

Sustained Effects of MTFC for Girls: Long-Term Outcomes for Adolescent Female Offenders



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The Public Health Costs of Antisocial Behavior and Related Problems

- In 2011, 1.5 million arrests were under age 18 (OJJDP, 2013)
- \$88,000 per year *per youth*, with 93,000 juveniles in detention (Justice Policy Institute, 2009)
- \$75 billion per year, with 2.3 million Americans incarcerated (Schmitt et al., 2010)
- \$484 billion per year (smoking, alcohol, illicit drugs; ONDCP, 2001)
- \$2.4 billion in Oregon between 1991-2008, with over 89,000 teen births (The National Campaign, 2011)
- \$83 billion per year, including medical and workplace costs (Greenberg et al., 2003)

Why Study Girls?

- Rates of female delinquency are increasing – 29% of juvenile arrests in 2011 (OJJDP, 2013)
- The rate of violent offenses is increasing for girls – 1 in 5 violent juvenile crimes involve a female (OJJDP, 2013)
- Girls often have co-occurring mental health, drug use, and HIV-risk behaviors and transmit problems to next generation
- We know less about the pathways and outcomes to delinquency in females
- Communities are faced with developing treatments for girls



Cost of Female Juvenile Delinquency

- Little is know about the cost-effectiveness and long term-cost benefit of programs for Female Juvenile Delinquency
- The number of women in prison has increased by 646 percent since 1980 (Office of the President, 2013)
- Estimate \$5.7 Billion spent on incarceration alone for juvenile delinquents



Increased Costs for Females

- Although limited data available, most providers report spending more on Female Offenders than Male (Office of Program Policy Analysis, 2006)



- Pregnancy
- Health Risking Sexual Behavior and Associated Health Consequences
- Child Welfare Involvement



Challenges of Girls: Families

The problems in girls' families of origin are more dysfunctional and their treatment needs are more complex than boys (Henggeler et al., 1987).

- Biological parent criminality predicts girl's age of first arrest (Leve & Chamberlain, 2004).
- Girls are more likely than males to have been a victim of child abuse and to have been placed out of their family homes (Leve & Chamberlain, 2005).
- Family conflict has been found to predict a larger portion of female than male offenses (OJJDP Girls Study Group, 2008).
- Girls who were subjected to multiple changes in caregivers are first arrested at an earlier age.

Challenges of Girls: Young Parenting

- At age 21, females who were delinquent as adolescents are:
 - 2.6 x's more likely to have multiple live-in partners, more likely to abuse or be abused by their partner
 - 2.8 x's more likely to have become a parent, than males
 - 2.4 x's more likely to receive social welfare assistance from multiple government sources (Moffitt et al., 2001).
- Mothers who had their first child by age 20 are twice as likely to have children who demonstrate early delinquency (prior to age 14) compared to other aged first time mothers (Capaldi, 1991)
- 53% of mothers referred for delinquency have their children removed from their custody
 - 27% were unable to safely care for their children without assistance from welfare or other state services (Lewis et al., 1991).



Challenges of Girls: Depression and Suicide Risk



- MDD prevalence among adolescent girls in detention and correctional facilities
 - >2x that of male counterparts;
 - 4-5x that of girls in the general population (Fazel et al., 2008).
- 27-58% of delinquent adolescent girls have attempted suicide (Abram et al., 2008; Rohde et al., 1997) vs.
 - 10% for community adolescent girls (Lewinsohn et al., 1996)
 - 22% for girls diagnosed with MDD (Lewinsohn et al., 1998).

Obstacles to Treating Depression and Suicide Risk

- Conduct disorder and disruptive behavior problems weaken effects of CBT and other treatments on depression (e.g., Rohde et al., 2001; Herman et al., 2007).



