PREDICTORS OF IMPROVEMENT FOR CHILDREN SERVED IN DEVELOPING SYSTEMS OF CARE

Betty Walton

Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Doctor of Philosophy
in the School of Social Work
Indiana University

August 2006

Accepted by the Faculty of Indiana University, in partial
fulfillment of the requirements for the degree of Doctor of Philosophy.

William P. Sullivan, Ph.D., Chair

Doctoral Committee

William Barton, Ph.D.

April 6, 2006

Gerald Powers, Ph.D.

Ann M. Holmes, Ph.D.

ABSTRACT

Betty Walton

Predictors of Improvement for Children Served In Developing Systems of Care

The research base regarding the effectiveness of systems of care for children with serious emotional disturbances is limited. The incremental development of systems of care in Indiana provides an opportunity to compare the outcomes of children served in these child and family wraparound teams with the outcomes of a matched sample of children receiving usual public mental health services. Functional assessment data from a state database was examined using logistic regression models. The level of development of wraparound services was used as a fidelity measure.

Findings suggest circumstances in which systems of care are effective. Children with impairments related to affective disorders who are served through child and family teams with high wraparound fidelity are more likely to experience improvements than children served in usual services. Similar youth served by intermediately developed wraparound teams are predicated to do less well than children served in usual services. However, abused children in intermediate systems of care are predicted to have improvements in community functioning and experience less subsequent abuse. Most youth with disruptive behaviors, other than Hispanic youth, improve in wraparound teams. Families of children who live with their biological parents are more likely to improve than families whose children live in foster care, with extended family, or in out-of-home placements. Youth with serious emotional disturbance who use drugs or alcohol have poorer outcomes in wraparound.

Implications include targeting systems of care to subpopulations of children and families for whom there is evidence of greatest effectiveness. Results also indicate that additional training in effective treatment for affective disorders or higher levels of integration of care coordination with effective clinical services may be necessary to improve outcomes for developing systems of care. Integrated models of care may be needed for youth with co-occurring disorders. Additional attention to developing linguistic and cultural competence within wraparound services may be required to effectively serve the growing Hispanic community.

William P. Sullivan, Ph.D., Chair

DEDICATION

To my Mother

ACKNOWLEDGEMENTS

My Family
Bill, Sandy, Andi, Kaden, & Alex

Staff and Colleagues
Indiana Family & Social Services Administration
Division of Mental Health and Addiction

Center for Behavior Health

Indiana's Systems of Care Partners

Indiana Colleagues in Child Community Mental Health Research
Vicki S. Effland, PhD
Anthony Lawson
Janet McIntyre, M.A.
Thomas Pavkov, PhD
Eric Wright, PhD

Dissertation Committee
William P. Sullivan, PhD
William Barton, PhD
Ann Holmes, PhD
Gerald Powers, PhD

TABLE OF CONTENTS

List of Tables.....vi

List of Figures.....x

Abbreviations.....xii

Introduction 1

Chapter One

Children's Mental Health: Need, Policy, and Practice.....4

Chapter Two

Theories of Change in a Child Mental Health Research Context.....41

Chapter Three

Indiana's Emerging Systems of Care: Theory of Change.....51

Chapter Four

Methodology.....58

Chapter Five

Findings.....97

Chapter Six

Discussion.....128

Appendices.....156

I. Tables.....157

II. Figures.....211

III. Developmental Stage "Fidelity Documents.....227

IV. Hoosier Assurance Plan Instrument for Children (HAPI-C).....243

References.....251

Curriculum Vitae

LIST OF TABLES

Table 1. Specific Measures of Outcome Domains

Table 2. Evidence Base for Comprehensive Interventions: System of Care Components

Table 3. Analysis of System of Care Studies

Table 4. Wraparound: Essential Elements and Practice Guidelines

Table 5. Analysis of Wraparound Studies

Table 6. Comparable Stages of Change

Table 7. Profiles of Persons Served by Age, Gender and Race

Table 8. HAPI-C: Domains, Factors, and Items

Table 9. Analysis of Level of Functioning Factors Hoosier Assurance Plan Instrument for Children (HAPI-C)

Table 10. Conversion of Scores to Functional Ratings

Table 11. Conversion of LOF Impairment Ratings to Single LOF Rating

Table 12. Comparison of Levels of Function Usual Service Population and Systems of Care

Table 13. Levels of Functioning for Children Comparison for Different Levels of Development of Systems of Care

Table 14. Modified ROLES

Table 15. ROLES: Comparison of Children in General Population and System of Care Sample, SFY2004

Table 16. Levels of Development of the Systems of Care

Table 17. Summary of Diagnostic Codes for Sample Populations

Table 18. Demographic Characteristics of Matched Samples at Time of Enrollment

Table 19. Matched Samples Characteristics at Time of Enrollment

Table 20. Comparison of Baseline Level of Functioning (LOF) Domains for Each Sample (n=772)

Table 21. Means and Standard Deviations for Systems of Care at Four Levels of Wraparound Service Delivery Development and Baseline Functional Variables

Table 22. Comparison of Baseline Level of Functioning (LOF) Domains for LOD2 and LOD3 (n = 334)

Table 23. Distribution of Independent Variables

Table 24. Comparison of ROLES for Matched Samples

Table 25. Percent Improvement in A, F, G, H, I, AFGHI, C, D & L

Table 26. Intercorrelations for Improvements in Functioning Related to Affective Symptoms (A) (-16 outliers)

Table 27. Logistic Model to Predict the Likelihood of Improvements in Functioning Related to Affective Symptoms (A) (- 16 outliers)

Table 28. Intercorrelations for Improvements in Community Functioning Related to Thinking (F) (-11 outliers)

Table 29. Logistic Model to Predict the Likelihood of Improvements in Community Functioning Related to Thinking (F) (- 11 outliers)

Table 30. Intercorrelations for Improvements in School Functioning (H) (Model A) (-16 outliers)

Table 31. Logistic Model to Predict the Likelihood of Improvements in School Functioning (Model A) (H) (-16 outliers)

Table 32. Intercorrelations for Improvements in Disruptive Behavior (I) (Model A) (-13 outliers)

Table 33. Logistic Model to Predict the Likelihood of Improvements in Disruptive Behavior (Model A) (-13 outliers)

Table 34. Intercorrelations for Improvements in Wellbeing (AFGHI) (Model A) (-16 outliers)

Table 35. Logistic Model to Predict the Likelihood of Improvements in Wellbeing (AFGHI) (Model A) (-16 outliers)

Table 36. Intercorrelations for Improvement in Wellbeing (AFGHI) (Model B) (-12 outliers)

Table 37. Logistic Model to Predict the Likelihood of Improvement in Wellbeing (AFGHI) (Model B) (-12 outliers)

Table 38. Intercorrelations for Improvement in Child Abuse (C) (-9 outliers)

Table 39. Logistic Model to Predict the Likelihood of Improvement in Child Abuse (C) (-9 outliers)

Table 40. Intercorrelations for Improvement in Neglect (D) (-14 outliers)

Table 41. Logistic Model to Predict the Likelihood of Improvement in Neglect (D) (-14 outliers)

Table 42. Intercorrelations for Improvements in Family Functioning Predictor Variables (G) (-12 outliers)

Table 43. Logistic Model to Predict the Likelihood of Improvement in Family Functioning (G) (-12 outliers)

Table 44. Intercorrelations for Improvements in Level of Reliance on Mental Health Services (L) (-10 outliers)

Table 45. Logistic Model to Predict the Likelihood of Improvement in Level of Reliance on Mental Health Services (L) (-10 outliers)

Table 46. Significant Predictors of Improvement Across Logistic Regression Analyses (Odds Ratios)

LIST OF FIGURES

Figure 1. Estimated Percent of Indiana Children 9-17 with Significant and Extreme Functional Impairments

Figure 2. S-shaped Curve of Hybrid Seed Corn

Figure 3. Logic Model Template

Figure 4. Indiana's Child Developing Child Mental Health Services

Figure 5. Map of Developing Systems of Care

Figure 6. Variable Map

Figure 7. Profile of Time between Assessments

Figure 8. Age: SOC

Figure 9. Age: Usual Services

Figure 10. Time, SOC

Figure 11. Time, Usual Services

Figure 12. Gender, SOC

Figure 13. Gender, Usual Services

Figure 14. Race Summary, SOC

Figure 15. Race Summary, Usual Services

Figure 16. Ethnicity, SOC

Figure 17. Ethnicity, Usual Services

Figure 18. System Functioning, SOC

Figure 19. System Functioning, Usual Services

Figure 20. ROLES Summary, SOC

Figure 21. ROLES Summary, Usual Services

Figure 22. LOD System, SOC

Figure 23. LOD Services, SOC

Figure 24. Affect, SOC

Figure 25. Affect, Usual Services

Figure 26. Abuse, SOC

Figure 27. Abuse, Usual Services

Figure 28. Neglect, SOC

Figure 29. Neglect, Usual Services

Figure 30. Thinking, SOC

Figure 31. Thinking, Usual Services

Figure 32. Family, SOC

Figure 33. Family, Usual Services

Figure 34. School, SOC

Figure 35. School, Usual Services

Figure 36. Disruptive Behavior, SOC

Figure 37. Disruptive Behavior, Usual Services

Figure 38. Substance Use, SOC

Figure 39. Substance Use, Usual Services

Figure 40. Reliance on Mental Health Services, SOC

Figure 41. Reliance on Mental Health Services, Usual Services

Figure 42. Wellbeing, SOC

Figure 43. Wellbeing, Usual Services

Figure 44. Family Improvement, SOC

Figure 45. Family Improvement, Usual Services

ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
CAFAS	Child and Adolescent Functional Assessment Scale
CASSP	Child and Adolescent Social Services Program
CMHC	community mental health center
CMHS	Center for Mental Health Services
CSDS	Community Service Data System
CWLA	Child Welfare League of America
DHHS	United States Department of Health and Human Services
DMH	Division of Mental Health (prior to merger with addiction services)
DMHA	Division of Mental Health and Addiction
DSM-IV	*Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition*
EBP	evidenced based practice
GAF	Global Assessment of Functioning
HAP	Hoosier Assurance Plan
HAPI-C	Hoosier Assurance Plan Instrument for Children
IAC	Indiana Administrative Code
IFSSA	Indiana Family and Social Service Administration
LOD	level of development
LOF	level of functioning
MHSIP	Robert Wood Johnson Foundation Mental Health Systems Improvement Project
MRO	Medicaid Rehabilitation Option
NAMHWC	The National Advisory Mental Health Council Workgroup on Child and Adolescent Health Development and Deployment

ROLES	Restrictiveness of Living Environment Scale
SAMHSA	Services Substance Abuse and Mental Health Services Administration
SED	serious emotional disturbance
SOC	systems of care
SPCES	Spheres of Influence on Child Mental Heath outcomes model
SPIFY	Service Process Inventory for Families and Youth
WFI	Wraparound Fidelity Index
WFO	Wraparound Observation Form
-2LL	Log-Likelihood

Introduction

In 1986, systems of care for children with complex needs were envisioned by the Child and Adolescent Social Service Program (CASSP) (Stroul & Friedman, 1986b). Almost twenty years later, systems of care based on CASSP values and principles, have developed across the United States, spurred by federal policy and funding initiatives (Manteuffel, Stephens, & Santiago, 2002) and adopted by some states as the answer to a fragmented service system (President's New Freedom Commission, 2003). In this spirit, since the mid-1990's, systems of care have been developing in Indiana.

Although systems of care are considered to be promising (Goldman, 1999), the research base regarding the effectiveness of systems of care for children with serious emotional disturbances is limited (Burns & Hoagwood, 2002). It is limited by the relatively small numbers of studies. It is limited by methodological issues inherent in field research. There have been few studies using comparison groups (Rosenblatt, 1998). Systems of care research is further limited by issues related to fidelity, determining the degree of adherence to the paradigm.

The most frequently used design was the pre-post test. Time series was occasionally used. However, few studies included comparison groups. As a result, it was difficult to conclude that the improved outcomes were associated with the interventions. Only three studies used non-equivalent group comparison designs. In 2003, as the University of South Florida researchers were preparing to update Burns and Hoagwood's (2002) latest review of the literature, few new studies were found and the absence of comparison groups continued to be a concern (Carol MacKinnon-Lewis, personal communication, May 21, 2003).

Rosenblatt (1998), reviewing the findings of 20 systems of care studies, found that the majority focused on system outcomes with less than half considering clinical outcomes for the children served. Yet, improvement was demonstrated across a range of outcome domains. For example, clinical status improved in eight of nine studies; functional status improved in ten of eleven studies. When cost or utilization was assessed, 17 of 18 studies demonstrated either decreased costs or decreased use of restrictive placements.

Fidelity or adherence measures to insure that the intervention is delivered as intended (Burns & Hoagwood, 2002) pose a special challenge for systems of care researchers. Conceptually, key values and philosophical principles are considered essential to systems of care (Goldman, 1999; Stroul, 2002). In application, the values, principles and essential elements are adapted to each community (Pires, 2002; Stroul & Friedman, 1986b). Measuring adherence to the key elements has proven challenging as there is no manual or protocol. This challenge has been a barrier for researchers.

A naturally occurring quasi-experiment is emerging in Indiana as systems of care develop. A state database was to identify children who are served in systems of care, identify a matched sample and compare improvement in functioning related to psychosocial and contextual factors. To address some of the child mental health research challenges, outcomes for children with serious emotional disturbances, who are served through systems of care services, are compared with outcomes for a matched sample of children who are receiving usual public mental health services. To address fidelity, this study considers the level of development of the emerging systems of care as indicated by evidence of the degree to which essential elements and principles have been incorporated in the service delivery system and process (Pires, 2002). The hypothesis is that children

who are served in moderately to highly developed systems of care will have better outcomes than children receiving usual services.

Chapter One

Children's Mental Health: Need, Policy, and Practice

In spite of 30 years of celebrated milestones in children's mental health (Center for Mental Health Services, [CMHS], 1998), effective reform of the service delivery system too often remains an unrealized promise. Mental health treatments and services are fragmented across many institutions—schools, primary health care, child welfare, juvenile justice, and mental health (United States Department of Health and Human Services [DHHS], 2001a). Making mental health a public health issue, the Surgeon General of the United States determined that "the burden of suffering experienced by children with mental health needs and their families has created a health crisis in this country" (DHHS, 1999, p. 1).

About one in every ten children experiences a serious emotional disturbance (DHHS, 2001a). After 30 years of reform, two-thirds of affected youth are still not getting the help they need (CMHS, 2002). The Blueprint for Change: Research on Child and Adolescent Mental Health (The National Advisory Mental Health Council Workgroup on Child and Adolescent Health Development and Deployment [NAMHWC], 2001) documents the reasons the burden of childhood mental illness has not lightened. Stigma toward mental illness remains a significant barrier to obtaining treatment. Mental illnesses are not given the same level of credibility as other illnesses. Families of children with mental illness face a culture of suspicion, fear, discrimination, blaming the parents, and concerns about confidentiality and insurance coverage. The service system is fragmented. Concerns are raised about the disparities between minority children and the majority population in health status and access to services. There appears to be equal incidence and prevalence of disorders among all populations, but there seems to be a greater impact on

racial and ethnic minorities as evidenced in uneven access to care, poorer treatment and outcomes (DHHS, 2001c).

Rarely are interventions studied for effectiveness in practice settings (Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2001). Most of the studies regarding efficacy have been conducted in controlled laboratory settings, not in community practice settings (Weisz, Donenberg, Han, & Weiss, 1995). Most interventions have not been evaluated to determine their effectiveness at different developmental stages (Hoagwood et al., 2001). Most services that are provided to children and families have not been shown to be effective and may not meet the needs of today's children and families (NAMHWC, 2001). For the most part the science base on childhood interventions is not used. Practices that have been shown to be ineffective or even harmful continue to be used. Despite the fact that few positive effects and even negative outcomes have been documented, the advisory group highlights the standard practice of using group homes or residential treatment as opposed to therapeutic foster homecare for severely delinquent youth.

Definition. Children with mental illnesses are referred to as children with serious emotional disturbances (SED). In the literature and in national policy, the following definition of SED is recognized.

> Children with serious emotional disturbances are persons from birth to age 18 who currently, or at any time during the past year, have a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within the Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Association, 1994) that resulted in functional impairment which substantially interferes with or limits one or more major life activities (CMHS, 1999, p. 1).

Prevalence. In spite of the increasing knowledge base for children's mental health interventions, unrelenting high rates of mental illness are experienced by children and

adolescents in the United States (Hoagwood & Olin, 2002). Early child mental health research focused on epidemiological issues—prevalence and use of services. The prevalence of serious emotional disturbance in children was estimated in 1996 through a CMHS sponsored study (Friedman, Katz-Leavy, Manderscheid, & Sondheimer, 1996).

One in five youth are expected to have a diagnosable mental health or substance abuse disorder. Figure 1 displays three tiers of behavioral health diagnoses for youth between the ages 9 to 17. Seven to 11% of youth in this age range are expected to have behavioral health diagnoses but no functional impairments. Nine to 13% of 9 to 17 year olds can be expected to have a behavioral health disorder and a substantial functional impairment in one or more life domains (school, interpersonal, behavioral) due to the emotional disorder. Five to 9% of youth, ages 9 to 17, have extreme functional impairments. Youth with behavioral health diagnoses and substantial or extreme functional impairments are considered to be serious emotionally disturbed (SED). Related studies conclude that there is a high range of stability and persistence of serious emotional disorders with long term effects on functioning (Friedman, Kutash, & Duchnowski, 1996). Considering the impact of poverty on the prevalence for children experiencing serious emotional disturbance, Indiana has slightly lower estimated prevalence rates than two-thirds of the United States.

Externalized behavioral disorders are more often identified in boys and internalizing problems such as affective disorders are more often identified in girls (Gardner, Pajer, Kelleher, Scholle, & Wasserman, 2002). Overall rates of mental health problems for African Americans and non-Hispanic whites are about the same (HHS, 2001a). The Surgeon General's Supplemental Mental Health Report on Race, Ethnicity and Culture reports diagnostic differences between races. For example, the prevalence of

depression among African Americans is lower, but the prevalence of phobias is higher. Affective disorders in this study include both mood and anxiety disorders. Studies have shown that Hispanic youth have proportionately more anxiety-related and delinquency problem behaviors, depression, and drug use than non-Hispanic white youth (DHHS, 2001a).

Utilization. In the Unites States, some type of service for mental health, often through the educational system, is provided to about 20% of youth between the ages of 9 and 13 (Farmer, Stangl, Burns, Costello, & Angold, 1999).Youth are more likely to receive specialized mental health services if their parents are highly educated or have a history of using psychiatric services. Services are provided to many children through a variety of providers for extended periods of time – public mental health system (community mental health centers), private practitioners, public child welfare agencies, schools, social service agencies, religious organizations, and juvenile courts (Lezak & MacBeth, 2002).

Yet, many children do not receive the treatment they need or are served in restrictive settings. Only 25% of children with serious emotional disturbances have recently received mental health care (Costello, Messer, Bird, Cohen, & Reinherz, 1998). About 700,000 of the 3 million children across America with SED are currently or have recently received care from a specialized mental health agency. While most children receive mental health care through informal systems or traditional outpatient services, inpatient care and residential treatment tend to be used for more seriously disturbed youth (Lezak & MacBeth, 2002). Nationally, nearly half of all mental health costs for children are devoted to more restrictive forms of care. Of the children who receive inpatient and outpatient mental health services, 20% were admitted to inpatient care (Pottick, Hansell,

Gutterman, & White, 1995). Adolescents are more likely to be hospitalized with 30% receiving inpatient services compared with 5% of all children in general.

Disparities in terms of under representation of African Americans in outpatient care and over representation in inpatient care and publicly funded residential care continue (Angold et al., 2002; DHHS, 2001a; Rawal et al., 2004). Research documents the disparity in the over-representation of African Americans in populations at high risk for mental illness: individuals who are homeless, incarcerated, in foster care and the child welfare system, and exposed to violence (DHHS, 2001a). High rates of no insurance, availability of linguistically and culturally competent services (DHHS, 2001a), and parental beliefs about the causes of children's problems (Yeh, Hough, McCabe, Lau, & Garland, 2004) may influence use of public mental health services by Hispanic youth and families.

Costs. Due to the complexity and fragmentation of the systems that provide care, data about what is spent on mental health care needs for children and youth is difficult to obtain (NAMHCW, 2001). Scattered throughout countless insurance databases, national survey results, and government statistics, some national data exist (Rand Health, 2001). A retrospective analysis of available data regarding utilization and expenditures was completed by the Rand team. The analysis confirmed a 2001 estimated annual national bill for caring for troubled youth of $12 billion. Rand found, on average, three-fourths of troubled youth, 9% of the population in the United States, do not get the help they need. Access to care varies by race and ethnic origin. Primary care physicians are a growing source of care for troubled youth. On average, only 5 to 7% of all youth are treated by a mental health specialist each year. More than one-third of mental health visits by privately insured children are to a primary care physician rather than to a specialist. There has been a dramatic growth in the use of psychotropic medication for children in the past two decades.

Outside of psychiatric services, the national expenditure for child residential treatment centers is estimated to be 25% of the national expenditure for all children's mental health services (DHHS, 1999). Only about 8% of all children served receive residential services (Kruzich, Jivanjee, Robinson, & Friesen, 2003). In a larger context, 33% of the total human service budget is spent for 1% of children and families with the most enduring and complex needs (VanDenBerg & Grealish, 1996).

Historical Context

Mental health policy has developed in a nonlinear, disjointed manner, reflecting many decisions, ideologies of an era, developing technologies, and financial incentives interacting with the economic, political, and provider organizational network (Boyle & Callahan, 1995). The main providers of mental health services have been the states (Goodwin, 1997). Yet, states traditionally devote most resources to their historic responsibility of providing institutions for the most severely and persistently mentally ill (Boyle & Callahan, 1995). In recent years, states have worked to shift funding to community-based services (Dougherty Management Associates, 2002). Often the place where new ideas emerge and are nurtured, states are also the place where innovations are implemented.

Examining the historic background of today's policies and practices provides a context for today's child mental health issues. The viewpoint that some children are emotionally disturbed is a relatively recent idea (Hoagwood et al., 2001). Prior to the 1920s, needy children in the United States were typically thought of as either dependent or delinquent (Early & Poertner, 1993).

The first era of child mental health policy began with the emergence of the juvenile court system in 1899, a reaction to a legal system that treated children as adults with

punishment as severe as the death penalty (Thomas & Thomas, 1928). During the Progressive Age, the concept of mental illness in children originated to remediate "bad" behavior (Jones, 1999; Levy, 1968). Court clinics provided the first child mental health services (Lourie & Hernandez, 2003). This movement resulted in the more humane treatment of children in the child welfare and the juvenile justice systems, but was not formalized into the development of comprehensive mental health services for troubled youth. It was not until 1935 that the first child psychiatry text was published in English (Hoagwood et al., 2001; Kanner, 1935).

In the 1930s the Children's Bureau was formed, the first link between child guidance and government (Lourie & Hernandez, 2003).While the bureau educated the public regarding children's mental health, no formal policies developed. By the 1950s, the concept of child guidance centers, the first child mental health services, was widely accepted. In the tradition of remediation, interventions such as individual and family therapy, group therapy, resource rooms within school settings, special education with individualized educational plans, and parental education have developed. The focus of the mid-20th century was on the development of services for children who lived with their families and did not need public intervention. Although the Children's Bureau reflected the federal government's commitment to children's development, no policy related to child mental health followed. There was no assurance that all children could access care or that families could afford services.

The developing conventional child mental health service system, primarily outpatient and inpatient services, became the standard for practice, accepted by both professionals and the public. When these interventions failed or were insufficient to address the behavioral and emotional problems of youth, out-of-home placements have

often been the next step—acute psychiatric hospitalizations, foster care, residential care, or state hospitals (Lezak & MacBeth, 2002). From the 1950s to the 1970s the number of children in mental hospitals and residential treatment programs tripled (Petr & Spano, 1990). Child service development was outside the development of state mental health services, which had traditionally provided institutional care to address the needs of severely and persistently mentally ill individuals (Boyle & Callahan, 1995).

A second wave of mental health policies began in the 1960's (Lourie & Hernandez, 2003). The growing deinstitutionalization of adults with mental illness led to the community mental health movement. Although the role of the federal government is now relatively minor in the provision of mental health services, federal policy helped shape the system (Cooper & Lenter, 1992). The 1955 Mental Health Study Act led to the Joint Commission on Mental Illness and Health's Action for Mental Health Report in 1961 which recommended one fully staffed, full time clinic for every 50,000 people, or 4500 clinics across the country. In 1965, the Mental Health Centers Act resulted in the federal funding by 1980 of over 800 comprehensive community mental health centers. Under the Reagan administration, the federal role in direct service ended (Mechanic, 1999). Yet, the standards for the community mental health system were established and generally adopted emphasizing community support services for adults with serious mental illness, based on assertive community treatment (Stein & Test, 1980). Services were not aimed at children and the need for specialized services for children was not recognized (Lourie & Hernandez, 2003). Again, there was no provision for accessibility or affordability of services.

The inception of Medicare and Medicaid in 1966 created a requirement for mental health services for poor children (Lourie & Hernandez, 2003) and expanded

psychiatric services in general hospitals. Coverage varies widely among states with 15% of Medicaid funds being spent on mental health services. In recent years federal policy emphasized development of short term acute inpatient services through Medicaid and Medicare with little money for development of other community based care. Public insurance has become a primary source of funding for mental health services, complementing state resources.

By 1965, a growing advocacy base led to the Joint Commission on the Mental Health of Children. The Commission's 1970 report documented the unmet mental health needs of children and laid down the basis for future child advocacy, but no formal policy developed.

In the early 1970's, the federal Community Mental Health Center Program funded a number of child mental health demonstrations in about 12% of the mental health centers (Lourie & Hernandez, 2003). The success of these demonstrations led to the requirement that community mental health centers serve children. This new mandate came at the same time that fiscal responsibility for the public mental health system was shifting to the states. States did not endorse the federal mandate, and financially stressed centers cut services that could not pay for themselves, often including children's services.

One of the few implemented mandates for children's mental health services is found in the Education for All Handicapped Children Act of 1975 which became the Individuals with Disabilities Education Act of 1975 and was again revised in 2003. The educational policy provides for child mental health services for educational purposes. Many exemplary education-based programs developed, but not uniformly across the country.

A shift in mental health policy occurred in 1978, influenced by Rosalynn Carter, with the President's Commission on Mental Health. Underserved populations were identified—adults with severe and persistent mental illness and children with serious emotional disturbance. The failure of community mental health centers to address the needs of adults with severe mental illness and children with SED was documented. Government responded rapidly with an emphasis on the development of community support programs for adults. Yet, the development of services for children was targeted only in Native American communities.

Since the early 1980s, there has been a growing trend toward privatization of mental health services through the use of contracting out public services to private, usually not for profit agencies. A process of increased specialization in service provision has allowed for ever growing numbers of people to receive access to psychiatric treatment (Goodwin, 1997). In the early 1980s, federal policy supported the development of systems of care for all populations with an emphasis on coordinated care and choice for consumers. Although the concept faded for other populations, it became the foundation for comprehensive services for children with serious emotional disturbance.

A third era of child mental health policy began with The Children's Defense Fund Study, directed by Jane Knitzer (1982). The resulting report, Unclaimed Children, awoke the public and professional communities to the needs of children with serious emotional disorders. The study documented that two-thirds of the three million children with serious emotional disorders in the United States were not receiving the services they needed. Children with emotional and behavioral problems were typically not being served or were served inappropriately in excessively restrictive settings. "Further, the most disturbed children may often be the least likely to get help" (Knitzer, 1982, p. 3). The study

concluded that these children were unclaimed, essentially abandoned by the agencies that had responsibility for them. The landmark report called for a coordinated system of care providing a range of services. It was the turning point for the expansion of services to this population.

In response, the National Institute of Mental Health funded a program to better meet the mental health needs of children, the Child and Adolescent Social Services Program (CASSP) (Stroul & Friedman, 1986a). CASSP had four major goals: to encourage state and local government to develop interagency systems of care, to increase the role of the state mental health agencies in multi-agency systems of care, to enhance the role of the family (recognizing the destructiveness of blaming parents), and to develop cultural competence. The family movement, including the Federation of Families and the National Alliance for the Mentally Ill-Child and Adolescent Network, grew out of CASSP.

In 1992, with the passage of the Children's and Communities and Mental Health Services Improvement Act the federal Comprehensive Community Mental Health Services For Children and Their Families Program became the primary policy agenda for The Center for Mental Health Services (CMHS), United States Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA) (CMHS, 1999).This initiative translated the CASSP (Stroul & Friedman, 1986a) initiative into 45 grant communities across the country, championing the development of community-based, family-focused, and culturally competent systems of care. The initiative assumed that the seeding of systems of care would lead to sustained systems and widespread adoption of the philosophy and approach. The 1999 Annual Report to Congress highlighted the influence of state level decisions, including Medicaid reimbursement and managed care, on sustaining the federally funded systems of care.

CASSP: Systems of Care and Wraparound. CASSP became know as "systems of care". Systems of care have two domains (Brannan, Baughman, Reed, & Katz-Leavy, 2002) – collaboration among child service systems and families (infrastructure) and wrapping services around a child and family through child and family teams (service delivery). A system of care is implemented through wraparound, a specific service delivery process that builds on strengths to address the complex needs of a community's most at-risk youth and families. "Wraparound is a philosophy of care that includes a definable planning process that results in a unique set of community services and natural supports individualized for that child and family to achieve a positive set of outcomes" (Goldman, 1999, p. 28). Child centered and family focused, wraparound utilizes family strengths in community based settings. It is culturally sensitive, coordinated among agencies, and flexible (VanDenBerg & Grealish, 1996). Wraparound was intended to be an alternative to residential care (Burchard, Bruns, & Burchard, 2002).

Family. The initial wraparound focus on family centered care for children with SED shifted to "family driven" as advocates influenced the final Commission on Mental Health recommendations to transform the public system (President's New Freedom Commission, 2003). Families should not only be part of the process, but guide the process. This principal ideal requires engagement, access to needed services, and the empowerment of parents and significant others. In contrast, a common public and professional view is that this is idealistic, that, in fact, parents are largely responsible for their children's problems (Hinshaw, 2005).

The research literature is beginning to focus on the interdependence between the family's functioning and children's outcomes. Most commonly found are theoretical and research based articles focused on how family functioning impacts the child's behavior

(Hauser-Cram, Warfield, Shonkoff, Krauss, Sayer, & Upshur, 2001). Many behavioral health articles are only slightly removed from the historic bias of blaming parents for their child's problems.

The popular and professional view of the Twentieth Century has been that poor parenting is to blame for most mental problems. Disorders like autism, schizophrenia, depression, and attention-deficit hyperactivity disorder (ADHD) have been attributed to cold mothers, dysfunctional families, or ineffective parenting (Hinshaw, 2005). Hinshaw argues that parental blame for mental disorders was fueled by predominate child development theories (Bettleheim, 1967). In spite of emerging research regarding genetic and biological causes and the recognition in literature that mental illness is a disease and a public health issue (DHHS, 1999), stigma regarding mental illness and parental blame remains prevalent and creates barriers to children and families obtaining needed treatment and support (DHHS, 1999; Hinshaw, 2005; President's New Freedom Commission, 2003).

Similarly, stigma was common but has been dispelled in the developmental disability field. The disability literature moved from blaming cold mothers for autism to recognizing that "family processes and children's development are mutually interrelated" (Hauser-Cram, et al., 2001, p. 21). Behavioral health researchers have begun to study the interaction between family functioning and the child's functioning in some detail. Family functioning and the severity of the child's disability are found to be related to overall parenting stress (Smith, Oliver, & Innocenti, 2001). Family functioning variables are generally stronger predictors of overall parenting stress. Severity of the child's disability has minimal impact on parental distress, but has notable impact on the parent-child relationship. Children's social skills are a strong predictor of parental stress, more than motor, communication, adaptive behavior, and cognitive abilities (Smith, Oliver &

Innocenti, 2001). A study regarding parent well being (Hauser-Cram, et al., 2001) found that only one predictor of change was significant for both mother and father: child behavior problems. Other predictors of change differed for mothers and fathers. Change in maternal stress was predicted by social support; change in paternal support was predicted by problem focused coping skills. Bi-directional relationships were found among child and family characteristics, clearly influencing child and family processes.

The question of what interventions or services are effective in improving both family functioning and children's functioning has gained more attention with the recent federal child and family services review (DHHS, 2004). An in depth review of each state's child welfare services found most states failing to meet three wellbeing standards: "families have enhanced capacity to provide for children's needs, ...children receive services to meet their educational needs, ... (and) children receive services to meet their physical and mental health needs" (DHHS, 2004, p.1). Child and family involvement in case planning and providing services to meet the needs of children, parents, and foster parents are included in the first wellbeing outcome.

Intensive community based services have been demonstrated to be effective in supporting families and improving thei9r abilities. For example, comparing youth receiving intensive community based services with youth who were hospitalized, Henggeler and associates (1999) report families in Multisystemic Therapy (MST) showed improved cohesion based on caregiver reports and increased structure based on youth's reports. Youth in MST had better attendance in school. The findings are consistent with the underlying theory of MST that changes in children's functioning are influenced by positive changes in the family, peers, and school. These findings, however, are specific to MST, a

manualized protocol, and cannot be generalized to other intensive community based services.

In the emerging literature no one program emerges as the answer (Kumpfer & Alvarado, 1998). Principles of effective family focused interventions include comprehensive approaches which are family-focused, long-term, of sufficient intensity, culturally competent, and developmentally appropriate. Important are early intervention, attention to family dynamics addressing family relations, communication, and parental monitoring followed by booster sessions. Outcomes are moderated by parental caring and positive parent-child relationships, recruitment and retention of families in services, quality of training materials (videos), and trainer characteristics.

Literature Review: Evidence Base for Children's Mental Health

Evidence Based Practice (EBP). Before further examining the evidence base for child mental health practice, the basis for this evidence is explored. The development of scientific knowledge of the mental health field has primarily relied on a postpositivist paradigm that considers controlled studies (randomized clinical trails, quasi-experimental designs, or a series of single-case designs) as the gold standard (Task Force on Promotion and Dissemination of Psychological Procedures, 1995). Led by clinical psychologists, the standards have spelled out the requirements for considering an intervention to be well established or probably efficacious (Lonigan, Elbert, & Johnson, 1998). Quantitative epistemological issues require replication of studies under carefully prescribed conditions, usually in a university laboratory setting. Usually a new treatment or intervention is compared with another established treatment (Burns & Hoagwood, 2002). A treatment manual is preferred. Also, the following criteria are required: evidence of consistent therapist training and fidelity to planned procedure, clinical trials with youth who meet the

criteria for treatment, evaluation of significance of outcomes, consideration of functioning outcomes as well as reduction of symptoms, and longitudinal assessment following functioning after treatment terminates (Chambless & Hollon, 1998; Task Force on Promotion and Dissemination of Psychological Procedures, 1995).

> The important question may not be about the overall effectiveness of child therapy, but about the effectiveness of (a) what therapy, (b) under what conditions, (c) for which children, (d) at which developmental level, (e) with which disorder(s), (f) under what environmental conditions, and (g) with which concomitant parental, familial, environmental, or systems interventions (Saxe, Cross, & Silverman, 1988, p. 803).

Such focused inquiry determines if a specific intervention is efficacious. If an intervention passes these rigorous tests, it is considered to be an evidence based practice (EBP).

Yet, in practice and in research, the evidence is not clear cut. There are many shades of gray. A large body of uncontrolled studies and controlled studies with repeated positive outcomes, but which fall short of the post positivist standards, are sometimes called "promising" (Goldman, 1999). For endorsed, efficacious evidence based practices, effective implementation in clinical practice with real people with complex needs is an ongoing challenge and an area of emerging field study. The research base for systems of care is considered promising.

Children's mental health research. In the late 1980s the first serious attempts to evaluate the use of mental health services by children began. Compared with the attention given the treatment of adult disorders, the evidence base for children's mental health had been neglected (Kazdin, Bass, Ayers, & Rodgers, 1990). About 40 research based interventions have been documented as efficacious in improving specific emotional and behavioral health symptoms experienced by children (Hoagwood et al., 2001). Intervention research has been reviewed for five types of childhood disorders: anxiety, attention-deficit/hyperactivity, autism, depression, and disruptive behavioral disorders (Burns &

Hoagwood, 2002). "Well-established" or "probably efficacious" interventions were found for specific categories of disorders, excluding autism. However, the impact of these interventions in practice settings is only now being studied (Hoagwood et al., 2001).

Psychological disorders are very common among children and are less likely to clear up spontaneously than has been previously suggested (Greenbaum et al., 1996). Comparable to findings for adult psychotherapy (Smith & Glass, 1977), meta-analyses of experimental behavioral interventions for children support consistent beneficial effects of treatment versus no treatment (Hoagwood et al., 2001).

Some treatments have been found to be ineffective, even harmful (Hoagwood & Olin, 2002). For example, no evidence of benefit from institutional care has been found for children placed out of the community (Duchnowski & Friedman, 1990). Any gains made during the inpatient or residential treatment are seldom sustained when the child returns to the community. Some services frequently applied to delinquent youth are also ineffective, including boot camp and residential programs (DHHS, 2001b). Peer group based interventions have actually been found to increase behavioral problems (Dishion, McCord, & Poulin, 1999).

There are some indications that the service delivery system, rather than child symptomology or functioning, determines placement. In early research regarding who gets hospitalized in a child mental health continuum of care, Bickman, Foster, & Lambert (1996a) found support for the program theory that the availability of intermediate levels of care should decrease hospital use by offering less restrictive alternatives to hospitalization.

Research regarding children poses even more challenges than research regarding adults. Developmental issues must be considered (Hoagwood et al., 2001; Lonigan, Elbert, & Johnson, 1998). Children are also part of multiple systems that have significant

influences on their functioning—families, schools, and communities (Hoagwood et al., 2001). Interventions for children occur in multiple contexts—schools, primary care physicians' offices, child welfare systems, detention facilities, and mental health. In addition, the majority of children presenting at mental health clinics have multiple problems (Weisz et al., 1995).

Outcome Measures

Research literature provides an array of measures and perspectives which may be conceptualized in five outcome domains as suggested by the Spheres of Influence on Child Mental Heath outcomes model (SPCES) (Hoagwood, Jensen, Petti, & Burns, 1996). The outcome domains include: symptoms, functioning, consumer perspectives, environments, and systems. The model organizes the domains hierarchically to reflect the ever-widening and interactional spheres of influence. Child and family outcomes include symptoms, functioning, and consumer perspectives. Environmental and systemic domains can be applied to aggregate level data for individual children and families. The SPCES outcomes model suggests a comprehensive range of outcome measures to be applied to research in children's mental health. Examples of specific measures of the five outcome domains are included in Table 1.

What Works for Children with Complex Problems?

Burns and Hoagwood (2002) conclude that multimodal interventions are most effective for children with complex problems. A limited evidence base is emerging for multimodal interventions within the community. Applying the gold standard of controlled studies, the current evidence base is summarized in Table 2. Although wraparound is listed separately, other multimodal interventions are frequently components of wraparound services: case management, treatment foster care, mentoring, family support and education,

and respite. Some often used and promising practices in comprehensive interventions for children and families with complex needs are not included in Table 2 because of the lack of sufficient published controlled studies. For example, only one study of respite services has been published (Burns & Burchard, 2000).

Multisystemic Therapy. Few examples exist of clearly documented efficacious comprehensive interventions that are being effectively used in practice settings. In children's mental health, the most notable exception is Multisystemic Therapy (MST) (Henggeler, Schoenwald, & Pickrel, 1995; Henggeler, Schoenwald, & Munger, 1996). MST, perhaps the most researched evidence based practice (EBP) for children, has the basic components necessary to document the successful transition from laboratory to community practice. Using an ecological model of behavior (Santos, Henggeler, Burns, Arrana, & Meisler, 1995), MST includes a treatment manual that prescribes the model, qualifications of staff, and caseload size (4 to 6 families seen 3 to 5 months) in a home based model focused on developing the parental skills and resources needed to address the issues in raising teens and to teach youth to cope with family, peer, and neighborhood problems. Both the structure of the clinical team and the nature of intervention are operationally defined. Standards for training and ongoing supervision are tightly prescribed. Consistency and fidelity to the MST model is ensured. Additionally, volumes of extensive research using replicated random designs and program-based outcome studies have been published. The initially narrowly defined target population of youth involved with the juvenile justice system, clinically presenting with externalizing behaviors, has gradually been enlarged with studies of effectiveness built into each new application. The completeness of the model and extensiveness of the research is rare in children's mental

health. MST is the efficacious system based model of intervention most similar to systems of care wraparound.

Intensive Case Management. The provision of case management, service coordination, is one of the key guiding principles for a system of care (Rosenblatt & Woodbridge, 2003; Stroul & Friedman, 1986a). In 1999, Barbara Burns (1999) identified case management as a promising practice for children. However, the quality standards had been based largely on regulation (state policy strategies) instead of on practice guidelines, best practices, quality monitoring or research. By 2002, three random controlled studies on case management for children with SED had been published as well as two experimental case management studies with other children. Studies of intensive, clinically oriented case management found the children receiving these services require fewer restrictive services, such as hospitalization, than children not receiving case management (Hoagwood et al., 2001). Based on available studies, it seems that the use of a dedicated case manager or case management team is related to more positive outcomes than not using a case manager or than designating the primary therapist as the case manager (Evans & Armstrong, 2002).

Therapeutic foster care. Therapeutic foster care is the most widely used form of out-of-home placement for youth. It is the least restrictive form of residential care, provided by foster parents who have received specialized training to work with children who have emotional or behavioral disorders. The literature base for therapeutic foster care is more extensive than for any type of residential care. Some specific models have developed clear protocols, manuals, and fidelity checks. Treatment foster care (TFC) (Chamberlain, 2002) applies standards and manualized protocols to move therapeutic foster care to a recognized evidence based practice. While in the TFC placements, most youth improve behaviorally. Compared to youth in congregate living arrangements, youth

who were in TFC have shown better post discharge stability and less restrictive future placements. Between 60 to 89% of youth in TFC were discharged to less restrictive settings. Although promising, clear limitations apply to the findings. The critical components of TFC have not been determined. Generalizability from the few well defined studied programs to other sites and populations of children is questionable.

Systems of Care. The growing literature base for systems of care includes multiple examples of all five outcome domains. Few studies address all five domains. Most consider system measures (cost, collaboration, rate of rehospitalization) or clinical issues (symptoms and functioning). Less frequently found are environmental or consumer perspectives (client satisfaction). Table 3 considers outcomes of practice based and controlled studies related to systems of care. Studies were selected for review if they incorporated a controlled design. The five outcome domains provide a common ground for reviewing studies related to systems of care and to the component services with a system. The results of specific outcome measures within each domain are indicated as positive (better than a comparison group), equal to the comparison group's results, or negative (worse than the comparison group's outcomes).

Many studies have followed federal and state level policy and program implementation to determine effectiveness. Such studies demonstrate the strategic partnerships of research and policy in evaluating and further developing child mental health theories of change and interventions. Examples of research following state child service reform include California, Vermont, New York, North Carolina, and Kentucky. Meta-analyses indicate that most studies consider only the restrictiveness of placement and cost issues (Hoagwood et al., 2001; Jensen, Hoagwood, & Petti, 1996; Rosenblatt, Wyman, & et al., 1998), the environmental and systemic domains. With mixed results and the

ensuing debate over the impact of the structural component of systems of care, research efforts shifted to examining the service delivery components and specific interventions within direct service.

Systems of care have been criticized as the findings in the symptom and functioning domains were not different than the findings for the comparison group (Bickman, Heflinger, Lambert, & Summerfelt, 1996b; Bickman, Summerfelt, Firth, & Douglas, 1997; Jensen et al., 1996). Systems of care studies demonstrated positive outcomes for family satisfaction and fewer out-of-home placements. However, children's symptoms and functioning improved in both the treatment and comparison groups. The Ft. Bragg studies concluded similar symptom reduction for children served in a broad continuum of care and children in usual services, including outpatient, acute inpatient, and residential care, meaning that systems of care were not effective. Equality in clinical outcomes is not necessarily a negative result (G. Bond, personal communication, February, 2001). Being able to maintain a child with serious childhood mental and behavioral disorders in a community setting, without the disruption and the extreme cost of out-of-home placement, is a positive outcome.

Wraparound. Wraparound is the process through which systems of care are operationalized. The term "wraparound" was first used by Leonare Behar (1985) to describe the philosophy and general approach which requires that services must be individualized to fit the needs of specific children and families. Wraparound has been exemplified (Skiba & Nichols, 2000) in such innovative programs as Kaleidoscope in Chicago (Dennis, VanDenBerg, & Burchard, 1992), VanDenBerg's 1989 Alaska Youth Initiative (as cited in Skiba & Nichols, 2000), and Project Wraparound in Vermont (Burchard & Clarke, 1990). Services may include conventional and nonconventional

interventions if specifically designed for individual youth or families to achieve goals and fulfill unmet needs (Myaard, Crawford, Jackson, & Alessi, 2000). Both formal (professional and paid support) and informal (friends, family, and community organizations) supports are included.

Nine elements are essential for the approach to be wraparound (VanDenBerg & Grealish, 1996). First, wraparound must be provided in the community. Children are not removed from their homes. Second, services are individualized, as opposed to reflecting the priorities of the existing service system. Third, the culture and values of families are respected. Fourth, parents are treated as partners in the child and family team. Fifth, participants work from the strengths of the child and family. Sixth, flex funds are immediately available if needed. Seventh, plans are implemented on an interagency basis. Eighth, services must be unconditional, continuing in spite of challenges. Ninth, outcomes must be measured.

Essential elements and practice requirements. The term wraparound has been used in multiple contexts and services varied from site to site as the intervention rapidly expanded. In an effort to develop a uniform definition and practice standards, a focus group of wraparound experts, leaders, and advocates met at Duke University in 1998 (Burns & Hoagwood, 2002). Table 4 reports the essential elements and requirements for wraparound practice that were identified by this qualitative process (Goldman, 1999). The agreed upon elements and practice requirements have provided a basis for systems of care integrated service networks and direct services.

Effectively implementing the essential elements and practice requirements remains a primary focus for the child mental health field. Sheila Pires (2002) of the Georgetown University Child Development Center published a primer for building systems of care. The

text incorporates the system of care values, philosophy, and essential elements into a manual that considers the applied operational and structural components of a system of care. The emphasis is on the necessary infrastructure to support effective wraparound through child and family teams.

Wraparound Studies. The wraparound evidence base typifies field based effectiveness research. In addition to summarizing what is known about the effectiveness of wraparound, the studies are examined regarding their limitations and issues common in field based research.

The evidence base for wraparound has been reviewed in at least three published documents. Burns, Goldman, Faw and Burchard (1999) provided a descriptive review in the Promising Practice in Children's Mental Health series. From a child welfare perspective, Skiba and Nichols (2000) summarized what works in wraparound programming.

> Children and youth served by wraparound options are more likely to transition to living arrangements that are less restrictive and more stable and permanent. Children and youth receiving wraparound services often show improvements in behavioral adaptation and emotional functioning. Wraparound services rely on and strengthen resources in the local community (pp. 24-25).

In 2002, Burns and Hoagwood revisited research on wraparound, identifying fifteen studies that attempt to evaluate the effectiveness of the process. Included were two qualitative case studies, nine pre-post studies, two quasi-experimental studies, and two random clinical trials. Table 5 summarizes the wraparound literature base.

Although preliminary studies offered evidence that wraparound is effective, they were largely uncontrolled, including field research and limited controlled studies. The results are considered "promising" (Burns et al., 1999). The Surgeon General's report on mental health (DHHS, 1999) summarizes the results of evaluations of systems of care.

Most evaluations show that systems of care are effective in reducing the use of residential placements, out-of-state placements, and in achieving improvements in behavioral functioning. Evidence indicates that parents are more satisfied when served in a system of care than when served in traditional services.

Criticism of systems of care and wraparound. The effect of systems of care on cost or clinical outcomes is not clear. The well known Ft. Bragg and subsequent Starke County studies, conducted by Bickman and colleagues (Bickman, 1996b; Foster, Summerfelt, & Saunders, 1996; Hammer, Lambert, & Bickman, 1997), suggest that systems of care are not cost effective. In the Ft. Bragg study, using a quasi-experimental design, outcomes (service use, cost, satisfaction, symptoms, and functioning) were collected to compare an intensive continuum of care with conventional child mental health services. Services were offered to all children and families with CHAMPUS insurance. By design, there was no co-payment, deductible, or benefit limit. Behavioral outcomes at the end of treatment did not differ from the results of conventional therapy. The Ft. Bragg study found higher costs than conventional practice. Much of the cost was attributed to increased access (Foster et al., 1996).

In the Starke County study of a well-established wraparound program, the same research team (Bickman et al., 1997) used a random controlled design to evaluate a public multi-agency system using a system of care model. The comparison group of children and families had to seek services on their own. Significantly more children in the system of care group received case management and home based services. After 18 months, no differences in symptoms or functioning were found between the two groups.

These studies sparked controversy regarding the relative benefit of systems of care and wraparound. Two program design elements that may have influenced the increased

access and cost were identified in the numerous critiques and responses: not reserving the systems of care model for the neediest youth (Bickman, Lambert, Summerfelt, & Heflinger, 1996c; Burchard, 1996) and requiring no deductible or co-payment (Heflinger, 1996). Critics of these findings point out that the Ft. Bragg study was not limited to those at risk of out-of-home placement. Providing the most intense level of mental health community based care to all youth, regardless of symptoms and severity is poor utilization management. The lack of any economic controls in terms of co-payment, deductible, or service limits leads to a rise in demand for services, offering a health economic explanation for excessive costs (Phelps, 1997). Insurance coverage and management must be considered in examining the demand and related costs of health care. Children in both the Ft. Bragg and Stark County studies showed equal improvement with conventional treatment.

When the outcomes were narrowed to looking at youth with serious emotional disturbance (the population targeted by the systems of care model), the results were more positive (Friedman & Burns, 1996). For children with more serious impairments modest improvements were found favoring the demonstration site. These improvements are more encouraging as there were difficulties implementing the intervention. In a rejoinder, Bickman (1996a) acknowledges that the Ft. Bragg study tested a continuum of care, not the CASSP model.

The controversy regarding the relative benefit of systems of care and wraparound has served important functions for children's mental health (Burns & Hoagwood, 2002). Positive findings of other studies (increased satisfaction and decreased placements) were reinforced. The practical issues of access to services and keeping consumers in treatment were informed. The controversy stimulated discussion and additional research.

Investigators were challenged to look deeper. The findings and unresolved controversy shifted the focus from merely expecting change based on system collaboration to an exploration of the significance of specific service components (Hoagwood et al., 2001). As a result, the research emphasis shifted to the practice level, and the research base for this paradigm mushroomed.

Field research regarding the effectiveness of systems of care has been limited by methodological issues. Primary is the difficulty in assuring "fidelity" to the values, principles, and essential elements of a system of care. The strength of the paradigm and adaptation in each community sparks controversy among the field's experts and challenges researchers. Systems of care are based on values and principles. Similarly, wraparound is based on values and essential elements, but is not a manualized intervention or protocol. How can one system of care, infrastructure and wraparound services, be compared with another? Eric Bruns and associates (2004) have developed an administrative scale to complement the Wraparound Fidelity Index. The Portland Research and Training Center (Koroloff, Schutte, & Walker, 2003) has recently focused on the task of assessing the needed system support. A review of related literature explores the issue.

