

*Studies of the
Wraparound Process*



Chapter 5

Chapter 5: Studies of the Wraparound Process

Don't Follow Leaders, Watch Your Parking Meters: Theory-Based, Data-Driven Technical Assistance to Ensure Wraparound Fidelity

Introduction

Technical assistance for wraparound initiatives has primarily used “experts” who focus through value-based principles to differentiate this approach from family-centered practice in the expert model. This contradiction has received little notice, nor have expert technical assistance and wraparound applications been well evaluated due, in part, to lack of attention to defining a theory-paradigm base. Such a clearly defined base would provide depth and clarity in curriculum for more model congruent forms of technical assistance which facilitate organizational and individual learning, as well as the ability to compare costs with youth and family outcomes while correlating each with measures of the integrity of the wraparound application. This summary first presents results from a University of South Florida, Florida Mental Health Institute (USF-FMHI) study which examined such a theory base, then addresses results of subsequent applications of that study to develop and to provide theory-based, data-driven technical assistance to a CMHS-SAMHSA initiative in suburban Chicago.

Rosalyn Malysiak Ph.D.*

*Technical Assistance and Training
Community Wraparound Initiative
76 South Seventh Ave.
La Grange, IL 60525-2503
708/338-3806 ext. 513
Fax: 708/338-3995
rmalysiak@aol.com*

Jennifer Sharma MA

*Evaluator
SAMHSA-CMHS Early Childhood
Supplemental Grant
Community Wraparound Initiative*

Katy Woodworth BA

*Evaluator
CMHS Grant
Community Wraparound Initiative*

Tim Gawron MS, MSW

*Site Director
Community Wraparound Initiative
1820 S. 25th Ave.
Broadview IL 60513
708/338-3806*

**Rosalyn Malysiak was formerly with University of South Florida, Florida Mental Health Institute and Department of Special Education Child and Family Policy Program.*

Deciphering the Tower of Babel: Examining the Theory-Paradigm Base for Wraparound, an Emerging Collaborative Model of Family-Centered Practice

Rosalyn Malysiak Ph.D.

This descriptive, exploratory USF-FMHI study was conducted between September 1995 and June 1996, and generalized to theory, not to population. Using a multi-method, multi-case design (Yin, 1989; 1994) the research focused through the efforts of a multi-site, elementary school-based mental health program in Tampa Florida to evaluate a single construct and operative focus as the basis for wraparound fidelity: Families acting as decision making participants in a process which identifies and uses strengths within and across life domains and systems to meet similarly identified needs (ecological strengths enhancement). For a more lengthy description of the program evaluated, as well as the design of the study, the reader is directed to the 9th Annual Proceedings of this conference or to the complete study (Malysiak, Duchnowski, Dollard, et al., 1997; Malysiak 1996).

Method

A critical review of the literature focused on the paradigmatic emergence and transformation of family systems theory and the related development and transformation of family-centered practice through a wide range of disciplines. This review differentiated and operationalized five levels of family-centered practice as focused through the complementarity of family and professional roles, the use of strengths in support planning and implementation, and the theory-base applied (Malysiak, Duchnowski, Dollard, et al, 1997; Malysiak 1996; 1997; 1998). The first three levels reflected more traditional forms of family-centered practice within expert models which focused upon

deficit remediation. Levels four and five described collaborative models like wraparound, in which families acted as decision making participants in a process of ecological strengths enhancement. From this literature review, two opposing sets of *a priori* propositions were derived and applied through three methods and waves of data collection: 1) Observation of initial team planning meetings with seven families in October-November 1995; 2) Semi-structured interviews with 44 participants in subsequent support plans in February-April 1996; and 3) Systematic case record review in April 1996. Propositions testing for wraparound fidelity as a collaborative model of family-centered practice anchored in ecological systems theory and constructivist and critical thought were:

- A. Families will act as participants of a community team in which assessment and implementation decisions are reached by consensus. When consensus cannot be reached, the team will value and abide by the decision of the family.
- B. Community participants will share their expertise and perspective in a way which provides information as well as access to service while respecting the families' perspectives.
- C. Families will have sufficient information as well as access to services to voice their perspectives, strengths and needs.
- D. Decisions made by this team will recognize and combine the strengths of the family with the strengths in the community, including the more traditional service structure.
- E. The combined ecological and family strengths will be the basis for individualized activities which target specific needs.

Propositions testing for family-centered practice in the expert model were:

- F. Families will provide information to professionals who assess problems or needs and who then attempt to remedy them by matching each to an existing service.

Wraparound Fidelity

- G. Community participants will present their perspective and expertise in a manner which limits the role of the family as an equal decision making participant, or which does not respect the family's perspective.
- H. Services delivered to the family will not reflect the family's perspective of what might best meet their needs.
- I. If strengths are identified, they will primarily be within the family, and they will not be actively and overtly used to meet identified needs.
- J. Activities in the family support plans will not overtly seek to combine strengths of the family with strengths in the community.

Presence of all propositions in each of seven cases was recorded in each wave of data collection. Based upon this coding at the completion of wave 1, four cases were assigned to an expert model cell and three to a collaborative model cell for further analysis. On a case by case basis, wave 2 interviews were similarly coded, while the systematic review of the case records was used to corroborate, disconfirm or enrich data which emerged from the first two sources. Through this within-case analysis, movement from one cell at assessment and planning toward the other cell during implementation could be documented. Through replication and triangulation in these waves of data, patterns which emerged in each case were identified. Pattern convergence or divergence between cases in the same cell, and then between the cells were subsequently analyzed to develop converging lines of inquiry to answer the research question: "When families act as decision making participants in a process of ecological strengths enhancement, how do applications of wraparound, an emerging collaborative model of family-centered practice, differ from family-centered practice within the expert model?"

Results and Implications of the USF-FMHI Study

The results differentiated patterns that emerged when wraparound's value-based principles were applied through expert models of family centered practice and those which emerged when they were applied as a collaborative model of family-centered practice. In those cases which began and remained within, or which moved toward the collaborative cell, these within-case patterns converged:

1. Multiple perspectives of the family and other participants were acknowledged, valued, and engaged.
2. Differences in these perspectives were acknowledged with some sense of how to resolve them.
3. Strengths were identified and used to meet needs in more than just the child and family.
4. Families had enough information and access to act as decision making participants.
5. Participants enacted and described a change from more traditional roles.

In those cases which began and remained within, or which in implementation of the wrap plan moved toward the expert model cell, these within-case patterns were replicated:

1. Family perspective and experience was not well understood nor valued, and non-family participants did not well understand each other's perspectives.
2. Though differences of perspective were evident, for the most part, they were not acknowledged.
3. Non-family participants made assumptions about each other's perspectives, roles, and activities, and believed that others shared their own perspectives.
4. Family participants did not have sufficient information or access to make decisions.

5. Strengths were identified and used, for the most part away from and not with the entire family as the family defined itself.
6. Participants did not enact nor describe changes from more traditional roles.

Summary and Implications

All participants in each case believed they were involved in a wraparound approach which was “family-centered and strengths-based. However, it was only those cases in which the value-based philosophy of wraparound appeared grounded in ecological systems theory and a critical and constructivist process of team building and consensus decision-making that the within-case patterns were congruent with wraparound philosophy. Thus, this study suggested that wraparound’s value-based principles could be better understood and supported as an emerging collaborative model of family-centered practice based in ecological systems theory and constructivist and critical world views. For deeper analysis and understanding, readers may wish to review referenced documents and publications (see References).

Theory-Based, Data Driven Technical Assistance

Rosalyn Malysiak Ph.D., Jennifer Sharma M.A., Katy Woodworth B.A., Tim Gawron MS, MSW

The design and results of this USF-FMHI study were subsequently applied in the CMHS-SAMHSA-funded Community Wraparound Initiative (CWI) which was based in three suburban Chicago townships and which built upon groundwork laid by the La Grange Area Department of Special Education’s (LADSE) Project WRAP. During the months of September-December 1996, a dual method study was conducted as baseline data for use in creating model congruent infrastructure, curricula, tools and methods of technical assistance to target practice

refinement, program development, and system integration which could sustain collaborative family-centered practice like wraparound and the related CASSP principles.

The first, and perhaps most critical step was to invite the clinical directors and special education leaders who had been working on grant implementation through existing categorical structures to create practice refinement work groups in their agencies and schools which would be supported by their efforts in system integrated program and supervisory refinement work groups. Changes which then ensued could, from the bottom up, guide efforts of executive directors in system change. Data to guide their efforts would always be derived from an ecological systems theory base, and these data were then analyzed and used through model-congruent, constructivist, participatory processes to foster individual staff development and organizational learning. This revised infrastructure continues to grow and to evolve. At the time of this paper presentation its composition included:

Practice Refinement: Fifteen naturally occurring work groups in agencies and school districts, totaling 110 social workers, psychologists, therapists, team teachers, wrap facilitators, and their supervisors. Guided by data, these groups met twice or more a month for 2-3 hours to focus upon individual and team development.

Supervisory Refinement: A single cross-systems work group composed of 15 persons who supervise implementation of collaborative family-centered practice. Guided by data, this group met monthly to rethink and apply elements necessary for fidelity implementation of a collaborative team effort in which families act as consensus decision making participants in a process of identifying and using strengths across life domains and systems to meet needs similarly identified.

Wraparound Fidelity

Program Refinement: A single cross-systems work group composed of 12 clinical or special education directors and the technical assistance and evaluation team for the grants. Guided by data, this group met twice a month to better guide and support efforts of the practice and supervisory refinement work groups. As examples, it has developed system-wide functional definitions of key roles on collaborative teams, and developed common planning forms to encourage an ecological systems theory-based approach to identifying strengths and needs which captured functional adjustment as measured by participants in the plan strategies, as well as system barriers to implementing these strategies.

System Refinement: A single cross-systems work group composed of members of the program refinement work group and their executive directors, the township mental health commissioners, and other community leaders. Guided by data, this group met monthly to address issues such as access to flex dollars and sustainability of grant efforts beyond the final year of federal support.

Baseline Methods

Initial data for use in these groups was derived from a dual method baseline study of current practice produced from two years' of more traditional training and consultation to individuals and their agencies. One method developed and used was a "core construct" survey administered to 89 staff in the two mental health and one child welfare agency, and three special education cooperatives then participating in CWI. The second method used in the baseline evaluation included semi-structured interviews with 96 participants in 15 randomly sampled cases from the grants.

The survey focused through the two constructs examined as theory-paradigm anchors for wrap-around fidelity in the USF-FMHI study. Respondents answered questions about their practice including

whether and how they identified and used strengths by life domains in the family, school, and community systems, as well as if and how they and their teams evaluated cultural competence, their use of language, and other elements necessary to engaging families as decision making participants in developing, implementing and evaluating service plans. A related set of queries sought to determine the frequency with which respondents reviewed these plans with the families and their teams, as well as a comparison of which persons were available in the ecology of all their cases vs. who actually had responsibilities in support plan strategies.

In order to code data regarding the identification and use of strengths, *a priori* definitions were developed for how strengths and needs were identified and how strengths were used in the five levels of family-centered practice examined in the USF-FMHI Florida study (Malysiak, *ibid*). With further refinement, these definitions now serve as supervisory tools for ongoing evaluation of IEP, wraparound, and treatment plans in CWI. Presented as scales to staff and here, in Table 1, the numbers 1-3 operationalize the strengths-needs focus within expert models, and numbers 4-5 operationalize the strengths-needs focus within collaborative models like wraparound.

To increase reliability, two evaluators coded data simultaneously. Survey results were analyzed and summarized by agency or special education co-op as well as across the grants. Agency/co-op specific raw data were simultaneously used in the practice refinement work groups as consensus building curricula with the scales to encourage more clear, systematic, systemic, and functional assessments and planning with families and their teams. On an individualized basis for each refinement work group, staff began to conceptually and practically consider the nature of strengths as they were used in context, as well as the complementarity of the

Table 1
Operational Definitions for Family Centered Practice

Family Centered Practice	Theory Base	Strengths Needs Focus	Identification of Strengths	Identification of Needs	Use of Strengths	Model
① Child Focused	Psychodynamic Behavioral Early family systems theory (1960's)	Child needs which may conflict with parent abilities Dysfunction assessed At best lip service to strengths	Not identified If identified it is as a characteristic of a person or of a system	Needs are not normalized They are identified as what is missing or problematic in relation to another person or system	Strengths are identified, not used	Expert
② Family Focused	Psychodynamic Behavioral Structural family systems theory (1970's)	Child & family needs are interwoven Dysfunction assessed Strengths may be hidden within dysfunctional structure	Identified as willingness or ability to engage in a more traditional professional interventions	Needs are not normalized Youth and family needs are seen as interwoven, requiring categorically structured professional interventions	Strengths are identified & used to engage in categorically structured professional interventions	Expert
③ Family Focused Team	Psychodynamic Behavioral Second-order cybernetics Family systems theory (1980's)	Child & family needs are interwoven Some ecological needs assessment Strengths are primarily identified in child and family Some may be used in service plan	Identified primarily within a single system and in two or more life domains	Needs are not normalized They are seen as interwoven within a single system, and are identified in two or more life domains	Strengths are identified primarily within a single system. They may or may not be used to engage in professional interventions which target needs in two or more life domains	Expert
④ Wraparound Application	Ecological systems theory Constructivist approach to what works More traditional theories are less evident	Ecological assessment of strengths and needs which are interwoven System barriers to combining strengths to meet needs are identified	Identified as used in context within two systems and in two or more life domains	Needs are normalized They are seen as interwoven within and across two systems, and they are identified in two or more life domains	Level 4 strengths are used to target level 4 needs	Collaborative
⑤ Enhanced Wraparound Application	Ecological systems theory Constructivist approach to what works More traditional theories are less evident	Ecological assessment of strengths and needs which are interwoven System barriers to combining strengths to meet needs are identified	Identified as used in context within family, school, and community systems, and in two or more life domains	Needs are normalized They are seen as interwoven within and across family, school, and community systems, and they are identified in two or more life domains	Level 5 strengths are used to target level 5 needs	Collaborative

* Malysiak, Sharma, Woodworth: derived from Operational Definitions Family Centered Practice, R. Malysiak, 1996, 1997.

