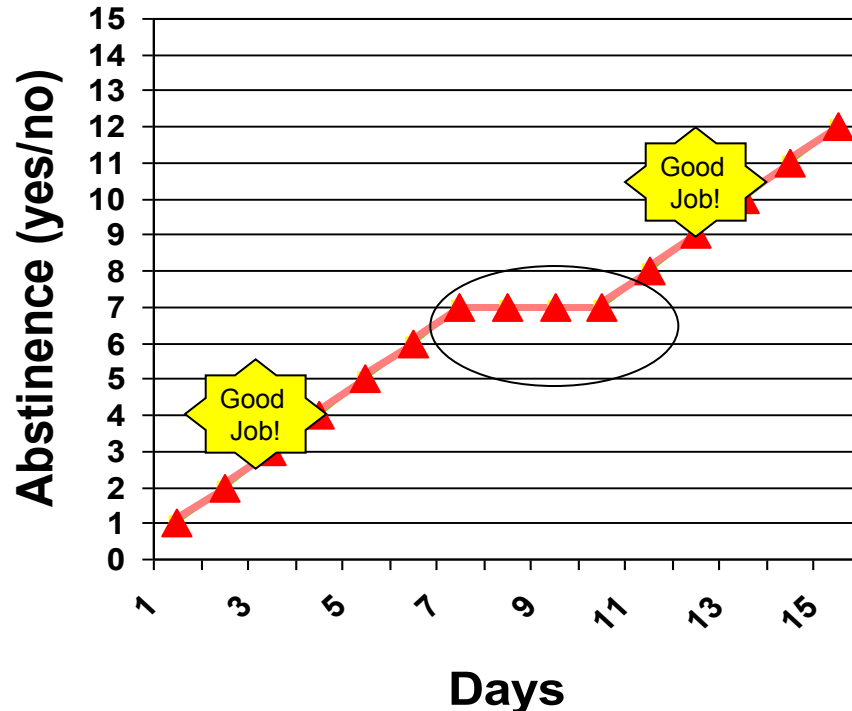


Treatment Objectives

- ▶ Drug abstinence
- ▶ Purposeful days
- ▶ Fulfilling social relationships
- ▶ Engagement in recreational activities that compete with drug use

II. Behavioral Intervention

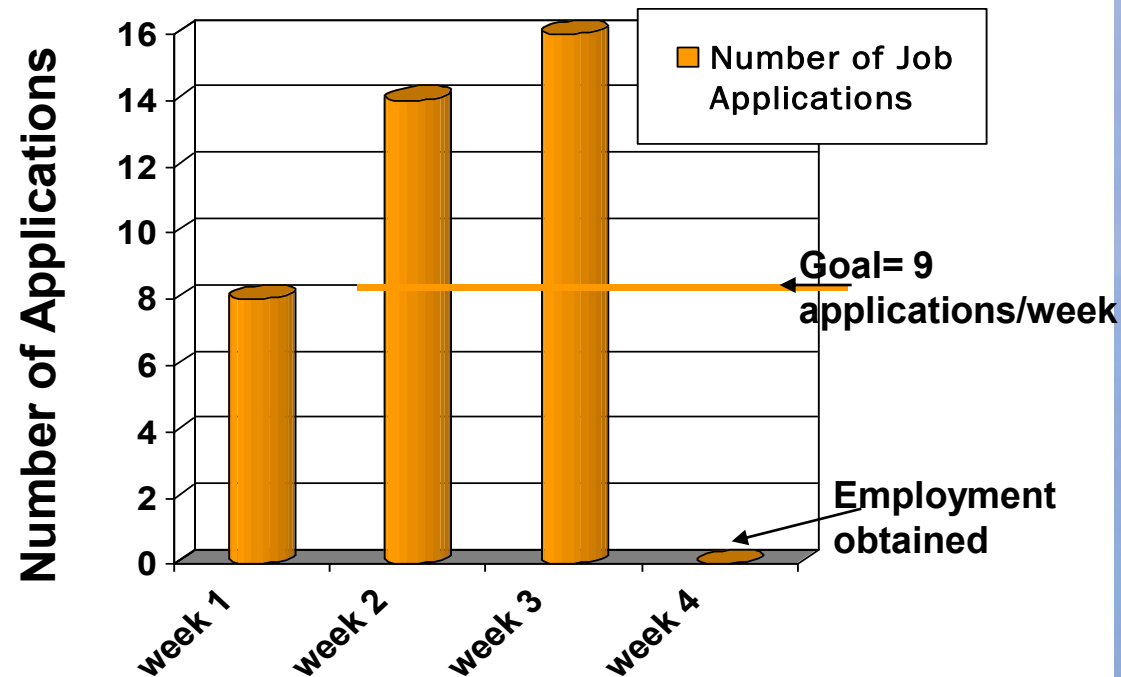
Example of Close Behavioral Observation: *Drug Free Days*



- Specific treatment goals are selected based upon counselor and patient discussions
- Larger goals are broken into smaller goals
- Positive reinforcement given for successes

II. Behavioral Intervention

Example of Behavior Tracking



Manualized method

- Helping patients identify job interests
- Look for jobs
- Develop resume
- Practice Interviewing
- Complete applications

