Outcomes of Specialized Foster Care in a Managed Child Welfare Services Network

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This study ($N = 384$) presents results from outcome measurement in a services network providing specialized foster care (SFC) to children in child protective service custody. A majority of participants improved on most outcomes. Global improvement was associated with increased length of stay up to two years, five months, and with younger age, fewer problems, and, paradoxically, the presence of a trauma history. Results suggest the value of SFC within managed services and of research using outcome measurement systems.

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In the past decade, spurred by philosophical changes in children's services (see, for example, Stroul & Friedman, 1994, 1996) as well as concerns for cost, innovative, moderately intensive community-based services have increasingly replaced residential care as the intervention of choice for children with serious disturbances in the child welfare system. One of the most popular community-based interventions is specialized foster care (SFC), an intensive form of foster care that provides specially trained and supported foster parents to children with serious emotional disturbances. SFC is also referred to as specialist, therapeutic, or treatment foster care.

Not long after intervention philosophies changed, child welfare services began to move to a managed care model (Casey Outcomes and Decision-Making Project, 1999; Scallet, Brach, & Steel, 1996; Winterfeld & Alsop, 1997a, 1997b, 1998). This model responded to increased demands for services, increased costs, diminished resources, and the perception that better quality services could be provided through greater planning and oversight. Not surprisingly, agencies now offer SFC and other community-based services within managed care models. Yet research on this application of SFC is only in its early stages (see Armsden, Pecora, Payne, & Szatkiewicz, 2000; Davis et al., 1997). This study examines outcomes of SFC in a managed child welfare services network through use of an ongoing outcome measurement system. It also examines the relationship between client and service characteristics and outcomes.

SFC

SFC provides intensive, therapeutic services while maintaining youth in a community setting and avoiding the restrictiveness of psychiatric hospitalization and residential treatment. In this study, SFC differed from standard foster care in the following ways: (a) only one foster child was in the home, (b) one foster parent was at home full-time, (c) that foster parent received special training

in behavior management, (d) caseworkers provided ample support and supervision to foster parents, and (e) the provider agency was vigilant in reviewing and overseeing children's and families' service plans (see, for example, Bates, English, & Kouidou-Giles, 1997). The behavior management model in this study engages children in their strengths, uses positive reinforcements, includes children and birthfamilies in planning and decisionmaking, and promotes collaboration between foster parents and birthparents on parenting. Caseworker support includes home visits ranging from twice a month to twice a week, 24-hour crisis intervention, and monthly support group meetings.

Like other foster care, SFC is temporary, with the goal of preparing children for the most appropriate permanent life situation, whether that is reunification with parents, adoption, or independent living. SFC can also lead to a step-down program, such as regular foster care, when children no longer need the intensity of SFC but permanent placement is not indicated, or to more intensive programs, like residential or hospital treatment, if children need more than SFC. One risk of SFC, however, is that youth may run away from their foster home. In a previous study of part of this study's sample (Fasulo, Cross, Mosley, & Leavey, 2002), 44% of adolescents ran away from SFC at least temporarily and 22% ran permanently. Data on a subsample suggested that most ran back to their birthfamily or home community.

Reviews of outcome studies (Chamberlain, 1998; Hudson, Nutter, & Galaway, 1994; Meadowcroft, Thomlinson, & Chamberlain, 1994; Reddy & Pfeiffer, 1997; see also Hudson, Nutter, & Galaway, 1992) show that SFC leads to positive effects on behavioral and emotional outcomes such as level of behavior problems, psychological adjustment, self-esteem, social skills, and academic scores. SFC has also been reported to increase placement permanency and decrease restrictiveness of postdischarge placement. Researchers have found these positive effects when comparing SFC to residential programs, regular foster care, or an assortment of other placements. In some cases, SFC has shown no clear ad-

vantage over residential treatment, but the lower cost and restrictiveness of SFC favor it nevertheless. One must interpret comparisons of SFC with residential treatment cautiously, however, because these two interventions may serve youth with different levels of behavioral problems and risk, and studies often do not adjust for these differences using standardized behavior measures.

Managed Child Welfare Services

The philosophy of managed child welfare services holds that careful planning, control of treatment decisions, and organization and delivery of services can provide cost-effective care that matches children's needs. The organization of regionally based networks of providers can offer a range of services to match children's needs. Organizations managing a network have more resources to track outcomes for planning and service improvement.

Like managed health care, managed child welfare services seek cost savings through greater efficiency, but in theory, they can also provide greater volume and quality of services (Ogles, Trout, Gillespie, & Penkert, 1998) because of their potential for coordinating, evaluating, and overseeing care. Ogles and colleagues (1998) suggested that managed care could actually facilitate adherence to system-of-care principles, which are considered best practice for serving children with serious emotional disturbances (see Stroul & Friedman, 1996). Critics voice concern that managed child welfare will save money at the expense of quality (cf. Scallet et al., 1996) and that increased efficiency could inadvertently support cutting inadequate child welfare budgets. Given the enthusiasm for and concern about managed child welfare services, researchers should pay close attention to outcomes of services in managed service settings (see Casey Outcomes and Decision-Making Project, 1998).