Treatment of MDD is a primary means of preventing suicide in the population (Mann et al., 2005), yet suicidal youth are less likely to comply with treatment if they have a behavioral disorder (Burns et al., 2008)

MTFC

An Evidence-Based Practice that demonstrates outcomes for girls with these profiles into adulthood



Multidimensional Treatment Foster Care: (MTFC) Intervention Model

- Alternative to treating delinquent youth in aggregate-care settings
- Youth are placed individually in foster homes
- Treatment in a family setting focusing on the youth *and* the family
- Intensive support and treatment in a setting that closely mirrors normative life
- Intensive parent management training
- Youth attend public schools



Critical Components of MTFC: Known Risk and Protective Factors

- Provision of close supervision
- Provision of consistent limits and consequences for rule violations and antisocial behavior (non-harsh discipline)
- Minimization of influence of delinquent peers
- Daily adult mentoring
- Encouragement/reinforcement for normative appropriate behavior and attitudes
- Youth's parents increase skills at supervision, limit setting, reinforcement



Clinical Team



- Program Supervisor– the conductor and disciplinarian
- Foster Parent - the cheerleader
- Family Therapist
- Individual Therapist
- Skills Trainer
- Foster Parent Recruiter/PDR Caller

Behavioral Program



The Point and Level system is a daily behavior management program.

It provides a concrete way for parents to:

- ✓ teach appropriate skills
- ✓ reinforce desired behaviors or attitudes
- ✓ provide consequences for problem behavior

Goal is 4-1 Positive Reinforcement

Developed by PS and implemented by FP

Sample Behavior Management Chart

Behavior	Description	Day/Date	Time	Points
Up on Time	Out of Bed		6:30 am	10
Ready in the Morning	Shower, teeth brushed, hair combed, wear clean clothes, eat breakfast			10
Morning Clean Up	Bed made, dirty clothes put away, room neat, bath towel & wash rag put away, dishes in the sink			10
Go To School	Be on time & attend classes without tardiness			5
Carry School Card	Carry school card to class & have each teacher sign it			2/class
Behavior in Class	Pay attention to tasks in class, cooperate with the teacher and hand homework in on time			5/class
School Card Bonus	All signature, no overdue homework, no tardies & good behavior			10
Read & Study	50 min. of reading/writing each day (not including letter writing)			20
Chore	To be explained each day			10
Attitude & Maturity	Being helpful, taking criticism well, being pleasant, not pushing limits, not being moody, accepting "No"			15 am 15 pm
Volunteering	Volunteering to do extra tasks (Parents will decide on pts)			2 - 10
Extra Chore	Optional (must be approved by parent)			5 - 30
Bed on Time	In bed with all pre-bedtime activities taken care of		9:30 pm	10

Mediation Outcomes: Keys to Success

Specific processes that drive positive outcomes:

- positive relationship with a mentoring adult
- close supervision
- fair and consistent discipline for rule violations and antisocial behavior
- completion of homework assignments



Sample ($n = 166$)



Referred by court judges in Lane County, OR between 1996 – 2006

Referred for out-of-home placement due to chronic delinquency

MTFC = 81 GC = 85
No Differences between groups at baseline

Rolling recruitment of JJ girls aged 13 -17

Girl Specific Adaptations

- Providing reinforcement and sanctions for coping with and avoiding social/relational aggression
- Developing and practicing strategies for emotion regulation such as early recognition of their feelings of distress and problem solving coping mechanisms
- Developing peer relationship building skills, such as initiating conversations and modulating their level of self disclosure to fit the situation
- Teaching strategies to avoid and deal with sexually risky and coercive situations
- Increasing understanding of personal risks for drug use and providing interventions with urinalysis



Social / Relational Aggression

- Social aggression includes strategies such as ignoring exclusion, gossip, and disdainful facial expressions (Underwood, 2003).
- Although social aggression has been shown to negatively impact relationships for both boys and girls (Kupersmidt & Patterson, 1991), girls have been found to exhibit it more frequently.
- Social aggression leads to peer rejection, loneliness, isolation, and depression. These negative effects appear to be stronger for girls (Crick, Casass, & Ku, 1999).



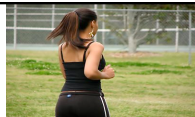
Improving Emotional Regulation

- Research has linked experiences of childhood maltreatment with deficits in modulating emotions and regulating affective responses (Camras Ribordy, Hill, & Martino, 1988).
- Deficits of emotional dysregulation include difficulty controlling behaviors in the face of emotional distress and deficits in the functional use of emotions as a source of information (Gratz, Matthew, et al., 2008).