II. Behavioral Intervention

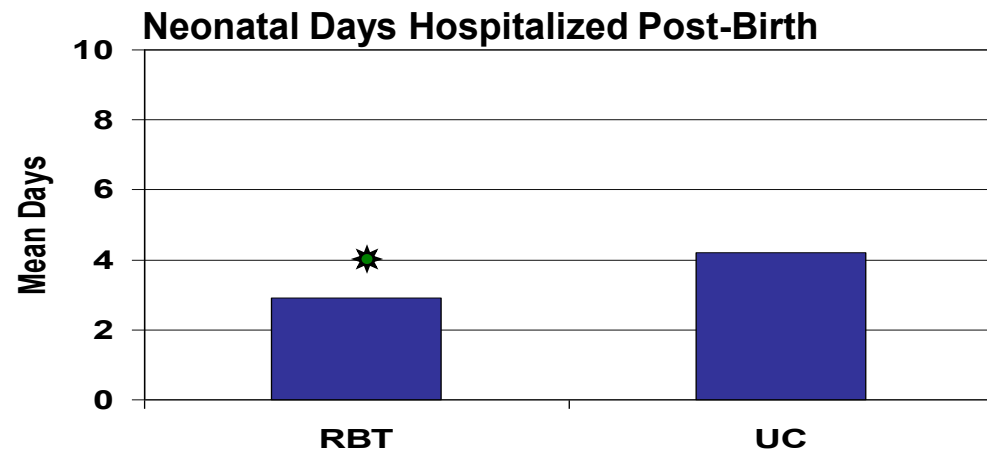
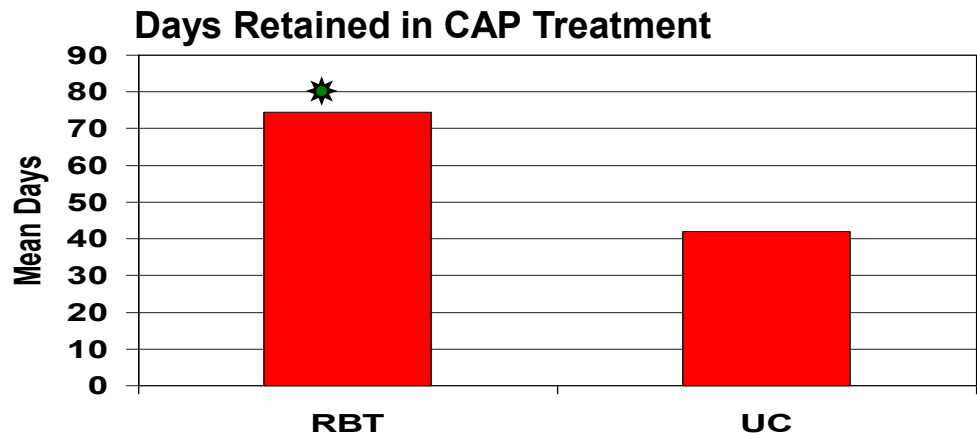
HOME Study

Random assignment

- **Reinforcement-Based Treatment ($n=54$)**
 - CAP Care
 - 6 months of drug-abstinent-contingent housing
 - Individual counseling (e.g., vocation/employment)
- **Usual Care ($n=50$)**
 - CAP care

- **CAP patients**
- **Non-methadone-maintained patients**
- **Stratified on basis of methadone-assisted withdrawal**

II. Behavioral Intervention



Compared to Usual Care, RBT:

1. Increased days in drug-free housing
2. Increased days in CAP treatment
3. Increased employment
4. Reduced days of neonatal hospitalization

– Maternal effects over time:

- Reduced opioid use
- Reduced cocaine use

– Child effects:

- Mean gestational age at term
- Birth weight, length and head circumference within normal limits

(Jones et al., in press)

II. Behavioral Intervention

Reinforcement-Based TREATMENT:

A Novel Approach to Treating Substance Abuse During Pregnancy

By Michelle Tuten, MSW, LCSW-C, Hendree Jones, PhD, Jennifer Birtel, MS,
Judith Jakubowski, MA and Joan Sperlein, BS

Drug use during pregnancy is associated with adverse prenatal and post-natal consequences. Despite these complications, an alarming number of women are unable to cease drug use once they become pregnant. This population has a number of medical, obstetrical, psychosocial and psychological needs that challenge the skill of providers and the resources available to the treatment community. Novel approaches are needed to effectively treat drug abuse during pregnancy and to prevent postpartum relapse. This article reviews the prevalence of substance use during pregnancy; presents barriers that impede treatment access and retention for pregnant women; and presents a novel behavioral intervention, Reinforcement-Based Treatment (RBT), for initiating abstinence and preventing relapse in this vulnerable population.

The adverse consequences of drug use during pregnancy are well known. Systematic methods for assessing and quantifying drug use during pregnancy do not exist; therefore, the rate of infant drug exposure is unknown. In a survey of pregnant women aged 15 to 44, 18 percent reported smoking cigarettes; 9.8 percent reported drinking alcohol in the past month; and 4 percent reported using one or more illicit drugs in the past month (SAMHSA, 2005). Since many

estimates are based exclusively on self-report, these numbers are likely underestimates of the true prevalence of licit and illicit substance use during pregnancy. Prevalence estimates of illicit drug use in cities with large teaching hospitals are much higher, ranging from 11 percent to 40 percent of pregnant patients receiving care at these facilities (Jansson & Velez, 1999). Chasnoff and colleagues (1990) found that 15 percent of women tested for drug use at first prenatal care visit were positive for one or more substance.

Pregnant, drug-dependent women often enter treatment with a complex picture of medical, psychological, and psychosocial needs. They frequently have medical conditions related to drug use or a drug-using lifestyle, including: infectious diseases such as hepatitis B and C and HIV; sexually transmitted diseases; cellulitis; abscesses; and endocarditis (Jansson, et al, 1999). Pregnancy-specific complications of drug use include miscarriage, premature labor, preeclampsia, and infant outcomes such as intrauterine growth retardation, low birth weight, and neonatal abstinence syndrome (Svikis and Higgins, 1996; Finnegan, 1991).

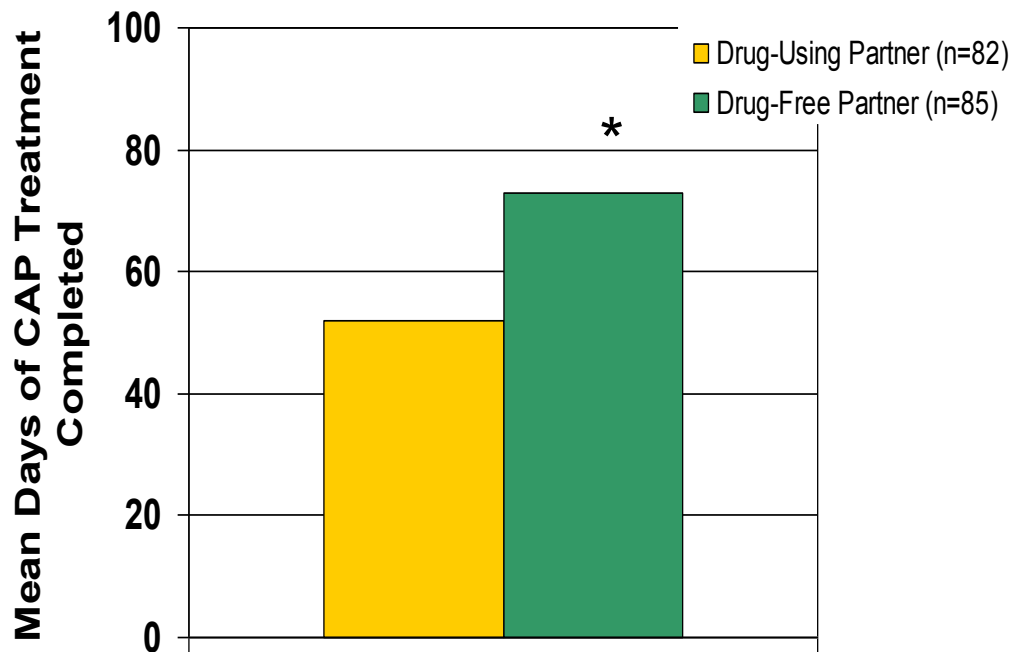
It remains unclear whether adverse maternal and infant outcomes are the result of substance use, the interaction among multiple substances (including nicotine), and whether these interac-

