

Sobriety Treatment and Recovery Teams in Rural Appalachia: Implementation and Outcomes

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The Sobriety Treatment and Recovery Teams (START) model is designed for families with co-occurring substance use and child maltreatment. This study describes the implementation and outcomes of START in a rural Appalachian county with high rates of poverty, non-medical prescription drug use, and child maltreatment. Despite a severely limited addiction treatment infrastructure at baseline, children served by START were less likely to experience recurrence of child abuse or neglect within 6 months or

re-enter foster care at 12 months compared with a matched control group.

Parental substance use and child maltreatment are complex and interconnected problems. It is estimated that more than one million parents enter treatment for substance use each year (Young, Boles, & Otero, 2007). While many of these parents will not face contact with child protective services (CPS; Scannapieco & Connell-Carrick, 2007; Smith & Testa, 2002; Street, Whitlingum, Gibson, Cairns, & Ellis, 2008), between 40% and 80% of all families referred to CPS include a parent using alcohol or drugs (Young, Gardner, & Dennis, 1998). CPS cases with parental substance use comprise up to 79% of out-of-home-care (OOHC) placements (Besinger, Garland, Litrownik, & Landsverk, 1999), and parental substance use often predicts maltreatment recurrence (Barth, Gibbons, & Guo, 2006; Fuller, Wells, & Cotton, 2001; Wolock, Sherman, Feldman, & Metzger, 2001).

Given these intersecting challenges, partnerships between child welfare and addiction treatment providers are imperative. Some recent progress has been made. Drabble (2007) outlined barriers to cross-system collaborations, and Oliveros and Kaufman (2011) described promising practices for improved addiction treatment with parents involved with CPS. However, more research and development are needed, particularly for areas like rural Appalachia, where program development is often neglected despite continued barriers to treatment utilization and access (Clark et al., 2002). Indeed, the challenges facing rural Appalachia demand innovative responses that may well provide new knowledge and strategies for cross-system collaborations serving families.

Appalachia encompasses 420 counties across 13 states and is home to over 25 million people, 42% of whom live in rural areas, compared to 20% nationally (Appalachian Regional Commission [ARC], 2014). Despite the War on Poverty and other efforts to improve key economic and health indicators, disparities persist in the Central Appalachian subregion, which includes counties within Kentucky, Tennessee, Virginia, and West Virginia. Many Central Appalachian communities have been dependent on coal mining, and the impact of this declining economic infrastructure intersects with other social, cultural, and geographic factors (Zhang et al., 2008). Lost job opportunities has forced out-migration, which has weakened

social and kinship networks and contributed to social isolation (Goodrum, Wiese, & Leukefeld, 2004). Rural Appalachian counties in this subregion have poverty rates as high as twice the national average (U.S. Census Bureau, 2014), an epidemic of nonmedical prescription drug use (Hall, Leukefeld, & Havens, 2013; Leukefeld et al., 2005; Wunsch, Nuzzo, Behonick, Massello, & Walsh, 2013; Young, Havens, & Leukefeld, 2012), and annual rates of child abuse and neglect (CA/N) as high as 5.4 per 100 children (Kentucky Department for Community Based Services, 2012).

As with other regions of rural America, inequalities in treatment access and utilization in rural Appalachia stem from distance to treatment facilities (Cummings, Wen, Ko, & Druss, 2014; Fortney, Rost, Zhang, & Warren, 1999) and access to transportation (Arcury, Preisser, Gesler, & Powers, 2005). However, cultural factors may also be influential. Rural Appalachian values of individualism and self-reliance may play a role in limiting substance users' identification of a need for professional treatment (Leukefeld et al., 2005). Additionally, a long and often troubled history between local Appalachians and absentee land-owning corporations (e.g., coal, timber) are thought to have fostered a lingering skepticism of outsiders (Keefe, 1988). One innovative recent study sought to establish the impact of conjoint geographical and cultural barriers on addiction treatment outcomes (Oser & Harp, 2014). The authors found that geographic discordance—receiving treatment in a location that is both geographically and socio-culturally different—increased the odds of relapse and incarceration 12 months after treatment entry.