SFC in the Family Reunification Network

This study examines data from SFC in the Family Reunification Network (FRN), a managed service delivery system providing

services to youth in child protective services custody and their families in Boston. Although this study focuses on SFC, FRN services also include a diagnostic program, group homes, teen parenting programs, and home-based wraparound services. The network is a collaborative interagency effort. The Massachusetts Department of Social Services (DSS; Massachusetts' child protective services agency) contracts with the lead agency, Communities for People (CFP), to manage the network. CFP in turn contracts with about 25 private human services agencies to provide direct services. As lead agency, CFP establishes a single point of entry for referrals, provides clients with a continuum of services, defines clear goals for every client, and fosters accountability among service providers. Treatment planning, case review, utilization management, and outcome measurement are integral to management of services.

To support care, CFP uses a comprehensive data system entitled Services and Outcomes Utilizing Research in Child Welfare Environments (SOURCE). One component is a specialized client information system (CIS), a relational database application CFP developed. CIS includes data on client characteristics, treatment plans, and services. The other component is a specialized outcome measurement system developed in collaboration with DSS, provider agencies, and research and treatment professionals, described here and in detail in Beinecke, Leavey, Mosley, and Matava (1997). This study analyzes the SOURCE data set from FRN to describe and explain outcomes of SFC in a managed child welfare environment.

To belong to the network, provider agencies must agree to a "no right of refusal" provision, meaning that they cannot refuse any client CFP refers to them for whom they are a qualified service provider. FRN providers are willing to accept youth at high risk or with serious disturbances who, without the added support of CFP's clinical managers, they otherwise would not accept. Providers know they can rely on CFP to assist them in developing appropriate alternative plans if the system is not meeting a child's needs.

Youth in DSS custody in need of a level of service greater than standard foster care are eligible for SFC. Typically, children in FRN require the intensity of SFC to maintain their own or others' safety, and for some, FRN is a necessary component of a reunification plan. Youth are only screened out if their mental health problems require psychiatric hospitalization, they are dangerous predators, or they present a danger to themselves or others that cannot be managed in SFC.

The ongoing child protection social worker from DSS and the clinical staff (all licensed clinical social workers) of CFP make a clinical decision about which children and youth are admitted into SFC. The decision is based on interviews with the child and relevant family members, consultation with current or recent service providers (e.g., residential treatment centers, previous therapists), and other clinical or service data in a child's case record. Standardized assessment data may be a part of the case record, but staff do not collect any standard measures as part of the process of entry into SFC.

For some children, entry into SFC is a step down from more intensive interventions such as residential treatment, whereas for other children, SFC is a step up from regular foster care that is insufficient for their needs. In a small number of cases, youth identified immediately in need of intensive services will go directly from home to SFC.

The program was originally designed to facilitate reunification. In most referred cases, however, DSS judged that the families of these youth would not be safe to return them to, and it had to develop alternatives to reunification. An important role of FRN is to identify for DSS alternative permanency options (kinship care, adoptive home, or guardianship) for children who will not be able to return to their birthfamilies.

CFP convenes a treatment conference on the case within two weeks of referral from DSS. The participants at the treatment conference determine if the referral is appropriate for FRN and if the program can best address the child's needs. With input from the

treatment conference, the core service team—the CFP clinical manager, child protective services case manager, and provider agency caseworker—develop an individualized treatment plan that specifies client and family goals and the interventions and time frames necessary to achieve them. DSS social workers and the FRN team use the treatment plan to monitor and track the child's progress. They send the referral packet to the network service provider agency that can best match a home to the child's individual needs. The provider agency then assumes day-to-day responsibility for care and delivers weekly service data to CFP, which compiles them using the CIS software.

A comprehensive system of case review supports care. Monthly clinical teams including CFP clinical staff, provider agency staff, and DSS representatives solve problems on difficult cases or clinical issues. Every three months, a child's clinical team, including the provider agency and CFP and DSS staff, reviews the child's individualized treatment plan. When possible, the team aims to achieve permanence or a stable, less restrictive placement within a year. If children need longer services, an extended service team including all of a child's service providers meets to reexamine the treatment plan at the one-year point.

Therapeutic foster parents play a critical role in the treatment planning and review process. They meet weekly in their homes with their case manager on the progress and issues of the child, including what interventions are used and their effects. Case managers bring the insights and ideas of foster parents to treatment planning and review meetings, which are held in DSS offices. Foster parents may attend the meetings, but their case managers usually represent them.

Method

Sample

The sample consists of all children ($N = 384$) who were discharged from SFC from July 1995 to March 2000.

Procedure

The SOURCE data system (see Beinecke et al., 1997) is employed in an ongoing research program with an open-ended sample. SOURCE pulls together data from multiple sources from the beginning to the end of services. CIS compiles information regarding treatment plans, goals, and client characteristics at client entry.

CFP generates a weekly census report of all current clients and faxes the census form to each provider in the network. The provider completes the census form with information about services, client status change, major events (e.g., runs, hospitalizations), and discharge outcomes during the week and faxes the completed form back. Staff enter these data into CIS and use them for utilization review as well as outcomes analysis.

The client's provider agency caseworker fills out a detailed outcomes survey at the completion of SFC. FRN developed the survey through a two-year process of gathering input from network stakeholders and clinical experts to design items that capture important foster care outcomes in comprehensible language (see Beinecke et al., 1997, for a complete description). They complete 40 questions in eight problem areas for all children. They only complete an additional 79 questions in 16 other problem areas if the related problem is present. Five-point, Likert-type scales (from *much worse* to *no change* to *much better*) rate change during SFC placement. Workers rate change both for general behavior and stabilization in the foster home and for specific issues that they have identified for each child, for example, risky sexual behavior or fire setting. When client baseline, services, and outcome data are all collected, they are merged in SPSS data files.

