

Effects of Family Treatment Drug Courts on Substance Abuse and Child Welfare Outcomes

This paper presents results from the first large-scale outcome study of American Family Treatment Drug Courts (FTDCs)—specialised courts designed to work with substance-abusing parents involved with the child welfare system. The paper examines whether court, child welfare and treatment outcomes differed for 301 families served through three FTDCs as compared to a matched sample of 1,220 families with substance abuse issues who received traditional child welfare services. Propensity score weights were used to account for measured differences between the FTDC and comparison groups. Child welfare outcomes were analysed using analytical techniques that controlled for these inherently nested data (i.e. children within a family). Overall, the study found that FTDC mothers had more positive treatment outcomes than similar mothers who were not served by the FTDC. FTDC mothers were more likely to enter substance abuse treatment services than were non-FTDC mothers, entered treatment more quickly after their initial court petition than did non-FTDC mothers, spent twice as much time in treatment than did non-FTDC mothers and were twice as likely to complete at least one treatment episode than non-FTDC mothers. In addition, data from the study indicate that FTDCs influence a key child welfare variable of interest: FTDC children were significantly more likely to be reunified with their mothers than were unserved children. Copyright © 2008 John Wiley & Sons, Ltd.

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There is a well-documented association between parental substance abuse and involvement in child welfare services. Studies indicate that problems with drugs and/or alcohol are present in between 25 per cent and 80 per cent of child welfare cases (Besharov, 1989; Child Welfare Information Gateway, 2003; Magura and Laudet, 1996; Murphy *et al.*, 1991; National Center on Addiction and Substance Abuse, 1999; Young *et al.*, 2005).

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Working effectively with parents with substance abuse issues is a challenge for child welfare systems (Child Welfare League of America, 2001; Semedei *et al.*, 2001). Parents with substance abuse problems have the lowest probability of successful reunification with their children, and children from these families are likely to have longer stays in foster care (Gregoire and Schultz, 2001; Murphy *et al.*, 1991; Tracy, 1994). Numerous studies have documented the challenge of serving these families effectively (Young *et al.*, 1998).

Family Treatment Drug Court (FTDC) (also known as Dependency Drug Court or Family Treatment Court) is one rapidly proliferating programme model for addressing the needs of these families. While several FTDCs may be emerging internationally, the programme model began in the United States (US) and, to date, remains a largely US-based movement. As of April 2006, there were 183 FTDCs operating in 43 states in the US, and more than 100 additional programmes in development (Bureau of Justice Administration’s (BJA) Drug Court Clearinghouse, 2006) serving thousands of substance-abusing parents and their children. However, there has been little empirical research that examines the effectiveness of the FTDC model. Many studies (Belenko, 2001; Marlowe *et al.*, 2003; Roman *et al.*, 2003) have shown that adult drug courts are effective at improving treatment compliance and reducing criminal recidivism among adults involved with the justice system. Although FTDCs are modelled after adult drug courts, the context and consequences of non-compliance are quite different, and therefore research specific to FTDCs is needed.

The basic FTDC model, like adult drug courts, includes regular, frequent court hearings, intensive judicial monitoring, timely substance abuse treatment and other needed services, frequent drug testing, and rewards and sanctions linked to parental compliance with their service plan (Center for Substance Abuse Treatment, 2004; Edwards and Ray, 2005). FTDCs aim to use a non-adversarial judicial setting in which parents receive clear messages about what they need to do in order to be successfully reunified with their children. Like adult drug courts, FTDCs involve a ‘drug court team’ that includes representatives from the judicial, child welfare and treatment systems who together support and monitor the parent. Parents have court appearances (often weekly) much more frequently than is the case in traditional child welfare processing. Harrell and Goodman (1999) present a thorough overview of the FTDC model.

Unlike adult drug courts, however, where participants are motivated by avoiding jail time and/or criminal convictions, and where the ultimate goal is reducing criminal recidivism, for parents involved in FTDCs, the primary motivation for participation is the goal of being reunified with children. Research has shown that,

for parents involved in the child welfare system due to substance abuse issues, successful treatment is positively associated with the likelihood of reunification (Green *et al.*, 2007b; Gregoire and Schultz, 2001; Smith, 2003). Therefore, two important questions for FTDCs are whether they are successful in helping parents succeed in treatment and, if so, whether this makes a difference for child welfare outcomes.