In the context of these myriad issues, the Sobriety Treatment and Recovery Teams (START) model (Huebner, Willauer, & Posze, 2012) was implemented between 2007 and 2013 in one rural, Central Appalachian county to address the needs of families with co-occurring substance use and CA/N. START is a child welfare-led program delivered in an integrated and collaborative manner with local addiction treatment services. START pairs highly trained CPS workers with family recovery mentors (peer support employees in long-term recovery) and partners with local treatment providers and the courts using a system-of-care approach. An essential strategy of these collaborations is ensuring quick access to

addiction treatment once families enter the START program. Each START CPS worker and mentor dyad have a caseload of 12–15 cases, allowing the team to work intensively with families to individualize services by using a wraparound array of natural supports and formal services to promote sobriety and parental capacity. START draws on the growing interest in peer supports for addiction recovery (White, 2010) and their potential for improving outcomes for individuals who engage in substance use and are involved with CPS (Huebner, Willauer, Brock, & Coleman, 2010; Oliveros & Kaufman, 2011; Ryan, Choi, Hong, Hernandez, & Larrison, 2008; Ryan, Marsh, Testa, & Louderman, 2006).

This study has three aims. The first aim consists of describing the implementation of the START model in a rural Appalachian county with a very limited infrastructure. The second study aim is to report on the process evaluation assessing fidelity to the START model. Finally, aim three is to report proximal and distal CA/N and treatment outcomes for START program participants.

Method

Study Design

In 2007, the Children's Bureau awarded a Regional Partnership Grant (RPG) to the Kentucky Department for Community Based Services (DCBS), the state's public child welfare system, to develop a START program in Martin County, Kentucky. After one year of start-up training and infrastructure building, the program began accepting families in 2008. The evaluation plan consisted of both a process and outcome evaluation. The goal of the process evaluation was to continuously monitor and improve the fidelity and potency of the START program. The outcome study used a quasi-experimental design featuring families served by START in Martin County and a matched control group of families selected from two contiguous counties. All three counties are located in Central Appalachia, experience high rates of substance use and CA/N, and are served by the same family court judge and community mental health center. DCBS provided secondary data for the outcome study

based on federally submitted administrative data. Both process and outcome evaluation were approved by the Cabinet for Health and Family Services' Institutional Review Board.

Participants

Families of both START and the control group were first reported to the state's regional intake or weekend child abuse hotline. Selection criteria for START required that families have: (a) a finding of substantiated CA/N on this report; (b) substance use as a primary child safety risk factor; (c) at least one child 3 years of age or younger; (d) prior CPS cases (if applicable) that were closed at the time the new case was referred to START; and (e) cases that had to be referred to START from the CPS intake team within 30 days of the CPS report. Families in the control group were matched on having a substantiated report of CA/N within the same timeframe as the START case, substance use as a child safety risk factor, similar overall risk ratings to families served by START (0–28 scale), and at least one child 3 years of age or younger. There were no statistically significant differences between groups on cumulative risk ratings, mental health issues, parental criminal history, and domestic violence.

Measures

Process Measures

Between 2008 and 2012, the START implementation process was tracked through pre-test and post-test results of the Collaborative Capacity Instrument (CCI), fidelity to quick-access service-delivery standards, and analysis of meeting and training notes. The START program evaluation was implemented using an empowerment model, where practitioners were actively involved in the design and implementation of the evaluation and in actions to strengthen implementation and fidelity to the START model. For the process evaluation, we will describe four specific areas that provide good measures of START implementation: community collaborative capacity, participation in mental health and psychiatric services, type and duration of addiction treatment, and amount of recovery mentor contacts.

Community collaborative capacity. Collaborative capacity was assessed by the Collaborative Capacity Instrument (CCI). The CCI, developed by Children and Family Futures (CFF) and tested by Drabble (2007), is designed to assess respondents' perception of collaboration in their region (in this case, their county). The CCI consists of 104 items in ten areas: (a) underlying values and principles, (b) daily practice related to screening and assessment, (c) daily practice related to client engagement and retention in care, (d) services to children, (e) joint accountability and shared outcomes, (f) information sharing and data systems, (g) training and staff development, (h) budgeting and program sustainability, (i) working with related agencies, and (j) working with communities and supporting families. Responses to statements in each of the 10 areas are measured by a 4-point Likert-type scale (agree, somewhat agree, disagree and not sure/don't know). Child welfare, addiction treatment providers, and court personnel affiliated with the START-Martin County program completed the CCI in the first and fifth year of the program as part of the national RPG process with the CCI link sent to participants via email.