The caseworker completing the outcomes survey has been intimately involved in the case throughout service delivery and has had ongoing contact with the birthfamily, foster family, and professionals involved in the case (school teachers, therapists, physicians, etc.). Caseworkers are strongly encouraged to be as truthful about improvement scores as possible, and workers have no incentive not to report as accurately as possible. CFP emphasizes to agencies that it is not comparing agencies on outcomes.

One limitation of the outcome survey is that standard psychometric data on it are lacking. The use of single-item outcome scales precludes internal consistency measures of reliability, and assessing interrater or test-retest reliability is difficult, given that the measure is designed specifically for the agency caseworker to complete at the conclusion of care. The authors do not yet have child, parent, or third-party assessment data to help validate the outcome survey. Some of the results presented here, however, provide evidence for its validity. Another limitation is that most items lack operational definitions, because time and resources limit training of workers on the outcomes tool. This allows workers greater latitude in interpreting items than would be the case in many studies.

Variables

Most of the variables came directly from the SOURCE outcome system. The authors computed a few new variables in SPSS. They computed a global improvement score that was the mean of the Likert-type scales measuring change in children's overall behavior and stabilization. This procedure was justified by the high correlation between these two scales, $r(385) = .89$, $p < .001$. One component of the treatment plan is a checklist of the problem areas that need to be addressed in SFC. The authors used the number of problem areas checked as a rough indicator of the severity of children's difficulties.

From the weekly census report, the researchers coded the placement outcome of youth into four categories: (1) permanent placement with birthfamily or adoptive family, (2) movement to a less restrictive placement like regular foster care or independent living, (3) movement to a more restrictive placement like a residential treatment center or psychiatric hospital, and (4) running away without returning. Excluding running away, the researchers also used these categories as an ordinal scale of restrictiveness, following the example of Hawkins, Almeida, Fabry, and Reitz (1992). Approximately 7% of the total sample did not fit into the four outcome categories due to having their referral to

the program pulled, refusing services, or transferring to another agency. The authors included these individuals in the analyses when looking at details such as overall sample demographics, but excluded them from analyses that looked at the four-category outcome.

The authors derived the number of therapy sessions from the weekly census data, but they performed a natural logarithmic transformation on this variable to correct for substantial skew and outliers (see Cohen & Cohen, 1983).

Results

Sample Characteristics

Table 1 presents an overview of sample characteristics and problems. The sample was about evenly divided between girls and boys. Most were adolescents, but the sample included a fairly sizable number of grade school and preschool children as well. Slightly more than half were African American, with the remainder mostly whites and Latinos.

Youth had an average of more than four problems. About two-thirds each were reported as having aggressive behaviors and major loss (usually a disruption of living with a family member), and substantial minorities had substance abuse, risky sexual behavior (unprotected sex, multiple partners, or both), and running away histories. More than half had a history of physical abuse, and a large minority had a history of sexual abuse. More than three-quarters had a history of some form of trauma (defined as a history of child abuse or diagnosis of posttraumatic stress disorder). More than half had a psychiatric diagnosis, the most common diagnoses being posttraumatic stress disorder and depressive disorder, and nearly half received psychiatric medication. More than a third had a history of suicidality, with 16% expressing ideation (with no attempts), and 8% attempting suicide while in the program. Slightly more than 20% had a special or chronic medical condition. Even relatively uncommon problems like enuresis and fire setting affected fairly large numbers of children.

Clearly, the FRN population represented a segment of the foster care population with very serious problems.

During children's stay in foster care, official reports of suspected child abuse or neglect were filed against the birthfamily in 29 cases (8%), and 78% of these reports were supported. Workers filed reports on 19 foster parents (5% of cases), but only three were supported. Future research will examine the nature of the allegations and circumstances surrounding these reports.

Despite the intention in the program design, reunification was deemed to be an appropriate and realistic goal for slightly more than one-third of children, mostly because of the perceived risk in these families of further abuse.

Outcomes

Child Behavior. Despite the variety of child behavioral outcomes measured and the diversity of the children served, a similar picture emerges across outcomes (see Table 2). Slightly less than half the sample demonstrated global improvement. For 11 of the 18 categories of outcomes Table 2 shows, 50% or more improved. These 11 were more general outcomes applying to large proportions of the sample: self-care, quality of relationships in different settings, school participation, aggressive incidents, psychiatric symptoms, and behaviors resulting from abuse.

Some thornier problems, identified for smaller proportions of the sample, were more recalcitrant. These were either primarily adolescent problems or special problems of foster care. Less than half of youth identified with substance abuse and risky sexual behaviors demonstrated improvement on these problems. Less than half improved on running away for less than 24 hours, committing property damage, and having symptomatic behaviors associated with parental visitation. For several of these problems, however, proportions improving approached 50%, and proportions actually worsening were usually less than 40%. For nearly every problem or behavioral domain, the largest percentage of children improved, although meaningful proportions stayed the same or became worse.