General Interventions

- Awareness
 - Helping girls to increase their awareness of situations that provoke negative emotions and teaching strategies for controlling their immediate impulses and behaviors.
- Coping Strategies
 - Therapists helped girls identify “effective” and “ineffective” coping strategies (e.g., exercise and listening to music vs. substance use and yelling at people) and tracked use of coping skills.
- Reinforcement
 - Foster parents and therapists worked together to positively reinforce girls for identifying their emotional states and for practicing coping strategies that helped them modulate their level of emotional arousal and responses in difficult situations.
- Decision Making
 - Girls were taught that major life decisions or actions that could result in significant long-lasting changes should never be made when one is upset: control your *behaviors* when upset rather than controlling the *occurrence* of the negative emotions themselves (Gratz & Roemer, 2008).



Building Peer Relationships

Girls typically lacked relationships with close female peers, preferring instead to associate with older, delinquent male peers.



General Interventions

- Girls were reinforced for practicing the targeted skills first in the community with the skills coach, and then in the foster home with her foster parents, and then at school with her peers.
- Girls were encouraged and reinforced for joining age appropriate peer activities.
- Girls were taught how to “start a conversation” with age appropriate peers.

Avoiding Risky Sexual Encounters

- Several studies have found that a cluster of problem behaviors including delinquency, academic failure, and substance use co-occur with risky sexual behavior and teenage pregnancy (Ary et al., 1999; Huizinga, Loeber, & Thornberry, 1993; Landsverk, Garland, & Leslie, 2001; Pilowsky, 1995).
- **40% of the girls in our study reported having had sex with a stranger/someone known less than 24 hours in the past year, and 46% had 3 or more partners in the past year, yet over one-third never or rarely used safe sex practices (Leve & Chamberlain, 2004).**



General Interventions

- Sexual Responsibility
 - Girls were taught strategies for being sexually responsible, including specific training on decision making, identification and awareness of sexual coercion, and refusal skills.
- Role Play exercises were conducted using the ‘Dating and Sexual Responsibility’ video vignettes and the ‘Virtual Date’ activity (Northwest Media, 2002) as a stimulus for discussion.
 - The videos help youth identify coercive behavior and practice refusal skills
 - The Virtual Date depicts key decision points in a practice date



Substance Use

In our study, the majority of girls had serious problems with substance use.

At Baseline:

66% used hard drugs in last year

36% used weekly



General Interventions for Substance Use

- Motivational Interviewing Strategies
- Goal Setting
 - The individual therapist helped the girl identify steps toward her personal goals.
 - The skills coach worked to set up opportunities for making progress on those goals.
- Urinalysis
 - Girls were given random urinalysis tests
 - UAs were given if there was a suspicion of use (e.g., missed classes at school, after visits, runaway).
 - Foster parents and skills coaches reinforced clean UAs with points and verbal statements.
 - Girls earned a reward for each negative test
 - Girls were given consequences such as restricted free time, work chores, and lower privilege levels for positive tests.
- Refusal Skills
 - The individual therapist role played substance use refusal skills



The Oregon Juvenile Justice Girls Studies

National Institute of Mental Health
(R01 MH046690, 1996-2001);
National Institute on Drug Abuse
(R01 DA015208, 2002-2006);
National Institute on Drug Abuse
(R01 DA024672, 2009-present);
National Institute of Mental Health
(R03 MH091611, 2010-present);
Oregon Youth Authority, 1996-2006



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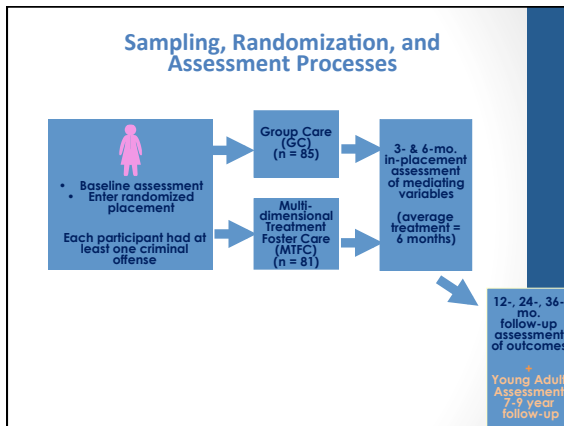
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Consultants