Wraparound Fidelity

organization of these strengths and resources with identified needs. Individualized agency/co-op results are available. For this summary, convergent data patterns across the grants included:

Core Construct:

Families acting as decision making participants

1. More exposure to wraparound philosophy produced responses which articulated the need to alter professionals' language and roles to implement this construct.
2. Cultural competency was defined as an issue of assessment made by professionals of family needs, not as a descriptor of professionals' behavior.
3. Use of support plans was not integrated with a process of consensus building and decision making.

Core Construct: Ecological strengths enhancement

Respondents confused life domains with systems.

1. There was inconsistent identification of life domains.
2. Respondents typically focused on either the child in the family or in the school, not simultaneously in both systems nor in the community.
3. Numbers of persons with responsibilities in support plans was highly restricted.

Coding responses to questions about identification and use of strengths (see Table 1) was individualized by agency and special education co-op. For this summary mean scores were aggregated and averaged in the following manner. Respondents in mental health and child welfare scored 1.25 and respondents from schools scored 1.14 on the strengths identification scale. Both scores indicated that respondents conceptualized strengths, primarily in the child or family, as a characteristic of person/system rather than as actually used in a context. Respondent scores on the use of strengths scale were 2.24 for mental health and child welfare and 2.15 for the schools, reflecting that these strengths

were primarily seen as useful for engaging in more traditional service interventions. Overall, these survey data were clear indication for specific technical assistance, supervisory, and program support agendas to shift practice more deeply into an ecological and functional approach in order to produce more creative and flexible strength-based strategies in support plans, as well as to more appropriately engage families and build teams.

The second method used in the baseline replicated the second wave of data collection in the USF-FMHI study. Ninety-six participants in fifteen randomly sampled cases were interviewed. For reliability, data were again coded by two or more readers, and within-case patterns were summarized by case, by agency, and across the grants. Based on results from these analyses, portions of the interviews were organized across cases for participatory analysis of the role of the facilitator in selected practice refinement work groups as well as the system-integrated supervisory and program refinement work groups.

Individualized results by case and by agency are available. For this summary, data patterns replicated across the grants included:

1. In most cases there was agreement that the "family" was a decision making participant, however there was a limited interpretation of who was the "family" which often failed to engage grandparents, step-parents or other highly involved extended members of the family.
2. Participants did not have copies of the support plans.
3. Where ecological strengths were not identified and used, participants described themselves and the plan as ineffective.
4. Crisis and transition severely damaged team efforts.
5. Definitions of the facilitator's role varied wildly, and changes in facilitators destroyed teams.

Finally, selected cases were used as prototypes for comparing the fidelity or integrity of the application of the wraparound approach (as coded by the *a priori* propositions for collaborative and for expert model family-centered practice) with youth and family outcomes as measured by the battery of instruments administered as part of the national evaluation of these grants. As with all other data in this model congruent approach to technical assistance, these prototype comparisons were used as the basis for consensus building, integrated, refinement activities at the practice, supervisory and program levels of the revised infrastructure of the grants.

Summary

These baseline data served as an evaluation of two years of more traditional expert technical assistance. Results of the entire evaluation suggested that training and consultation from experts which focused solely through value-based principles produced multiple interpretations of what was wraparound, with some pockets of change toward more collaborative and ecological practice, but with a limited ability to identify and use strengths across life domains and systems to meet similarly identified needs. These data also suggested that team development was constricted by how engaging the family and building the team was individually interpreted by the facilitators. Through participatory, action-oriented, consensus building analysis of these theory derived data throughout the refinement work groups of the integrated infrastructure, technical assistance has moved beyond being an event into becoming part of a system-wide quality assurance process necessary to support collaborative models of family-centered practice like wraparound and the CASSP principles.

References

- Malysiak, R. (1997). Exploring the Theory and Paradigm Base for Wraparound. *Journal of Child and Family Studies*, 6, 399-408.
- Malysiak, R. (1998). Deciphering the tower of babel: Preliminary steps toward establishing a theory base for wraparound fidelity. *Journal of Child and Family Studies*, 7.
- Malysiak, R., Duchnowski, A. J., Dollard, N., Slewczkowski, R., Black, M., & Greeson, M., (1997). Establishing wraparound fidelity: Not business as usual. In C. J. Liberton, K. Kutash, & R. M. Friedman (Eds.), *9th Annual Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base* (February 26-28, 1996) (pp. 125-136). Tampa, FL: University of South Florida, The Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.
- Malysiak, R. (1996). Deciphering the tower of Babel: Examining the theory and paradigm base for wraparound, an emerging collaborative model. (Doctoral dissertation, University of South Florida), *Dissertations Abstracts International*, 57 (7A), 9637038.

Reliable Change: Measuring Treatment Effectiveness of the Wraparound Milwaukee Program

Introduction

Traditionally the effects of treatment are measured using statistical procedures comparing the means of two groups. These groups preferably include a treatment and a control sample receiving no treatment, or compare one treatment with another. Statistical analysis then informs the researcher if the means of the two samples differ significantly, and with what level of probability the researcher can assume that this difference truly exists. Unfortunately, there are many impracticalities and disadvantages to this type of analysis. Besides being expensive and impractical for many practicing clinicians to use in the field, traditional analyses of group differences provide little information about the variability of change, the significance of individual change, or about the actual effect of the treatment.

This pilot study utilized an alternative method of analysis to evaluate individual change over time. It involved the application of a reliable change index (RC) and criterion for clinically significant change. These criteria were used to evaluate treatment effectiveness with a small sample of children and adolescents with serious emotional disturbance (SED) enrolled in the Wraparound Milwaukee program over a period of six months.

Eric D. Seybold, M.S.
Psychology Department
Marquette University
1584 South 79th Street
West Allis, Wisconsin 53214
414/258-7947
5sj3seybolde@vms.csd.mu.edu

Stephen A. Gilbertson, M.S.
Licensed Psychologist
Wraparound Milwaukee
9501 Watertown Plank Road
Milwaukee, Wisconsin 53226
414/257-7209 Fax: 414/257-7575
SAGilbert@aol.com

Method

This initial pilot analysis included 26 children with SED enrolled in Milwaukee County's Wrap-around program. The goal of the analysis was to examine behavior change during the first 6-months of enrollment in the program.

Participants/Sites

Participants in this study were 26 children and adolescents with SED enrolled in the Wrap-around Milwaukee program. Participants ranged in age from 6 to 17 years old, and included 17 males and 9 females. All participants were assessed at intake and again after 6-months enrollment in the program.

Intervention

The Wraparound Milwaukee program was designed to incorporate specific characteristics emphasized by the National Institute of Mental Health (NIMH) created Child/Adolescent Service System Program (CASSP). Defining characteristics of the Wraparound Milwaukee program include interagency coordination through central individual case management, a comprehensive plan of care addressing each individual family's needs, financial mechanisms that connect funds to the client, and local community responsibility and control over the system of care.

Measurement/Instruments

Assessment was done using the Child Behavior Checklist (CBCL; Achenbach, 1991) upon intake to the program and again at 6-months of treatment. The CBCL is widely used with populations with serious emotional/behavioral disturbances, and has demonstrated test-retest reliability averaging .93 (Achenbach, 1991). For this analysis, total behavior problem raw scores were used as the dependent measure of change. This total raw score includes a child's internalizing and externalizing problem behaviors, and can be converted to a T-score.

Analysis

The analysis consisted of determining both group and individual change characteristics. This involved the calculation of a reliable change index (RC), which has been proposed by Jacobson and Truax (1991) to determine if change exhibited by an individual is statistically reliable. This index takes into account issues of test-retest reliability and the standard error of measurement to determine if change for an individual is reliably significant, as opposed to being a possible artifact of measurement error. The values used for this calculation included the CBCL test-retest reliability, the standard deviation, and weighted-average of the standard errors of measurement for the four CBCL clinical normative samples. A one-tailed *t*-test cutoff of 1.25 was used to determine the RC index at a $p < .10$ confidence level.

Similarly, individual change scores were analyzed to determine if change was clinically significant. The cutoff for normal functioning was established according to the procedures proposed by Jacobson and Truax (1991) as preferable when distributions of scores overlap, and involves the means and variances of both the clinical and nonclinical normative group. The raw score cutoff was established to be 34.2. Because the CBCL manual (Achenbach, 1991) offers these data separately for all four normative gender/age groups, individual cutoffs were first calculated for each group (range = 33.6-34.42), and the weighted average of the four cutoffs was used.

Overall effect size (ES) was also calculated for the entire sample, and compared to that found in a meta-analysis of residential treatment (Garrett, 1985), and to that found in the initial 6-month enrollment period in the recently published Fort Bragg Demonstration Project (Bickman, 1996).

Reliable Change

Results

Descriptive summary data can be found in Table 1. One can see that the Wraparound sample's initial total problem scores at intake were significantly higher than the average of the clinically referred sample used to norm the CBCL (Achenbach, 1991). This indicated that the Wraparound sample was exhibiting a very high level of pathology at intake (see Figure 1).

Overall Change

After six months enrollment in the Wraparound program, the average total problem raw score decreased 10.65 raw score points. This translated into an average group T-score reduction of 2.39 T-score points, and an ES of approximately 0.24. One can see from the graphic representation in Figure 2, that change for individuals was variable, with some children showing a reduction in pathology and others actually showing an increase.

Reliable Change

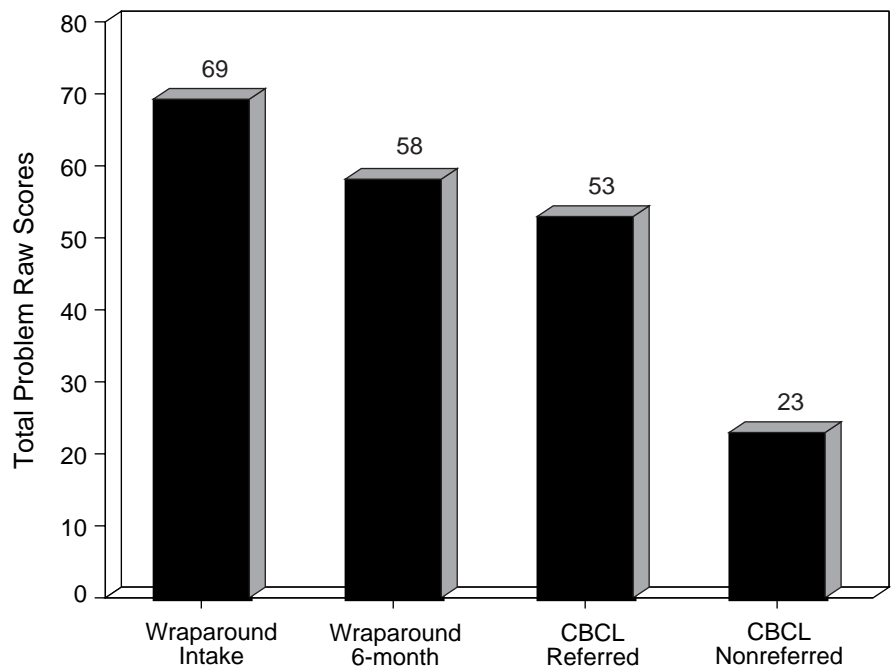
The calculation of the reliable change index (RC) resulted in a standard error of difference between the two test scores of 12.76. This standard error of difference describes the distribution of scores that would be expected had no change occurred during the 6-months of treatment. The distribution of scores in relation to this range can be seen in Figure 3. The

diagonal center line indicates the point of no change in scores, and the dashed diagonal lines indicate the standard error of difference of 12.76 on either side of the line. The solid horizontal line at 34.2 indicates the cutoff point for normal functioning, with those falling below this line classified as being within a functional range.