Fidelity

Fidelity measures how true an implemented intervention is to the intended model (Heflinger, 1996). Without knowing to what degree a program model or theory of change was followed, it is difficult to know whether to attribute outcomes to the program as planned or to the imperfect implementation of the theory of change (CMHS, 1999). Measuring treatment fidelity has potential benefits beyond research: program development (quality improvement within a local program and national replication of best practices), technical assistance, training, and supervision at the system and service delivery levels

(Bruns, Ermold, Burchard, & Dakan, 2000). Fidelity of a system of care could be determined by examining multiple dimensions of performance: program participants, the mode of service delivery, program implementers and implementing organization, and the interorganizational context (Heflinger, 1996). Each dimension can be influenced by multiple factors.

The Ft. Bragg study employed these dimensions to determine fidelity to the proposed program theory, the intended model (Heflinger, 1996; Summerfelt, Foster, & Saunders, 1996). In the program theory, the program elements were operationally defined and outcomes were predicted for the intake, assessment, and treatment processes, as well as ultimate outcomes. The careful description of intended and actual implementation allowed reviewers to get a clearer view of the demonstration. While endorsing the CASSP principals—individualized, community based, and family focused—the researchers acknowledged difficulty in implementation of these principles. The Ft. Bragg program theory incorporated intake program operations (single point of entry, no co-payment/no deductible, prompt intake, and public information), assessment program operations (standardized procedures, prompt comprehensive multidisciplinary assessment, family and other input) and treatment program operations (treatment teams/case management and continuum of care). The compared "systems of care" included the usual model (outpatient, inpatient) and a well-integrated continuum of care with case management and attention to access issues for all youth with mental health needs. The well articulated program theory included concepts from CASSP (offering intermediate services and attempting to match family needs with service). However, the focus was on the "continuum of care". An interagency collaborative infrastructure was missing. Other factors (no co-payment and

broad admission criteria) confounded the findings. The research team achieved fidelity to the Ft. Bragg program model, but not to a system of care.

Although the emerging research base indicates that outcomes are improved for youth who are served by systems of care, no studies have been able to correlate outcomes with the integrity of the application of the process (Malysiak, 1998). Consistent with the practice fidelity model common in evidence based practice, early system of care fidelity work has focused on wraparound fidelity, fidelity to the essential values and principles at the service delivery level. Rosen, Heckman, Carro, and Burchard (1994) viewed wraparound fidelity from the perspective of the youthful consumers. The elements of choice, youth voice, and unconditional care were evident in the process. However, the perspectives of the other child-family team stakeholders were not considered—parents, case managers, or school.

Donnelly (1994) used third-party interviews to quantify and measure wraparound elements. Youth involved with wraparound compared with youth receiving conventional services, reported greater involvement and unconditional care. A third study used independent observers to document that the elements of wraparound were occurring within the child-family team process (Epstein, 1999; Epstein et al., 1998). Piloted at Kaleidoscope, Inc. in Chicago, Illinois, the Wraparound Observation Form (WOF) includes a process related, 34 closed-end item scale. The WOF has high inter-rater reliability. Although limited by observer effect and requiring on-site personnel, this fidelity instrument has potential for training and supervision. The fidelity measure is limited to evaluating the process in team meetings. Systemic issues are not addressed.

A California psychology doctoral student (Flam, 1998) developed a fidelity scale based on CASSP principles. The scale was designed to rate the integrity of the service

planning process on whether or not the CASSP principles were addressed. The resulting scale questioned families and care coordinators about their past six month experience related to the quality of services and support received. Such a retrospective evaluation may have involved more perception and client satisfaction than an accurate measure of the process.

A dissertation from Vermont (Bramley, 1999) piloted the Service Process Inventory for Families and Youth (SPIFY), a 23 item questionnaire addressing 15 critical elements of wraparound (Goldman, 1999). Two interviews were held with families in wraparound and comparison groups, three months apart. The initial findings supported the SPIFY as a fidelity instrument that could discriminate between wraparound and usual services.

Experts continue to reframe and prioritize key factors. Three constructs have been identified as necessary to maintain the integrity of the wraparound process (Bertram, Maysiak, Rudo, & Duchnowski, 2000). Families must act as informed, involved decision makers. Child and family teams must be well composed and well constructed. Within the team, members must identify and use the strengths in the home, school, and community to meet identified needs. Robert Friedman (2002) suggests one crucial construct—the successful engagement of the family.

Based on this fundamental work, more cost-effective methods to determine fidelity are under development. After each child and family team meeting in Florida, a survey is administered to all team participants (Burns & Goldman, 1999). Using the essential elements of wraparound, the form evaluates the level of participation and elements evident in the team meeting. No psychometric properties are yet reported on this instrument.

A Wraparound Fidelity Index (WFI) was developed in Vermont, using third party telephone interviews with the child, parent, and team facilitator (Bruns, Burchard, & Ermold, 2001). The initial pilot compared WFI scores from the phone with the scores of experts completing an intensive on-site assessment. Initial findings indicated a correlation between the expert assessment and phone based WFI. A revised WFI will allow programs to assess their own adherence to the wraparound process, facilitating staff training and quality assurance (Burchard et al., 2002). The revised form is being tested at various sites nationally, including Indiana. Improvements in the revised WFI 2.0 were demonstrated in the areas of sensitivity, internal consistency, and inter-rater reliability (Bruns, et al., 2002). Telephone interviews are fairly efficient and cost-effective, making administration of the instrument feasible. The revised version was clearer. Limitations include the absence of phones, a barrier for reaching some families. The length of some items in the instrument is also an issue.

More recently, "fidelity" systems of care work has begun to consider necessary system level, organizational infrastructure elements as important to systems of care fidelity. Eric Bruns and associates (Bruns, Suter, Burchard, & Leverentz-Brady, 2004) have developed a program level form to compliment the WFI. The WFI-Program Administrator form (WFI-PA) evaluates a system's adoption of necessary conditions for a system of care, the administrative and system level characteristics of a program or site. Completed through an interview with the administrator, the WFI-PA includes five sections, each with 3 to 16 items: General Site Information, Capacity and Staff, Interagency Coordination and Funding, Outcome Management and Accountability, and Organizational Adherence to the Wraparound model. The items collapse into 10 domains that are considered to be associated with a site's ability to provide services through a wraparound

approach: program duration, program size, resource facilitator caseload, staff turnover, interagency coordination, blended funding, natural supports, strength-based supports, family-centered supports, and outcome-based service delivery.

The WFI-PA was administered with the WFI in16 agencies in nine states. Concurrently, the WFI was used with 404 families who received services in the 16 agencies. The researchers investigated which of the 10 factors might be associated with higher and lower overall adherence to wraparound. Two sub samples of parents, one from sites with high WFI scores and one with lower WFI scores were examined. The WFI-PA scales for these sites were different. Sites with high demonstrated WFI team fidelity also rated highly for nine of the 10 factors. Sites with lower WFI team fidelity had only four of the 10 factors present at the organizational level. Multiple regression analysis demonstrated that two aspects of program structure were associated with wraparound fidelity: availability of flexible funds to help implement innovative ideas and caseload size. Up to this point, the emphasis on EBPs has focused on program models, neglecting the investigation of program structures (Anthony, 2003). Bruns and associates' (2004) findings support the importance of considering organizational elements in research.

Research related to the federally funded systems of care sites, entering their sixth year, has been published in a 1999 annual report to Congress (CMHS, 1999). The mandate was to assess funded sites and document the degree of implementation of the "model". The CASSP principles and the grant program provided minimal standards. In the absence of a standard fidelity assessment, a literature review was conducted to identify key features and functions. Experts in the field of child mental health, including practitioners, researchers, and family members were consulted. Attributes of a system of care were identified. Two domains were considered: infrastructure and service delivery. The identified attributes of

each domain were consistent with the earlier work at Duke University (Goldman, 1999). To determine program fidelity, a broad array of respondents and key informants were interviewed using semi-structured questionnaires. Most information was collected by two site visitors during a three day visit. The combined use of qualitative and quantitative analysis to determine fidelity is similar to the fidelity tools being used to measure implementation of evidence based mental health practices for adults with serious mental illnesses.

Brannan, Baughman, Reed, and Katz-Leavy (2002) completed a cross-site comparison of the differences in funded systems of care sites and unfunded service delivery systems. Three federally funded sites were selected in their fifth year of funding in Texas, California, and Ohio. Comparison sites were selected in these states. Using the concept of two domains of a system of care, infrastructure and service delivery, eight components were identified that can be found in most service systems—infrastructure (governance, management and operations, service array, and quality monitoring) and service delivery (entry into the system, service planning, service provision, and care monitoring). Each component was operationally defined. It was assumed that the system of care principles should appear in all service system components. Key indicators were identified to represent the structure or activities that would be present if a component was true to the system of care principles. For example, "service planning occurs at flexible times to maximize the convenience for the child and family" (p. 43). Input from experts and pilot testing of the instrument were completed. Three days of structured interviews at each site involved multiple interviewers. Great care was taken to ensure inter-rater reliability. The study found that funded sites generally received higher scores than non funded sites. Given the small sample size (n = 6), standard statistical analysis could not be

used. Information was presented in a descriptive manner, noting the similarities and differences between sites. Quantitative scores were summarized and qualitative information provided context for the information. Scores tended to be higher in the service delivery domain than in the infrastructure domain. In general, the funded sites embraced the system of care principles to a greater degree than non funded sites. Funding appeared to bolster the development in infrastructure with more community based care, less restrictiveness of living arrangements noted for funded sites. Neither symptom nor functioning outcome domains were considered in this study.

Similarly, a statewide survey regarding the development of systems of care in Indiana (Walton & Barton, 2003) indicated that communities with state or federal funding tended to endorse more of the system of care principles than unfunded communities. The greatest differences were seen in the infrastructure. No significant differences were seen in the service delivery component. The essential elements of wraparound and requirements for practice (Goldman, 1999) were used to develop the survey instrument. Completed by child welfare and/or mental health staff in 91% of Indiana's counties, the instrument offers another early attempt to address the fidelity of practice to the system of care model.

In September 2003, Janet Walker, Nancy Koroloff, and Kathryn Schutte of the Portland State University Research and Training Center on Family Support and Children's Mental Health released a monograph identifying the necessary conditions to implement high quality individualized service/support planning. The researchers assert that, although child and family outcomes are attributable to direct practice, basic conditions must be in place at the organizational and system (policy and funding) levels in order to support child and family wraparound teams that incorporate the basic values, principles and essential elements. Conditions at each level are identified in five areas: practice model,

collaboration/partnerships, capacity building or staffing, acquiring services/supports, and accountability. The researchers have developed a series of related assessments to use by stakeholders to examine the extent to which they reach the necessary conditions for a system of care. Included in assessment instruments are team, organizational, and system level components. Rankings or scoring are avoided.

The importance of meeting the necessary conditions at the administrative and system level are demonstrated in a newly released study of nine "graduating" federally funded sites. The qualitative study found that "without explicit infrastructure to support the diffusion of new practice principles and values, incorporation of system-of-care values into service delivery was localized to the most active agencies and, too often, further localized to the children and families enrolled in a specific program" (Friedman, Paulson, & Fixsen, 2004).

Motivated by the desire for federally funded systems of care to continue long after federal funds are gone, SAMHSA sponsored the development of a Sustainability Planning Tool Kit (Child and Adolescent Family Branch, 2003). The discussion questions, self assessment tools, and strategic planning templates include indicators of the values, philosophy, and essential elements of a system of care infrastructure and service delivery system. Sustainability objectives explicitly present indicators related to each element. The sites identify how they will know when the objective is reached and what barriers exist. The "sustainability" approach addresses an immediate need, avoids the controversial "fidelity" term and incorporates the individual adaptation of the values, philosophy, and essential elements in each system of care. Veiled under the compelling guise of "sustainability", the tool kit is yet another fidelity measure which was presented to federal grant sites in January, 2004, at a national meeting as a promising, developing tool.

In conclusion, fidelity tools are beginning to address both the structural and service delivery components of systems of care. Until recently, scales tended to focus primarily on the service delivery component and were not cost effective to administer. Attempts to develop fidelity instruments, operationalizing a system of care model, have led to debate and renewed discussion of a philosophical versus theoretical basis for the system of care paradigm. Pushing past the debates, quasi-fidelity assessment tools are being introduced for self assessment (quality improvement) and "sustainability" of the essential elements beyond federal funding and intensive technical assistance. Yet, researchers shy away from quantifying scales.

Another approach has been suggested to measure the fidelity of developing systems of care. Based on the basic values and principles (Stroul & Friedman, 1986b) and essential structural elements (Pires, 2002) of systems of care, a Strengths-Based Assessment was developed to assess emerging systems of care in Indiana (Effland, Walton, & McIntyre, 2005). Theoretical constructs from change theories (Prochaska, DiClemente, & Norcross, 1992; Rogers, 2003) were adapted to incorporate indicators of systems of care values, principles and essential elements.

Appendix III A, Diffusion of Innovations and States of Readiness for Change, integrates Rogers (1995) and Procheska, Norcross, and DiClemente's (1994) change theories with operational definitions for each level and component of a level of change. Appendix III B, Applying Change Theories to System of Care and Wraparound Coding Template, integrates change theories and wraparound principles. Appendix III C, Strength-Based Assessment of DMHA Funded System of Care Sites, is the survey instrument that was used to collect information regarding each system of care site. Appendix III D, Individual Readiness for Change Rating Guide, Wraparound Stages of Change Rating

Guide, and Community Readiness for Change Guide, were used to evaluate the level of development of each system of care site based on change theory and wraparound principles.

Using qualitative analysis, two independent raters reviewed the strength based assessments of 16 developing systems of care. Sites were assessed at two points in time (fall 2002 and winter 2004) by site coaches from a state based technical assistance center. From analysis of the written site assessments, the stage of development of each site was determined. Changes over time were also evaluated. The combined use of theories of change with system of care values and essential elements customizes change theory concepts with application to this specific innovation. It offers a theoretical basis to assess the developmental level of emerging systems of care. In the following chapter the literature base for change theories is explored.

Chapter Two

Theories of Change in a Child Mental Health Research Context

The slow diffusion and application of research based mental health interventions in practice settings has created a renewed interest in the technology of change. For more than a hundred years, science has studied the process of change, the adoption of new ideas or innovations. Three types of change theories are reviewed in this chapter and then woven into the proposed study: diffusion of innovation (Rogers, 2003), stages of readiness for change (Prochaska et al., 1992) and "theory of change" or program theory, how a program model's pieces fit together to achieve a desired outcome (Hernandez & Hodges, 2003a; Hernandez & Hodges, 2003b). Rogers (2003) and Prochaska, Norcross, and DiClemente (1992) have developed theoretical models to explain the process of behavioral change, the adoption of new ideas and behaviors by individuals and organizations. Program theory (Hernandez & Hodges, 2003a; Hernandez & Hodges, 2003b) refers to the implicit or explicit objectives, strategies, and intended outcomes of a specific social service.

Diffusion of Innovation

"Diffusion of innovation" (Rogers, 1962) literature has provided the theoretical basis for research and change strategies in industries as different as agriculture, marketing, technology, and health care. "Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers & Scott, 1997, p. 7). Although Everett Rogers (1962) is recognized as the founder of diffusion of innovation theory, his work was built on the earlier work of the French sociologist, Gabriel Tarde (1903).

The primary task of Tarde's proposed sociology was to explain how some innovations, which he referred to as imitations, came to be selected over others. He identified the variables that appeared to influence whether an object of imitation would become successful or reproduced (Marsden, 2000). Tarde's (1903) work became the inspiration for innovation adoption research in applied sociology, particularly rural sociology (Ryan & Gross, 1943) and medical sociology (Coleman, Katz, & Menzel, 1957; Winick, 1961).

As early as 1903, Tarde identified the S-curve as describing the adoption of innovation, supported by later research as representing the normal rate of "adoption of an innovation over time for members of a social system" (Rogers, 1983, p. 243). The variance lies in the slope of the "S". Some new innovations diffuse rapidly creating a steep S-curve; other innovations have a slower rate of adoption, creating a more gradual slope of the S-curve. The rate of adoption, or diffusion rate has become an important area of research among sociologists, and more pragmatically, within the applied field of marketing.

In the 1940s, two rural sociologists, Bryce Ryan and Neal Gross (1943), published a seminal study of the diffusion of hybrid seed among Iowa farmers, renewing interest in the diffusion of innovation S-curve (Figure 2). The seminal hybrid-corn study resulted in a renewed wave of research and theoretical development.

This rate of adoption curve was similar to the S-shaped diffusion curve graphed by Tarde (1903) forty years earlier. Ryan and Gross (1943) classified the farmers in relation to the amount of time it took them to adopt the innovation. Diffusion of innovation theory has incorporated the five, now familiar, adopter categories: innovators, early adopters, early majority, late majority, and laggards (Rogers, 2003).

According to Rogers (1995), adopters of all categories go through a five-stage process: an individual passes from first knowledge (Knowledge Stage) of an innovation to forming an attitude toward the innovation (Persuasion Stage), to a decision to adopt or reject (Decision Stage), to implementation and use of the new idea (Implementation Stage), and to confirmation of this decision (Confirmation Stage) (Anderson, 2001). Empirical evidence of stages of change exists, most clearly for the knowledge and decision stages and to some degree for the persuasion stage (Rogers, 2003). Limited data from agricultural and education research supports the implementation and confirmation stages. The stages are often measured over years. The change process may not be linear. Individuals and organizations may return to an earlier phase at any time. During the decision or implementation phase, new behaviors are tried out and may be rejected.

Rogers (2003) has also identified five stages for the adoption of innovations in an organization. Parallels with the stages for individual adopters can been seen. During the Agenda-setting Stage, organizational problems create a perceived need for innovation. In the Matching Stage, an organizational problem is fitted with an innovation. The identified innovation is modified and re-invented to fit the organization in the Redefining/Restructuring Stage. During the Clarifying Stage, the relationship between the organization and the innovation are more clearly defined. At the Routinizing Stage, the innovation becomes part of the normal process or routine element of the organization's activities, losing its unique identity. The first two stages make up the initiation process, leading up to a decision to adopt an innovation. Following this decision, implementation activities put the innovation to use. "Sustainability is more likely if wide-spread participation has occurred in the innovation process, if re-invention took place, and if an innovation champion was involved" (Rogers, 2003, p. 435).

In his comprehensive work, The Diffusion of Innovations, Rogers (1995) built on earlier work to develop the theoretical framework for diffusion of innovation. Three areas have been studied regarding the dissemination of innovations: (1) perceptions of the innovation, (2) characteristics of the people adopting the innovation, and (3) contextual factors, such as communication, incentives, leadership, and management (Berwick, 2003). "The characteristics which determine an innovation's rate of adoption are relative advantage, compatibility, complexity, trialability, and observability...innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more rapidly than other innovations" (Rogers & Scott, 1997, p. 8).

Limitations of diffusion research and theory. The rate of adoption s-shape curve, the heart of diffusion theory, is based on cumulative distribution functions. The theory was built on the assumption that adoption would be normally distributed, following a bell shaped curve (Rogers, 2003).This theoretical generalization has been supported by a variety of studies of successful innovations. However, the S-shaped curve describes only the diffusion of a successful innovation. Unsuccessful innovations may be adopted by only a few people in the system and then rejected so that the rate of adoption levels off and then takes a nose dive. The actual curve for the dissemination of an innovation may not be a normal distribution.

Rogers (2003) acknowledges basic criticisms of diffusion research: pro-innovation bias, individual blame bias, and recall bias. The pro-innovation bias implicit in most diffusion research assumes that the innovation should be rapidly diffused to and adopted by all members of a social system, that it should not be revised nor rejected. The individual blame bias tends to hold individuals responsible for their behavior instead of the system to

which they belong. The recall bias is a problem if participants are asked to remember the time they adopted a new idea.

To address research limitations, Rogers (2003) suggests several research strategies. Study not only successfully diffused innovations. Gather information over time, not just retrospectively. Investigate the broader context of the diffusion such as the decisions by a change agent to diffuse the technology. Do not assume that all respondents view the innovation in a positive light. Instead of criticizing late adopters or laggards, a diffusion researcher might explore the reasons for their opinions and behaviors. Perhaps the innovation is not appropriate due to the size of their agency or limited resources. The channel of innovations may be at fault for not providing enough information, promoting inappropriate innovations, or failing to support potential implementers who may require assistance. To address these concerns, researchers should seek alternatives to using individuals as the sole unit of analysis, avoid blaming the implementers, and explore the social and communication structural variables as well as individual variables. To help address the recall problem, Rogers (2003) suggests that researchers carefully pretest surveys and use computer records to document the adoption of an innovation.

Stages of Change

In the late 1970s the Transtheoretical Model of Stages of Change came from the addiction treatment field with Procheska, DiClemente, and Norcross (1992) describing the readiness of individuals to change their behavior. A sequential model of general change was developed from a comparative analysis of psychotherapy and behavioral change theories using factor analysis and cluster analysis. Incorporating 15 different theoretical constructs, the model includes 10 processes of change, the perceived pros and cons of changing, and the more widely known stages of change.

Prochaska and associates (1992) provide cognitive and behavioral indicators for each stage of change. In the Precontemplation Phase the individual does not recognize the need for change and has no intention of changing. In the Contemplation Phase, the individual becomes aware of a problem, but makes no commitment to take the necessary action for change and does not take any action. In the Preparation Phase, sometimes called decisionmaking, the individual makes a decision characterized by small behavioral and mental actions that are necessary for change. For example, the individual may announce an intention to change. In the Action Phase, new behaviors are tried out. More importantly, evidence of the motivation to change is overtly demonstrated by behavioral change over time, effort, and commitment. In the Maintenance Phase, the individual actively reinforces the new behavior and attempts to remove barriers for successful change. If not successful, the individual is likely to revert to previous behaviors. Individuals may cycle and recycle through the stages several times before achieving long term behavioral change (Sutton, 2001).

The now popular stages of change simplified the complex body of behavioral theory into an easily understood model that could be easily taught to practitioners. Initially, it was applied to the behavior of smokers, then to a broad range of health and mental health behaviors (Bunton, Baldwin, Flynn, & Whitelaw, 2000). The science-to-practice literature has embraced the theory of change concept to guide would be change agents (Addiction Technology Transfer Center Network, 2000).

Limitations of stages of change theory. A recent review of the stages of change literature included an electronic search of related publications between 1985 and 1998 (Bunton et al., 2000). Of the 368 papers reviewed, many were based on empirical explorations of the model with a published data set. A meta-analysis of these studies found

several major conceptual problems of internal and external validity. The internal validity concerns are demonstrated in a published debate between Bandura (social learning theory) and Prochaska in 1997 (as cited by Bunton et al., 2000). Critics argue that the five stages are not mutually exclusive. Rollnick (Budd & Rollnick, 1996, as cited by Bunton et al., 2000) suggested that three of the five are actually a continuum, rather than distinct stages. Bandura (as cited by Bunton et al., 2000) argues that human behavior is too complex to be neatly explained in a few stages. Prochaska agreed that the stages were not intended to be explanatory, that the associated processes provided more explanation. Secondly, the stages of change suggest a linear process for change. Yet, empirical studies suggest that sometimes stages are skipped. The focus on internal cognitive processes is also criticized as a factor that is considered in isolation, neglecting social interaction and social contextual factors.

External validity issues include the emphasis on the individual, the consumer of services, in the change process. Ignored are the influences of interventions or environmental determinants of behavior (Bunton et al., 2000). Critics would argue that while the Transtheoretical Model of Change is easily understood and widely applied in the science-to-practice literature and in addiction treatment, barriers to change may actually stem from a problem in disseminating scientific knowledge or a problem in the quality of the intervention, not in the consumer's readiness to change.

Sutton (2001) also examined the literature base for theory of change, concluding that the idea that behavioral change involves movement through a series of discrete stages is an important idea and worthy of additional research and theoretical development. However, he concludes that stages of change theory (Prochaska et al., 1992) provides a

poor implementation of this notion and that further research is needed to develop discrete stages accompanied by quantitative measures.

There are similarities between the Transtheoretical Model of Change, stages of change and Roger's (2003) five stage innovation-decision processes for individuals and similar five stage Innovation Process in organizations. Combining the theories (Table 6) regarding stages of change for individuals and for organizations may provide a more comprehensive context in which to consider the readiness of a system to change. Complex systems, such as those designed to serve children, involve changes at both the individual and organizational levels.

Program Theory

The framework of how the pieces of a model fit together to serve a population in order to achieve a desired outcome is referred to as a "theory of change" or program theory (Friedman & Hernandez, 2002). It "represents stakeholders' best ideas about the action they need to take" (Hernandez & Hodges, 2003b, p. 4). Two broad components are involved in a program theory. The first includes conceptualization of three core elements: the population, strategies believed to achieve desired outcomes, and goals or desired outcomes, including desired change for the population of focus. The second component involves developing an understanding of the relationships between the core elements and clearly expressing those linkages.

Program evaluation is ideally grounded in a theory of change (Lipsey & Cordray, 2000). Connell and Kubisch (1998) characterize good theory of change as plausible, doable, testable and meaningful to all parties. Weiss (1995) suggests that all social programs are based on a theory of how they work, whether or not the theory is explicitly stated. Yet, in a recent study, only five of nine federally funded system of care

communities that were studied (Friedman et al., 2004) had a discernable theory of change (explicit or implicit) as evidenced in the original grant applications, continuation applications, site visit reports, or CMHS monitoring.

To graphically represent a programmatic theory of change, logic models have been proposed to guide program developers and researchers (Espiritu, 2003; Hernandez & Hodges, 2003a; Hernandez & Hodges, 2003b). A logic model neatly summarizes the program in one page, assures the program's plausibility, avoids miscommunication between evaluators and the program, defines the program needs, and assists with evaluation design (Espiritu, 2003). A logic model includes six parts: mission, target population, context, objectives, activities, and outcomes. Revisiting the program mission keeps activities on target. Explicitly identifying the characteristics of the population narrows the focus of the program. Included are demographics, diversity, and scope/history of the problem. External characteristics of the environment provide a contextual framework that includes the need for services, resources, and stakeholders. Values and principles can be addressed in the contextual framework. Objectives explicitly identify desired outcomes. By stating objectives in measurable terms, a basis for evaluation design is provided. The strategies or activities to achieve the desired outcomes form the plan of action. Specific short and long term outcomes for child mental health programs may include individual, program, and system level outcomes. Determining what success will look like helps identify specific outcome measures. Figure 3 displays a typical logic model template.

Summary. Multiple theories of change are emerging that not only help explain the adoption and adaptation of new ideas or innovations (science to practice), but also an individual's and organization's readiness to change, as well as how specific program

actions influence desired outcomes. The theoretical constructs have some support from empirical research and continue to be refined. While having some limitations, the theoretical constructs provide a useful contextual framework and language to explore the developmental level of systems of care in providing child mental health services.

A combined stages of change model (Procheska et al., 1992; Rogers, 2003) is the basis for a fidelity measure of the stages of development of systems of care in Indiana (Effland et al., 2005). The following chapter uses a logic model to present the recorded, expressed, and active theories of change for Indiana's child mental health services (Hernandez & Hodges, 2003b). The conceptualized planning process as recorded in policies, mission statements, planning documents, and expected actions expressed by stakeholders and participants are compared with actual activities expressed by direct staff and family members as documented through the evaluation process.

Chapter Three

Indiana's Emerging Systems of Care: Theory of Change

This chapter describes Indiana's theory of change for improving the quality of care for children with SED and complex needs. Figure 4 displays the graphic conceptual framework is used to explicitly describe the development of child mental health services in the state. A logic model is used to make the theory of change explicit (Espiritu, 2003; Hernandez & Hodges, 2003b).

Mission

The mission statement for the Indiana Family and Social Service Administration, Division of Mental Health and Addiction (DMHA) is "to ensure that Indiana citizens have access to appropriate mental health and addiction services that promote individual self-sufficiency" (Indiana Family and Social Service Administration [FSSA], 2003).

Target Population

> The target population is children with serious emotional disturbances. Children with serious emotional disturbances are persons from birth to age 18 who currently, or at any time during the past year, have a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within the Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Association, 1994) that resulted in functional impairment which substantially interferes with or limits one or more major life activities (CMHS, 1999, p. 1).

The nationally accepted definition was modified by Indiana and applied only to children at or below 200% of poverty or eligible for Medicaid.

> The child or adolescent has a mental illness diagnosis under the DSM-IV. The child or adolescent experiences significant problems functioning in at least one (1) of the following areas:
> a. Activities of daily living.
> b. Personal relationships.
> c. Concentration, persistence, and pace.
> d. Adapting to change.
> The illness is expected to last more than 12 months. However, children or

> adolescents who have experienced a situational trauma and who are receiving services in two or more community agencies do not have to meet the durational requirement (FSSA, 2002).

In SFY2004, 26,825 children with serious emotional disturbance were recorded as being served by the Hoosier public mental health system (FSSA, 2005). See Table 7 regarding demographic information for the targeted population. Reported data include age, gender and race.

In 2001, the target population was modified to include children with severe functional impairments who were eligible for admission to state institutions. Such children were sometimes admitted to state hospitals but often were not served by the community based system. National and state level attention to the problem of termination of parental rights to access needed mental health care for this population broadened the target population. However, the Hoosier Assurance Plan continues to fund the originally targeted population.

Historical Context

To provide a context for the theory of change, a brief history is provided of Indiana's public mental health services for children. Jim Philips (Philips, 2002), Bureau Chief for Children, recorded the state agency's related activities. In 1984, Indiana initiated a Child and Adolescent Service System Program (CASSP). During the next five years, funding was provided to 10 of the state's 30 community mental health centers (CMHCs) and between multi-service agencies to expand services. By 1991, 17 of the 30 CMHCs identified services for children in their annual service plans. In 1992, DMH began implementing the Hoosier Assurance Plan (HAP), a market-based public mental health plan with managed care features. Through HAP, DMH for the first time targeted children as one of three priority services populations. By 1993, 15,761 clients were being served in

the HAP, a 27% increase over the number of children served the previous year. That same year the Medicaid Rehabilitation Option (MRO) was added to the state Medicaid plan, allowing the expansion of services to include targeted case management and day treatment services.

In 1996, the DMHA was awarded a Robert Wood Johnson Foundation Mental Health Systems Improvement Project (MHSIP) grant. This system of care planning grant was to replicate a managed care system of care model that blended funds. The resulting "Indiana Cost Sharing Project", focused exclusively on Marion County, became known as the Dawn Project.

A specific line item dedicated to children with SED was included in the DMH budget for the first time in 1997. The state's definition of children with SED was added to the HAP for the purpose of enrolling children in SFY1998. By 1999, six of the 29 managed care providers who contracted with DMH to provide services for children with SED were non-community mental health centers. In 1999, federal Children Mental Health Initiative grants were awarded to the Dawn Project and to Lake County's Circle Around Families.

In 2000, FSSA's Divisions of Mental Health and Addiction and Families and Children collaborated to provide state-level start up funds for four pilot system of care projects. Between 2001 and 2003, 22 additional systems of care have been given similar start up funds. A technical assistance center for systems of care and evidence based practice was implemented in November 2002. The technical assistance center, affiliated with Dawn Project, provides a site coach to each of the state funded sites.

Stakeholders in the locally developing systems of care have included a core group if state agencies—child welfare, special education, juvenile justice, and mental health. At

the state level, the same coalition began to work together on cross system initiatives. Beginning in 2002, a task force met for about one year to develop and submit an application for a 1915(c) Home and Community Based Service Medicaid Waiver for children who are eligible for admission to a state hospital. Memoranda of Understanding were developed across systems to provide state match. In 2003, Indiana was selected to participate in a national policy academy for systems of care to develop another cross system initiative—routine mental health and addiction screening, assessment, and treatment for children in the child welfare system.

Fiscal resources grew dramatically during the mid-nineties with the MRO expansion; the targeted child mental health line item for community services was $17, 325,578 in SFY2002.The state's total local, state, and federal expenditures for services to children in SFY2002 was about $1.5 billion dollars. Of this amount, however, the DMHA children's budget is only about 1%. If Medicaid is included in the child mental health budget, the percentage grows to about 7%.

Values/Principles

The Hoosier Assurance Plan assumed that market based competition with clear contractual agreements would result in effective community based services for adults and children. One basic value is consumer choice. In order for consumers to have choice, more than one provider is needed. Traditional geographic catchment areas were disbanded and competition was encouraged. A continuum of care was mandated with definitions of services developed over several years. The implementation of MRO funded intensive supportive services to complement usual therapies. However, other than the funding growth through MRO, funding levels remained relatively even. The children's budget was based on a percentage reflecting service levels in the early to mid-1990s. Many more

individuals have qualified for the Hoosier Assurance Plan and have been served than have been funded. In SFY2004, over 24,000 children were enrolled in the state database as eligible and served; yet funds were available for less than half of the enrolled and eligible children.

Concurrently, traditional systems of care values and principles have been endorsed by DMHA in its initiatives to encourage the development of systems of care. The values endorse child centered and family focused services which are culturally competent, individualized, strength based, coordinated and community based. Collaboration among systems and agencies that serve children is a fundamental principle.

Objectives

Program objectives

- to provide effective mental health services which result in improved outcomes for children and their families
- to increase the capacity for community based care
- to promote the development of local systems of care with cross system collaboration and service delivery through child-family teams

State objectives in measurable terms

- To develop a comprehensive array of services for children with SED as defined and outlined in 440 Indiana Administrative Code (IAC).
- To develop systems of care consistent with the basic values, principles and essential elements in the literature (Stroul & Friedman, 1986b; Pires, 2002).
- To provide community based services for children with SED based on their needs that result in improved outcomes [improved functioning as evidenced in the HAPI-C (Newman, et al., 2002) and maintained or less restrictive levels of care as

indicated by the Restrictiveness of Living Environment Scale (ROLES) (Hawkins, Almeida, Fabry, & Reitz, 1992)].

Activities/Strategies

See the historic context above for a continuum of strategies related incremental gains in the availability of community based services for children. The specific activities and strategies that provide the focus of the present research are in more recent years. The development of systems of care in Indiana was first implemented through the Dawn Project and then further developed through federal Child Mental Health Initiative grants to Lake and Marion Counties. State legislation provided for the replication of the Dawn project. One hundred thousand dollars was given to each of four sites, including one multi-county site, beginning between 2000 and 2002. Lessons learned in this early dissemination of the model helped to support similar infrastructure development grants to additional sites and identified the need for ongoing active technical assistance to train and coach new sites in their development.

Between 2002 and 2004, 18 additional systems of care have been seeded with two year grants and performance based contracts. Technical assistance has been involved. A Home and Community Based Service 1915c Medicaid Waiver has also been successfully developed with approval from the Centers for Medicare and Medicaid Services, effective February 1, 2004. Waiver services are provided through systems of care with both functioning collaborative infrastructures and wraparound service delivery through child and family teams. Quarterly meetings of the emerging systems of care partners and active leadership from the state have encouraged system change. The state database was enhanced to allow identification of children who are served through systems of care so that data could begin to be used for quality improvement processes. The incremental

development of systems of care provides the basis for the current study.

Outcomes

System level, practice level, and child and family level outcomes were desired.

System Outcome

1. Comprehensive continuums of care for children with SED will exist throughout the state as evidenced in service utilization patterns reported in the Community Service Data System (CSDS).

Practice Outcomes

1. Within 1 to 3 years of beginning, systems of care will have developed a collaborative infrastructure and have begun providing cross system services through child and family teams consistent with the values, principles, and essential elements of the paradigm. Systems will be at various stages of development, but working toward "sustainability".
2. Within 1 to 3 years of beginning, systems of care will result in an expansion of the usual continuum of care (array of community based services).

Child and Family Outcomes

1. Children who receive services will experience improved functional outcomes as evidenced in the factors of the Hoosier Assurance Plan Instrument for Children (HAPI-C) (Newman et al., 2002).
2. Children who receive mental health services will experience less restrictive living arrangements (ROLES) (Hawkins et al., 1992).
3. Families will have greater voice at all levels (individual treatment, policy, and evaluation).

Chapter Four

Methodology

Assessing Quality of Health Care

The complexities of exploring the quality of health care, in this case mental health care, need to be acknowledged (Donabedian, 1988). If health care conforms to the practice that is expected to achieve the best results, the quality of care is considered to be good. To assess quality of care, researchers must consider structure (resources and organizational structure), process (what is done in giving and receiving care), and outcome (effect of care on health status of patients and populations). Donabedian's structure, process, and outcome paradigm provides a framework to explain the study's methodology.

Structure. During the last ten years, the structure of the publicly funded child mental health service system has remained stable. Thirty-one comprehensive community mental health centers (CMHC) and a handful of child service agencies (managed care providers) contract with the state, Indiana Family Social Service Administration, Division of Mental Health and Addiction (DMHA), to provide a continuum of community based services. Geographically, this network covers the state. A state level database, Community Services Data System (CSDS) has been used to enroll children in the Hoosier Assurance Plan since the late 1990s.

As is described in Chapter Three, systems of care for children with serious emotional disturbances are emerging in Indiana as cross-service systems with structural foundations including public mental health, child welfare, special education, juvenile justice, and families. For federally funded sites, the development and endorsement of classic system of care values, principles and essential elements have been reinforced through grants, contractual language, regional and national grantee conferences, technical

assistance, ongoing evaluation and research, and reports to Congress. For state funded systems of care, development has been influenced by state legislation, contractual language, technical assistance, existing collaborative initiatives and practices, and both state and local leadership. Systems of care have been implemented over time in Indiana. This staggered introduction helps control for the influence of time on outcomes.

The state database was enhanced in state fiscal year (SFY) 2004 to identify children who were being served through a system of care (Stroul & Friedman, 1986a) and to add the Restrictiveness of Living Environmental Scale (ROLES) (Hawkins et al., 1992).

Process. Wraparound through a child and family team in a system of care is considered a promising practice to provide quality care to children with complex needs. "A system of care incorporates a broad array of services and supports that is organized into a coordinated network, integrates care planning and management across multiple levels, is culturally and linguistically competent, and builds meaningful partnerships with families and youth at service delivery and policy levels" (Pires, 2002, p. 3). Fidelity to the system of care paradigm has been determined based on a developmental assessment (Effland et al., 2005) of emerging systems' of care adherence to the essential elements (Pires, 2002). In Indiana, a continuum of care, an array of services, is required by statute (Indiana Code 12-7-2-40.6) and defined by rules (Indiana Administrative Code, 440 IAC 9-1-1 – 440 IAC 9-2-13). Indiana's perceived availability and quality of services has been evaluated through a statewide survey of key informants (Pavkov, Greenwald, Walton, & Newton-Curran, 2004).

Outcomes. Outcomes for children with serious emotional disturbances, who are served through system of care services, are compared with outcomes of a matched sample of children, who are receiving usual mental health services in the public mental health

system. Data in the state databases report restrictiveness of living arrangements and level of functioning, assessed at enrollment in the Hoosier Assurance Plan and reassessed later (at discharge, 180 days after enrollment, or re-enrollment the next fiscal year). The outcome or dependent variable for this study is improvement in functioning for the child, their family, and lessened reliance on mental health services.

Problem

Despite its emergence as a promising practice, little research has been conducted exploring the implementation of systems of care. Limitations inherent in field based studies and issues related to measuring the fidelity of the system of care approach have limited such research. Few studies have included a comparison group. Until four or five years ago, the emphasis was on system collaboration, not practice (Groves, 2005).

Opportunity. Indiana's implementation of systems of care as a "model" of intensive cross-system practice in multiple sites over time offers the opportunity to explore the intervention's effectiveness as compared with usual services provided through mental health providers who contract with the Indiana Family and Social Service Administration, Division of Mental Health and Addiction. Using the state mental health database, complemented by related qualitative analysis (Effland et al., 2005) and survey results (Pavkov et al., 2004), assumptions can be tested, and factors related to changes in outcomes for children with SED can be explored. Research questions are frames and hypotheses tested using the state's database. The questions and hypotheses begin with general assumptions about differences in the effectiveness of service delivery models and then explore more specific assumptions about the importance of fidelity to wraparound and differences in effectiveness for whom (which children with what specific needs) under what conditions (Saxe et al.,1988).

Research Questions

1. How do outcomes for children who are served by systems of care differ from outcomes for children who are served by usual public mental health services?
2. How are differences in outcomes related to the level of development of the systems of care (fidelity)?
3. How do outcomes vary across life domains?
4. How do the characteristics of the children and families impact outcomes for youth and families served through developing systems of care?

Hypotheses

1. Outcomes for children served by systems of care, as evidenced by improvements in level of functioning, will be greater than for a matched sample of children served in usual services.
2. Outcomes for children served by systems of care will vary positively in relation to the degree to which service delivery systems conform to the principles of the systems of care construct for service delivery (fidelity).
3. Differences in outcomes will vary by domain of functioning.
4. Differences in outcomes for children and families served through systems of care will vary depending upon characteristics of the children and their families.

Design. A mixed design, using quantitative and qualitative methods with data from three sources, explores factors related to the outcomes of children with serious emotional disturbance. An analysis of an extant administrative database from the state mental health system, Community Services Data System (CSDS), identifies children served in systems of care and usual public mental health services. CSDS reports demographic, diagnostic, and other data related to changes in children's levels of functioning. To determine the level of

development of systems of care emerging throughout the state, a qualitative study (Effland et al., 2005) was conducted. Results of a statewide survey (Pavkov, 2004) provide the perceived level of local system functioning and adequacy of the continuum of care in each county. Figure 6, Variable Map, provides a graphic display of the research design.

Database. In 1999, the web based CSDS was implemented to support the Hoosier Assurance Plan (HAP), the system for funding public mental health services in Indiana. CSDS is used by contract providers to enroll eligible consumers and to draw down public mental health funding. It is also designed to provide information for actuarial studies to determine risk adjusted rates for services and to provide data for outcome evaluation. CSDS utilizes electronic transmission of data and on-line access via the World Wide Web, supporting both client tracking and claims reporting (IFSSA/DMHA, 2002). The critical (required) fields for enrollment include the unique identifier code, a provider code, date of birth, gender, disability, county of residence, primary diagnosis, factor summary scores from the Hoosier Assurance Plan Instrument for Children (HAP-C) (Newman et al., 2002), living arrangement, source of referral, Restrictiveness of Living Environment Scale (ROLES) (Hawkins et al., 1992) and substance use information. In SFY2004, reassessment data was required for consumers still receiving services 180 days after enrollment. The reassessment field requires provider number, reassessment date, unique client identifier, level of functioning factor summary scores, substance use, living arrangement, employment, and the ROLES. Historically, providers have reported reassessment data for about 24% of all enrolled consumers.

Description of children in the SFY2004 CSDS database. According to the ROLES (Hawkins et al., 1992), seventy-six percent (76%) of the 26,825 children enrolled in the SFY2004 CSDS lived with their biological families, 10.4% lived in the homes of relatives,

adoptive parents, or friends, 7.4% lived in regular or therapeutic foster homes, 2% were in residential treatment, and 2% were living independently (IFSSA, DMHA, 2005). Less than 1% of the children resided in each of the remaining living environment categories [homeless (n = 85), school dormitory (35), supervised independent living (61), emergency shelter (60), medical hospital (1), state hospital (4), psychiatric hospital (95), detention (55), and jail/prison (3)]. The mean age for the population is 10.90 years old. Thirty-nine percent are female; 61% are male. Of the children enrolled in the CSDS in SFY2004, 0.4% are American Indian or Native Alaskan, 18% are African American, 0.3% are Asian, 74% are Caucasian, 4% are multi-racial, and 0.04% are Hawaiian or Pacific Islander. Five percent of the children are Hispanic.

Matched Samples. In SFY2004, the CSDS database included 26,825 children and youth, ages 0 to 17, who received community mental health services. Within this population were 723 youth who are identified as being served in a system of care in Indiana. Of the 723, 436 (60%) had been reassessed with complete outcome scores in SFY2004 or were re-enrolled in the first quarter of SFY2005 (which began July 1, 2004). Each enrollment file was examined and providers were contacted to verify that the identified youth were actually served in a system of care. The sample of 436 children included children enrolled by providers who were not part of systems of care or who were from counties that did not have established systems of care. These children were removed leaving 387 children in the sample. One additional child was removed as there was no way to rate the level of development of that system of care. For the study, the final sample of children served in systems of care is 386 children.

A matched sample of 386 children with SED who received usual services in the public mental health system was used as a comparison group in the study. Descriptive data

from the SOC sample was used to search for youth in the CSDS database with similar characteristics. The goal was to match the means of each sample on demographic, functional, and environmental variables to help control for possible mediating factors. Given the large number of variables, assumptions were made about the relative importance of matching criteria. Priority was given to matching time between assessments, level of functioning, age, race, and system functioning. Living arrangement, gender, and ethnicity were also considered. To select the comparison sample, a series of Access database queries were run using multiple variables: time between assessments, age, race, ethnicity, gender, living arrangement, level of functioning [affect (A), thinking (F), family (G), school (H), disruptive behavior (I), wellbeing (AFGHI), abuse (C), neglect (D), reliance on mental health services (L)], and perceived local service system functioning. Independent *t* tests were used to compare resulting comparison group with the SOC sample. Most closely matching samples based on level of functioning as described on page 74, youth were purposively selected to reduce an initial comparison group from 558 to 386 youth.

Variables

Dependent Variables: Dichotomization

Improvement in functioning. For the study, improvement in functioning of the children, their families, and lessened reliance on mental health services are the dependent variables. The definition of severe emotional disturbance includes the level of functional impairment experienced by children as a result of their mental health issues (DMHA, 2004). In Indiana, the level of functioning of a child at admission or enrollment in the CSDS was based on functional assessments completed by mental health clinicians using the Hoosier Assurance Plan Instrument for Children and Adolescents (HAPI-C) (Newman

et al., 2002). The instrument was introduced to providers by DMHA in SFY2001 and required in subsequent years.

The HAPI-C is similar to the Child and Adolescent Functional Assessment Scale (CAFAS) (Hodges, 1990) which had previously been used in Indiana, but replaced when the modified CAFAS did not predict utilization or cost of services. Developed to assess a child's ability to manage community functioning in an age appropriate manner, to determine service eligibility, and to document critical service outcomes, the HAPI-C includes 12 factors. These factors are used to assess the current status of the child and family in terms of how well the child and the family, with the help of available resources, can support and strengthen the child's development and to minimize distress to the child, the family, and to the larger community and to provide a basis for estimating the costs of services (Newman et al, 2001). A copy of the HAPI-C is included in the appendices. Table 8 outlines the nine domains that are covered by the HAPI-C's 12 factors, and the related items within the instrument.

Conceptual Framework of the HAPI-C. Before detailing relevant factors, the conceptual framework for the multi-factor instrument is reviewed. The concept of "self-management" is an underlying theme in the instrument. The 24 items in the assessment examine and describe the impact that emotional and behavioral needs have on a child's functioning. A continuum of ratings from nonexistent (7) to extreme (1) creates a range of functional impairment: none (7), minimal difficulty (6-5), moderate difficulty (4-3), and severe difficulty (2-1). According to the instrument protocol:

> At one end, when self-management is operating very well (*minimal* difficulty with managing the problem and its impact on functioning) the child is capable of monitoring her/his reactions to stressful situations and managing her/his symptoms. When these symptoms appear to be stressful and/or become problematic to role performance or functioning, the child may be given or make use of available resources and supports (e.g.,

> family members, caregivers, teachers, peers) to mitigate the problem or its potential negative influence on role functioning. Progressing further along the continuum, the child increasingly needs support and/or external resources to adequately self-manage (*moderate* levels). At the extreme end of the continuum, problems are so *severe* that the child will need significant support or resources for their management, and even with interventions, may not be able to adequately maintain behaviors similar to same age peers who do not have emotional or behavioral challenges.
>
> The manner in which self-management skills are manifested is largely determined by the nature of the problem and its potential impact on role performance or functioning. Additionally, raters should use typical age behavior as their reference point when making each rating judgment. In other words, to what degree is the child's functioning different from the average or typical functioning of peers the same age who do not have special needs.
>
> The family's self-management skills can also be described in a fashion that parallels that of the child. However, the family's focus is on their ability to manage their support of the child's age-appropriate development, or their support of the child's ability to manage or moderate the impact that the child's emotional disturbance may have on her or his functioning. The ratings for the family's management of their support of the child follows the same guidelines for determining levels as described for the child, going from minimal, to moderate, to severe problem difficulty or impact on functioning (Newman et al, 2001, p. 6).

The logic (operational directions) for rating the 12 factors differs across domains. For example, the first four items, Factors A (distress, anxiety, depression) and B (suicidal or self-injurious thoughts/actions), have a similar logic for rating choices on the 7 to 1 scale. Factors C (abuse) and D (neglect) share another set of operational criteria for rating evidence of abuse or neglect in the last 30 days by an adult caretaker. Factor E (health) is unique to the possible significant interactions of health issues with a child's role or functioning.

Only the summary scores for each factor are reported in the state database. For example, Factor A includes three questions or items. Individual item scores are available only in clinical records within provider agencies. In CSDS a score of 3 to 21 is reported for each factor. In this study, the factor summary scores were averaged to obtain factor scores

on a scale of 7 to 1. Table 9 summarizes the transformation of HAPI-C factor summations to a seven point scale. Change in factors was calculated by subtracting baseline scores from the factor scores reported at the second assessment. Change in factor scores for each of eight selected factors, plus a composite measure of wellbeing, are dependent variables. A detailed description of each factor, the related items, and the role of the variable in the study follows.

As one of the HAPI-C's psychosocial scales, Factor A, Affective Symptoms, includes three items (symptom distress, anxiety and depression) which rate the level of difficulty the child has in managing their symptoms and the resulting impact on functioning. Improvement in Affective Symptoms is a dependent variable in the study. To rate the items, the clinician determines the level of symptoms, the threat to role performance or functioning, and the level of self control or support from others that is necessary for the child to function as compared to children without emotional or behavioral problems. For example, at level 6,

> symptoms are noticeably present some of the time, but the threat to role performance or functioning is readily controlled by the child ...At level 2 the symptoms are consistently present and overwhelming to the child such that she or he can attend to little else, but will respond to efforts by others to provide assistance (support or treatment) (Newman et al., 2001, p. 2).

In this study, Factor A summary scores (Item 1 + Item 2 + Item 3) were averaged to obtain a Factor A score on a scale of 7 to 1.

Factor B, Suicide Ideation and/or self-injurious behavior, involves one item: "evidence that the child has had thoughts of suicide or has made a suicide attempt, or has had thoughts or taken action to injure him or herself" (Newman et al., 2001, p. 3). This scale is not included in the study given ceiling effects and lack of contribution to predicting

utilization of services or changes in psychosocial outcomes (Newman, et al., 2002; Mercer, 2004).