One previous retrospective study of four FTDCs (Green *et al.*, 2007a) examined treatment and child welfare outcomes for relatively small samples of parents served by FTDCs as compared to parents served through the traditional child welfare system. Results from this study indicated that FTDC parents were more likely to enter treatment, entered treatment more rapidly, stayed in treatment longer and were more likely to complete treatment than comparison parents. In addition, findings from this study suggested that children of FTDC parents were more likely to be reunified with their parents than children of comparison parents. Furthermore, the FTDC model appeared to have a 'value added' in facilitating positive child welfare outcomes above and beyond the influence of positive treatment experiences. This study provides solid preliminary evidence of the effectiveness of the FTDC model. However, the study samples were small (50 families in each site). Furthermore, the comparison groups were drawn using a retrospective 'pre-FTDC' sampling process. Thus, differences attributed to the FTDC may have been influenced by other changes over time in the court or child welfare systems, or other factors. The present study examines the effectiveness of the FTDC model using much larger samples and a more rigorous comparison group methodology, allowing for a better test of model efficacy.

Research Questions

The current study examines treatment and child welfare outcomes across three FTDCs. Specifically, we address the following research questions:

1. Do FTDC participants, compared to similar parents who did not receive FTDC services, have more positive substance abuse treatment outcomes? Specifically, are FTDC parents more likely to: (a) enter treatment; (b) enter treatment more quickly; (c) remain in treatment longer; and (d) complete treatment, compared to non-FTDC parents?
2. Do FTDC families, compared to similar families who did not receive FTDC services, have more positive child welfare outcomes? Specifically, (a) do the children of FTDC participants spend less time in out-of-home placements; (b) are the children of FTDC participants placed in permanent living situations more quickly; and (c) are reunifications more likely?

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Methodology

Site Selection

The three sites used for the present study were selected based on an initial US Substance Abuse and Mental Health Services Administration (SAMHSA) assessment, and all three sites participated in a four-year longitudinal evaluation funded by SAMHSA. All sites provide a core set of services, including intensive judicial monitoring, immediate substance abuse assessment and referral, and wrap-around services provided through a drug court team. The programmes are all voluntary and have similar exclusionary criteria: all sites exclude cases that involve child fatalities or sexual abuse, parents with serious mental illness, voluntary (non-court involved) child welfare cases, cases that are being immediately moved to termination of parental rights and cases involving parental incarceration that would preclude attendance at the FTDC. One of the study sites is located on the east coast of the US, and two are located on the west coast.

Sample Selection

The study uses a non-randomised comparison group design. The comparison group consisted of both a group of FTDC-eligible mothers who received traditional child welfare case processing in the three study counties, as well as a group of mothers from two matched comparison counties. The untreated eligible mothers in the three study sites did not enter the drug courts due to capacity constraints, social workers or attorneys not making the appropriate referrals to drug court, and mothers refusing drug court services.

To increase statistical power, additional comparison mothers were selected from two comparison counties. The comparison counties were selected from a pool of eight populous counties that did not have a FTDC programme and were examined on a number of indicators, including population, level of poverty, median incomes, proportions of Hispanic and African American people in the local population, number of children, number of child welfare cases, treatment admissions and drug arrests. Three of the counties were comparable to the study counties on the majority of these indicators, and two agreed to participate in the study. For a detailed description of the sampling methodology, see Worcel *et al.* (2007).

The final comparison sample consisted of 736 ‘untreated eligible’ cases during the four-year sampling period at the three FTDC sites, and 183 matched cases from the same time period from the two comparison counties, for a total comparison sample of 919 cases.

The FTDC treatment sample consisted of a total of 301 cases with mothers (an extremely small number of FTDC and comparison cases were father-only cases and were excluded from the analysis sample) who entered the three study sites during the four-year sampling period. Thus, the total study sample consisted of 1,220 cases.

Ethical Approvals

The project received human subjects approval from all necessary US federal, state and local jurisdictions, including a waiver of informed consent due to the retrospective nature of the data collection and the large sample size, both of which made obtaining individual-level consent unfeasible.

Data Collection Procedure and Data Sources

Administrative data for this study were gathered from child welfare, court and treatment data sources. A standard extraction tool was used to collect the data across the study sites, and data collection staff members were provided with operational definitions and data collection guidelines to ensure consistency in data across sites. For a discussion of quality control procedures and reliability checks, see Worcel *et al.* (2007). Data were collected on each case for two years after the initial child welfare petition (the ‘data collection window’). The following variables were created from the data extraction tool.

Demographic and Background Variables

Parent demographic information was based on information at case inception, including age, number of children, race/ethnicity, education level, employment status and marital status.

Parent risk factors was a count of the following six parental risk factors: (a) history of mental health issues, (b) history of learning or developmental delays, (c) history of medical problems, (d) history of criminal issues, (e) history of domestic violence and (f) history of childhood victimisation.

Child risk factors was a count of whether any child had the following five risk factors: (a) medical issues, (b) developmental issues, (c) educational issues, (d) behavioural/emotional issues and (e) prenatal substance exposure.

Family history of child welfare system investigation was a dichotomous variable that indicated whether there had been any prior child welfare investigation of the parent.

Previous alcohol or drug treatment was a dichotomous variable indicating whether a parent had received alcohol and/or drug treatment within the two-year period prior to the start of the child welfare case.