Table 1
Mean Intake, 6 Month, and Change Scores for the Wraparound Milwaukee Sample

	Raw Scores <i>n</i> = 26			T Scores <i>n</i> = 26		
	Intake	6 Month	Change	Intake	6 Month	Change
Mean	69.00	58.35	-10.65	69.35	66.96	-2.38
Standard Deviation	30.07	19.76	27.26	9.85	6.78	8.98
Range	19 - 119	23 - 98	-55 - +39	49 - 84	51 - 78	-15 - +19

Figure 1
Mean Wraparound Intake and 6-month Raw Scores; CBCL Normative Scores

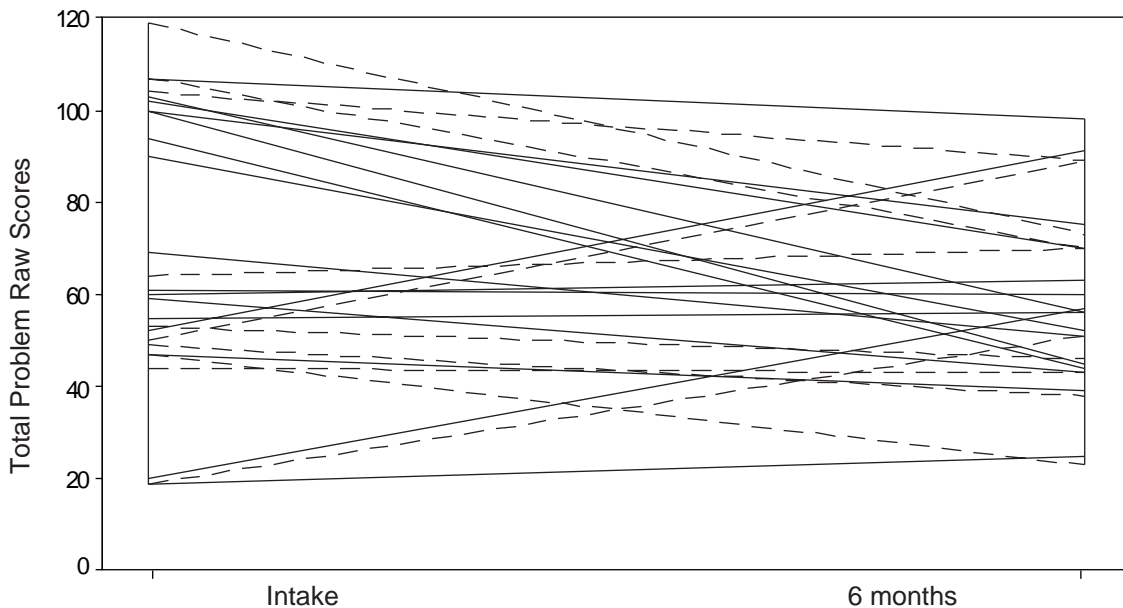


As Figure 3 indicates, 14 participants fell within or above the range of the standard error of difference. One cannot be confident that these subject's change scores cannot be explained by measurement error. All other scores falling outside the diagonal range represent participants who can be considered reliably improved. Those falling below the diagonal dashed area have shown a reliable reduction in total problem scores and can be considered improved, while those falling above the line are considered unchanged. Points falling below the diagonal line and below the solid horizontal normal functioning cutoff line indicate participants who have both reliably improved and recovered over the previous 6-months. Thus, the distribution of scores indicates that 11 of the 26 participants reliably improved but had not recovered, 1 both reliably improved and recovered, and that 14 remained unchanged over the last six months of treatment.

Clinically Significant Change

To determine if change met the criteria for clinical significance, the standard error of difference score of 12.76 was then incorporated around the normal functioning cutoff score of 34.2. This established a range around the cutoff score that theoretically indicates that one cannot be certain that the individual's score has crossed the cutoff point. As Figure 3 indicates, 2 scores fell within this range of uncertainty. Jacobson and Truax (1991) suggest excluding these scores when calculating the proportion of participants that are recovered and not recovered. Using this method, one finds that 4% or one participant had both reliably improved and recovered, 46% of the remaining participants had improved but not recovered, and 50% were classified as unchanged.

Figure 2
Individual Change Scores



Reliable Change

Discussion

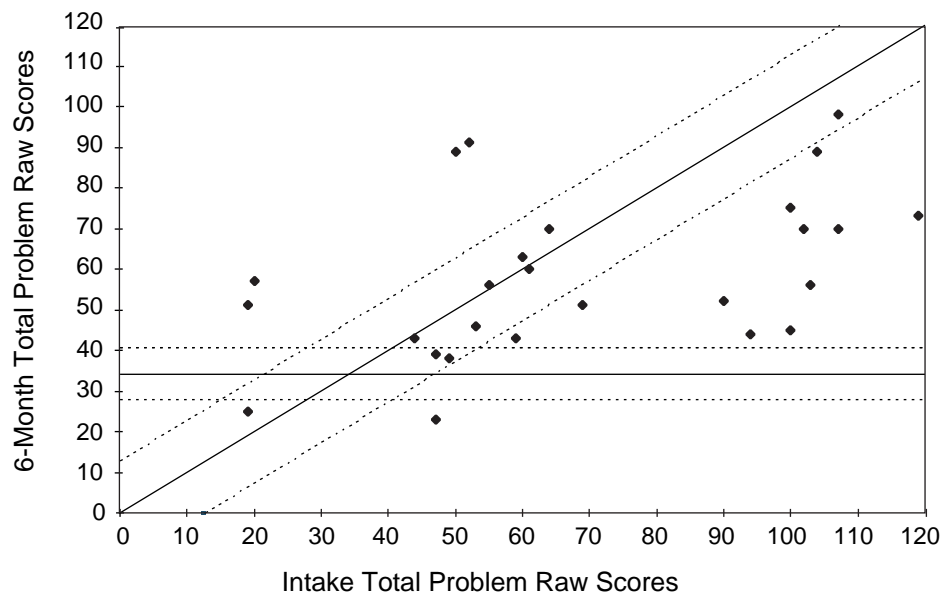
The current study focused on treatment effectiveness as measured by behavioral change over a 6 month period of enrollment in a case managed, comprehensive care program for children with SED. The results indicated that 50% of the children did show reliable improvement over the six month period that was likely not an effect of measurement error. This is encouraging information considering the problem severity of the sample, as well as the difficulty in affecting positive change in youth with severe disorders.

Using the more stringent criterion of clinical significance, only one of the 26 children demonstrated enough change to be considered “recovered,” indicating that a subject had both reliably and significantly moved closer to the mean of the normative sample. After incorporating the clinical significance band of confidence around the normal

functioning cutoff score, one sees that a raw score of 27 is needed to be considered recovered. This score corresponds to an average T-score of 54 on the total problem scale of the CBCL, and may be an unreasonably high criterion when determining clinically significant change. Achenbach’s (1991) criterion of a T-score of 59, which represents an average raw score of 36, is likely a more realistic cutoff range for determining what represents entry into a range of normal functioning.

Finally, over half of the children remained unchanged at 6-months. One possible explanation for this lack of movement is that the intervention may take a longer time to be effective with some children. Also, many of the children who did not show reliable improvement started out with lower total problem scores at intake, with some already within the range for normal functioning. Those scores showed less of an overall decrease, making

Figure 3
Reliable and Clinically Significant Change



it more difficult to fulfill the criteria for reliable change. This may represent a type of floor effect for the first six months in the Wraparound program. Children exhibiting severe behavioral pathology may initially respond more quickly and evidently as the program focuses on bringing their more severe needs to a manageable level. Children with less severe behavioral symptoms may receive services targeted at other behaviors or concerns than those measured on the CBCL because they do not represent as much of an immediate need. Finally, manageable behavior as opposed to optimal functioning may simply be a realistic goal of the intervention when dealing with such a severe population. Further analysis could better explore this hypothesis to determine the types of services offered to each child and what behavior problems were primarily targeted (i.e., externalizing or internalizing).

Comparing the overall group change findings to other studies of children with SED would be valuable. The effect size of 0.24 is similar to that found in a meta-analysis of residential treatment by Garrett (1985), and may indicate a similar improvement in functioning taking place in a shorter period of time in the Wraparound program. Bickman (1996) found a larger effect size of 0.60 after 6 months of treatment, however there are considerable differences between the populations served in the Fort Bragg Demonstration Project and the Wraparound program, as well as in the financial mechanisms for administering these projects.

Refinements in this analysis might include looking at CBCL internalizing and externalizing scores separately as opposed to only the total problem scores. An additional improvement would be to continue following participants through their entire enrollment in the Wraparound program to analyze dose-effect over time. Other studies have demonstrated continued improvement during the 6-month to 1-year period of time (Bickman, 1996).

Finally, future research including additional measurement points at more frequent intervals would allow for an analysis of treatment curves and differential response to various intervention components. Various client characteristics could be included in a larger analysis to determine amenability to treatment of differential age, sex, race, diagnosis, and living situations. Research in these directions will further the effectiveness in the prescription of interventions under individualized case management systems.

References

- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18*. Burlington, VT: University of Vermont Department of Psychiatry.
- Bickman, L. (1996). A continuum of care: More is not always better. *American Psychologist, 51*, 689-701.
- Garrett, C. J. (1985). Effects of residential treatment on adjudicated delinquents: A meta-analysis. *Journal of Research in Crime and Delinquency, 22*, 287-308.
- Jacobson, N. S. & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*, 12-19.

Case Management Wraparound Expense: A Five-Year Study

Introduction

Kentucky IMPACT is a unique program featuring interagency team planning, case management services, and individualized wraparound services for children with severe emotional disabilities (SED) and their families. A study was conducted concerning the use of these wraparound funds during the first five years of program implementation (1991-1995).

Principal areas of investigation included: (a) what are the global characteristics related to wraparound expense for this service population; (b) do data show a relationship between the amount of wraparound expense for children and the additional variables of client age and clinical diagnosis; (c) to what extent is expense related to regional service capacity and population; (d) is there a relationship between wraparound expenditure levels and length of involvement in the program; and (e) what are the expenditure categories, and percentage of expense within these categories, for children receiving wraparound?

Method

Expense data are reported for all children receiving wrap-around services through the Kentucky IMPACT program in this five year period. Descriptive statistics were calculated for each variable in question. Pearson product-moment correlation coefficients were calculated to measure the relationship between wraparound expense and (a) age, and (b) regional service capacity and

Randy D. Oliver, M.P.A.
Health Program Administrator
Kentucky Division of Mental Health
P.O. Box 10177
Bowling Green, KY 42102-4777
502/746-7861
Fax: 502/746-7456
rdoliver@mhrdmc.chr.state.ky.us

Donald R. Nims, Ed.D.
Assistant Professor of Education
Department of Educational
Leadership
Tate Page Hall 417E
Western Kentucky University
Bowling Green, KY 42101
502/745-6316
Fax: 502/745-5445
donald.nims@wku.edu

Aaron W. Hughey, Ed.D.
Associate Professor of Education
Department of Educational
Leadership
Tate Page Hall 417D
Western Kentucky University
Bowling Green, KY 42101
502/745-4849
Fax: 502/745-5445
hugheaw@wkuvx1.wku.edu

James R. Sommers, M.A.
Associate Director of Career Services
Career Services Center
Cravens Graduate Center 216
Western Kentucky University
Bowling Green, KY 42101
502/745-2691
Fax: 502/745-3094
somerjr@wkuvx1.wku.edu

population. Analysis of variance (ANOVA) testing was performed for expense between diagnosis categories, and expense between the categories of new and carryover clients. The .01 level of statistical significance was utilized throughout this study. This summary addresses some of the primary findings obtained from this study.

Findings

A total of 2,860 individual children received some degree of wraparound services, at a total expense of \$8,327,370 over the five years. The number of children approved to receive these services ranged from a low of 378 children in FY '91, to a high of 1,702 children in FY '95.

A number of children were served in multiple fiscal years. Using the duplicated count of children (5,294), the mean amount expended per child per year was \$1,573. Use of the unduplicated count (2,860), produced an mean cost per child served of \$2,912. The mean length-of-service among these children over the five years was 1.85 years per child and the mean age of children served was 12.65 years old.

Data presented in Table 1 pertain to primary diagnoses of children being served and related expenses for duplicated counts over 5 years. Data are reported for those children's diagnoses with a cumulative frequency greater than or equal to 10 children and a cumulative expense greater than or equal to \$10,000 (categorized as *known diagnoses*). No diagnosis was provided for 995 duplicated children (*no diagnosis*). A total of 325 duplicated children had diagnoses not meeting the criteria described above (*other diagnoses*). ANOVA revealed that a statistically significant difference existed between the category of known diagnoses and the category of no diagnosis with respect to the mean wraparound expense per diagnosis category ($F= 36.21$; $df=1,4963$; $p \leq .001$). Expense for children with known diagnoses was significantly greater than for children with unknown diagnoses. Similarly, ANOVA found a significant

difference between the category of known diagnoses and the category of other diagnoses with respect to mean expense per diagnosis category ($F=42.32$; $df=1,4293$; $p \leq .001$). Expense for children with other diagnoses was significantly greater than for children with a known diagnosis.

A statistically significant positive correlation was found between the mean cost per child and the regional population of children age 0-17 ($r=.78$). As the regional population of children age 0-17 increases, the mean cost per child also increases. A significant relationship, though not as strong, was also found between the regional population of children age 0-17 and the number of children served ($r=.57$). As the regional population of children age 0-17 increases, the number of children

Table 1
Frequency and Expense by Diagnosis

Diagnosis	Total Freq.	Total Expense	Mean Expense
Attention Deficit-Hyperactivity Disorder	1,198	\$1,718,064	\$1,434
Oppositional Defiant Disorder	992	\$1,461,367	\$1,473
Major Depression	564	\$890,598	\$1,579
Conduct Disorder	397	\$588,335	\$1,482
Adjustment Disorder	245	\$388,208	\$1,584
Affective Disorder	217	\$317,873	\$1,465
Schizophrenia	72	\$174,004	\$2,417
Bi-Polar Disorder	68	\$103,117	\$1,516
Tourette's Syndrome	61	\$123,315	\$2,022
Overanxious Disorder	44	\$72,668	\$1,652
Reactive Attachment Disorder	37	\$62,450	\$1,688
Psychosis	43	\$65,736	\$1,933
Attention Deficit	31	\$35,832	\$1,156
Personality Disorder	14	\$25,695	\$1,836
Other Diagnoses	325	\$894,370	\$2,752
No Diagnosis Provided	995	\$1,405,738	\$1,413

Case Management Wraparound Expense

served in a region also increases. A significant relationship was found between the population ranking and service capacity ranking ($r=.71$). As the population ranking increases, the service capacity ranking also increases.

Data contained in Table 2 pertain to age groupings and expense for children served within these age groupings. ANOVA revealed that differences in expense noted for each age category were not statistically significant, i.e., expense per age category was relatively consistent across fiscal years ($F=1.09$; $df=5,5204$; $p=.388$). None of the correlations between age and fiscal year, including totals, were significant. Expense appears to be fairly evenly distributed among age categories. Statistically significant relationships were found between the expense for a given fiscal year and the expense for any other fiscal year ($r \geq .86$ in every instance) by age category. Expense per age category was relatively consistent across fiscal years.