Factor C, Abuse, rates "evidence that a child has been physically, sexually, or emotionally abused in a way that threatens the child's safety or well-being" (Newman et al., 2001, p. 3) within the last 30 days. Factor D, Neglect, rates "evidence that the child has been neglected in a way that threatens the child's safety or well-being" within the last 30 days (Newman et al., 2001, p.3). The rating logic for these two factors exemplifies the scales' logic:

> 6-5 *Minimal Difficulty* – Avoids impact or manages with effort
> At level 6 signs of abuse or neglect are evident but the threat to role performance or functioning is readily controlled by the child, either because of the mildness of the abuse or neglect, or because of the capability of the child to avoid or tolerate the impact of the abuse or neglect.
> At level 5 the signs of abuse or neglect are more consistently present and clearly recognized by the child. To prevent noticeable impairment to role performance or functioning, the child exerts consistent vigilance and effort to deal with the abuse or neglect.
>
> 4-3 *Moderate Difficulty* – Abuse's or neglect's impact on functioning moderated with extra effort and support
> At level 4 signs of abuse or neglect are more consistently evident and do impair role performance or functioning to a degree that is readily noticeable to the child or others. The child can avoid or tolerate the abuse or neglect and thereby moderate its impact on functioning, but only with extra effort and with support from others when the level of abuse or neglect starts to become overwhelming.
> At level 3 signs of abuse or neglect are more frequent and are sufficiently intense to impair role performance or functioning below a level acceptable to the child or others in contact with the child. The support needed from others to moderate symptom impact on functioning is greater than that needed to support a level 4 rating, and is welcomed and seen by the child as necessary to perform day-to-day functions.
>
> 2 -1 *Severe Difficulty* – Severe impact on functioning, requires close supervision and support
> At level 2 the signs of abuse or neglect are consistently present and overwhelming to the child such that she or he can only function with efforts by others to provide assistance (support or treatment), which the child readily accepts.

> At level 1 the signs of abuse or neglect are consistently present, and are at least as debilitating as Level 2, however, the child is (or has been) so overwhelmed by the abuse or neglect that they are either uncooperative with efforts to help them, are indifferent to such efforts, or are so debilitated by the abuse or neglect that they are simply unable to help themselves (Newman et al., 2001, p. 12).

Improvement in Factors C and D are dependent variables in the study. The importance of considering these factors is reflected in Indiana's initiatives to improve the well being of children in the child welfare system by early identification of behavioral health needs and intervention (CWLA, 2005; Walton, Bisbee, & Carlson, 2005).

Factor E, Health, involves one item that considers the interaction of physical and mental health problems on the functioning of children. Factor E is not included in the study due to the rarity of any identified issues, minimal variances and no indicated relationship to predicting changes in outcomes (Newman et al., 2002) or utilization of services (Baldwin et al., 2003).

Factor F, Thinking, "focuses on the child's activities outside of school, mostly in the home and neighborhood. At issue is the degree to which the child is able to manage difficulties with time and task orientation, and/or completion of those tasks required of day-to-day functioning in the home or the community" (Newman et al., 2001, p. 14). Two scale items are included: time/task orientation, and/or completing assigned tasks and problem solving. Factor F has been shown in previous studies to be one of a group of psychosocial factors within the HAPI-C that predicts changes in functioning (Newman et al., 2002) and utilization of services (Baldwin, 2003). In this study, Factor F summary scores (Item 8 + Item 9) were averaged to obtain a Factor F score on a scale of 7 to 1. Change in Factor F is a dependent variable.

Factor G, Family (Parent/Caretaker Assessment), is intended to assess the functioning of the parent(s) or caretaker(s) who are expected to assume a permanent parental or caretaker role for the child. Scoring instructions emphasize the importance of usually evaluating the biological parent(s) (Newman et al., 2002). Three items are included in Factor G: (Item 10) Parental/caregiver support of the child's growth, (Item 11) parental/caregiver sharing of time, resources, and interacting with affection and care, and (Item 12) Effects of Child's Behavior on Family and Family Interactions. Separate operational definitions (logic scoring guides) are provided for each item in Factor G. Refer to Appendix V to see details of the HAPI-C scoring instructions. In this study, Factor G summary scores (Item 10 + Item 11 + Item 12) from the CSDS were averaged to obtain a Factor G score on a scale of 7 to 1. Factor G is another one of the five psychosocial factors identified by Newman and associates (2002).

Factor H, School, is made up of 4 items: School Support, School Achievement, Interactions with Classmates & Peers, and Interactions with Teachers & Administrators. Each item has separate operational logic models for scoring purposes. Item 13 focuses on the need for special services to attend school. Item 14 evaluates the child's ability to perform academically in a regular classroom at an age appropriate level. Item 15 considers the child's ability to interact with classmates in class and other related activities and peers in the neighborhood and community. Item 16 emphasizes behaviors the child exhibits as he or she interacts with teachers and administrators (shy, withdrawn, aggressive, refusal to interact, inappropriate behavior). In the study, the average score of the four items is used for Factor H. Improvement in Factor H is a dependent variable. School functioning has also been identified as one of the HAPI-C's psychosocial indicators that predicts change in

overall functioning (Newman et al., 2002). Factor H has been demonstrated in an actuarial study to predict utilization of services (Baldwin, 2003).

Factor I, Disruptive Behavior, summarizes three items: negative peer influence, disruptive and inappropriate behavior, and risk of criminal behavior. Separate scoring definitions are provided for each item. Item 17 assesses the tendency of a child to follow the lead of peers regardless of danger or appropriateness. Item 18 focuses on behaviors that will usually bother others who witness the behaviors, resulting in avoidance or attempts to control the child's behavior. Some degree of impairment in functioning, especially in education or social functioning is evident. Item 19 considers behaviors that lead to a child getting hurt or in trouble, or involved with the criminal justice system. In the study, Factor I represents the average score of Items 17, 18, and 19. Disruptive Behavior as indicated by Factor I has been demonstrated to be a psychosocial measure that predicts changes in outcomes (Newman et al., 2002) and is predictive of utilization of services (Mercer, 2004). Improvement in Factor I is a dependent variable in this study.

Factor J, Substance Use/Abuse includes three items: substance use within the last 30 days, the last 2 to 12 months, and over a lifetime. Factor K, Tobacco Use, has one item. All are rated using the same logic. Factors J and K are not included in the study as dependent variables as earlier research by Newman and associates (2002) found that Factor J does not reliably predict changes in outcomes for substance use. The mixture of rating level of use and related functioning over multiple points in time (past 30 days, past year, and lifetime) confounds the measure as a measure of change. Mercer (2004) found Factors J and K are closely related to one another, but are not strong predictors of service utilization.

Factor L, Reliance on Mental Health Services, measures the extent to which a child and family can maintain the child's age appropriate functioning with or without agency involvement. This is a one item factor. Improvement in Factor L is a dependent variable.

The psychometric properties of the HAPI-C were studied by Newman and associates (2002) in four related studies reported in one article. The first study tested and confirmed the proposed factor structure across 737 children, ages 5 to 17 within two age subgroups, children under 12 and children equal to or older than 12, trimming or redefining items to meet the psychometric criteria set by an advisory panel. A second study confirmed the factor structure of the revised scale on a second sample of 781 children. Internal item consistency within each multi-item factor ranged from .74 to .85.

Study three demonstrated inter-rater reliability of the HAPI-C in instances where two trained clinicians rate the same child (Newman et al., 2002). Interclass Correlation Coefficients (ICC) for the five psychosocial factors were: Affective Symptoms (.90), Thinking (.76), School Behaviors (.86), Disruptive Behaviors (.92), and Family (.82). Further evidence of inter-rater reliability exists in annual audits of DMHA contract providers by an independent third party to check the inter-rater reliability of the instrument (KPMG, 2002). For SFY 2002, a difference rate of 9% was found and in SFY2003 a difference rate of 11% was found in KPMG audits.

Another study assessed and confirmed criterion validity of the factor scores in predicting a child's Global Assessment of Functioning (GAF) (American Psychiatric Association, 2000) and a youth's living setting (Newman et al., 2002). A regression analysis found a strong concurrent relationship between five psychosocial factors (AFGHI) and GAF scores. (R = .147, R^2 = .27). The instrument's ability to detect outcome change

over time (predictive validity) among 529 children still in service after 90 days ($p < .05$) was demonstrated.

The strong relationship of the five psychosocial factors to the GAF (Newman et al., 2002) suggests that the cluster of psychosocial factors (AFGHI) should be predictive of the child's overall psychosocial well-being. In this study this indicator of psychosocial wellbeing is measured by averaging Factors AFGHI, resulting in a range of scores from 7 to 1. Change scores are calculated as described for individual factors above. Improvement in wellbeing is a dependent variable.

Transformation of Functional Change Scores to Dichotomous Variables. The HAPI-C instrument scale has not been deconstructed to demonstrate that the 7 to 1 scale is an interval scale, that a change in scores from 7 to 6, 6 to 5 , 3 to 2, etc. are all of the same importance. This limitation creates a challenge in analysis, potentially violating basic statistical assumptions. To address this measurement limitation, functional change scores were transformed to dichotomous change scores. Improvement in functioning is represented by a change score of "1". Negative or no changes in functioning are represented by a change score of "0".

Functional Impairments of Children in CSDS. For sample matching, the level of functioning for children in the SFY2004 databases was determined using a methodology developed by Mercer, the state's contracted actuarial firm (Mercer, 2004). Baldwin (2003) used factor analysis with 10 random samples of children in the SFY2002 and SFY2003 CSDS databases. From this, groupings of HAPI-C factors (A – L) resulted in a consistent pattern. Factors FHIL (thinking, school behavior, disruptive behavior and reliance on mental health services) were always first and together; Factors AB (affective symptoms and suicidal ideation or behavior) were always together, sometimes with FHIL or G

(family). Factors CD (abuse and neglect) were always together. Factors JK (substance use/abuse and tobacco use) were always together. Factor E (health) was always alone. Factor G was sometimes associated with A or FHIL. Scores on the seven point scale were averaged, with level of severity determined by the cut scores outlined in Table 10. Table 11 provides the formula for determining the overall level of functioning based on a combination of average grouping scores. Table 11 outlines the Mercer (2004) actuarial methodology to convert the level of functioning ratings into single LOF ratings.

DMHA (2005) applied this process to determine the level of functioning of children in the public mental health system in SFY2005. Table 12, Comparison of Levels of Functioning: Usual Service Population and Systems of Care, documents that the profile of children receiving usual services differs from the profile of children in SOC. The larger population is comprised of 50% of children with high levels of function, 46% with moderate functional impairments, 9% with low functioning and 2.5% with severe functional impairments (DMHA, 2005). Applying Mercer's (2004) methodology to assign a single LOF rating for the study's sample data, finds that 3.5% of the children in the sample have severe functional impairments, 12.2% have low functioning, 54.5% have moderate functional impairments, and 29.8% have a high level of functioning.

Table 13 uses the actuarial methodology (Mercer, 2004) to compare the level of functioning of children served by systems of care at three levels of development (Effland et al., 2005). In this study, there was no attempt to match the levels of functioning of children served by SOCs at different levels of development. More developed systems of care tend to serve a higher percentage of children with low and moderate functioning than do SOCs in the early stages of development.

Independent Variables: Reduction Methods

Multiple independent variables from the administrative database and other sources were used to explore which factors predicted improvements in outcomes for children. Among the database variables included in the analysis were baseline levels of functioning in numerous life domains, age, gender, race, ethnicity, restrictiveness of living environment (ROLES) (Hawkins et al., 1992) at enrollment, and time between assessments. Improvement in the interactive family functioning measure was included. Related to the basic premise of the study, the service delivery systems (systems of care or usual services) were considered. For children served in a system of care, the level of development of the service delivery system (fidelity) was included. A contextual factor of perceived local service system capacity was also included. Details regarding these independent variables and related reduction methods follow.

Baseline Functioning. As independent variables, baseline functional assessment scores from the HAPI-C were included in all analyses to control for the level of severity in functioning at the time of enrollment and as possible predictive variables. Included were baseline scores for Factors A, C, D, F G, H, I, J, and L. For the measure of wellbeing (AFGHI), baseline wellbeing was considered as an independent variable. As described above, each baseline functional factor was reported on a scale from 7 to 1 with 7 reporting normal functioning and 1 the most severe functional impairment.

Improvement in family functioning. The impact of improvement in Factor G, Family Functioning, on outcomes related to a child's functioning was explored. Made up of three items, two measuring the family's ability to support the child's needs and a third reflecting the impact of the child's functioning on the family, this interactive, contextual variable was used as an independent variable to explore the relationship between the

family's and child's functioning. This dichotomous variable includes two values, "0" for no improvement or diminished functioning and "1" for improvement.

Age. Children, birth through age 17, are enrolled in the CSDS. The mean age is 11.51 years, with a range of birth to 17, and SD of 3.396. For the study, age was squared to explore the possibility of a nonlinear relationship between age and change in functioning outcomes. The assumption is that very young children may be victims of abuse or neglect or have severe disruptive behavioral disorders. Other research suggests that intensive wraparound services are more effective for children, ages 5 to 13, than for older youth (Anderson, Effland, Kooreman, & Wright, in press).

Gender. Gender differences regarding the medical and mental health care of adults are well established (Gardner, Pajer, Kelleher, Scholle, & Wasserman, 2002). Evidence of gender bias by primary care clinicians was found in identifying and treating children's mental health problems. Boys with symptom patterns similar to girls were more likely to be identified and treated as having externalized behavioral problems (attention-deficit, hyperactivity behavior or conduct problems) and less likely to be identified as having internalized problems (depression or anxiety).

In the study, the samples are not matched for gender. In the SOC sample, 32.6% of the children were female. In the Usual Service sample, 42.2% of the children were female. A dummy variable is created for the study with females as the reference group. To help control for the possible influence of gender on outcomes, the gender variable is included in all analyses.

Race and Ethnicity. Disparities in health care and mental health care related to race and ethnicity are widely acknowledged (DHHS, 1999; DHHS, 2001a). Research has found that African American and Hispanic youth use less health care services than Caucasian

youth (Buescher et al., 2003). An epidemiological study (Cooper-Patrick, Gallo, Powe, Steinwachs, Eaton & Ford, 1999) found that African Americans were more likely than Whites to report having discussed mental health concerns with general medical practitioners without seeing specialty mental health practitioners. Subsequent studies found that White youth are more likely to receive mental health services than are African American or Hispanic youth. (Angold et al., 2002; Rawal, Romansky, Jenuwine & Lyons, 2004). Minority youth are found in disproportionate numbers in more restrictive levels of care such as psychiatric hospitals (Mason & Gibbs, 1992).

CSDS racial categories include Asian, Native Alaskan, Native American, Hawaiian or South Pacific, Black or African American, White, and multi-racial with relatively small numbers in several categories. For the study, racial categories were collapsed to three categories: African American, White, and Other. Dummy variables were created for race, with white as the reference group.

In the CSDS, Ethnicity considers several points of origin for individuals of Hispanic heritage. For the study, ethnicity was transformed to a Hispanic, non-Hispanic dummy variable with Hispanic origin as the reference group. Regarding ethnicity, overall 7.4% of the children are Hispanic and 92.6% are non-Hispanic. Comparing the two samples, 5.4% of the children in the SOC sample are Hispanic and 9.3% of the children in the usual service sample are Hispanic. Service delivery to the Hispanic community varies across the state's systems of care. The Dawn Project serves very few Hispanic youth (1%) and Circle Around Families serves 13.8% (as compared with the national Macro sample 10.5%) (Pavkov, et al., 2005). Race and ethnicity are included in each analysis to control for possible confounding effects.

Restrictiveness of Living Environment (ROLES). The CSDS has two fields that report where an individual is living. "Living Arrangement" reports 8 living arrangements, as defined by location and level of services. Preliminary actuarial study findings (Baldwin, 2003) suggest that children in out-of-home placements or who had experienced abuse or neglect were more likely to receive intensive levels of service with higher costs of care.

A modified Restrictiveness of Living Environments and Placement Stability Scale (ROLES) (Hawkins et al., 1992) field was added to the CSDS database in SFY2004. The standardized instrument identifies the level of restrictiveness in the living arrangement for children. In the CSDS the ROLES was modified, collapsing the original 25 residential choices into the 16 categories listed in Table 14. The level of restrictiveness includes three components: the degree to which individuals are free in the physical environment (use of locks, privacy of bathing), the degree to which rules and requirements infringe upon freedom, and the voluntariness with which children or youth enter or leave the setting (Cross & McDonald, 1995).

The scale developers included only restrictiveness ratings that had a reasonable degree of agreement among experts and excluded settings where substantial variability was demonstrated (Hawkins, et al., 1992). Criterion related validity of the ROLES was demonstrated by Yoe, Santarcangelo, Atkins, and Burchard (1996) who found a significant decrease in restrictiveness over a 12 month period corresponding to increased community-based, individualized care. The ROLES score in the CSDS is based on a point in time measure, at enrollment and at reassessment.

Table 15 compares the living environment of children in the SOC sample with children in the general population of children in the SFY2004 CSDS. Most children in both the SOC sample and the general population live with their biological families; 65% of the

children in the SOC sample compared to 76% of children in the general population resided with immediate family. The SOC sample included children in more restrictive settings: 10% in residential treatment, 3.3% in detention, and 2% homeless.

Because the number of children in more restrictive living environments was small, in the study ROLES was reduced to four categories: family, extended family, foster care, and other. Extended family includes living with relatives, adoptive parents, or in the homes of friends. Foster care combines the original foster care and therapeutic foster care variables. Other includes less desirable, usually more restrictive living environments for which there was a small number of youth in each sample. Three dummy variables with family as the reference group are used in the study.

Time between assessments. Ideally, children were reassessed six months after enrollment in the CSDS. However, if treatment ended, some reassessments were completed sooner. For other youth, no reassessment was completed in SFY2004. In order to increase the size of the sample and power of the study, reassessment to enroll youth in SFY2005 was used as a second assessment for many youth. Using re-enrollment as a re-assessment measure increased the sample size, but created a time range between assessments from 1 to 20 months, with a mean of 8.18 months and a SD of 3.051. As is reflected in Figure 7, Profile of Time between Assessments, the most common time for reassessment (mode) was six months after enrollment. The second most common length of time between assessments was 12 months. Time is considered in initial logistic regression analyses as a possible predictive factor. The two samples were matched for this variable.

Capacity of local service system. During SFY2004, the availability and quality of an array of services for children with SED in each of Indiana's 92 counties was explored through a statewide key informant survey adapted from a survey developed by Morrissey

(1992), Assessing Local Service Delivery Systems for Chronically Mentally ill Persons. Families, educators, child welfare workers, juvenile justice staff, and mental health providers completed the survey which measured perceived barriers to services, adequacy and quality of the continuum of care, and level of local system development. Over 1500 respondents completed Purdue-Calumet's survey (Pavkov et al., 2004).

Overall this survey found the ratings of service and system performance were rated as low by most stakeholders. Both mental health and school based services for children and youth with SED were considered in the survey. Respondents reported significantly fewer access barriers, a more complete array of services, a better quality of school, community based and usual mental health services, and access to more restrictive levels of care in systems of care than had developed since 2002 in other communities. The perceived level of local service functioning, as evidenced by local system collaboration, was used as an environmental measure to match the two samples. Analysis of the survey's four areas of concern indicated a significant correlation among all four areas ($p < .001$). However significant differences exist between the two samples for three of the survey's areas of concern: access to care ($p < .05$), adequacy of continuum of care ($p < .001$) and quality of care ($p < .001$). The survey found that communities that have state funded systems of care with ongoing technical assistance were perceived as providing better access to a wider continuum of quality services.

Systems of Care. A dichotomous field was added to the CSDS in July 2004, allowing providers to identify children who were served in system of care versus children who were served through usual services. System of care was operationally defined as:

> A *system of care* is "a comprehensive spectrum of services and supports which are organized into a coordinated network to meet the multiple and changing needs of individuals and their families" (Stroul, 2003). Although the coordinated network of agencies serving children

> would be designed in each community, the core values and principles of a system of care would be the foundation of the network and service delivery. The system of care should be child and family focused, community based, and culturally competent. Individualized care (matching the needs of the child and family with services and supports) would be provided in the least restrictive setting through a comprehensive array of services. Integrated across child services systems (child welfare, juvenile justice, special education, and mental health), services would include case management/care coordination, early identification, and smooth transitions. Family involvement is essential....When implemented in a community, a system of care has two components: a collaborative organized network (infrastructure) and service delivery (strength based wraparound through child and family teams) (Walton, 2003a, pp. 1-2).

Some of the state funded SOC sites submitted proposals for funding in response to a competitive solicitation process. Three sites were asked by FSSA to develop systems of care due to high rates of placing children in state hospitals. Providers who participate in state or federally funded systems of care coded youth who were served through a system of care (SOC) by "1". By default, all other children in the database were coded "0", receiving usual public mental health services.

Usual Services – The array of services, *continuum of care*, for a community mental health center or managed care provider, required by state statute includes:

> (1) Individualized treatment planning to increase patient coping skills and symptom management, which may include any combination of services listed in this section.
> (2) Twenty-four (24) hour a day crisis intervention.
> (3) Case management to fulfill individual patient needs, including assertive case management when indicated.
> (4) Outpatient services, including the following:
> (A) Intensive outpatient services.
> (B) Substance abuse services.
> (C) Counseling and treatment.
> (5) Acute stabilization services, including detoxification services.
> (6) Residential services.
> (7) Day treatment.
> (8) Family support services.
> (9) Medication evaluation and monitoring.
> (10) Services to prevent unnecessary and inappropriate treatment and hospitalization and the deprivation of a person's liberty.

(Division of Mental Health and Addiction 440 IAC 9-1-6; filed Sep 8, 2000, 10:12 a.m.: 24 IR 372; readopted filed May 10, 2001, 2:30 p.m.: 24 IR 3235

Level of development of the systems of care (fidelity). Fidelity to the system of care paradigm was measured by applying theories of change (Prochaska et al., 1992; Rogers, 1962) to identify stages of development in the emerging systems of care. In a qualitative study (Effland et al., 2005) the theoretical stages of change from the two theories were combined with system of care values and essential elements (Pires, 2002) to create a coding structure for evaluation of the level of development of the state funded systems of care. See Appendix IVA for the coding key. Based on the presence of necessary factors (Pires, 2002), a strength based assessment was developed (Effland et al., 2005).

The Strength Based Site Assessment (Effland et al., 2005) was used by site coaches from the Technical Assistance Center for Systems of Care and Evidence Based Practice and local system partners to evaluate local systems of care. Collecting qualitative and quantitative data, the written assessments address community resources, representation, system of care structure, and service delivery processes. A coding key was used by a team to rate the level of development of the local system care at the system and service delivery levels. The resulting level of development is used as a proxy for "fidelity" to the service paradigm. For three additional systems of care that were not evaluated by the site coaches in 2004, the same evaluation tool and coding protocol were followed by this researcher with consultation from Dr. Effland to assess the level of development of those sites.

Five levels of development (LOD) are represented in the matched samples. LOD findings from the three systems of care classified for this study were added to information provided by Dr. Effland and colleagues regarding 22 other systems of care. Table 16 reports the LOD for each site for both the system infrastructure and wraparound service

delivery. The last three system of care sites in Table 16 report the results of this qualitative analysis.

All five levels of development, corresponding to the stages of change (Prochaska et al., 1992; Rogers, 2003), Table 6, were represented. However, the number of children served by sites in early levels of development was relatively small. Therefore, for the study, the five levels of development were reduced to three levels. Precontemplation, contemplation, and preparation were combined as an Early Level of Development (LOD1). Level four became the Action Level (LOD2); level five became the Sustained Level (LOD3).

A discussion of analytical methodological issues follows.

Estimation Methods with Guide to Interpretation

Qualitative Analysis

The methodology used in Dr. Effland and colleagues' (2005) study was adapted and applied to this study to analyze the level of development of three additional systems of care which had not been assessed by the site coaches. Dr. Effland's coding key which maps Pires' (2002) indicators of systems of care implementation with theories of change is used to code qualitative data from quarterly progress reports, strength based site assessments completed by local systems of care staff and key informants, verbal self reports, and published outcome evaluations of the three systems of care. Consultation was obtained from Dr. Effland in establishing the process.

Multiple procedures were used to verify the findings. Prolonged engagement in the field to learn the culture, build trust with participants, and check for misinformation resulting from distortions that might be introduced by the researcher and informants (Creswell, 1998) naturally followed the researcher's role in helping to develop systems of

care across Indiana as a consultant to DMHA from 2001 – 2005. In this role, many site visits were made and information became available through both formal and informal sources: quarterly reports, third party formal evaluations, and conversations with multiple stakeholders regarding local successes and challenges.

While this role provided greater access to information, the "state" perspective and role in developing systems of care may introduce bias. To guard against such bias and to further verify the findings, Dr. Effland's Strength Based Assessment (Appendix IIIC), coding templates (Appendix IIIB) and rating guides (Appendix IIID) were used to code information. Theories of change (Prochaska et al., 1992; Rogers, 2003) provided a structure to interpret the findings and determine the level of development of the systems of care.

Triangulation was used to gather information from each site. Local systems of care staff were asked to complete a self assessment using the strength based assessment. Information was also obtained through conversation, observation, formal evaluations by outside evaluators, quarterly reports, self reports of child and team models, and Wraparound Fidelity Index (Bruns, Ermold, Burchard, & Dakan, 2000; Suter, Force, Bruns, Leverentz-Brady, Burchard, & Mehrtens, 2003) results. To check for distortions involved in the self and researcher's interim assessments, debriefing with another state children's team member was used to verify and, in one case, adjust the final classification or rating of the levels of development of the systems of care.

Quantitative Analyses

SPSS 11.5 was used for the quantitative analysis. First, the data was explored to get an idea about any patterns within it (Field, 2000). In this initial exploration, basic assumptions for parametric data were checked. Are the data distributed normally? Does

homogeneity of variance exist? Are the data measured at least at the interval level? Are data from different subjects independent? Descriptive analyses (frequencies, measures of central tendency, variability, and shape) suggest characteristics of the data. Histograms with displayed normal curves portray the distribution of the data. The normalcy of the data was further explored using the Kolmogorov-Smirnov test.

Field (2000) contends that whether or not the data meets the assumptions of interval data and independence are tested by logic or common sense. Understanding how well the data from the real world situation meets these basic assumptions has implications for selecting subsequent statistical analysis and building a statistical model that reasonably fits the data. The final decision about which primary statistical analysis to use was informed by this exploratory analysis.

Test of Means. A *t* test was used to determine if the two samples differed significantly from one another (Nicol & Pexman, 1999). In this study there are two treatment conditions and different subjects participated in each condition (Field, 2000). In SPSS, an independent-samples t Test compares the means of the two samples for demographic, functional, and environmental factors.

Data Reduction. Factor analysis, pioneered by Spearman, Tomson, Thurston and Burt (Lawley & Maxwell, 1971; Morrison, 1976), is widely used to reduce multiple complex factors for subsequent statistical modeling. The wide availability of computerized statistical software has since then made factor analysis a common tool in the social sciences.

Factor analysis is not only used to identify the factor structure among a set of variables, but to reduce data to factor scales for use in other analyses (Kim & Mueller, 1978). Factor analysis is often used to avoid multicollinearity in regression analyses,

reducing possible variables to create the most concise predictive model. A high level of correlation between independent or predictor variables (Sheskin, 2000) causes redundancy regarding the variation on the criterion variable they explain. If collinearity between predictor variable is not identified, the researcher could find a result that is not there, reporting spurious findings. However, it is difficult to find a large number of predictive variables that are highly correlated with the criterion variable, but not with one another.

One solution to this dilemma is exploratory factor analysis (Bryan & Cramer, 1990; Kim & Mueller, 1978) to reduce the study's related variables into a smaller number of hypothetical variables for the subsequent multivariate analysis. However, interpreting what the new resulting independent variable represents becomes an issue. Because of this limitation, use of this strategy was applied only to one set of data, the four dimensions of Dr. Pavkov's (2004) community survey findings.

From the community survey (Pavkov, 2004), local (county based) mean scores were available for four dimensions regarding barriers to service, adequacy of services, quality of services, and local service collaboration. The original survey analysis did not explore the relationships between the four areas. In this study factor analysis was used to explore relationships among the survey's findings. The resulting factor based variable is a composite score representing the local (county) service system capacity. It is included in the study as a possible predictive variable.

Logistic Regression. In this study a series of logistic regression models were fitted for nine criterion variables, all measures of improvement in functioning for a specific life domain or a combined measure of well being: Affective Symptoms (A), Thinking (F), Family (G), School Behavior (H), Disruptive Behavior (I), Child Abuse (C), Child Neglect

(D), Reliance on Mental Health Services (L), and Wellbeing as indicated by combining HAPI-C Factors AFGHI.

As was discussed above, the HAPI-C measurement instrument for the criterion variables, level of functioning, has an inherent limitation in that the seven point Likert scale has not been demonstrated to be a continuous scale. One way to address this problem is to transform the change in functioning scores to dichotomous scales with "0" representing no improvement and "1" representing improvement. Although data regarding the amount of change is lost in this process, the categorical data represent a valid measure of improvement in a child's functioning in one or more domains. In this study the resulting dependent variable(s) are dichotomized: no improvement (0) or improvement (1) on each HAPI-C factor and the wellbeing measure.

Logistic regression was chosen as the primary statistical analysis for the study. Logistic regression is a form of regression analysis which is used when the dependent variable is dichotomous and the independent variables are of any type (Field, 2000; Garson, 2005a; Weinbach & Grinnell, 2001). Predictor variables often include both categorical and continuous variables. This statistical tool can be used to predict a dependent variable based on the independent variables, to determine the percentage of variance in the dependent variable explained by the independents, to rank the relative importance of the independents, to assess interaction effects, and to understand the impact of covariate control variables (Garson, 2005a).

Logistic regression was chosen over multiple linear regression because ordinary least squares (OLS) require continuous dependent variables. "When the dependent variable is a dichotomy, the assumptions of multiple regression cannot be met" (Garson, 2005c, p. 1). Logistic regression was chosen over log-linear models which analyze the conditional

relationship of categorical values because log-linear models require that the dependent variable is categorical (nominal or ordinal); the distribution of the categorical variable is expected to be Poisson, not binominal (Garson, 2005b). Logistic regression is chosen over probit models for practical reasons. Probit models reach the same conclusions as logistic regression models, but the probit coefficients are more difficult to interpret as there is no equivalent to logistic regression's odds ratios in probit analysis (Garson, 2005b).

Although similar to multiple linear regression and discriminant analysis, logistic regression has advantages over both techniques (Mertler & Vannatta, 2005). There are fewer assumptions for its use (Weinbach & Grinnell, 2001). No assumptions about the distributions of predictor variables are required. Variables do not have to be normally distributed, linearly related, or have equal variances within each group. This makes logistic regression much more flexible than the other two forms of analysis. Secondly, logistic regression cannot produce negative predictive probabilities which can happen if a researcher applies linear regression to dichotomous outcomes. All values will be positive and range from 0 to 1. Thirdly, logistic regression produces nonlinear models, adding to overall flexibility. Lastly, logistic regression allows interactions between independent variables.

A variant of multiple regression, logistic regression assesses the relationship between one criterion or dependent variable and several predictor or independent variables (Nicol & Pexman, 1999). Estimation of parameters in logistic regression is based on the maximum likelihood method, an alternative to least-squares estimation (Polit, 1996). Maximum likelihood methods estimate parameters that are most likely to have created the observed data. The resulting model estimates the probability that an event occurs. Using logistic regression analysis, sometimes referred to as logit analysis (Polit, 1996), a

researcher is able to estimate the odds of one level of the criterion variable occurring based on the values of independent variables. Given certain information, this statistical analysis predicts in which of two categories a person is likely to belong.

Logistic regression is commonly used in health research to formulate models about what kind of variables might determine health status and inform clinical decisions (Field, 2000). Logistic regression's underlying assumption that relationships between variables can be represented by an S-shaped probabilistic function instead of a linear relationship based on least-squares assumptions makes it a more reasonable fit to real world data that do not always have normal distributions or have continuous measures. The probability of *Y* occurring (the probability of a child belonging to a certain category) will vary between 0 and 1 (Field, 2000). If the value is close to 0, the child is not likely to have belonged in a category. If the value is closer to 1, the child is more likely to have belonged in a category. Just as in linear regression, each predictor variable has its own coefficient. The value of these coefficients is estimated by fitting models, based on available predictors, to the observed data. In logistic regression, this probability is represented by

$$P(Y) = \frac{1}{1 + e^{-Z}}$$

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n + \varepsilon_i$$

(Field, 2000, p, 165)

P(Y) is the probability of Y occurring, *e* is the base of natural logarithms, and the combination of the other coefficients forms a linear combination. Similar to linear regression, there is a constant (β_0), predictor variables ($X_1, X_2, ..X_n$), and ε is a residual term. Differences between the outcome values that are predicted by the model and the outcome values observed by the model are termed "residuals".

In this study, for each analysis, blocks of possible predictor variables are entered in hierarchical steps. To control for possible mediating factors, block one includes the baseline level of functioning for each criterion variable and demographic variables (gender, race, ethnicity, age, time between assessments, living arrangement) and local service system capacity. Block 2 includes the baseline functioning scores for other domains. Block 3 adds the service delivery model: receiving service in systems of care at different developmental levels or through usual services. Block 4 adds the interactions between the demographic and functional variables and being served in a system of care.

Logistic Regression Diagnostics. Although logistic regression does not require adherence to any assumptions about the distributions of the predictor variables, there are other assumptions, which, if violated, will be problematic (Menard, 2002; Mertler & Vannatta, 2005). The ratio of cases to variables is important (Mertler & Vannatta, 2005). If there are too few cases in a variable's classification, there will be little power in the analysis. Collapsing categories is recommended as a strategy to address this problem. In this study categories were collapsed in several independent variables, such as race, ethnicity, and living arrangement.

Bias, the existence of a systematic tendency for the estimated logistic regression coefficients to be too high or too low as compared to the true values, can be avoided by ensuring that the model includes all relevant variables and does not include irrelevant variables (Menard, 2002). In this study, theory is used to identify relevant variables. The odds of Y may be equal to a nonlinear combination of the independent variables or the odds of Y may be interactive instead of additive. Multiple independent variables and interactive variables were considered in the study. The logistic regression model is assumed to have a linear form, with the change in logit (Y) for a one-unit change in X equal

to the logistic regression coefficient. If the relationship is not linear, the effect of a one-unit change is not constant, but depends upon the value of X. In the study, one independent variable, age, was squared to get more flexible non-linearity.

Menard (2002) suggests treating each independent variable (IV) as a categorical variable, creating dummy variables to control for nonlinearity. This strategy has been applied to many of the IVs in the study (demographic variables, living environment, and service delivery model). Nonaddivity occurs when changes in the dependent variable (DV) associated with a unit change in the IV depend upon the value of one of the other IVs. Checking for this is not straightforward. If theory suggests an interaction, the researcher can test for all possible interaction effects. In this study, the interaction effects of demographic, baseline functioning, contextual, and service delivery models were tested.

Collinearity is indicated if there is any correlation among independent variables (Menard, 2002). Some level of correlation among variables is common. Low levels of collinearity are not problematic, but high levels of collinearity, corresponding to $R^2 = .80$ or more, are problematic and very high levels of collinearity, $R^2 = .90$ or more, are very likely to result in very large standard errors. Menard (2002) suggests examining logistic regression coefficients larger than 2 to see if collinearity, sometimes called multicollinearity, exists. Multicollinearity diagnostics do not exist in logistic regression analyses. To test for this problem, a linear regression analysis is run using the logistic regression model's criterion and predictor variables. Collinearity statistics, tolerance values and variance inflation factors (VIF), can identify collinearity problems. Menard (2002) states that tolerance values less than 0.1 indicate a serious collinearity problem; VIF values greater than 10 are also problematic. Further diagnosis is possible (Field, 2000). If the eigenvalues are fairly similar, the model is not likely to be changed by small changes in

variables. Finally, by looking at variance proportions it is possible to determine the proportion of each predictor's regression coefficient that is attributed to each eigenvalue, which multiplied by 100, can be converted into percentages. Although Mertler and Vannatta (2005) suggest deleting any highly correlated or redundant variables to eliminate collinearity and "improve" the model, Field (2000) disagrees. He points out that there is no theoretical basis for eliminating one variable over another and suggests that information regarding collinearity should be reported and considered in the findings and discussion.

Numerous solutions to collinearity have been suggested: collapse variables using factor analysis (Field, 2000), eliminate one or more redundant variables (Mertler & Vannatta, 2005), or replace the problem variable with another equally important predictor that does not have such strong collinearity (Field, 2000). Each proposed solution is problematic. Using factor analysis indicates that the original theory used to construct the model was faulty and makes the results difficult to interpret (Menard, 2002). There is no statistical basis for eliminating one variable over another (Field, 2002). Menard (2002) demonstrates the use of standardized scores for predictor variables that are included in interactional variables. If multicollinearity remains, both Menard (2002) and Field (2000) suggest the safest, although unsatisfactory, remedy is to acknowledge the unreliability of the model.

In this study, multiple strategies are used to address collinearity. Factor analysis is used only to collapse the statewide survey into one index that reflects the local service delivery capacity. For the interactional variables, standardized scores are substituted for predictor variables (Menard, 2002). Diagnostic linear regressions are run to test each final model for collinearity.

Interactions. The baseline level of function measures (A, C, D, F, G, H, I, J, L) were standardized for inclusion in the interaction terms to help avoid collinearity (Menard, 2002). The standardized independent variables are represented as "*z*" scores. For example, baseline abuse becomes Zabuse. The interactions between the standardized baseline HAPI-C factors and service delivery model (system of care or usual services) were considered in each logistic regression model. If the interaction was statistically significant, the level of development (LOD) of the system of care was introduced in the model.

Outliers. Extreme values within predictor variables should be identified and examined carefully because logistic regression, like multiple regression, is very sensitive to outliers (Menard, 2002; Mertler & Vannatta, 2005). Standardized residuals should be examined to identify any outliers with values greater than +/- 2.5 (Field, 2000). Mertler and Vannatta (2005) suggest eliminating outliers.

Interpreting residuals. The main purpose of interpreting residuals is to find points for which the model fit poorly and to isolate points which exert undue influence on the results (Field, 2000), using the Studentized, residual, standard residual, and deviance statistics. For all of these statistics, 95% of the cases in an average, normally distributed sample would have SD values between plus or minus 2 and 99% of the cases would have SD values of plus or minus 2.5. Because of this, any values greater than plus or minus 3 raise concerns and any values greater than plus or minus 2.5 warrant further examination. The influence of individual cases is evaluated using influence statistics like Cook's distance, a measure of change in the regression coefficient if a case is deleted from the model.

In this study, for each logistic regression model the residuals and deviance statistics are examined after running the first analysis to identify possibly influential cases. Outliers

with standardized residuals greater than the ranges above were removed if the SD values were greater than +/- 2.5.

Interpreting the SPSS logistic regression output. After finalizing the best fitting model for each criterion variable in the study, the results are summarized in the narrative and two tables, one reporting intercorrelations of predictor variables and the second summarizing the final logistic model's statistics. Summary statistics describe the model as a whole (Field, 2000). They include: the log-likelihood statistic and the goodness-of-fit statistic. The log-likelihood indicates how much unexplained information remains after the model has been fitted. Like the sum of squared errors in a linear regression model, the log likelihood is the criterion for selection parameters in a logistic regression model (Menard, 2002). The larger the value, the more unexplained observations exist (Field, 2000). In SPSS, the log-likelihood value is multiplied by -2, and is abbreviated as -2LL. Approximating a chi-square distribution, -2LL makes it possible to compare values against what might be expected from chance alone. Higher -2LL values indicate a poorer prediction of the dependent variable (Menard, 2002).

A test of the statistical significance of the combined effects of the independent variables in the model is called the goodness-of-fit statistic. Menard (2002) suggests that goodness-of-fit is more important than accuracy of classification, especially for theory testing. The Model Chi-square (χ^2) in the SPSS Omnibus Test of Model Coefficients Table is a goodness of fit measure (Menard, 2002). For each step of a hierarchical analysis, the model chi-square measures the difference in the current form of the model and the model with only the constant included (Field, 2000). Menard (2002) recommends focusing primarily on the model χ^2.

Output for the coefficients of the predictors in the model provides a Beta value and related statistics for the included variables (Field, 2000). Similar to a Beta value in a linear regression model, this Beta is the value needed in an equation to establish the probability that a child falls into a certain category. For logistic regression, the Beta is interpreted as the *logit* of the outcome variable that is associated with a unit of change in the predictor variable. It is the natural logarithm of the odds of Y occurring. In practice, most researchers just look at the odds ratios implied by Beta.

The Wald statistic indicates if the Beta coefficient (β) for a predictor variable is significantly different from zero. Similar to the t-test in linear regression, the Wald statistic is used to determine if a variable significantly predicts outcomes. Field (2002) cautions against relying on the Wald statistic alone to determine the significance of a variable. When the Beta is large, the standard error tends to become inflated, which results in underestimating the Wald statistic (Menard, 2002). This could lead to a Type II error, rejecting a predictor as significant when it really is contributing significantly to the model.

Are there R and R^2 values in linear regression that correspond to those in linear regression? SPSS has an R-statistic, a partial correlation between the outcome variable and each of the predictor variables that can vary between -1 and 1. Because the R equation includes the Wald statistic, Field (2002) again cautions about its use and warns that it is invalid to square this statistic and use it like R^2 in a linear regression.

Menard (2002) reports that several similar measures to the linear regression R^2 have been suggested, resulting in some controversy (Field, 2000). SPSS reports two R^2 measures: Cox & Snell R^2 and Nagelkerke R^2. In the study, the larger of the two R^2 measures is reported. Logistic regression literature has given little attention to the use of R^2 in logistic regression (Menard, 2002).

Exponentiated β (exp (B)) in the SPSS output, an indicator of change in odds that results from a unit change in the predictor variable, is called the odds ratio (Field, 2000; Menard, 2002; Polit, 1996). The chance that something will occur is referred to as probability (Garson, 2005b). The ratio of the probability that something is true divided by the probability that it is not true is referred to as the odds. The ratio of two odds is the odds ratio. An odds ratio of 1.0 indicates that the independent variable has no effect on the dependent variable (Garson, 2005b). An odds ratio greater than 1 indicates that the odds of improvement in a HAPI-C factor increase when the predictor variable increases. An odds ratio less than 1 indicates that the odds of improvement decrease when the independent variable increases. The odds ratio contains the same information as the logistic regression coefficient, or the probability (Menard, 2002).

Chapter Five

Findings

Presentation of Findings

Chapter Five is organized into three sections. The descriptive findings section profiles the children in Indiana's systems of care, documents the matched comparison sample, and provides details regarding the variables by which the samples were matched. The logistic analysis findings section presents nine final logistic models, one for each of the dependent variables, the targeted HAPI-C factors: A, C, D, F, G, H, I, L and AFGHI. Lastly, patterns of findings across the models are examined in relation to the study's research questions and hypotheses.

Descriptive Findings

Who are the children being served by systems of care? Children who are served in Indiana's developing systems of care are most often non-Hispanic, Caucasian boys, averaging 11 years old who live with their families of origin. However, this simplified profile represents less than 39% of the SOC sample. Over 28% of the children served by SOCs are African American, about 5% are Hispanic, and about 33% are girls. They often live in more restrictive living environments than do the general population of children receiving usual public mental health services in SFY2004 (n = 26,825) (IFSSA/DMHA, 2006).

Children in the SOC sample also face greater functional impairments than children in the general usual service population. Diagnostically, about 25% of the children in SOCs and usual services were diagnosed with ADHD. Differences between the two service system samples are reflected in other diagnostic categories. Thirty-seven percent (37%) of children in SOCs have some level of oppositional behavior or conduct disorder as

compared with 24% in usual services. Twenty-two (22%) of children in both SOCs and in usual services have mood disorders. Only 4% of children in SOC have primary anxiety diagnoses and 6.2% have PTSD; 9% of children receiving usual services have anxiety disorders and another 6% are diagnosed with PTSD. The incidence of substance abuse as a primary diagnosis was low for both samples: 1% for SOCs and 1.8% for the matched sample. Table 17 summarizes the diagnostic codes for the sample populations.

How do the children in the systems of care sample compare to children in other systems of care across the country? The patterns of characteristics in the study's SOC sample are similar to children served in federally funded systems of care across the country and often included in other studies. For example, children in this study's SOC sample are, on average, about three months younger than 4,039 children in a study of the Comprehensive Community Mental Health Services for Children and Their Families Program (CMHS, 2001). In this study and in the federal sites, there are more boys than girls with 68.2% of the national study's children and 62.6% of this study's children being male. The percentage of African American youth (22.9% nationally compared to 28.2% in this study), percentage of Caucasian children (59% in both studies), and percentage of children living with their biological parents (74% nationally compared to 65% in this study) were also comparable. In the national sample, 9.5% of the children were in foster care; in this study's SOC sample, 8.5% of the children were in foster care.

Diagnostically, the study's and national samples have similar patterns. In the national study, 41% of boys and 18.5% of girls are diagnosed with ADHD (n = 889) (CMHS, 2001). This compares with 25.1 % of the children in the SOC sample (n = 386), 32% of the boys and 22% of the girls, who are diagnosed with ADHD. Nationally, 22.8% of boys and 31.4% of girls (n = 655) have mood disorders. In the study, 22.5% of the

children in the SOC sample, 16% of the boys and 35% of the girls, have mood disorders. The national study separated oppositional defiant disorders and conduct disorders. In national SOC sites, oppositional disorders were reported for 23.8 to 28.7% of 705 children and conduct disorders for 8.4 to 13% of children, with boys having the higher percentages. For this study, 37% of the children in the SOC sample have oppositional or conduct disorders. In both studies, boys are more likely to have externalized problems and girls are more likely to have internalized problems.

Demographic Characteristics. For the study, data were obtained on the following demographic characteristics of children: age, gender, race, ethnicity, and living arrangements. Table 18 compares demographic characteristics of children who were served through systems of care with the matched sample of children who were served through usual services.

Matched Sample. The two samples were matched using multiple demographic and functional factors as well as an environmental factor based on means. The matched sample was selected from the larger usual service population using the following priorities: level of functioning, time between assessments, age, race, local system functioning, living arrangements, gender and ethnicity. Similarities is level of functioning, time between assessments, age, race, and the local environment as evidenced by overall local service system functioning were weighted as most important in selecting the comparison group. As it was not possible to match on every factor, living arrangements, gender, and ethnicity were considered as less important.

As a result, the two samples are matched for the following demographic and environmental factors: age, race, local system functioning (Pavkov, 2004), and time between assessments. Table 19 reports the results of Independent *t* Tests. Significant

differences were found between the two groups for gender and ethnicity. There are more boys and male adolescents in the SOC sample. There are fewer youth of Hispanic origin in the SOC sample.

Comparing the two samples using the collapsed living arrangement categorical scale finds 65% of SOC children with their biological parents as compared with 56% of the other group, 10% of the SOC youth with extended family as compared with 18% in the other group, 8% of SOC children in foster care as compared with 20% of the other group and 18% of the SOC children in other living arrangements as compared with 6% of the other group. "Other living arrangements" includes the most restrictive settings such as residential treatment facilities, detention, or homelessness.

Table 20 compares the level of baseline functioning for each sample as indicated by the HAPI-C for psychosocial factors (affective symptoms, thinking, family, school behavior and disruptive behavior), child neglect and abuse, and level of reliance on mental health services. The samples are matched for all individual functional measures except for disruptive behaviors. Children in the usual service sample have fewer disruptive behaviors on average than do children in the system of care sample. This difference causes differences in the average overall measure of wellbeing, a combination of the psychosocial factors (affective, thinking, family, school, and disruptive behaviors).

It could be argued that this small statistical difference ($.2, p < .05$) in wellbeing with slightly more youth with lower functioning in the SOC sample is not clinically significant. The histograms in Figures 40 and 41 show very similar profiles for this composite measure. The greater difference between the two samples for disruptive behavior ($.4, p < .01$) has been reduced by blending the factors AFGHI into the wellbeing measure. This finding must be interpreted in the context of additional variables. The

greater number of boys in the SOC sample may be related to the greater number of youth in the SOC sample with disruptive behaviors (I) and, therefore, lower levels of baseline wellbeing (AFGHI).

Across the four levels of development of the service delivery system (usual services, system of care in early stages of development (LOD1) , systems of care at the action level (LOD2), and sustained systems of care (LOD3), different profiles emerge for the two samples for all functional variables except neglect and substance use. Table 21 presents the means and standard deviations for each baseline functioning variable at each level of wraparound development. Independent *t* tests compare the LOD2 and LOD3 subpopulations in Table 22. Children in these two levels of SOC development are similar in baseline functioning related to Factors A, G, H, J, L, and overall wellbeing (AFHGI). Statistically significant differences are found for the levels of Factors C, D, F, and I.

Obtaining summary statistics for dependent and independent variables. Although logistic regression analysis does not require that assumptions be made regarding normally distributed samples, the distribution of key variables was explored to better understand variations in the samples. The samples were matched based only on means of multiple variables, so the actual distribution of key variables may differ in each sample and have implications for the study. The distribution of data for each variable was explored for each sample as compared to normal distributions. Using the Explore command of the Descriptive Statistics section, the samples were tested for normality. A significant Kolmogorov-Smimov test indicates that the distribution is not normal (Field, 2000). Table 23. Distribution of Independent Variables, compares distribution statistics of the independent variables for the matched samples.

Age. Children, ages birth through 17, are enrolled in the CSDS. The SOC sample and comparison sample were matched for age as evidenced by the mean of each sample. For children in the SOC sample, the mean age is 11.68 with a SD of 3.267; for children in the usual service sample, the mean age is 11.24 with a SD of 3.530. Although there is no statistical difference in the means for age and neither sample has a normal age distribution, a comparison of the Figures 8 and 9 indicates the SOC sample includes more adolescent youth than does the usual service sample.

Time between assessments. For the SOC sample, the mean for time between assessments is 8.31 months with a SD of 3.230; for usual services, the mean for time between assessments is 8.05 with a SD of 2.860. Although there is no significant difference in means between the two samples, an examination of Figures 10 and 11 reveals a difference between the two samples in that children in the SOC sample have slightly more reassessments at the 12 month interval than at 6 months. Children in the usual service sample are almost twice as likely to be reassessed at six months rather than at 12 months.

Gender. This binary variable was coded "1" for male and "0" for female. The samples were not matched for this variable with more boys in the SOC sample than in the usual service sample. For the SOC sample, the mean for gender is .67 with a SD of .484; for the usual service sample the mean is .58 with a SD of .494. The differences are clear in Figures 12 and 13. Thirty-six more boys are in the SOC sample than in the usual service sample.

Race. Race was summarized into three categories: Caucasian (0), African American (1), and other (2). In the sample, the two studies were matched for this racial summary. In Figures14 and 15 histograms reflect the similarity of the two samples on this dimension. Comparing distribution statistics indicates an extremely close match on racial

characteristics. Sustained systems of care served more African American youth than any other sub sample.

Ethnicity. Ethnicity was coded "0" for Hispanic and "1" for Not Hispanic. The samples were not matched for ethnicity. Although the histograms in Figures 16 & 17 appear to have similar patterns, the number of individuals with Hispanic origins is small in both samples. There are only 21 Hispanic youth in the SOC sample and 36 Hispanic youth in the Usual Service sample. The seemingly small difference is statistically significant.

Local System Functioning. The samples are matched by the means of local system functioning reported from a statewide survey (Pavkov et al., 2004). Local system functioning or coordination is indicated by a factor score ranging from 2.7723 to 4.2595. Although there is no significant difference in means, the local system functioning scores for each sample differ in the overall pattern of scores as revealed in Figures 18 and 19 and the distribution statistics in Table 23. Consistent with the survey's findings, the system of care sample profile has a peak to the far right. The usual service sample has a more normal distribution of scores for this variable.