TABLE 1
Sample Characteristics (*N* = 384)

Characteristic	%
Gender	
Male	53
Female	47
Age	
6 or younger	13
7 to 11	25
12 to 14	19
Older than 14	43
Ethnicity	
White	25
African American	52
Latino	15
Asian	3
Other	6
Child Problems	
Aggressive behaviors	69
History of substance abuse	28
Eating disorder	4
Enuresis/encopresis	14
History of fire setting	14
History of major loss	65
Pregnancy	6
Risky sexual behavior	33
History of running away	37
Receiving psychiatric medications	47
Chronic medical condition	21
Suicidality	
History of suicidality	37
No attempts while in program	76
Ideation only	16
Suicide attempt	8
Abuse/Trauma	
History of caregiver abuse	11
History of physical abuse	55
History of sexual abuse	44
Any trauma history	77

Characteristic	%
Diagnosis	
Any mental health diagnosis	60
Multiple diagnoses	37
Attention deficit disorder/attention deficit hyperactivity disorder	14
Adjustment disorder	4
Bipolar disorder	4
Conduct/oppositional disorder	20
Depressive disorder	20
Psychotic disorder	3
Posttraumatic stress disorder	42
Other disorder	3
Reunification Was a Service Goal	
No	66
Yes	34

Note: For age, $M = 12.5$, $SD = 3.9$. For child problems, $M = 4.2$, $SD = 2.0$. For diagnosis, $M = 1.8$, $SD = 0.8$.

Placements at the Completion of Foster Care. Most youth in the network were permanently placed or moved to less restrictive placement outcomes (see Table 3). A fairly sizable minority moved to either a more restrictive setting or ran away. Placement was strongly related to global improvement. Global improvement scores were significantly higher for permanent placement outcomes such as reunification and adoption ($M = 3.96$, $SD = .93$) and for less restrictive outcomes such as regular foster care ($M = 3.90$, $SD = .97$) than for more restrictive placements such as psychiatric hospitalization, residential placements ($M = 2.28$, $SD = 1.13$), or running away ($M = 2.45$, $SD = 1.19$), Box adjusted $F(1, 43) = 7.26$, $p < 0.01$, $\eta^2 = 0.37$. In other words, children who improved more tended to be placed with families or in less restrictive settings, whereas those with less improvement were more likely to be referred to more restrictive institutional settings.

Correlates of Outcome

Given the substantial variability in outcomes and the need to understand the basis for change, the authors examined correlates of outcome.

TABLE 2
Changes in Behavioral Outcomes of Children in Specialized Foster Care (in percentages)

Outcome	n	*Worsened*	*No Change*	*Improved*
Global improvement	369	35	19	46
Self-care	363	5	37	58
Child's verbal abuse of others	317	24	24	52
Home relationships	377	19	24	57
Community relationships	373	19	30	51
School relationships	363	19	28	53
School participation	333	21	26	53
School excused absences	322	8	49	43
School nonexcused absences	318	16	40	44
Aggressive incidents	240	20	23	57
Psychiatric symptoms	214	15	28	57
Behaviors from physical abuse	209	11	33	56
Behaviors from sexual abuse	155	12	34	54
Symptomatic behaviors around parental visitation	123	36	39	25
Running away (<24 hours)	139	34	19	47
Running away (≥24 hours)	134	31	19	50
Property damage	100	30	24	46
Substance abuse	106	49	18	33
Risky sexual behaviors	122	29	30	41

Note: The sample size varies according to the number of children identified as having a specific problem.

Demographic Correlates. Girls and boys differed little on global improvement (see Table 3), however, girls were more likely to terminate care by running away, whereas boys were more likely to be placed in more restrictive settings. Age was correlated with global improvement, with children younger than 6 demonstrating significantly more improvement than any other group. In bivariate analyses, racial and ethnic status was significantly related to placement outcome and nearly significantly related to global improvement, however, a large part of the difference in placement by race was due to dissimilar rates of running away, discussed here and in Fasulo et al. (2002). In addition, the magni-

TABLE 3

Demographics/Reunification Goal and Outcomes (n = 369)

	Global Improvement					Final Placement Outcome (in percentages)						
						Permanent	Restrictiveness		On			
Demographic	M	SD	F(df)	p	η^2	*Placement*	*Less*	*More*	*the Run*	χ^2	p	ϕ
Overall	3.2	1.3				33	25	29	13			
Gender												
Male	3.2	1.3	0.4(1, 367)	.44	<.001	36	25	34	5	20.2	<.001	.24
Female	3.1	1.3				30	24	24	21			
Age[a]												
6 or younger	4.0	1.0	12.73(1,4 6)[b]	.01	.10	62	30	8	0	89.2	<.001	.51
7 to 12	3.4	1.3				44	20	36	0			
12 to 14	2.8	1.4				20	21	51	8			
Older than 14	3.0	1.2				22	28	22	27			
Race/Ethnicity												
White	3.5	1.3	2.47(3, 361)	.06	.02	45	20	30	5	17.6	.04	.22
Other	3.3	1.4				21	36	36	7			
Latino	3.2	1.4				36	21	25	18			
African American	3.0	1.3				28	26	30	16			
Reunification Was a Service Goal												
No	3.2	1.3	.26(1, 367)	.61	.00	24	32	33	12	37.1	<.001	.32
Yes	3.1	1.3				52	11	23	15			

a. Age was negatively correlated with global improvement, $r(364) = -0.271$, $b = -0.80$, $p < 0.00$.

b. Box adjusted. Using the Games-Howell comparison of means procedure, children younger than 6 were significantly different from all other groups, as were children aged 12 to 14.

tude of the effect of racial/ethnic status on global improvement was relatively small—the proportion of sample variance explained was 2%. Moreover, when the authors controlled for variables such as age and history of trauma using multiple regression analysis, differences in global improvement by racial-ethnic status were not even close to being statistically significant. This suggests that differences in global improvement by racial/ethnic status were modest and at least partly explained by background differences between racial and ethnic groups.