Mental health services. Whether participants received any individual, group, family therapy, or psychiatric care during the study period (*yes or no*).

Addiction treatment services. Participation in addiction treatment services was assessed for four types of treatment: residential/inpatient care; intensive outpatient; outpatient; and case management (all *yes or no*). Additionally, the average number of sessions and duration (months) of each type of service were reported.

Recovery mentor contacts. Family mentors were responsible for helping the parents navigate the CPS/treatment provider systems, transporting parents to the first four treatment appointments, providing coaching on sober living and parenting, reengaging parents after relapse, and working with the entire CPS team to promote understanding of addiction and recovery. The nature and duration of mentor contacts was logged and assessed to monitor and promote START fidelity.

Outcome Measures

Child welfare outcomes for children served by START and the matched control group were measured by state administrative data.

Children entering and exiting state custody. The number of children who entered and exited state custody (i.e., could not be safely maintained in the home) during the duration of the START program with follow-up to December 2012.

Recurrence of child maltreatment. Subsequent CA/N substantiations for all children in the intervention and matched control group were collected from the time of program entry up to 24 months (yes or no). For this study, we use the federal standard of a subsequent substantiation within six months of the first substantiation.

Reentry into foster care. Reentry into foster care was calculated (yes or no) for children who were placed in foster care at any point during the evaluation period and then re-entered foster care up to 12 months later.

Cost avoidance. As described in greater detail in Huebner and colleagues (2012), the costs associated with OOHC in Kentucky for a child aged 3 years or younger are conservatively estimated to be \$30,000 per child based on survival analysis projected length of time in care by age at entry. While OOHC rates for young children with substantiated CA/N and parental SUDS as a risk factor in Kentucky vary by year, they are typically near 40%. To calculate cost avoidance, the actual number of children served by START-Martin County who entered OOHC was subtracted from the 40% rate. The difference was then multiplied by \$30,000 to estimate the OOHC cost avoidance for START-Martin County.

Results

Overall, 67 families served by START were served across a five-year period, including 66 biological mothers and 45 biological fathers. Eighty-five percent of caregivers were couples (57 families). Adults served by START were on average 29.2 years of age and almost exclusively White (99.2%). At the time of referral to START, 8.6% of female parents and 42.4% of male parents were employed either full or part-time. Adults served by START tended to be poly-substance users, reporting problematic use of 3.2 substances on average at the time of their CPS report. The

most commonly used substances were opiates (76.6%, of which 65.6% were diverted prescription opioids), benzodiazepines (60.2%), barbiturates (38.3%), and marijuana (38.3%).

START-Martin County served 153 children (79 girls and 74 boys) during the evaluation period. Seventy percent of the children were 3 years of age or younger at the time of the CPS report, with 15% being 30 days or younger at referral. Among these children, 80.2% received developmental services, 66.7% received educational services (e.g., developmental services such as Head Start), 69.3% received mental health services, and 80.4% received medical services.

Implementation Process and Results

Multiple obstacles for delivering the START model were overcome through persistent efforts at the county, regional, and state level. The most significant barriers to implementation included limited readiness and available infrastructure to establish a rigorous program needed for fidelity to the START program model. This limited readiness was due in part to attitudes and beliefs about addiction treatment, as well as a significant lack of any community infrastructure for treatment or recovery supports. As such, START program directors spent considerable time in the first years helping the local treatment provider develop an intensive outpatient treatment program. Compared to three other functioning START sites in Kentucky, all of which had an existing treatment infrastructure and community recovery support groups at the time of their initiation, START-Martin County required a significantly longer time—essentially the full grant period—to implement with fidelity. In addition to formal treatment, Martin County had only one recovery support group in place when the project was initiated in 2007. However, by the end of the evaluation period, 12 weekly recovery support meetings had been established (8 Narcotics Anonymous meetings; 1 Alcoholics Anonymous meeting; 1 Families Anonymous meeting; 2 faith-based recovery support meetings), as well as a People Advocating Recovery [PAR] chapter.

Additionally, there had been years of tension and mistrust between the local addiction treatment provider and CPS agencies. This strained

relationship undermined willingness to establish joint expectations, communicate honestly and frequently, problem-solve, and develop integrated treatment systems. Building the behavioral health treatment infrastructure and START program could not occur until the community/staff could be convinced that it was a worthwhile effort. Thus, early work consisted of convincing stakeholders that START project directors were committed and could be trusted, treatment was necessary, and recovery was possible.

