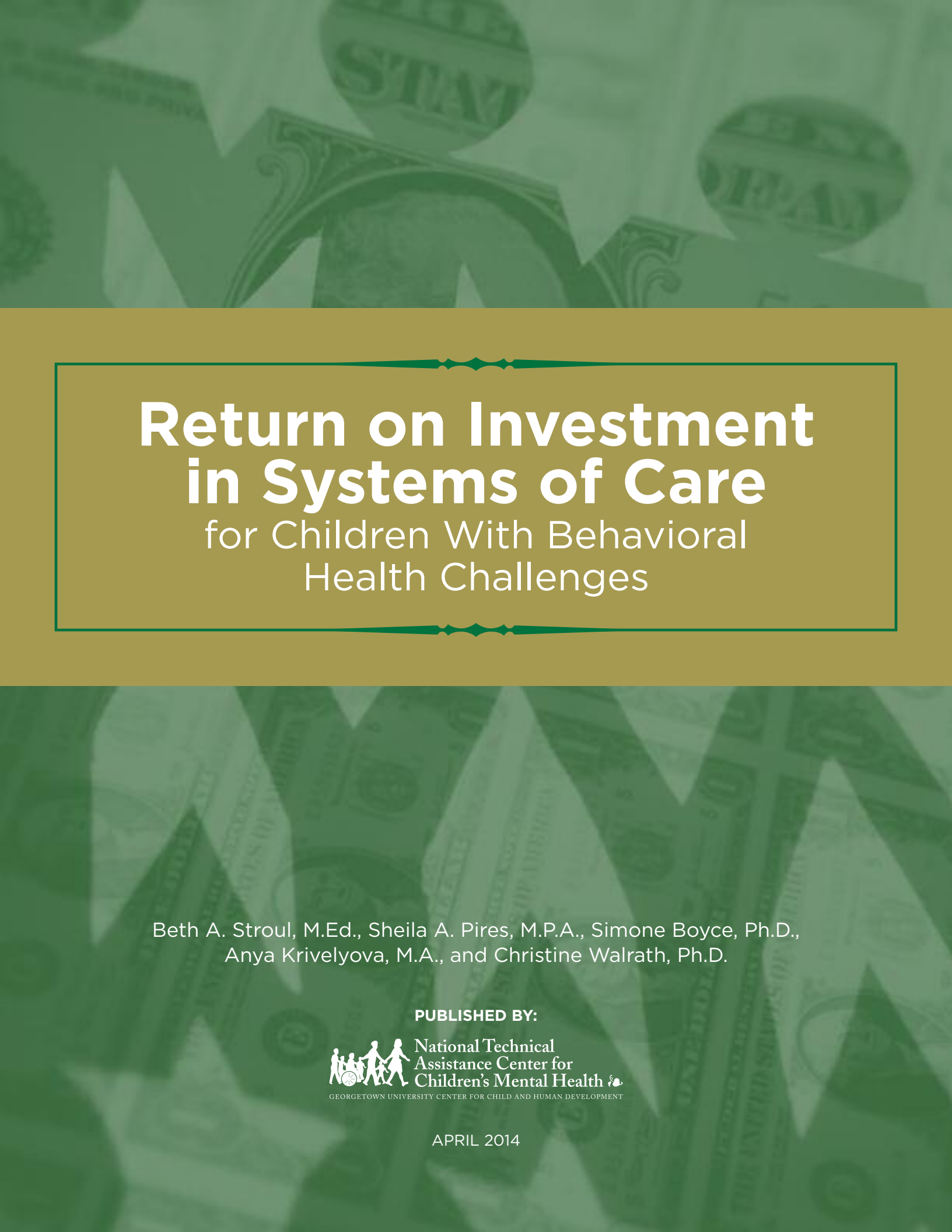

Return on Investment in Systems of Care

for Children With Behavioral Health Challenges

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CONTENTS

Executive Summary v

Introduction 1

Exploring Investment in Systems of Care 3
- Why Systems of Care? 3
- The System of Care Approach 5
- System of Care Outcomes 7
- Cost Implications of Systems of Care 7

Highlights of Cost Savings From State and Local Systems of Care 9

Assessing Return on Investment 19
- Challenges 19
- Related Resources 21
  - Washington State Institute for Public Policy (WSIPP) 22
  - The Finance Project: Social Return on Investment 22
- Conclusion and Recommendations to Support Analyses of ROI in Systems of Care 23

Appendix: Full Descriptions of Analyses of Return on Investment in Systems of Care 27
- Multi-Site Analyses 27
  - Children's Mental Health Initiative (CMHI) National Evaluation 27
  - Psychiatric Residential Treatment Facility (PRTF) Medicaid Demonstration Waiver Evaluation 32
- State and Community Examples 36
  - California: Los Angeles 36
  - Choices (Indiana, Maryland, Washington, DC, Florida, and Louisiana) 37
  - Georgia 39
  - Maine: THRIVE System of Care 39
  - Maine: Wraparound Maine 40
  - Maryland 41
  - Massachusetts: Children's Behavioral Health Initiative 43
  - Massachusetts: Mental Health Services Program for Youth (MHSPY) 45
  - Nebraska 46
  - New Jersey 48