Reunification as a Goal. When reunification was a goal, the permanent placement rate was much higher, and rates of less and more restrictive placements were lower. Interestingly, rates of running away were about the same whether or not reunification was a goal, and reunification being a goal had no effect on global improvement.

Behavioral History Correlates. Entries in the Global Improvement columns of Table 4 show the mean for the groups affected by different problems and the results for significance testing comparing youth with a problem to youth without one. Youth with a history of substance abuse, suicidal ideation or behavior, risky sexual behavior, and running away, and youth who were pregnant, had significantly lower global improvement scores than youth without these problems. Number of problems had a small negative correlation with improvement, $r(369) = -0.20$, $b = -0.13$, $p < .01$, such that every additional problem predicted a slightly more than a tenth of a point decrease on the five-point global improvement scale.

Several serious or dangerous problems were associated with higher rates of more restrictive care: sustaining a major loss, suicidality, and psychiatric diagnosis (see the Final Placement Outcomes columns of Table 4). Youth identified with substance abuse problems, risky sexual behavior, and previous running away had higher rates of running away permanently. Children identified with aggressive behavior or suicidality had *lower* rates of running away. This is most likely due to the fact that youth

TABLE 4

Behavioral Histories and Outcomes (n = 369)

	Global Improvement					Final Placement Outcome (in percentages)						
							Restrictiveness					
History	M	SD	F[a]	p	η^2	*Permanent Placement*	*Less*	*More*	*On the Run*	χ^2	p	ϕ
Overall	3.2	1.3				33	25	29	13			
Aggression	3.1	1.3	.61	.43	<.001	34	24	32	9	10.2	.02	.17
Substance abuse	2.8	1.2	12.98	.000	.03	18	21	27	34	55.2	<.001	.39
Fire-setting	3.3	1.3	.51	.48	<.001	25	29	41	6	6.1	.11	.13
Major loss	3.2	1.3	.12	.73	<.001	29	26	34	11	9.5	.02	.16
Suicidality	3.0	1.4	3.86	.05	.01	27	24	41	9	13.1	<.001	.19
Physical abuse	3.3	1.3	.87	.35	<.001	31	27	33	10	5.2	.16	.12
Sexual abuse	3.2	1.3	.19	.66	<.001	36	20	34	11	6.6	.11	.13
Trauma	3.3	1.3	3.14	.08	.01	34	25	32	10	10.9	.01	.18
Risky sexual behavior	2.9	1.3	8.56	<.001	.02	23	25	30	22	16.9	<.001	.22
Running away	2.7	1.2	31.90	<.001	.08	19	20	30	31	68.6	<.001	.44
Psychiatric diagnosis	3.1	1.3	2.76	.10	.01	32	21	35	12	9.7	.02	.16
Pregnancy	2.4	1.3	9.04	<.001	.02	16	37	16	32	9.9	.02	.17

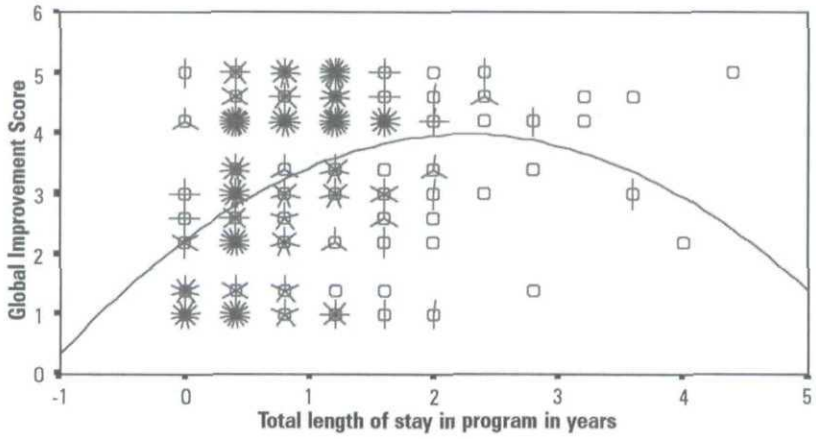
a. df (1, 367).

with histories of suicidality were more likely to be placed in more restrictive care, whereas youth with a history of aggression were more likely to be of a younger age than youth without histories of aggression ($M = 12.2$, $SD = 3.7$ with aggressive history, $M = 13.0$, $SD = 4.1$ without aggressive history, $F[1, 377] = 3.90$, $p = .05$).

Service Correlates. Length of stay in SFC had a curvilinear relationship with global improvement. In statistical terms, a quadratic relationship between length of stay and global improvement was statistically significant, R^2 change = .05, F change (1, 366) = 22.66, $p < .001$, above and beyond a linear relationship, R^2 change = .09, F (1, 367) = 35.87, $p < .001$. This means that global improvement scores tended to be higher the longer clients had been in SFC until about two years, five months, after which scores tended to decrease as clients' length of stay increased (see Figure 1). The curvilinear relationship of length of stay with global improvement remained, though weaker, even when controlling for type of placement, linear R^2 change = .03, F change (1, 364) = 18.18, $p < .001$, quadratic R^2 change = .02, $F(1, 363) = 9.00$, $p < .001$. Only 3.9% of the sample exceeded two years, five months, however, and these cases were statistical outliers in the distribution of length of stay.