What is “Behind the Data”

- 15+ CAP and Research Therapists, 6 RAs
- Over 1,500 assessment measures completed on mothers
- Stories of working with Recovery Houses
- Patient co-morbid psychiatric issues

II. Behavioral Intervention

Partners Influence Drug-Treatment Retention



* $p < .05$

Differences in Drug-Free and Drug-Using Male Partners of Women enrolled in comprehensive care treatment during pregnancy

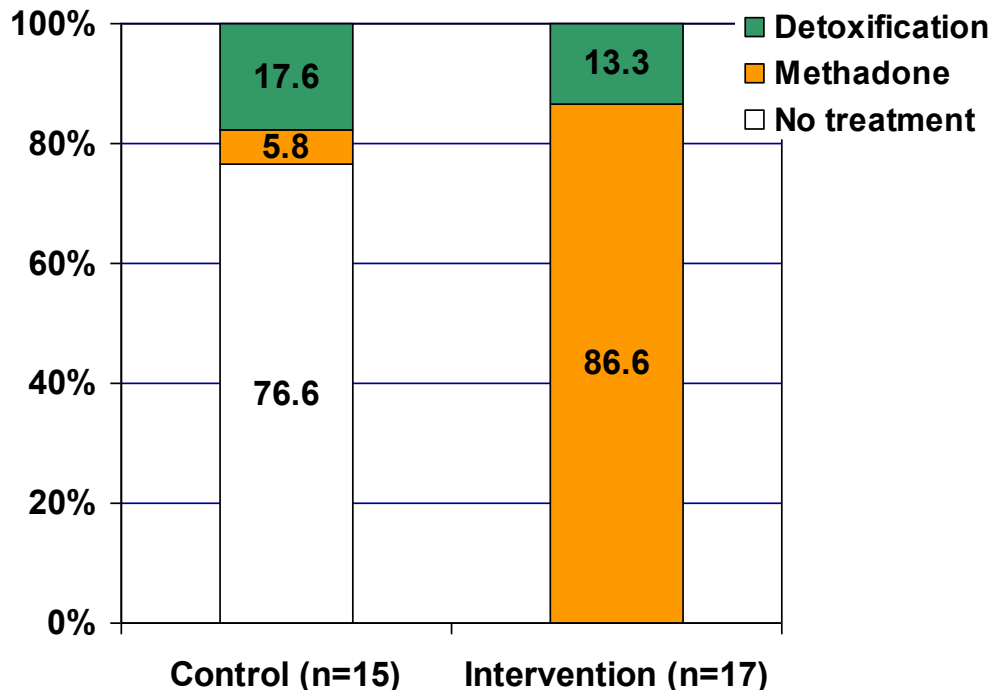
Suggests power male partners have over women

Suggests need for intervention for partner rather than exclusion of partner

(Tuten & Jones, 2003)

II. Behavioral Intervention

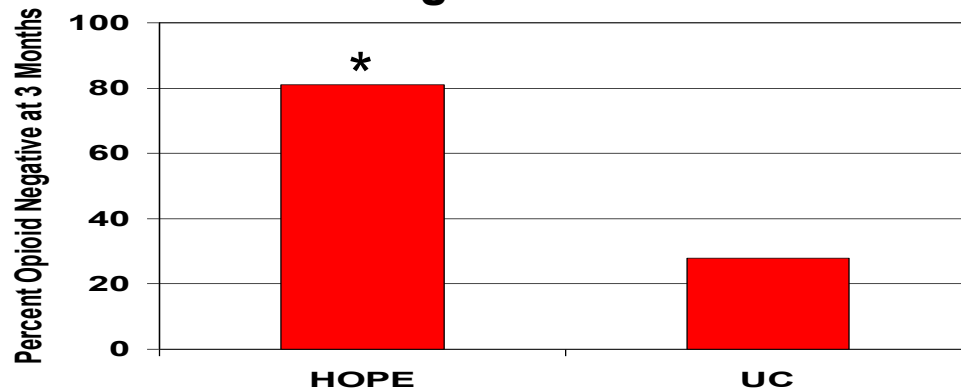
Initial Study of Feasibility



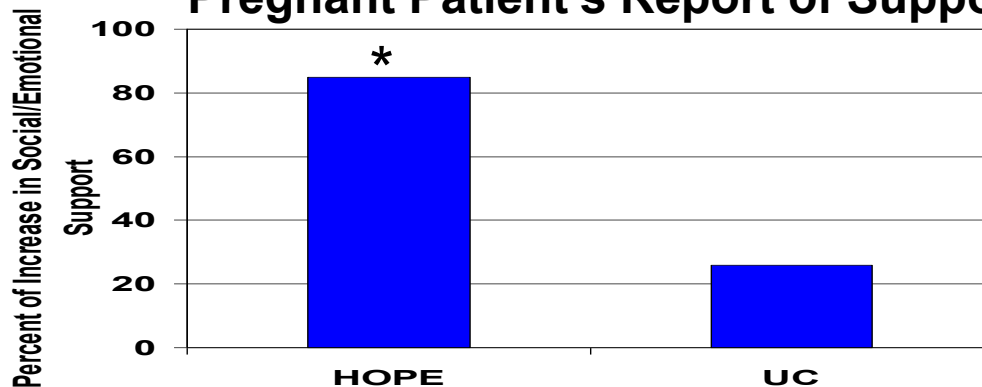
- Two-group randomized design
- Control: Received weekly support group
- HOPE Intervention:
 - ◆ Methadone or medication-assisted withdrawal + aftercare
 - ◆ Weekly support group
 - ◆ Individual counseling
 - ◆ Drug-abstinent-contingent vouchers