Table 3 constitutes a comparison of expense data for new and carryover clients, both by fiscal year and in total for the five years. New client data pertains to the frequency and expense of children receiving their first year of service. Carryover client data relates to the frequency and expense of children in their second or more year of service. A statistically significant difference was found between the categories of new client and carryover client with respect to expense. Carryover client expense was significantly greater than new client expense.

Data presented in Table 4 pertain to wraparound expense within seven separate billing categories. With the exception of FY '91, more than 50% of all wraparound expenditures each year were in the expenditure category of respite and support.

Discussion

Diagnosis

Expense for children within the category of "other diagnoses" was found to be significantly greater than for children in the category of "known diagnoses." Subsequent investigation found numerous instances of diagnoses with a cumulative frequency of less than 10, but a cumulative expense of far greater than \$10,000. Examples of these low frequency but high expense diagnoses include Autism ($N=9$, mean expense=\$4,213), Pervasive Developmental Disorder ($N=8$, mean expense=\$3,687), Organic Personality Disorder ($N=8$, mean

Table 2
Expense and Age Groupings

Age Grouping	Freq.	Total Expense	Mean Expense
0-4 Years Old	30	\$36,300	\$1,210
5-8 Years Old	591	\$907,098	\$1,535
9-12 Years Old	1,509	\$2,546,294	\$1,687
13-16 Years Old	1,900	\$2,951,277	\$1,483
17-21 Years Old	618	\$954,467	\$1,544
No Age Provided	556	\$931,934	\$1,675

Table 3
New vs. Carryover Client Expense Data

FY Class	New Client Freq.	New Client Total Expense	New Client Mean Expense	Carryover Client Freq.	Carryover Client Total Expense	Carryover Client Mean Expense
'91	378	\$601,247	\$1,591	N/A	N/A	N/A
'92	532	\$831,584	\$1,563	324	\$996,344	\$3,075
'93	553	\$606,335	\$1,096	576	\$1,162,681	\$2,019
'94	512	\$505,143	\$987	720	\$1,113,351	\$1,546
95	885	\$956,688	\$1,081	817	\$1,553,997	\$1,902
Total	2,860	\$3,500,997	\$1,224	2,437	\$4,826,373	\$1,980

expense=\$3,918), and Anorexia Nervosa (N=9, mean expense=\$4,365).

Expense for the category of “no diagnosis provided” was found to be significantly less than for the category of “known diagnoses.” This finding is both surprising and somewhat paradoxical. It is assumed that children in the “no diagnosis provided” category should serve as a quasi-control group and, given the differences found between the other categories, that mean expense for this category should be somewhere between that found for the other categories.

Service Capacity, Cost, and Population

Regional IMPACT program staff in urban areas have argued that while their service capacities may be larger than that of rural regions in terms of number of children served, they are actually comparatively smaller when contrasted with their much larger overall population base. This argument is supported when you consider the ratio between population and service capacity for the 3 most populous regions (1 out of every 271 children

served) and the 3 least populous regions (1 out of every 118 children served). They further contend that this results in greater SED severity levels within their caseload of children accepted for service and, consequently, a higher mean cost per child served.

It has been proposed that the actual cost of accessed services is greater for urban areas than for rural regions, whether due to higher wages, higher levels of service expertise, or other factors. Rural region staff have also suggested that the array of purchasable services is much more limited in their areas, making them more reliant on the exchange of in-kind services between groups and agencies. Regardless of the reasons, it is clear that the mean cost per child served in urban areas is much higher than in rural regions.

Age

Almost three-fourths (73.8%) of all children served were within the age range of 9-16 years old. An almost identical figure (74.3%) is noted regarding the percentage of total expense incurred for children in this same age range. Aside from expense data reported for the small number of children in the 0-4 years old age grouping (N=30), a range of only \$204 is observed between the highest and lowest mean expense age grouping.

**Table 4
Service Categories and Expense**

Service	FY'91 % of Expense	FY'92 % of Expense	FY'93 % of Expense	FY'94 % of Expense	FY'95 % of Expense	% of Total Expense
Evaluations and Consultations	0.5	1.2	1.2	0.2	0.03	0.6
Respite and Support	20.8	55.2	59.9	58.1	55.2	50.3
Overnight Care	2.5	1.7	0.1	1.5	1.3	1.4
Special Purchases	25.1	11.8	13.1	16.6	20.3	17.4
Outpatient Services	24.1	13.0	2.2	1.2	1.1	8.1
Other	20.1	10.4	15.9	13.6	16.3	15.2
Administrative Charge	6.8	6.8	7.6	8.7	5.8	7.0

Case Management Wraparound Expense

New vs. Carryover Client Expense

Carryover children have comprised a significant portion of the IMPACT caseload, both in terms of number of children served and wraparound expense, in every year since FY '92 (the first year in which there could be carryover children). In FY '93, and particularly FY '94, carryover children constituted more than 50% of the total IMPACT caseload. Moreover, cumulative expense for carryover children has ranged 20-120% higher than for new clients in every year since FY '92. Similar differences are also noted concerning the mean expense per child of carryover children as compared with new clients (a range of 57-97% higher). Wraparound funding increases for the IMPACT program were enacted by the Kentucky General Assembly for FY '93 and FY '95. It is suspected that were it not for these increases, which allowed for service capacity expansion and the acceptance of new children for service, the disparity in caseload representation and expense between new and carryover clients would be even more pronounced. The extent to which limited IMPACT resources are obligated to these carryover children is viewed as a matter of critical importance to program planners and administrators.

Service Categories and Expense

As mentioned before, more than 50% of all wraparound expense over this five year period has been for the provision of respite services. The second leading category of expense (17.4%) is that of special purchases. Examples of such purchases include paying utility bills, summer camp fees, karate lessons, and food and clothing purchases for the child and family.

Conclusion

It should be emphasized that this research is solely of a quantitative nature. An effort was made to further identify the general parameters of wraparound expense, and to look at the relationship between wraparound expense and other variables. No portion of the data and findings should be viewed as reflective of "success," whether on a programmatic or individual child basis. Illback's (1995) landmark evaluative study of this same Kentucky IMPACT program found that aspects of wraparound, and particularly the provision of respite/support services, are associated with favorable client and family outcomes. An internal study within Kentucky's Division of Mental Health of this same database also found that parent satisfaction ratings were higher for wraparound and case management than for any other received IMPACT service. Despite this, the relationship between levels of wraparound expense and favorable client outcomes remains to be determined. Further study in this area is recommended.

References

- Illback, R. (1993). *Evaluation of the Kentucky IMPACT program at year five: accomplishments, challenges, and opportunities*. Frankfort, KY: Cabinet for Human Resources.
- Kentucky Division of Mental Health. (1995). *Summary of selected RIAC data for FY 1995*. Frankfort, KY: Cabinet for Human Resources.

Tracking the Costs of Wraparound: Statewide System of Care Expenditures

Introduction

Appropriate treatment for children with the most severe disabilities has long been both a priority and a problem for educators. The problems of such children tend to be complex and multilayered, while services may be unavailable or poorly coordinated (Knitzer, 1993). In education, as in mental health, these children also tend to be served in the most restrictive and cost-intensive settings (Kauffman & Lloyd, 1992). Both the number of children in residential institutions, and the cost of such placements, increased dramatically in the 1980's. Community-based alternatives, using an individualized approach to services (VanDenBerg & Grealish, 1996) have proven to be both effective in providing services (Burchard, Burchard, Sewall, & VanDenBerg, 1993), and cost-effective as compared to residential placement (Dowrick, 1988).

Since 1970, services for Indiana's special education students with the most severe disabilities have been provided under a legislative mandate that funded placements in private residential facilities for students with problems too severe to be addressed by traditional, local-level services. A 1991 legislative amendment allowed funds previously reserved for residential placement to be spent developing alternative services for these students in their communities.

Like the Alaska Youth Initiative (Burchard, et al., 1993), the Indiana Alternative/Residential Services Program redirects state and community resources by providing support for local wrap-

Russell Skiba, Ph.D.

Counseling and Educational Psychology

Nick Vesper

Indiana Education Policy Center

Kwee-Hiong Ong

Counseling and Educational Psychology

Barry Bull, Ph.D.

Educational Leadership & Policy Studies

*Indiana Education Policy Center
Indiana University
2805 East 10th Street, Suite 170
Bloomington, IN 47408
812/855-1240
Fax: 812/855-0420*

around and continuum of care efforts. The program is somewhat unique among system of care efforts in that education has been the lead agency throughout the program's development and implementation. In its first five years, the initiative led to a dramatic shift in placements for the state's special education students with the most severe disabilities. In 1989, 72% of those students were served in out-of-state residential programs; now only 13% are served in those locations. Even with this shift, however, funding for these placements has remained an issue, as costs for students served continue to rise rapidly.

As individualized system of care approaches become more widely-implemented and institutionalized, there can be little doubt that policy-makers will require fiscal accountability of those programs. The purpose of this study was to document the specific costs of services for students served in residential placements and alternative community-based placements. Demographic and risk factor data were also collected with the aim of deriving an overall model to describe the relationship among variables driving the cost of service.

Method

Description of the Program. Subjects for these analyses were drawn from students being served in Indiana's Alternative/Residential Services (ARS), part of the state's mandate for students in special education whose difficulties are such that they cannot be served through traditional services at the local level. Students are referred to the state program by local child service coordinators in conjunction with child and family teams. Through legislative action in 1991, funds from the program may be spent to support either placement in residential treatment, or local wraparound services. Residential treatment refers to inpatient service at either an in-state or out-of-state treatment center or psychiatric hospital. Wraparound services funded

by the program include a range of options, including foster care, group home placement, day treatment, alternative living situations, and living at home¹.

Subjects

In order to transfer money from the state to local districts, local districts contract with the state for each child enrolled in Alternative/Residential Services, to receive funds for either residential treatment or local wraparound services. Data for this study were collected from the 1996-97 contracts of 299 children served by the Alternative/Residential Services; this sample, representing 84% of all students served by the program, were those students for whom contracts were completed by the study cut-off deadline. The sample was overwhelmingly male (80.9%). Unlike the findings of many studies of special education placements, there appeared to be no minority overrepresentation, as compared to the representation of minorities in Indiana: 79% of the students were Caucasian, 11% were African-American, 1% were Native American, and 0.7% were Hispanic. Students' ages ranged from 3 to 22, with a mean age of 14.2 (see Figure 1).

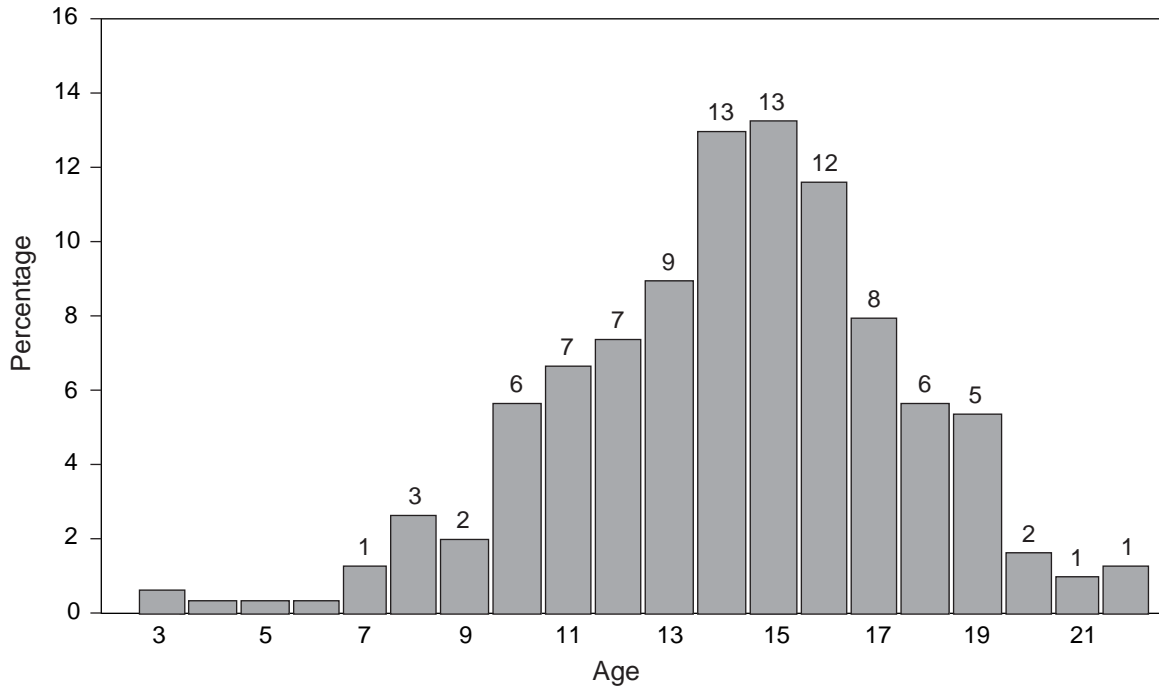
Measures

To facilitate evaluation of the Alternative/Residential Services Program, Center researchers, with Indiana Department of Special Education Division of Special Education staff members, designed a standard coding system to collect data on children and youth served by the program,

¹ Our usage of the term *wraparound* is somewhat broader than the usage preferred by some authors (e.g., VanDenBerg & Grealish, 1996). While the objectives of the local services described here are consistent with wraparound goals of maintaining children and youth in the community through the coordination of local services, the locally developed wraparound programs did not always include procedural components, such as child and family teams or interagency collaboration, often identified with wraparound programming (Burchard & Clarke, 1990).