Living environment. Most of the children in each sample reside with their biological families. Sixty-five percent (65%) of the children in the SOC sample live with their biological families and 56.5% of the children receiving usual services live with their families. Differences exist between the two samples. As displayed in Figures 20 & 21, bar charts using the four collapsed ROLES categories, a greater percentage of children in the SOC sample live in more restrictive settings.

Table 24 indicates that the SOC sample has 13 children in detention compared to none in usual services. Overall, the SOC sample has 63 children living in residential or more restrictive living arrangements. The usual service sample has 14 youth living in

residential or more restrictive living arrangements. Higher percentages of children in the usual service sample live with relatives, adoptive parents or friends (17.4% versus 9.6%), foster parents (10.4% versus 5.4%) or in therapeutic foster homes (9.6% versus 2.1%).

Level of development of wraparound services in system of care. The Level of development (LOD) of wraparound services in the system of care sample is summarized in four levels: (0) usual services, (1) early development (precontemplation, contemplation, and preparation levels), (2) action level and (3) sustained level. By definition, the usual service sample includes only usual services. The mode for the level of service delivery development within the SOC sample is LOD2, action level, which includes 50.5% of the children served in systems of care. Figure 23 displays levels of service delivery development within the SOC sample. In the study, the level of service delivery, not the level of system development, is considered as a possible predictor variable.

Baseline HAPI-C Factors. All of the nine baseline HAPI-C Factors (A, C, D, F, G, H, I , J, L) that are considered as predictor variables in the study are measured on a scale that ranges from 1 to 7 with 1 representing the most severe functional impairment and 7 representing no impairment. The cluster of psychosocial factors (AFGHI), wellbeing, has the same scoring pattern. As indicated in Table 20, the two samples were matched by means for all but one HAPI-C Factor, Factor I, Disruptive Behavior. Thus, the two samples were not matched for overall wellbeing. Each baseline HAPI-C Factor is examined regarding differences between the two samples that may arise when matching is designed to equate average scores.

Baseline Factor A, Affect. Descriptive statistics for the two samples as reported in Table 23 and histograms (Figures 24 and 25) indicate that the two samples appear closely matched on the mood and anxiety dimension. However, closer examination indicates that

the SOC sample tends to have more children with moderate functional impairments related to mood or anxiety symptoms and less higher functioning children than does the usual service sample.

Baseline Factor C, Abuse. The samples are matched by mean scores for children who have experienced child abuse in the last 30 days. Most children, 341 in the SOC sample and 329 in usual services, were not abused. Of those who were abused, 53% of children in the SOC sample and 45% of children in the usual services sample fell within the severe to moderate functioning ranges. The histograms, Figures 26 and 27, reflect very similar patterns.

Baseline Factor D, Neglect. The pattern of the factor measuring neglect of children within the last 30 days is similar to abuse. The samples are matched by means for Factor D. Most children, 322 children in the SOC sample and 327 in the usual service sample, are not neglected. As with baseline abuse, Figures 28 & 29 depict very similar patterns for baseline neglect. For the SOC sample, 52% of the neglected children had severe to moderate functional impairments as compared to 33% of neglected children in the usual services.

Baseline Factor F, Thinking. The samples were matched by means for baseline Factor F, thinking (time/task orientation and problem solving). However, Figures 28 & 29 present somewhat different patterns for the two samples with more low and moderately impaired children in the SOC sample as compared with the sample of children in the usual service sample.

Baseline Factor G, Family. The two samples were also matched for baseline family functioning. However, Figures 30 and 31 display very different looking distribution profiles. Although both samples have more well functioning families, the usual service

sample has 33 more families with no impairments which created the difference in scales. The SOC sample has a negatively skewed, but more evenly distributed pattern of family functioning than the usual service sample. The system of care sample has 32 more families with moderate levels of functional impairments than does the usual care sample.

Baseline Factor H, School Behavior. The two samples are matched for baseline school behavior, Factor H. Figures 32 – 33 indicate that the distribution patterns of the SOC sample and the usual service sample are very similar.

Baseline Factor I, Disruptive Behavior. The two samples are not matched for baseline disruptive behavior. The distribution statistics in Table 22 reflect differences in means (4.83 with a SD of 1.56 for the SOC sample and 5.18 with a SD of 1.44 for the usual service sample), twice the skewness for the usual service sample (-.86 compared to -.46 for SOC), and notable differences in kurtosis (-.56 for the SOC sample versus .32 for the usual service sample). For all but the highest functioning range, more children in the SOC sample are identified at each level.

Baseline Factor J, Substance Use/Abuse. Only 125 of the 772 children in the study were reported to have any substance use issues at the time of enrollment in the database, 71 in the SOC sample and 54 in usual services. The number of children with related severe or moderate functioning problems was in the single digits for each sample. The two samples are statistically matched on this dimension as evidenced in Figures 38 and 39 in the descriptive statistics reported in Table 22.

Baseline Factor L, Reliance on Mental Health Services. Similar patterns of reliance on mental health services at the time of enrollment are evident for both samples. The samples also have similar profiles for reliance on mental health services as reflected in Figures 40 and 41 and descriptive statistics in Table 22. While the number of children with

little reliance on formal services (scores of 5 – 7) was in the single digits for each sample, perceived reliance scores clustered between scores of 1 to 4, with 3 having the highest frequency for both samples.

Baseline AFGHI, Wellbeing. The two samples were not matched for baseline wellbeing with a 0.2 difference in means at a 0.05 significance level. The primary difference is within the subcomponent of wellbeing, baseline Factor I, disruptive behavior. Figures 42 and 43 graphically depict the distribution patterns. For the baseline wellbeing dimension, the SOC sample appears to have a normal distribution, which distribution statistics in Table 22 confirm. The comparison sample appears similar but the Kolmogorov-Smirnov test indicates that is it not a normal distribution ($p < .01$).

Improvements in A, F, G, H, I, AFGHI, C, D, & L. Table 25 reports the percentage with improvement, no change, and deterioration (negative change) for the criterion variables in the study. Frequencies are examined for the whole sample and compared with the SOC and usual service sample. Both Abuse (C) and Neglect (D) have relatively small percentages of improvement and deterioration, reflecting a relatively small number of children. Although overall the children's improvement on functional scales ranged from 42.8% to 58%, changes in family functioning (G) had only a 38.7% rate of improvement with 34.3% deterioration. Reliance on mental health services (L) improved 34.1% with no change for 45% of the children. Average improvements for children served by SOCs ranged from 2.6% to 4.9% higher than for the usual service sample.

Improvement in Family, Factor G. Improvement in Factor G, a dichotomous variable, was scored "0" for no improvement and "1" for improvement. For the SOC sample the mean for Improvement in Factor G is .40 with a SD of .49; for the usual service

sample the mean for Improvement in Factor G is .37 with a SD of .49. Figures 44 and 45 compare the samples' distributions.

Logistic Analysis Findings

Predicting Improvement in Levels of Functioning. A series of logistic models were used to test the study's principle thesis and related hypotheses: receiving behavioral health services through systems of care results in better outcomes for children with serious emotional disturbances.

1. Outcomes for children served by systems of care, as evidenced by improvements in level of functioning, will be greater than for a matched sample of children served in usual services.
2. Outcomes for children served by systems of care will vary positively in relation to the degree to which service delivery systems conform to the values and principles of the systems of care service delivery paradigm (fidelity).
3. Differences in outcomes will vary by domain of functioning.
4. Differences in outcomes children and families served through systems of care will vary depending upon characteristics of the children and their families.

As the HAPI-C data is presented in factor scores for separate life domains with no single rating, nine hierarchical logistical regression analyses were completed One analysis was completed for each of the four following life domains that measure improvement in children's functioning: A (affective), F (thinking), H (school), I (disruptive behavior), and the composite wellbeing factor (AFGHI). Analyses were also run for contextual factors: C (abuse), D (neglect), and G (family). Lastly, an analysis regarding improvement in a system factor, Factor L (reliance on mental health services) was completed.

The first step of each analysis included the baseline level of functioning for that factor, characteristics of the children (age, gender, race and ethnicity) and contextual factors (living environment and local service capacity). The next step included the other baseline functioning factors and improvement in family functioning. The third step included the service delivery system (SOC or usual services) and level of development of the SOC. The last step included interactions between service delivery systems and other variables. The resulting models for each factor are presented in the order above. Tables for each model report only significant predictive variables. Non-significant main effects were dropped from the analyses. A summary table presents the nine final models. The patterns of findings across the nine final models are reviewed in the context of the study's four hypotheses.

The logistic regression models

Improvement in Affective Symptoms, Factor A. A series of hierarchical logistic regression analyses began with all possible demographic, environmental, and functional factors: age, gender, race, ethnicity, time between assessments, living arrangements, service capacity, baseline functioning, service system level of development, interactions, and improvement in family functioning predictor variables for improvement in children's functioning related to affective symptoms, Factor A. Sixteen influential outliers were found and removed. Although model fit statistics are relatively large, -2LogLikelihood = 1042.269, χ^2 (9) = 265.003 is highly significant ($p < .001$). Nagelkerke $R^2 = .398$. Regression results indicated that the overall model of nine predictor variables (baseline affective functioning, gender, African American race, baseline family functioning, improvement in family functioning, reliance on mental health services, levels of SOC development, and the interaction between substance use and system of care services)

correctly classify 74.2% of the cases of children as improved or not improved in functioning related to affective symptoms. Tables 26 and 27 report the correlation and regression statistics for the final model. For the final model, no problems with multicollinearity were identified in the diagnostic linear regression.

The odds of improvement in functioning related to affective symptoms increases 4.301 times if the family's functioning has improved ($p < .001$). Odds ratios indicate that African Americans (1.488) and boys (1.997) are more likely to have improved outcomes related to affective symptoms than other races or girls. Lower baseline family functioning (1.409) and higher reliance on mental health services (1.270) predict a greater chance of improvements for Factor A. Receiving services in a sustained system of care increases the odds (1.658) for improvement in affective functioning. However, baseline affective functioning (.358), receiving services through a system of care in the action stage of development (.587), and the interaction between children who use drugs or alcohol and receive services in a system of care (.767) predict a lower chance of improvement.

Improvement in Thinking (Factor F). A series of hierarchical logistic regression analyses began with demographic, environmental, functional, improvement in family functioning, service delivery model, level of development of the SOC, and interactional variables. Examination of the residual and deviance statistics found 11 influential outliers which were removed. For the final model no problems with collinearity were found in the diagnostic multiple linear regression analysis. The model includes four independent variables and two interactional variables that predict improvement in the child's functioning: baseline thinking, abuse, family functioning, improvement in family functioning, standardized abuse scores interacted with LOD2, and standardized family

functioning scores interacting with LOD3. The main effects for system of care level of development were not significant and, therefore, not included in the final model. The -2LogLikelihood = 1045.899, χ^2 (6) = 209.452, and Nagelkerke R^2 =.322 with 71.5% of the cases accurately classified into improved or unimproved thinking. Tables 28 and 29 report intercorrelation and regression statistics for improvements in Factor F.

In this model improvement in family functioning, with an odds ratio of 5.173, predicts improvement in community functioning (thinking). Baseline family functioning has a modest odds ratio of 1.367. Baseline thinking (.720) and child abuse (.606), predict lower chances of improvement for Factor F. However, the interactional variable of standardized abuse at baseline interacted with the action SOC level of development (2.111) predicts improvement for abused children who are served in developing SOCs. The interactional variable of standardized baseline family functioning times sustained SOC level of development (.512) predicts a decrease in Factor F.

Improvement in School Behavior, Factor H. Another series of hierarchical logistic regression analyses began with possible demographic, environmental, service capacity, baseline functioning, improvement in family functioning, system of care stages of development, and interactive variables. Examining the residual and deviance statistics from the first regression analysis, 16 outliers were identified and removed from subsequent analyses. The final model includes five predictive variables: baseline school functioning, ethnicity, improvement in family functioning, baseline thinking and baseline reliance on mental health services. Tables 30 and 31 provide intercorrelation and regression statistics. The -2LogLikelihood = 1045.209, χ^2 (6) = 239.274, $p < .001$, and the R^2 = .362. The six independent variables in the final model classify 73% of the children who improve in school behavior. Improvement in family function is the strongest predictor of improvement

with an odds ratio of 2.833. Baseline thinking (1.192) and reliance on mental health services (1.327) predict a slight chance of improvement related to school functioning. Lower baseline levels of school functioning (.406) and ethnicity (non-Hispanic) (.504) predict a lower chance of school improvement.

Improvement in Disruptive Behavior, Factor I. A hierarchical logistic regression analysis considered possible predictor variables for improvement in disruptive behavior: age, gender, race, ethnicity, time, living arrangements, service capacity, baseline level of functioning for HAPI-C factors ACDFGHI, service delivery model development, and interactions. After the initial analysis, 13 outliers were identified by examining residual and deviance statistics. Final model fit statistics include -2LogLikelihood = 1051.901; χ^2 (6) = 265.640, $p < .001$. Nagelkerke $R^2 = .394$. Regression results indicate that the overall model of six predictors (baseline disruptive behavioral functioning, gender, ethnicity, baseline family functioning, family improvement, and the interaction between ethnicity and services through a system of care) correctly classifies 71.9% of the cases into improved or unimproved disruptive behavior. Tables 32 and 33 report the correlations and regression statistics for the final model. A diagnostic linear regression model found no evidence of problematic collinearity.

The odds ratio for improvement in a child's disruptive behavior is 2.800 if the family's functioning has improved ($p < .001$). The odds ratio for a family's baseline functioning predicts a slight chance of improvement in disruptive behavior (1.182. $p <$ .05). However, the odds ratios for males (.646) or non-Hispanics (.379) indicate a lower of a chance of improvement. Non-Hispanic youth receiving services in a SOC (1.490) predicts improvement in disruptive behavior. The model found no significant differences across levels of development.

Improvement in overall wellbeing as measured by AFGHI. A series of hierarchical logistic regressions were completed beginning with block 1 (baseline functioning as represented by the combined psychosocial factors, AFGHI, environmental, and demographic predictors), block 2 (baseline abuse, neglect, substance use, and reliance on mental health services, improvement in family functioning), block 3 (level of development of the service delivery system), and block 4 (interactions between predictor variables and SOC). Exploration of the residuals and deviance variables from the first model identified and removed 11 influential outliers.

Tables 34 and 35 report the intercorrelations among the criterion and predictor variables and the logistic model statistics. Although there is a relatively high correlation between baseline AFGHI and significant individual psychosocial baseline factors A, F, and G, the correlations are below .80, a cutoff point at which Menard (2002) suggests correlation becomes problematic in the model.

The resulting model (Model A) had a -2Loglikelihood of 1032.307, χ^2 (9) = 274.404 and the Nagelkerke R^2 = .408. Six independent variables and three interactions were found to be significant predictors of 74.1% of the cases of children with improved or unimproved overall wellbeing. A diagnostic linear regression analysis found no problem with collinearity between the variables in the model.

For Model A, the strongest predictor of improvement in the general measure of wellbeing is improvement in family functioning as evidenced by an odds ratio of 12.465. Recent child abuse decreases the likelihood of improvement (.719), but experiencing neglect is predictive of an increased chance of improvement (1.281). Lower baseline scores for school (.728) and disruptive behavior (.755) predict less chance of improvement in wellbeing. Receiving services in a mid-level (action level) system of care (.644), predicts

less chance of improvement in wellbeing, especially if the child's baseline functioning related to affective symptoms is low (.447). In general, receiving service in a SOC does not decrease the chance of improvement in wellbeing, unless the child has substance use issues (.721) or lives with extended family (.358). There are no significant main effects for baseline affective symptoms, living with extended family, or baseline substance use.

If both the cluster of variables AFGHI and individual psychosocial variables are entered into the equation, SPSS seems to focus on the individual variables and baseline wellbeing appears to be insignificant. Tables 36 and 37 contrasts the model above (AFGHI- Model A) with a simpler model (AFGHI -Model B) that predicts improvement in wellbeing (AFGHI) by four variables (baseline AFGHI, abuse, neglect and improvement in family functioning). In Model B the individual baseline psychosocial factors were not entered separately. Examination of residual statistics identified 11 outliers which were removed. For Model B the -2LogLikelihood = 1032.307, χ^2 (6) = 245.672, Nagelkerke R^2 = .372 with the four variables predicting 72.4% of the variance in improvement in wellbeing. No problems with collinearity were identified in a linear regression. Improvement in family functioning (odds ratio = 9.242) and baseline neglect (1.277) continue to predict greater chances for improvement. Baseline wellbeing (.489) predicts less chance of improvement. Baseline abuse (.743) appears to be a risk factor that lessens the chance of improvement. In general, receiving services in a system of care decreases the chances of improvement in wellbeing only if the baseline standardized substance use rating is high (.725) or if the child lives with extended family (.339).

The latter model, while appearing to be more directly related to the improvement in wellbeing is less sensitive and specific than Model A which considers the influence of specific factors on overall improvement in wellbeing. The statistics for Model A's fit are

stronger and indicate that the most influential psychosocial factors on overall wellbeing are baseline school and disruptive behaviors. Model A also provides additional information about the influence of systems of care on outcomes.

Improvement in Child Abuse, Factor C. To predict improvements in the contextual variable of experiencing child abuse, a series of analyses were run. An initial hierarchical logistic regression analysis included all possible demographic, environmental, functional, family improvement variables, service delivery system, levels of development of the SOC, and interaction variables for improvement in child abuse in the 30 days prior to the assessment and reassessment. Diagnostic review of the residual and deviance statistics identified 9 outliers which were removed for subsequent analyses. In the final model, five variables predicted improvement in child abuse: baseline child abuse, improvement in family functioning, baseline substance use by the child, the interaction between baseline child abuse and the action level of system of care development, and the interaction between baseline levels of substance use by the child and the action level of system of care development. The correlations and regression statistics for the final model are reported in Tables 38 and 39. No problems with multicollinearity were found in the diagnostic linear regression.

For the final model, the -2LogLikelihood = 458.378, χ^2 (5) = 363.151, the Nagelkerke R^2 = .839. The resulting model with five independent variables predicted 97.9% of the improvements or worsening in child abuse. The odds ratio (9.750) for improvement in family functioning indicates this is an important, but not the most influential predictor variable. Baseline substance use emerged at the most influential predictor with an odds ratio of 11.376 ($p < .000$). The level of child abuse at baseline is a strong predictor of decreased chances of improvement (.011) in child abuse. There were no

main effects for the service delivery models. Receiving services in a maturing system of care, the action level, and having a low standardized baseline child abuse score predicts a significantly increased chance of improvement in abuse (5.994). However, if the child had baseline substance abuse and was served in a SOC at the action level of development, less chance of improvement in child abuse is predicted (.142). No evidence was found for any other variables in the study influencing improvement in child abuse.

Improvement in Child Neglect, Factor D. A series of hierarchical logistic regressions were run beginning with possible demographic, environmental, functional, and service delivery variables that might predict improvement in neglect. Examination of residual and deviance statistics found 14 outliers, which were removed from subsequent analysis. The final model includes baseline levels of neglect, living with extended family, baseline family functioning, and improvement in family functioning. Regression statistics and correlations for the final model are reported in Tables 40 and 41.

In the final model, the -2LogLikelihood = 489.301, χ^2 (5) = 366.483. The Nagelkerke R^2 =.806. The four variables correctly classify 97.4% of the cases into improved or not improved/deteriorated neglect. No multicollinearity issues were found in a related linear regression analysis.

Improvement in family functioning again is the strongest predictor with an odds ratio of 8.237. Baseline family functioning, with an odds ratio of 1.813, predicts modest improvements in neglect. The level of neglect at baseline (odds ratio = .034) strongly predicts lower chances of improvement for Factor D. Living in an extended family (home of relative, friend or adoptive parents) (.043) strongly predicts lower chances in improvement.

Improvement in Factor G, Family Functioning. Hierarchical logistic regression was conducted to determine which independent variables (age, gender, race, ethnicity, time between assessments, living arrangements, local service capacity, baseline level of functioning for factors A, C, D, F, G, H, I, and L, level of development of the system of care, and interactions between the demographic, environmental and functional variables and services) are predictors of improvement in Family Functioning. Examination of the residual and deviance statistics identified twelve influential outliers which were removed.

The model fit statistics were extremely large and reveal a possibly poor-fitting mode, -2LogLikelihood = 1011.504, χ^2 (6) = 161.22, and the Nagelkerke R^2 = .260. The model correctly classified 72.8% of the cases as improved or no change or deterioration. Logistic regression analysis resulted in a model including six predictors (baseline family functioning, living in an extended or foster family, baseline school functioning, and the interactions between school functioning and receiving service in a SOC and between thinking and SOC) that distinguishes between improvement or lack of improvement in family functioning. A diagnostic linear regression analysis found no collinearity problems among the variables.

Intercorrelations and regression coefficients are presented in Tables 42 and 43. Wald statistics indicate that baseline school functioning (odds ratio =1.207) and the interaction between a child's standardized baseline thinking and receiving SOC services (1.468) predict chances of improvement in family functioning. Lower baseline family functioning (.509), residing in extended family (.499) or a foster home (.310) and lower school functioning with services in a SOC (.667) predict less chance of improvement in family functioning. When the levels of development of the SOCs were substituted for the interaction variables, no significant findings were found. Neither baseline thinking, service

delivery systems (systems of care or usual services), or levels of system of care development have significant main effects.

Improvement in Level of Reliance on Mental Health Services. For this system outcome measure, a series of logistic regression analyses were run considering the same variables included in preceding analyses (demographic, environmental, baseline functioning, improvement in family functioning, service delivery model, level of development of the service delivery system, and interactions between service delivery system and demographic or functional variables). Ten outliers were identified through examination of residual statistics. They were removed. The final model the -2LogLikelihood = 970.048, and the χ^2 (7) = 150.097, and the Nagelkerke R^2 = .248. Nine variables predict 73.2% of the children who become less or more reliant on mental health services: baseline reliance, ethnicity, baseline thinking, family functioning, and school behavior, improvement in family functioning, the interaction between service delivery school functioning and between service delivery and reliance on services. No problems with multicollinearity were found in a diagnostic linear regression. Tables 44 and 45 report correlation and logistic regression statistics.

The strongest predictor of less reliance on mental health service is improvement in family functioning (odds ratio = 3.324). Baseline thinking (1.285) and family functioning (1.316) predict slight chances of improvement (i.e., less reliance on mental health services). The strongest predictor of chance of improvement is ethnicity. Non-Hispanic children (.321) are more likely to become more dependent upon services. Baseline reliance (.601), baseline school functioning (.792) and baseline child abuse (.845) predict lower chances of decreased reliance on services. However, the interaction between baseline school functioning and services in a SOC at the action level of development (1.627)

predicts a higher chance of improvement (i.e., a decrease in reliance on services). Interactions between baseline reliance and getting services in a SOC at the action level (.429) or sustained level (.357) predict continued or increased reliance on services at the time of reassessment, an average of eight months after the baseline evaluation.

Predictive patterns across logistic regression models. Table 46, Significant Predictors of Improvement across Logistic Regression Analyses, presents the findings for all of the models detailed above. Clear patterns emerge. They are reviewed as relevant to the basic questions and hypotheses of the study.

Hypothesis: Outcomes for children served by systems of care, as evidenced by improvements in level of functioning, will be greater than for a matched sample of children served in usual services.

Based on main effects in the models, little can be predicted by the service delivery models (systems of care or usual services) across the models alone. Findings vary across analyses. The level of fidelity to the principles and elements of wraparound of the systems of care service delivery system must be considered before any significant service delivery findings emerge.

Hypothesis: Outcomes for children served by systems of care will vary positively in relation to the degree to which service delivery systems conform to the values and principles of the systems of care service delivery paradigm (fidelity).

Significant findings regarding the effectiveness of wraparound appear when the level of development, consistency with wraparound values and principles, is considered as a main effect in the logistic regression models. For functioning related to affective

symptoms and functioning (A), receiving services in a sustained system of care predicts greater improvement (1.658) than receiving usual public mental health services. However, receiving services in a system of care at the action level of development, intermediate level of wraparound service delivery, predicts less improvement (.587) than receiving services in usual services. For overall wellbeing (AFGHI), receiving services in a system of care at the action level predicts also less chance of improvement (.644) than in usual services.

Hypothesis: Differences in outcomes will vary by domain of functioning.

Outcomes vary by life domains, contextual domains, and service domains. Main effects for systems of care were found in two models, and interactions between service delivery paradigms and individual characteristics or functional factors were significant for seven of the nine logistic regression models. Only the school behavior (H) and child neglect (D) models contained no information about service delivery paradigms. Both positive and negative predictive patterns were found and vary from one life domain factor to another.

For child related outcomes (A, F, H, and I) mixed results appear specific to characteristics, contextual factors, or specific functional impairments. For example, in the affect model, receiving service through a system of care at the sustained level of development predicts a greater chance of improvement (1.658). However, receiving service in a system of care at the action level predicts a lower chance of improvement (.587). If the child has substance use or abuse issues at enrollment and is served in a system of care, a lower chance of improvement in functioning related to affective symptoms is predicted (.767).

For the Factor F Model, thinking, there are no significant findings related to the service delivery model alone. However, significant interactions between the service delivery model and contextual factors emerge. If a child has been abused and is served in a system of care at the action level of development, an increased chance of improvement in thinking is predicted (2.111). If the child's family has low baseline functioning, and the child is served in a system of care at the sustained level of development, less chance of improvement in the child's time management and problem solving functioning is predicted.

For the Factor H Model, School Behavior, there are no significant findings related to the service delivery model alone or any significant interaction variables. For the Factor I Model, Disruptive Behavior, no significant findings were found related to the service delivery system alone. However, the model predicts that non-Hispanic youth who are served in systems of care have a better chance of improved disruptive behavior than do Hispanic youth who are served in a system of care. The interaction between experiencing child abuse and receiving services in an action level SOC predicts improvement for thinking, Factor F, (2.111). However, the interaction between affective symptoms, baseline A, and receiving services in SOC at the action level (.447) predicts less improvement in wellbeing.

For two contextual factors, improvement predicted under one circumstance was moderated by another variable. The interactions that predict improvement are very specific to each model. Receiving services in an action level system of care for children who have been abused strongly increases the chances of improvement in child abuse (5.994), unless the child is also using substances (.142). Similarly, the type of service delivery has potentially positive or negative influence on the chances of improvement for the family

depending upon the needs of an individual child and family. Families of children with poor problem solving functioning in the community and who are served in systems of care are predicted to have better chance of improvement (1.468) than families of children with similar problems who are served in usual services. Yet, families of children with poor school behavior who received system of care services are less likely to improve (.667) than similar families and children who are served in usual services. If the child has functional impairments related to both school and the community functioning (thinking) and receive system of care service, the positive and negative influences on family improvement cancel out one another.

Patterns of predictions for overall wellbeing (AFGHI) and reliance on mental health services also differ. For wellbeing, the main effect of the action level of development and three interactive variables (baseline affect interacting with action level SOC, extended family interacting with SOC and baseline substance use interacting with SOC) all decrease the chance of improvement in wellbeing. For the system measure, reliance on mental health services, a mixed pattern of interactive variables emerges. Children with baseline behavior problems in school who receive services in an action level SOC are predicted to reduce reliance on mental health services (1.627). However, children with baseline disruptive behavioral problems who are served in either an action or sustained level of system of care have a lower chance of reduced reliance on mental health services than children with similar needs who are served in usual services or systems of care in early development.

Hypothesis: *Differences in outcomes children and families served through systems of care will vary depending upon characteristics of the children and their families.*

The interactions between service delivery models and baseline functioning, individual characteristics, or contextual factors identify several circumstances in which systems of care are more or less effective than usual services. Many of the originally considered possible predictive factors were not found to be significant predictors of improvement of any outcome measure: age, time between assessments, other living arrangements, service capacity, and SOCs at an early developmental stage (LOD1). Several variables were included in each analysis to help control for other factors that influence outcomes. Variables which had significant main effect findings that predicted improvement are reviewed: gender, race, ethnicity, living environment, and baseline level of functioning. Considering the pattern of main effects across the nine logistic analyses may help better understand the mediating factors. Following this discussion, findings based on interactions between service delivery models and demographic variables, baseline functioning, and improvement in family functioning are reviewed.

Gender. As expected, gender is a predictive factor for two expected factors: affect and disruptive behavior. Being male increases the chances of improvement in functioning related to affective symptoms (1.997). Conversely, being male is predicted to decrease the chance of improvement of disruptive behavioral functioning (.646). The findings related to gender are consistent with related research. Externalized behavioral disorders are more often identified in boys and internalizing problems such as affective disorders are more often identified in girls (Gardner et al., 2002). This study suggests that boys with externalized behavioral problems are also less likely to improve; girls with internalize affective disorders are less likely to improve.

Race. In this study, race is related only to improvement in affective disorders, depression and anxiety. African American youth (1.488) are more likely to improve than youth who are Caucasian or other races. The percentage of African American youth in Indiana's systems of care (28.2%) is higher than for the general population. As many youth receiving services in SOCs are referred from child welfare, juvenile justice, or education and are at risk of residential care, the higher rate is consistent with the disproportionate risk factors cited by the Surgeon General (DHHS, 2001a). The percentage of African American youth served through Circle Around Families (Lake County) and the Dawn Project (Marion County) is above 50% (Pavkov, et al, 2005).

The Circle Around Family's Director suggests that many African American youth often come to them in crisis. They often have been experiencing mental health problems for some time, but had not been in treatment (conversation with M. Suggs, September 12, 2005). Evidence of improvements in affective disorders for minority youth is an encouraging indicator that community based treatment provides an effective alternative to out-of-home placements for minority youth with complex needs who experience depression.

Ethnicity. In this study, although there were few Hispanic youth, ethnicity appears in three models predicting that being Hispanic alone increases a youth's chance of improvement in functioning related to school, disruptive behavior, and reliance on services. Lessened reliance on mental health services for Hispanic youth may be associated with cultural attitudes about using or depending upon formal treatment services.

Living arrangements. Improvement in family functioning was more likely if the child lived with their biological families than if they if the children lived with relatives, adoptive families, or friends (.499) or was in foster care (310). The contextual domain of

child neglect was more likely to improve for children who lived with their biological families than for children who lived with extended families (relatives, adoptive families, or friends (.043).

Substance use. Improvement in child abuse (C) is predicted for children who use drugs or alcohol (11.376).

Level of Functioning. Children with lower baseline functioning have a better chance of improvement than children with high or normal functioning. For each model, baseline functioning of that measure always negatively influences the outcome. Inclusion of baseline helped control for differences in initial severity of functional impairment. The samples were matched by means for all levels of baseline functioning, except Factor I, disruptive behavior and for all other variables except gender. The systems of care sample included a significantly larger number of children with low to moderate impairments on this domain and more boys. The samples' differences may be more a function of differences in gender than behavior. Research associates externalized behavioral disorders with boys (Gardner et al., 2002).

Across the nine models, baseline functional factors vary in predicting change. For example, Factor H, school functioning, predicts a chance of improvement in family functioning (odd ratio = 1.207), but is a negative influence on overall wellbeing (.728), and reliance on services (.792). Baseline "thinking" is a positive predictor of the chance of improvement in school (1.192) and lessened reliance on mental health services (1.285). Baseline disruptive behavior predicts a lower chance of improvement in wellbeing (.755). Baseline substance abuse is a strong positive predictor of improvement in child abuse (11.376). Baseline level of neglect predicts a greater chance of improvement in a child's

overall wellbeing (AFGHI) (1.281), but baseline child abuse predicts a lowered chance for improvement in wellbeing (.719).

The most consistent and influential factor to predict a positive chance of improvement in children's functioning across all functional domains is improvement in family functioning (Factor G). These findings were consistent for children served in both usual services and systems of care. Statistically, improvement in family functioning most strongly predicts improvements in a child's overall wellbeing as measured by the cluster of psychosocial measures (AFGHI) (12.465). Improvement in family functioning was also the strongest predictor of a chance of improvement in children's functioning related to specific areas: affective symptoms (4.301), thinking (5.173), school behavior (2.833), and disruptive behavior (2.800). Other contextual factors were also positively affected by improvement in Factor G. A chance of improvement in child abuse (9.750) and neglect (8.237) and reliance on mental health services was predicted (3.324) to improve when Factor G improved. Baseline family functioning is positively related to a chance of improvements in Factors A (1.409), F (1.367), L (1.316), and D (1.813), but not to improvements in school (H), disruptive behavior (I), wellbeing (AFGHI), or abuse (C).

The interactions between these control variables (individual characteristics, contextual factors, and baseline functioning) identify several circumstances in which systems of care are more or less effective than usual services. Interactions in seven of the nine analyses [affect (A), thinking (F), disruptive behavior (I), and overall wellbeing (AFGHI), abuse (C), family (G), and reliance on mental health services (L)] identify or qualify circumstances in which systems of care work better than usual services or do not work as well as usual services.

Although improvements in affect (A) are predicted for children who are served in sustained levels of wraparound (1.658) and less improvement is predicted for children served in the action level (.587), there is less chance of improvement for children served in systems of care who have substance use issues (J) (.767).

Improvement in thinking or problem solving in the community (F), is predicted for abused children who are served through child and family wraparound teams at the action or intermediate level of development (2.111). Less improvement in thinking (F) for children with parents with lower baseline functioning (G) who are served in wraparound with high fidelity (.512).

For disruptive behavior (I), the model predicts a greater chance of improvement for non-Hispanic children than for Hispanic youth who are served through wraparound services (1.490). Overall, non-Hispanic youth are less to have improved disruptive behaviors (.379).

Related to overall wellbeing (AFGHI), children served in action level systems of care are predicted to have less chance of improvement (.644), especially if the child has a low functioning at baseline related to affect (.447), lives with extended family (.358), or is using or abusing substances (J) (.721). These interaction findings related to living arrangements and substance use and service delivery reflect to all levels of wraparound.

Improvement in child abuse (C) is predicted by the interaction between higher levels of baseline abuse (C) and receiving wraparound services which are at the action level (5.994). However, the chance of improvement in abuse is lessened if the child is using alcohol or drugs (J) (.142).

Although there are no main effects related to service delivery for Factor G, family, two interaction variables were significant. Families of children with lower functioning

related to time management and problem solving in the community (thinking) (F) at baseline and who were served through child and family wraparound teams, have a better chance of improvement (1.468). However, families of children with lower school related functioning (H) and who were served through wraparound are less likely to improve (.667).

Lessened reliance on mental health services is predicted by the interaction between children with school problems who are served in action level wraparound services (1.627). The interactions between sustained and action level wraparound services and baseline reliance on mental health services predicts increased reliance on services at the time of reassessment (.357 and .429 respectively).

Chapter Six

Discussion

The basic premise of this study is that providing services to children with serious emotional disturbances and moderate to severe functional impairments through child and family wraparound teams in a system of care will result in better outcomes than providing care through usual public mental health services. A series of related logistic regression models suggest circumstances in which systems of care may be effective for children with serious emotional disturbances with moderate to severe functional impairments. The models also identify circumstances under which system of care services may be more or less effective. The study's four research questions provide the framework for a discussion of the findings (main effects, patterns across models, and interactions). Implications for social policy, practice, research, and social work education are explored.

Question 1. Do children who are served by systems of care have different outcomes (functioning) than children who are served by usual public mental health services?

In general, the series of logistic regression analyses do not support the first hypothesis. There is insufficient evidence that systems of care statistically result in better outcomes. The findings are mixed, initially appearing confounding, but on closer examination suggest there may be circumstances in which services through child and family wraparound teams are helpful and circumstances in which treatment through usual services has better results.

The predominant absence of main effects related to the model of service delivery is evident in Table 50. Statistically significant main effects related to systems of care emerge only for a child's functioning related to overall wellbeing (AFGHI) and affective

symptoms (A). The closest measure of overall improvement, wellbeing (AFGHI), correlates with the GAF (Newman et al., 2002). The result holds only when fidelity to SOC is included in the specification; no significant main effects are present in specifications that include only the presence of systems of care without consideration of fidelity. In these analyses, variations in effectiveness based on level of service delivery fidelity (development) cancels out statistically significant findings for SOCs overall.

The study's overall pattern of no significant main effects related to service delivery for seven of nine analyses does not support the simple generalization that receiving services through systems of care leads to better outcomes for children and their families. When fidelity, level of development, is considered, main effects related to the model of service delivery appear in two models as discussed in Question 2. Additional information regarding the effectiveness of systems of care emerges in interactional patterns across all but two models (H and D) which are discussed under Question 4. The findings suggest a more complex pattern of relationships between service delivery models, levels of fidelity, contextual factors and children's characteristics. The simple systems of care dummy variable missed important fidelity considerations and the impact on specific functional domain outcomes related to certain types of children and youth.

Question 2. Are differences in outcomes related to the level of development of the systems of care (fidelity)?

The hypothesis assumes that the study's level of development measure reflects fidelity to the wraparound model. For the analyses, the level of development of the system of care service delivery system, not the collaborative infrastructure, was considered as a measure of fidelity to the wraparound model. The reader is reminded that five levels of

development for the SOCs were identified using a qualitative measure based on the change theories (Procheska, Norcross, & DiClemente, 1994; Rogers, 2003). For this study, these levels were collapsed into three levels: early, action, and sustained.

Results are mixed across different outcome domains. These patterns are not always consistent. Results for children served in systems of care at the sustained level of development (LOD3) do not always predict better improvement than for children served by systems of care at the intermediate action level (LOD2). Results for children served by systems of care at LOD2 are not always better than for children early level of development (LOD1). The only main effects for LOD are found in Models A and AFGHI, but LOD information emerges in the interaction patterns of four models (F, AFGHI, C, and L).

This study's findings suggest that systems of care at the sustained level of development work well for children who are experiencing difficulties in functioning related to depression and/or anxiety (Factor A). To be more precise, children with functional impairments related to affection symptoms are more likely to improve when served in LOD3 SOCs than when served in SOCs at LOD2, LOD1, or in usual services. In contrast, children with functional impairments related to affective symptoms are less likely to improve when served in LOD2 SOCs than when served in SOCs at the LOD3, LOD1, or in usual services.

The matched sample reflects average functional ratings from the combined SOCs. However, the differences in subpopulations served by the various levels of wraparound services and usual services are statistically and clinically significant. As demonstrated in Table 21, across baseline functioning variables, a consistent pattern for children served across levels of service system development appears. Sustained systems of care serve the most severe children as indicated by wellbeing, disruptive behavior, thinking, school

behavior and level of reliance on mental health services and the second most severe levels of impairments related to affect and family functioning. The action level serves children with the most severe ratings for affect, child abuse, family functioning, and substance use with the second highest ratings for neglect, school behavior, and wellbeing. Children in the early developing systems of care have more in common with the general population of children served in public mental health services that children usually served in systems of care or included in the matched sample.

Such differences may not be by chance, but may reflect conscious decisions by local system of care consortiums to target specific subpopulations. Yet, the progress of targeting services may also be related to level of development. For example, SOCs in early development may focus on mastering the wraparound process and focus on less challenging situations while developing wraparound skills and considering whether or not to commit to the development of intensive community based services. For intermediate teams, effectively addressing the needs of children and families in the child welfare system is a clear unmet community need. Sustained systems are perhaps better prepared and confident to engage youth with more disruptive behaviors and juvenile justice involvement.

In summary, the study's wraparound development measure does not consistently support the hypothesis that fidelity to the wraparound paradigm is important in outcomes. However, consistent patterns regarding the "levels" appear and reappear throughout the models.

Question 3. How do outcomes vary across domains?

The pattern of main effect findings across the nine logistic regression analyses yields limited information to answer this question. Main effects related to systems of care and level of wraparound development appear only in Models A and AFGHI (wellbeing). To gain additional information, the interactions between service delivery systems and/or levels of wraparound development and various child or family characteristics are examined. Outcomes for children differ by psychosocial factors (A, F, H, I, AFGHI), contextual factors (C, D, G), and system measure (L) as well as individual characteristics (gender, race, ethnicity, living arrangement, and baseline functioning) which are summarized in Table 46.

Question 4. How do the characteristics of the children and families impact outcomes for youth and families served through developing systems of care?

Which children improve? African American youth, boys, youth whose families have low baseline family functioning and children who relied heavily on mental health services at the time of enrollment are likely to improve in functioning related to depression and anxiety. Girls are more likely than boys to improve in functioning related to disruptive behaviors. Hispanic youth are more likely than non-Hispanic youth to improve in school, disruptive behaviors and to have less reliance on mental health services. Across all models, the strongest predictor of improvement in children's functioning, abuse, neglect, and reliance on mental health services is improvement in family functioning.

Children with baseline problems in community functioning and children with heavy baseline reliance on mental health care are more likely to experience improvements related to school behavior. Children who have been neglected are likely to experience

overall improvement in wellbeing when receiving mental health services. Families who had higher family functioning needs at baseline have greater chances of improvement in neglect and less continued reliance on mental health services. Contextual factors, neglect and family functioning, are more likely to improve if children are living with their biological families.

Across the logistic regression models rich information emerges about how characteristics of children and their families interact with the service delivery model (wraparound through systems of care versus usual services). In this section, the interactions between significant independent variables and the service delivery models are examined. The following factors interact with service delivery: ethnicity, living with extended family (adoptive home, relative's home, or friend), and baseline functioning of Factors A, C, F, G, H, J, and L to impact improvement outcomes. Lastly, given the pattern and level of influence of improvements in family functioning, the relevance of these findings is also considered.

Under what circumstances do children and families benefit from wraparound services in developing systems of care? Returning to Table 46 and looking at the overall wellbeing measure (AFGHI), it appears that systems of care are not as effective if a child is served in a SOC at an intermediate (action) level, if the child is depressed or anxious, is living with extended family, or if the child is using alcohol or drugs. As the wellbeing measure is a summary of five psychosocial measures, deconstructing the overall rating is helpful to gain additional information that relates to the different subpopulations served by different levels of care.

Internalized disorders. That Model A finds clear differences in the effectiveness of sustained and intermediate wraparound services suggests a higher level of clinical

competence and perhaps access to effective indicated treatment of depression and anxiety for youth in more developed wraparound services. As wraparound is an intensive case management service, the wraparound facilitators at the intermediate level may focus primarily on team facilitation, family dynamics, and needs identified by the referral agency. For action level SOCs, training regarding effective treatment of internalized symptoms and strengthened linkages to such services is indicated.

Effectiveness for Disruptive Behaviors. Model I (disruptive behavior) finds that receiving services through SOCs for most children (non-Hispanic) predicts improvements in disruptive behaviors than usual services. This is significant as externalized, disruptive behaviors (negative peer influence, disruptive or inappropriate behavior, and/or delinquent behavior) are likely to lead disciplinary actions at school and involvement in the juvenile justice system (Baker et al., 2001; Garland et al., 2001; Mellard & Seybert, 1996; Skiba, Rausch & Ritter, 2004). The suggested effectiveness of systems of care for the largest population of targeted youth supports the viability of child and family wraparound service as an alternative to more restrictive out of home placements.

Child abuse and neglect. The effectiveness of intermediate wraparound for abused children with problems in community based functioning (F), whose parents have greater needs at baseline (G), is consistent across models F, C, G, and L. The models suggest meaningful relationships among these factors and offer clues about circumstances in which wraparound is more or less effective for abused and neglected children. Neither affective symptoms nor externalized behaviors appear as significant in these models. A child's functioning at home and community (outside school) is measured by two items under Factor F: evidence that the child has trouble thinking, remembering, starting or completing a task and evidence that the child has difficulty solving problems, including asking others

for assistance. The original literature around the HAPI-C does not associate this measure with abuse and neglect, but the interrelated pattern supports the measure's intention of reflecting functioning at home. Abused children served through intermediate wraparound improve in their ability to function at home. The rate and functional impact of abuse is lessened with these services. Model F's finding that children whose parents have greater needs at baseline and who receive services from a sustained wraparound model are predicted to have less improvement may further suggest specialization of the local systems of care. Intermediate wraparound appears to have targeted abused children and their families.

Model D (neglect) does not have any findings related to specific service delivery model, but neglected children are likely to improve in overall wellbeing (AFGHI) when receiving mental health services. Low family baseline functioning predicted greater improvement; living with extended family predicted less chance of improvement. The suggested favorable impact of mental health treatment on multiple child and family domains and on lessening neglect is encouraging for neglected children living with their parents.

Findings related to abuse and neglect are consistent with emerging evidence from an evaluation of a behavioral health early identification and intervention initiative for children in Indiana's child welfare system (Wright & Lawson, 2006). Abused and neglected children with mental health needs who receive mental health treatment have lower rates of repeat abuse and higher rates of placement stability. This study's analysis of predictors of improvement in functioning complements that ongoing study.

Specialization of sustained wraparound services. An examination of the children served by sustained wraparound services reveals a different targeted population than the

one effectively served by intermediate wraparound. The sustained systems of care communities appear to serve a specific subpopulation of children with serious emotional disorders: older youth in more restrictive living arrangements, youth often involved with the juvenile justice system and youth with higher levels of internalized (affective) and externalized symptoms (disruptive behavior). Such specialization may help account for mixed outcomes. Youth with SED and complex needs are likely to have persistent symptomatic and functional impairments (Halliday-Boykins, Henggeler & Rowland, 2004; Greenbaum et al., 1996).

Substance Use. The impact of substance use for youth who are served by SOCs is reflected in three models: A (affect), AFGHI (wellbeing), and C (child abuse). If children who were abusing substances improved, the chance of less recidivism is predicted to be great (odd ratio = 11.376). Although the number of children with identified substance use issues was relatively small in the study, the chance of improvements for children using alcohol or drugs and served in systems of care was reduced. Youth with substance abuse have been shown to have more difficulty than other youth in meeting the goals of the child and family team in a sustained system of care (Wright, Kooreman &Anderson, 2005). Accurate identification of substance abuse and effective treatment for co-occurring disorders (mental health and substance use) are being recognized as a challenge throughout the child service system, especially in rural areas (Anderson & Gittler, 2005). Identification and effective treatment of youth with substance use issues may also be an unrecognized and unaddressed need in systems of care. Further study is needed to determine if this is an assessment and training issue or if the system of care paradigm is not effective for youth with co-occurring disorders.

Families. Model G (family functioning) includes two interactions. The families of children with poor community functioning (F) who are served in systems of care are more likely to improve unless the child also has school behavioral problems (H). This model provides a connection to Models F (thinking/community functioning) and C (abuse), linking improvement in family functioning, improvement in the child's community functioning, and reduced abuse. In main effects for Model C (abuse), improvement in family functioning, but not baseline family functioning (G), predicted improvement. Linkages between contextual factors (family functioning and abuse), improvement in the child's thinking, functioning in the community, and services through child family wraparound teams in SOCs at the LOD2 are strongly suggested by this study.

Improvements in Family Functioning. Improvement in family functioning (G) is the most constant and influential factor in predicting an increased chance for improvement in children's functioning across all functional domains. The odd ratios for improvement in family functioning predicting improvement in the other eight models ranges from 2.800 related to disruptive behavior to 12.465 related to overall wellbeing. As might be expected, improvements in family functioning strongly predicted lessened child abuse (9.750) and neglect (8.237) and lessened reliance on mental health services (3.324). These findings were consistent for children served in both usual services and systems of care.

However, causation is not implied due to two methodological issues. A purposive sample was used instead of a random sample. Secondly, the level of development fidelity measure appears to be endogenous, to be correlated with different subpopulations across varying levels for which there is no control in the statistical model. What can safely be said is that a strong correlation or relationship exists between family improvement and

improvement in a child's functioning. Improvement in a child's functioning may be contemporaneous with improvement in the family's functioning.

The HAPI-C's measure of family functioning, Factor G, is bi-directional. It incorporates concepts about the importance of the family ability to nurture and support their child's development, to support their child's ability to cope effectively with mental health challenges, and the impact of the child's functioning on the family. Two items address the family's support of the child and one considers the impact of the child's problems on the family and their interactions.

Interpretation of Factor G and improvements is clouded by the bi-directional nature of the measure itself and the uncertainty regarding who was measured by the clinician administering the HAP-C. Although 65% of the children lived with their biological families and the instructions specify that the caretakers who are most likely to provide a permanent home are assessed, there is uncertainty about who was rated on the family functioning items.

The importance of improvement in family functioning begs the question of what factors predict improvements in family functioning. The child's baseline school behavior predicts subsequent improvement in family functioning, perhaps a motivator if the child is not doing well in this important life domain. The interaction between the child's "thinking", the ability to function at home and in the community and receiving services in a SOC also predicts improvements in family functioning. However, if the child has school behavioral problems, the interaction between baseline school behavior and wraparound reduces the chance of improvement in family functioning. If the child lives with relatives, friends, an adoptive family or foster family, family functioning was less likely to improve than when children remained with their family of origin.

The positive impact of service through systems of care's child and family teams to improve family functioning, reduce child abuse, and improve outcomes for children with disruptive behaviors is not unexpected. The core principles and values of this family driven intervention include engaging families, providing both clinical and supportive services (Stroul & Friedman, 1986a). Wright and Kooreman (2005) found preliminary evidence that sustained systems of care appear to positively impact families, reducing caregiver strain and improving family interactions.

Wraparound through a child and family team is based on values and principles of family involvement, family voice and active decision making, the identification and nurturing of informal supports, and effective crisis management. This study found that families whose children have greater community functioning problems and are served in systems of care are more likely to improve in family functioning. This finding suggests that the child and family team model is consistent with a family's need for support, information, and access to treatment.

Model L, Reliance on Mental Health Services, presents another twist. If a child with baseline school behavioral needs is served through wraparound at LOD2, their reliance on mental health services is likely to decrease, unless the level of reliance at baseline was high. Yet, it is not surprising that, overall, the interactions between LOD2 or LOD3 wraparound services and baseline level of reliance on mental health services predicts less likelihood of a decrease in reliance on mental health services for Model L. At the time of the reassessment, approximately eight months after enrollment, the child and family would most likely still be heavily involved in wraparound. The average length of enrollment in the Dawn Project for 1106 youth is 13.08 months (Wright & Anderson, 2005).

Important findings and implications would be lost if only the wellbeing model or only main effect findings were considered. Although the study and findings are complex, patterns of findings are rich in information and implications for further study, policy, and social work education. But first, limitations of the study are considered.

Limitations

Several limitations in this study could affect the generalizability of the findings. The study is a case study of data from Indiana's emerging systems of care. Although the study's sample has some similarities to the children served in federally funded systems of care sites (CMHS, 2001), the ability to generalize findings is limited. The samples were not randomly selected. Relationships are therefore correlations and cannot be considered to be causative. As in many field studies, children served by systems of care or usual services in the public mental health system are "selected" by a combination of administrative design and/or self selection (Cook, 1990, as cited by Black, 1999). In some communities, systems of care do not exist. In other communities, access to a system of care is limited by admission criteria or is limited to specific referral sources. Families of children also choose service modalities.

Although enhanced to identify youth who are served through systems of care, the use of the state database in the study is limited by the usual factors related to the use of secondary data for research. The CSDS database was developed to enroll consumers in the Hoosier Assurance Plan, Indiana's public mental health funding source, so that providers could draw down funding for eligible consumers. A secondary purpose of the CSDS has been outcome studies. However, design elements linked to the primary purpose create some limitations in the databases used for quality improvement or outcome studies. Once a provider enrolls an individual within a state fiscal year, no other provider can enroll the

individual. While this feature prevents duplicated funding for a consumer's care, it presumes that all providers offer equal services. Not all community mental health centers or child social service agencies offer intensive community based services through a system of care or are able to bill Medicaid Rehabilitation Option for services. There are incidents in which a contract social service agency has enrolled a child in HAP, closed the case, and the child came to a CMHC for services through a system of care. The child could not be reenrolled and the provided services were not reported. Additionally, some families of children who are served by systems of care have incomes greater than 200% of poverty and, therefore, are not eligible for HAP. Although the CSDS database would allow enrollment of all children served by SOCs, CMHCs may not always complete the enrollments, due to the added burden of completing the required assessments.