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Alcohol and Drug Treatment Outcomes

Likelihood of treatment entry was defined as whether mothers entered treatment at least once during the case (defined as any point between child welfare petition and either case closure or the end of the data collection window, whichever came first).

Time to treatment was defined as the number of days from the case petition date to the first eligible alcohol and drug (A&D) treatment episode. Mothers who did not access treatment or who were already in treatment at the start of their cases were coded ‘missing’. Thus, 57 per cent of the total sample had time to treatment data ($n = 690$).

Number of days in treatment was defined as the total number of days in treatment during the case. Mothers who did not enter treatment during their cases were assigned a ‘0’ because they spent zero days in substance abuse treatment during their cases.

At least one completed treatment episode was coded ‘yes’ (1) if at least one A&D treatment episode was indicated by the treatment record as having been ‘completed’ during a parent’s case, and ‘no’ (0) if the mother had no completed episode(s), or if the mother did not enter treatment during the case. Coded as missing were mothers who were still in treatment at the end of their case, or who were missing a treatment disposition. Thus, 88 per cent of the sample had treatment completion data ($n = 1074$).

Child Welfare Outcomes

Child welfare outcomes were calculated based on information for 2,522 children associated with the 1,220 mothers in our sample.

An *out-of-home placement* was defined as any placement in which children were not cared for by the original parent(s) on the case. The *likelihood of spending time in an out-of-home placement* was coded as ‘0’ for children who had no record of spending time outside of their original parents’ care, ‘1’ for children who had spent time in an out-of-home placement and missing for children who did not have clear information about where they spent time during their case. Data were available for 98 per cent of the children ($n = 2471$).

Time spent in out-of-home placements was calculated only for those children who spent time out of their original parents’ care ($n = 2123$), and was defined as the number of days spent in out-of-home placements during the case.

Time to permanent placement was defined as the number of days from the case petition to the date the child was placed in a permanent placement. Missing values were assigned to children who were not removed from parental care, who had missing permanent placement dates and who did not reach permanent placement by the end of the data collection window, resulting in data for 64 per cent of the children ($n = 1614$).

Reunification with original parent(s) was coded as 'yes' (1) if the child's final case disposition indicated that s/he was reunified with her/his original parents and 'no' (0) if the child had another type of final case disposition. Cases that did not reach permanency by the end of the data collection window and children who were never removed from their parents' custody were assigned missing values, resulting in data for 67 per cent of the children ($n = 1698$).

Analysis Methodology

Comparing FTDC families to families who did not participate in FTDC (comparison families) is complicated by the fact that FTDC families systematically differ from comparison group families on some characteristics, as described above, and it is possible that those differences, rather than the FTDC, may account for some or all of the observed differences in the outcome measures. To address this complication, the project statistician used a method called *propensity analysis* to provide a degree of statistical control for differences between the two groups (see Rosenbaum and Rubin, 1983). Propensity scoring provides a multivariate approach to adjusting for differences between the treatment and comparison groups. The project statistician used the following characteristics to model (using logistic regression) the probability of a study family participating in the FTDC: (1) race, (2) marital status, (3) education level, (4) employment status, (5) age, (6) previous CPS (Child Protective Services) involvement, (7) parental risk factors, (8) age of first drug use, (9) previous termination of parental rights, (10) type of abuse allegation, (11) number of children involved in the child welfare case, (12) children's risk factors, (13) whether an infant was involved in the case and (14) frequency of drug use. The estimated probability is the *propensity score*. If there are additional unmeasured variables that accounted for whether or not a family participated in the FTDC (which is likely), the propensity adjustment will not be equivalent to random assignment and therefore the differences reported here cannot be fully attributed to the FTDC treatment. However, the propensity score method will provide better estimates than if data were left unadjusted.

Treatment effects (the extent to which drug court system mothers differed from comparison mothers) were estimated using propensity weights (FTDC families = $1/\text{propensity score}$; comparison families = $1/1\text{-propensity score}$) to weight parameters in the estimation equation. Akin to inverse probability weighting, this method weights less heavily cases with a high probability of being in one group over the other based on the variables included in the logistic regression model.

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Results

Sample Descriptions

As shown in Table 1, mothers in this study were predominantly Caucasian, but significantly more so in the FTDC group than in the comparison group. This result was due to an artifact of the comparison sample selection process; the two comparison counties selected for the study had larger non-Caucasian populations than two of the three FTDC counties. The comparison group members selected within each FTDC county did not differ from the FTDC sample in terms of race; thus, non-Caucasian mothers within the FTDC counties were no less likely to be in the FTDCs than Caucasian mothers. The FTDC and comparison groups did not differ in terms of education, employment, or marital status. Roughly half the mothers had less than a high school education, and the majority were unemployed and unmarried. Both groups had an average of one (out of five) child risk factor per case, and two (out of six) maternal risk factors (2.4 for FTDC and 2.3 for comparison mothers, a statistically significant, but small, difference).