Tracking the Costs of Wraparound

Figure 1
Distribution of Age of Students Served by the Alternative/Residential Services Program
in Residential Treatment or Wraparound Programs



either in residential placement or local wraparound programs. Items for the coding system were drawn from a number of sources, including a literature review of child-risk factors and services for severely emotionally disturbed youngsters, other national surveys for this population, and previous data collection efforts of the Division of Special Education. Preliminary drafts of the coding system were reviewed by a national consultant, and by child-service coordinators and special education directors from across the state. In its final form, the coding system provided information in three areas: *demographic and descriptive data*; *child and family risk factors*; and *types and costs of specific services*.

Training

A full day of training on the coding system was provided to 75 service providers, including special education directors, child service coordinators,

school psychologists, counselors, and social workers, representing about half of the school districts in the state. To test the reliability of the coding system, Center research associates coded a sample of contracts for children and youth who were served by the program in 1995-96. Of the 101 contracts coded, 50 were assessed for interrater reliability. For the sample of contracts tested, interrater reliability was high, averaging above 90%.

School district representatives completed the coding as part of their application for state funds through Alternative/Residential Services. Accuracy of data was checked by representatives of the State Division of Special Education, and again by representatives of the Indiana Education Policy Center when the data were entered.

Research Questions

As funding issues tend to be among the most difficult of issues to resolve in system of care development (Dollard, Evans, Lubrecht & Schaeffer, 1994), analyses focused primarily on those questions. Four research questions were addressed:

- What are the behavioral and risk characteristics of children who receive wraparound services or residential treatment?
- What types of placements and services are provided most often to alternative/residential students and what are their costs?
- What factors contribute to the overall cost of serving children through alternative/residential services?
- How well are the costs for these services being shared by agencies other than the lead agency, education?

Results

Child/Family Risk Factors

The majority of students in the program were served under the classification of emotional handicap (64%), followed by autism (13%), severe mental handicap (5%), and hearing impairment (4%). The overwhelming majority were male (81%), and about 70% had received a clinical diagnosis, the most common diagnosis being conduct disorder/oppositional disorder (20%), followed by attention deficit disorder (19%), and depression (14%). As can be noted in Figure 2, the most commonly reported risk characteristics identified for students in the Alternative/Residential Services Program were academic underachievement, assaultive behavior, medical problems, and self-abusive behavior. In order to

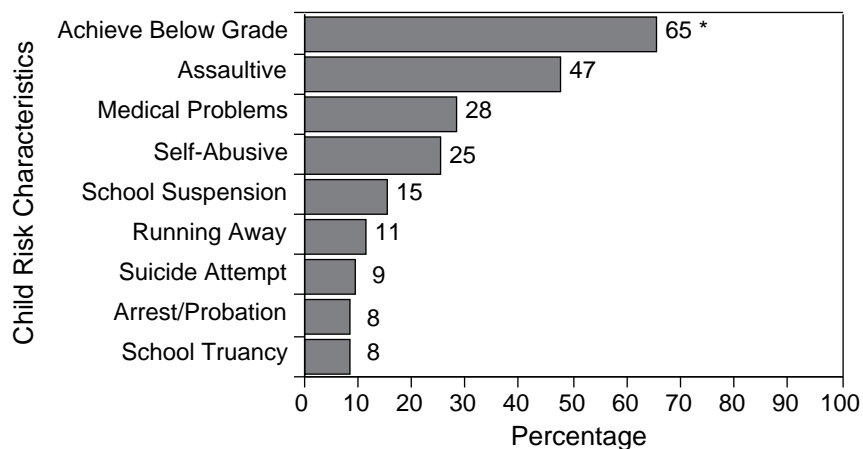
identify groups of risk characteristics and problem behaviors that tend to be associated with one another, a principal component factor analysis was conducted, yielding seven factors: *conduct disorder/acting-out behavior, developmental disability, juvenile delinquency, conduct disorder/covert behavior, medical problems, serious emotional problems, and sexual problems*. Three family risk factors were similarly identified: *dangerous or abusive home situation, unstable family history, and family history of mental illness*.

Types and Costs of Placement/Services

A majority of students in the study— 54% — were served by wraparound programs in the community, 32% were placed in in-state residential programs, and 14% in out-of-state residential programs. The cost of local wraparound programs (about \$33,300 per contract) averages slightly less than half that of in- or out-of state residential placements (about \$75,000 per contract).

The most common services provided to these students included individual, group, and family counseling; case management; and room and board.

Figure 2
Most Commonly Reported Child Risk Characteristics for Students in the Alternative/Residential Services Program



* Note that the single most common risk characteristic is academic underachievement.

Tracking the Costs of Wraparound

The most costly services were room and board, interpreting, and assisted or supported living.

When other agencies contribute to wraparound services or residential programs, their financial contribution could be substantial, averaging up to half the contribution made by Education. Yet a contribution by other agencies to Alternative/Residential Services was documented in fewer than a quarter of the cases.

Overall Relationships Among Variables: Child and Family Risk Factors, Placement, Services, and Cost

The analyses suggested that some child and family risk factors were influential in determining whether children were served through wrap-around programming, or in in-state or out-of-state residential treatment. Children with serious medical problems were more likely to be served through local wraparound programs, $F(2,299)=5.27$, $p < .01$. Children with serious emotional problems, such as depression, tended to be placed in either in-state or out-of-state residential programs, $F(2,299)=7.37$, $p < .001$, as were children with problems of sexual acting-out, $F(2,299)=6.23$, $p < .01$. Children with overt, acting-out conduct problems were most often placed in in-state residential programs, $F(2,299)=11.38$, $p < .001$. Students who scored high on the dangerous home factor tended to be served more frequently in in-state residential settings, $F(2,299)=5.43$, $p < .01$, while students with high scores on the unstable family history factor were more likely to be served with either wrap-around services or in-state residential treatment, $F(2,299)=5.31$, $p < .01$. There were no significant differences involving out-of-state residential programs.

In order to assess the relationship among various factors and their ultimate relationship to cost, a path analysis was conducted. One might assume that both child and family risk factors, as well as placement and services, would drive cost.

The data present a different picture, however. Figure 3 presents a model summarizing the overall findings of the study's analysis, showing the relationships among the child, family, placement, service, and cost variables. There is a strong correlation between child and family risk factors. It is also clear that child (but not family) risk factors are important in determining which services are provided to the child. Yet neither child/family risk factors nor the types of services provided appear to have much direct influence on cost. What is most influential in determining the overall cost of alternative/residential services is the type of placement/service-residential treatment vs. wraparound services.

Conclusions and Implications

The data analyzed in this study suggest that changes in Indiana's Alternative/Residential Services have had a significant impact on restructuring services to the state's most severely disabled students. Out-of-state residential placement, until recently the predominant mode of service delivery, is now used in only a minority of cases.

The primary difficulties for the majority of students supported in these services are emotional and behavioral—in particular acting-out conduct problems. Yet the strongest predictor of total cost is not severity of disability, but rather the decision about whether to serve a child in the local community through wraparound or in residential treatment. Continued attention to strengthening resources at the local level is thus likely to be cost-effective, by enabling local communities to provide services that could avoid more costly residential placements.

The Alternative/Residential Services program has apparently been successful in aiding the development of several key features of individualized services (Burchard & Clarke, 1990; VanDenBerg & Grealish, 1996); in particular, there appear to be clear strengths

in the areas of flexible funding, service coordination, and support for community-based services. Yet, perhaps because education is the only mandated service, the program has yet to develop mechanisms to operationalize a fully collaborative approach across agencies. As a result, the financial contribution of the Indiana Department of Education remains disproportionate. Further analyses in the coming year will continue the search for factors that drive up costs, as well as cost-effective alternatives.

References

Burchard, J. D., Burchard, S. N., Sewell, R., & VanDenBerg, J. (1993). *One kid at a time: Evaluative case studies and description of the Alaska youth initiative demonstration project*. Washington, DC: Georgetown University Child Development Center, CASSP Technical Assistance Center.

Burchard, J. D., & Clarke, R. T. (1990). The role of individualized care in a service delivery system for children and adolescents with severely maladjusted behavior. *Journal of Mental Health Administration*, 17 (1), 87-99.

Dollard, N., Evans, M. E., Lubrecht, J., & Schaeffer, D. (1994). The use of flexible service dollars in rural community-based programs for children with serious emotional disturbance and their families. *Journal of Emotional and Behavioral Disorders*, 2 (2), 117-125.

Dowrick, P. W. (1988). Alaska Youth Initiative. In P. Greenbaum, R. Friedman, A. Duchnowski, K. Kutash, & S. Silver (Eds.), *Children's Mental Health Services and Policy: Building a research base (Vol. 1)*. (pp. 81-85). Tampa, FL: Florida Mental Health Institute, University of South Florida.

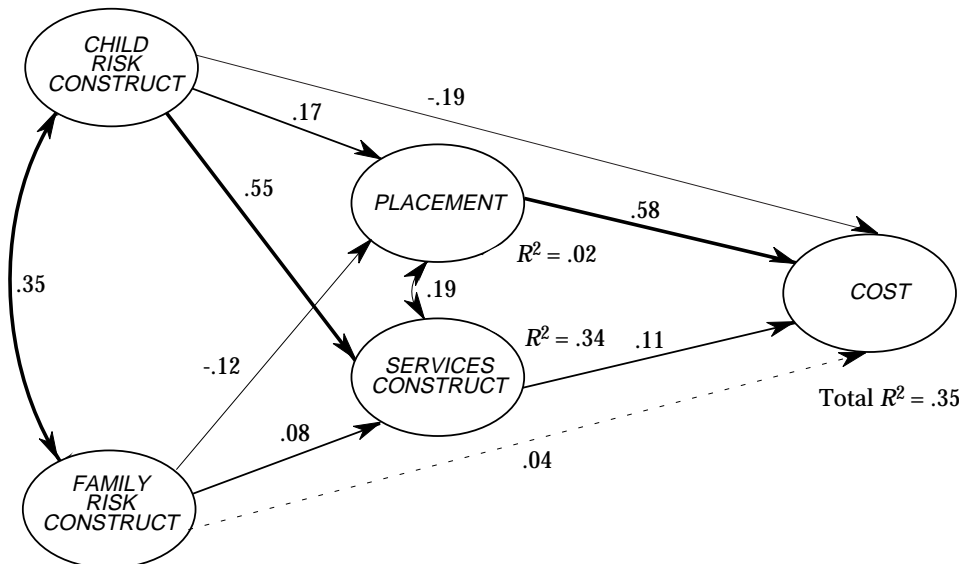
Kauffman, J. M., & Lloyd, J. W. (1992). Restrictive educational placement of students with emotional or behavioral disorders: What we know and what we need to know. *Severe Behavior Disorders Monograph*, 15, 35-43.

Knitzer, J. (1993). Children's mental health policy: Challenging the future. *Journal of Emotional and Behavioral Disorders*, 1 (1), 8-16.

Stroul, B. A., & Friedman, R. M. (1986). *A system of care for children and youth with severe emotional disturbances*. (Rev. ed.). Washington, DC: Georgetown University Child Development Center, CASSP Technical Assistance Center.

VanDenBerg, J. E., & Grealish, E. M. (1996). Individualized services and supports through the wraparound process: Philosophy and procedures. *Journal of Child and Family Studies*, 5, 7-21.

Figure 3
Path Analysis Model Describing Relationships
Between Child and Family Risk Factors, Placement
and Services, and Overall Cost



Note: Degree of boldness of the lines represents strength of the relationship; all paths are significant at .05 except the dotted line.

Child, family, and services constructs represent a weighted composite of factor scores. Placement represents placement in wraparound programs, in-state residential, or out-of-state residential settings. Cost is total dollars spent on the individual's program.

Wraparound Milwaukee: Two Year Follow-up on the Twenty-Five Kid Project

Introduction

This summary describes a pilot project operated under the auspices of the Milwaukee County Mental Health Division as part of a program called Wraparound Milwaukee. Our presentation examined the progress of 25 children with serious emotional disturbances while enrolled in Wraparound Milwaukee and the impact the pilot program has had on other children in the system. The goal of this project has been to test the effectiveness of the Wraparound service approach for reintegrating into the community a group of children with severe emotional problems who were placed in residential treatment centers. These children had very complex needs and histories of serious mental health problems, juvenile justice involvement, poor school attendance and grades; some had histories of frequent runaway behavior.

The design of the services system incorporated a “wrap-around” philosophy and service approach as espoused by John Vandenberg, Mary Grealish and others. This approach focuses on identifying what children and families need, building on their strengths and creating plans of care that are highly individualized, comprehensive in the services available and flexible to meet changing needs. This focus is very different than the traditional categorical approach which creates services or slots and prescribes interventions for children on a “one size fits all” basis. Wraparound Milwaukee staff members believe that families have unique needs and are usually the best judge of what services they need;

Bruce Kamradt, MSW

Director

Children's Mental Health Services

Milwaukee County Mental

Health Division

Mary Jo Kostan, OTR

Assistant Project Director

Wraparound Milwaukee

Vera Pina, MSW

Wraparound Consultant for

Community Partnership

Wraparound Milwaukee

9501 Watertown Plank Road

Wauwatosa, WI 53226

services should be “wrapped around” those needs, built on strengths—not deficits.

Although Wraparound Milwaukee was serving nearly 150 children/families by the end of 1994, not all of the system’s stakeholders were aware of the project, and there was no consensus that the approach would be effective in addressing the complex needs children who were utilizing the most restrictive and costly services, such as residential treatment or inpatient psychiatric hospitalization. The Wraparound Milwaukee Project team also was aware of the need to make the wraparound project’s outcome data available to Child Welfare Agencies, Juvenile Justice, the Courts and Education. The Wraparound Milwaukee team believed that their approach worked, but needed to support its implementation by demonstrating tangible and measurable outcomes.