The infrequency of reassessment for children is problematic from a research and outcome measurement perspective. When the HAPI-C was introduced, reassessment every 90 days was required. Due to noncompliance by providers, the reassessment requirement was changed to six months after enrollment in the database and at re-enrollment in the next state fiscal year (after July 1). In a practical sense, this database design makes accessing multiple measures very difficult for a sample that is large enough to consider the influence of the level of development of the local systems of care. This study also uses only one outcome measure for each child, averaging eight months after enrollment. Ideally, a longitudinal study involving reassessments every six months would be used to follow trends over time.

Basing the analysis on administrative data makes it impossible to consider and measure some critical factors that may influence outcomes. Health outcomes literature and emerging research have identified decisions made by consumers in the process of receiving

services (Donabedian, 1988) and empowerment of families (Rogers & Shelton, 2005) as variables that alone or as mediators predict outcomes. The researcher using existing administrative data can develop a sketch of system functioning and outcome measures for children, but has trouble completing the picture. The limited amount of explained variance in the analyses suggests that other important factors have not been considered.

Additional missing variables are expected. The range of variance in outcomes that is explained by the final models ranges from .260 to .839 with five models falling in the .300 range. The remaining unexplained variance strongly suggests that many other factors are contributing to the change. Other studies consider an array of possible variables that could not be addressed in the state database: the effects of poverty and work-based antipoverty programs for parents on the child's school performance and social behavior (Huston et al., 2001), family resources and child development (Foster, 2002), and effects of neighborhood residence and youth outcomes (Fauth, Leventhal & Jeanne Brook-Gunn, 2005). Psychologists explore the link between marital conflict and child adjustment (El-Sheikh & Elmore-Staton, 2004) and between multi-risk factors and outcomes (Pinderhuges, Lengua, Greenberg & Coie, 1999). Physicians consider the impact of parents' mental health symptoms on children's emotional and behavioral well being (Kahn, Brandt, & Whitaker, 2004). The data for this study were insufficient to examine such potential confounding effects.

Is there a problem with the measure of fidelity? Evidence of the measurement limitations is evident in the findings from this study. Consistent with the challenge that has faced proponents of wraparound and systems of care, the difficulty of accurately measuring fidelity to the system of care paradigm or wraparound has limited related research and eluded the status of evidence based practice (Burns & Hoagwood, 2002).

Lacking the manualized protocol of standardized evidence based practice, exactly what is being evaluated as wraparound continues to elude practitioners and researchers. Other variables than core values and wraparound principles may influence practice and outcomes.

One explanation of this study's findings is that the level of development measure may not be sensitive enough to measure fidelity to wraparound. The fidelity measure was based on the first version of Dr. Effland's (2004) strength based assessment. This assessment process involved completing a strength based assessment that incorporated systems of care and wraparound values and principles into a stage of change construct in order to determine the level of development. Coding templates and rating guides were used to interpret the information. All but three of the systems of care were assessed and rated by the state's technical assistance center; three additional sites were assessed and rated by this researcher using the same assessment tools, coding templates, and rating scales. The resulting fidelity measure was summarized as two levels of development, one for the system infrastructure and the other for wraparound service delivery. In the LOD measures information about local capacity, processes for servicing children, or targeted subpopulations was not available. This lack of specificity in the fidelity measure may have yielded non-results.

Important additional influences related to effective wraparound services may need to be considered in a fidelity measure. The effectiveness of child and family wraparound teams may involve more than the underlying values and principles of systems of care or wraparound. Effectiveness may be related to such factors as specialization and to the team process itself (conversation with Eric Wright and Jeff Anderson, December 5, 2005).

Applying team dynamics to wraparound values introduces another, possibly critical dimension to be studied.

Another methodological issue is the difference in subpopulations across SOCs at different levels of development. This uncontrolled factor may be influencing outcomes. Previously unidentified admission criteria or targeted populations of the systems of care may differ. Such criteria are suggested by the differential profiles between LOD1, LOD2 and LOD3 wraparound services.

The suggestion that other factors are involved with the study's outcomes, that specialization of the LOD2 and LOD3 wraparound services may contribute to that level of services success with different subpopulations and that team functioning may be important are consistent with Dr. Robert Friedman's (2004) theories about what makes for successful systems of care including clear identification of the population to be served, sound understanding of the needs of that population and of the services and supports that are likely to be helpful, an understanding of the current flow of the population through the system and the desired flow, a clear theory of change, including statement of goals for children and families and for the entire system, and attention to team building needs. Better understanding of how such complex dynamics relate to effective outcomes requires the ongoing collection of data relevant to the child and family's needs and progress and the functioning/dynamics of the wraparound services and the use of data to inform practice and research. Even with these limitations, this study has implications for policy, practice, research, and social work education.

Policy Implications. This study's findings have multiple implications for policy. Specialized systems of care can provide an effective community based alternative for many children with serious emotional disturbances with moderate to severe functional

impairments who are at risk of out-of-home placement. Such systems of care may be more effective for children who can be safely maintained in their families' homes. Wraparound through child and family teams can be very effective in helping children who have been abused and neglected or children who are not functioning well in the community.

Local systems of care need to explicitly develop theories of change to identify specific populations of concern, desired outcomes, and develop the expertise to effectively engage and serve this group of children and their families. The complexity of effective service for targeted populations requires expertise within systems of care. Implications for training from the study are to tailor training to the targeted subpopulation(s) and to recognize the need for additional consultation and training when children and families with different needs request services.

All systems of care and public mental health services are challenged to become truly linguistically and culturally competent so that the needs of Hispanic youth and their families can be more effectively met. Indiana's fast growing Hispanic community with many non-English speaking family members creates a challenge to all community services, including mental health and addiction services. Partner agencies in local systems of care are challenged to help staff become more culturally competent and to have adequate resources including staff who are bilingual. Family values and interpretation of behavioral health issues may lead to more crisis based interventions than early identification of mental health issues (DDHS, 2001a).

Identification of substance use needs, developing, and implementing effective interventions for youth and families with co-occurring disorders is a system wide challenge. A statewide survey in 2003 found few addiction treatment resources for youth and little indication of the use of evidence based practices (Walton, 2003b). State policy

focused on providing effective services for youth with co-occurring mental health and substance use disorders is needed. Integrating mental health and substance abuse policies with an explicit action plan, effective ongoing technical assistance, and monitoring are necessary to address this well documented need. Several evidence based addiction treatment services have been identified, but attention to the effective integration of substance abuse treatment into systems of care or usual child mental health services is recent (Georgetown National TA Center conference call, January 19, 2006). Family-centered treatment of adolescents with alcohol, drug abuse, and mental health problems is recognized as effective (Snyder & Ooms, 2002).

Given public policy's emphasis on improving the wellbeing of children who have been abused or neglected (DHHS, 2004), findings related to the potential effectiveness of system of care services for children who have been abused is an important finding. Hurlburt and associates (2004) found that "the degree of linkage between the local child welfare and mental health service systems may have important effects on the pattern of children receiving specialty mental health services...targeting of scarce service resources to those children with the greatest levels of needs" (p. 1224). Such linkage and coordination is basic to the infrastructure of a well functioning system of care. Emerging support of the importance of interagency collaboration combined with evidence of the possible effectiveness of wraparound for children in abusive situations has policy, practice, and research implications.

The fact that systems of care at the action level are identified in the study as most effective for abused children may reflect these SOCs are often in small cities or rural areas where the "system of care" considers the needs of local children with high levels of identified need. Highly sustained systems of care in urban areas may target narrower

populations, functioning more as a highly specialized and skilled service provider than the basis of the local child service network.

This evidence supports federal and state policy that encourages local and state level collaboration among child service agencies. In practice, state and local agencies are challenged to build relationships, both informal and formal working arrangements, and to more effectively use resources to meet the needs of the most vulnerable children and families. Quality management requires ongoing evaluation of outcomes to monitor policy and practice changes, the use of data to identify successes, identification of needs for training and necessary modifications in policy and practice. Ideally, real time data will be used to inform policy and practice.

Behavioral health policy continues to recognize the importance of a child's functioning. Restrictions on eligibility for reimbursement of treatment are often related to levels of functioning. Reminiscent of definitions of serious emotional disturbance and serious mental illness, recent national Medicaid audits have considered functional impairment as the most important indicator of the appropriate level of care (Presmanes, 2005). While seemingly logical, this restrictive practice has risks. As pointed out by Costello and associates (1999), any level of behavioral disorder in childhood is predictive of serious mental illness in adolescence. Functional measures alone may miss the internalized emotional distress of youth who are traumatized, especially girls (Walrath, Petras, Mandell, Stephens, Holden & Leaf, 2004). If functionality is used as the only criteria for intervention, the policy may preclude early interventions which have been shown to be very effective (Costello, Angold, & Keeler, 1999; Wright, Kooreman & Anderson, 2005).

The importance of effective early identification and intervention has been supported in research and policy (DHHS, 1999; President's New Freedom Commission on Mental Health, 2003). The importance of effective child mental health services was recently underscored in a landmark study (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005) which documented that many mental health conditions that have previously been considered to begin in adulthood, begin in childhood or adolescence. "Interventions aimed at prevention or early treatment need to focus on youth" (p. 593).

Because of the very strong relationship of improvement for families on the children's outcomes, the finding that placement outside the home adversely affects family improvement supports maintaining children in the homes of their biological parents whenever possible. Sometimes placement outside the home is made when intensive community based services are not available. Evans and Armstrong (1994) demonstrated in a randomized study that given the same interventions and support received by therapeutic foster homes, biological parents are able to maintain their children in their homes with the children achieving similar outcomes. Policy decisions regarding the allocation of resources impact the availability of such alternatives.

Practice Implications. Two key implications for practice emerge. The consistent pattern of findings related to circumstances under which systems of care are not as effective suggest areas of needed training and consultation regarding effective interventions for affective disorders, co-occurring disorders, effective child welfare practices, and cultural competence. Developing systems of care may need specific training not only in wraparound facilitation, but also other effective clinical protocols.

Secondly, system of care services should be targeted to children for whom child and family wraparound teams are effective. One consideration is that wraparound is not

appropriate for child and families who can be effectively served through usual outpatient services. This expensive, intensive community based service has been designed for children with complex needs, significant or severe functional impairments, multiple system involvement and risk of out-of-home placement. Targeting children will lower levels of need is not cost effective. Targeting children for whom there is no evidence of effectiveness is not good practice unless special accommodations are made to adjust for apparent deficits (for example, adding a structured assessment, training and consultation or adding a substance abuse specialist to the team).

Research Implications

Fidelity issues. Any future study will address the fidelity issues identified in this study. The level of development measure and qualitative coding processes will be refined to ensure the collection of relevant information and inter-rater reliability across all sites. The WFI (Suter et al., 2003), which is becoming more widely used, will be used to augment and help inform the service delivery LOD determination. Subpopulations targeted by local SOC policy or practices will also be identified and included in the study to control for population variances across levels of development.

Studies related to this study. Research implications related directly to this study and beyond the scope of this series of investigations are outlined. Two follow-up studies are suggested. A logical next step is to replicate this study using SFY05 and SFY06 DMHA data. The first study will continue to follow children who are in this study over time. Re-enrollment in late SFY2005 and in SFY2006 of the children in the original study will provide data to begin a longitudinal analysis. Multiple measures over time will more accurately chart trends. A longitudinal design is needed to solve the endogeneity problem with child and family functioning.

Secondly, related to this study, a logical follow-up study will involve rerunning the analysis using SFY05 data. However, instead of considering improvement in family functioning as a predictor variable, improvement in the child's functioning will be included as a possible predictive factor for the contextual factors of family functioning, child abuse, neglect, and reliance on mental health services. Identifying effective interventions to provide effective support to families at high levels of stress, to build skills, and to access needed services also requires further study.

This study raises many questions that suggest the need for further research beyond the scope of the available state database. What other factors influence the effectiveness of behavioral health services? How important is the function of the child and family team? How can families be engaged and empowered to effectively drive their child's and the families' care? Research regarding the bi-directional family functioning issue is greatly needed to identify effective interventions and to help reduce the stigma faced by parents of children with behavioral health needs. No other health related disability continues to endure the level of blame and shame experienced by families of children with behavioral health needs. This stigma, itself, is a barrier to effective care.

Inter-relationship of child and family functioning. Additional research is needed to better understand the "uncharted waters" (Harden, 2005) of the experience of parents of children with mental health problems. While this study indicates a strong association between improvement in family functioning and improvements for a child, especially related to the child's overall wellbeing, the study's family measure mixed the family/caretaker capacity to nurture, to help the child effectively deal with behavioral health issues and the impact of the child's functioning on the family.

Follow-up study regarding the bi-directional relationship of child and family functioning is strongly suggested. Using the HAPI-C database, a future study, using another sample and time period, could consider the impact on Factor G of improvement in the child's functioning. In-depth, longitudinal studies of children with SED and their families can explore the complex nature of this interaction and emerging effective interventions and supports. Quantitative studies using a series of standardized measures for families and children could help better understand the complexities of their experiences. Children and families who are served by the 1915 (c) Medicaid Waiver for Children with SED would be a good population to consider. As the waiver is available in six states with services often offered through child and family wraparound teams, this population would help researchers, policy makers, and practitioners understand the needs, strengths, and responses of families whose children have the most severe needs and are served in the community. Qualitative studies may also help unfold the meaning of interrelated quantitative findings. Additional study of the bi-directional nature of this interaction may have important implications for effective interventions and the reduction of stigma's barriers to care created by blame and shame.

Implementation studies. This study could be characterized as an implementation study, considering the impact of the level of development or implementation of local wraparound services on outcomes for children and families. Although the literature base is rich regarding evidence based interventions and promising practices such as wraparound, there has not been much research related to the implementation of such practices. Implementation research considering fidelity and the impact on outcomes is rare (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005). University of South Florida child mental health researchers recently published a synthesis of implementation literature that lays the

foundation for additional research regarding implementation fidelity, adaptations, and outcomes for children and families and service systems. They suggest exploring a series of hypotheses that deconstruct fidelity as it relates to effective mental health practice. Clearly described and operationalized intervention components will result in higher levels of fidelity at new implementation sites. Higher levels of community readiness will result in higher levels of organizational and practitioner fidelity in shorter timeframes. Communities with an identified implementation team, leadership, and clear accountability will reach higher fidelity to the practice model in a shorter time frame. The list continues to include workforce development, training, coaching, sustainability, and drift issues. Detailed studies that consider complex implementation factors are needed to better understand how to effectively implement promising and research based practices in the field.

Implications for Social Work Education. Implications for social work education emerge from this dissertation. Consistent with social work education's goal of preparing professional social workers with core competencies and skills who are prepared to enter the workforce, bachelor and masters level curricula need to include children's mental health. A recent national study documented a workforce crisis in this area (Dodge, 2006). As the documented prevalence of child mental illness increases and the need for effective services continue to grow, new professionals are entering the workforce ill prepared for practice. Extensive training and retraining is necessary.

Bachelors level social workers who are interested in working with children and families as mental health case managers, as child welfare family case managers, as probation officers in the juvenile court, detention centers, or emerging mental health courts need a background in good case management skills, exposure to the values and principles of wraparound, child development, working effectively in teams, strengths and needs

based assessment skills, and the importance of cross system collaboration. Masters level social workers who may work with children and families in any setting need these skills, plus supervisory training, knowledge of manualized protocols, fidelity, processes to effectively implement evidenced based practices and the use of data for quality management.

As behavioral health and supportive services for children and their families are provided across service systems and by various professionals, effective preparation of professionals might be achieved through cross disciplinary educational programs. An early childhood mental health certificate for master's prepared students is being explored by three Indiana University schools: social work, psychology, and nursing with the consultation of the Riley Child Development Center at the School of Medicine (A. Tomlin, personal communication, February 1, 2006). Similarly, there are many parallels between the knowledge base and skills needed by professionals in special education, school based counseling, psychology, nursing, medicine, corrections or social work who plan to work with youth and their families. Accessing the expertise of faculty and students across schools could enrich the quality of the learning experience for students with common interests.

Conclusion

The series of related logic models do not find that receiving services through a system of care predicts an increased chance for improvement for all children in the study. However, closer examination of the patterns between models and interaction effects reveals subpopulations of children for whom systems of care are effective and circumstances in which systems of care are perhaps not effective. These patterns can help target child and family wraparound interventions. Children who have been abused and

their families are likely to improve when served in an action level system of care, especially when the children begin with problems in community functioning. Non-Hispanic children with disruptive behaviors are more likely than Hispanic youth to improve when served through systems of care. Improvement is less likely if the youth are using alcohol or drugs.

The consistent indication that improvement in family functioning, both the family's ability to help their child cope with behavioral health needs and the level of stress experienced by the family due to a child's symptoms and functioning, is the greatest predictor of improvement for the child. This finding is consistent with the basic values and principles of systems of care and wraparound, actively involving families in the process, building on and developing strengths, and identifying effective formal and informal supports.

A refined fidelity measure is needed to further research systems of care. Inclusion of information about targeted subpopulations and the routine use of a standardized fidelity measure would provide more accurate information for implementation studies, identifying training needs, and improving the methodology for system of care research.

APPENDICES

I. Tables

II. Figures

III. Level of Developmental "Fidelity" Documents

A. Diffusion of Innovations and States of Readiness for Change
B. Applying Change Theories to System of Care and Wraparound Coding Template
C. Strength-Based Assessment of DMHA Funded Systems of Care Sites
D. Individual Readiness for Change Rating Guide, Wraparound Stages of Change Rating Guide, and Community Readiness for Change Rating Guide

IV. HAPI-C

Table 1. Specific Measures of Outcome Domain

Domains	Examples
Symptoms/diagnosis	Distractibility, impulsivity, depression, anxiety, psychosis, behavior problems
Functioning	Capacity to adapt to the demands of home, school, and community, safety, reduction in child abuse, arrests, run away
Consumer perspectives	Quality of life, satisfaction with care, family strain and burden
Environments	Counterpoint to functional domain: Stability of child's primary environment (marital relationships at home, classroom stability, neighborhood violence, transience, availability of social support
Systems	Level, type, duration, or change in use of services; changes in restrictiveness of services, organizational relationship an coordination, costs and mechanisms of financing

Adapted from "Outcomes of mental health care for children and adolescents: I. A comprehensive conceptual model" by K. Hoagwood, P. S. Jensen, T. Petti, & B. Burns, 1996, Journal of the American Academy of Child and Adolescent Psychiatry, 35(8), 1055-1063.

Table 2. Evidence Base for Comprehensive Interventions: System of Care Components

Intervention Type	Controlled Studies
Case Management	2 randomized clinical trails (RCTs) 1 quasi-experimental design
Wraparound	2 RCTs 2 quasi-experimental designs
Multisystemic Therapy (MST)	7 RCTs 1 quasi-experimental design
Treatment Foster Care	4 RCTS
Mentoring	1 RCT
Family Education and Support	2 RCTs (including one underway)

Adapted from Community treatment for youth: Evidence-based interventions for severe emotional and behavioral disorders by B.J. Burns, & K. Hoagwood, 2002. Copyright 2002 by Oxford University Press, New York.

Table 3. Analysis of System of Care Studies

Study	Design	Outcome Domains	Outcome Measures	Results
Attkisson et al., 1997 (California Ventura Model)	Comparison groups	Systems	Cost	+
			Placement Rates	+
Bickman, Heflinger, Lambert, & Summerfelt, 1996 (Ft. Bragg, NC)	Comparison groups—Ft. Bragg continuum of care vs. conventional care	Symptoms	Symptoms	=
		Functioning	Functioning	=
		Consumer Perspectives	Satisfaction	+
		System	Cost	-
			Access to services	+
			Hospitalization Rate	+
Bickman, Summerfelt, Firth, & Douglas, 1997; Bickman, Noser, & Summerfelt, 1999 (Stark County, Ohio)	RCT (public system of care vs. conventional treatment)	Symptoms	Symptoms	+
		Functioning	Functioning	+
		System	Access to services	+
Brannan, Baughman, Reed, & Katz-Leavy, 2002 (Multiple sites)	Quasi-experimental (funded systems of care v. comparison communities systems)	System	Fidelity to principles and "model"	+
		Service Delivery	Restrictiveness of care	+
Bruns, Burchard, & Yoe, 1995 (Vermont's System of Care)	Comparison Group Compared wraparound to traditional services	Symptoms	Behavior Problems	-
		Consumer Perspectives	Life Satisfaction	+
		Environment	Restrictiveness of Living (ROLES) (Hawkins, Almeida, Fabry, & Reitz, 1992)	+ trend
		System	Rate of reinstitutionalization	+
			Cost effectiveness	+
			Hospitalization rate	-
			Level of collaboration	+
Illback, Nelson & Sanders, 1998 (Kentucky)		Symptoms	Behavior problems	-
		Functioning	Family support	+
		Consumer Perspectives	Consumer satisfaction	+
		Environment	Placement stability	+
		System	Hospitalization rate	-

Table 4. Wraparound: Essential Elements and Practice Guidelines

Ten Essential Requirements for Practice	Ten Essential Elements of Wraparound
• The community collaborative structure, with broad representation, manages the overall wraparound process and establishes the vision and the mission.	• Wraparound must be based in the community.
• A lead organization is designated to function under the community collaborative structure and manage the implementation of the wraparound process.	• The wraparound approach must be a team-driven process involving the family, child, natural supports, agencies, and community services working together to develop, implement, and evaluate the individualized plan.
• A referral mechanism is established to determine the children and families to be included in the wraparound process.	• Families must be full and active partners in every level of wraparound planning.
• Resource coordinators are hired as specialists to facilitate the wraparound process, conducting strength/needs assessments; facilitating the team planning process; and managing the implementation of the service/support plan.	• Services and supports must be individualized, built on strengths, and meet the needs of children and families across life domains to promote success, safety, and permanence in home, school, and community.
• With the referred child and family, the resource coordinator conducts a strengths and needs assessment	• The process must be culturally competent, building on the unique values, preferences, and strengths of children and families, and their communities.
• The resource coordinator works with the child and family to form a family team.	• Wraparound child and family teams must have flexible approaches and adequate and flexible funding.
• The child and family team functions as a team with the child and family engaged in an interactive process to develop a collective vision, related goals, and an individualized plan that is family centered and team based.	• Wraparound plans must include a balance of formal services and informal community and family supports.
• A crisis/safety plan is produced by the child and family team.	• There must be an unconditional commitment to serve children and their families.
• Within the service/support plan, each goal must have outcomes stated in measurable terms, and the progress on each monitored on regular basis.	• The plans should be developed and implemented based on an interagency, community-based collaborative process.
• The community collaborative structure reviews the plans.	Outcomes must be determined and measured for the system, for the program, and for the individual child and family.

Adapted from "The conceptual framework for wraparound: Definition, values, essential elements, and requirements for practice" by S. K. Goldman, 1999, in B. J. Burns & S. K. Goldman (Eds.), Promising practices in wraparound for children with serious emotional disturbance and their families. Systems of Care: Promising Practices in Children's Mental Health. 1998 Series, IV, 27-34). Washington, D. C.: Center for Effective Collaboration and Practice, American Institutes for Research.

Table 5. Analysis of Wraparound Studies

Study	Design	Outcome Domain	Outcome Measure (Dependent Variable)	Results
Burchard, Burchard, Sewell, & VanDenBurg, 1993 (cited in Burns & Hoagwood, 2002) Alaska	Case Study Retrospective Analysis- 75 Key Informants	Functioning	Community Adjustment School/ Career Adjustment	+ trend + trend
Bruns, Burchard & Yoe, 1995 Vermont	Pre-Post Test	Symptoms	Negative Behaviors	+
Clark, Prange, Lee, Stewart, McDonald, & Boyd, 1998 Florida	RCT 131 subjects (wraparound vs. standard foster care)	Functioning Environment	Behavioral Adjustment Delinquency & incarceration School Adjustment Permanency Placement Restrictiveness of Living Arrangement	+ - + + +
Clarke, Schaefer, Burchard, & Welkowitz, 1992 Vermont	Pre-Post Test	Functioning	Home adjustment Home Environment	+ +
Cumblad, 1996 Illinois	Case Study Retrospective Analysis	Symptoms Functioning	Negative Behaviors Stability of Living environment	+ +
Eber, Osuch, & Redditt, 1996 Illinois	Pre-Post Test 44 students	Functioning Environment	School Adjustment Restrictiveness of Living Arrangement	+ trend +
Illback, Neill, Call & Andis, 1993 (cited in Burns & Hoagwood, 2002) Kentucky	Pre-Post Test 497 youth	Symptoms Environment	Behavioral Problems Restrictiveness of living arrangement	+ + trend
Myaard, Crawford, Jackson, & Alessi, 2000 St. Joseph County, MI	Quasi-Experimental Single Subjects methodology, multiple baseline design, n = 4	Symptoms Functioning	Alcohol/Drug Use Compliance Peer Interactions Physical Aggression Extreme Verbal Abuse	+ + + + +

(Table 5 continued)

Study	Design	Outcome Domain	Outcome Measure (Dependent Variable)	Results
Rotto, Sokol, Matthew, & Russell, 1998 (cited in Burns & Hoagwood, 2002)	Pre-Post Test 20 youth	Functioning Environment	Behavioral Adjustment Restrictiveness of Living Arrangement	+ + trend
Yoe, Santarcangelo, Atkins, & Burchard, 1996 Vermont	Pre-Post Test 40 youth	Symptoms Functioning Environment	Total Problem behaviors Internalizing behaviors Abuse-related behaviors Externalizing behaviors Restrictiveness of living environment	+ + + +

Table 6. Comparable Stages of Change

Innovation-Decision Process		LOD	
Individuals	Organizations		Stages of Change
Knowledge	Agenda Setting	1	Precontemplation
Persuasion	Matching	2	Contemplation
Decision	Redefining/Restructuring	3	Preparation
Implementation	Clarifying	4	Action
Confirmation	Routinizing	5	Maintenance

(Prochaska et al., 1992; Rogers, 2003)

Table 7. Profiles of Persons Served by Age, Gender and Race
Indiana Family and Social Services Administration
Division of Mental Health and Addiction
Profiles of Persons served by Age, Gender and Race, SFY 2004

Age Ranges	Total		Asian		Black or African American		White		More than One Race Reported		Other Unknown	
	F	M	F	M	F	M	F	M	F	M	F	M
0-3	280	418	0	1	49	73	193	301	27	32	11	11
4-12	6139	10956	9	13	984	2135	4622	7845	324	591	200	372
13-17	4843	5620	8	10	808	1162	3684	4122	195	150	148	176

The reports shown on this table contains numbers for Indiana residents who are served by the Hoosier Assurance Plan (HAP) and do not contain numbers for all Indiana residents who may receive metal health or addiction services. The HAP is the main method by which the Indiana Division of Mental Health and Addiction can fund community mental health services. This report currently only contains data from the Community Services Data System (CSDS).

Table 8. HAPI-C: Domains, Factors and Items

Domains	Factors	Items
Symptoms or Distress Mood/Anxiety	A. Affective Symptoms	1. Distress
		2. Anxiety - worry
		3. Depression
Self Harm	B. Suicidal Ideation/Behavior	4. Suicidal Ideation or Behavior
Signs of Abuse or Neglect	C. Abuse – Rates Caretaker	5. Abuse
	D. Neglect – Rates Caretaker	6. Neglect
Health & Physical Status of Child	E. Health	7. Physical condition that interferes with functioning?
Thinking	F. Focus on child's activities outside school, mostly in home and neighborhood.	8. Time- Task Orientation &/or completing assigned tasks
		9. Problem Solving
Family Functioning & Support	G. Family	10. Parental/Caretaker Support of Child's Growth
		11. Sharing of Time/Resources & Interacting with Affection & Care
		12. Effects of Child's Behavior on Family & Family Interactions
School Behavior	H. School	13. School Support – Child's need for special resources or services.
		14. School Achievement
		15. Interactions with Classmates & Peers
		16. Interactions with Teachers & Administrators
Disruptive Behavior	I. Disruptive Behavior	17. Negative Peer Influence
		18. Disruptive & Inappropriate Behavior
		19. Risk or Criminal Behavior
Substance Abuse	J. Substance Use/Abuse	20. Substance Use in last 30 days

		21.Substance Use over months 2 - 12 22.Substance Use over lifetime
	K. TOBACCO	23. Tobacco – last 30 days
Reliance on Mental Health Services	L. Reliance on Mental Health Services	24. Ability to maintain child's age appropriate behavior with or without agency's involvement.

Table 9. Analysis of Level of Functioning Factors
Hoosier Assurance Plan Instrument – Children (HAPI-C)

Factor	Factor Name	Number of Items	Total Factor Score Range*	Average Factor Score Range**
A	Affective Symptoms	3	3 to 21	1 to 7
B	Suicide Ideation/Behaviors	1	1 to 7	1 to 7
C	Abuse	1	1 to 7	1 to 7
D	Neglect	1	1 to 7	1 to 7
E	Health/Physical Status	1	1 to 7	1 to 7
F	Thinking	2	2 to 14	1 to 7
G	Family	3	3 to 21	1 to 7
H	School	4	4 to 28	1 to 7
I	Disruptive Behavior	3	3 to 21	1 to 7
J	Substance Use/Abuse	3	3 to 21	1 to 7
K	Tobacco Use	1	1 to 7	1 to 7
L	Reliance on Mental Health Service	1	1 to 7	1 to 7

*Total Factor Score Range is the sum of scores for each Factor

**Average Factor Score is the total factor score / Number of Items

(Adapted from Mercer, 2004)

Table 10. Conversion of Scores to Functional Ratings

Range of Average Scores	Functional Rating
1.00 to 2.49	Severely Impaired
2.5 to 4.49	Moderately Impaired
4.5 to 6.49	Slightly Impaired
6.5 to 7.00	Normal Functioning

(Mercer, 2004)

Table 11. Conversion of Level of Functional Impairment Rating to Single LOF Rating

Single LOF Rating	Criteria	Pick One
Normal	Normal Functioning for all Factors	
High	Slight Impairment for 1 or more Factors, Moderate or Severe Impairments for "no" Factor	
Moderate	Moderately impaired in 1 or more Factors, Severe Impaired in "No" Factor	
Low	Severely Impaired in 1 Factor	
Severe	Severely Impaired in 2 Factors	

(Adapted from Mercer, 2004)

Table 12. Comparison of Levels of Function: Usual Service Population and Systems of Care

At time of enrollment in CSDS	Levels of Functioning	Usual Service Population	System of Care Sample	Matched Sample
	Severe	2.5%	3.1%	1.6%
	Low	9%	12.4%	12.2%
	Moderate	46%	50.5%	49.7%
	High	42%	33.7%	35.2%
	Normal	8%	.3%	1.3%

Table 13. Levels of Functioning for Children
Comparison for Different Levels of Development of Systems of Care

At time of Enrollment In CSDS	Levels of Functioning	Early Development	Mid-range Action Development	Sustained Development
	Severe	3.7%	2.7%	3.6%
	Low	11.1%	11.8%	13.7%
	Moderate	37.0%	49.8%	54.0%
	High	48.1%	35.7%	28.1%
	Normal	0%	0%	.7%

Table 14. Modified ROLES

Living Environment	Description
Independent	Living independently alone or with friends/partner with minimal supervision
Biological Family	Living with biological caregivers(s)—mother, father, parents
School Dormitory	Living out of the home in boarding school arrangement (without a treatment component)
Relatives' Home/Adoptive Home/ Home of Friends	Living in home of and under care of relative, adoptive parents, or with unrelated family friend with responsible adult in household
Supervised Independent Living	Living in supervised community living arrangement without added support or in-house treatment component (i.e., with recruited mentor, professional housemate, or other "paid roommate"
Foster Care	Living in standard foster care arrangement without added support or in-house treatment component
Therapeutic Foster Care	Foster care arrangement in which providers are trained to care for children with intense special needs and has an identifiable treatment or support component
Emergency Shelter	Temporary apartment, specialized foster home or group living arrangement used to provide extensive support and supervision with focus on children with special needs
Group Home	Alternative living arrangement in which child lives with a small number of other children (e.g., 3 to 9) with special needs. 24-hour supervision is provided along with long-term supports.
Residential Treatment Center	Alternative group living arrangement for children with intensive mental health/substance abuse treatment needs with 10 or more children. Provides 24-hour staff supervision. Lengths of stay are generally longer than hospitals.
Medical Hospital (non-psychiatric)	Living in inpatient unit of medical hospital for treatment of non-mental health-related problem
Psychiatric Hospital	Acute inpatient unit of a community psychiatric hospital with 24-hour supervision. Inte3nsive mental health treatment component.

Detention Center/Youth Correctional Center	Incarceration of youth in "youth-only" locked facility. May or may not have treatment component.
Jail/Prison	Incarceration of youth in locked adult correctional facility with high structure and high supervision.
Homeless	No place to stay; staying anywhere available from night to night.

From CSDS, SFY2004.

Table 15. ROLES: Comparison of Children in General Population and System of Care Sample, SFY2004

Living Environment	General Population Number	General Population Percentage	System of Care Sample Number	System of Care Sample Percentage
Independent	487	1.9	2	0.01
Biological Family	19,91	76.0	251	65.00
School Dormitory	35	0.1	0	0.00
Relatives' Home/Adoptive Home/ Home of Friends	2,39	10.4	37	10.00
Supervised Independent Living	61	0.2	0	0.00
Foster Care	1,30	4.8	21	5.00
Therapeutic Foster Care	648	2.6	8	2.00
Emergency Shelter	60	0.2	1	0.02
Group Home	171	0.7	3	0.07
Residential Treatment	531	2.1	40	10.00
Medical Hospital (non-psychiatric)	1	0.0	0	0.00
Psychiatric Hospital	95	0.4	1	0.02
State Hospital	4	0.0	2	0.05
Detention Center	55	0.2	13	3.30
Jail/Prison	3	0.0	0	0
Homeless	85	0.3	7	2.00
Total	25,396	100.0	386	100.00

Table 16. Levels of Development of Systems of Care

System of Care	Level of System Development	Level of Service Development
A	3	3
B	3	4
C	5	4
D	1	1
E	4	4
F	3	3
G	3	4
H	3	3
I	2	3
J	4	4
K	3	4
L	4	4
M	1	4
N	5	4
O	3	2
P	3	3
Q	2	2
R	2	2
S	3	4
T	3	3
U	3	2
V	1	1
W	3	2
X	2	2
Y	1	1

(Effland, 2004)

Table 17. Summary of Diagnostic Codes for Sample Populations

Diagnostic Code or Category	Usual Service Frequencies	Usual Service Percent	SOC Frequencies	SOC Percent
Disorders Usually First Diagnosed in Childhood	1	.3	5	1.3
Substance Abuse or Dependence	7	1.8	4	1.0
Psychosis	9	2.3	6	1.6
Mood Disorder	5	1.3	87	22.5
Anxiety Disorder	86	22.3	16	4.1
PTSD	119	30.8	24	6.2
Conduct Disorder	35	9.1	143	37.0
ADHD	89	23.1	97	25.1
Victim of Abuse	23	6.0	2	.5
Perpetrator of Abuse	2	.5	2	.5
Total	386	100.0	386	100.0

Table 18. Demographic Characteristics of Matched Samples at Time of Enrollment (N = 772)

Characteristics	SOC (n = 386)		Usual Service (n = 386)	
	n	%	n	%
Age				
< 1	1	0.3	0	0
1	0	0	2	0.5
2	0	0	0	0
3	4	1.0	7	1.8
4	5	1.3	14	3.6
5	5	1.3	12	3.1
6	15	3.9	6	1.6
7	12	3.1	20	5.2
8	26	6.7	17	4.4
9	26	6.7	33	8.5
10	34	8.8	31	8.0
11	41	10.6	46	11.9
12	50	13.0	42	10.9

(Table 18 continues)

(Table 18 continued)

Characteristics	SOC (n = 386)		Usual Service (n = 386)	
	n	%	n	%
13	45	11.7	40	10.4
14	36	9.3	41	10.6
15	37	9.6	37	9.6
16	33	8.5	24	6.2
17	16	4.1	14	3.6
Gender				
Female	126	32.6	163	42.2
Male	260	67.4	223	57.8
Race				
Alaskan Native	0	0	3	0.8
American Indian	3	.8	2	0.5
Black	109	28.2	104	26.9
White	231	59.8	234	60.6
Other	22	5.7	9	2.3
Multiracial	19	4.9	33	8.5
Asian	2	.5	1	0.3

(Table 18 continues)

(Table 18 continued)

Characteristics	SOC (n = 386)		Usual Service (n = 386)	
	n	%	n	%
Race (Summarized)				
Black	109	28.2	104	26.9
White	231	59.8	234	60.6
Other	46	11.9	48	12.4
Ethnicity				
Hispanic	21	5.4	36	9.3
Not Hispanic	356	94.6	350	90.7
Living Arrangements (ROLES)				
Independent Living	2	0.5	3	0.8
Family	251	65.0	218	56.5
Dormitory	0	0	1	0.3
Relative Adoptive Friend	37	9.6	67	17.4
Foster Care	21	5.4	40	10.4
Therapeutic Foster Care	8	2.1	37	9.6
Shelter	1	.3	0	0

(Table 18 continues)

(Table 18 continued)

Characteristics	SOC (n = 386)		Usual Service (n = 386)	
	n	%	n	%
Group Home	3	.8	6	1.6
Residential Treatment	40	10.4	10	2.6
Psychiatric Hospital	1	.3	3	0.8
State Hospital	2	.5	0	0
Detention	13	3.4	0	0
Homeless	7	1.8	1	0.3
Living Arrangements (Summarized)				
Family	251	65.0	217	56.2
Extended Family	37	9.6	68	17.6
Foster Care	29	7.5	78	20.2
Other	69	17.9	6	6.0

Table 19. Matched Samples Characteristics at Time of Enrollment in CSDS (N = 772)

Characteristic	SOC (n = 386)		Usual Service (n = 386)			
	M	SD	M	SD	df	t
Age	11.68	3.267	11.24	3.530	770	-1.788 .
Gender	0.67	0.470	0.58	0.495	770	-2.155**
Race	4.87	0.798	4.89	0.905	770	-0.299
Race Summarized	0.5207	0.6994	0.5181	0.7069	770	-2.762
Ethnicity	0.95	0.227	0.91	0.291	770	0.338*
Living Arrangement	5.15	3.687	4.67	2.388	770	-0.051*
Living Arrangement Summarized	0.7824	1.181	0.7591	0.9731	770	-0.039
Local System Functioning	3.3590313	0.2439250	3.3614378	0.2231431	770	1.430
Time between Assessments	8.31	3.230	8.05	2.860	770	-1.192

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

Table 20. Comparison of Baseline Level of Functioning (LOF) Domains for Each Sample (N = 772)

HAPI-C Domains	SOC (n = 386)		Usual Service (n = 386)			
	M	SD	M	SD	df	t
Affective (A)	4.5794	1.50905	4.7484	1.51994	770	1.550
Suicidal Behavior (B)	6.55	1.242	6.41	1.376	770	-1.538
Abuse (C)	6.68	1.011	6.58	1.117	770	-0.709
Neglect (D)	6.56	1.196	6.56	1.261	770	0.176
Health (E)	6.49	1.198	6.40	1.238	770	-1.034
Thinking (F)	4.1503	1.61871	4.2021	1.63900	770	0.442
Family (G)	4.9816	1.49804	5.1019	1.67021	770	1.051
School (H)	4.5583	1.62264	4.7137	1.63812	770	1.324
Disruptive (I)	4.8264	1.55703	5.1813	1.43808	770	3.290**

(Table 20 continues)

(Table 20 continued)

HAPI-C Domains	SOC (n = 386)		Usual Service (n = 386)			
	M	SD	M	SD	df	t
Substance Use (J)	6.7029	0.87542	6.7472	0.91041	770	0.68
Tobacco Use (K)	6.60	1.145	6.72	0.981	770	.1.553
Reliance on Mental Health Services (L)	2.70	1.143	2.60	1.196	770	-1.169
AFGHI	4.6193	1.09479	4.7895	1.06167	770	2.193*

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

Table 21. Means and Standard Deviations for Systems of Care at Four Levels of Wraparound Service Delivery Development and Baseline Functional Variables

Variable	Usual Services		Early Development		Action Level		Sustained Level	
	M	SD	M	SD	M	SD	M	SD
Affect (A)	4.75	1.52	5.10	1.55	4.42	1.14	4.60	1.59
Abuse (C)	6.63	1.11	6.58	1.14	6.56	1.19	6.89	.55
Neglect (D)	6.58	1.26	6.44	1.43	6.45	1.34	6.77	.81
Thinking (F)	4.20	1.64	4.69	1.68	4.24	1.65	3.82	1.49
Family (G)	5.10	1.67	5.65	1.30	4.85	1.40	4.92	1.64
School (H)	4.71	1.64	5.26	1.54	4.53	1.56	4.33	1.68
Disruptive Behavior (I)	5.18	1.44	5.28	1.68	4.93	1.50	4.52	1.53
Substance Abuse (J)	6.75	.91	6.83	.39	6.66	.97	6.71	.86
Reliance on MH Services (L)	2.60	1.20	3.00	1.31	2.75	1.10	2.52	1.11
Wellbeing (AFGHI)	4.79	1.06	5.20	1.20	4.60	1.03	4.44	1.07

Table 25. Percent Improvement in A, F, G, H, I, AFGHI, C, D, & L

Variable	A	F	G	H	I	AFGHI	C	D	L
Overall Sample									
N = 772									
Improvement	46	44.9	38.7	42.8	48.6	58	9.5	10.9	34.1
No Change	19.8	25.3	27.6	17.9	20.6	3.5	81.9	82.3	45.2
Deterioration	44.2	29.8	34.3	39.3	30.8	38.5	10.6	8.8	20.7
SOC Sample									
N= 386									
Improvement	48.2	46.1	40.2	49.5	51	57.3	8	11.7	35.2
No Change	17.9	22.3	23.8	17.1	17.6	3.2	83.3	79.5	42.2
Deterioration	33.9	31.6	36	33.4	31.4	39.5	8.7	8.8	22.6
Usual Services									
N=386									
Improvement	43.8	43.8	37.3	46.9	46.1	58.8	10.9	10.1	32.9
No Change	21.8	28.2	31.3	18.7	23.6	4.2	83.4	85	48.2
Deterioration	34.4	28	31.4	34.4	30.3	37	5.7	4.9	18.9

Table 23. Distribution of Independent Variables

Variable	System of Care Sample					Usual Service Sample				
	Mean	SD	Kolmogorov-Smirnov test	Skewness	Kurtosis	Mean	SD	Kolmogorov-Smirnov test	Skewness	Kurtosis
Age	11.68	3.27	.101***	-.52	-.10	11.24	3.53	.106***	-.56	-.25
Time	8.31	3.23	.195***	.04	-1.16	8.05	2.86	.298***	.77	-.35
Gender	.67	.47	.430***	-.74	-1.46	.58	.50	.382***	-.32	-1.91
Ethnicity	.95	.23	.540***	3.95	13.63	.91	.29	.533***	-2.81	5.92
System Functioning	3.59	.24	.280***	-1.03	-.361	3.61	.22	.152***	-.88	1.77
Baseline HAPI-C Scores:										
Factor A	4.58	1.51	.086***	-.24	-.62	4.75	1.52	.090***	-.38	-.61
Factor C	6.68	1.00	.507***	-3.42	11.08	6.68	1.01	.483***	-3.42	11.08

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

(Table 23 continues.)

(Table 23 continued)

Variable	System of Care Sample					Usual Service Sample				
	Mean	SD	Kolmogorov-Smirnov test	Skewness	Kurtosis	Mean	SD	Kolmogorov-Smirnov test	Skewness	Kurtosis
Baseline HAPI-C Scores:										
Factor D	6.56	1.20	.476***	-3.12	9.38	6.58	1.26	.477***	-3.38	10.52
Factor F	4.15	1.62	.089***	.07	-.78	4.20	1.64	.089***	-.13	-.78
Factor G	4.98	1.50	.119***	-.63	-.33	5.10	1.67	.164***	-.81	-.40
Factor H	4.46	1.62	.082***	-.16	-.98	4.71	1.64	.092***	-.36	-.75
Factor I	4.83	1.56	.104***	-.46	-.56	5.18	1.44	.121***	-.86	.32
Factor J	6.70	-.88	.449***	-3.75	14.61	6.75	.91	.121***	-4.61	22.48
Factor L	2.70	1.14	.220***	.50	1.25	2.60	1.20	.252***	.25	-.31
AFGHI	4.62	1.09	.033	-.26	-.30	4.79	1.06	.060**	.12	.02
Improvement. in Factor G.	.40	.49	.392***	.40	-1.85	.37	.49	.407***	.53	-1.73

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

Table 24. Comparison of ROLES for Matched Samples

Living Arrangement	System of Care Sample		Usual Service Sample	
	Frequency	Percent	Frequency	Percent
Independent	2	.5	3	.8
Biological Family	218	56.5	251	65.0
School Dormitory	0	0	1	.3
Adoptive Family, Relatives, Friends	37	9.6	67	17.4
Foster Care	21	5.4	40	10.4
Therapeutic Foster Care	8	2.1	37	9.6
Emergency Shelter	1	.3	0	0
Group Home	3	.8	6	1.6
Residential Treatment	40	10.4	10	2.6
Psychiatric Hospital	1	.3	3	.8
State Hospital	2	.5	0	0
Detention	13	3.4	0	0
Homeless	7	1.8	1	.3
Total	386	100.0	386	100.0

Table 25. Percent Improvement in A, F, G, H, I, AFGHI, C, D, & L

Variable	A	F	G	H	I	AFGHI	C	D	L
Overall Sample									
N = 772									
Improvement	46	44.9	38.7	42.8	48.6	58	9.5	10.9	34.1
No Change	19.8	25.3	27.6	17.9	20.6	3.5	81.9	82.3	45.2
Deterioration	44.2	29.8	34.3	39.3	30.8	38.5	10.6	8.8	20.7
SOC Sample									
N= 386									
Improvement	48.2	46.1	40.2	49.5	51	57.3	8	11.7	35.2
No Change	17.9	22.3	23.8	17.1	17.6	3.2	83.3	79.5	42.2
Deterioration	33.9	31.6	36	33.4	31.4	39.5	8.7	8.8	22.6
Usual Services									
N=386									
Improvement	43.8	43.8	37.3	46.9	46.1	58.8	10.9	10.1	32.9
No Change	21.8	28.2	31.3	18.7	23.6	4.2	83.4	85	48.2
Deterioration	34.4	28	31.4	34.4	30.3	37	5.7	4.9	18.9

Table 26. Intercorrelations for Improvement in Affective Functioning Predictor Variables (A) (minus 16 outliers)

Measure	1	2	3	4	5	6	7	8	9	10
1. Improvement in Affective (A)	--									
2. Baseline Affective Functioning (A)	-.450**	--								
3. Gender	.078	.081*	--							
4. Race (African American)	.060	.010	.005	--						
5. Baseline Family Functioning (F)	-.059	.336**	.071	-.015	--					
6. Improvement in Family Functioning	.206**	-.097**	-.023	-.009	.385**	--				
7. Baseline Reliance on MH Services (L)	-.066	.359**	.009	-.007	.290**	-.059	--			
8. Action LOD	-.013	-.103**	.035	-.065	-.061	-.095	.050	--		
9. Sustained LOD	.075**	- 004	.130	-.156**	-.032*	-.053	-.056	-.270**	--	
10. Zsubstanceuse x SOC	-.083*	.074*	-.005	.030	.005	.693**	.016	-.052	-.001	--

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

(Table 23 continued)

Variable	System of Care Sample					Usual Service Sample				
	Mean	SD	Kolmogorov-Smirnov test	Skewness	Kurtosis	Mean	SD	Kolmogorov-Smirnov test	Skewness	Kurtosis
Baseline HAPI-C Scores:										
Factor D	6.56	1.20	.476***	-3.12	9.38	6.58	1.26	.477***	-3.38	10.52
Factor F	4.15	1.62	.089***	.07	-.78	4.20	1.64	.089***	-.13	-.78
Factor G	4.98	1.50	.119***	-.63	-.33	5.10	1.67	.164***	-.81	-.40
Factor H	4.46	1.62	.082***	-.16	-.98	4.71	1.64	.092***	-.36	-.75
Factor I	4.83	1.56	.104***	-.46	-.56	5.18	1.44	.121***	-.86	.32
Factor J	6.70	-.88	.449***	-3.75	14.61	6.75	.91	.121***	-4.61	22.48
Factor L	2.70	1.14	.220***	.50	1.25	2.60	1.20	.252***	.25	-.31
AFGHI	4.62	1.09	.033	-.26	-.30	4.79	1.06	.060**	.12	.02
Improvement. in Factor G.	.40	.49	.392***	.40	-1.85	.37	.49	.407***	.53	-1.73

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

Table 27. Logistic Models to Predict the Likelihood of Improvement in Functioning related to Affective Symptoms (A) (- 16 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Affective Functioning (A)	-1.026	.086	.358	141.837***
Gender	.692	.188	1.997	13.503***
Race (African American)	.397	.198	1.488	4.033*
Baseline Family Functioning (G)	.343	.070	1.409	23.922***
Improvement in Family Functioning	1.459	.207	4.301	49.675***
Baseline Reliance on MH Services	.239	.084	1.077	8.053**
Action LOD (SOC)	-.533	.215	.587	6.164*
Sustained LOD (SOC)	.506	.246	1.658	4.240*
Zsubstanceuse x SOC	-.266	.134	.767	3.964*

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

Table 28. Intercorrelations for Improvement in Thinking (F) Predictor Variables (-11 outliers)

Measure	1	2	3	4	5	6	7
1. Improvement in Thinking (F)	--						
2. Baseline Thinking (F)	-.363**	--					
3. Baseline Abuse (C)	-.086**	.006	--				
4. Baseline Family Functioning (G)	-.039	.249*	.166**	--			
5. Improvement in Family Functioning (G)	.245**	-.029	-.107**	-.383**	--		
6. Zabuse X LOD2 (Action)	.047	-.019	.555**	.031	-.046	--	
7. Zfamily baseline X LOD3 (Sustained)	-.078*	.102**	.000	.442**	-.146**	- .001	--

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

Table 29. Logistic Models to Predict the Likelihood of Improvement in Functioning related to Thinking (F) (-11 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Experience of Thinking (F)	-.328	.031	.720	108.885***
Baseline Experience of Child Abuse (C)	- .501	.121	.606	17.053***
Baseline Family Functioning (G)	.442	.074	1.367	1.556***
Improvement in Family Functioning	1.643	.202	5.173	66.170***
Zabuse X LOD2 (Action)	.747	.202	2.111	13.648***
Zfamily baseline X LOD3 (Sustained)	-.669	.220	.512	9.275**

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

Table 30. Intercorrelations for Improvement in School Functioning (H) (-16 outliers)

Measure	1	2	3	4	5	6
1. Improvement in School Behavior (H)	--					
2. Baseline School Functioning (H)	-.464**	--				
3. Ethnicity (Not Hispanic)	-.038	-.066	--			
4. Baseline Thinking (F)	-.152**	.517**	-.037	--		
5. Improvement in Family Functioning (G)	.184**	-.019	.010	-.040	--	
6. Reliance on Mental Health Services (L)	-.037	.315**	-.055	.338**	-.046	--