The transformed version of number of psychotherapy sessions was significantly though modestly correlated with global improvement, $r(309) = .22$, $p < .001$. When the authors controlled for the confounding effect of length of foster care (both linear and curvilinear effects), however, the relationship between psychotherapy sessions and global improvement became nonsignificant, strongly suggesting that one can explain much of the therapy effect on improvement by the fact that children who had more therapy sessions also stayed longer in SFC. Number of therapy sessions was also significantly lower for youth who ran away, as detailed in Fasulo et al. (2002), but did not differ between other placement outcomes, even when the researchers controlled for length of stay.

FIGURE 1
Global Improvement by Length of Specialized Foster Care



Note: The "sunflower" graphic in the figure represents the number of cases for each combination of length of stay and global improvement score. A small box represents one case. Two "petals" emanating from a box represent two cases, three petals represent three cases, and so forth. The line plotted is the quadratic regression line, which is the best fitting line for the relationship between the variables.

Other Variables. Several other variables were not significantly related to outcome and were consequently excluded from further analyses: history of suicidality, history of sexual abuse, and history of physical abuse.

Multiple Regression Predictions of Outcome

The authors conducted two hierarchical multiple regression analyses (see Cohen & Cohen, 1983) to relate variables to outcome while taking into account their relationship with each other. One explained ratings of global improvement and the other level of placement restrictiveness. The guiding principle was to include those variables that were significantly related to these outcomes in the bivariate analysis, however, the authors did not include all the specific problems; they were too numerous and too interrelated.

Instead, the researchers used number of problems as their primary problem-related variable and then experimented to see if other specific problems explained improvement or restrictiveness above and beyond the number of problems. The final analysis model for the first regression included the following variables: racial-ethnic status, child age at entry into foster care, number of identified problems, history of trauma, duration of foster care (linear and curvilinear [quadratic] effects), and number of therapy sessions (natural logarithm). The researchers entered these in that order to produce interim and final multiple regression equations (see Table 5).

Both linear and curvilinear effects for length of stay were again significant. Judging from the β coefficients and a dominance analysis conducted on the variables (Budescu, 1993; details available from the first author), length of stay appeared to be the most important correlate of improvement. Number of problems and age of entry into foster care were also statistically significant correlates of somewhat less importance. Younger children had higher global improvement scores, and youth with more problems had lower improvement scores. History of trauma was also significantly (though modestly) related to improvement; unexpectedly, this relationship was *positive*—children with such histories tended to improve more. Racial/ethnic status and number of therapy sessions were not significantly related to improvement in this analysis when the authors controlled other variables.

The second hierarchical multiple regression analyzed level of placement restrictiveness following SFC. This analysis excluded children who ran away ($n = 45$) because of their lack of a placement outcome as such. Steps and variables used to explain placement restrictiveness were very similar to those in the hierarchical multiple regression of global improvement. The researchers added reunification being a service goal and global improvement itself as additional independent variables (see Table 6 for the final model results). The strongest correlate of placement restrictiveness was global improvement. Children with lower global improvement

TABLE 5
Multiple Regression Explaining Global Improvement (n = 361)

Variables	R^2 *Change*	*Final Coefficients* B	SE	β
Race	.02			
White, other vs. black, Latino		.03	.04	.04
White vs. other		.09	.13	.04
Black vs. Latino		-.06	.09	-.03
Age at program entry	.06***	-.05	.02	-.14**
Number of identified problems	.02*	-.12	.04	-.19**
History of trauma	.02**	.37	.17	.12*
Length of Stay				
Linear relationship	.06***	.74	.14	.41***
Curvilinear (quadratic) relationship	.05***	-.30	.07	-.27***
Number of therapy sessions	.002	.05	.05	.05

*p < .05. **p < .01. ***p < .001.

scores were more likely to be placed in more restrictive settings, such as respite care, hospitals, or group homes. Reunification being a service goal was the second strongest correlate. Children with reunification as a service goal tended to be placed in less restrictive settings. Child age, number of problems, and length of stay were significant at entry, but were no longer significant in the final model—their association with restrictiveness was entirely a function of their relationship with global improvement.

Summary of Correlates of Outcome

In summary, longer stays were related to higher global improvement up to two years, five months, with global improvement scores tending to be lower for the small number of children who exceeded this length of stay. Younger children and children with fewer problems also tended to have higher global improvement scores. Paradoxically, identification of youth as having trauma was *positively* related to global improvement when the effect of overall number of problems was statistically controlled. The re-

TABLE 6
Multiple Regression Explaining Placement Restrictiveness Level (n = 290)

Variables	R^2 *Change*	*Final Coefficients* B	SE	β
Race	.01			
White, other vs. black, Latino		.02	.03	.06
White vs. other		-.10	.08	-.06
Black vs. Latino		.03	.06	.03
Age at program entry	.06***	.02	.01	.09
Number of identified problems	.04**	.03	.02	.07
History of trauma	<.001	.12	.11	.06
Length of stay	.02*	-.09	.06	-.07
Reunification as a goal	.07***	-.50	.08	-.28***
Global improvement	.22***	-.33	.03	-.50***

* $p < .05$. ** $p < .01$. *** $p < .001$.

strictiveness of children's placement following foster care was related to their global improvement and reunification being a service goal.

Discussion

Though this is not an efficacy study, these results suggest the value of SFC in a managed child welfare network. Given the significant levels of trauma and substantial behavioral and environmental problems in the client population, and the fact that regular foster care had failed for most of these clients, a likely outcome for many clients lacking FRN was some form of residential care. Fostering behavioral improvement and stabilization in this population is a challenge. Yet most specific types of problems showed improvement, and nearly half of children improved globally. Planned placement outcomes generally matched children's level of improvement, and most children were able to move either to permanent placements or less restrictive settings.