Method

In collaboration with the Milwaukee County Human Services Department/Youth Services Division (includes Child Welfare and Juvenile Justice services), in June, 1995 the Wraparound Milwaukee project established a pilot project to serve children currently placed in residential treatment. The pilot project enrolled all 25 youths—with no rejections—who were referred by Youth Services. These were children who the Department identified as having no immediate plans for discharge or whom the Youth Services Worker believed could not be returned to the community without a very comprehensive and intensive community plan. Working with the residential centers, the goal was to determine if the wraparound services approach could result in the following:

1. The child being returned to and maintained in their home or other community placement.
2. Improved outcomes for the children returned to the community

3. The children not presenting public safety issues, i.e., committing new delinquent acts
4. Service provision that was less costly than residential treatment placement

Characteristics of the children in the Project:

- All 25 children had severe emotionally disturbances based on CASS and federal criteria
- The Primary DSM-IV Diagnoses were, in order of prevalence: Conduct Disorder, $n= 8$, Attention Deficit, $n= 7$, Oppositional Defiant, $n= 4$, Dysthymic Disorder, $n= 3$, Tourette’s Syndrome, $n= 2$, and Post Traumatic Stress Disorder, $n= 1$
- The ethnic/cultural heritage of the participants was: 13 Caucasians, 11 African Americans, and 1 Hispanic youth.
- The pilot served 16 males and 9 females, whose average age was 14.36 years
- The average length of these children’s placement in the residential treatment facility was 25.72 months, with stays ranging from three months to ten years.
- The challenge presented in successfully developing and maintaining these children in the community is evidenced by the CAFAS scores available for 22 of the 24 children. The distribution of scores related to the extent of overall impairment at time of enrollment was:
 - 10 children 40 - 60 = high level of impairment
 - 8 children 70 - 80 = very high level of impairment
 - 4 children 90 + = extreme level of impairment

Summary of Results

It has been two years since the first of the 25 children started the pilot project, with the average time per participant in the project at 20.18 months. Three children were disenrolled and returned to a CCI or correctional facility within a few months of enrollment.

Wraparound Milwaukee: The Twenty-Five Kid Project

Of the 25 children served in the project, 24 children were returned to the community and received wraparound services through the project. One child with a history of sexual perpetration against younger children and other severe emotional problems has remained in a residential treatment since enrollment.

Living Situation

As of February 1, 1997, 15 children remained enrolled in the pilot project. Of the ten discharges/disenrollments, seven were classified by the families, case managers and project team as being planned successful discharges. Three of these “successful” discharges also occurred as the children turned 18 years of age and could go into independent living. The three unplanned disenrollments occurred early in the project, with two children being placed in juvenile correctional facilities within a few months of enrollment and one child who returned to a residential treatment center.

The living situations of the 25 children originally enrolled in the program are shown in Table 1.

Of the currently enrolled children, 3 children who were returned to a parent or relative placement directly from a residential treatment center were eventually placed in a foster home. One child moved from a foster home to the family home.

School Performance

Most children who returned to a community setting appeared to make strides in school attendance/performance. Three children have now graduated from high school. Five children who were involved in day treatment programs upon reintegration to the community eventually moved into regular

school programs. Three entered regular public school programs and two were enrolled in private “charter” type schools.

Project case managers categorized 21 children as having improved school attendance and school performance from their pre-residential, pre-wrap-around placements. Although this study did not address residential placement’s impact on school performance, project staff members believe that the ability of case managers to find and support appropriate educational placements upon the child’s return to the community has been critical to the youths’ success in these placements.

Service Utilization

Case management was provided in all cases. Individual service options most frequently appearing in the Plan of Care ($N=22$) were:

Mentors	17
Foster care	11
Day treatment	10
Individual or family therapy	10
Intensive in-home therapy	9
Respite care (for family)	6

Mentors, obtained through natural supports and agency providers, served as role models and support for the child and parent; mentor services

Table 1
Living Situation of Enrolled Youth

Living Situation	all youth enrolled (N = 25)	currently enrolled (n = 15)	planned discharges (n = 7)	disenrolled within 3 mos (n = 3)
Home or with relatives	10	6	4	
Foster home	11	7	3	
Residential Treatment Center	2	2		1
Corrections	2			2

were the most frequently requested of all service types. Of particular note, 3 mentors eventually became foster parents for enrolled children.

The average monthly cost of implementing wraparound service plans (based on the average monthly cost per child over the last year) was \$1,463 per month, versus an average residential treatment cost of \$4,700.

Impacts of the Twenty-Five Kid Project

The most consequential impact of the Twenty-Five Kid Project was Milwaukee County Department of Human Services' expansion of the pilot project in order to target the entire population of 350 children placed in residential treatment centers. The plan adopted by the Department was to incrementally enroll these children, as well as to divert other children from placement in residential care. Working with the Director of Child Welfare services, a case rate was negotiated for each enrolled child. At the same time, Wraparound Milwaukee worked with the State's Division of Health to develop a capitation contract for all mental health services. The expansion of the Twenty-Five Kid Project, now named Wraparound II, was officially initiated in May 1996. By February 1997, the enrollment was 140 children/families. The expanded Wraparound II project now has a combined budget of over \$16 million per year.

Lessons learned from the Twenty-five Kid Project

The following are some of the lessons the Project Team learned from the 25 Kid Project.

1. Families do want their children home even if they have been placed in a residential treatment center. Case Managers were often told by parents that no one had asked them about the possibility of their children returning home; or they had never been offered the comprehensive and individualized services that were available through Wraparound Milwaukee.
2. The longer children are placed in residential treatment centers, the more difficult it is to successfully reintegrate the child. Natural resources seem to be harder to find and the parent(s) are more accustomed to the child being out-of home.
3. Development of foster home resources are critical because some children with complex needs no longer have parents who are available or able to take care of them.
4. The needs that parents identify often require services very different from the type of services that are currently available in the system. Parents were more likely to recognize the need for a mentor, respite, re-evaluation, safe and available housing and other non-traditional services, rather than individualized/family therapy or a day treatment program.
5. Cultural Competency is necessary throughout the provider network. Many of the families indicated their needs were not heard by previous service providers.
6. Community safety can be achieved through careful planning, offering the availability/ services of a mobile crisis team and adequately addressing that life domain in the Plan of Care.
7. Highly creative, well trained assertive case managers who are responsible risk takers are a must. These case managers must be given adequate support to assist them in maintaining a necessary strength based approach and a "never give up" attitude.

Applying Wraparound Approaches in Schools: Evaluating Training and Technical Assistance Activities

Introduction

A major aim of the Illinois State Board of Education (ISBE) Emotional and Behavioral Disabilities (EBD) has been to provide technical assistance (TA) and training throughout Illinois to effect the system of care for youth with EBD and their families. Training activities have provided an opportunity to develop an evaluation process and pilot instrumentation to be used to determine the impact of EBD Network activities and guide future training and technical assistance. This summary provides evaluation highlights of a specific TA component, *Applying the Wraparound Process in Schools*, which was targeted for piloting evaluation of TA.

Method

During the 1995-96 school year, 250 persons participated in school-based wraparound training in several sites across the state. This training addressed the application of the wraparound planning process to schools and the integration of school, family, and community strategies through multiple life-domain wrap-around planning. This initial training provided an introduction to the wraparound process and offered specific strategies for use in schools. Personnel who participated in teams which develop and provide services for students with or at-risk for EBD were invited to participate in these initial training activities.

Lucille Eber, Ed.D.
Statewide Coordinator
ISBE EBD Network
La Grange Area Department of
Special Education
1301 W. Cossitt Avenue
La Grange, IL 60525
708/354-5730
Fax: 708/354-0733
lewrap@aol.com

Karen Rolf, M.A.
Evaluation Coordinator
ISBE EBD Network
La Grange Area Department of
Special Education
1301 W. Cossitt Avenue
La Grange, IL 60525
708/354-5730
Fax: 708/354-0733
karenrolf@aol.com

A year later, follow-up TA meetings were offered for those who had been implementing the initial training and providing leadership or technical assistance to others in their schools and/or communities. These follow-up meetings provided participants ($N = 80$) an opportunity to discuss their experiences and challenges in implementing wraparound approaches. Participants also developed specific strategies for supporting others in implementation of wraparound approaches.

A TA Needs Assessment and a survey addressing application of previous TA activities were completed by all participants prior to the follow-up activity. In addition, all participants completed a survey at the completion of the follow-up activity. Descriptive statistics were used to provide basic information about the data. Changes over time were analyzed using paired *t*-tests, and changes between groups were examined by using ANOVAs. Table 1 includes the general evaluation questions addressed by the evaluation activities.

Table 1
Evaluation Questions

- What were the background characteristics of participants at both the initial and follow-up activities?
- What specific aspects of the wraparound approach did participants plan to implement from the initial and follow-up activities?
- What strategies did participants report they would use to implement the process from the initial and follow-up trainings?
- What challenges did participants perceive when implementing those strategies from the initial and follow-up trainings?
- What future technical assistance activities and support do participants report that they needed from both the initial and follow-up trainings?
- How did findings compare between the initial and follow-up trainings?

Results

Initial Training

Out of the 250 participants, 195 completed an Initial Training Evaluation Survey. Table 2 provides descriptive information about the background of participants of the initial training.

The majority reported specific strategies for incorporating the TA into their current practice and role. These included: use of family strengths in planning meetings and pre-referral interventions; needs-driven focus in designing interventions; team development; and informing those in control of the

Table 2
Participant Background

Job Titles	
social worker	33%
administrator, department chairperson, project director, school nurse, teacher aide, therapist	32%
school psychologist	14%
school coordinator	11%
special education teacher	10%
Employment Setting	
school	87%
mental health	6%
unknown or "other"	5%
juvenile justice	1%
child welfare	1%
How informed about wraparound prior to training?	
slightly informed	36%
somewhat informed	33%
not at all informed	16%
very informed	14%

Wraparound in Schools: Evaluating Training and Technical Support

wraparound process. Only 2% reported that they were unsure of how they would begin implementation. Anticipated challenges to implementation were reported as follows: cooperation and resistance of staff (42%); time (34%); program or philosophical differences (6%); and lack of staff (5%).

Respondents reported a variety of future support and learning needs. These included: additional training and seminars (23%), practice (9%), resource development (8%), more school training (8%), continued contact for technical assistance (6%), and getting others involved (6%).

Follow-up TA Activity

The following provides key findings for specific questions included in the evaluation of the follow-up TA activity:

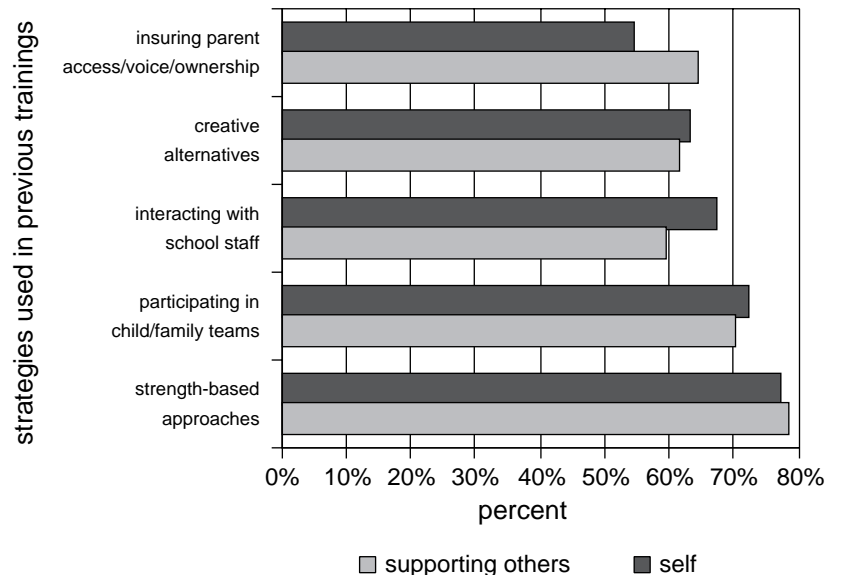
What aspects of the previous training have participants implemented during the past year both in their own work and when supporting others?

Participants reported implementing many of the approaches they said that they would implement after the initial training the previous year, and participants reported using the same aspects of training both in their own role and when supporting others. The training concepts they identified included: using strength-based approaches; participating in child and family teams; interacting with school staff; using creative alternatives; and insuring parent access/voice/ownership. Figure 1 shows the extent of agreement between the professional's use of previous training in both their own role and when supporting others.

What challenges have people faced when implementing the previous TA and training both in their own role and when supporting others? Overall, challenges identified by participants for their own work were very similar to challenges they experience when supporting others (see Table 3). This is not unexpected, since the people they are likely to support are professionals who are working in the same environment.

What changes have participants perceived both in their own role and when supporting others? Although participants tended to provide the same ratings for themselves and support of others in use of previous training and level of challenge, they did not report the same amount of change for themselves and others. For example, 61% reported a high amount of change in their own role when evaluating the effectiveness of the team, but only 27% rated a high change when supporting others. Fifty-three percent of respondents reported a high amount of

Figure 1
Previous Training Used in
Own Role and in Supporting Others



change in their own use of creative resources, while 38% reported a high change in supporting others. Likewise, 61% of the participants reported significant change in their participation in child and family teams, and only 36% reported a high change in the amount of support that they gave to others.