The two groups did not differ in terms of substance abuse history, but there were some differences in child welfare case characteristics. A significantly larger proportion of FTDC cases contained allegations of neglect than the comparison cases, while a significantly larger proportion of comparison cases included allegations of physical abuse or emotional abuse. Mothers in both groups had two children on average, but a significantly larger proportion of FTDC mothers had an infant under the age of one (see Table 2).

Table 1. Sample demographics

Characteristic	Drug court sample % (n)	Comparison sample % (n)
Race*	N = 300	N = 915
Caucasian	63% (189)	51% (467)
African American	9% (27)	12% (110)
Hispanic	22% (66)	29% (266)
Other	5% (15)	8% (74)
Education level	N = 205	N = 462
Less than high school	50% (102)	44% (203)
Employment status	N = 213	N = 557
Employed	18% (38)	23% (128)
Marital status	N = 295	N = 889
Legally married	25% (74)	23% (205)

* The drug court sample had significantly more Caucasians than the comparison sample ($\chi^2(3) = 14.15, p < 0.01$).

Table 2. Substance use and child welfare case characteristics

Characteristic	Drug court sample % (n)	Comparison sample % (n)
Substance use history:		
Primary drug of choice	N = 245	N = 559
Methamphetamine	38% (93)	42% (234)
Cocaine	18% (44)	13% (72)
Marijuana	11% (26)	10% (56)
Alcohol	26% (63)	24% (135)
Other	8% (19)	11% (62)
Treatment history	N = 247	N = 589
At least one treatment episode in 2 years prior to child welfare case	26% (64)	29% (171)
Age at first use	N = 231	N = 540
Mean	20	19
Child welfare characteristics:		
Allegations	N = 301	N = 918
Physical abuse ^a	3% (9)	11% (101)
Neglect ^b	98% (295)	94% (863)
Emotional abuse ^c	2% (6)	9% (83)
Previous CPS referrals	N = 291	N = 828
38% (111)	39% (323)	
Previous terminations of parental rights	N = 291	N = 874
7% (20)	8% (70)	
At least one infant ^d	N = 301	N = 918
61% (184)	53% (487)	
Number of children	N = 301	N = 919
Mean	2.1	2.1

^aThe comparison group had significantly more physical abuse allegations than the drug court group ($X^2(1) = 20.08, p < 0.001$). ^bThe drug court group had significantly more neglect allegations than the comparison group ($X^2(1) = 7.14, p < 0.01$). ^cThe comparison group had significantly more emotional abuse allegations than the drug court group ($X^2(1) = 14.29, p < 0.001$). ^dThe drug court group was significantly more likely to have infants than the comparison group ($X^2(1) = 6.63, p < 0.01$). CPS = Child Protective Services.

Do FTDC Mothers Have Different Treatment Outcomes Than Comparison Mothers?

The first set of analyses focuses on estimating the differences between comparison and FTDC mothers on four treatment outcomes: (a) likelihood of treatment entry, (b) time to treatment, (c) days spent in treatment and (d) likelihood of completing at least one treatment. To examine the possibility of site-level effects, all analyses were tested for site by FTDC status (FTDC vs. comparison) interactions. Estimates reported in this section are adjusted for propensity weight, site and site by FTDC status interaction (if the interaction was statistically significant). All outcomes and related estimates are presented in Table 3.

Likelihood of Treatment Entry

Results from a logistic regression (using Mplus v4.0) found that a significantly larger proportion of FTDC mothers than comparison mothers entered treatment, $\Delta X^2(1) = 24.40, p < 0.01$ (the chi square difference statistic refers to the unique effect of FTDC status on

‘Do FTDC Mothers Have Different Treatment Outcomes Than Comparison Mothers?’

Table 3. Treatment and child welfare outcomes

	Comparison		FTDC	
	<i>M</i> or % (<i>n</i>)	95% CI	<i>M</i> or % (<i>n</i>)	95% CI
Treatment outcome				
Likelihood of entering treatment (%)	59.2% (919)	55.6%–62.8%	82.2%* (301)	78.5%–85.9%
Time to treatment (mean days)†	122.38 (477)	107.40–137.35	84.24* (213)	71.01–97.47
Days spent in treatment—all mothers (mean days)	148.18 (919)	131.01–165.35	306.29* (301)	289.04–323.54
Days spent in treatment—mothers who entered treatment only (mean days)†	241.62 (546)	219.33–263.91	383.92* (244)	364.26–403.59
At least one completed treatment (%)	32.5% (823)	28.3%–36.7%	64.8%* (251)	60.5%–69.1%
Child welfare outcome				
Likelihood of out-of-home placement (%)	85.6% (1851)	83.5%–87.7%	88.1% (620)	85.0%–91.2%
Days in out-of-home placement—children who spent time in out-of-home placement only (mean days)†	493.01 (1596)	475.39–510.63	403.01* (527)	378.76–427.26
Time to permanent placement (mean days)†	228.04 (1249)	208.02–248.05	287.73* (365)	260.65–314.80
Likelihood of reunification (%)†	38.7% (1318)	34.3%–43.2%	69.2%* (380)	62.4%–75.9%