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Gordon Harold



SAMPLE CHARACTERISTICS: BASELINE

- 11.5 arrests (first at age 12 ½; 72% had at least 1 felony)
- 57% clinical-level and 17% borderline-level internalizing scores (CBCL)
- 47% clinical level depression
- Over 3/4 of study girls meet criteria for 3+ DSM-IV Axis 1 diagnoses
- 57% report an attempted suicide
- 26% had been pregnant

High Utilization of Public Health Systems at BL

- 79%: Parent convicted of a crime
- 93%: Child Welfare System involvement
- 2.8: Number of prior out-of-home placements
- 72%: 1 or more felonies
- 66%: Illicit drug use in past
- 78%: Academically below grade level

(Leve & Chamberlain, 2004, J Child & Family Studies)

HISTORY

Physical Abuse	88%
Sexual Abuse	69%
Physical or Sexual	93%
Both	63%
Family Violence	79%
At least one act of sexual abuse <13	76%
Average sexual abuse acts <13	5
Ave. number of parental transitions	17
Ave. number of prior treatment placements	2.96
Mother convicted of crime	46%
Father convicted of crime	63%
At least 1 parent convicted	74%



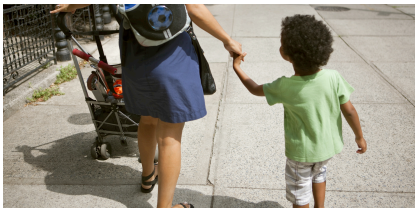
Published MTFC Outcomes for Girls at 12- and 24-month follow-ups

- Delinquency (arrests, days in locked settings)¹
- Deviant Peer Association²
- School Attendance & Homework Time³
- Pregnancy⁴
- Depressive Symptoms⁵
- Psychotic Symptoms⁶



¹Chamberlain, Leve, & DeGarmo, 2007, *J Consulting & Clinical Psych*
²Leve & Chamberlain, 2005, *J Abnormal Child Psych*
³Leve & Chamberlain, 2007, *J Research on Social Work Practice*
⁴Kerr, Leve, & Chamberlain, 2009, *J Consulting & Clinical Psych*
⁵Harold, Kerr, Leve et al., 2013, *Prevention Science*
⁶Poulton, Van Ryn, Harold, Chamberlain, et al., 2014

Do Delinquency-Focused Interventions Delivered During Adolescence have Long-Term Effects on Young Women's Adjustment?



Follow-up into Young Adulthood: 10 Years

- $N = 156$; 95% of living participants*
- Assessed every 6-months for 3 years (6 assessments)
- Age at first young adult assessment:
 $M=22.85$ ($SD=3.11$)

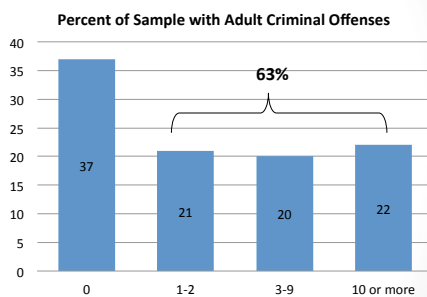
*2 participants were deceased

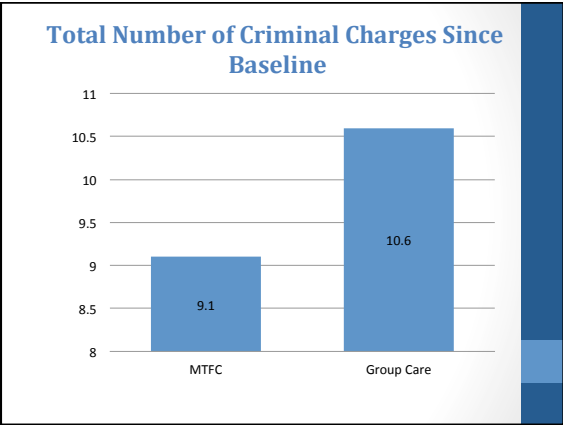
Criminal Justice Outcomes

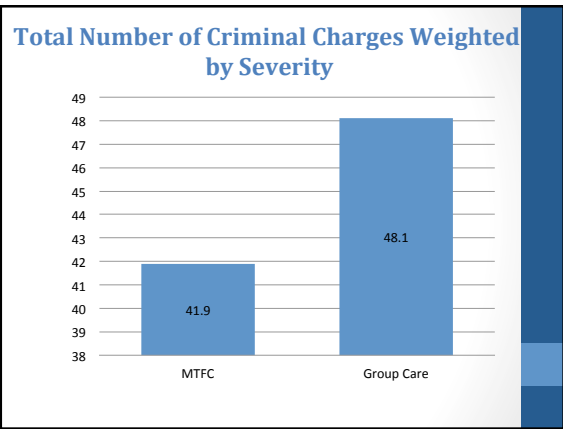
- Collected criminal records from every state and county where participant lived since BL
- 63% of sample had at least 1 adult criminal charge:
 - 37% has served time in adult prison or jail
 - 35% at least 1 felony after age 18