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

Table 31. Logistic Models to Predict the Likelihood of Improvements in School Functioning (H) (-16 outliers)

Predictor	β	SE	Odds ratio	Wald statistic
Baseline Experience of School Behavior (H)	-.902	.077	.406	137.103***
Ethnicity	-.685	.332	.504	4.246*
Baseline Thinking (F)	.176	.065	1.192	7.273**
Improvement in Family Functioning	1.041	.181	2.833	32.968***
Reliance on Mental Health Services (L)	.283	.085	1.327	11.069**

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

Table 32. Intercorrelations for Improvement in Disruptive Behavior Predictor Variables (I) (Model A) (-13 outliers)

Measure	1	2	3	4	5	6	7
1. Improvement in Factor I	--						
2. Baseline Disruptive Behavior (I)	-.511**	--					
3. Gender	-.018	.094**	--				
4. Ethnicity	-.016	-.031	.031	--			
5. Baseline Family Functioning (G)	-.151**	.318**	.059	.074*	--		
6. Improvement in Family Functioning	.208**	-.133**	-.022	.017	-.375**	--	
7. Zethnicity x SOC	.065	-.072*	.090*	.621**	.009	.007	--

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

Table 33. Logistic Models to Predict the Likelihood of Improvement in Disruptive Behavior (I) (Model A) (- 13 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Disruptive Behavior (I)	- .998	.082	.369	147.056***
Gender	-.437	.184	.646	5.630*
Ethnicity	-.971	.429	.379	5.134*
Improvement in Family Functioning	1.029	.197	2.800	27.324***
Zethnicity x SOC	.399	.188	1.490	4.513*

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

Table 34. Intercorrelations for Improvement in Overall Functioning (AFGHI) Predictor Variables (Model A) (minus 16 outliers)

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Improvement in AFGHI	--										
2. Baseline Functioning (AFGHI)	-.323**	--									
3. Race (African American)	.100**	-.097**	--								
4. Baseline Abuse (C))	-.115**	.127**	-.064	--							
5 Baseline Neglect (D)	-.053	.216**	.054	.477**	--						
6 Baseline Affective Symptoms (A)	-.208**	.637**	.005	.165**	.098**	--					
7. Baseline Thinking (F)	- .180**	.741**	-.089	.004	.098**	.327**	--				
8. Baseline Family Functioning (G)	-.213**	.610**	-.016	.163**	.248**	.313**	.244**	--			
9. Improvement in Family Functioning	.453**	-.186**	-.006	-.115**	-.130**	-.088*	-.037	-370**	--		
10. . Zaffect (A)x SOC 11	-.203**	.471**	-.027	.091*	.057	.704**	.261**	.217**	-.058	--	
11. Extended Family x SOC	-.084*	.030	.037	.061	-.013	.007	-.022	.000	-.001	-.020	--

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

Note: Baseline A was standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 35. Logistic Models to Predict the Likelihood of Improvement in Functioning (AFGHI) (Model A) (minus 16 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Functioning (AFGHI)	-1.462	.238	.233	37.772***
Race (African American)	.460	.207	1.584	4.928*
Baseline Abuse (C)	- .359	.129	.698	7.794**
Baseline Neglect (N)	.228	.092	1.256	6.126*
Baseline Affective Symptoms (A)	.262	.105	1.299	6.258*
Baseline Thinking (F)	.280	.101	1.323	7.714**
Baseline Family Functioning (G)	.371	.088	1.449	17.726***
Improvement in Family Functioning	2.646	.239	14.094	122.752***
Zaffect (A) x SOC	-.488	.192	.614	6.426*
Extended Family x SOC	-1.272	.409	.280	9.687**

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

Note: Baseline A was standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 36. Intercorrelations for Improvement in Wellbeing (AFGHI) Predictor Variables (Model B) (minus 12 outliers)

Measure	1	2	3	4	5
1. Improvement in AFGHI	--				
2. Baseline Wellbeing (AFGHI)	-.322**	--			
3. Baseline Abuse (C))	-.111**	.126**	--		
4 Baseline Neglect (D)	-.054	.214**	.488**	--	
5. Improvement in Family Functioning	.443**	-.184**	-.116**	-.126**	--

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

Table 37. Logistic Models to Predict the Likelihood of Improvement in Functioning (AFGHI) (Model B) (minus 12 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Wellbeing (AFGHI)	-.612	.091	.542	45.211***
Baseline Abuse (C)	- .296	.112	.744	6.952**
Baseline Neglect (N)	.189	.087	1.019	4.733*
Improvement in Family Functioning (G)	1.868	.181	6.478	106.616***

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

Table 38. Intercorrelations for Improvement in Child Abuse (C) Predictor Variables (-9 outliers)

Measure	1	2	3	4	5	6
1. Improvement in Child Abuse	--					
2. Baseline Abuse	-.830**	--				
3. Improvement in Family Functioning	.138**	-.119**	--			
4. Baseline Substance Use	-.029	.076*	-.022	--		
5. Zabuse x LOD2	-.560**	.675**	-.077*	.018	--	
6. Zsubstance use x LOD2	-.005	.754	.003	.692**	.026	--

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

Baseline C and Baseline J were standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 39. Logistic Models to Predict the Likelihood of Improvement in Functioning related to Child Abuse (C) (-9 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Experience of Child Abuse (C)	-4.496	.624	.011	52.005***
Improvement in Family Functioning (G)	2.277	.699	9.750	10.616**
Baseline Substance Use (J)	2.432	.524	11.376	21.564***
Zabuse x LOD2	1.791	.855	5.994	4.390*
Zsubstanceuse x LOD2	-1.9.49	.656	.142	8.830**

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

Baseline C and Baseline J were standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 40. Intercorrelations for Improvement in Child Neglect (D) Predictor Variables (-14)

Measure	1	2	3	4	5
1. Improvement in Child Neglect (D)	--				
2. Baseline Neglect (D)	-.836**	--			
3. Roles (Extended Family)	-.014	.006**	--		
4. Baseline Family Functioning (G)	-.197**	.252**	.067	--	
5. Improvement in Family Functioning (G)	.185**	-.159**	.014	.-.378**	--

** $p < .01$.

Table 41. Logistic Models to Predict the Likelihood of Improvement in Functioning related to Child Neglect (D) (-14)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Experience of Child Neglect (D)	-3.388	.452	.034	56.206***
ROLES (Extended Family)	-3.151	1.412	.043	4.977*
Baseline Family Functioning (G)	.595	.236	1.813	6.333*
Improvement in Family Functioning	1.709	.595	8.237	8.237**

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

Table 42. Intercorrelations for Improvement in Family Functioning Predictor Variables (G) (-12 outliers)

Measure	1	2	3	4	5	6	7
1. Improvement in Family Functioning	--						
2. Baseline Family Functioning (G)	-.400**	--					
3. Child living with Extended Family	-.090*	.075*	--				
4. Child living with Foster Parents	-.064	-.134**	-.159**	--			
5. Baseline School Behavior (H)	-.021	-.213**	.034	.017	--		
6. Zthinking (F) x SOC	.015	.187**	-.025	-.036	.339**	--	
7. Zschool (H) x SOC	-.050	.187**	-.042	-.021	.704**	.482**	--

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

Note: Baseline F and Baseline H were standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 43. Logistic Models to Predict the Likelihood of Improvement in Family Functioning (G) -12 outliers)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Family Functioning (G)	-.676	.064	.509	113.222***
Child Living with Extended Family	-.696	.269	.499	6.693*
Child Living with Foster Family	-1.171	.273	.310	18.428***
Baseline School Behavior (H)	.188	.075	1.207	6.234*
Zthinking (F) x SOC	.384	.139	1.468	7.642**
Zschool (H) x SOC	-.404	.182	.667	4.914*

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

Note: Baseline F and Baseline H were standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 44. Intercorrelations for Improvement in Reliance on Mental Health Services (L) Predictor Variables (10 outliers)

Measure	1	2	3	4	5	6	7	8	9	10
1. Improvement: Reliance on MH Services (L)	--									
2. Baseline Reliance (L)	.278**	--								
3. Ethnicity	.078*	.068	--							
4. Abuse (C)	.081*	.041	.021	--						
5. Baseline Thinking (F)	.018	.333**	-.036	.005	--					
6. Baseline Family Functioning (G)	-.034	.284**	.080*	.166**	.237**	--				
7. Improvement in Family Functioning (G)	.183**	-.047	.009	.113**	-.031	.372**	--			
8. Baseline School Behavior (H)	.098**	.312**	-.058	.028	.509**	.203**	-.009	--		
9. Zschool x LOD2	.010	.162	.047	.023	.277**	.061	.007	.478**	--	
9. Zreliance x LOD2	.165**	.472**	-.035	-.016	.197**	.158**	.017	.165**	.346**	--
10. Zreliance x LOD3	.194**	.404**	.031	.046	.131**	.097**	.004	.088*	.002	.002

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

Table 45. Logistic Models to Predict the Likelihood of Improvement in Functioning related to Reliance on Mental Health Services (L)(-10)

Predictor	Beta	SE	Odds ratio	Wald statistic
Baseline Reliance on MH Services (L)	-.509	.105	.601	23/343***
Ethnicity (Not Hispanic)	-1.136	.320	.321	12/597***
Abuse	-.168	.077	.845	4.748*
Baseline Thinking (F)	.251	.064	1.285	15.230***
Baseline Family Functioning (G)	.275	.066	1.316	17.205***
Improvement in Family Functioning	1.201	.195	3.324	37.792***
Baseline School Behavior (H)	-.234	.069	.792	11.570***
Zschool X LOD2	.487	.226	1.627	4.659*
Zreliance X LOD2	-.847	.269	.429	9.914**
Zreliance X LOD3	-.1.030	.274	.357	14.147***

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

Note: Baseline H and L were standardized for inclusion in the interaction variables to avoid collinearity (Menard, 2002).

Table 46. Significant Predictors of Improvement Across Logistic Regression Analyses (Odds Ratios)

IVs	A	F	H	I	AFGHI	C	D	G	L
Male	1.997			.646					
African American	1.488								
Not Hispanic			.504	.379					.321
Extended Family							.043	.499	
Foster Family								.310	
Family	4.301	5.173	2.833	2.800	12.465	9.750	8.237		3.324
Improvement									
Baseline A	.358								
Baseline F		.720	1.192						1.285
Baseline G	1.409	1.367					1.813	.509	1.316
Baseline H			.406		.728			1.207	.792
Baseline I				.369	.755				
Baseline J						11.376			
Baseline L	1.077		1.327						.601
Baseline C		.606			.719	.011			.845
Baseline D					1.281		.034		
LOD1									
LOD2	.587				.644				
LOD3	1.658								
Interactions	ZjSOC	ZcLOD2		ZethnSOC	ZaLOD2	ZcLOD2		ZfSOC	ZhLOD2
	.767	2.111		1.490	.447	5.994		1.468	1.627
Interactions		ZgLOD3			ZefxSOC	ZjLOD2		ZhSOC	ZlLOD2
		.512			.358	.142		.667	.429

IVs	A	F	H	I	AFGHI	C	D	G	L
Interactions					ZjSOC .721				ZlLOD3 .357
χ^2	265.003	209.452	239.274	234.861	274.404	363.151	366.483	161.22	265.640
R^2	.398	.322	.362	.354	.408	.839	.806	.260	.394

Standardized baseline factors and child characteristics were used in interactions to decrease likelihood of collinearity (Menard, 2002).

Figure 1. Estimated Percentage of Children Ages 9-17 with Significant and Extreme Functional Impairment
(Friedman, et al., 1996; Kratz-Leavy, 1997)

- Approximately 10-12% of children ages 9-17 have a serious emotional disturbance causing significant impairment.
  (Indiana: 9 to 11%)
- About 5-9% of children 9-17 have a serious disturbance causing extreme impairment.
  (Indiana: 5 to 7%
- Note: Indiana's prevalence rate estimated to be lower due to poverty levels in lower 1/3 of state.

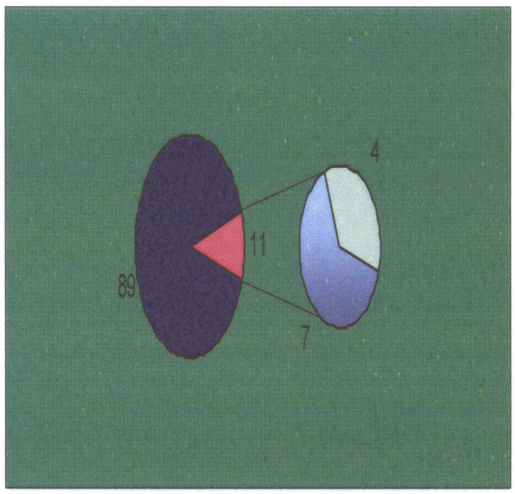


Figure 2. S-shaped Curve of Hybrid Seed Corn

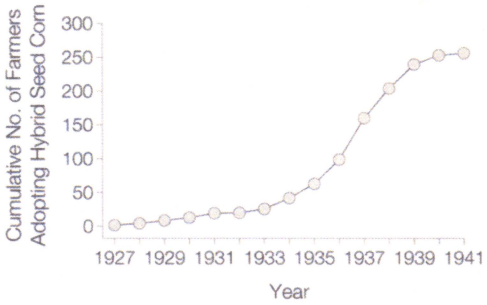


Figure 3. LOGIC MODEL TEMPLATE

(Espiritu, 2003)

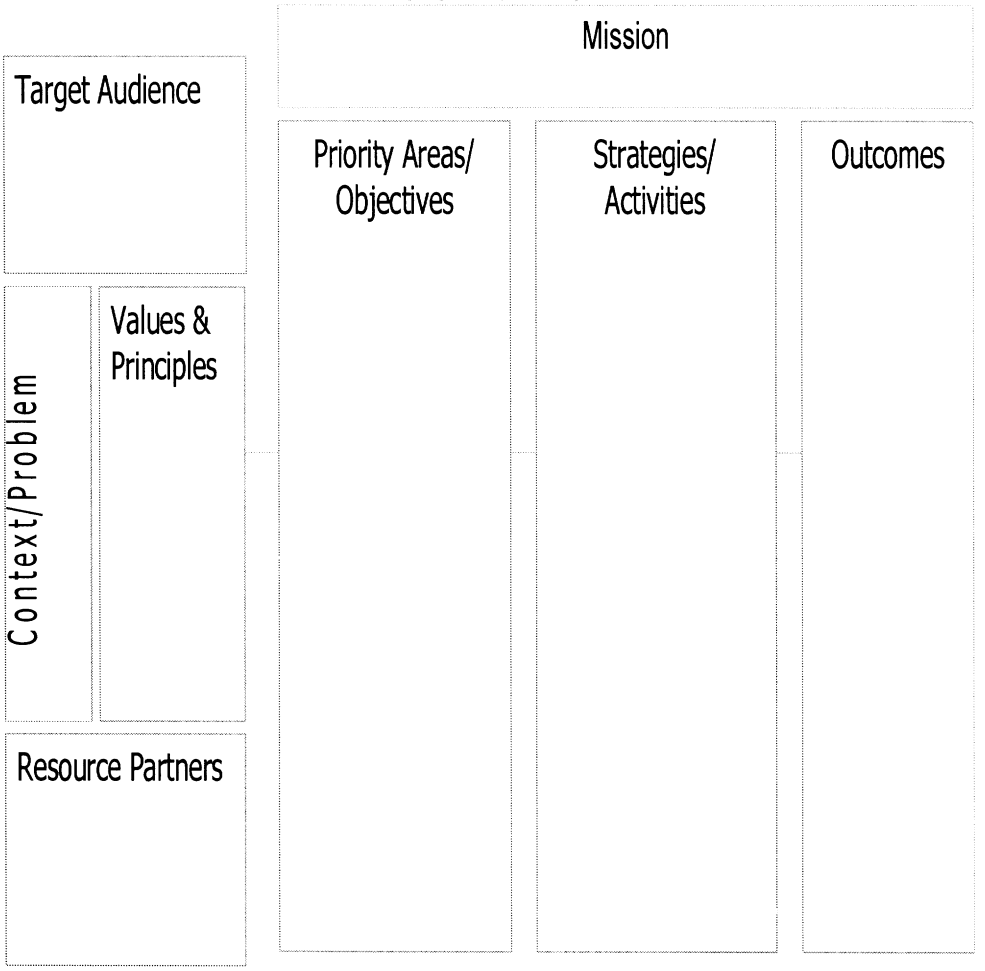


Figure 8. Logic Model
Theory of Change
INDIANA'S CHILD MENTAL HEALTH SERVICES: MEASURING THE OUTCOMES

Mission: to ensure that Indiana citizens have access to appropriate mental health and addiction services that promote individual self-sufficiency

ASSETS
- Child mental health services statewide
- Child mental health budget
- Developing systems of care
- Technical Assistance
- Continuum of care
- MRO
- Hx of MOUs & braided $ between systems

CHALLENGES:
- Variable service capacity
- Budget
- Workforce development

POPULATION PARAMENTERS
Children With SED

VALUES & PRINCIPLES
Child centered
Family Focused
Community based
Culturally competent

STRATEGIES & ACTIVITIES

CASSP Initiatives

Hoosier Assurance Plan
- Targeted Child Population
- MRO
- Children's Budget
- Market Based Competition
- Mandated Continuum Of Care
- CAFAS/HAPI-C in database

System of Care Initiatives
- MHSIP
- CMHI Grants
- State Funded 4 SOC sites
- Technical Assistance Center
- State funded 18 more SOC sites
- Performance based contracts emphasizing both infrastructure & service delivery

DATABASE enhanced to add SOC & ROLES fields

GOAL
To provide cost effective services

OUTCOMES

System Outcomes:
Continuums of care

Practice Outcomes:
- Develop infrastructure& effective service delivery
- Working toward "sustainability"
- Increase array of services

Child & Family Outcomes:
- Improved functioning (HAPI-C)
- Less restrictive living arrangements (ROLES)

Monitoring and Collecting Data

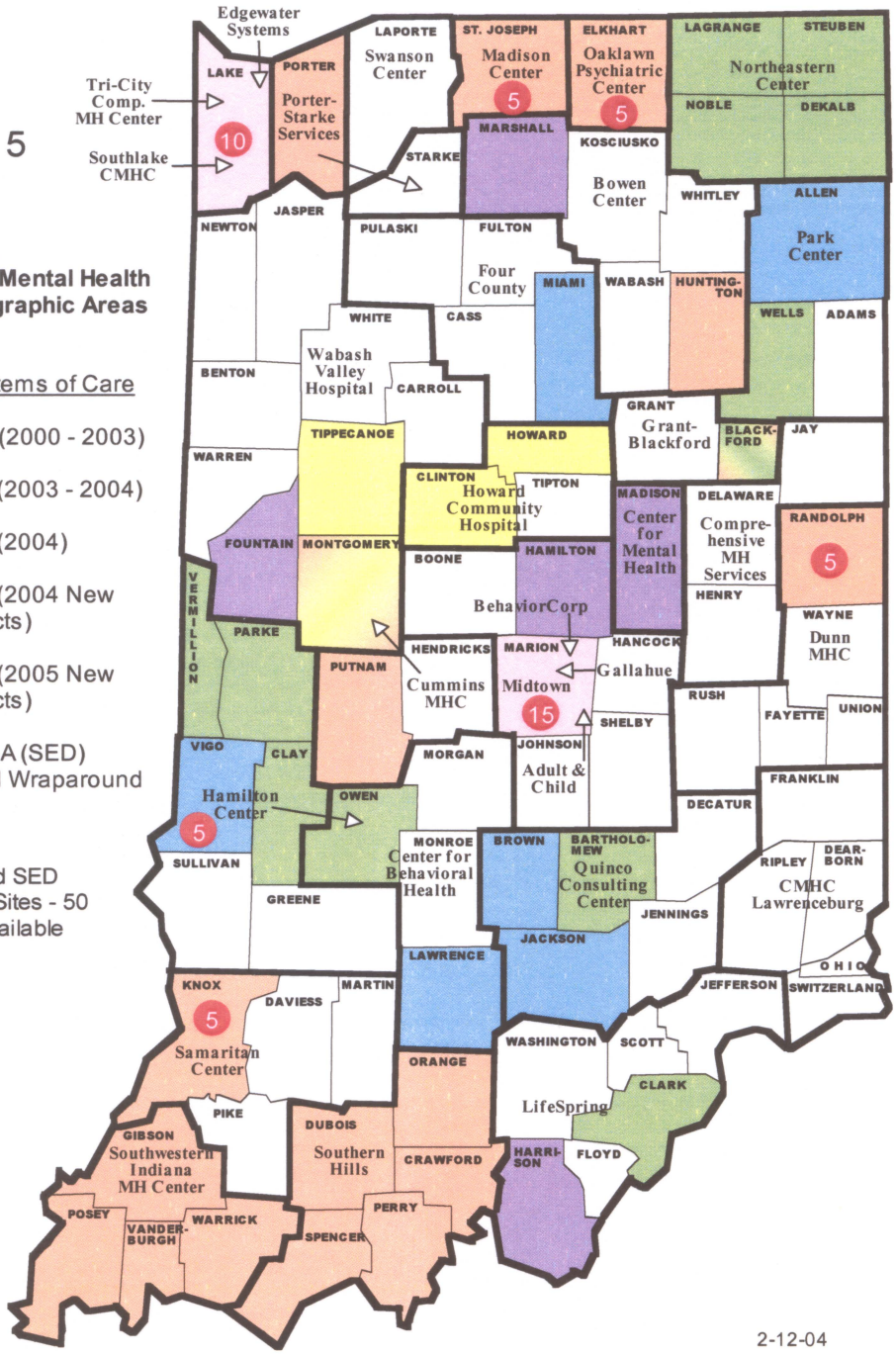
Figure 5

FSSA/DMHA Community Mental Health Center Geographic Areas SFY 2004

Funded Systems of Care

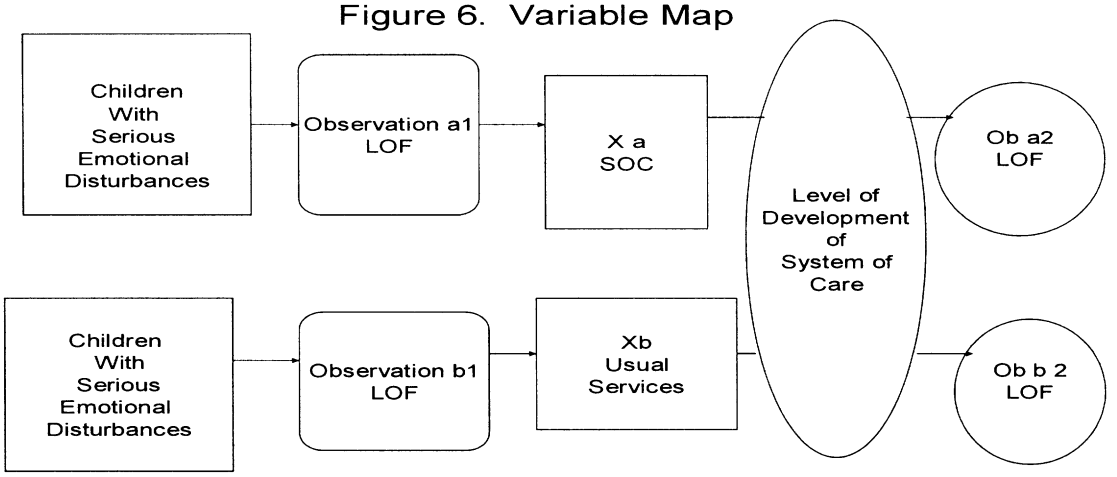
- SOC 1 (2000 - 2003)
- SOC 2 (2003 - 2004)
- SOC 3 (2004)
- SOC 4 (2004 New Contracts)
- SOC 5 (2005 New Contracts)
- SAMSHA (SED) Funded Wraparound

Medicaid SED Waiver Sites - 50 Slots Available



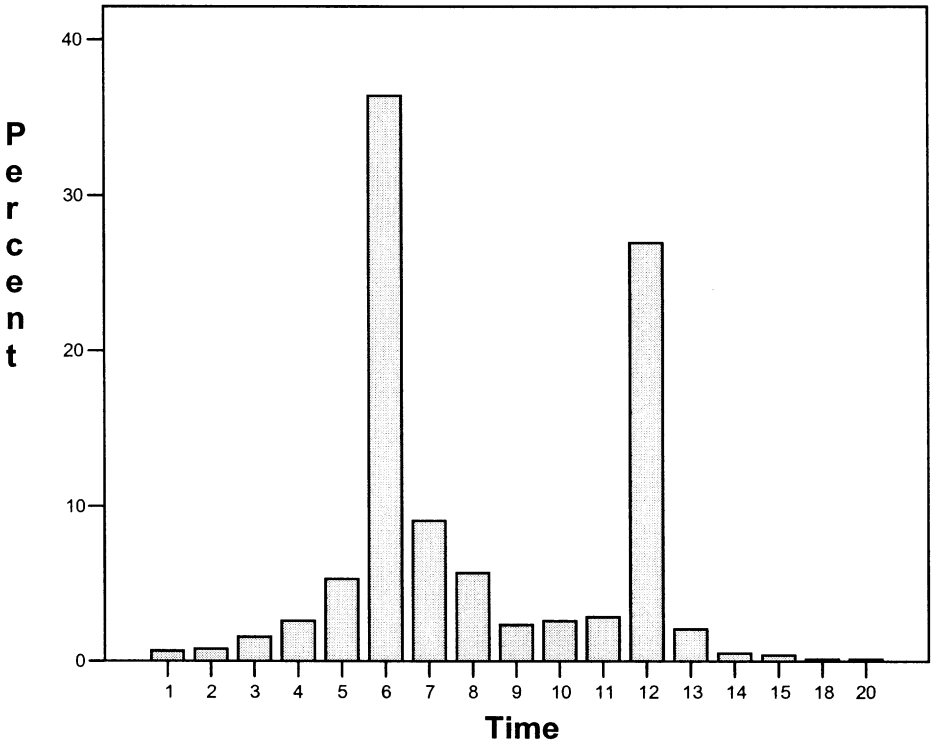
2-12-04

Figure 6. Variable Map



Note: Two samples of 386 children were matched by LOF, ROLES, time, race, ethnicity, and local system functioning (Pavkov, 2004).

Figure 7. Time Between Assessments



Step number: 1

Figure 8

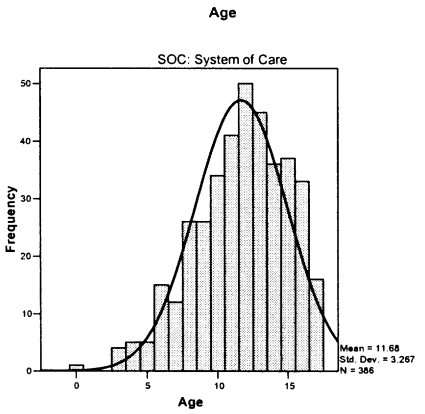


Figure 9

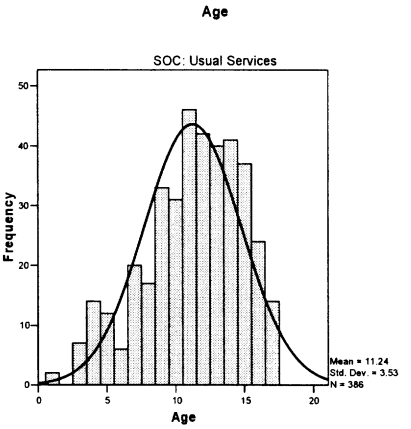


Figure 10

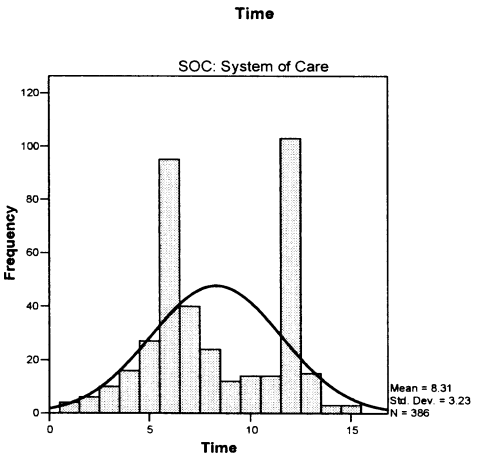


Figure 11

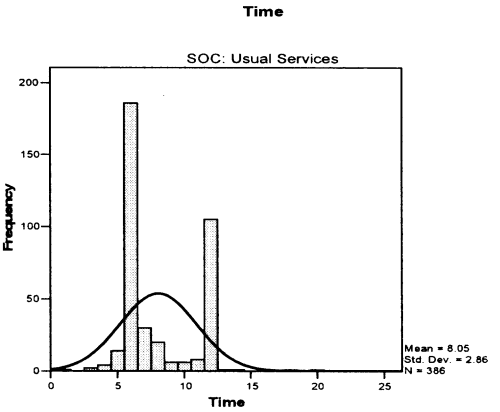


Figure12

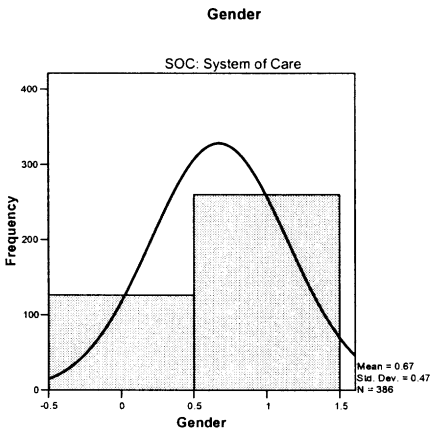


Figure13

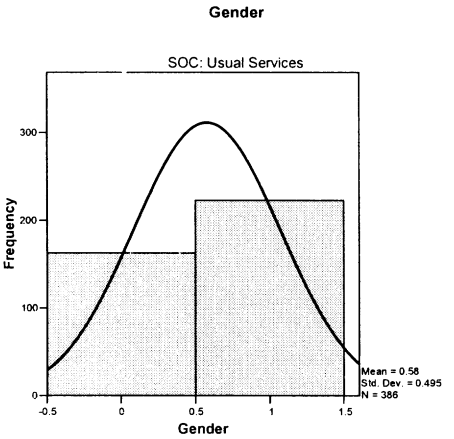


Figure 14

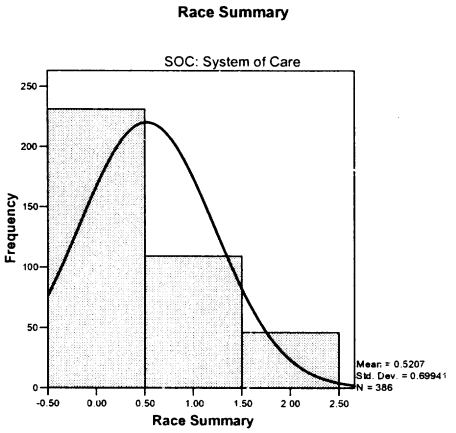


Figure 15

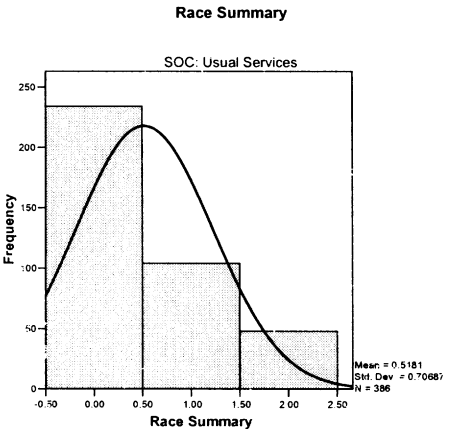


Figure 16

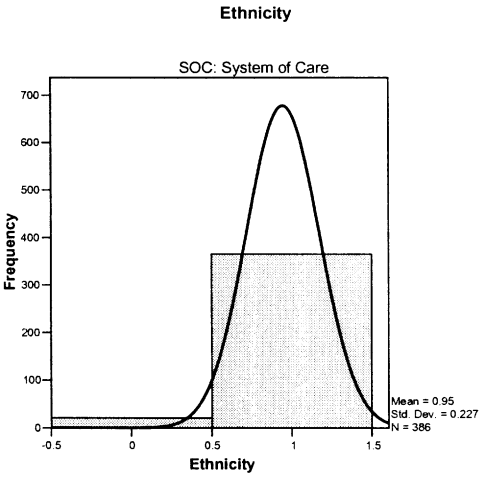


Figure 17

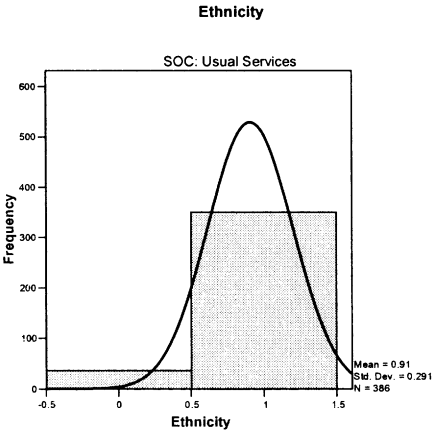


Figure 18

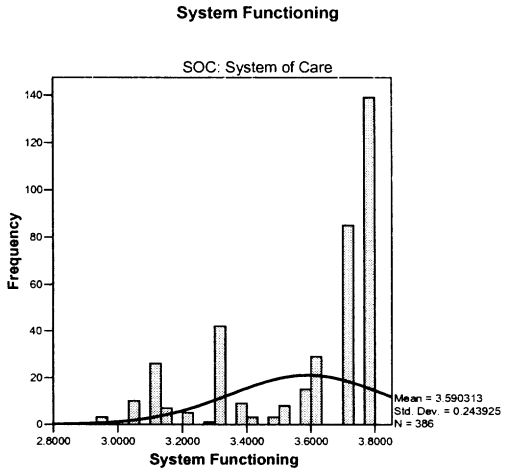


Figure 19

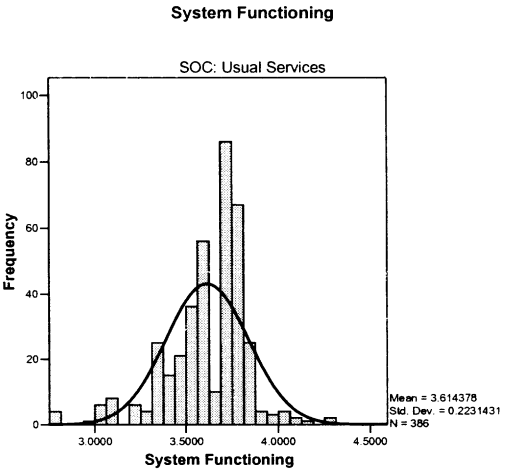


Figure 20

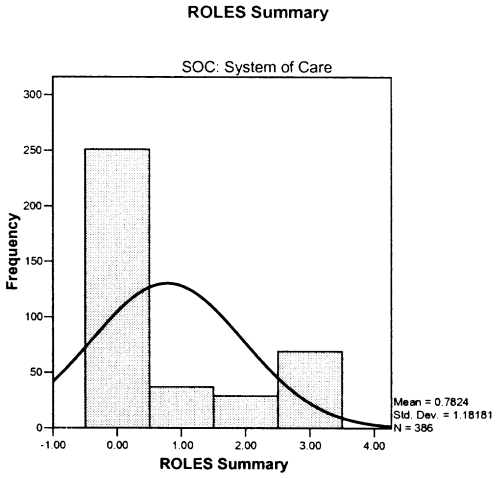


Figure 21

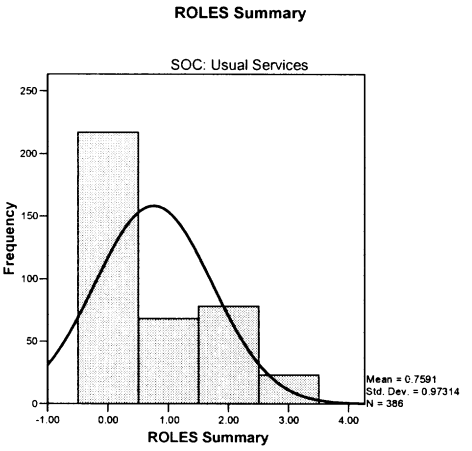


Figure 22

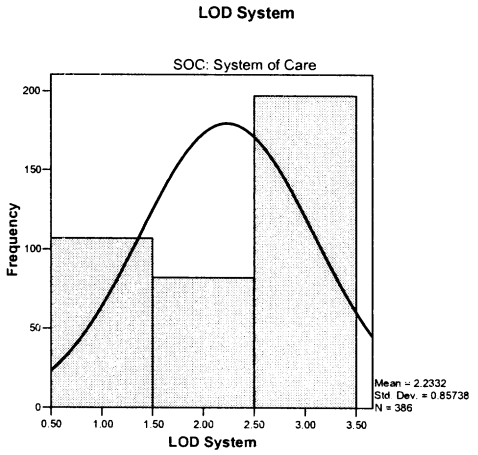


Figure 23

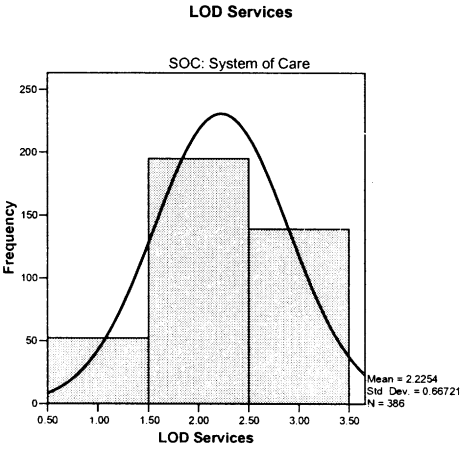


Figure 24

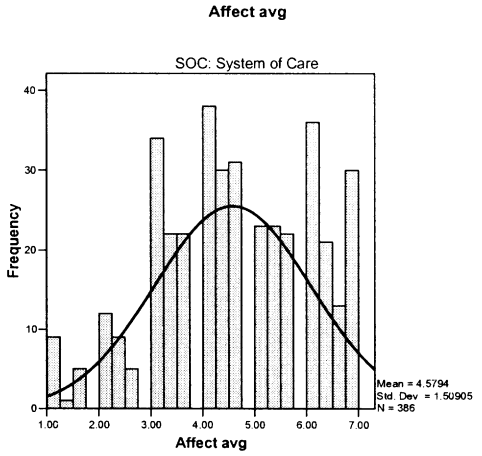


Figure 25

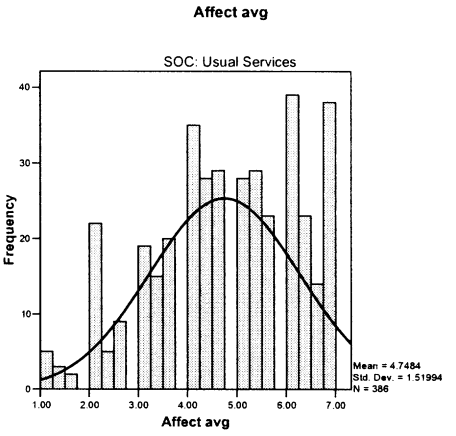


Figure 26

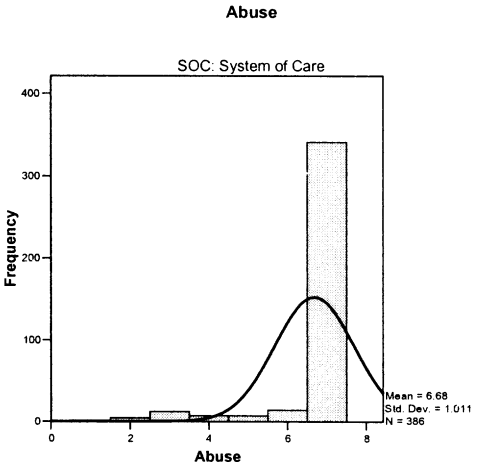


Figure 27

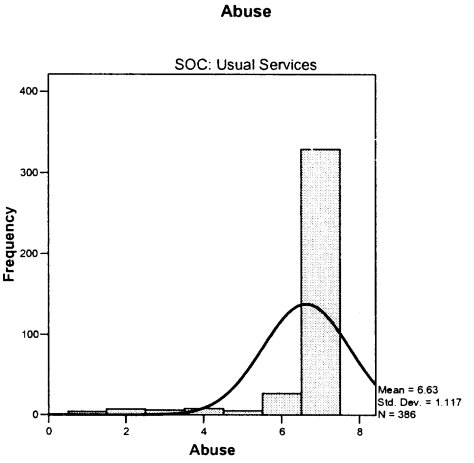


Figure 28

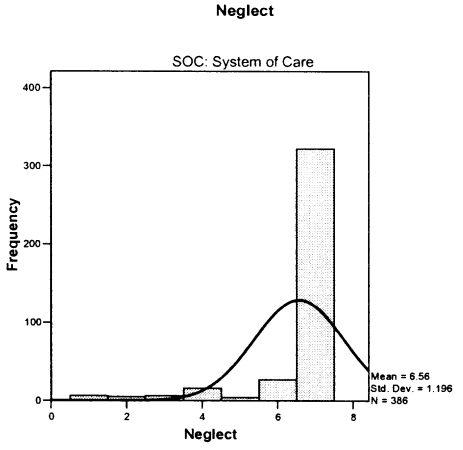


Figure 29

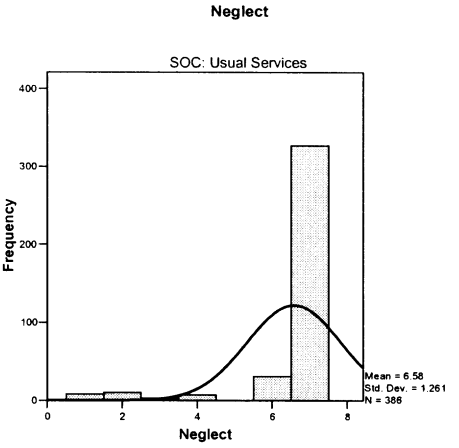


Figure 30

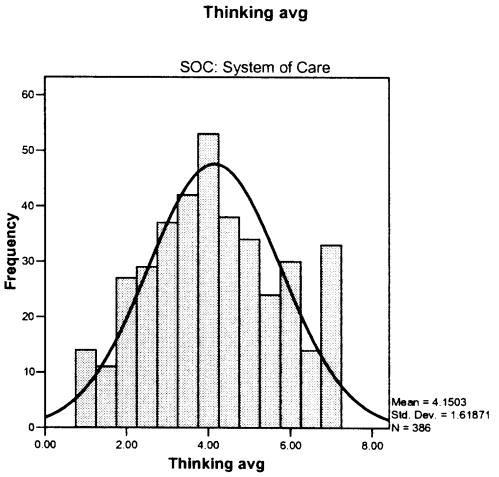


Figure 31

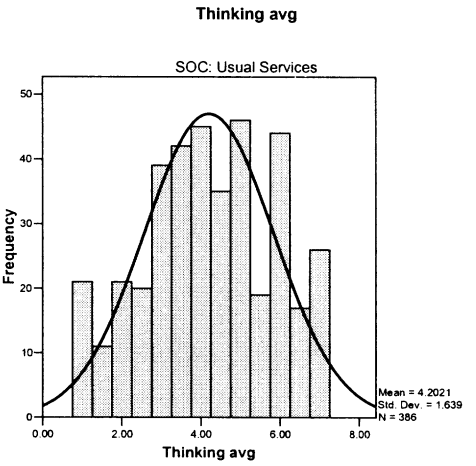


Figure 32

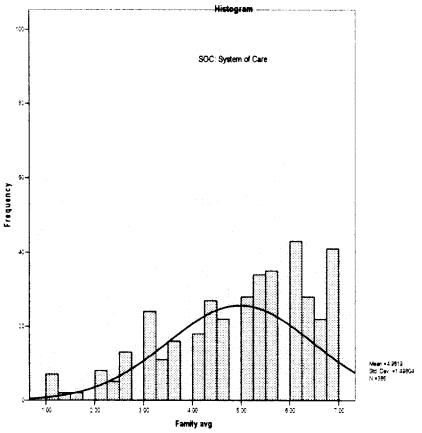


Figure 33

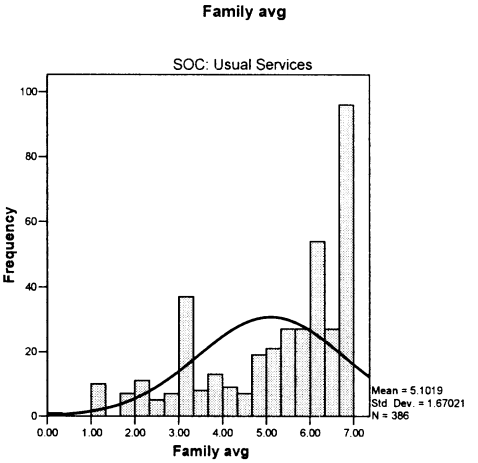


Figure 34

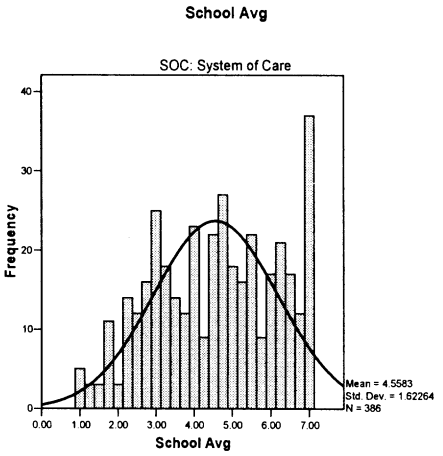


Figure 35

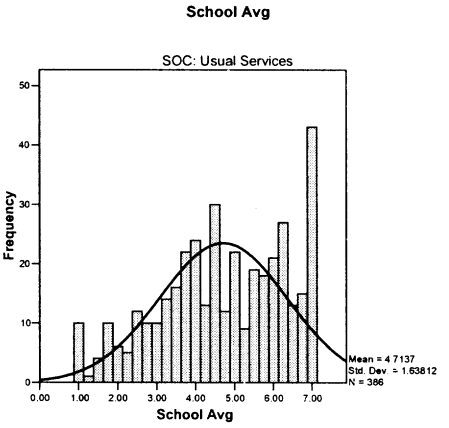


Figure 36

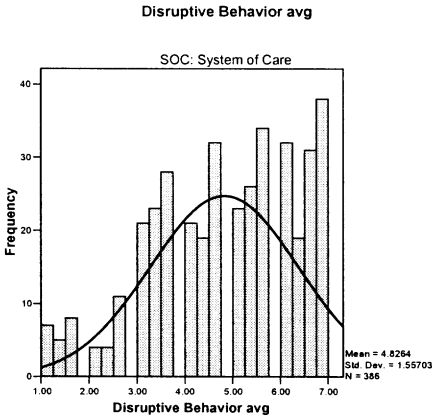


Figure 37

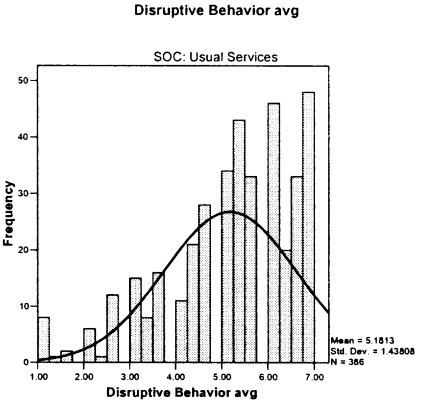


Figure 38

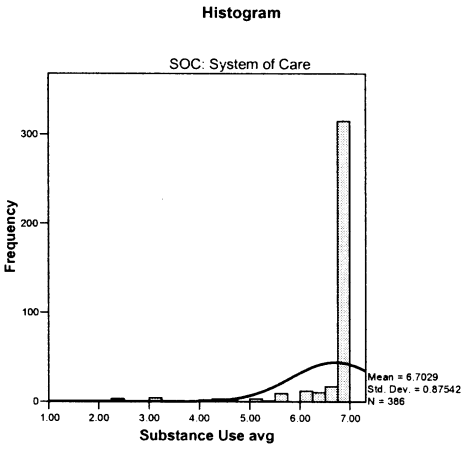


Figure 39

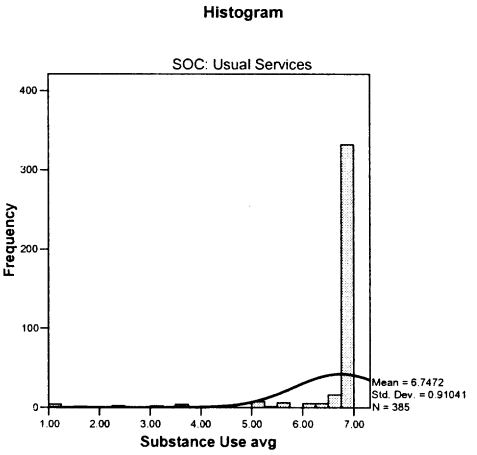


Figure 40

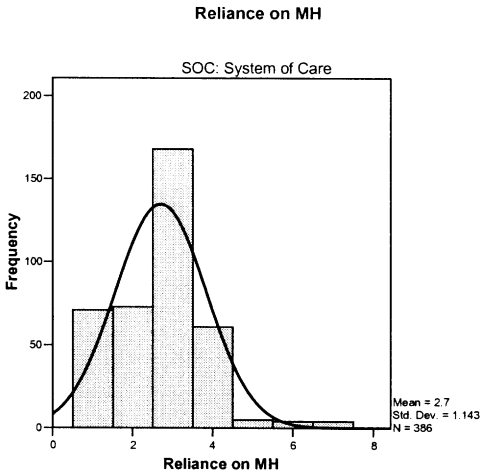


Figure 41

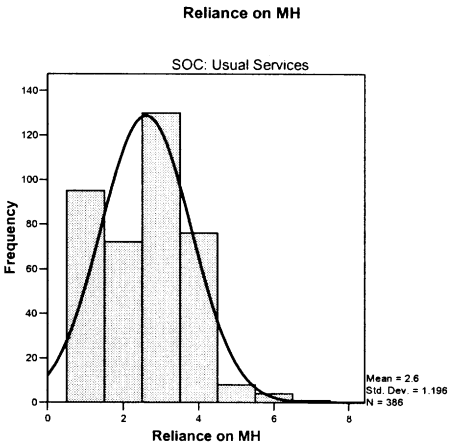


Figure 42

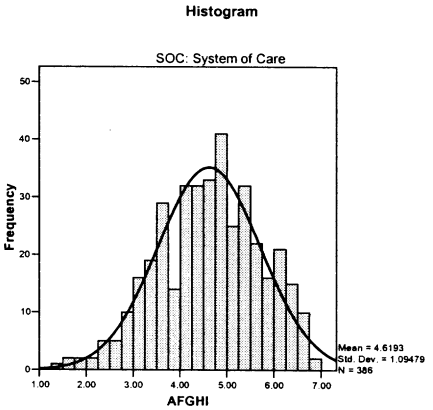


Figure 43

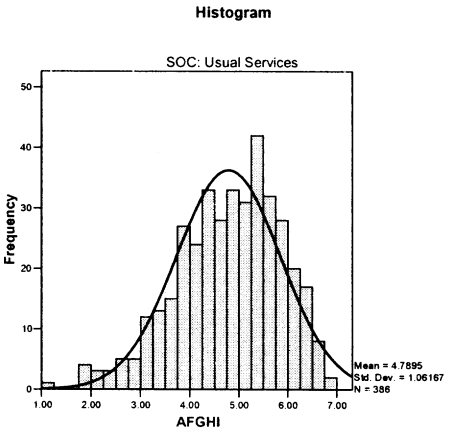


Figure 44

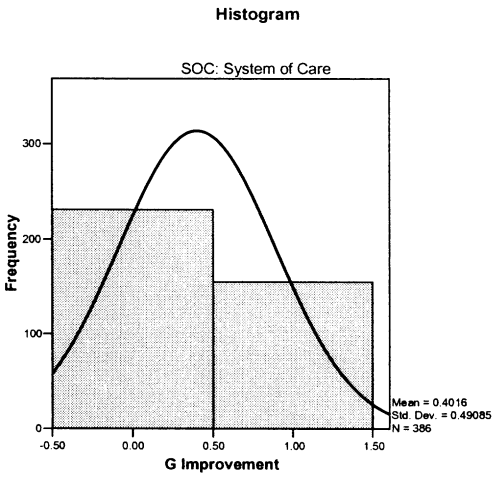
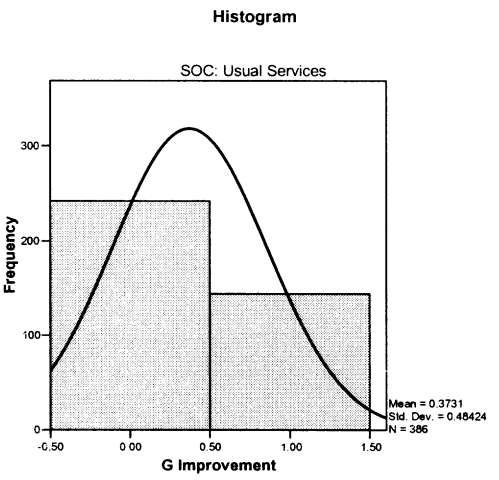


Figure 45



Appendix III. Developmental Stage "Fidelity Documents

A. Diffusion of Innovations and States of Readiness for Change

Diffusion of Innovations (Rogers, 1995) and Stages of Readiness for Change (Changing for Good, Prochaska, Norcross, & DiClemente, 1994)

	Innovation-Decision Process		**Stages of Change**
	Individuals	Organizations	
1.	Knowledge	Agenda-Setting	Precontemplation
2.	Persuasion	Matching	Contemplation
3.	Decision	Redefining/Restructuring	Preparation
4.	Implementation	Clarifying	Action
5.	Confirmation	Routinizing	Maintenance

1. **Knowledge-Agenda Setting-Precontemplation**

Knowledge
3 types of knowledge about an innovation:
1. Awareness knowledge – information that an innovation exists
2. How-to knowledge – information necessary to use an innovation
3. Principles knowledge – information dealing with the functioning principles underlying how an innovation works

Agenda setting
- Identifying and prioritizing needs and problems
- Searching the organization's environment to locate innovations of potential usefulness to meet these organizational problems
- One or more individuals in an organization identify an important problem and then identify an innovation as one means of coping with the problem

Precontemplation
- No intention of changing their behavior, resist change
- Deny having a problem
- Don't want to change themselves, just the people around them
- Often demoralized, don't want to think, talk, or read about their problem because they feel their problem is hopeless

2. Persuasion-Matching-Contemplation

Persuasion

- Individual forms a favorable or unfavorable attitude toward the innovation
- Individual becomes more psychologically involved with the innovation
- Actively seeks information about the new idea
- Decides what messages he or she regards as credible
- Decides how he or she interprets the information that is received
- Individual seeks innovation evaluation information, messages that reduce uncertainty about an innovation's expected consequences

Matching

- Problem from the organization's agenda is fit with an innovation and this match is planned and designed
- Conceptual matching of the problem with the innovation occurs in order to establish how well they fit, reality testing

Contemplation

- People acknowledge that they have a problem and begin to think seriously about solving it
- Struggle to understand their problem, to see its causes, and to wonder about possible solutions
- Have indefinite plans to take action within the next six months or so
- Not yet ready to make the change

3. Decision-Redefining/Restructuring-Preparation

Decision

- Individual engages in activities that lead to a choice to adopt or reject an innovation
- Most individuals try the new idea on a partial basis; trial of a new idea by a peer can substitute, at least in part, for the individual's trial of an innovation

Redefining/Restructuring

- Innovation imported from outside the organization gradually begins to lose its foreign character
- Innovation is re-invented so as to accommodate the organization's needs and structure more closely and the organization's structure is modified to fit with the innovation (both the innovation and the organization are expected to change)

Preparation

- People are planning g to take action within the very next month and are making the final adjustments before they begin to change their behavior
- The intended change is made public
- Committed to action, but still need to convince themselves that taking action is what's best for them

4. Implementation-Clarifying-Action

Implementation
- Individual puts an innovation to use
- Involves overt behavior change as the new ideas is actually put into practice
- Certain degree of uncertainty about the expected consequences of the innovation still exists
- Active information seeking takes place (Where can I obtain the innovation? How do I use it? What operational problems am I likely to encounter, and how can I solve them?)