Note: All estimates were weighted by propensity weight and adjusted for site. An asterisk indicates a statistically significant ($p < 0.01$) difference between the comparison and FTDC groups. A dagger indicates a statistically significant site by FTDC group interaction. FTDC = Family Treatment Drug Court; CI = confidence intervals, which show the precision of the estimate (wider intervals = less precision).

‘On average FTDC mothers entered treatment significantly faster than comparison mothers’

model fit, which accounted for 9.6 per cent of the variation in the likelihood of treatment entry). Overall, the odds of entering treatment improved by a factor of 3.2 for mothers in the FTDC, as compared to comparison mothers. Site was not statistically significant, nor was the site by FTDC status interaction term.

Time to Treatment Entry

Weighted least squares (WLS) regression (SPSS v14.0) was used to estimate mean-level differences in time to treatment. We found that on average FTDC mothers entered treatment significantly faster than comparison mothers, $F(1,684) = 14.04, p < 0.01$. FTDC status uniquely accounted for two per cent of the variation in time to treatment, and a site by FTDC interaction term accounted for an additional 1.3 per cent of variation, $F(2,684) = 4.66, p < 0.05$. The interaction indicated that the magnitude of the difference in time to treatment between FTDC and comparison mothers fluctuated according to site, with one site showing much faster treatment entry for FTDC mothers, and the two remaining sites showing differences that were not statistically significant.

Another approach is survival analysis, which considers time to an event and can handle cases with unknown outcomes (i.e. ‘censored’ cases). The benefit of this approach is that all cases, even those that had not entered treatment by the end of the study window, are used to predict treatment entry rates. Average days to treatment calculated for those who had entered treatment within the study window may underestimate actual time to treatment if a substantial number of mothers did not enter treatment within the study window. For example, if half of the FTDC group

entered treatment very quickly and the other half had not entered treatment, average time to treatment would be very fast based on those who had complete data. We fitted a Cox proportional hazard model and found that even when including parents with censored data ($n = 430$), FTDC status uniquely predicted time to treatment, $\Delta X^2(1) = 47.90$, $p < 0.01$, and the rate of treatment entry for FTDC parents was approximately twice that of comparison parents.

Time Spent in Treatment

We first used WLS regression to examine time spent in treatment for all mothers, coding mothers who did not enter treatment as having zero days. Results showed that FTDC mothers spent significantly more time in treatment than comparison mothers, $F(1,1216) = 180.59$, $p < 0.01$. FTDC status accounted for 13 per cent of the variation in days spent in treatment; neither site nor the interaction between site and FTDC status were statistically significant.

It is also useful to estimate the number of days spent in treatment for *only those mothers who accessed treatment*. Using this approach, we again found that FTDC mothers who accessed treatment spent significantly *more* time than comparison mothers in treatment, $F(1,784) = 88.31$, $p < 0.01$. FTDC status uniquely accounted for ten per cent of the variation in days in treatment when all families in the study were included. FTDC mothers at all sites spent significantly more days in treatment than comparison mothers; however, as indicated by a statistically significant site by FTDC status interaction term ($F(2,784) = 7.56$, $p < 0.01$), the differences were larger in some of the sites.

Likelihood of Treatment Completion

Using logistic regression, we found that a significantly larger proportion of FTDC mothers had completed at least one treatment episode than comparison mothers, $\Delta X^2(1) = 65.59$, $p < 0.01$. FTDC status uniquely accounted for approximately 12 per cent of the variation in completing at least one treatment episode. The results also indicated that the odds of completing at least one treatment improved by a factor of 3.8 for mothers in FTDC, as compared to comparison mothers. There was not a main effect for site or a significant site by FTDC status interaction.

Do FTDC Cases Have Different Child Welfare Outcomes Than Comparison Cases?

The second set of analyses (outcomes shown in Table 3) examines differences between comparison and FTDC *children* on four child welfare outcomes: (a) likelihood of out-of-home placement, (b) time spent in out-of-home placements, (c) time to permanent placement and (d) likelihood of reunification with original parents. The analysis

'FTDC mothers spent significantly more time in treatment than comparison mothers'

'A significantly larger proportion of FTDC mothers had completed at least one treatment episode'

‘The extent to which out-of-home placements were used varied significantly by site’

of child welfare outcomes is complicated by the fact that multiple children may have the same parent (i.e. ‘nested data’). The difficulty in analysing nested data is that outcomes for children within a particular family are likely to be more similar than outcomes for children from different families. A basic statistical assumption is that all observations are independent—that is, an outcome for one participant has no bearing on the outcome for other individuals in the dataset. This assumption is violated with nested data, which can result in biased significance tests (Raudenbush and Bryk, 2002). Therefore, for all of the subsequent analyses, we used statistical techniques, described below (using SPSS 14.0 and MPlus v4.0), to ‘control’ for the correlation between children’s outcomes within a particular family and to adjust the error terms for all of our child welfare outcome estimates. All of the models were weighted by propensity eights, and controlled for ‘site’ and ‘site by FTDC status interactions’.