II. Behavioral Intervention

Partner Drug Use



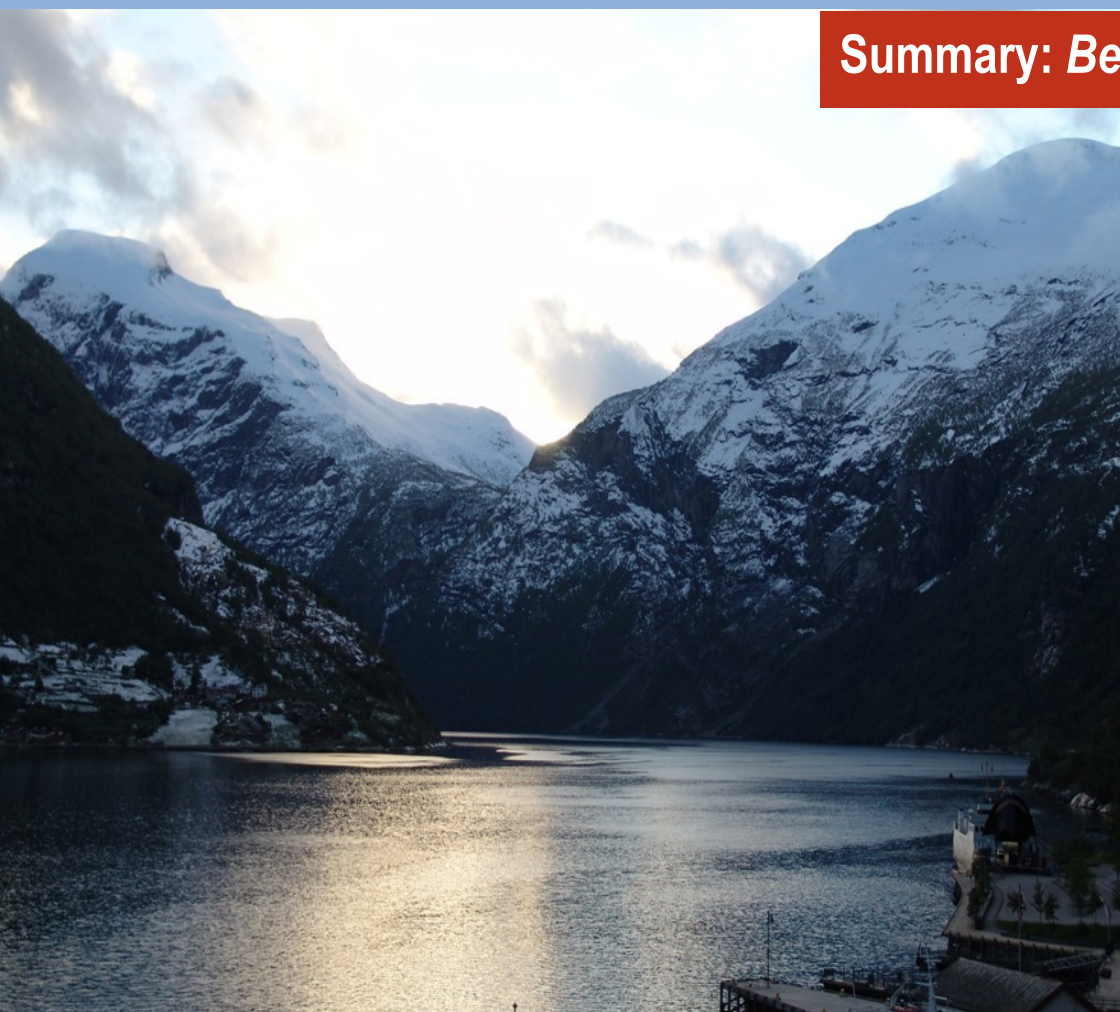
Pregnant Patient's Report of Support



HOPE ($n=45$) v. usual care ($n=17$), showed:

- Increased treatment retention
- Decreased heroin use
- Increased involvement in recreational activities
- Less reliance on public assistance
- Increased social support for their pregnant intimate partners

Summary: *Behavioral Intervention*



- Behavioral tools are available to change patient behavior and positively impact maternal and neonatal outcomes
- Contingency management can help clarify treatment expectations and structure
- Can be used to improve outcomes for mothers, partners and neonates
- Allows patients and providers to feel good about success

II. Medications

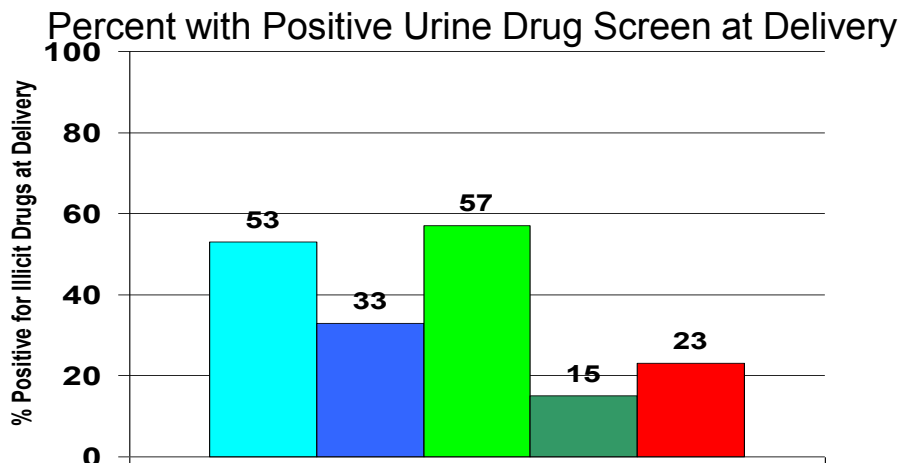
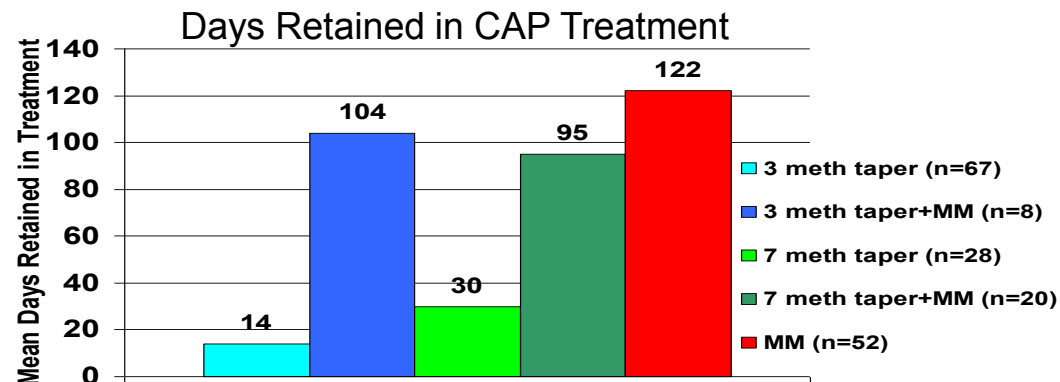


CAP research has helped provide critical data on:

- Outcomes v. tapering
- Dosing (induction: over trimesters and post-partum)
- Fetal effects
- Pain management
- Breastfeeding
- Neonatal abstinence syndrome (NAS)