Nevertheless, children's outcomes varied considerably; some children did poorly, and running away was a problem (see also Fasulo et al., 2002). Limitations in the network's ability to keep

children in SFC, help stabilize their lives, and move them back into the community are to be expected in a complex network for a broad population of high-risk children with previous service failures. The fact that FRN accepts all DSS referrals except those with clear signs of danger probably contributes to the variability in outcomes.

It is difficult to compare these results to those from other research because studies vary dramatically in client age, problems, referral criteria, duration and goals of SFC, and research design. Nevertheless, some comparison helps place FRN results in context. Reddy and Pfeiffer's (1997) review found an effect size of .50 for child behavioral improvement across 11 SFC outcome studies. Using Rosenthal and Rubin's (1983) binomial effect size display method, this corresponds roughly to a behavioral improvement rate of 62% (see Lipsey & Wilson, 2001, p. 153), somewhat higher than the 46% global improvement found in this study. Yet the mean age in Reddy and Pfeiffer's review was 10, lower than the FRN mean of 12. Given FRN's policy of refusing few referrals and the severity of the problems noted above, the FRN population may be more troubled than those of many other studies; however, researchers need to use standardized measures of child functioning, severity of abuse, and other child background variables across programs to assess how differences in outcomes reflect different child populations versus different quality programs.

Hudson et al.'s (1992) survey of 293 SFC programs is also relevant. Compared to FRN, they found a higher rate of permanent placement (57% vs. FRN's 33%), lower rates for other less restrictive placements (10% vs. FRN's 23%) and running away (2% vs. FRN's 13%), and about the same rate for more restrictive placements (28% vs. FRN's 31%). One relevant finding is FRN's low rate of families for whom reunification was an option. When reunification was the goal for clients in FRN, rates of permanent and less restrictive placement were comparable to those of Hudson et al. Historical change in client populations may also play a role.

Correlates of Outcomes

Length of Stay. Investigating the relationship between duration and improvement is important, as caseworkers have conflicting imperatives of moving children to permanent care as soon as possible, while allowing enough time for children and families to stabilize and change behavior. Ultimately, research may help determine how much of a "dose" of SFC is optimal for each client.

The curvilinear relationship of length of stay in SFC with global improvement may indicate that children's stability and behavior improves as a result of more time in SFC, but with diminishing returns in the latter half of the third year. Considerable time is often needed for children and foster families to stabilize and adapt to the placement before behavior can change. Greater time in SFC also allows for greater use of the case review system. This likely facilitates more effective communication, coordination, and planning among the service team and better preparation of the child and family for the most appropriate placement following SFC. The small number of children with very long stays, however, may have special difficulties that limit behavioral improvement, impede placement, and prolong SFC.

Number of Problems. It is not surprising that both individual problems, such as substance abuse and risky sexual behavior, and the total number of problems predicted poorer global improvement and placement outcomes. Several of these problems present substantial challenges for children seeking to adapt to foster care placements and permanence. Likewise, they challenge a service system that is attempting to stabilize children's lives and develop good care plans, while avoiding having these children's life problems disrupt both their SFC placement and a potential permanent placement thereafter. Higher rates of more restrictive outcomes, such as psychiatric hospitalization and residential treatment for children with serious problems, likely represent an appropriate match between the intensity and restrictiveness of services and children's needs.

Age. Finding better outcomes for younger children is also not surprising. They experience fewer of the cumulative effects of difficult environments, and they do not face some of the risk factors that older youth do (e.g., substance abuse, pregnancy). Moreover, no child younger than 12 ran away, which is no doubt related to the difficulty of independent functioning at younger ages. Note, however, that age was a less strong correlate than length of stay and outcomes at every age varied considerably.

Placement as a Function of Child Improvement. Global improvement was by far the strongest correlate of placement in both simple linear regression and multiple regression analyses. This suggests that placement decisions were essentially rational, based on children's capacity to function and the intensity of their needs. Researchers cannot rule out the possibility, however, that improvement did not cause placement decision, but rather that placement decision influenced caseworkers' judgments about improvement. This seems to the authors, however, a less plausible explanation, because DSS workers are likely to base their placement decisions to a great degree on caseworkers' assessments of children's improvement.

Race and Ethnicity. The major racial-ethnic difference in outcomes was the runaway rate. Youth in different racial and ethnic groups differed somewhat on other outcome variables, but these differences were not statistically significant when the analysis controlled for background variables. In large service networks like FRN, youth of different races and ethnicities are likely to be selected in very different ways by different referral sources in different geographic areas. Thus, other differences such as age and severity are likely to accompany differences in race and ethnicity, suggesting that extreme caution is needed to compare these groups on outcomes. More research is needed to examine the effectiveness of SFC for different racial and ethnic groups.

Running Away. These results add to knowledge about running away from our previous research on a related sample (see Fasulo et al., 2002). The strong relationship of risky sexual behaviors,

pregnancy, and substance abuse with running away is not surprising when one considers that adolescent girls were at a substantially higher risk for running away.

The higher runaway rate for Latino and African American youth is a significant finding deserving administrative attention (see also Fasulo et al., 2002). CFP and its provider agencies reviewed this finding with all network and provider program managers, supervisors, and line staff. The authors' best hypothesis is that, compared with other youth, these youth feel more loss and dislocation when placed outside their neighborhoods. Preliminary data suggest that running away may well represent running back to their home community (Fasulo et al., 2002). In a new initiative in response to the runaway problem, network participants are working to increase children's and birthparents' comfort with placement by including them in the treatment planning process and facilitating a positive relationship between birth- and foster parents. CFP also engaged Black Administrators in Child Welfare, Inc., to conduct cultural competency training for all network professionals.