Likelihood of Out-of-home Placement

Results from a logistic regression found no differences between comparison and FTDC children in the likelihood of out-of-home placement, ($\Delta X^2(1) = 0.80$, ns). The site by FTDC status interaction was not statistically significant, but the extent to which out-of-home placements were used varied significantly by site ($b = -3.39$, $p < 0.01$), with one site less likely to place children out-of-home: 98 per cent of children at two sites spent time in an out-of-home placement, as compared to only 64 per cent of children at the third site.

Time Spent in Out-of-home Placements

We employed a WLS regression to examine the number of days spent in out-of-home placements (children who did not spend time in out-of-home placements were excluded from this analysis). We found that FTDC children spent significantly *less* time in out-of-home placements than comparison children, $F(1,940.89) = 34.72$, $p < 0.01$. A statistically significant site by FTDC status interaction ($F(2,933.43) = 4.59$, $p < 0.05$) suggested that the magnitude of the difference between FTDC and comparison children ranged from 39 to 158 days. Furthermore, a significant main effect for site ($F(2,933.43) = 14.26$, $p < 0.01$) revealed that children at one site spent significantly less time in out-of-home placements than children at the other two sites. Together, FTDC status and the site by FTDC status interaction accounted for five per cent of the variation in days spent in out-of-home placements.

Time to Permanent Placement

The difference in the average number of days to permanent placement between FTDC and comparison children was evaluated using

a WLS regression. We found that *comparison* children reached permanency significantly faster than FTDC children, $F(1,710.89) = 12.12, p < 0.01$. The significant site by FTDC status interaction ($F(2,697.81) = 3.49, p < 0.05$) indicated that *comparison* children reached permanency significantly faster than FTDC children at only one site, while the other two sites did not show statistically significant differences. FTDC status and the site by FTDC status interaction together accounted for approximately two per cent of the variance in time to permanent placement.

Estimating the average number of days it took to reach permanency may produce an underestimate of actual time to permanency if there were a substantial number of children who had not reached permanency within the study window. To address this issue, we employed survival analysis to analyse differences in permanency rates (number of children who reached permanency per day), which allows for the inclusion of children who had not reached permanency by the end of the study window ($n = 713$). We fitted a Cox proportional hazard model and found that time to permanency was *not* significantly different for FTDC and *comparison* children, $\Delta X^2(1) = 0.73, ns$. The site by FTDC status interaction was also not statistically significant. Only site was a statistically significant predictor of time to permanency (site by FTDC status interaction was not statistically significant), indicating that across both *comparison* and treatment groups, children in some sites took longer to reach permanency than children in other sites.

Likelihood of Reunification

Results from a logistic regression model revealed that FTDC children were significantly more likely to have been reunified with their parents than *comparison* children ($\Delta X^2(1) = 5.59, p < 0.05$), with FTDC status uniquely accounting for approximately four per cent of the variance in likelihood of reunification. A statistically significant interaction ($\Delta X^2(2) = 7.42, p < 0.05$) indicated that the magnitude of this main effect differed significantly as a function of site—the difference between FTDC and *comparison* children ranged from 12 per cent at one site to 46 per cent at another. Accordingly, the odds of being reunified improved for FTDC children over *comparison* children, but the degree of improvement ranged from a factor of 1.6 to 14.0 depending on site.

Discussion

Results from this study indicate a pattern of positive treatment outcomes for mothers participating in FTDC. FTDC mothers were more likely to enter treatment than *comparison* mothers, entered treatment significantly faster, stayed in treatment twice as long and

‘Across both *comparison* and treatment groups, children in some sites took longer to reach permanency than children in other sites’

‘Findings suggest that the FTDC model is successful in providing timely treatment access to participants and in engaging and motivating participants to continue with, and complete, treatment’

‘FTDC cases are nearly twice as likely to result in reunification than comparison cases’

were twice as likely to complete treatment. These results are consistent with findings reported by Green *et al.* (2007a). Taken together, these findings suggest that the FTDC model is successful in providing timely treatment access to participants and in engaging and motivating participants to continue with, and complete, treatment.