While the previously described START eligibility criteria were adhered to throughout the course of the program, the program's acceptance protocol for occasions when there were more referrals than available spaces was poorly implemented initially. The protocol specifies that when two or more START-eligible referrals are received and there is only one caseload opening, the START case will be selected randomly. However, a comparison of the first 25 families enrolled in START-Martin County to 12 families that were referred but not selected demonstrated that the START team consistently selected families with the greatest needs. Families served by START-Martin County had higher risk and poverty ratings, more criminal history, and were more likely to have experienced chronic involvement with CPS when compared to families that were START-eligible who were referred but not selected for the program. Following this finding, the specified protocol was reinforced and monitored. However, the selection of the first 25 families—a highly vulnerable and challenging population and over a third of all families served—likely biased program outcomes.

START-Martin County encountered other challenges unique to the rural location. Logistical challenges of transportation for treatment and regular drug testing had to be minimized. Additionally, the lack of alternatives for treatment and the desire to do everything possible for families served by START often meant that the family court judge ordered CPS to continue services when the START program might have otherwise been closed or transferred the case to the adoption unit. These factors resulted in a longer duration of START services in Martin County and less successful outcomes when compared to other START sites.

Table 1. Five-Year Changes in Collaborative Capacity Based on the Collaborative Capacity Instrument. +

Domain and Item	% Agree Year 1 (n = 18)	% Agree Year 5 (n = 14)
<i>Shared Valued Domain</i>		
Our RPG has discussed and developed responses to the conflicting time frames associated with CWS, TANF, AOD treatment and child development.	38.9%	78.6%
<i>Client Screening and Assessment</i>		
Our RPG has multi-disciplinary service teams that include both AOD and CWS workers.*	50.0%	92.3%
Our RPG has developed coordinated AOD treatment and CPS case plans.*	38.9%	84.6%
Our RPG supplements child abuse/neglect risk assessment with an in-depth assessment of AOD issues and their impact on each of the family members.*	33.3%	92.3%
Our RPG routinely documents AOD factors from its screening and assessment process in the information system.*	47.1%	92.3%
<i>Client Engagement and Retention in Care</i>		
Our RPG’s CWS staff have the skills and knowledge to talk with their clients about their AOD use and related problems.*	38.9%	100.0%
Our RPG’s CWS staff have knowledge about dependency courts.*	44.4%	92.3%
Our systems have implemented integrated case plans that include the substance abuse recovery plan integrated or linked with the child welfare case plan.*	33.3%	76.9%
Our dependency court system has adequate access to treatment monitoring information to determine how parents are progressing through treatment in a timely way.*	27.8%	81.8%
Our RPG’s CWS staff provides outreach to clients who do not keep their initial AOD appointment or drop out of treatment.*	27.8%	84.6%
Our RPG’s AOD staff track the status of their clients’ progress in the CWS system.*	33.3%	76.9%
In our RPG, CWS and AOD agencies have agreed on the level of information about clients’ progress in treatment that will be communicated from treatment agencies to CWS workers and the courts.*	33.3%	92.3%

Table 1. Five-Year Changes in Collaborative Capacity Based on the Collaborative Capacity Instrument. + (continued)

Domain and Item	% Agree Year 1 (n = 18)	% Agree Year 5 (n = 14)
In our RPG, client relapse typically leads to a collaborative intervention to re-engage the client in treatment and to re-assess child safety.*	22.2%	92.3%
In our RPG, drug testing is used effectively and in conjunction with a treatment program to monitor clients' compliance with treatment plans.*	27.8%	84.6%
Services to Children of Substance Abusers		
Our RPG ensures that all children in the child welfare system have a comprehensive mental health assessment.*	27.8%	76.9%
Our RPG ensures that all children in CWS are screened for neurological effects of prenatal substance exposure.*	16.7%	61.5%
Our RPG ensures that all children in CWS are screened for developmental delays associated with parental substance abuse.*	22.2%	84.6%
Our RPG is familiar with national models of prevention and intervention for AOD-affected children.*	44.4%	76.9%
Joint Accountability and Shared Outcomes		
Our RPG's CWS agency has identified system outcomes and has communicated them to the AOD agency and the dependency court.*	44.4%	92.3%
In our RPG, CWS-AOD involved parents are referred to child development education programs that have demonstrated positive results with this population.*	27.8%	76.9%
Our RPG's CWS agency shares accountability with their AOD counterpart for successful treatment outcomes for their mutual clients.*	33.3%	76.9%
Our RPG's AOD agency shares accountability for positive child safety outcomes for clients who have enrolled in treatment programs.*	33.3%	92.3%
In our RPG, drug testing is not used in the court system as the most important indicator of clients' status in resolving their AOD problems.*	16.7%	69.2%