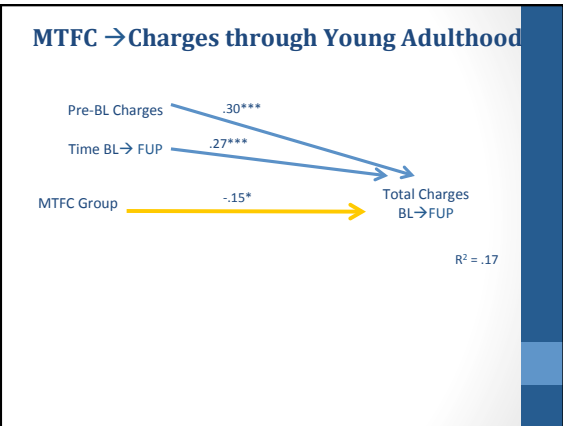


What Happens After age 18?

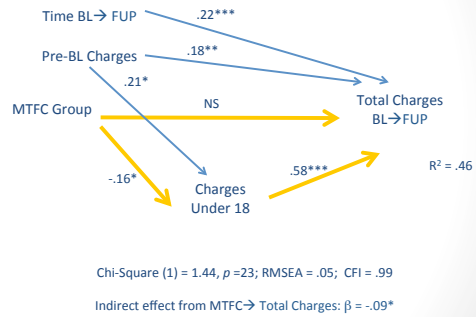








Juvenile Arrest Rates Mediate Intervention Outcomes



Mental Health Outcomes

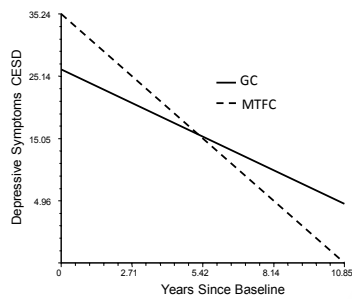


Columbia Suicide Severity Rating Scale (C-SSRS), lifetime version (Posner et al., 2008; 2011)

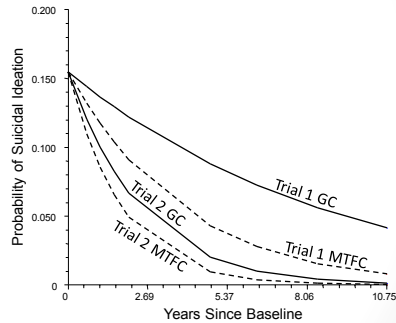
Brief Symptom Inventory (Derogatis & Melisaratos, 1983)
 "During the past week, how much were you bothered by thoughts of ending your life?"

Kerr, D. C. R., DeGarmo, D. S., Leve, L. D., & Chamberlain, P. (2014)

MTFC → Depressive symptoms



MTFC → Suicidal ideation

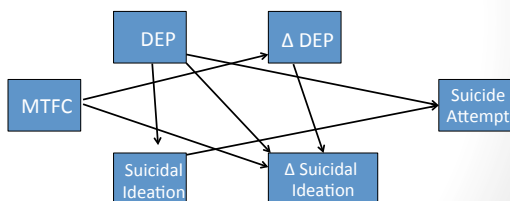


Suicide Attempt: No Difference

- Baseline self-report:
 - Lifetime history = 48%
- Young adult retrospection and rigorous definition:
 - Lifetime history: 46%
 - Baseline history: 34%
 - Post-baseline history: 20.5%
 - 15 of 72 GC (20.8%)
 - 15 of 74 MTFC (20.3%)

MTFC → Suicide risk

- However, positive effects on depression and suicidal ideation suggest that MTFC could have ameliorative effects on suicide risk.