Child welfare results were more mixed, due in part to some site differences in outcomes. There was some indication that FTDC cases took *longer* to reach permanent placement than comparison cases; however, this difference was largely driven by one site, and this effect vanished when survival analysis was employed. The failure to find differences in time to permanency when all cases are included in the analysis suggests that there may be a group of families who, when processed through traditional dependency proceedings, do in fact reach permanency more rapidly, perhaps because of early decisions to not pursue reunification. However, within the family drug court context, these families may be accorded more time to comply with court-ordered treatment, thus delaying the permanency decision. Further, there was no difference between FTDC cases and comparison cases in terms of the likelihood of out-of-home placements or the length of time spent in these placements, although at one of the three sites, FTDC children spent significantly less time in out-of-home placements than comparison children.

It is important to note that while there were some site-level differences in outcomes, no one site was driving effects across outcomes; that is, there was not just one ‘shining star’ programme with strong, positive programme outcomes that created the cross-site programme effects reported here. For a complete analysis and discussion of site-level outcomes, see Worcel *et al.* (2007).

Findings from this study do suggest that FTDC cases are nearly twice as likely to result in reunification than comparison cases. Thus, while the programme may not decrease time to permanency or children’s stays in out-of-home placement, the programme does appear to increase the likelihood of family reunification, especially at certain sites. It may be that length (time to permanency, or time to case closure, or any other metric of case length) is not an appropriate outcome for FTDCs: by virtue of the close judicial and programmatic oversight of clients, these programmes may even result in *longer* cases, as judges and service providers work to provide the most appropriate, and most intensive, service plan possible for each family (and indeed, the increased treatment length of stay for FTDC mothers can be seen as a successful illustration of this emphasis). It is just this intensive service model that may lead, in turn, to the more favourable reunification rates for FTDC families.

Given the favourable treatment outcomes associated with FTDC participation, and the higher rates of reunification for FTDC families, future analysis should investigate the ‘value added’ question

posed by Green *et al.* (2007a). That is, analysis should address whether the positive reunification outcome is due simply to the FTDC model's influence on treatment, or whether the FTDC model, in and of itself, uniquely contributes to family reunification. This type of analysis, combined with a more thorough investigation of the features of FTDCs that may lead to parental success, can begin to unpack the 'black box' of FTDCs by building an understanding of the most important operational characteristics of successful FTDC programmes. Combining quantitative approaches with qualitative studies that examine parent experiences with the programme model are especially needed to create a body of knowledge about how and why FTDCs work. Parents participating in the programme are uniquely situated to provide their perceptions of the key characteristics of the programme model.

Especially in light of the site-to-site variation in child welfare outcomes, the importance of continuing to understand how and why FTDCs influence these outcomes is important. While some variability may be due to systematic differences in child welfare processing, other differences may be due to characteristics of the FTDC or to how the FTDC interacts with the child welfare system. For example, Boles *et al.* (2007) describe the difference between 'parallel' and 'integrated' FTDC models. In a parallel model, the FTDC judge oversees treatment issues while other aspects of the child welfare case are decided by a separate family court judge. In an integrated model, a single FTDC judge oversees all aspects of the case.

The type of cases served by the FTDC may also influence outcomes: the one site with the least favourable child welfare outcomes also tended to serve families with less severe neglect cases, such families may not need the intensive supervision of the FTDC. Indeed, some research on adult drug courts suggests that the adult drug court model is most appropriate for higher risk offenders (Marlowe *et al.*, 2006). A more thorough examination of this issue is warranted, especially in light of the fact that, in the current samples, FTDC mothers had less severe cases than comparison mothers (neglect rather than abuse allegations). Conversely, however, the FTDCs were more likely to enrol mothers who had infants, perhaps out of recognition that these families require speedy, and intensive, intervention. As research that documents overall FTDC effectiveness builds, investigations that can begin to describe what type of families are best served will be critical to building the most successful FTDC programme models.

Study Limitations

The current study used a strong non-randomised comparison group design with well-matched comparison groups; however, it is still

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‘Other strong quasi-experimental designs that can replicate and extend the findings of the current study’

possible that differences in outcomes were influenced by selection bias or other factors. In particular, the process through which families elected to participate (or not) in the FTDC was generally unknown. It may be that more difficult families are either never offered the opportunity to participate in FTDCs, or are more likely to decline participation. While the similarities in demographic and historical risk factors in the current study samples suggest that the groups were relatively similar, a host of other variables with the potential to influence outcomes may have gone unmeasured. A randomised study of the effectiveness of the FTDC model is needed to definitely answer this question; unfortunately, there is generally strong resistance to randomised studies within the child welfare and family court system. The difficulty of implementing such a study is compounded by the growing evidence for the effectiveness of the FTDC model, which makes it more difficult ethically to implement a randomised study. Other strong quasi-experimental designs that can replicate and extend the findings of the current study will help to build the evidence base needed to demonstrate model effectiveness.