Table 1. Five-Year Changes in Collaborative Capacity Based on the Collaborative Capacity Instrument. + (continued)

Domain and Item	% Agree Year 1 (n = 18)	% Agree Year 5 (n = 14)
<i>Information Sharing and Data Systems</i>		
Our RPG has assessed its data system to identify gaps in monitoring clients involved in both CWS and AOD systems.*	27.8%	84.6%
Our RPG’s data system can retrieve the percentages of families that receive services in both the AOD and CWS agencies.*	33.3%	100.0%
Our RPG consistently documents AOD factors related to the case in our management information system.*	38.9%	92.3%
Our RPG’s AOD services have supplemented the alcohol/drug data system to generate data on their clients’ children and their CPS involvement.*	33.3%	84.6%
Our RPG is using data that can track CWS-AOD clients across information systems to monitor system outcomes.*	33.3%	84.6%
<i>Training and Staff Development</i>		
Our RPG’s CWS ensures that all managers, supervisors and workers receive training on working with AOD-affected families.*	61.1%	100.0%
Our RPG’s AOD agency ensures that their staff/providers receive training on working with families in the CWS system.*	44.4%	92.3%
Our RPG has a multi-year staff development plan that includes periodic updates to the training and orientation received by the staff of both CWS and AOD agencies on working together.*	27.8%	84.6%
Our RPG has training programs that include cultural issues to improve staff’s cultural relevance and competency in working with diverse AOD-CWS client groups.*	27.8%	76.9%
<i>Working with Related Agencies</i>		
Our RPG’s CWS staff know how to identify and link families with the support services that are frequently needed by CWS-AOD involved clients and makes effective referrals to those agencies.*	55.6%	100.0%
Our RPG’s AOD staff/providers know how to identify and link CWS-involved families with the other services that are frequently needed and make referrals to those agencies.*	55.6%	100.0%

Table 1. Five-Year Changes in Collaborative Capacity Based on the Collaborative Capacity Instrument. + (continued)

Domain and Item	% Agree Year 1 (n = 18)	% Agree Year 5 (n = 14)
Our RPG has AOD support/recovery groups that include a special focus on CWS and child safety issues.*	22.2%	84.6%
Our RPG coordinates with law enforcement, AOD, and CWS to meet the needs of parents and their children affected by the criminal justice system.*	22.2%	84.6%
<i>Working with Community and Supporting Families</i>		
Our RPG has developed strategies to recruit broad community participation in addressing the needs of AOD-CWS and dependency court involved families.*	58.8%	92.3%
CWS and AOD staff members have access to up-to-date resource directories to locate family support centers and resources.*	44.4%	91.7%
Our RPG assists in supporting sober living communities and housing for parents in recovery.*	22.2%	76.9%
Consumers, parents in recovery and program graduates have an active role in planning, developing, implementing and monitoring services for families with substance abuse problems in the child welfare system.*	22.2%	84.6%
Youth and former foster children/youth have an active role in planning, developing, implementing and monitoring services for families with substance abuse problems in the child welfare system in our RPG.*	5.6%	53.8%

Note. * = $p < .05$. RPG = Regional Partnership Grant; CWS = child welfare services; TANF = Temporary Assistance for Needy Families; AOD = alcohol or other drug; CPS = child protective services.

+ The language used in the table reflects the original language of the Collaborative Capacity Instrument.

In spite of these challenges, significant gains were made in the region. Table 1 shows key variables from the CCI. Child welfare, addiction treatment providers, and court personnel reported significantly improved collaboration on nearly all domains of the CCI (at the .05 level based on t -test analysis) between year one and year five of the program.