What were the perceived challenges to implementation in participant’s own work and when supporting others? There was no appreciable difference in the challenges participants identified in incorporating strategies in their own work, or when supporting others. In general, participants rated the same challenges to using the follow-up activity that they identified to using the initial TA activity. This suggests that these areas should be targeted to assist people with these implementation challenges.

Participants rated the following as challenges to implementation: time (55%); financial resources (53%); previous training and attitude of staff (40%); and number of staff (38%).

Changes as a Result of the Follow-up TA Activity

Additional analyses were conducted in order to determine the impact of the follow-up TA activity on participant’s implementation priorities for the future. In order to conduct this analysis, information from the survey completed before the follow-up activity (Use of Previous Technical Assistance Assessment) was compared to survey information collected after the TA activity (Planned Use of Today’s Activity). Changes between respondents’ reported use of previous TA over the past year and their planned priorities for the future were examined. These analyses examined both changes in participant’s own roles and the ways that they reported they would support others. The findings reported here are those that were significant at the .05 level or greater. Significant differences were found in both the activities individuals planned in their own role and when supporting others.

**Table 3
Challenges When Implementing
Previous Technical Assistance and Training**

Areas of Challenge	Supporting Others	Own Role
Evaluating effectiveness of work with youth and families	66%	41%
Working with families over time	61%	71%
Evaluating effectiveness of work with teams	61%	54%
Using creative alternatives to service provision	61%	54%
Evaluating the effectiveness of work with youth & families	56%	51%
Accessing resources	56%	50%
Evaluating effectiveness of work with team	54%	52%
Networking with other comity providers	54%	49%
Collaborating with professional from DCFS or child welfare agencies	53%	47%
Developing parent networks	52%	61%
Interacting with school staff	51%	40%
Collaborating with professionals from DMH or mental health agencies	50%	51%

Significant Changes in Own Role

After the day's TA activity, participants reported a higher priority for implementing the activities to insure parent access/voice/ownership than they had previously reported ($t = -2.28$, $p = .04$). Priority for implementing collaboration with both mental health ($t = -2.63$, $p = .02$) and child welfare professionals ($t = -2.45$, $p = .03$) was greater than previously reported, along with priority for evaluating the effectiveness of one's work with the team ($t = -4.57$, $p = .00$). Priority for accessing resources was significantly greater than use of previous TA toward this activity ($t = -4.83$, $p = .00$). Priority for developing parent groups was significantly higher than previous report of use TA in this area ($t = -4.51$, $p = .00$).

Significant Changes in Supporting Others

Priority for supporting others in their collaboration with DMH ($t = -4.04$, $p = .00$) and DCFS ($t = -3.88$, $p = .00$) was significantly higher than reported use of previous TA in these areas. Priority for supporting others in evaluation activities of effectiveness of work with teams ($t = -3.24$, $p = .01$), and effectiveness of work with youth and families ($t = -2.75$, $p = .02$) was significantly greater than use of TA in these areas prior to the day's TA activities. Priority for supporting others regarding accessing the LAN ($t = -3.12$, $p = .01$), accessing resources ($t = -4.22$, $p = .00$), and the development of parent groups ($t = -3.70$, $p = .00$) were significantly higher than reports of previous use of TA in these areas.

Implications for Future TA Activities

It is clear from these analyses that all individuals attending the Applying Wraparound in Schools TA activities could identify specific strategies for implementation as a result of the activity. It was also found that individuals tend to support others in their work in the same areas that they focus on for implementation in their own work. With respect to

challenges, individuals report financial resources, time and attitudes of staff as challenges to implementation. It may be useful to target future TA activities to address these challenges. Interestingly, people report more change in their own work than perceived change in supporting others. More information regarding this finding could be explored in future survey work.

One of the most interesting findings, from the pre-and post-testing conducted at the follow-up activity, is that participants in the follow-up training changed their reported focus for future efforts as a result of a one-day follow-up TA activity. As reported earlier, participants reported significant differences in the areas they would apply TA after the follow-up activity than what they had reported using during the past year. This finding suggests that providing on-going TA can significantly influence where participants focus future activities.

Implications for Future Evaluation Activities

As before stated, participants could identify specific strategies for implementation as a result of the TA activity. Although individuals have been working with and supporting others to apply the wraparound process, they identify many areas of need for additional TA. Almost all of the areas listed were rated as high needs for the participants. Additionally, participants reported that they will increase their use of TA in both their own work and when supporting others. This finding suggests that individuals have continued needs for TA and will change their focus for applying TA after a follow-up training opportunity.

The piloting of these instruments has been useful in providing information about both the content and the length of instrumentation. Additional information about needs could also be gathered from follow-up interviews or a focus

group. The evaluation approach could also be modified by selecting a sample of participants to interview over the telephone before and after the initial training to determine implementation, challenges, and needs for future TA.

Applying Behavior Analysis Within the Wraparound Process

Introduction

The “wraparound process” (VanDenBerg and Grelish, 1996) has emerged as a promising community-based alternative for effectively treating children and adolescents exhibiting severe emotional or behavioral disturbances. By definition, each wrap-around service plan should be unique and distinguishable from other wraparound plans. This essential feature has thwarted rigorous methodological efforts to study the effectiveness of the wraparound approach. By definition, the independent variable (i.e., wraparound services) cannot be defined precisely and held constant across subjects. Group design studies in this area are methodologically flawed from their onset if the wraparound process is truly followed.

The current study was an effort to evaluate the wraparound process on a more rigorous level methodologically by utilizing a multiple baseline design across subjects as well as behaviors (Baer, Wolf, & Risely, 1968; Poling, 1995).

Method

Setting

The study took place in rural St. Joseph County (population 59,000) located in southwest Michigan. A three tiered county governance system was established to implement the wrap-around process. It consisted of: 1) an executive level group of county leaders to set policy; 2) a “community team” of top level

Michael J. Myaard, Ph.D.
Director of Children's Services
Community Mental Health
of St. Joseph County
210 S. Main
Three Rivers, MI 49093
616/273-5000
Fax: 616/273-9456

Myaard

administrators from the child serving agencies and schools, parents, and community representatives that managed the initiative and served as gatekeepers; and 3) individual child and family teams specific to each participant.

Subjects

A clinical trials approach was used to select four adjudicated youth ages 14-16. Each participant was considered a severe safety risk to the community and was at imminent risk of residential placement. Each youth had a Child and Adolescent Functional Assessment Scale (CAFAS: Hodges, 1994) score of 100 at referral and also met criteria for the diagnosis of "conduct disorder." Table 1 shows a partial list of problem behaviors across the subjects.

Dependent Variable

The Daily Adjustment Indicator Checklist (DAIC) from the Vermont System of Tracking Client Progress (VSTCP: Bruns and Woodworth, 1994; Bruns, Froelich, & Burchard, 1994) was utilized as the primary dependent measure. It was collected on a continuous basis throughout the study.

Interobserver agreement data were obtained via paraprofessionals who worked 8 or more hours per day with Subjects 1, 2, and 3. Subject 4 did not have a paraprofessional worker and subsequently has no reliability data. Interobserver agreement was calculated using the interval agreement method described by Page and Iwata (1986).

The CAFAS was sampled 90 days prebaseline and quarterly thereafter including a 90 day follow-up period.

The total expenses for each wrap-around plan were tallied each month. These expenses included a breakdown of all the categorical services offered (all

worker costs per hour across agencies were gathered) as well as any individualized services and expenses that became part of the plans. Total wraparound costs were compared to projected psychiatric/residential costs (had the subject actually gone into placement).

Independent Variable

The wraparound process set forth by VanDenBerg and Grelish (1996) was followed. Each of the service plans derived from the process will be partially described below.

Subject 1's Plan

- Psychological/behavioral domain– intensive behavioral programming within the home and community implemented by a paraprofessional aide, strict court imposed consequences for probation and behavior plan violations, family problem solving and negotiation, and robust reinforcement contingencies.
- Safety domain–initial 24 hour supervision for several weeks then extensive monitoring that was gradually faded, a tether, and crisis planning for the parents.

Table 1
Problem Behaviors Across Participants

Problem Behaviors	Youth 1	Youth 2	Youth 3	Youth 4
Auto theft	X	X	X	
Physical assaults	X	X	X	
Chronic substance abuse	X	X	X	
Firearm theft and possession	X	X		
Serious property destruction	X	X	X	
Breaking and entering	X	X	X	
School failure and refusal	X	X	X	X
Extreme noncompliance	X	X	X	X
Extensive peer and adult relationship problems	X	X	X	X
Criminal sexual misconduct				X

Applying Behavior Analysis within the Wraparound Process

- Educational domain—an individual school aide, behavioral programming in the school, and extensive tutoring.
- Recreational domain—guitar lessons, Tae Kwon Do, various social and sporting activities, and transportation.
- Vocational domain—odd jobs were found to help pay off restitution.

Subject 2's Plan

Subject 2's plan was very similar but not as intensive as the above plan. It included:

- Psychological/behavioral domain—intensive behavioral programming within the home and community implemented by a paraprofessional aide, strict court imposed consequences for probation and behavior plan violations, family problem solving and negotiation, and robust reinforcement contingencies.
- Safety domain—initial 24 hour supervision for four weeks then extensive monitoring that was gradually faded and crisis planning for the parents.
- Educational domain—behavioral programming in the school and extensive tutoring.
- Recreational domain—“trick” bike equipment, Tae Kwon Do lessons [earned a brown belt], various social and sporting activities, and transportation.
- Vocational domain—a 20 hour per week job in the fast food industry to pay restitution and recreational expenses.

Subject 3's Plan

Subject 3's team arrived at a plan very similar to the plan described above with the exception of a school aide in the educational domain and the same recreational activities exchanging baseball for biking.

Subject 4's Plan

Parental rights were terminated for Subject 4's biological parents.

- Residential domain—a treatment foster home was utilized.
- Safety domain—an extensive and initially restrictive plan was developed, implemented and subsequently faded within the home and community as the youth earned “trust” around sexual offending issues.
- Social domain—an older “friend” was found who shared interests in computers and mathematics. Initially chaperoned school and community activities were established as well.
- Medical domain—a psychiatrist worked with Subject 4 to gradually reduce and eliminate the extensive regime of psychotropic medication previously prescribed from inpatient settings.

Integrity of the Independent Variable

To measure the integrity of the independent variable, a team of three consultant/trainers in the area of wraparound services from the Community Partnership Group reviewed each case after the first three months of service delivery. They were asked: (1) Is this a representative example of a wraparound case? (2) Is this a representative example of a child and family team? (3) Was the process used to develop the service plan representative of the wraparound model? (4) Was this a representative wraparound plan? and (5) Were the expenditures for services in this case representative of this type of service plan?

The consultants answered yes to all the questions across all four subjects.

Results

VSTCP data were transformed into line graphs to allow easier visual inspection of the data. Figure 1 depicts the effects of each of the individual wrap-around service plans on compliance as measured by the VSTCP. Figures 2 and 3 depict the effects of each of the individual wraparound service plans on peer interactions and physical aggression. Although not shown here due to space restraints, data were also plotted for alcohol and drug use, and extreme verbal abuse as measured by the VSTCP.

With Subjects 1-3 paraprofessional aides were present in the homes for at least eight hours per day throughout the course of the study; these aides served as the reliability observers. Subject 4 did not have an aide involved in his plan; interobserver agreement was not obtained with Subject 4. Interval agreement (Page & Iwatta, 1986) was calculated using the following formula: $\frac{\text{agreements}}{\text{agreements} + \text{disagreements}} \times 100$. It can be seen from Table 2 that interobserver agreement ranged from 60-100%.

As an additional measure, Figure 4 depicts the levels of functional impairment measured by the CAFAS across the course of the study. Table 3 presents a detailed account of the financial expenditures involved with all four wraparound plans and compares them to predicted placement costs.

Discussion

As can be seen from Figures 1-4, clear and convincing changes were immediately obtained and consistently maintained contingent upon the implementation of wraparound services across all subjects.

There are several reasons why the changes were so distinct. Rosenblatt (1996) emphasizes that both the strength and the integrity of the wraparound services must be insured in any evaluation of the process. All of the elements of the wraparound process described by VanDenBerg and Grelish

(1996) were present in this system at sufficient strength. Additionally, the particular social and philosophical values of the families were observed and respected through the process; parents were treated as partners. The wraparound teams also had access to immediate flexible funds if needed and there was excellent collaboration between agencies within the county.

Behavior analysis played a critical role in the success of all cases. The specific behavior plans employed robust contingencies. The plans were simple to implement but employed more powerful consequences than parents normally would have on hand.

Most subjects exhibited either very high or low rates on several dependent measures during baseline conditions. They were appropriate candidates for wraparound services who were truly at risk of placement at the onset of the study. When youngsters similar to these reach the point of being at risk of placement, the areas of compliance, peer interactions, physical aggression, alcohol/drug use, and extreme verbal abuse are typically high. A clinical trials approach was used in subject selection. If the mix of the subjects presented with varied patterns of problem behaviors, the results may not have been as distinct. There was a certain amount of "luck of the draw" involved in getting fairly homogenous subjects.

On the whole this study demonstrated that the wraparound process, when implemented with integrity and strength, can result in substantial changes that persist over time. Clearly, more rigorous single subject replication studies are needed with this population before conclusive statements can be made with any degree of confidence. This study represents an initial attempt at using a multiple baseline design to evaluate the wraparound process. The "one-kid-at-a-time" wraparound process appears to be well suited to this particular single-case design.