Clarifying
- Innovation is put into more widespread use in an organization, so that the meaning of the new idea gradually becomes clearer to the organization's members
- Stable arrangements are being made for the innovation in the organization; the innovation is gradually becoming imbedded in the organizational structure
- As people in an organization talk about the innovation, they gradually gain a common understanding of it; their meaning of the innovation is constructed over time

Action
- People most overtly modify their behavior and their surroundings
- This is the most obviously busy period and the one that requires the greatest commitment of time and energy
- Changes made during this stage are more visible and receive the greatest recognition

5. Confirmation-Routinizing-Maintenance

Confirmation
- Individual seeks reinforcement for the innovation-decision already made and may reverse this decision if exposed to conflicting messages about the innovation
- Individual want supportive messages that will prevent dissonance from occurring
- Some information reaches the individual that leads to questioning the adoption versus rejection decision previously made (dissonance)
- Discontinuance of the innovation can occur

Routinizing
- Occurs when an innovation has become incorporated into the regular activities of the organization and has lost its separate identity
- Innovation process is completed
- Sustainability – degree to which an innovation continues to be used after initial efforts to secure adoption is completed (participation and re-invention are positively related to sustainability of an innovation)

Maintenance

- Must work to consolidate the gains you attained during the action and other stages, and struggle to prevent lapses and relapse
- Can last from as little as six months to as long as a lifetime

Appendix III. Developmental Stage "Fidelity Documents

B. Applying Change Theories to System of Care and Wraparound Coding Template

Applying Change Theories to System of Care and Wraparound Coding Template

1. Knowledge-Agenda Setting-Precontemplation

System and Service-Delivery Issues

- (knowledge) Some community members seek (or need) knowledge about SOC and wraparound (values and principles, basic elements)
- (agenda setting) some community members recognize that usual care is not sufficient for children with serious emotional disturbances
- (agenda setting) Some community members recognize SOC and wraparound as an innovation to improve services for SED children
- (agenda setting) At least one community member (champion) identifies SOC and wraparound as way to address needs
- (precontemplation) Some community members deny that current system is not working
- (precontemplation) Some community members are unable to see how wraparound is different from services currently provided
- (precontemplation) One or more community members or organizations resist change

2. Persuasion-Matching-Contemplation

System Issues

- (persuasion) Community leaders form a favorable (or unfavorable) attitude toward SOC
- (persuasion) Some community members are psychologically involved with SOC (as demonstrated by discussions and debates about whether and how to implement SOC in their community)
- (matching) Discussions about how the SOC could be implemented begin
- (matching) Community leaders agree that SOC could improve services for children with SED
- (contemplation) Community admits that their usual system of care is not sufficient and is ready to plan for change (i.e, SOC) some time in the future.

Service Delivery Issues

- (persuasion) Community members form a favorable (or unfavorable) attitude toward wraparound
- (persuasion) Community members are psychologically involved with wraparound (as demonstrated by discussions and debates about whether and how to incorporate wraparound principles into their system of care)
- (matching) Community agrees that wraparound values and principles are compatible with the need to improve services for children with SED

- (contemplation) Community admits that their current service delivery practices are not sufficient and is ready to plan to implement wraparound

3. Decision-Redefining/Restructuring-Preparation

System Issues

- (decision) Community formally agrees to adopt SOC; a cross-system coordinating committee is formally established
- (redefining/restructuring) Coordinating committee determines how to implement SOC within the SOC framework (e.g., determines the theory of change, identifies outcomes and goals, establishes reporting and accountability mechanisms)
- (redefining/restructuring) Coordinating committee makes decisions about the structure of several key elements (funding, resources, referral procedures, referral criteria, enrollment procedures, outcomes) of SOC in their community
- (redefining/restructuring) Coordinating committee makes decisions (e.g., adopt a mission, values, guiding statements) that are consistent with SOC values and principles
- (preparation) Community announces intentions to implement SOC (post job ads, brochures, conduct community-wide training)
- (preparation) A core group (2-3) of community leaders champion SOC.

Service Delivery Issues

- (decision) Community adopts wraparound as the service delivery framework to be implemented in their SOC
- (decision) Community develops a pilot program; plan to take one or two kids to test out wraparound
- (redefining/restructuring) Community defines wraparound policies and procedures (provider network, service array, staff, crisis planning) that are appropriate for their community
- (redefining/restructuring) Community makes decisions and provides services that are consist with wraparound values
- (preparation) Community announces intentions to implement wraparound (recruitment for first client begins, training of key staff, team facilitators and possible child and family team members)
- (preparation) Coordinating committee hires SOC coordinator (or other person who has time, energy and personality necessary) to drive SOC development

4. Implementation-Clarifying-Action

System Issues

- (implementation) Policies and procedures established during earlier stages are put into practice
- (implementation) Resources (money, staff, space, time) committed to the SOC during earlier stages are shared among community partners

- (clarifying) Coordinating committee members have a common understanding of their community's SOC and apply SOC values and principles consistently
- (action) Clear evidence that services are being coordinated across systems (i.e., child serving agencies) is observed
- (action) Community is recognized (by funders, by TA Center, by community) for adopting SOC

Service Delivery Issues

- (implementation) Service delivery staff (e.g., care coordinators, wraparound facilitators) apply wraparound values to their work with children and families
- (implementation) Clients are being served at or near capacity; child and family teams are formed to serve all kids with serious emotional disturbances as needed
- (clarifying) Child and family team members address barriers and challenges by aggressively and openly communicating and problem-solving
- (action) Wraparound values (e.g., strengths-based, culturally competent, integrated, individualized, unconditional, community based, family centered with family voice and choice, flexible) are observed in child and family teams
- (action) Wraparound values are starting to infiltrate the child-serving systems (reaching beyond the staff directly involved in the SOC/wraparound)
- (action) Families are satisfied with the way in which services are coordinated across child serving systems

5. Confirmation-Routinizing-Maintenance

System Issues

- (confirmation) Coordinating committee seeks ways to demonstrate that their SOC is effective (report outcome data; review evaluation data from others)
- (routinizing) Community has sustained changes brought about by SOC creation
- (maintenance) Coordinating committee actively works to enhance/enrich their SOC and eliminate system barriers

Service Delivery Issues

- (confirmation) Child and family teams, families, staff, and coordinating committee members are able to highlight success stories
- (routinizing) Wraparound values are applied beyond SOC enrollments; integrated into the collaborating systems
- (maintenance) Community continues to ameliorate barriers to effective service delivery and gaps in services
- (maintenance) Community provides ongoing training in wraparound values

Appendix III. Developmental Stage "Fidelity Documents

C. Strength-Based Assessment of DMHA Funded Systems of Care Sites

Strengths-Based Assessment of DMHA Funded System of Care Sites
Draft by Vicki Sprague Effland, Ph.D.

System information

Representation
Systems of Care require representation and commitment from several community organizations and individuals.

Please answer the following questions regarding representation from the sectors listed below:

1. County Office of Family and Children (OFC)
   a. Is OFC actively involved in the SOC? Yes No
   b. Who (names and titles) are the SOC's primary contacts with the OFC?
   c. Are there others within the OFC that need to be involved in the SOC but have not been actively participating? Yes No
      - If yes, who (names and titles)
   d. Are their any barriers to further engaging the OFC in the SOC? Yes No
      - If yes, what are the barriers (e.g., political, organizational)?

2. Mental Health services providers
   a. Are Mental Health service providers actively involved in the SOC? Yes No
   b. What providers are involved (Organization, primary contact information)?
   c. Are there other Mental Health providers that need to be involved in the SOC but have not been actively participating? Yes No
      - If yes, who (Organization name, service type)
   d. Are their any barriers to further engaging Mental Health service providers in the SOC? Yes No
      - If yes, what are the barriers (e.g., political, organizational)?

3. Juvenile justice
   a. Is juvenile justice actively involved in the SOC? Yes No
   b. Who (names and titles) are the SOC's primary contacts with the juvenile justice system?
   c. Are there others within the juvenile justice system that need to be involved in the SOC but have not been actively participating? Yes No
      - If yes, who (names and titles)
   d. Are their any barriers to further engaging the juvenile justice system in the SOC? Yes No
      - If yes, what are the barriers (e.g., political, organizational)?

4. Education – school districts
   a. Is the local education system, including the largest school district(s) in the area, actively involved in the SOC? Yes No
   b. Who (names, titles, school district) are the SOC's primary contacts with education system?

c. Are there others within the education system that need to be involved in the SOC but have not been actively participating? Yes No
   - If yes, who (names, titles, school district)

d. Are their any barriers to further engaging the education system in the SOC?
   Yes No
   - If yes, what are the barriers (e.g., political, organizational)?

5. Family members
   a. Are family members actively involved in the SOC? Yes No
   b. In what ways are family members involved? (*planning, development, establishing procedures, etc.*)
   c. What are the SOC strengths in terms of involving families in the system?
   d. What barriers exist to further increasing the involvement of families in the SOC?

6. Organizations providing advocacy for children and families
   a. Are advocacy organizations actively involved in the SOC? Yes No
   b. Which advocacy organizations are involved? (*organization name, primary contact information*)
   c. Are there other advocacy organization that need to be involved in the SOC but have not been actively participating? Yes No
      - If yes, who (*organization name*)
   d. Are there any barriers to further engaging advocacy organizations in the SOC?
      Yes No
      - If yes, what are the barriers (e.g., political, organizational)?

7. What other agencies, organizations, and/or individuals are actively involved in the SOC? (*organization names, primary contact information*)
8. Which agencies, organizations, and/or individuals need to be involved, but have not been actively participating? (*organization names, individuals*)
9. What are the barriers to engaging additional partners in the SOC?
   a. Political
   b. Organizational (policies, procedures, regulations)

<u>Consortium Coordinating Committee</u>

A Consortium Coordinating Committee can serve a variety of functions for a system of care.

1. Has a Consortium Coordinating Committee been formed? Yes No
   a. When was the Committee formed? (*Date*)
2. Who formally makes up the Committee? (*Printed membership list*)
3. Who actively participates in the Committee? (*Meeting attendance records*)
4. How is the Committee structured? (*Are there officers?*)
   a. Who plans the Committee meetings? (*Name, position, organization*)
   b. Who organizes the Committee meetings? (*Name, position, organization*)
   c. How are decisions made within the Committee? (*Vote, consent, etc.*)
5. What are the current goals of the committee?
   a. Develop a mission statement
   b. Developing referral criteria and processes, enrollment procedures, etc. for SOC

c. Assessing available resources and gaps in services
d. Developing a funding mechanism for SOC, including blended funding, billing Medicaid, etc.
e. Case reviews
f. Developing measurable outcomes for SOC
g. Develop a plan for sustainability
h. Other (*please specify*)

6. What are the strengths of the Committee?
7. What are the Committee's needs in terms of training and/or development?

SOC Project Staff

1. Has a Project Coordinator been hired? Yes No
   a. Who is the Project Coordinator? (*Name, title, contact information*)
   b. How long has the Project Coordinator been in this role? (*Start Date*)
   c. What strengths does the Coordinator bring to the SOC?
   d. What are the Coordinator's training needs and/or areas for improvement?
      i. SOC principles and values
      ii. Developing crisis plans
      iii. Wraparound
      iv. Strengths-based assessments and service planning
      v. Child and family team creation and facilitation
      vi. Other (*please specify*)
2. What other positions have been created within the SOC (positions whose primary responsibility is to provide and/or assist in providing wraparound services to children and families within the SOC)?
   a. Clinical staff (*for each person - Name, title, contact information*)
   b. Support staff (*for each person - Name, title, contact information*)
3. What strengths does the staff bring to the project?
4. What are the staff's needs in terms of training and/or development?
   a. SOC principles and values
   b. Developing crisis plans
   c. Wraparound
   d. Strengths-based assessments and service planning
   e. Child and family team creation and facilitation
   f. Other (*please specify*)
5. Is the project adequately staffed? Yes No
6. Is the current staff representative of the community being served? Yes No
7. Has the SOC been able to retain staff? Yes No

Fiscal Issues

1. What are the primary funding sources for the SOC?
   a. DMHA? (*amount*)
   b. Medicaid billing? (*amount*)
   c. Payors? (*amount*)
   d. Private sources? (*foundation or other grants, donations, other? Amount?*)
   e. Other? (*amount*)
2. What are the community's strengths in terms of funding for the SOC?
3. What are the primary needs for the community's ongoing funding of the SOC?

4. Does the SOC have a plan to utilize blended funding? Yes No
5. Does the SOC have a procedure in place for billing for Medicaid? Yes No
6. Does the SOC have a plan for sustainability of efforts? Yes No

Community Information

Community Resources

1. Has the community conducted an assessment of available resources and gaps in services for at-risk children and families? Yes No (*If yes, written documentation??*)
2. What are the community's strengths in terms of available resources?
3. What are the primary gaps in services?
4. What opportunities exist for identifying and/or developing new community resources?
5. What barriers exist to identifying and/or developing new community resources?

Community Demographics

1. What is the racial composition of the community?
2. What is the median income?
3. Is the community primarily urban or rural? Both?
4. What is the estimated number of children with SED in the community?

Previous Service Delivery System

1. What are the strengths of services available to children and families with SED prior to the development of the SOC?
2. What are the major barriers with the previous (current?) service delivery system?

Outcomes

1. Have outcomes for the SOC been identified? Yes No
2. Have tools been identified to measure the outcomes? Yes No
3. Has a process been developed for collecting, entering, analyzing, and reporting outcome data? Yes No
4. What is the SOC's strengths in terms of outcomes?
5. What barriers exist to identifying and measuring outcomes?

Clinical Issues/Service Delivery

1. Has the SOC started to serve children and families? Yes No
2. How many children are currently being served?
3. What is the capacity of the SOC?
4. Who can refer children and families into the SOC? (*Written documentation?*)
5. What are the admission criteria? (*Written documentation?*)
6. What is the procedure for enrolling new clients into the SOC (*intake forms, assessments, consent forms, data collection, etc.*)?
7. How often do Child and Family Teams meet?
8. Are the Child and Family Teams effective? (*Staff interviews, team observation*)
   a. What are the strengths?
   b. What are the barriers?
9. Has the SOC been able to provide wraparound effectively? Yes No

4. Does the SOC have a plan to utilize blended funding? Yes No
5. Does the SOC have a procedure in place for billing for Medicaid? Yes No
6. Does the SOC have a plan for sustainability of efforts? Yes No

Community Information

Community Resources

1. Has the community conducted an assessment of available resources and gaps in services for at-risk children and families? Yes No (*If yes, written documentation??*)
2. What are the community's strengths in terms of available resources?
3. What are the primary gaps in services?
4. What opportunities exist for identifying and/or developing new community resources?
5. What barriers exist to identifying and/or developing new community resources?

Community Demographics

1. What is the racial composition of the community?
2. What is the median income?
3. Is the community primarily urban or rural? Both?
4. What is the estimated number of children with SED in the community?

Previous Service Delivery System

1. What are the strengths of services available to children and families with SED prior to the development of the SOC?
2. What are the major barriers with the previous (current?) service delivery system?

Outcomes

1. Have outcomes for the SOC been identified? Yes No
2. Have tools been identified to measure the outcomes? Yes No
3. Has a process been developed for collecting, entering, analyzing, and reporting outcome data? Yes No
4. What is the SOC's strengths in terms of outcomes?
5. What barriers exist to identifying and measuring outcomes?

Clinical Issues/Service Delivery

1. Has the SOC started to serve children and families? Yes No
2. How many children are currently being served?
3. What is the capacity of the SOC?
4. Who can refer children and families into the SOC? (*Written documentation?*)
5. What are the admission criteria? (*Written documentation?*)
6. What is the procedure for enrolling new clients into the SOC (*intake forms, assessments, consent forms, data collection, etc.*)?
7. How often do Child and Family Teams meet?
8. Are the Child and Family Teams effective? (*Staff interviews, team observation*)
   a. What are the strengths?
   b. What are the barriers?
9. Has the SOC been able to provide wraparound effectively? Yes No

a. What are the SOC's strengths in terms of coordinating services for children and families?
b. What are the barriers for identifying and accessing services for children and families within the system of care?

10. Are strengths used to drive goals and planning for children and families? Yes No
11. Are outcomes linked to goals? Yes No
12. What is the procedure for closing cases in the SOC? (*Written documentation*)
    a. Have criteria for closing cases been established?
13. Does the SOC have a mechanism in place to address crisis situations? Yes No
    a. Are crisis and safety plans developed?
    b. Are existing crisis and safety plans effective?

Appendix III. Developmental Stage "Fidelity Documents

D. Individual Readiness for Change Rating Guide, Wraparound Stages of Change Rating Guide, and Community Readiness for Change Rating Guide

Individual Readiness for Change
Rating Guide

___ Knowledge-Precontemplation

Knowledge

- Seeks knowledge about SOC and wraparound
- Beginning to understand the basic values and principles of SOC

Precontemplation

- Denies that current system is not working and has no intention of changing the way they provide services
- Unable to see how wraparound is different from services currently provided
- Resists change

___ Persuasion-Contemplation

Persuasion

- Has a favorable (or unfavorable) attitude toward SOC

Contemplation

- Admits that the usual care system is not sufficient and is ready to plan for change (i.e, SOC) some time in the future.
- Tries to understand what is wrong with the usual care system and is ready to explore SOC as an alternative

___ Decision-Preparation

Decision

- Participates in community discussions to determine whether to adopt or reject SOC

Preparation

- Announces intention to support SOC
- Begins to make small changes in the way services are provided

___ Implementation-Action

Implementation

- Follows SOC values and principles in collaborating with community partners

Action

- Puts SOC values and principles into practice
- Actively works to implement changes within the community

___ Confirmation-Maintenance

Confirmation

- Seeks reinforcement of decision to adopt SOC

Maintenance

- Continues to support SOC
- Works to improve and sustain SOC

Wraparound Stages of Change
Rating Guide

___ Knowledge-Agenda-Setting-Precontemplation

Knowledge

- ❑ Coordinating committee needs and/or seeks knowledge about wraparound
- ❑ Coordinating committee begins to understand the basic values and principles of wraparound

___ Persuasion-Matching-Contemplation

Persuasion

- ❑ Coordinating committee has a favorable attitude toward wraparound

Matching

- ❑ Coordinating committee assesses the wraparound process as a way to meet the need to change children's services
- ❑ Coordinating committee identifies the benefits and problems associated with using the wraparound process

___ Decision-Redefining/Restructuring-Preparation

Decision

- ❑ Coordinating committee discusses whether to adopt wraparound
- ❑ Coordinating committee tests out the wraparound process with one or two children
- ❑ Selected representatives of the coordinating committee shadow other care coordinators

Redefining/Restructuring

- ❑ Coordinating committee defines essential elements of the wraparound process (e.g., provider network, service array, staff, crisis planning, flexible funding)

Preparation

- ❑ Coordinating committee announces intention to support wraparound
- ❑ Coordinating committee begins to use wraparound
- ❑ A care coordinator (or wraparound facilitator) is hired to facilitate child and family teams

___ Implementation-Clarifying-Action

Implementation

- ❑ Care coordinators apply wraparound values to their work with children and families
- ❑ Children and families are being served using the wraparound process at or near the system's capacity

Community Readiness for Change
Rating Guide

___ Knowledge-Agenda-Setting-Precontemplation

Agenda-Setting

- ❑ Community leaders perceive a need for a change in the way services for children with SED are delivered
- ❑ Community leaders are looking for alternative ways to meet the need to change children's services (SOC is one alternative)
- ❑ At least one community leader (champion) identifies SOC as a way to address community's needs

___ Persuasion-Matching-Contemplation

Persuasion

- ❑ Community leaders have a favorable attitude toward SOC

Matching

- ❑ Community leaders assess the SOC framework as a way to meet the need to change children's services
- ❑ Community leaders identify the benefits and problems associated with adopting the SOC framework
- ❑ Community leaders agree that SOC could improve services for children with SED

Contemplation

- ❑ Community leaders admit that the usual care system is not sufficient and is ready to plan for change (i.e, SOC) some time in the future.
- ❑ Community leaders try to understand what is wrong with the usual care system and is ready to explore SOC as an alternative

___ Decision-Redefining/Restructuring-Preparation

Decision

- ❑ Community leaders discuss whether to adopt SOC

Redefining/Restructuring

- ❑ A coordinating committee (or consortium) is formed to facilitate implementation of SOC
- ❑ A SOC coordinator is hired to drive the development and implementation of SOC
- ❑ Coordinating committee works to incorporate SOC values and principles into the existing system (e.g., creates a mission, adopts values and guiding principles, determines the theory of change)
- ❑ Coordinating committee makes decisions about the structure of several essential SOC elements (e.g., funding, resources, referral processes, enrollment procedures, outcomes)

Preparation

- ❑ Coordinating committee announces intention to support SOC (e.g., post job ads, create brochures, conduct community-wide trainings)

Name:_____ Consumer #: |___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

Date of Interview: _____/_____/_____ Site/Program ID: |___|___|___|___| [ ]-New Enrollment [ ]-180 Day [ ]-Re-Enrollment

Staff ID #: |____|____|____|____|____| *Date:* ___/___/___ *Signature:* _____

Type of Review: |____|-*Supervisory* |____|- *Peer* |____|- *Records* |____|- *Other:* _____

Developed for Indiana Division of MH by Frederick L. Newman with John McGrew,
Under the direction of Richard DeLiberty & The Hoosier Assurance Plan Instrument – Child (HAPI-C),
Advisory Panel, with special acknowledgement to the input from Jeffery Anderson and Thomas Smith.

Copyright, ©, is the property of the Indiana Division of Mental Health. The HAPI-C is considered to be in the public domain.

INSTRUCTIONS: The purpose of the instrument is to assess functioning and self-management skills relative to the child's age-appropriate development by rating the impact of a problem or symptoms on functioning for the most recent 30 days (unless otherwise specified). The probe question under each item is answered in terms of available evidence from one or more sources; e.g., the child, parent, caregiver/guardian, teacher or institutional record. Ratings at the *minimal* levels describe the degree to which the child is able to manage his or her functioning with some individual effort, but typically without direct external support by others (family, caregiver, or professional). Ratings at the *moderate* levels describe the degree to which the child can modulate the impact of the problem or symptoms on functioning; typically with some help from others (family, caregiver, or professional). The ratings at the most *severe* level describe the degree to which the impact of the problem or symptoms are such that the behavior, functioning, or situation would be out of control or the child would cause danger/harm to self or others without direct intervention(s) by another (family, caregiver, or professional). Refer to the *Scoring Instructions* for specific scoring information. Evidence to support an audit of the record should be provided either on this form or in an accessible clinical narrative, organized under the major headings used in scoring this instrument. If you have *Low Confidence* in your rating, indicate this by marking the LC box, but score the item on the ① to ⑦ scale in any event. Low confidence indicates that you do not have solid evidence on which to base your rating.

FACTOR SCORE SUMMARY **POSSIBLE FACTOR SUMS**

FACTOR A: Affective Symptoms [Sum Items 1 + 2 + 3]	|___|___|	[3 – 21]
FACTOR B: Suicide Ideation/Behaviors [Item 4]	|___|	[1 - 7]
FACTOR C: Abuse [Item 5]	|___|	[1 - 7]
FACTOR D: Neglect [Item 6]	|___|	[1 - 7]
FACTOR E: Health/Physical Status [Item 7]	|___|	[1 - 7]
FACTOR F: Thinking [Sum Items 8 + 9]	|___|___|	[2 – 14]
FACTOR G: Family [Sum Items 10 + 11 + 12]	|___|___|	[3 – 21]
FACTOR H: School [Sum Items 13 + 14 + 15 + 16]	|___|___|	[4 – 28]
FACTOR I: Disruptive Behavior [Sum Items 17 + 18 + 19]	|___|___|	[3 – 21]
FACTOR J: Substance Use/Abuse [Sum Items 20 + 21 + 22]	|___|___|	[3 – 21]
FACTOR K: Tobacco Use [Item 23]	|___|	[1 - 7]
FACTOR L: Reliance on Mental Health Services [Item 24]	|___|	[1 - 7]

Diagnoses

AXIS-V [Global Assessment of Functioning – Current: |___|___|

Primary Dx: | | | |.| | | **Secondary:** | | | |.| | | **Tertiary:** | | | |.| | |

FACTOR A: AFFECTIVE SYMPTOMS: Factor Score = Sum of Items 1 + 2 + 3 = |___|___| Possible Factor Sum [3 – 21]

	LC None	Minimal Difficulty: Symptoms controlled with effort	Moderate Difficulty: Moderates symptoms' impact with extra effort & support	Severe Difficulty: Does not control symptoms, close supervision required to function
1. *CHILD'S or CAREGIVER'S RATING OF SYMPTOM DISTRESS* – **Evidence that** *"The child has feelings or acts in a way that causes the child a lot of distress or interferes with functioning on most days."*	○ ⑦	⑥ ⑤	④ ③	② ①

Who provided the rating of distress [Child, Parent, or Caregiver]: _____

Rate overall level of distress and explore with the child/adolescent those areas covered in the next two items (i.e., signs of anxiety and depression or other signs of affective distress, e.g., symptoms of an eating disorder).

	LC None	Minimal Difficulty: Symptoms controlled with effort	Moderate Difficulty: Moderates symptoms' impact with extra effort & support	Severe Difficulty: Does not control symptoms, close supervision required to function
2. *ANXIETY – WORRYING* – **Evidence that** *"The child has worries that interfere with what the child does most days at home, with friends, or at school."*	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Worried that bad things will happen [ ]-Anxious or fearful [ ]-Nightmares [ ]-Fearful due to sustained effects of trauma
[ ]-Compulsive behavior or excessive rumination [ ]-Anxiety symptoms consistent with an eating disorder

	LC None	Minimal Difficulty: Symptoms controlled with effort	Moderate Difficulty: Moderates symptoms' impact with extra effort & support	Severe Difficulty: Does not control symptoms, close supervision required to function
3. *DEPRESSION – SAD, OR BLUE* – **Evidence that** *"The child feels very sad and/or lonely."*	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Feeling lonely and having no friends [ ]-Difficulty sleeping, eating [ ]-Irritability [ ]-Loss of interest or pleasure [ ]-Difficulty with concentration
[ ]-Feelings of worthlessness [ ]-Pervasive sadness [ ]-Depressive symptoms consistent with an eating disorder

FACTOR B: SUICIDE IDEATION/BEHAVIORS: Factor Score = |___| Possible Factor Sum [1 – 7]

4. SUICIDAL THOUGHTS/ACTIONS &/or SELF-INJURIOUS BEHAVIORS – **Evidence that** *"The child has had thoughts of suicide or has made a suicide attempt, or has had thoughts or taken action to injure him or herself."*	*LC None*	*Minimal Difficulty*: **Symptoms controlled with effort**	*Moderate Difficulty*: **Moderates symptoms' impact with extra effort & support**	*Severe Difficulty*: **Does not control symptoms, close supervision required to function**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Suicidal thoughts, intent or plan [ ]-Self mutilation [ ]-Taking substances with the intent to be injurious
[ ]-Self-injurious behaviors due to other problems (e.g., ADHD, autism)

FACTOR C: ABUSE: Factor Score = |___| Possible Factor Sum [1 – 7]

5. ABUSE – **Evidence that** *"The child has been physically, sexually, or emotionally abused in a way that threatens the child's safety or well-being."*	*LC None*	*Minimal Difficulty*: **Avoids impact or manages with effort**	*Moderate Difficulty*: **Abuse's impact on functioning moderated with extra effort & support**	*Severe Difficulty*: **Severe impact on functioning, requires close supervision & support**
	○ ⑦	⑥ ⑤	④ ③	② ①

Parent/Caregiver being rated is_____
[ ]-Physical abuse [ ]-Psychological (verbal) abuse [ ]-Sexual abuse [ ]-Substance abuse by parent involved [ ]-Other

FACTOR D: NEGLECT: Factor Score = |___| Possible Factor Sum [1 – 7]

6. NEGLECT – **Evidence that** *"The child has been neglected in a way that threatens the child's safety or well-being."*	*LC None*	*Minimal Difficulty*: **Avoids impact or manages with effort**	*Moderate Difficulty*: **Neglect's impact on functioning moderated with extra effort & support**	*Severe Difficulty*: **Severe impact on functioning, requires close supervision & support**
	○ ⑦	⑥ ⑤	④ ③	② ①

Parent/Caregiver being rated is_____
Parent/Caregiver is unavailable to provide proper care due to: [ ]-Work [ ]-Illness [ ]-Substance abuse/use [ ]-Indifferent
[ ]-Family environment has toxic qualities ( )-Vermin/Pests ( )-Unclean [ ]-Neighborhood dangerous, child of age where left under supervised is dangerous

FACTOR E: HEALTH/PHYSICAL STATUS: Factor Score = |___| Possible Factor Sum [1 – 7]

7. *CHILD'S HEALTH/PHYSICAL STATUS* – **Evidence that** *"The child has medical or physical problems that have been interfering with common daily activities."*	*LC*	*None*	*Minimal Difficulty*: **Manages daily activities with effort**		*Moderate Difficulty*: **Moderates impact on functioning with extra effort & support**		*Severe Difficulty*: **Severe impact on functioning, requires continued supervision & support**	
	○	⑦	⑥	⑤	④	③	②	①

[ ]-Chronic [ ]-Acute [ ]-Both [ ]-Consumer pregnant History of ( )-Seizures ( )-Allergies ( )-Asthma ( )-Other
[DO NOT INCLUDE DEPRESSION, ADHD, AUTISM OR DEVELOPMENTAL DISABILITY HERE]

FACTOR F: THINKING: Factor Score = Sum of Items 8 + 9 = |___|___| Possible Factor Sum [2 – 14]

8. *TIME-TASK ORIENTATION &/or COMPLETING ASSIGNED TASKS* – **Evidence that** *"The child has trouble thinking, remembering, or with the starting or finishing of a task."*	*LC*	*None*	*Minimal Difficulty*: **Compensates with effort**		*Moderate Difficulty*: **Moderates impact on functioning with extra effort & support**		*Severe Difficulty*: **Does not compensate, intervention required**	
	○	⑦	⑥	⑤	④	③	②	①

[ ]-Loses track of time [ ]-Forgets recent events [ ]-Unable to stay on task [ ]-Trouble shifting tasks [ ]-Difficulty learning new tasks
[ ]-Too hyperactive to concentrate [ ]-Memory problems or unevenness Source: ( )-Physical ( )-Medication ( )-Substance use
Difficulty with: [ ]-Performing assigned household chores [ ]-Doing what is expected in neighborhood, or at church or community functions

9. *PROBLEM SOLVING* – **Evidence that** *"The child has difficulty solving problems (including calling upon others for assistance)."*	*LC*	*None*	*Minimal Difficulty*: **Problem solving done with effort**		*Moderate Difficulty*: **Problem solving done only with extra effort & support**		*Severe Difficulty*: **Unable to problem solve, requires close supervision**	
	○	⑦	⑥	⑤	④	③	②	①

[ ]-Agitated when confronted with a problem [ ]-Difficulty thinking through the problem and its consequences
[ ]-Difficulty choosing appropriate alternatives in making decisions

FACTOR G: FAMILY: Factor Score = Sum of Items 10 + 11 + 12 = |___|___| Possible Factor Sum [3 – 21]

Assumed Parent(s)/Caregiver(s) being rated is:

10. PARENTAL/CAREGIVER SUPPORT OF CHILD'S GROWTH – **Evidence that** *"The parent(s)/caregiver(s) has difficulty supporting the child's growth by communicating with the child about her/his needs and concerns or encouraging the child to try new things, or they seem to ignore signs of growth, or even to inhibit the child's growth."*	*LC None*	*Minimal Difficulty*: **Parent(s)/Caregiver(s) supports growth with effort**	*Moderate Difficulty*: **Parent(s)/Caregiver(s) support for growth limited, requires extra effort & support**	*Severe Difficulty*: **Parent(s)/Caregiver(s) does not support growth without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Parent(s)/Caregiver(s) has difficulty recognizing that developmental change is possible or desirable [ ]-Parent(s)/Caregiver(s) health/physical status inhibits needed attention [ ]-Parent(s)/Caregiver(s) do not recognize that developmental change is possible or desirable [ ]-Parent(s)/Caregiver(s) too tired, overworked to provide support [ ]-Child feels that no parent(s)/caregiver(s) cares to, or takes time to listen to child's problems

11. PARENT/CAREGIVER SHARING OF TIME/RESOURCES & INTERACTING WITH AFFECTION & CARE – **Evidence that** *"The parent(s)/caregiver(s) have difficulty finding time to be with the child and/or difficulty sharing their favorite things with the child in a way that communicates affection and caring."*	*LC None*	*Minimal Difficulty*: **Parent(s)/Caregiver(s) shares time/resources with the child and interacts with affection/caring with some effort**	*Moderate Difficulty*: **Parent(s)/Caregiver(s) requires extra effort & support to share time/resources with the child and interact with affection/caring**	*Severe Difficulty*: **Parent(s)/Caregiver(s) cannot share time/resources with the child and interact with affection/caring without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

Seldom does the parent(s)/caregiver(s): ( )-Spend time with the child ( )-Share resources with the child [ ]-Parent(s)/Caregiver(s) health/physical status inhibits needed attention [ ]-No parent(s)/caregiver(s) can or finds it easy to express such caring/loving messages

12. EFFECTS OF CHILD'S BEHAVIOR ON FAMILY AND FAMILY INTERACTIONS – **Evidence that** *"The child's behavior negatively influences parent's/caregiver's functioning or family relationships."*	*LC None*	*Minimal Difficulty*: **Impact of child's behavior on the family managed with effort**	*Moderate Difficulty*: **Impact of child's behavior on the family is moderated with extra effort & support**	*Severe Difficulty*: **Parent(s)/Caregiver(s) copes with child's behavior only with supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Disobedient [ ]-Insists on own way, [ ]-Discourteous [ ]-Family blaming and discord and not taking responsibility
[ ]-Time/effort consumed by family is considered to be a hardship [ ]-Expense required to help family cope considered to be a hardship

FACTOR H: SCHOOL: Factor Score = Sum of Items 13 + 14 +15 + 16 = | | | | Possible Factor Sum [4 – 28]

	LC None	Minimal Difficulty	Moderate Difficulty	Severe Difficulty
13. SCHOOL SUPPORT – **Evidence that** *"The child requires special resources or services to attend and participate in classes in an age appropriate manner."*		*Minimal Difficulty without services:* **Can manage with effort**	*Moderate Difficulty without services:* **Can manage with extra effort & support**	*Severe Difficulty without services:* **Cannot manage without supervision or support**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Physical access aids [ ]-Emotional/behavioral control procedures [ ]-Tutoring [ ]-Supports for MR/DD [ ]-Other

	LC None	Minimal Difficulty	Moderate Difficulty	Severe Difficulty
14. SCHOOL ACHIEVEMENT – **Evidence that** *"The child has difficulty achieving at an age appropriate level."*		*Minimal Difficulty:* **Meets expectations with effort**	*Moderate Difficulty:* **Meets expectations with extra effort & support**	*Severe Difficulty:* **Does not meet expectations without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Hyperactive [ ]-Inattentive/Bored [ ]-Difficulty keeping up with teacher's expectations [ ]-Underachieves

	LC None	Minimal Difficulty	Moderate Difficulty	Severe Difficulty
15. INTERACTIONS WITH CLASSMATES & PEERS – **Evidence that** *"The child has difficulty getting along with classmates in school settings, and/or with peers outside of school."*		*Minimal Difficulty:* **Interacts with classmates & peers with effort**	*Moderate Difficulty:* **Moderates difficulty in interactions with classmates& peers with extra effort & support**	*Severe Difficulty:* **Unable to interact successfully without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Shy and withdrawn from classmates or peers [ ]-Aggressive toward classmates or peers [ ]-Refuses to interact [ ]-Tries to interact but does so in inappropriate ways [ ]-Feels isolated, little to no friends' support [ ]-Has access to friends, but is alienated from them [ ]-Shows no/little interest in others

	LC None	Minimal Difficulty	Moderate Difficulty	Severe Difficulty
16. INTERACTIONS WITH TEACHERS & ADMINISTRATORS – **Evidence that** *"The child has difficulty getting along with teachers and other adults working at school."*		*Minimal Difficulty:* **Interacts with teachers & administrators with effort**	*Moderate Difficulty:* **Moderates difficulty in interactions with teachers & administrators with extra effort & support**	*Severe Difficulty:* **Unable to interact successfully without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Aggressive [ ]-Shy or fearful [ ]-Inappropriate [ ]-Refuses to talk or interact [ ]-Does not do what is told to do

FACTOR I: DISRUPTIVE BEHAVIOR: Factor Score = Sum of Items 17 + 18 + 19 = |__|__| Possible Factor Sum [3 – 21]

17. NEGATIVE PEER INFLUENCE – **Evidence that** *"The child follows the lead of peers regardless of danger or appropriateness."*	*LC None*	*Minimal Difficulty*: **Can avoid negative peer influence with effort**	*Moderate Difficulty*: **Moderates negative peer influence with extra effort & support**	*Severe Difficulty*: **Cannot avoid negative peer influence without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Does not question appropriateness or dangers of peer direction [ ]-Aware of inappropriateness but follows anyway [ ]-Inappropriate peers

18. DISRUPTIVE & INAPPROPRIATE BEHAVIOR – **Evidence that** *"The child has trouble controlling her or his behavior toward other kids, or adults (such as saying angry things toward them, hitting them, or touching them in a way that upsets them)."*	*LC None*	*Minimal Difficulty*: **Controls behavior with effort**	*Moderate Difficulty*: **Controls behavior with extra effort & support**	*Severe Difficulty*: **Little or no control without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Heightened emotionality, or agitation which is frightening to others [ ]-Interpersonal conflicts at home, school, or in the community
[ ]-Talks abusively to others [ ]-Physically or sexually assaultive ( )-Actual ( )-Threatened [ ]-Inappropriate sexual behaviors/advances
[ ]-Homicidal ( )-Actual ( )-Threatened [ ]-Exhibits bizarre behaviors [ ]-Destructive to property [ ]-Behavior associated with substance use

19. RISK OR CRIMINAL BEHAVIOR – **Evidence that** *"The child behaves in ways that lead to getting hurt or into trouble, or to involvement with the criminal justice system."*	*LC None*	*Minimal Difficulty*: **Avoids risk or criminal behavior with effort**	*Moderate Difficulty*: **Avoids risk or criminal behavior with effort & support**	*Severe Difficulty*: **Does not avoid risk or criminal behavior without supervision**
	○ ⑦	⑥ ⑤	④ ③	② ①

[ ]-Criminal behavior(e.g., theft, prostitution, deal drugs) [ ]-Unsafe sex, including "sex for drugs" [ ]-Frequent/excessive use of substances
[ ]-Truancy [ ]-Expulsion or suspension due to assaultive or illegal behavior [ ]-Participates in high risk behavior (e.g., reckless driving)
[ ]-Follows delinquent peer recommendations to participate in risky or criminal behavior

FACTOR J: SUBSTANCE USE/ABUSE:

Factor Score = Sum of Items 20 + 21 + 22 = |___|___| Possible Factor Sum [3 – 21]

ITEMS 20-22: SUBSTANCE ABUSE - Evidence that *"The child uses alcohol or illegal drugs."* Use *Substance Abuse Scale* in the manual, and be sure that the rating is age adjusted. Note that the clinical notes should contain the information related to each of the four sub-scales

	LC None	*Mild-Minimal* No evidence of persistent-recurrent impact on functioning	*Moderate* Evidence of use with moderate or intermittent impairment on functioning	*Severe-Extreme:* Persistent use, marked impairment & withdrawal symptoms
20: ALCOHOL or DRUG use last 30 days (average)	○ ⑦	⑥ ⑤	④ ③	② ①
21: Use over months 2 through 12, check whether: [ ]-Alcohol or [ ]-Drugs or [ ]-Both	○ ⑦	⑥ ⑤	④ ③	② ①
22: Use over life time, check whether: [ ]-Alcohol or [ ]-Drugs or [ ]-Both	○ ⑦	⑥ ⑤	④ ③	② ①

IF ALCOHOL

|____|- # drinks per week, |_____|-$ per mo. (optional)

IF DRUG(S)

|____|-# different drugs, |_____|-$ per mo. (optional)

Either here or in your clinical narrative (as agency policy dictates), list the drug(s) used over last 30 days.

Also note when other factor ratings are affected by substance use.

[ ]-1: Symptoms of Distress/Mood [ ]-2: Community Functioning [ ]-3: Social Support, Social Skills & Housing

FACTOR K: TOBACCO USE:

Factor Score = |___| Possible Factor Sum [1 – 7]

23. TOBACCO USE – Evidence that *"The child uses tobacco."* Use *Substance Abuse Scale* in the manual, and be sure that the rating is age adjusted. Note that the clinical notes should contain the information related to each of the 3 sub-scales

LC None	*Mild-Minimal* No evidence of persistent-recurrent use	*Moderate* Evidence of moderate use	*Severe-Extreme:* Persistent use, evidence of addiction (withdrawal symptoms)
○ ⑦	⑥ ⑤	④ ③	② ①

TOBACCO use last 30 days (average)

|___|___|___|- Cigarettes: # per week

|___|___|___|- Pipe or Cigars: # smoked per week

|___|___|___|- Chewing tobacco or snuff: # per week

FACTOR L: RELIANCE ON MENTAL HEALTH SERVICES:

Factor Score = |___| Possible Factor Sum [1 – 7]

24. RELIANCE ON MENTAL HEALTH SERVICES – Evidence that *"The child and/or the parent(s)/caregiver(s) rely on services to maintain the child's role performance and/or functioning in the community."*

LC None	*Minimal Reliance:* Can manage activities with effort	*Moderate Reliance:* Can manage with extra effort & support	*Severe-Total Reliance:* Cannot manage without supervision or support
○ ⑦	⑥ ⑤	④ ③	② ①

[ ]- New Case

[ ]- Inpatient psychiatric or substance abuse history

|_____|-times in inpatient psychiatric facility

|_____|-times in inpatient substance abuse facility

[ ]-Potential impact on emotional/behavioral status if services are decreased or withheld [ ]-Behavioral health treatment history [ ]-Sustained effects of trauma

[ ]-Frequent service contacts (3+ contacts per week) [ ]-Arrests |_____| times in last year [ ]-Current legal status – Cite status

References

Addiction Technology Transfer Center Network. (2000). The change book: A blueprint for technology transfer. Kansas City, Missouri: Author.

American Psychiatric Association. (1994). Diagnostic Criteria from DSM-IV. Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2000). Diagnostic and Statistical Manual of Mental Disorders, 4th Ed, Text Revision. Washington, DC: Author.

Anderson, D. (2001). Diffusion of Innovation. Retrieved May 13, 2003, from http://RicciStreet.net/port80/charthouse/present/diffusion.htmp://RicciStreet.net/port80/charthouse/present/diffusion.htm.net/port80/charthouse/present/diffusion.htm

Anderson, J. A., Effland, V. S., Kooreman, H., & Wright, E. (in press). Predicting functional improvement over time in a system of care. Families in Society.

Anderson, R. L. & Gittler, J. (2005). Child and Adolescent Mental Health: Unmet need for community-based mental health and substance use treatment among rural adolescents. Community Mental Health Journal, 41(1), 35-49.

Angold, A., Erkanli, A., Farmer, E. M., Fairbank, J. A., Burns, B. J., Keeler, G., & Costello, E. J. (2002). Psychiatric disorder, impairment, and service use in rural African American and white youth. Archives of General Psychiatry, 59(10), 893-901.

Anthony, W. A. (2003). Studying evidence-based processes, not practices. Psychiatric Services, 54, 7.

Attkisson, C., Rosenblatt, A. B., Dresser, K. L., Baize, H. R., Clausen, J. M., & Lind, S. L. (1997). Effectiveness of the California system of care model for children and youth with severe emotional disorders. In C. T. Nixon & C. A. Northrup (Eds.) Evaluating mental health services: How do programs for children work in the real world? (pp. 146-208). Thousand Oaks, CA: Sage.

Baker, J. A., Derrer, R. D., Davis, S. M., Dinklage-Travis, H. E., Linder, D. S., & Nicholson, M. D. (2001). The flip side of the coin: Understanding the school's contribution to dropout and completion. School Psychology Quarterly, 16(4), 406-426.

Baldwin, L. (2003). Factor analysis of 2003 HAPI-C scales. Phoenix: Mercer.

Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice Hall.

Behar, L. (1985). Changing patterns of state responsibility: A case study in North Carolina. Journal of Clinical Child Psychology, 14, 188-195.

Bertram, R. M., Maysiak, B. B., Rudo, Z. H., & Duchnowski, A. J. (2000). What maintains fidelity in a wraparound approach? How can it be measured? (pp.197-201). In C. Liberton, C. Newman, K. Kutash, & R. Friedman (Eds.), The12th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base. Tampa: University of South Florida, Louis de al Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Berwick, D. M. (2003). Disseminating innovations in health care. The Journal of the American Medical Association, 289(15), 1969-1975.

Bettelheim, B. (1967). The empty fortress: Infantile autism and the birth of the self. Oxford, UK: Free Press of Glencoe.

Bickman, L. (1996a). Rejoinder: Reinterpreting the Fort Bragg evaluation findings: The message does not change. The Journal of Mental Health Administration, 23 (1), 137-45.

Bickman, L. (1996b). The evaluation of a children's mental health managed care demonstration. The Journal of Mental Health Administration, 23(1), 7-15.

Bickman, L., Foster, M. E., & Lambert, E. W. (1996a). Who gets hospitalized in a continuum of care? Journal of the American Academy of Child & Adolescent Psychiatry, 35(1), 74-80.

Bickman, L., Heflinger, C. A., Lambert, E. W., & Summerfelt, W. T. (1996b). The Fort Bragg managed care experiment: Short term impact on psychopathology. Journal of Child and Family Studies, 5(2), 137-160.

Bickman, L., Lambert, E. W., Summerfelt, W. T., & Heflinger, C. A. (1996c). Rejoinder to questions about the Fort Bragg evaluation. Journal of Child and Family Studies, 5(2), 197-206.

Bickman, L., Summerfelt, W. T., Firth, J. M., & Douglas, S. M. (1997). The Stark County evaluation project: Baseline results of a randomized experiment. In C. T. Nixon & D. A. Northrup (Eds.), Evaluating Mental Health Services: How Do Programs for Children "Work" in the Real World? (Vol. 3, pp. 231-258). Thousand Oaks: Sage.

Black, T. R. (1999). Doing quantitative research in the social sciences: An integrated approach to research design, measurement and statistics. London: Sage.