Substance Use Outcomes

Measurement

- Partner substance use and emotional support
 - Girls' report of how often each of her partners in the previous 6 months used substances, on average, and their level of emotional support at the young adult follow-up
- Girl substance use
 - Dichotomous indicator of any substance use at the young adult follow-up

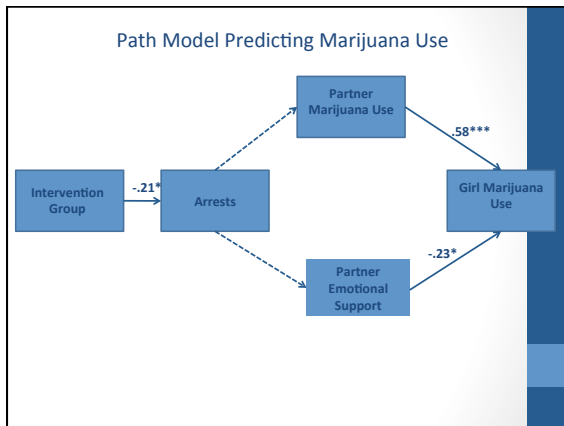
Rhoades, KA., Leve, L., D., Harold, G. T., Kim, H., & Chamberlain, P. (2013)

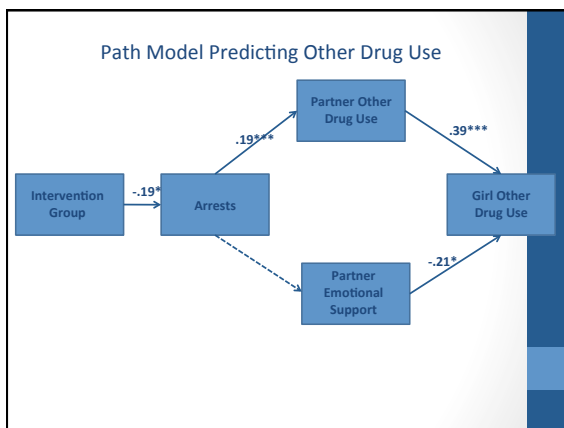
Overall Use

	Full Sample		Group Care		MTFC	
	Marijuana	Other Drugs	Marijuana	Other Drugs	Marijuana	Other Drugs
% Using at Baseline	80%	61%	85%	62%	75%	60%
% Using at Young Adult FU	37%	28%	33%	33%	39%	23%

Correlations


	1	2	3	4	5	6	7
1. Intervention	--						
2. Arrests	-.24**	--					
3. Partner Pot Use	.07	.09	--				
4. Partner Other Drug Use	.11	.18*	.23*	--			
5. Partner Emotional Support	-.12	.03	-.25**	-.15	--		
6. Girl Pot Use	.06	.03	.47***	-.02	-.06	--	
7. Girl Hard Drug Use	-.11	.10	.34***	.30***	-.12	.37***	--





Are there Long-Term Cost-Benefits of MTFC for Girls?

- Despite MTFC's positive clinical outcomes, it is a costly intervention
- \$7,922 treatment costs per individual
- \$39,197 benefit per individual
- \$8,165 to tax payer
 - \$31,032 to non-tax payer
- Overall benefit-cost ratio is \$4.95 of MTFC



Lee, Aos, Drake, Penucci, Miller, & Anderson (2012)

Oregon State Payer Perspective

- Criminal Justice
- Child Welfare
- Assume public representation
- Not Included: Medical
- Benefit-Cost ratio assumes 3% discount rate and is displayed in 2011 dollars

Costs are based on most severe charge when multiple charges within a single arrest



Arrest, Incarceration and Child Welfare Costs

GLO Cost Data

DESCRIPTION	BASE YEAR	SOURCE	COST	2011 COST *
Crime Costs				
Arrests Cost	2009	WSIPP	\$670	\$686.37/day
Jail	2010	NPC	\$96.77/day + \$20.59 booking	\$98.56/day + \$20.97 booking
Prison	2010	NPC	\$84.46/day	\$86.02/day
Probation	2010	NPC	\$8.11/day	\$8.26/day
Parole	2010	NPC	\$12.34/day	\$12.57/day
Juvenile Detainment Costs				
CCDOC Program	2010	NPC	\$66.26/day	\$67.48/day
Residential Treatment	2010	NPC	\$134.19/day	\$136.67/day
Shelter Care	2010	NPC	\$115.57/day	\$117.71/day
Detention	2010	NPC	\$183.65/day	\$187.04/day
Youth Correction Facility	2010	NPC	\$171/day	\$174.16/day
Adult Jail	2010	NPC	\$96.77/day + \$20.59 booking	\$98.56/day + \$20.97 booking
Child Protective Services				
Parent Services **	2011	DHS	\$60.27-\$63.01/day	\$60.27-\$63.01/day
In-home Services***	2011	DHS	\$35.62-\$46.58/day	\$35.62-\$46.58/day