References

- Belenko S. 2001. Research on drug courts: A critical review 2001 update. The National Center on Addiction and Substance Abuse, Columbia University.
- Besharov DJ. 1989. The children of crack: Will we protect them? *Public Welfare* 46(4): 7–11.
- BJA Drug Court Clearinghouse. 2006. *Summary of Juvenile and Family Drug Court Activity by State and County, April 14 Update*. American University: Washington, DC.
- Boles SM, Young NK, Moore T, DiPirro-Beard S. 2007. The Sacramento Dependency Drug Court: Development and Outcomes. *Child Maltreatment* 12(2): 161–171.
- Center for Substance Abuse Treatment. 2004. *Family Dependency Treatment Courts: Addressing Child Abuse and Neglect Cases Using the Drug Court Model*. Bureau of Justice Assistance: Washington, DC.
- Child Welfare Information Gateway. 2003. Substance abuse and child maltreatment. Available: www.childwelfare.gov/pubx/factsheets/subsabuse_childmal.cfm [accessed March 1st 2007].
- Child Welfare League of America. 2001. *Alcohol, Other Drugs, and Child Welfare*. CWLA: Washington, DC.
- Edwards LP, Ray JA. 2005. Judicial Perspectives on Family Drug Treatment Courts. *Juvenile and Family Court Journal* Summer 2005: 1–27.
- Green BL, Furrer CJ, Worcel SD, Burrus SWM, Finigan MW. 2007a. How Effective Are Family Treatment Drug Courts? Results from a Four-Site National Study. *Child Maltreatment* 12(1): 43–59.
- Green BL, Rockhill A, Furrer CJ. 2007b. Does substance abuse treatment make a difference for child welfare case outcomes? *Children and Youth Services Review* 29(4): 460–473.
- Gregoire KA, Schultz DJ. 2001. Substance-abusing child welfare parents: Treatment and child placement outcomes. *Child Welfare* 80(4): 433–452.

- Harrell A, Goodman A. 1999. Review of specialized Family Drug Courts: Key issues handling child abuse and neglect cases. Department of Justice: Washington, DC.
- Magura S, Laudet AB. 1996. Parental substance abuse and child maltreatment: Review and implications for intervention. *Children and Youth Services Review* **18**(3): 192–220.
- Marlowe DB, DeMatteo DS, Festinger DS. 2003. A sober assessment of drug courts. *Federal sentencing reporter* **16**(1): 113–128.
- Marlowe DB, Festinger DS, Lee PA, Dugosh KL, Benasutti KM. 2006. Matching Judicial Supervision to Client Risk Status in Drug Court. *Crime and Delinquency* **52**(1): 52–76.
- Murphy J, Jellnick M, Quinn D, Smith G, Poitras FG, Goshko M. 1991. Substance abuse and serious child mistreatment: Prevalence, risk and outcome in a court sample. *Child Abuse & Neglect* **15**: 197–211.
- National Center on Addiction and Substance Abuse. 1999. No Safe Haven: Children of Substance Abusing Parents. Authors: New York. National centre on addiction and substance abuse, Columbia University.
- Raudenbush S, Bryk AS. 2002. *Hierarchical linear models: Applications and data analysis methods*. Sage: Thousand Oaks, CA.
- Roman J, Townsend W, Bhati A. 2003. *National estimates of drug court recidivism rates*. NIJ (National Institute of Justice), US Department of Justice: Washington, DC.
- Rosenbaum PR, Rubin DB. 1983. The Central Role of the Propensity Score in Observational Studies of Causal Effects. *Biometrika* **70**: 41–55.
- Semedei J, Radel LF, Nolan C. 2001. Substance abuse and child welfare: Clear linkages and promising responses. *Child Welfare* **80**(2): 109–127.
- Smith BD. 2003. How parental drug use and drug treatment compliance are related to family reunification. *Child Welfare* **82**(3): 335–365.
- Tracy EM. 1994. Maternal substance abuse: Protecting the child, preserving the family. *Social Work* **39**(5): 534–540.
- Worcel SD, Green BL, Furrer CJ, Burrus SWM, Finigan MW. 2007. *Family Treatment Drug Court Evaluation: Final Report*. NPC Research: Portland, OR, USA.
- Young NK, Gardner SG, Dennis K. 1998. *Responding to alcohol and other drug problems in Child Welfare: Weaving together practice and policy*. CWLA Press: Washington, DC.
- Young NK, Gardner SL, Whitaker B, Yeh S, Oterso C. 2005. *A review of alcohol and other drug issues in the States' Child and Family Services Reviews and Program Improvement Plans*. Report prepared by the National Center on Substance Abuse and Child Welfare for the Center for Substance Abuse Treatment, SAMHSAj (Substance Abuse & Mental Health Administration) and Office on Child Abuse and Neglect, Children's Bureau, ACYF (Administration for children, youth and families): Irvine, CA.