Table 2. Type and Duration of Addiction Treatment Services for Adults served by START-Martin County

	<i>n</i> (%)	Average Number of Sessions	Average Months Duration
Detoxification	10.9%	N/A	N/A
Long-Term Residential	40.3%	51.0a	1.8
Intensive Outpatient	66.4%	25.4b	6.7
Outpatient Services	52.1%	24.5c	10.0
Case Management	86.4%	29.7d	7.9

Note. N/A = not applicable.

^aResidential sessions included at least 6 hours of programming per day. ^bIntensive outpatient sessions included at least 2 hours of programming per day. ^cOutpatient sessions included 1–2 hours of programming. ^dCase management sessions were highly variable, ranging from 15 minutes to all day.

Improved collaborative capacity was evident in service utilization. Nearly 85% of adults served by START-Martin County received mental health services, compared to only 22.5% of adults in the matched control group ($X^2(1) = 166.2, p < .001$). Addiction treatment data are presented in Table 2. Two-thirds of adults served by START-Martin County received intensive outpatient treatment, and most received case management as part of their treatment. Notably, though the majority of adults in START-Martin County reported problematic use of opiates at program entry, only 4.2% received medication-assisted treatment. Finally, as shown in Table 3, recovery mentors in Martin County served families for 18.5 months on average. While recovery mentors averaged 4.5 contacts with the family per month, the range of contacts was between .9 and 11.5, illustrating varying intensity based on client need with more frequent contacts early in the program.

Outcome Evaluation Results

Outcomes for children in the intervention and matched control group are presented in Table 4. The overall rate of children entering state custody

Table 3. Recovery Mentor Contacts in Closed START-Martin County Cases ($n = 67$)

	<i>n</i> (%)	Average Number of Sessions	Average Months Duration
Months Served	18.5 (11.4)	1.4	49.4
Number of Mentor Contacts	74.4 (44.5)	15.0	189.0
Total Mentor Hours Spent with Family	70.2 (40.3)	14.7	167.7
Intensity: Average number of mentor contacts per month served	4.5 (1.9)	.9	11.5

Table 4. Recovery Mentor Contacts in Closed START-Martin County Cases ($n = 67$)

	START-Martin ($n = 153$)	Matched Control ($n = 345$)	Results
Children entering state custody, n (%)	49 (32.0%)	93 (27.0%)	2 (1) = 1.3, $p = .25$
Children discharged from state custody by 12/2012, n (%)	29 (59.2%)	68 (73.1%)	2 (1) = .04, $p = .84$
Recurrence of CA/N within 6 months, n (%)	7 (4.6%)	35 (10.1%)	2 (1) = 4.3, $p < .05$
Reentered foster care within 12 months, n (%)	0 (0.0%)	9 (13.2%)	2 (1) = 4.1, $p < .05$

Note: CA/N = child abuse/neglect

was 32% in START-Martin County, higher than the matched control group (27.0%). Only 4.6% of families served by START-Martin County experienced recurrence of CA/N, compared to 10.1% of the matched control group. Additionally, no children from START-Martin County re-entered foster care within 12 months of previous foster care exit, while rates for foster care reentry for the matched control reached 13.2%.

With regard to cost avoidance, START-Martin County served 153 children and 49 (32%) were placed in OOHC at some point during the study period. Assuming an OOHC placement rate of 40%, which is typical in Kentucky, 61 children served by START-Martin County might be expected to have been placed in OOHC were it not for the program. The difference of 12 children, at \$30,000 per child, resulted in a cost avoidance of \$366,000.

Discussion and Implications

The START program was designed for an urban environment serving infants that are substance-exposed. Adapting the program to a rural community with virtually no infrastructure was a challenging, long-term but worthy process that provided valuable insights for other county or state systems. Before initiation, a formal assessment of infrastructure and readiness for implementation is needed and a strategic plan should be developed with state leadership to identify resource needs and establish realistic time frames. In rural, underserved areas, longer start-up periods may be requested to accommodate infrastructure development and leadership readiness. Our experience suggests that implementation of programs like START in rural counties should be built incrementally through persistent attention, cross training, and collaborative meetings.

Despite achieving lower rates of positive results than anticipated, the RPG grant funding in Martin County encouraged a profoundly positive transformation of the community that will be sustained regardless of ongoing funding. CPS, addiction treatment staff, and community partners received extensive formal and informal training over a five-year period that improved professional skills, embedded knowledge about working with families where there is maltreatment and substance abuse, and changed the culture in the community. As community recovery supports strengthen and evolve, we expect that more people will learn about addiction and its impact and find ways to obtain treatment services for members of their family. In turn, the growing readiness may support future intensive programs such as START.