Abbreviation: WSIPP, Washington State Institute for Public Policy; NPC, NPC Research; DHS, Department of Human Services

*Costs were inflated to the 1st quarter 2011

**child in foster care, admin, transfer, foster parent, staff time plus benefits.

***Includes all parent services minus the monthly foster care cost.

DATES OF COHORTS: POST-BASELINE DURATION

Cohort	Date of First Participant	Date of Last Participant	Shortest Duration of Criminal Data
1	April 3, 1997	August 26, 2002	3250 days
2	December 14, 2002	January 24, 2007	1638 days

* Criminal records were collected 7/20/2011

This Caused a Timing Issue and the Need for Two Separate Analyses

Combined Cohorts: 4.5 Years Post-Baseline



Condition	Those with Children	Child Welfare Involved
Group Care (n=85)	33 of 85 (39%)	12 of 33 (36%)
MTFC (n=81)	27 of 81 (33%)	2 of 27 (7%)

Combined Cohorts: 4.5 Years Post-Baseline



Sample	Mean Post-BL Jail	Mean Post-BL Prison
GC (n=85)	88 days	888 days
MTFC (n=81)	101 days	1015 days

Combined Cohorts: 4.5 Years Post-Baseline



Sample	DHS	Court & Lawyer	Victimization	Incarceration	Arrest	Total Condition Costs
GC (n=85)	\$9,922	\$979	\$28,573	\$19,700	\$621	\$59,794
MTFC (n=81)	\$1,434	\$677	\$9,272	\$17,114	\$366	\$28,863
Difference in Cost (Benefit)						\$30,931*

* t stat= 2.7151

Study	Benefits (reduction in cost)	Cost of Treatment	Benefit to Cost Ratio
GLO *	\$30,931	\$7,922	\$3.90
WSIPP **	\$39,197	\$7,922	\$4.95

*GLO- Girls Long term Follow up Outcomes

** WSIPP Washington State Institute for Public Policy



Cohort 1: 8.9 Years



Sample	Those with Children	Child Welfare Involved
Group Care (n=44)	33 of 44 (75%)	17 of 33 (52%)
MTFC (n=37)	27 of 37 (73%)	8 of 27 (30%)

Cohort: 8.9 Years



Sample	Mean Post-BL Jail	Mean Post-BL Prison
Group (n=44)	724 days	986 days
MTFC (n=37)	166 days	936 days

Cohorts 1: 8.9 Years

Sample	DHS	Court & Lawyer	Victimization	Incarceration	Arrest	Total Condition Costs
GC (n=44)	\$27,388	\$2,172	\$52,815	\$33,514	\$1,626	\$117,516
MTFC (n=37)	\$15,465	\$1,856	\$22,170	\$35,197	\$1,457	\$76,146
Difference in Cost (Benefit)						\$41,370 *

* t stat= 1.4541

4.5 years
\$3.90

Study	Benefits (reduction in cost)	Cost of Treatment	Benefit to Cost Ratio
GLO	\$41,370	\$7,922	\$5.22
WSIPP	\$39,197	\$7,922	\$4.95

*GLO- Girls Long term Follow up Outcomes

** WSIPP Washington State Institute for Public Policy



Conclusions and Future Directions



- There is continuity in delinquency and its associated problems from adolescence to early adulthood
- Juvenile justice charges and arrests appear to be a driving mechanism of this continuity
- Targeting delinquency in adolescence can help ameliorate long term negative consequences
- MTFC has shown positive effects on reducing recidivism and improving psychosocial adjustment during adolescence, with effects extending to adulthood
- MTFC effects are promising for disrupting the transgenerational transmission of delinquency

Thank You
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Strengthening children,
families, and communities
for more than 30 years.