Paradoxical Effects for Trauma. Surprisingly, trauma—that is, whether a child experienced sexual abuse or physical abuse or had a diagnosis of posttraumatic stress disorder (PTSD)—was a modest *positive* correlate of global improvement, even when the authors controlled for age. The trauma variable was scored "yes" when children had a PTSD diagnosis following a mental health assessment, or when the caseworker identified abuse as a problem on the treatment plan because a report to DSS of abuse of the child was supported. Defining trauma in this way made sense because these were the two ways the measurement system would assess an external trauma with some degree of thoroughness and objectivity. Trauma defined in this way thus was a focus of intervention.

It is likely that many children in DSS custody and in SFC have trauma in their history, even if their treatment plan did not identify it as a problem. Children for whom trauma was *not* officially

identified as a problem on the treatment plan would have other identified problems requiring their referral to SFC, most of which concern behavioral difficulties. Perhaps the difficulties of children identified with trauma were likely to be more a function of the family environment than those of other children in the sample, and therefore more amenable to SFC. Their difficulties may have tended to be a consequence of recent trauma and therefore less chronic. Children identified with trauma were less likely to run away. All of these factors could explain the higher global improvement scores obtained by children identified with trauma. This result does not mean, of course, that trauma actually helps children improve. Rather, in broad, diverse service programs that serve heterogeneous groups of youth, children identified with different problems may differ on outcomes simply because of background, referral, or service characteristics associated with those problems. This is an important lesson for future research on outcome measurement systems.

Limitations

Like most efforts to implement outcome measurement as an ongoing practice, SOURCE has limitations that temper our interpretation of the data. The authors cannot confidently make inferences about behavior because of the lack of demonstrated reliability and validity of the outcome scales, although the ability of several scales to discriminate on placement outcome is at least preliminary evidence for validity. The inability to implement operational definitions at this point limits the precision with which the authors can measure problems and outcomes. Lacking pre– and post–foster care measurement, the outcomes tool is not yet a sensitive measure of change, nor can the possibility of caseworker bias be ruled out. The fact that global improvement was highly related to placement outcome, however, should allay some concern about bias. This means that caseworkers' ratings agreed with the assessment of a separate professional, the DSS social workers who made the placement decisions. Note that the study of case-

worker ratings has value in its own right, over and above its validity as a measure of children, because caseworker judgments are likely to influence decisions about children.

These limitations seem unavoidable at this stage given the need to make the demands on provider staff manageable. Provider agencies could be asked to implement more rigorous procedures such as premeasurement and postmeasurement and extensive training and manualization for the outcomes instrument. They might then, however, perceive the burden of completing the instrument to be too great, which would affect participation in outcome measurement. It is better to have an outcome measurement system with limitations but a core of valuable data than no measurement system at all.

Another possible limitation is that this analysis could not take into account possible effects of regression to the mean (see Campbell & Kenny, 1999). Because of regression to the mean, a group of children with more extreme problems could improve more than other children just by virtue of the statistical likelihood that more extreme problems will become less extreme over time. The finding that a number of identified problems predicted lower improvement scores argues against a regression to the mean effect, but it cannot be ruled out as a factor in other findings. Use of premeasures, postmeasures, and standardized instruments will provide for better assessment of and correction for possible regression to the mean effects.

The Promise of Outcome Measurement Systems

This research suggests the value of supplementing controlled studies with secondary analysis of managed services data sets. The development of outcome measurement systems as part of managed child welfare services across the country offers opportunities for augmenting scholarly research on service efficacy with relatively modest investment. Research programs using agency data systems could enhance initiatives (see, e.g., Casey Outcomes

and Decision-Making Project, 1999; Scallet et al., 1996; Winterfeld & Alsop, 1997a, 1997b, 1998) to increase accountability through closer attention to outcomes.

One feature of outcome measurement systems makes the payoff especially great: Managed services networks are continually adding new clients to their database. Once a research program is established, investigators have the opportunity to develop large samples, replicate and extend studies on new samples, or both. Research results can lead directly to program change; they can then test the effect of program change on new clients coming into the system. Whatever is learned about outcomes applies to actual community practice, not just experimental programs.

One recent analysis of FRN outcome data found, for example, that intensity of family work correlated with successful reunification. This prompted the network to establish higher standards for family work by network provider agencies. One year after this was implemented, family work doubled in intensity, and almost twice as many children were reunified with their birthfamilies.

One can also learn about system or agency factors that affect outcome scores. For example, differences in how diagnosis or assessment is done across the client population may emerge in the analysis of outcomes—the authors suspect such differences in assessment may explain why trauma is related to positive outcomes in this sample. New research on outcomes from CIS should teach us more about the validity and utility of using agency-based outcome measurement, and should help deal with the methodological challenges of interpreting results from outcome databases (e.g., the difficulty of inferring causality).

Analysis of outcome databases promotes a consumer perspective on child welfare services and may have a greater effect on practice than stand-alone studies. The development of research programs to explore caseworker judgments and system decision-making is an important step in the evolution of child welfare services. A next step would be for many agencies to use standardized outcome instruments, allowing for program benchmarking

and promoting widespread continuous quality improvement. We look forward to the day when all child welfare services are informed by self-examination based on data.◆

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