Applying Behavior Analysis within the Wraparound Process

Figure 1
Number of Days Per Week with 85% or Greater Compliance

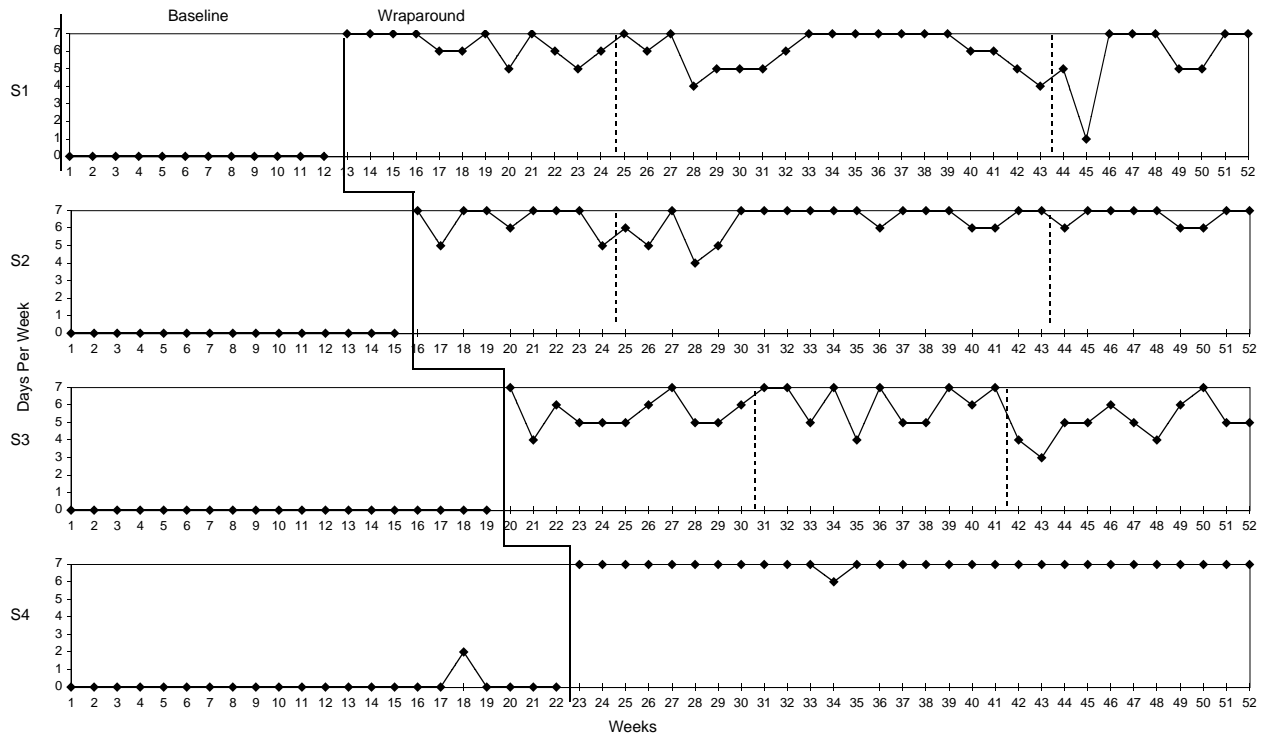
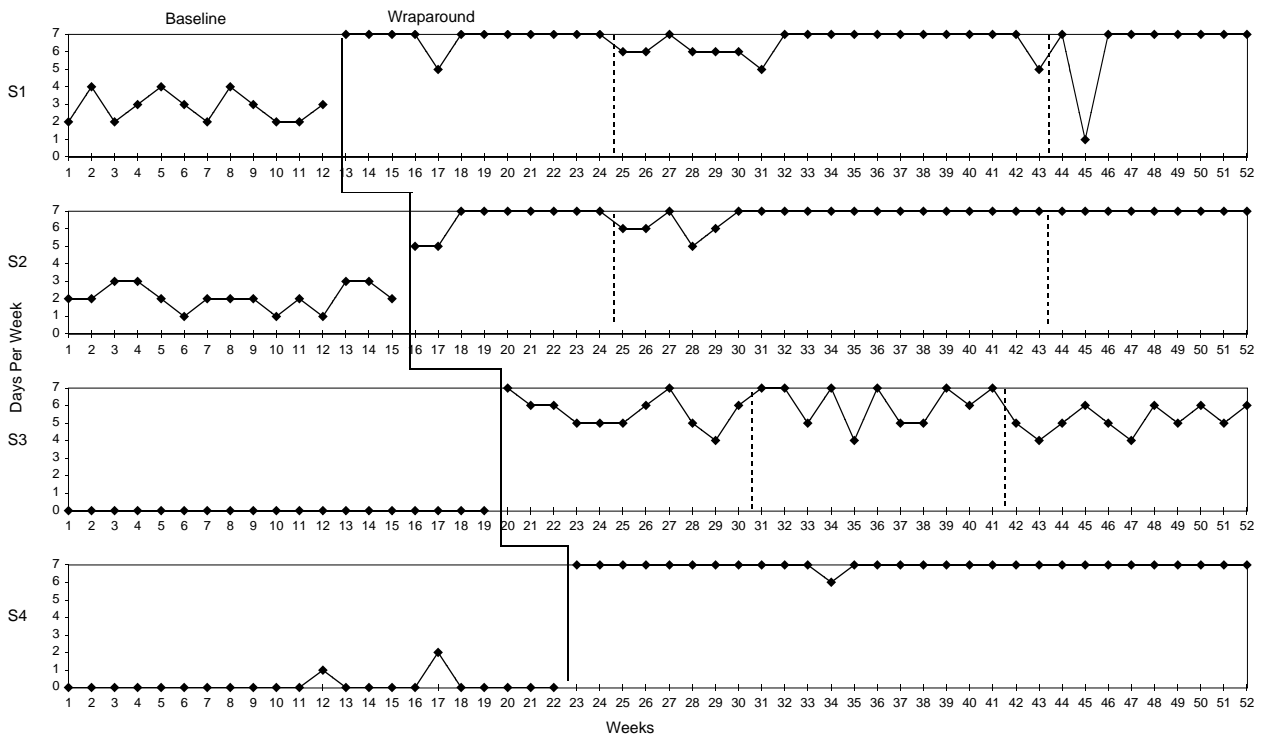


Figure 2
Days Per Week With Appropriate Peer Interactions 85% of the Time or Greater



Applying Behavior Analysis within the Wraparound Process

References

Baer, D. M., Wolf, M. M. & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91-97.

Bruns, E. J., Froelich, P., and Burchard, J. D. (1994). Toward improved outcomes for children's mental health: Vermont system for tracking client progress data entry and graphing programs. In C. Liberton, K. Kutash, & R. Friedman (Eds.), *The 7th annual conference proceedings, a system of care for children's mental health: Expanding the research base*. (pp. 75-77). Tampa, FL: University of South Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Table 2
Interobserver Agreement

Bruns, E. J., Woodworth, K., Froelich, P. K. & Burchard, J. D. (1994). *User's manual to the Vermont system for tracking Progress data entry and graphing programs for the creation of multi-axial life events timelines and behavioral adjustment tracking graphs*. Burlington, Vermont: University of Vermont.

Hodges, K. (1994). Manual for the Child and Adolescent Functional Assessment Scale. Unpublished manuscript.

Page, T. J. & Iwata, B. A. (1986). Interobserver agreement: History, theory, and current methods. In A. Poling & R. W. Fuqua (Eds.), *Research methods in applied behavior analysis: Issues and advances*. (pp. 99-126). New York: Plenum Press.

		Subject 1				
		Compliance	Peer Interaction	Aggression	Drug/Alcohol	Verbal
	Week 15	100%	100%	100%	100%	100%
	Week 18	80%	100%	80%	100%	100%
	Week 23	100%	100%	100%	100%	100%
	Week 26	80%	80%	100%	100%	100%
	Week 29	100%	100%	100%	100%	100%
	Week 32	100%	100%	100%	100%	100%
	Week 35	100%	100%	100%	100%	100%
	Week 42	100%	100%	100%	100%	100%
	Week 43	80%	100%	100%	100%	80%
	Week 48	80%	100%	100%	100%	100%
	Week 52	100%	100%	100%	100%	100%

		Subject 2				
		Compliance	Peer Interaction	Aggression	Drug/Alcohol	Verbal
	Week 15	100%	100%	100%	100%	100%
	Week 18	100%	100%	100%	100%	100%
	Week 23	100%	100%	100%	100%	100%
	Week 26	80%	80%	100%	100%	100%
	Week 29	80%	80%	100%	100%	100%
	Week 32	100%	100%	100%	100%	100%
	Week 35	100%	100%	100%	100%	100%
	Week 42	100%	100%	100%	100%	80%
	Week 43	80%	100%	100%	100%	80%
	Week 48	100%	100%	100%	100%	100%
	Week 52	100%	100%	100%	100%	100%

		Subject 3				
		Compliance	Peer Interaction	Aggression	Drug/Alcohol	Verbal
	Week 36	100%	100%	100%	100%	100%
	Week 40	100%	100%	100%	100%	100%
	Week 47	80%	100%	60%	100%	60%
	Week 50	80%	60%	100%	100%	60%
	Week 53	80%	80%	80%	100%	100%

Myaard

Poling, A., Methot, L. L. & Leage, M. G. (1995). *Fundamentals of behavior analytic research*. New York: Plenum Press.

Rosenblatt, A. (1996). Bows and ribbons, tape and twine: Wrapping the wraparound process for children with multi-system needs. *Journal of Child and Family Studies*, 5, 101-116.

VanDenBerg, J. & Grelish, E. M. (1996). Individualized services and supports through the wraparound process: Philosophy and procedures. *Journal of Child and Family Studies*, 5, 7-21.

Table 3
Cost Comparisons Between Wraparound Services and Projected Placement Costs

Subjects 1 and 2										
	March	April	May	June	July	August	September	October	November	December
Individualized Service Cost	\$2,522.00	\$4,459.00	\$4,051.00	\$3,852.67	\$5,451.88	\$6,681.75	\$7,369.03	\$3,729.00	\$4,074.00	\$2,430.00
Agency Personnel Cost	\$1,317.76	\$1,139.79	\$1,098.72	\$1,043.96	\$1,126.10	\$1,071.34	\$1,043.96	\$1,071.34	\$1,043.96	\$1,153.48
Total Wraparound Cost	\$3,839.76	\$5,598.79	\$5,149.72	\$4,896.63	\$6,577.98	\$7,753.09	\$8,412.99	\$4,800.34	\$5,117.96	\$3,583.48
Predicted Placement Cost--subject 1	\$4,805.00	\$4,650.00	\$4,805.00	\$4,650.00	\$4,805.00	\$4,805.00	\$4,650.00	\$4,805.00	\$4,650.00	\$4,805.00
Predicted Placement Cost--subject 2	\$4,805.00	\$4,650.00	\$4,805.00	\$4,650.00	\$4,805.00	\$4,805.00	\$4,650.00	\$4,805.00	\$4,650.00	\$4,805.00
Total Placement Cost	\$9,610.00	\$9,300.00	\$9,610.00	\$9,300.00	\$9,610.00	\$9,610.00	\$9,300.00	\$9,610.00	\$9,300.00	\$9,610.00
Cost Totals--During Wraparound										
Individualized Service Cost	\$44,620.33		Predicted Placement Cost			\$94,860.00				
Agency Personnel Cost	\$11,110.41		Total Wraparound Cost			\$55,730.74				
Total Wraparound Cost	\$55,730.74		Total Cost Savings			\$39,129.26				
Subject 3										
	March	April	May	June	July	August	September	October	November	December
Individualized Service Cost	\$350.00	\$4,071.00	\$6,929.39	\$5,400.00	\$7,899.75	\$5,968.33	\$2,197.06	\$3,634.00	\$1,257.50	\$960.00
Agency Personnel Cost	\$296.38	\$1,177.79	\$1,209.02	\$1,167.96	\$1,293.32	\$1,061.21	\$1,134.73	\$1,057.42	\$1,087.74	\$1,034.68
Total Wraparound Cost	\$646.38	\$5,248.79	\$8,138.41	\$6,567.96	\$9,193.07	\$7,029.54	\$3,331.79	\$4,691.42	\$2,345.24	\$1,994.68
Total Placement Cost	\$2,632.00	\$11,280.00	\$11,280.00	\$4,650.00	\$4,805.00	\$4,805.00	\$4,650.00	\$4,805.00	\$4,650.00	\$4,805.00
Cost Totals--During Wraparound										
Individualized Service Cost	\$38,667.03		Predicted Placement Cost			\$58,362.00				
Agency Personnel Cost	\$10,520.25		Total Wraparound Cost			\$49,187.28				
Total Wraparound Cost	\$49,187.28		Total Cost Savings			\$9,174.72				
Subject 4										
	March	April	May	June	July	August	September	October	November	December
Individualized Service Cost		\$1,605.50	\$2,025.00	\$2,365.00	\$2,325.00	\$2,635.40	\$2,250.00	\$1,500.00	\$1,600.00	\$1,550.00
Agency Personnel Cost		\$546.27	\$546.27	\$423.06	\$477.82	\$450.44	\$450.44	\$450.44	\$505.20	\$450.44
Total Wraparound Cost		\$2,151.77	\$2,571.27	\$2,788.06	\$2,802.82	\$3,085.84	\$2,700.44	\$1,950.44	\$2,105.20	\$2,000.44
Total Placement Cost		\$6,900.00	\$7,130.00	\$6,900.00	\$7,130.00	\$7,130.00	\$6,900.00	\$7,130.00	\$6,900.00	\$7,130.00
Cost Totals--During Wraparound										
Individualized Service Cost	\$17,855.90		Predicted Placement Cost			\$63,250.00				
Agency Personnel Cost	\$4,300.38		Total Wraparound Cost			\$22,156.28				
Total Wraparound Cost	\$22,156.28		Total Cost Savings			\$41,093.72				