II. Medication: Methadone v. Tapering

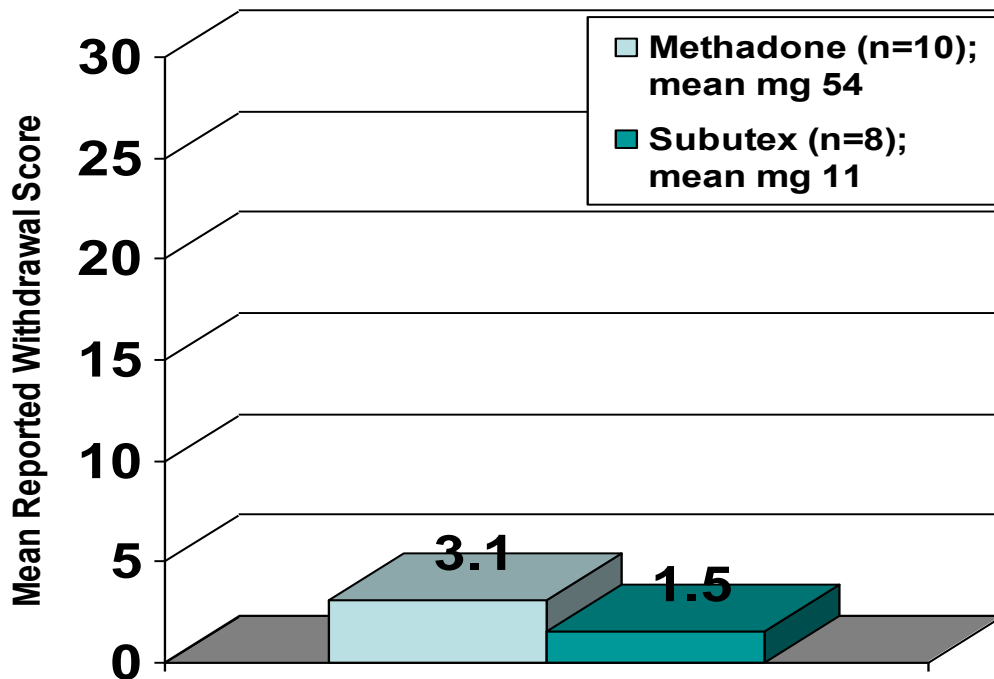


MM = Methadone Maintenance

- Guidance regarding tapering v. maintenance was based largely on good clinical judgment
- Methadone retains patients in treatment
- Tapering has a place in the treatment continuum
- Biggest concern with methadone during pregnancy is the potential for occurrence of a neonatal abstinence syndrome

II. Medication: Dosing

Induction onto Buprenorphine



- Induction is relatively simple with methadone
- Induction can be challenging with buprenorphine
- Dose increases similar for both methadone and buprenorphine over trimesters
- Principles of dosing are same for pregnant and non-pregnant patients

II. Medication: Dosing

Post-Partum Methadone Dosing

- Reduce dose if signs and symptoms of over-sedation are present
- Falling blood volumes may change clearance and volume of distribution
- 12 weeks to return to pre-pregnancy cardio function
- 6 weeks for CPY450 to return to pre-pregnancy function
- So need to watch over time for need to decrease dose

(Jones et al., 2008)



Fetal Effects of Methadone

II. Medication: Fetal Effects

	Trough mean	Peak mean
▪ Heart Rate	136.5	128.3*
▪ HR Variability	5.9	3.7*
▪ # Accelerations	3.6	0.5*
▪ Movement Bouts	66.8	63.6
▪ Movement Duration	26.9	13.7*
▪ Motor Activity Total	1627.8	880.1*

* $p < .05$

(Jansson et al., 2005)



II. Medication: Fetal Effects

Fetal cardiac and movement parameters:
36 weeks (N=11)

	Methadone M(SD) n = 6	Buprenorphine M(SD) n = 5	z
FHR (bpm)	133.42(7.89)	134.58(7.12)	-0.18
FHR variability	4.43(0.78)	5.30(2.16)	-0.37
Accelerations	1.17(1.17)	2.80(3.83)	0
Motor activity	3.58(1.18)	5.92(2.95)	-2.01*
FM duration	8.74 (2.71)	21.53 (13.22)	-2.01*
FHR-FM coupling(%)	27.42(13.97)	18.88(6.90)	-1.10

^p < .10. *p < .05.

When compared to methadone-exposed fetuses, buprenorphine-exposed fetuses have better indications of fetal well-being, including:

- greater FHR variability
- more accelerations
- better FM-FHR coupling early in the second half of gestation

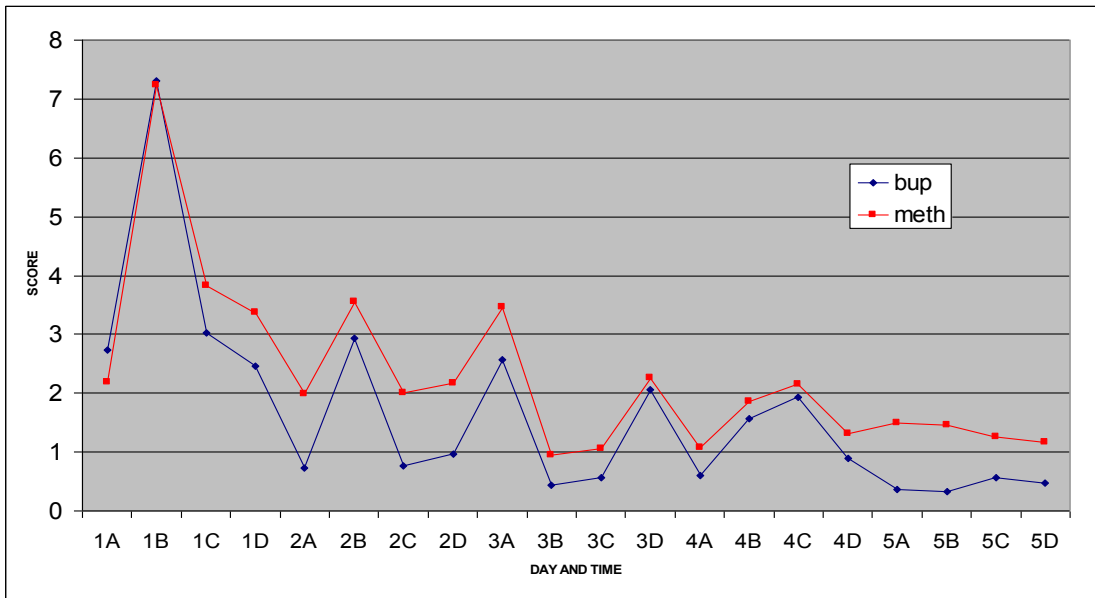
In contrast, FM was most consistently suppressed in methadone-exposed fetuses at the later gestational age period.