Certain practices of START, such as keeping children with their family during treatment, were contrary to the belief that removing children motivates parents that are addicted toward sobriety. For these and other contradictory beliefs, it took reinforcement, reassurance, diligence, and success to convince others that children can be safe, and that parents may benefit by bonding with their children and learning parenting skills. Persistence and consistent messaging in a variety of venues from formal training through personal contacts was the most important strategy to replace mistrust and myths with knowledge of addiction, recovery, and a focus on child well-being. A change in basic beliefs, in turn, yields ongoing benefits stemming from a community more supportive of a treatment and recovery paradigm.

Although all children served by START were all at high risk of placement in state custody, only 32% of children in Martin County START were placed in state custody at any time. This is lower than children that were not served with a rate of 40% placed in state custody. Similarly, children served by START experienced less recurrence of child abuse and neglect, with a 6-month rate of recurrence at 4.6% compared to 10.1% of children in the matched control group. This finding is notable given that in 2007, prior to START, the 6-month rate of recurrence of CA/N in Martin County was 25%; in 2012, the overall county rate was 9.4% with a 4.6% rate for children served by START. The overall State rate of recurrence for Federal Fiscal Year 2012 was 6.2%. Finally, Kentucky's overall rate of reentry to OOHC was 12.7% within 12 months (Children's Bureau, 2013). START maintained a rate of 0% throughout the evaluation period in Martin County, while the matched control group had a reentry rate at 17.6% in 12 months.

Strengths of this study include a description of the implementation and initial outcomes of a promising intervention approach in an underserved and understudied population. This research has two main limitations. First, though the control group was matched on START-eligibility criteria and derived from contiguous counties served by the same judge and addiction treatment provider as Martin County, intervention and control groups were not randomized and their baseline equivalency was

only partially established. Second, the outcome study relied exclusively on administrative data, and intervention and control groups could not be compared on some important primary outcomes (e.g., parental drug and alcohol use). Despite these limitations, the lessons learned in Martin County are important in designing implementation procedures for programs in similar rural communities with limited access to qualified treatment personnel and no treatment infrastructure. Furthermore, future program and evaluation design would benefit from isolating components of the START model to determine which of these is most effective.

Finally, installing START in Martin County took longer than expected and even when established was fragile. Given the findings of implementation science (Fixsen et al., 2005), however, this extended time frame is not unrealistic for programs implemented in similarly disadvantaged sites. The challenges associated with program development in such areas should not dissuade new attempts to address co-occurring addiction and child maltreatment; without potent integrated interventions like START, families may be abandoned to poor outcomes. However, our findings demonstrate the need for extended time and funding for infrastructure building in under-resourced areas, following which, more comprehensive determinations of efficacy can be made.

References

- Arcury, T. A., Preisser, J. S., Gesler, W. M., & Powers, J. M. (2005). Access to transportation and health care utilization in a rural region. *The Journal of Rural Health, 21*(1), 31–38.
- Appalachian Regional Commission. (2014). *The Appalachian region*. Retrived from http://www.arc.gov/appalachian_region/TheAppalachianRegion.asp
- Barth, R. P., Gibbons, C., & Guo, S. (2006). Substance abuse treatment and the recurrence of maltreatment among caregivers with children living at home: A propensity score analysis. *Journal of Substance Abuse Treatment, 30*(2), 93–104.