Boyle, P. J., & Callahan, D. (1995). What price mental health? The ethics and politics of setting priorities. Washington, DC: Georgetown University Press.

Bramley, J. (1999). Measuring wraparound in practice: How closely it adheres to wraparound principles and how it differs from traditional approaches to serving youth with severe emotional and behavioral challenges. Unpublished Dissertation, The University of Vermont.

Brannan, A. M., Baughman, L. N., Reed, E. D., & Katz-Leavy, J. (2002). System-of-care assessment: Cross-site comparison of findings. Children's Services: Social Policy, Research, and Practice, 5(1), 37-56.

Bruns, E. J., Burchard, J. D., & Ermold, J. (2001). The wraparound fidelity index: Results from an initial pilot test (pp, 339-342). In C. Newman, C. Liberton, K. Kutash, & R. Friedman (Eds.), The 13th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base. Tampa: University of South Florida, Louis de al Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Bruns, E. J., Burchard, J. D., & Yoe, J. T. (1995). Evaluating the Vermont system of care: Outcomes associated with community-based wraparound services. Journal of Child and Family Studies, 4, 321-339.

Bruns, E. J., Ermold, J., Burchard, J. D., & Dakan, E. (2000). Development of the Wraparound Fidelity Index. A paper presented at The 13th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base. Tampa: University of South Florida, Louis de al Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Bruns, E. J., Suter, J., & Burchard, J. D. (2002). Pilot test of the Wraparound Fidelity Index 2.0 (pp.235-238). In C. Newman, C. Liberton, K. Kutash, & R. Friedman (Eds.), The 14th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base. Tampa: University of South Florida, Louis de al Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Bruns, E. J., Suter, J., Burchard, J., & Leverentz-Brady, K. M. (2004). A national portrait of wraparound implementation: Findings from the Wraparound Fidelity Index (pp. 281-288). In C. Newman, C. Liberton, K. Kutash, & R. M. Friedman (Eds.). The 16th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base. Tampa: University of South Florida, Louis de al Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Bryman, A. & Cramer, D. (1990). Quantitative data analysis for social scientists. New York: Routledge.

Buescher, P.A., Horton, S. J., Devaney, B L., Roholt, S. J., Lenihan, A. J., Whitmire, J. T., and Kotch, J. B. (2003). Differences in use of health services between White and African American children enrolled in Medicaid in North Carolina. Maternal and Child Health Journal, 7(1), 45-52.

Bunton, R., Baldwin, S., Flynn, D., & Whitelaw, S. (2000). The stages of change' model in health promotion: Science and ideology. Critical Public Health, 10(1), 55-71.

Burchard, J. D. (1996). Evaluation of the Fort Bragg managed care experiment. Journal of Child and Family Studies, 5(2), 173-176.

Burchard, J. D., Bruns, E. J., & Burchard, S. N. (2002). The Wraparound Approach. In B. J. Burns & K. Hoagwood (Eds.), Community Treatment for Youth: Evidence-Based Interventions for Severe Emotional and Behavioral Disorders (Vol. II, pp. 69-90). New York: Oxford University Press.

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.

Burns, B. J. (1999). A call for a mental health services research agenda for youth with serous emotional disturbance. Mental Health Services Research, 1, 5-20.

Burns, B. J., & Goldman, S. K. (1999). Promising practices in wraparound for children with serious emotional disturbance and their families (Vol. IV). Washington, DC: Center for Effective Collaboration and Practice, American Institutes for Research.

Burns, B. J., Goldman, S. K., Faw, L., & Burchard, J. (1999). The wraparound evidence base. In B. J. Burns & S. K. Goldman (Eds.), Promising practices in wraparound for children with serious emotional disturbance and their families. Systems of Care: Promising Practices in Children's Mental Health, 1998 Series (Vol. IV, pp. 95-118). Washington, DC: Center for Effective Collaboration and Practice, American Institutes for Research.

Burns, B. J., & Hoagwood, K. (2002). Community Treatment for Youth: Evidence-Based Interventions for Severe Emotional and Behavioral Disorders (Vol. 2). New York: Oxford University Press.

Burns, E. J., & Burchard, J. D. (2000). Impact of respite care services for families which children experiencing emotional and behavioral problems. Children's Services: Social Policy, Research, and Practice, 3(1), 39-61.

Center for Mental Health Services. (1998). System of Care: A Promising Solution for Children with Serious Emotional Disturbances and Their Families (brochure). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Center for Mental Health Services. (1999). Annual Report to Congress on the Evaluation of the Comprehensive Community Mental Health Services for Children and Their Families Program, 1999. Atlanta: ORC Macro.

Center for Mental Health Services. (2001). Annual report to congress on the evaluation of the Comprehensive Mental Health for Children and Their Families Program, 2001. Atlanta: ORC Macro.

Center for Mental Health Services. (2002). 1995 Estimates of Children and Adolescents with Serious Emotional Disturbance by State. Retrieved May 29, 2002, from http:www.mentalhealth.org/da.../databases_exe.asp?DI=IN&Type+CASED&Myassign=lis

Chamberlain, P. (2002). Treatment Foster Care. In B. J. Burns & K. Hoagwood (Eds.), Community Treatment for Youth: Evidence-Based Interventions for Severe Emotional and Behavioral Disorders (pp. 117-153). New York: Oxford University Press.

Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. Journal of Consulting and Clinical Psychology, 66, 7-18.

Child and Adolescent Family Branch. (2003). Sustainability planning tool kit (Tool Kit). Washington, DC: Substance Abuse and Mental Health Services Administration (SAMSHA), the Center for Mental Health Services (CMHS) Child and Adolescent Family Branch.

Child Welfare League of America (CWLA). (2005). Making children a national priority, behavioral health. Retrieved February 15, 2005, from http://www.cwla.org/programs/bhd/mhdefault.htm

Clark, H. B., Prange, M. L., Lee, B., Stewart, E. S., McDonald, B.B. & Boyd, L.A. (1998). An individualized wraparound process for children in foster care with emotional/behavioral disturbances: Followup findings and implications from a controlled study. In Epstein, M., Kutash, K., & Duchnowski, A. (Eds.), Outcomes for children and youth with behavioral and emotional disorders and their families. Austin, TX: Pro-Ed.

Clarke, R. T., Schaefer, M., Burchard, J. D., & Welkowitz, J. W. (1992). Wrapping community-based mental health services around children with a severe behavioral disorder: An evaluation of Project Wraparound. Journal of Child and Family Studies, 1, 241-361.

Coleman, J., Katz, E., & Menzel, H. (1957). The diffusion of innovation among physicians. Sociometry, 20(4), 253-270.

Connell, J. P., & Kubisch, A. C. (1998). Applying a theory of change approach to the evaluation of comprehensive community initiatives: Progress, prospects, and problems. In K. Fulbright-Anderson, A. C. Kubisch, & J. P. Connell (Eds.), New Approaches to Evaluating Community Initiatives: Theory, Measurement, and Analysis (Vol. 2, pp. 15-44). Washington, DC: The Aspen Institute.

Cooper, S. & Lenter, T. H. (1992). Innovations in community mental health. Sarasota, Florida: Professional Press.

Cooper-Patrick, L., Gallo, J. J., Powe, N. R., Steinwachs, D. M., Eaton, W. W., & Ford, D. E. (1999). Mental health service utilization by African Americans and Whites: The Baltimore epidemiologic catchment area follow-up. Medical Care, 37(10), 1034-1045.

Costello, E. J., Angold, A., & Keller, G. (1999). Adolescent outcomes of childhood disorders: The consequences of severity and impairment. Journal of the American Academy of Child and Adolescent Psychiatry, 38(2), 121-128.

Costello, E. J., Foley, D. L., & Angold, A. (2006). 10-year research update review: The epidemiology of child and adolescent psychiatric disorders: II. Developmental epidemiology. Journal of the American Academy of Child and Adolescent Psychiatry, 45(1), 8-25.

Costello, E. J., Messer, S. C., Bird, H. R., Cohen, P., & Reinherz, H. Z. (1998). The prevalence of serious emotional disturbance: A re-analysis of community studies. Journal of Child and Family Studies 7, 411-432.

Crane, D. R. (2006). Decreasing health care use with family therapy. Poster presentation a the 16th Annual Conference on State Mental Health Agency Services Research, Program Evaluation and Policy NASMHPD Research Institute, Inc. Baltimore, MD, February 12, 2006.

Creswell, J. W. (1998). Qualitative inquiry and research design: Choosing among five traditions. Thousand Oaks: Sage.

Cross, T. & McDonald, E. (1995). Evaluating the outcome of children's mental health services: A guide for the use of available child and family outcome measures. Boston, MA: Judge Baker Children's Center.

Cumblad, C. (1996). The pathways children and families follow prior to, during, and after contact with an intensive, family-based social service intervention in urban settings. (Unpublished doctoral dissertation, Department of Educational Psychology, Counseling, and Special Education, Northern Illinois University.)

Dennis, K., VanDenBerg, J., & Burchard, D. (1992). The Wraparound Process. Paper presented at The First National Wraparound Conference, Pittsburgh, PA.

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. American Psychologist, 54, 755-765.

Dodge, J. (2006, February). Workforce development in children's mental health: Strategic planning. Presentation at Indiana's Children's Social, Emotional and Behavioral Health Plan. Indianapolis, IN.

Donabedian, A. (1988). The quality of care: How can it be assessed? Journal of the American Medical Association, 260(12), 1743-1748.

Donnelly, J. (1994). A comparison of youth involvement and a sense of unconditional care with wraparound versus traditional services. (Unpublished master's thesis, University of Vermont, 1994)

Dougherty Management Associates. (2002). Children's Mental Health Benchmarking Project: Second Year Report. The Annie E. Casey Foundation, The Center for Health Care Strategies, Inc. and The Robert Wood Johnson Foundation.

Duchnowski, A. J., & Friedman, R. M. (1990). Children's mental health: Challenges for the nineties. Journal of Mental Health Administration, 17, 3-12.

Early, T. J., & Poertner, J. (1993). Families with children with emotional disorders: A review of the literature. Social Work, 38(6), 743-751.

Eber, L., Osuch, R., & Redditt, C. A. (1996). School-based application of the wraparound process: Early results on service provision and student outcomes. Journal of Child and Family Studies, 5, 83-99.

Effland, V. S. (2004). Strengths-based assessment of DMHA funded system of care sites: Version 3. Indianapolis: Choices, Inc.

Effland, V. S., Walton, B., & McIntyre, J. (2005). Using change theories to assess systems of care development. In C. Newman, C. Liberton, K. Kutash, & R. Friedman (Eds.), The 17th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base. Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

El-Sheikh, M. & Elmore-Staton, L. (2004). The link between marital conflict and child adjustment: parent-child conflict and perceived attachments as mediators, potentiators, and mitigators of risks. Human Development and Family Studies, 16(3), 631-648.

Epstein, M. H. (1999). The development and validation of a scale to assess the emotional and behavioral strengths of children and adolescents. Remedial and Special Education, 20(5), 258-262.

Epstein, M. H., Jayhanthi, M., McKelvey, J., Frankenberry, E., Hardy, R., Dennis, K., & Dennis, K. (1998). Reliability of the wraparound observation form: An instrument to measure the wraparound process. Journal of Child and Family, 7(2), 161-179.

Espiritu, R. (2003, September). Time to draw: Developing a logic model. Paper presented at the Data Counts! Using Evaluation and Information, Systems to Build Systems of Care, Systems of Care Symposium, Washington, DC.

Evans, M. E. & Armstrong, M. I. (1994). Development and evaluation of treatment foster care and family-centered intensive case management in New York. Journal of Emotional and Behavioral Health Disorders, 2(4), 228 - 240.

Evans, M. E. & Armstrong, M. I. (2002). What is case management? In B. J. Burns & K. Hoagwood (Eds.), Community Treatment for Youth: Evidence-Based Interventions

for Severe Emotional and Behavioral Disorders (pp. 41-68). New York: Oxford University Press.

Farmer, E. M. Z., Stangl, D. K., Burns, B. J., Costello, E. J., & Angold, A. (1999). Use, persistence, and intensity: Patterns of care for children's mental health across one year. Community Mental Health Journal, 35(1), 31-45.

Fauth, R. C., Leventhal, T, & Brooks-Gunn, J. (2005). Early impacts of moving from poor to middle-class neighborhoods on low-income youth. Journal of Applied Developmental Psychology, 25(4), 415-439.

Field, A.(2000). Discovering statistics: Using SPSS for Windows. London: Sage.

Fixsen, D. L., Naoom, S. F., Blasé, K. A., Friedman, R. M., & Wallace. (2005). Implementation research: A synthesis of the literature. Tampa: University of South Florida.

Flam, C. S. (1998). The Development of a Scale to Evaluate the Integrity of Wraparound Service Planning Processes in a System of Care for Youths with Serious Emotional Disturbances. Unpublished Dissertation, University of California, Santa Barbara, CA.

Flood, A. B. & Fennell, M. L. (1995). Through the lenses of organizational sociology: The role of organizational theory and research in conceptualizing and examining our health care system. Journal of Health and Social Behavior, Extra Issue, 154-169.

Foster, E. M. (2002). How economists thing about family resources and child development. Child Development, 73(5), 1904-1914.

Foster, E. M., Summerfelt, W. T., & Saunders, R. C. (1996). The costs of mental health services under the Fort Bragg demonstration. The Journal of Mental Health Administration, 23(1), 92-105.

Friedman, R. M. (2004, March). Systems of care - What makes them work? Tampa, FL: University of South Florida. Presentation at the 17th Annual Research Conference: A System of Care for Children's Mental Health: Expanding the Research Base, Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Friedman, R. M. (2002). Evidence based practice and systems of care: Building on the strengths of each. Research and Training Center for Children's Mental Health. Retrieved December 11, 2001, from http://rtckids.fmhi.usf.edu/rtcpresents/mentalhealthpolicy/RobertFriedmanplastic.htm

Friedman, R.M. & Burns, B. (1996). The evaluation of the Fort Bragg demonstration project: An alternative interpretation of the findings. Journal of Mental Health Administration, 23(1), 128-136.

Friedman, R. M., & Hernandez, M. (2002). The national evaluation of the comprehensive community mental health services for children and their families program: A commentary. Children's Services: Social Policy, Research, and Practice, 5(1), 67-74.

Friedman, R. M., Katz-Leavy, J., Manderscheid, R., & Sondheimer, D. L. (Eds.). (1996). Prevalence of serious emotional disturbance in children and adolescents (Vol. 71-88). Rockville, MD: Center for Mental Health Services.

Friedman, R. M., Kutash, K., & Duchnowski, A. J. (1996). The population of concern: Defining the issues. In B. Stroul (Ed.), Children's Mental Health: Creating Systems of Care in a Changing Society (pp. 69-96). Baltimore: Paul H. Brookes.

Friedman, R. M., Paulson, R. I., & Fixsen, D. (2004, March). System of care implementation: Lessons learned from nine graduating CMHS grant communities. Paper presented at the 17th Annual Research Conference: A System of Care for Children's Mental Health: Expanding the Research Base, Tampa, Florida.

Friesen, B. J. (2003). Family issues in children's mental health research. Presentation at the Society for Social Work Research Conference in Washington, DC, January 16, 2003.

Gardner, W., Pajer, K. A., Kelleher, K. J., Scholle, S. H., & Wasserman, R. C. (2002). Child sex differences in primary care clinicians' mental health care of children and adolescents. Archives of Pediatrics and Adolescent Medicine, 156(5), 454-459.

Garland, A., Hough, R., McCabe, K. M., Yeh, M., Wood, P. A., & Aarons, G. A. (2001). Prevalence of psychiatric disorders in youths across five sectors of care. Journal of the American Academy of Child and Adolescent Psychiatry, 40(4), 409-418.

Garson, G. D. (2005a). Log-linear, logit, & probit. Retrieved December 28, 2005. from http://www2.chass.ncsu.edu/garson/pa765/logit.htm

Garson, G. D. (2005b). Logistic regression. Retrieved December 28, 2005, from http://www2.chass.ncsu.edu.garson/pa765/logistic.htm

Garson, G. D. (2005). Multiple regression. Retrieved December 28, 2005, from http://www2.chass.ncsu.edu/garson/pa765/regress.htm

Goldman, S. K. (1999). The conceptual framework for wraparound: Definition, values, essential elements, and requirements for practice. In B. J. Burns & S. K. Goldman (Eds.), Promising practices in wraparound for children with serious emotional disturbance and their families. Systems of Care: Promising Practices in Children's Mental Health. 1998 Series (Vol. IV, pp. 27-34).Washington, DC: Center for Effectiveness Collaboration and Practice, American Institutes for Research.

Goodwin, S. (1997). Comparative mental health policy. Thousand Oaks: Sage.

Greenbaum, P. E., Dedrick, R. F., Friedman, R. M., Kutash, K., Brown, E. C., Lardieri, S. P., & Pugh, A. M. (1996). National adolescent and child treatment study (NACTS): Outcomes for children with serious emotional and behavioral disturbances. Journal of Emotional and Behavioral Disorders, 4(3), 130-146.

Groves, I. (2005, May 12). Consumer services review. Presentation for state agency leaders at meeting hosted by FSSA/DMHA, Indianapolis, IN.

Halliday-Boykins, C. A., Henggeler, S. W., & Rowland, M. D. (2004). Heterogeneity in youth symptom trajectories following psychiatric crisis: Predictors and placement outcomes. Journal of Consulting and Clinical Psychology, 72(6), 993-1003.

Harden. J. (2005). "Uncharted Waters": The experience of parents of young people with mental health problems. Qualitative Health Research, 15(2), 207-223.

Hammer, K. M., Lambert, E. W., & Bickman, L. (1997). Children's mental health in a continuum of care: Clinical Outcomes at 19 months for the Fort Bragg Demonstration. The Journal of Mental Health Administration, 24(4), 465-471.

Hauser-Cram, P., Warfield, M. E., Shonkoff, J. P., Krauss, M. W., Sayer, A., & Upshur, C. C. (2001). Children with disabilities: a longitudinal study of child development and parent well-being. Monographs of the Society for Research in Child Development, 66(3), i-viii, 1-126.

Hawkins, R. P., Almeida, B., Fabry, A. C., & Reitz, A. C. (1992). A scale to measure restrictiveness of living environments for troubled children and youth. Hospital and Community Psychiatry, 43, 54-59.

Heflinger, C. A. (1996). Implementing a system of care: Findings from the Fort Bragg evaluation project. The Journal of Mental Health Administration, 23(1), 16-29.

Henggeler, S. W., Rowland, M. D., Randall, J., Ward, D., Pickrel, S., Cunningham, P., Miller, S., Edwards, J., Zealberg, J., Hand, L., & Santos, A. (1999). Home-based Multisystemic Therapy as an alternative to the hospitalization of youths in psychiatric crisis: clinical outcomes. Journal of the American Academy of Child and Adolescent Psychiatry, 38(11), 1331-1339.

Henggeler, S. W., Schoenwald, S. K., & Pickrel, S. G. (1995). Multisystemic therapy: Bridging the gap between university- and community-based treatment. Journal of Consulting and Clinical Psychology, 63(5), 709-717.

Henggeler, S. W., Schoenwald, S. K., & Munger, R. L. (1996). Families and therapists achieve clinical outcomes, systems of care mediate process. Journal of Child and Family, 5(2), 177-183.

Hernandez, M., & Hodges, S. (2003a). Building upon the theory of change for systems of care. Journal of Emotional and Behavioral Disorders, 11(1), 19-26.

Hernandez, M., & Hodges, S. (2003b). Making children's mental health services successful: Crafting logic models for systems of care: Ideas into action. Tampa, FL: Department of Child & Family Studies, Louis de la Parte, Florida Mental Health Institute, University of South Florida.

Hinshaw, S. P. (2005). The stigmatization of mental illness in children and parents: Developmental issues, family concerns, and research needs. Journal of Child Psychology and Psychiatry, 46(7), 714-734.

Hoagwood, K., Burns, B., Kiser, L., Ringeisen, H., & Schoenwald, S. K. (2001). Evidence - based practice in child and adolescent mental health services. Psychiatric Services, 52(9), 1179-89.

Hoagwood, K., Jensen, P. S., Petti, T., & Burns, B. (1996). Outcomes of mental health care for children and adolescents: I. A comprehensive conceptual model. Journal of the American Academy of Child and Adolescent Psychiatry, 35(8), 1055-1063.

Hoagwood, K., & Olin, S. S. (2002). The NIMH blueprint for change report: Research priorities in child and adolescent mental health. Journal of the American Academy of Child & Adolescent Psychiatry, 41(7), 760-767.

Hodges, K. (1990). Child and Adolescent Functional Assessment Scale (CAFAS). Ypsilanti, MI: Eastern Michigan University, Department of Psychology.

Howell, D. C. (1997). Statistical methods for psychology (4th ed.). Belmont, CA: Duxbury Press.

Hurlburt, M. S., Leslie, L. K., Landsverk, J., Barth, R. P., Burns, B. J., Gibbons, R. D., Slymen, D. J., & Zhang, J. (2004). Contextual predictors of mental health service use among children open to child welfare. Archives of General Psychiatry, 61(12), 1217-1224.

Huston, A. C., Duncan, G. J., Granger, R., Bos, J., McLoyd, V., Mistry, R. et al.(2001). Work-based antipoverty programs for parents can enhance the school performance and social behavior of children. Child Development, 72(1), 318-336.

Illback, R. J., Nelson, C. M., & Sanders, D. (1998). Community-based services in Kentucky.: Description and 5-year evaluation of Kentucky IMPACT. In M. H. Epstein, K. Kutash, & A. J. Duchnowski (Eds.) Outcomes for children and youth with behavioral and emotional disorders and their families: Programs and evaluation best practices (pp. 55-80). Austin, TX: Pro-Ed.

Indiana Family and Social Service Administration, Division of Mental Health and Addiction. (2002). Community service data system, state fiscal year 2003: Data requirements and instructions. Indianapolis, IN: Author.

Indiana Family and Social Service Administration, Division of Mental Health and Addiction (2004). Community service data system, state fiscal year 2004: Data requirements and instructions. Indianapolis, IN: Author.

Indiana Family and Social Service Administration, Division of Mental Health and Addiction. (2003). Mental health services. Retrieved December 7, 2003, from http://www.in.gov/fssa/shape/shape_home.html

Indiana Family and Social Service Administration, Division of Mental Health and Addiction. (2005). ROLES for SFY2004. Indianapolis: DMHA Community Cube - Cognos PowerPlay Web Explorer.

Indiana Family and Social Service Administration, Division of Mental Health and Addiction. (2006). Total persons served by age, race and gender: Seriously emotionally disturbed children: Consumers enrolled between 7/1/2004 and 6/30/2005. Indianapolis, IN: Author.

Jacobson, N. S. and Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. Journal of Consulting and Clinical Psychology, 59, 12 -19.

Jensen, P. S., Hoagwood, K., & Petti, T. (1996). Outcomes of mental health care for children and adolescents: II. Literature review and application of a comprehensive model. Journal of the American Academy of Child and Adolescent Psychiatry, 35(8), 1064-1077.

Jones, K. W. (1999). Taming the Troublesome Child: American Families, Child Guidance, and the Limits of Psychiatric Authority. Cambridge, MA: Harvard University Press.

Kahn, R. S., Brandt, D., & Whitaker, R. C. (2004). Combined effects of mothers' and father's mental health symptoms on children's behavioral and emotional well-being. Archives of Pediatrics and Adolescent Medicine, 158(8), 721-729.

Kanner, L. (1935). Child Psychiatry. Springfield, IL: Thomas.

Kazdin, A. E., Bass, D., Ayers, W. A., & Rodgers, A. (1990). Empirical and clinical focus of child and adolescent psychotherapy research. Journal of Consulting and Clinical Psychology, 58, 729-740.

Kessler, R., C., Berglund, P, Demler, O., Jim, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry, 62, 593-602.

Kilgus, M. D., Pumariega, A. J., Cuffe, S. P. (1995). Influence of race on diagnosis in adolescent psychiatric inpatients. Journal of the American Academy of Child and Adolescent Psychiatry, 34(1), 67-72.

Kim, J. & Mueller, C. W. (1978). Introduction to factor analysis. Beverly Hills, CA: Sage.

Knitzer, J. (1982). Unclaimed Children: The Failure of Public Responsibility to Children and Adolescents in Need of Mental Health Services. Washington, DC: Children's Defense Fund.

Koroloff, N., Schutte, K., & Walker, J. S. (2003). Assessing the necessary agency and system support. Focal Point: A National Bulletin on Family Support and Children's Mental Health, 17(2), 8-11.

KPMG. (2002). Independent accountants' report on applying agreed-upon procedures. Indianapolis, Author.

Kruzich, J. M., Jivanjee, P., Robinson, A., & Friesen, B. J. (2003). Family caregivers' perceptions of barriers to and supports of participation in their children's out-of-home treatment. Psychiatric Services, 54(11), 1513-1518.

Kumpfer, K. L. & Alvarado, R. (1998). Effective family strengthening interventions. Juvenile Justice Bulletin, November. Washington, DC: Office of Juvenile Justice and Delinquency Prevention.

Lawley, D. N. and Maxwell, A. E. (1971). Factor Analysis as a statistical method (2nd ed.). London: Butterworth and Co.

Levy, D.(1968). Beginnings of the Child Guidance Movement. American Journal of Orthopsychiatry, 30, 799-804.

Lezak, A., & MacBeth, G. (2002). Overcoming barriers to serving our children in the community: Making the Olmstead decision work for children with mental health needs and their families. Delmar, NY: Advocates for Human Potential, Inc.

Lipsey, M. W. & Cordray, D. S. (2000). Evaluation methods for social intervention. Annual Review of Psychology, 51, 345-375.

Lonigan, C. J., Elbert, J. C., & Johnson, S. B. (1998). Empirically supported psychosocial interventions for children: An overview. Journal of Clinical Child Psychology, 27, 138-145.

Lourie, I. S., & Hernandez, M. (2003). A historical perspective on national child mental health policy. Journal of Emotional and Behavioral Disorders, 11(1), 5-9.

Malysiak, R.(1998). Deciphering the Tower of Babel: Examining the theory base for wraparound fidelity. Journal of Child and Family Studies, 7(1), 11-25.

Manteuffel, B., Stephens, R. I., & Santiago, R. (2002). Overview of the national evaluation of the comprehensive community mental health services for children and their families program and summary of current findings. Children's Services: Social Policy, Research, and Practice, 5(1), 3-20.

Marsden, P. (2000). Forefathers of memetics: Gabriel Tarde and the laws of imitation. Journal of Memetics-Evolutionary Models of Information Transmission, 4(1), 61-66.

Mason, M. A. & Gibbs, J. T. (1992). Patterns of adolescent psychiatric hospitalization: implications for social policy. American Journal of Orthopsychiatry, 62(3), 447-457.

McCabe, K. M., Yeh, M., Lau, A., Garland, A., & Hough, R. (2003). Racial/ethnic differences in caregiver strain and perceived social support among parents of youth with emotional and behavioral problems. Mental Health Services Research, 5(3), 137-147.

Mechanic, D. (1999). Mental health and social policy: The emergence of managed care (4th ed.). Boston: Allyn and Bacon.

Menard, S. (2002). Applied logistic regression analysis, 2nd ed. Sage university papers series on quantitative applications in the social sciences, 07-106. Thousand Oaks, CA: Sage.

Mercer Government Human Services Consulting. (2004). Risk adjusted group analysis and case rate development for children and adolescents: State of Indiana, Division of Mental Health and Addiction, Family and Social Services Administration. Phoenix: Author.

Mertler, C. A. & Vannatta, R. A. (2005). Advanced and multivariate statistical methods: Practical application and interpretation (3rd ed.). Glendale, CA: Pyrczak Publishing.

Morrison, D. F. (1976). Multivariate statistical methods (2nd ed.). New York: McGraw-Hill.

Morrissey, J. P. (1992). An interorganizational network approach to evaluating children's mental heath service systems. In L. Bickman & D.J. Rog (Eds.) Evaluating mental health services for children (pp. 85-98). San Francisco: Jossey-Bass Publishers.

Mellard, D. & Seybert, L. (1996). Voices about school suspension, expulsion, and safety. Lawrence, KS: Center for Research on Learning. (ERIC Document Reproduction Service No. ED403639)

Myaard, M. J., Crawford, C., Jackson, M., & Alessi, G. (2000). Applying behavior analysis within the wraparound process: A multiple baseline study. Journal of Emotional and Behavioral Disorders, 8(4), 216-229.

Newman, F. L., McGrew, J. Anderson, J., Vanderwater-Piercy, K. & Members of the HAPI-C Advisory Committee. (2001). Hoosier Assurance Plan Instrument for Children and Adolescents (HAPI-C) scoring instructions. Indianapolis, IN: DMHA.

Newman, F. L., McGrew, J. H., DeLiberty, R. N., Anderson, J. A., Smith, T., & Griss, M. E. (2002). Psychometric properties of the HAPI-Child: An instrument developed to determine service eligibility and level of functioning in a state mental health and substance abuse service system. Indianapolis, IN: DMHA. Retrieved July 2, 2003 from http://www.in.gov/fssa/servicemental/pdf/HAPI-Child.pdf

Nicol, A. M. & Pexman, P. M. (1999). Presenting your findings. Washington, DC: American Psychological Association.

Pavkov, T. W. (2004). Indiana local system of care assessment project: Executive summary. Hammond: Purdue University Calumet.

Pavkov, T. W., Greenwald, E., Walton, B., & Newton-Curran, P. (2004, March). Indiana local systems of care assessment project. Paper presented at the 17th Annual Research Conference: A System of Care for Children's Mental Health: Expanding the Research Base, Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Pavkov, T. W., Greenwald, L., Wright, E. R., & Kooreman, H. E. (2005). Center for Mental Health Services System of Care Initiatives in the State of Indiana: Circle Around Families of Lake County Indiana and Dawn Project of Marion County Indiana. Hammond: Purdue University Calumet.

Petr, C. G., & Spano, R. N. (1990). Evolution of social services for children with emotional disorders. Social Work, 35(3), 236-242.

Phelps, C. E. (1997). Health economics. New York: Addison-Wesley.

Philips, J. (2002). An account of child mental health activities with the Division of Mental Health and Addiction. Unpublished manuscript.

Pinderhuges, E. E., Lengua, L. J., Greenberg, M. T. & Cole, J. D. (1999). Predicting developmental outcomes at school entry using a multiple-risk model: Four American communities. Developmental Psychology, 35(2), 403-417.

Pires, S. A. (2002). Building Systems of Care: A Primer. Washington, DC: Human Services Collaboration.

Polit, D. F. (1996). Data analysis and statistics for nursing research. Stamford, CT: Appleton & Lange.

Pottick, K., Hansell, S., Gutterman, E. & White, H. R. (1995). Factors associated with inpatient and outpatient treatment for children and adolescents with serious mental illness. Journal of the American Academy of Child and Adolescent Psychiatry, 34(4), 425-433.

President's New Freedom Commission on Mental Health. (2002). Interim Report of the President's New Freedom Commission on Mental Health. Retrieved April 15, 2003 from www.MentalHealthCommission.gov

President's New Freedom Commission on Mental Health. (2003). Final Report to the President. Mental Health Commission. Retrieved August 4, 2003 from www.MentalHealthCommission.gov

Presmanes, W. S. (2005/October). Requirements and methods to support the shift from a subjective-based DSM-IV Axis V --GAF. Presentation at the Center for Behavioral Health, Bloomington, IN.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. American Psychologist, 47(9), 1102-1114.

Quinn, K. P. & Epstein, M. H. (1998). Characteristics of children, youth, and families served by local interagency systems of care. In Epstein, M. H., Kutash, K. & Duchnowski, A., Ed. Outcomes for Children and Youth with Emotional and Behavioral Disorders and Their Families. Austin, TX: Pro-ed.

Rand Health. (2001). Mental health care for youth: Who gets it? How much does it cost? Who pays? Where does the money go? Retrieved June 28, 2002 from http://www.rand.org/publications/RB/RB4541/

Rawal, P., Romansky, J., Jenuwine, M., & Lyons, J. S. (2004). Racial differences in the mental health needs and service utilization of youth in the juvenile justice system. The Journal of Behavioral Health Services & Research, 31(3), 242-254.

Rogers, E. M. (1962). Diffusion of Innovations. New York: Free Press.

Rogers, E. M. (1983). Diffusion of Innovation (3rd ed.). New York: Free Press.

Rogers, E. M. (1995) Diffusion of Innovations (4th ed.). New York: Free Press.

Rogers, E. M. (2003). Diffusion of Innovations (5th ed.). New York: Free Press.

Rogers, E. M. & Scott, K. (1997). The diffusion of innovations model and outreach from the National Network of Libraries of Medicine to Native American Communities. Retrieved May 25, 2003 from http://nnlm.gov/pnr/eval/rogers.html

Rogers, K. N., & Shelton, T. L. (2005). Family empowerment as a mediator between family-centered care and changes in child functioning: Identifying an important mechanism of change. Presentation at the 18th Annual Research Conference, A System of Care of Children's Mental Health: Expanding the Research Base, March 8, 2005. Tampa, FL: Louise de la Parte Florida Mental Health Institute, University of South Florida.

Rosen, L., Heckman, M., Carro, M., & Burchard, J. (1994). Satisfaction, involvement, and unconditional care: The perceptions of children and adolescents receiving wraparound services. Journal of Child and Family Studies 3, 5-67.

Rosenblatt, A. (1998). Assessing the child and family outcomes of systems of care for youth with serious emotional disturbance. In M. Epstein, K. Kutash, & A. Duchnowski (Eds.), Outcomes for children and youth with behavioral and emotional disorders and their families (pp. 329-362). Austin, TX: PRO-ED.

Rosenblatt, A. & Woodbridge, M. W. (2003). Deconstructing research on systems of care for youth with EBD: Frameworks for policy research. Journal of Emotional and Behavioral Disorders 11(1), 27-37.

Rosenblatt, A., Wyman, N., & et al., (1998). Managing what you measure: Creating outcome-driven systems of care for youth with serious emotional disturbances. Journal of Behavioral Health Services & Research, 25(2), 177- 194.

Ryan, B., & Gross, N. C. (1943). The diffusion of hybrid seed corn in two Iowa communities. Rural Sociology, 8, 15-24.

Santos, A. B., Henggeler, S. W., Burns, B. J., Arrana, G. W., & Meisler, N. (1995). Research on field-based services: Models for reform in the delivery of mental health care to populations with complex clinical problems. American Journal of Psychiatry, 152(8), 1111-1233.

Saxe, L., Cross, T., & Silverman, N. (1988). Children's mental health: The gap between what we know and what we do. American Psychologist, 43, 800-808.

Sheskin, D. J. (2000). Handbook of parametric and nonparametric statistical procedures (2nd ed.). NY: Chapman and Hall.

Skiba, R., Rausch, M. K., & Ritter. S. (2004) Discipline is Always Teaching: Effective Alternatives to Zero Tolerance in Indiana's Schools. Education Policy Brief, 2(3), 6.

Skiba, R. J., & Nichols, S. D. (2000). What works in wraparound programming? In M. P. Kluger, G. Alexander, & P. A. Curtis (Eds.), What Works in Child Welfare (pp. 23-29). Washington, DC: Child Welfare League of America.

Smith, M. L., & Glass, G. V. (1977). Meta-analysis of psychotherapy outcomes studies. American Psychologist, 32, 752-760.

Smith, T. B., Oliver, M. N., & Innocenti, M. S. (2001). Parenting stress in families of children with disabilities. American Journal of Orthopsychiatry, 71(2), 257-261.

Snyder, W. & Ooms, T. (Eds.). (2002). Empowering families, helping adolescents: Family-centered treatment of adolescents with alcohol, drug abuse, and mental health problems. Technical Assistance Publication Series, 6. Rockville, MD: U. S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment.

Stein, L. I. & Test, M. A. (1980). Alternative to mental hospital treatment: I. Conceptual model, treatment program, and clinical evaluation. Archives of General Psychiatry, 37(April 1980), 392-397.

Stroul, B. (2002). Issue Brief--Systems of Care: A framework for system reform in children's mental health. Washington, DC: Georgetown University Child Development Center, National Technical Assistance Center for Children's Mental Health.

Stroul, B. (2003). Systems of Care. Presentation at the 3rd Annual Building Systems of Care Conference, Indianapolis, IN, May, 2003.

Stroul, B. & Friedman, R.M.(1986a). A system of care for severely emotionally disturbed children and youth. Tampa: University of South Florida, Florida Mental Health Institute.

Stroul, B. & Friedman, R. M. (1986b). A System of Care for Children & Youth with Severe Emotional Disturbances . Washington, DC. CASSSP Technical Assistance Center, Center for Child Health and Mental Health Policy, Georgetown University Child Development Center.

Summerfelt, W. T., Foster, E. M., & Saunders, R. C. (1996). Mental health services utilization in a children's mental health managed care demonstration. The Journal of Mental Health Administration, 23(1), 80-91.

Suter, J., Force, M., Bruns, E., Leverentz-Brady, Burchard, J., & Mehrtens, K. (2003). Wraparound Fidelity Index 3.0: Manual for training, administration, and scoring of the WFI 3.0. Burlington, VT: University of Vermont.

Sutton, S. (2001). Back to the drawing board? A review of the applications of the transtheoretical model to substance use. Addiction, 96(1), 175-187.

Tarde, G. (1903). The Laws of Imitation (E. C. Parsons, Trans.). New York: Henry, Hold and Co.

Task Force on Promotion and Dissemination of Psychological Procedures. (1995). Training in and dissemination of empirically-validated psychosocial treatments: Report and recommendations. The Clinical Psychologist, 63, 688-701.

The National Advisory Mental Health Council Workgroup on Child and Adolescent Mental Health Development and Deployment. (2001). Blueprint for Change: Research on Child and Adolescent Mental Health. Washington, DC: National Institute of Mental Health.

Thomas, W. & Thomas, D. (1928). The Child in America: Behavioral Problems and Programs. New York: Alfred A. Knopf.

United States Department of Health and Human Services. (1999). Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Mental Health.

United States Department of Health and Human Services. (2001a). Culture, Race, and Ethnicity: A supplement to Mental Health: A Report of the Surgeon General. Washington, DC: Author.

United States Department of Health and Human Services. (2001b). Healthy People 2010: Understanding and Improving Health. Washington, DC: Author.

United States Department of Health and Human Services. (2001c, January 27, 2002). Surgeon General releases a national action agenda on children's mental health. Retrieved February 6, 2002, from www.nih.gov/news/pr/jan2001/sg=03.htm

United States Department of Health and Human Services. (2004).General findings from the federal child and family services review. Retrieved May 31, 2005, from http:www.acf.hhs.gov/programs/cb/cwrp/results/statefindings/genfindings04/ch1.htm

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(5), 7-21.

Walker, J. S., Koroloff, N., & Schutte, K. (2003). Implementing high-quality collaborative individualized services/support planning: Necessary conditions. Portland: Portland State University.

Walrath, C. M., Petras, H.,, Mandell, D. S., Stephens, R. L., Holden, E. W., & Leaf, P. J. (2004). Gender differences in patterns of risk factors among children receiving mental health services: Latent class analyses. The Journal of Behavioral Health Services & Research, 31(3), 297-311.

Walton, B. (2003a). "SOC" systems of care field. Indianapolis, IN: DMHA.

Walton, B. (2003b, June). Substance abuse treatment for youth in Indiana. Presentation at the Indiana Juvenile Judges' Symposium in Columbus, IN.

Walton, B. & Barton, W. (2003). Wrapping services and support around children and families: The development of systems of care in Indiana. Unpublished paper.

Walton, B., Bisbee, J., & Carlson, J. R. (2005). Screening, assessing & treating the mental health issues of children in child welfare: A collaborative PIP initiative. Presentation at the Finding Better Ways Conference: Addressing the Mental Health Needs of Children, Youth, and Families, Child Welfare League of America. New Orleans, May 2, 2005.

Weinbach, R. W. & Grinnell, R. M., Jr. (2001). Statistics for social workers (5th ed.). Boston: Allyn and Bacon.

Weiss, C. H. (1995). Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. In J. P. Connell, A. C. Kubisch, L. B. Schorr, & C. H. Weiss (Eds.), New Approaches to Evaluating Community Initiatives: Concepts, Methods, and Contexts (Vol. 1, pp. 65-92). New York: The Aspen Institute.

Weisz, J., Donenberg, G. R., Han, S. S. & Weiss, B. (1995). Bridging the gap between laboratory and clinic in child and adolescent psychotherapy. Journal of Consulting and Clinical Psychology, 63(5), 688-701.

Winick, C. (1961).The diffusion of innovation among physicians in a large city. Sociometry, 24(4), 384-396.

Wright, E. R. & Anderson, J. (September, 2005). Sixth annual evaluation briefing of the Dawn Project evaluation study. Indianapolis, IN: Indiana Consortium for Mental Health Services Research.

Wright, E. R. & Kooreman, H. E. (September, 2005). Impact of the Dawn Project on families. Indianapolis, IN: Indiana Consortium for Mental Health Services Research.

Wright, E. R., Kooreman, H. E., & Anderson, J. A. (September, 2005). Predicting success in a system of care. Indianapolis, IN: Indiana Consortium for Mental Health Research.

Wright, E. R. & Lawson, A. H. (2006). Child welfare mental health screening initiative: Evaluation progress report, December 2005. Indianapolis: Center for Urban Policy and the Environment, School of Public and Environmental Affairs.

Yeh, M., Hough, R. L., McCabe, K., Lau, A., & Garland, A. (2004). Parental beliefs about the causes of child problems: Exploring racial/ethnic patterns. Journal of the American Academy of Child and Adolescent Psychiatry, 43(5), 605-612.

Yoe, J. T., Santarcangelo, S., Atkins, M., & Burchard, J. D. (1996). Wraparound care in Vermont: Program development, implementation, and evaluation of a statewide system of individualized services. Journal of Child and Family Studies, 5(1), 23-39.

Curriculum Vitae

Betty Walton

Education

Indiana University Indianapolis, Indiana	PhD	2006	Major: Social Work Minor: Public and Environmental Affairs
The University of Iowa Iowa City, Iowa	MSW	1973	Social Work
University of Illinois Champaign, Illinois	BA	1971	Major: Sociology Minors: Psychology & Social Work
Southeastern Illinois College Harrisburg, Illinois	AA	1969	Liberal Arts

Honors

Indiana University, University Fellowship, 1999, *Espirit*, 1999 & 2003, Spirit of Inquiry Awards, Indiana University, School of Social Work, Ph.D. Program
University of Illinois, High Honors in Liberal Arts and Sciences with Distinction in Sociology, 1973, Bronze Tablet, (upper 2% of graduating class) 1973

Professional Experience

Position Title	Employer	Dates
Consultant Indiana Family & Social Service Administration Division of Mental Health & Addiction	Indiana University School of Social Work Indianapolis, IN	2001-present time
Adjunct Faculty	IU School of Social Work Bloomington, IN	Spring 2004
Teacher/Practitioner Larue Carter Hospital	Indiana University School of Social Work Indianapolis, Indiana	2000-2001
Manager, Morgan County	Center for Behavioral Health Bloomington, Indiana	1991-2000
Manager Service Delivery System	Fairfield Family Counseling Center Lancaster, Ohio	1977-1988

Satellite Manager	Grant Blackford Mental Health, Inc. Marion, Indiana	1976-1977
Caseworker I and II	Family and Children's Service Evansville, Indiana	1973-1976

Professional Associations
Academy of Certified Social Workers
National Association of Social Workers
Society for Social Work and Research
Phi Beta Kappa

Research

Predictors of Improvement for Children Served in Developing Systems of Care, 2004 - 2006. My dissertation study compares outcomes for children with serious emotional disturbances who are served through system of care with a matched sample of children who are receiving usual public mental health services. It is hypothesized that the level of development of the system of care, the degree to which essential elements and principles (Pires, 2002) have been incorporated into the service delivery system (Effland, McIntyre, & Walton, 2004) and availability of a comprehensive array of services (Pavkov, Greenwald, Walton & Newton-Curran, 2004) is associated with outcomes. A series of logistic regression models were used to analyze data from of Indiana's public mental health database.

Early Intervention and Intervention Initiative, 2003 - 2006. Ongoing evaluation of a new screening, assessment, and treatment of children in the child welfare system for behavioral health needs is being completed in partnership with IU and a formal Memorandum of Understanding between four state agencies within the Indiana Family and Social Service Administration: Division of Family and Children, Division of Mental Health and Addiction, Office of Medicaid Policy and Planning, and Division of Technology Services. Findings are used to improve program implementation and services for children and their families.

LaRue Carter Hospital Outcome Study, 2001. The study compared sustained improvements in functioning for adults with serious mental illness who had participated in transitional services with adults who were discharged from a state hospital without participating in transitional services. Findings suggested a trend in that individuals who had participated in a psychosocial rehabilitation program (PSR) were functioning better in the community than individuals who did not particpate in PSR. Valuable insight was gained about the feasibility and practical issues associated with implementing an outcome study in this clinical setting, a part of a larger continuum of care. Issues related to the process of transitioning from a state hospital to community based care were magnified in the study's process.

Presentations

Effland, V., McIntyre, J., & Walton, B. (2004, March 1). *Using change theories to assess systems of care development.* Paper presented at the 17th Annual Research Conference: A System of Care for Children's Mental Health: Expanding the Research Base, Tampa, FL.

Pavkov, T., Greenbaum, E., & Walton, B. (2004, March 1). *Indiana local systems of care assessment project.* Paper presented at the 17th Annual Research Conference: A System of Care for Children's Mental Health: Expanding the Research Base, Tampa, FL.

Shearer, C. & Walton, B. (2003, October 9). *Top 5 emerging mental health issues.* Paper presented at the NASW-Indiana Chapter Annual State Conference, Indianapolis, IN.

Walton, B. A. (2003, November). *Integration of research, technical assistance, policy, local partnerships, and a waiver: Building community based services for children with serious emotional disturbances.* Paper presented at the 20th National Home and Community Based Services Waiver Conference, Milwaukee, WI.

Walton, B. (2003, June). *Substance abuse treatment for youth in Indiana.* Presentation at the Indiana Juvenile Judges' Symposium, Columbus, IN.

Walton, B. A. (2003, February). *Indiana's child service initiatives*. Presentation at the Indiana Consortium for Mental Health Services Research, Intensive Weekend Workshop. Indianapolis, IN.

Walton, B. A. (2003, January 16). *Wrapping services and support around children and families: Fidelity of systems of care in Indiana*. Poster presented at the 7th Annual Conference of the Society for Social Work and Research, Building a Scientific Base for Action, Washington, DC.

Walton, B. A. (2002, October). *Wrapping services around children and families: Early development of systems of care in Indiana*. Poster presentation at the National Association of Social Workers, Indiana Chapter, 2002 Annual State Conference, Indianapolis, IN.

Walton, B. A. (2002, March 14). *Bridging practice and social work education to address doctoral issues*. Poster presented at the Biennial Midwest Social Work Education Conference, Indianapolis, IN.

Walton, B. A. (2001, April 6). *Larue Carter outcome study*. Poster presentation at the spring symposium, Fifth Annual Ph.D. Spring Symposium, Indiana University School of Social Work, Indianapolis, IN.

Walton, B. A. (2000, July 19). *The use of outcomes analysis in policy decisions: Cost of community-based care for seriously mentally ill adults recently discharged from state hospitals*. Poster presentation at NIMH National Conference, 2000, "Challenges for the 21st Century, Mental Health Services Research", National Institute of Mental Health, Washington, DC.

Walton, B. A. (2000, April 14). *Using health outcomes research in shaping social policy: Implications for mental health capitation of community based costs for the severely mentally ill.* Poster presented at the Fourth Annual Ph.D. Spring Research Symposium, Indiana University School of Social Work, Indianapolis, IN.

Walton, B. A. (1998, April 28). *Community based interventions for seriously emotionally disturbed youth from multiple problem families*. Poster presented at a symposium, Second Annual Ph.D. Spring Research Symposium, Indiana School of Social Work, Indianapolis, IN.

Walton, B. A. (1994, July 26). *Meeting today's challenges managing a rural mental health center*. Paper presented at a conference, Celebrating Rural Resourcefulness: Making a Little Into a Lot, 19th National Institute Social and Human Services in Rural Areas, Castleton, VT.

Walton, B. A. & Barton, W. H. (2003, January). *Wrapping services and support around children and families: Fidelity of systems of care in Indiana.* Poster presentation at the Society for Social Work and Research 7th Annual Conference, Washington, DC.

Walton, B., Bisbee, J., & Carlson, J. R. (2005, March). *Screening, assessing & treating the mental health issues of children in child welfare: A collaborative PIP initiative.* Presentation at the Finding Better Ways Conference: Addressing the Mental Health Needs of Children, Youth, and Families, Child Welfare League of America, New Orleans, May 2, 2005.

Walton, B. A. & Effland, V. S. (2003, March). *Back home in Indiana: Wrapping services and support around children and families*. Poster presentation at the 16th Annual Research Conference, A System of Care for Children's Mental Health: Expanding the Research Base, Tampa, FL.

Walton, B. A. & Wright, E. (2006, February). *Screening, Assessing and Treating the Mental Health Issues of Children within the Child Welfare System.* Presentation at the 16th Annual Conference on State Mental Health Agency Service, Research, Program Evaluation and Policy, Baltimore, MD.

Publications

Effland, V.S., Walton, B., & McIntyre, J. (2005). Using change theories to assess systems of care development. In C. Newman, C. Liberton, K. Kutash, & R. Friedman (Eds.), *The 17th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base* (pp. 15-18). Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Walton, B. A. & Bisbee, J. A. (2006). Screening, assessing, and treating the mental health needs of children in child welfare: A cross system initiative. In C. Newman, C. Liberton, K. Kutash, & R. M. Friedman (Eds.), *The 18th Annual Research Conference Proceedings: A System of Care for Children's Mental Health: Expanding the Research Base* (pp. 193-196). Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, Research and Training Center for Children's Mental Health.

Service and Grant Highlights

- Facilitating implementation of comprehensive assessment and outcome quality management processes related to child behavioral health services in Indiana's child service systems, 2005-2006
- Facilitating Indiana cross-system early identification and intervention initiative for children in the child welfare system with behavioral health needs with participation in the Georgetown University Child Development Center Policy Academy, 2003-2006
- Facilitated task force and Indiana application for Home and Community Based Service Medicaid 1915(c) Medicaid Waiver for Children with Serious Emotional Disturbance, submitted to Centers for Medicare and Medicaid which was approved effective February 2004
- State DMHA partner in development of Indiana's systems of care for children and families, 2000-2004
- Obtained $395,405 grant from U. S. Department of Housing and Urban Development, McKinney Funds to build 9-unit apartment building with supportive services for severely mentally adults (operational funding for three years), Martinsville, IN
- Obtained and administered $150,000 grant from Indiana Department of Corrections to fund wraparound services over three years to families for whom no other funding exists, Martinsville, IN
- Obtained and implemented $40,000 research grant to implement and study drug prevention services for youth identified as emotionally handicapped by the school system, Martinsville, IN

- Obtained grant from U. S. Department of Housing and Urban Development, Section 201 Funds, to build 8 unit apartment building for adults with severe and persistent mental illness in Lancaster, OH
- Established satellite mental health center office, Hartford City, IN

Community Service

Board Member, 2005 – 2006
Indiana Juvenile Justice Task Force
1800 N. Meridian Street
Indianapolis, IN 46202

Community Corrections Board, Morgan County
Member, 1992- 2000
Martinsville, IN 46158