II. Medication: Pain Management

Pain Management during and post-delivery

Compared to non-opioid-dependent controls, buprenorphine-maintained patients have, on average:

- Similar pain ratings and use of pain medications intra-partum
- Post-Vaginal delivery
 - Higher pain ratings
 - Similar use of pain medications
- Post-Cesarean section delivery
 - Higher pain scores
 - Used approximately 50% more opiate analgesic post-partum



- ◆ Buprenorphine- v. methadone-maintained patients:
 - Buprenorphine patients decreased ibuprofen use while
 - Methadone patients increased ibuprofen use.

(Jones et al., 2006; Jones et al., 2008; Meyer et al., in press)

II. Medication: Pain Management



Pain Management Summary

- Full agonist opioids can effectively treat pain in patients stabilized on either methadone or buprenorphine
- These results are consistent with data from non-pregnant surgery patients
- The importance of uninterrupted methadone or buprenorphine treatment in these patients is critical
- Each patient needs a pain management plan before delivery

(Jones et al., 2006; Jones et al., 2008; Meyer et al., in press)

Breastfeeding in Methadone Stabilized Mothers

II. Medication: Breastfeeding

- Methadone detected in breast milk in very low levels
- Methadone concentrations in breast milk were unrelated to maternal methadone dose
- The amount of methadone ingested by the infant is low (i.e., an average 0.2 mg/day by 30 days post delivery)
- It remains low even 6 months later
- Several studies suggest breastfeeding is associated with reductions in NAS
- Hepatitis C is not a contraindication for breastfeeding
- Contraindications: HIV+, unstable recovery

(Jansson et al., 2007; Jansson et al., 2010)



II. Medication: Breastfeeding

Barriers to Breastfeeding

- **Infant experiencing NAS may have significant difficulties with breastfeeding**
 - Excessive irritability
 - Crying
 - Disorganized suck
 - Mother's feelings of guilt about causing the NAS- may prefer not to further upset the infant
- **Pediatric providers who are unaware of current recommendations**
- **Stigma resulting in discouraging or undermining of women's effort to breastfeed**



Breastfeeding

II. Medication: Breastfeeding

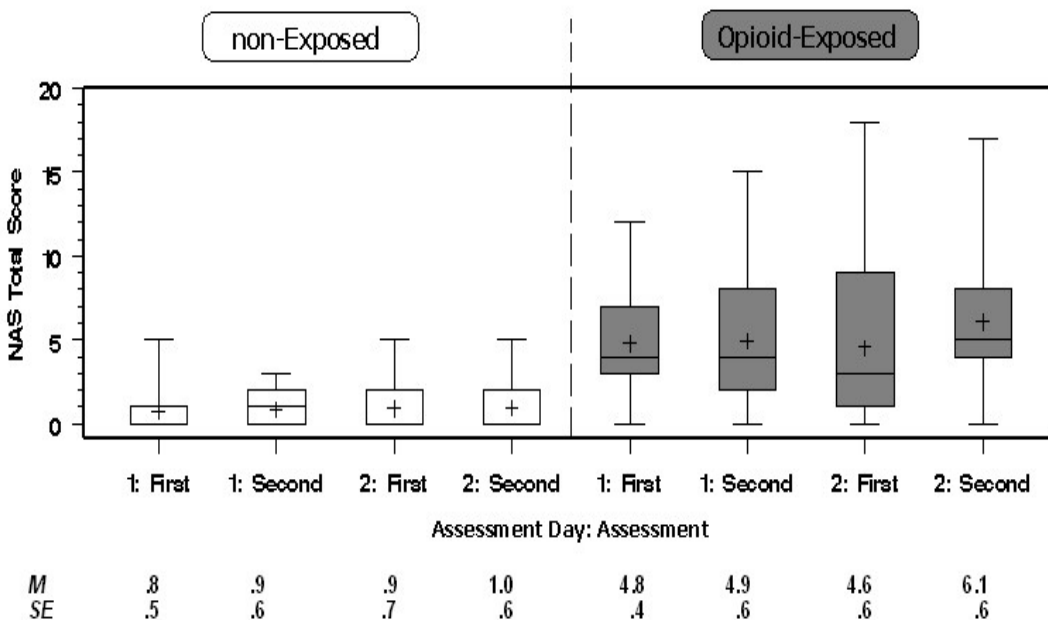


- Five studies
- Concentration of buprenorphine in breast milk is low
- Amount of buprenorphine or norbuprenorphine the infant receives via breast milk is only 1%
- Buprenorphine is found in breast milk 2 hours post-maternal dosing
- Calculated milk-to-plasma ratio is between 0.94 and 4.3
- Most recent guidelines recommend breastfeeding for stabilized buprenorphine-maintained women

(Atkinson et al., 1990; Marquet et al., 1997; Johnson, et al., 2001; Lindemalm et al. 2009; Grimm et al., 2005)

II. Medication: NAS Assessment

Boxplots of NAS Total Scores on 4 Assessments over 2 Days
for non-Exposed and Opioid-Exposed Neonates



- **Provided psychometrics for modified Finnegan tool**
- **Developed morphine dosing protocol**
- **Dose of medication is based on severity of NAS score**

(Jones et al., 2005, 2010; Jansson et al., 2009)

MOTHER Background: PROMISE Study Results

	Methadone n=11	Buprenorphine n=10 (1 twin set)
% Treated for NAS	45.5	20.0
Morphine Drops	93.1	23.6
Birth Weight (gm)	3001.8	3530.4
Neonatal LOS	8.1	6.8*
% NICU treatment	18.0	10.0
APGAR at 1minute	8.3	8.1
APGAR at 5 minutes	8.9	8.7
Length (cm)	49.6	52.8
Head Circum. (cm)	33.2	34.9

* $p=.021$

II. Medication: NAS Outcome

- **Small randomized controlled trial showed initial safety and efficacy data to support larger trial**
- **This trial's data served as data for power analyses for MOTHER randomized controlled trial**

(Jones et al., 2005)

II. Medication: NAS Outcomes

MOTHER Results: Primary Outcomes

<u>Primary Outcomes</u>	Methadone Mean (SE)	Buprenorphine Mean (SE)	Odds Ratio (CI)	<i>p</i>
Treated for NAS [Yes]	{57%}	{47%}	.65 (.24, 1.76)	.26
NAS peak score	12.76 (.56)	11.03 (.62)		.04
<i>Total amount of morphine for NAS (mg)</i>	<i>10.40 (2.56)</i>	<i>1.11 (.65)</i>		<i>.00000012</i>
<i>Days of infant hospital stay</i>	<i>17.46 (1.52)</i>	<i>9.99 (1.24)</i>		<i>.00012</i>
Head circumference (cm)	33.03 (.25)	33.81 (.27)		.03

Notes. Significant results are in italics. Site was a blocking factor in all analyses. The O'Brien-Fleming α spending function resulted in $\alpha = .0091$ for the inferential tests of the Medication Condition effect for the 5 primary outcome measures at the conclusion of the trial.