- Besinger, B. A., Garland, A. F., Litrownik, A. J., & Landsverk, J. A. (1999). Caregiver substance abuse among maltreated children placed in out-of-home care. *Child Welfare, 78*(2), 221–239.
- Children's Bureau. (2013). Kentucky Data Profile for Federal Fiscal Years 2010, 2011, 2012. Issued to the state on May 23, 2013.
- Clark, J. J., Leukefeld, C., Godlaski, T., Brown, C., Garrity, J., & Hays, L. (2002). Developing, implementing, and evaluating a treatment protocol for rural substance abusers. *Journal of Rural Health, 18*(3), 396–415.
- Cummings, J. R., Wen, H., Ko, M., & Druss, B. G. (2014). Race/ethnicity and geographic access to Medicaid substance use disorder treatment facilities in the United States. *JAMA Psychiatry, 71*(2), 190–196.
- Drabble, L. (2007). Pathways to collaboration: Exploring values and collaborative practice between child welfare and substance abuse treatment fields. *Child Maltreatment, 12*(1), 31–42.
- Fuller, T. L., Wells, S. J., & Cotton, E. E. (2001). Predictors of maltreatment recurrence at two milestones in the life of a case. *Children and Youth Services Review, 23*(1), 49–78.
- Goodrum, S., Wiese, H. J., & Leukefeld, C. G. (2004). Urban and rural differences in the relationship between substance use and violence. *International Journal of Offender Therapy and Comparative Criminology, 48*(5), 613–628.
- Hall, M. T., Leukefeld, C. G., & Havens, J. R. (2013). Factors associated with high-frequency illicit methadone use among rural Appalachian drug users. *American Journal of Drug and Alcohol Abuse, 39*(4), 241–246.
- Huebner, R. A., Willauer, T., Brock, A., & Coleman, Y. (2010). START family mentors: Changing the workplace and community culture and achieving results. *The Source, 20*(1), 7–10.
- Huebner, R. A., Willauer, T., & Posze, L. (2012). The impact of sobriety treatment and recovery teams (START) on family outcomes. *Families in Society: The Journal of Contemporary Social Services, 93*(3), 196–203.
- Kentucky Department for Community Based Services. (2012). State administrative data.
- Leukefeld, C. G., McDonald, H. S., Mateyoke-Scriver, A., Roberto, H., Walker, R., Webster, J. M., & Garrity, T. (2005). Prescription drug use, health services utilization, and health problems in rural Appalachian Kentucky. *Journal of Drug Issues, 35*(3), 631–644.
- Oliveros, A. J. & Kaufman, J. (2011). Addressing substance abuse treatment needs of parents involved with the child welfare system. *Child Welfare, 90*(1), 25–41.

- Oser, C. B., & Harp, K. L. H. (2014). Treatment outcomes for prescription drug misusers: The negative effect of geographic discordance. *Journal of Substance Abuse Treatment*. Advance online publication. doi: 10.1016/j.jsat.2014.08.002
- Ryan, J. P., Choi, S., Hong, J. S., Hernandez, P., & Larrison, C. R. (2008). Recovery coaches and substance exposed births: An experiment in child welfare. *Child Abuse & Neglect*, 32(11), 1072–1079.
- Ryan, J. P., Marsh, J. C., Testa, M. F., & Louderman, R. (2006). Integrating substance abuse treatment and child welfare services: Findings from the Illinois Alcohol and Other Drug Abuse Waiver Demonstration. *Social Work Research*, 30(2), 95–107.
- Scannapieco, M., & Connell-Carrick, K. (2007). Assessment of families who have substance abuse issues: Those who maltreat their infants and toddlers and those who do not. *Substance Use and Misuse*, 42, 1545–1553.
- U.S. Census Bureau. (2014). State and County QuickFacts: Kentucky, 2008–2012. Retrieved from <http://quickfacts.census.gov/qfd/states/21000.html>
- White, W. L. (2010). Nonclinical addiction recovery support services: History, rationale, models, potentials, and pitfalls. *Alcoholism Treatment Quarterly*, 28(3), 256–272.
- Wunsch, M. J., Nuzzo, P. A., Behonick, G., Massello, W., & Walsh, S. L. (2013). Methadone-related overdose deaths in rural Virginia: 1997 to 2003. *Journal of Addiction Medicine*, 7(4), 223–229.
- Young, A. M., Havens, J. R., & Leukefeld, C. G. (2012). A comparison of rural and urban non-medical prescription opioid users' lifetime and recent drug use. *The American Journal of Drug and Alcohol Abuse*, 38(3), 220–227.
- Young, N. K., Boles, S. M., & Otero, C. (2007). Parental substance use disorders and child maltreatment: Overlaps, gaps and opportunities. *Child Maltreatment*, 12, 137–149.
- Young, N. K., Gardner, S., & Dennis, K. (1998). *Responding to alcohol and other drug problems in child welfare: Weaving together policy and practice*. Washington, DC: CWLA Press.
- Zhang, Z., Infante, A., Meit, M., English, N., Dunn, M., & Bowers, K. (2008). *An analysis of mental health and substance abuse disparities & access to treatment services in the Appalachian region*. Final report. Washington, DC: Appalachian Regional Commission.

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