- Compared to methadone-exposed neonates, buprenorphine-exposed neonates:
 - Required 89% less morphine to treat NAS
 - Spent 43% less time in the hospital
 - Spent 58% less time in the hospital being medicated for NAS
- Both medications in the context of comprehensive care produced similar maternal treatment and delivery outcomes.

Summary: *Medication*

- **Buprenorphine and methadone show similar maternal treatment outcomes**
- **Buprenorphine induction can be more challenging than methadone**
- **Both medications require upward dose adjustments during the course of pregnancy**
- **Fetal cardiac and movement is more normalized in buprenorphine relative to methadone**
- **Adequate and aggressive pain management is possible and should be the standard**
- **Breastfeeding is compatible with buprenorphine treatment**
- **Buprenorphine is superior to methadone in producing less severe NAS**



Outcomes

I. The CAP Story: After Managed Care

- Patient characteristics between pre- and post-managed care are similar
- Fewer women active in treatment at delivery
- Greater rate of fetal and neonatal deaths
- 2-, 4-, and 6-month immunization were lower in the post-managed care group
- Greater rate of post-managed care children removed by Child Protective Services: 14 % v. 25%

(Jansson et al., 2007)

- Master's Level Individual Counselors replaced by Bachelor's Level staff
- Case Managers eliminated
- Fragmented treatment for pediatrics
- Continuity of mid-wife team lost
- Elimination of van transportation, parenting and child care
- Program time cut from 1-2 years to 6-8 weeks after delivery

III. CAP Model in the 21st Century

Lessons for the Future

Administrative

- **House any program in a single department**
- **Have a clearly defined line of authority with each discipline reporting to a single program director**
- **Articulate a unified treatment philosophy and apply that philosophy to every aspect of the program**
- **Rules and advice must be written and consistently applied**
- **Have a written policy on conflict resolution**

▶ **Administrative**

- **Atmosphere of reinforcement**
- **Common language**
- **Staffing**
- **Elements in the model**

III. CAP Model in the 21st Century

Lessons for the Future

Atmosphere of Reinforcement

- **Availability**
- **Importance of keeping your word**
- **Receive and convey information**
- **Train all providers, staff, and administrators to be *a/ways* helpful, courteous, and knowledgeable**
- **The interior and exterior environment conveys the level of respect for staff and patients**

- **Administrative**
- ▶ **Atmosphere of reinforcement**
- **Common language**
- **Staffing**
- **Elements in the model**

III. CAP Model in the 21st Century

Lessons for the Future

Common Language

- Urine samples are positive or negative not dirty or clean
- Consistent use of patient or client
- Put rules in a positive voice rather than negative and punitive tones
- Avoid use of term “replacement” therapy
- Avoid calling medications “drugs”

- Administrative
- Atmosphere of reinforcement
- ▶ Common language
- Staffing
- Elements in the model

III. CAP Model in the 21st Century

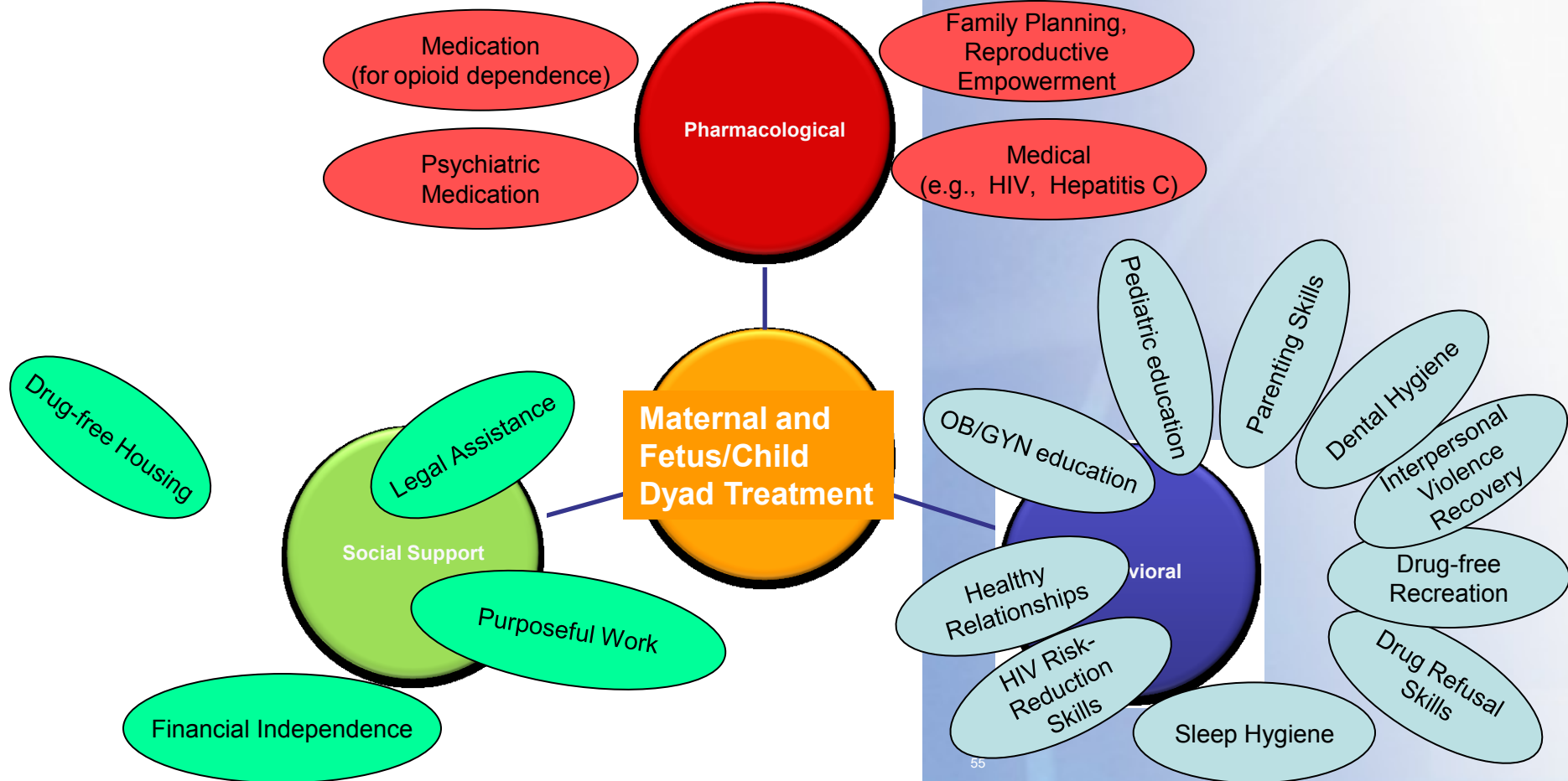
Lessons for the Future

Staffing

- **Emphasis on case management and outreach**
- **Transportation drivers can serve as informal support**
- **Staff burn out comes from trying to solve the same problem over and over-cross-training staff can minimize this problem**
- **Have adequate administrative support staff to support everyone in the program**

- **Administrative**
- **Atmosphere of reinforcement**
- **Common language**
- ▶ **Staffing**
- **Elements in the model**

► Elements in the model

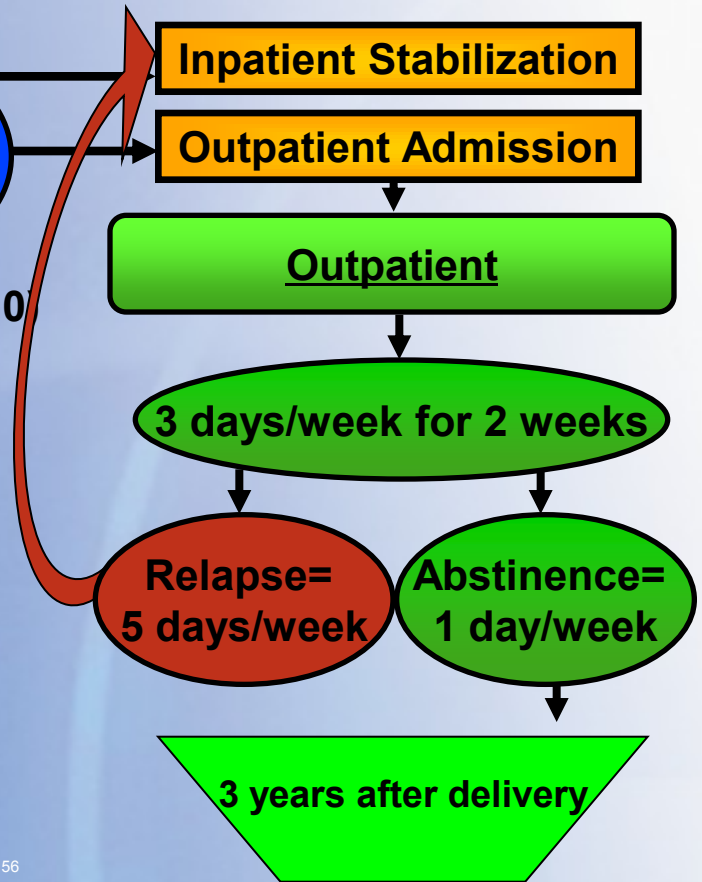


Treatment Flow

III. CAP Model in the 21st Century



- Master's Level Individual Counselors (case load max=10)
- Bachelor's Level Case Managers (case load max=8)
- Group counseling: curriculum in menu format and changes as treatment plan advances
- Same providers from prenatal care through delivery
- Focus on “catching what patients are doing right”
- Positive atmosphere of reinforcement
- True team approach to coordinated care



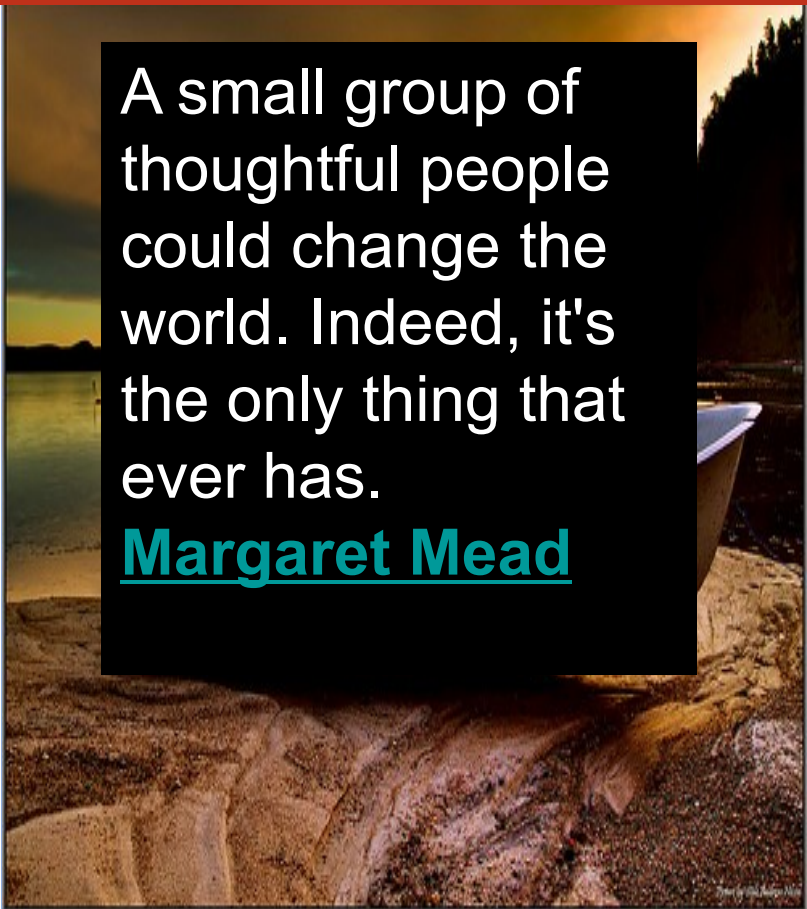
III. CAP Model in the 21st Century

Research Questions: Future Directions

- **What intervention works for which patients and why?**
- **Interaction between alcohol and/ or benzodiazepines and methadone and buprenorphine exposure on the fetus and neonate**
- **Safety and efficacy of Suboxone**
- **Interventions to capitalize on plasticity of children by empowering parents**

Summary: *Take Home Messages*

- Drug addiction during pregnancy is a complex and treatable illness that is best addressed through a comprehensive multi-modal approach
- Treatment should continue well after pregnancy
- Behavioral tools are available to change patient behavior and positively impact maternal, neonatal and child outcomes
- Medication therapy is best viewed as a part of care a complete care package
- Developing a culturally relevant model of comprehensive care for the maternal-child dyad requires “buy-in” from policy makers, policy enforcers, practitioners and patients



A small group of thoughtful people could change the world. Indeed, it's the only thing that ever has.

Margaret Mead

For More Information



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