New York: Monroe County....48
North Carolina: Durham County....49
Oklahoma....50
Pennsylvania....52
Wraparound Milwaukee....52

Projected Cost Savings....54
Colorado: Projected Cost Avoidance Through Early Intervention....54
Texas: Projected Cost Savings From System of Care Implementation....57

References....59

EXECUTIVE SUMMARY

THE LANDSCAPE FOR THE ORGANIZATION AND FINANCING OF BEHAVIORAL health services for children and adolescents is rapidly shifting in the United States as a result of state and local budgetary pressures, large-scale Medicaid redesign initiatives in states, and opportunities and challenges posed by national health reform. Increasing attention to the importance of behavioral health care within the larger health care arena and among other child-serving systems, such as child welfare and juvenile justice, is also having a substantial impact. State policymakers must make decisions, often quickly, about how to invest public resources for which there are multiple, competing demands. In this context, information on the "return on investment" from particular approaches is critical for informing policy and resource decisions. Return on investment is an assessment that can be derived from comparing the benefit of an investment (or return) with the cost of the investment. Within the current environment of dramatic changes, policymakers need this type of information to guide their decisions on behavioral health services for children, youth, and young adults and their families.

An estimated 20% of children in the United States have a diagnosable mental health condition, and mental health disorders are the most expensive conditions in childhood. Children and youth who receive mental health and substance use services in Medicaid, while less than 10% of the overall Medicaid child population, account for an estimated 38% of all Medicaid child expenditures (Pires, Grimes, Allen, Gilmer, & Mahadevan, 2013). Therefore, states have both quality and cost incentives to implement effective approaches for this population.

For nearly 25 years, the federal Substance Abuse and Mental Health Services Administration (SAMHSA) has invested resources in the development of systems of care for children with behavioral health challenges and their families. Such resources are intended to improve quality and outcomes and control costs. A system of care is an approach to the organization and financing of services for children with behavioral health challenges that is informed by well-tested values and principles. System of care values and principles include a broad array of home- and community-based services and supports, individualized care provided in the least restrictive setting, family and youth involvement, cultural and linguistic competence, cross-system collaboration, customized care management, and accountability.

In 1993, SAMHSA launched the Comprehensive Community Mental Health Services for Children and Their Families Program, commonly referred to as the "Children's Mental Health Initiative" (CMHI). An extensive national evaluation has informed the implementation of the system of care approach and has provided substantial evidence that systems of care work for children and youth who have serious mental health conditions (Stroul, Goldman, Pires, & Manteuffel, 2012). For example, outcomes for children and youth include decreased behavioral and emotional problems, suicide rates, substance use, and juvenile justice involvement, as well as increased strengths, school attendance and grades, and stability of living situation. For families, findings include reduced caregiver strain and improved family functioning. System of care implementation is associated with improvements in service delivery systems, such as an expanded array of home- and community-based services and supports, individualization of services, increased family and youth involvement in services, increased coordination of care across systems, and increased use of evidence-based practices. Given these positive results, SAMHSA has made a commitment to take systems of care to scale and is providing resources to states, tribes, territories, and other jurisdictions to support the widespread expansion of the approach.

In addition to outcome data, there is also a growing body of evidence indicating that the system of care approach is also cost effective and provides an excellent return on investment. The emerging data, mostly obtained from analyses conducted by states and counties themselves, along with several multi-site studies, demonstrate a return on investment that can be quantified in terms of cost savings both currently and in the future. In most cases, net cost savings are derived from reduced use of inpatient psychiatric hospitalization, emergency rooms, residential treatment, and other group care, even when expenditures increase for home- and community-based care and care coordination. Cost savings are also derived from decreased involvement in the juvenile justice system, fewer school failures, and improved family stability, among other positive outcomes.

This report documents what we know to date about the return on investment, specifically cost savings, from systems of care, summarizing data from national studies and from states and communities that have produced this type of information. For example, the national evaluation of the CMHI found that children and youth served with the system of care approach were less likely to receive psychiatric inpatient services (ICF International, 2013). From the 6 months prior to intake to the 12-month follow-up, the average cost per child served for inpatient services decreased by 42%. These youth were less likely to visit an emergency room (ER) for behavioral and/or emotional problems, and, as a result, the average cost per child for ER visits decreased by 57%. These youth were also less likely to be arrested, with the average cost per child for juvenile arrests decreasing by 38%.

Data on other outcomes documented by the national evaluation were "monetized" to derive a financial value (ICF International, 2013). One example is that after 12 months of services in a system of care, 8.6% of youth had dropped out of school, compared with an average of 20% of high school students with mental health challenges nationwide. This result translates into economic gains in average annual earnings and earnings over a lifetime, with an estimated cost savings of 57% per youth.

This document summarizes highlights of cost savings. The appendix of this document, "Full Descriptions of Analyses of Return on Investment in Systems of Care," includes full descriptions of findings from the CMHI national evaluation, other multi-site evaluations, and findings from individual states and communities.

Calculating return on investment is not without challenges. These challenges are addressed in the document, and a number of recommendations are provided to strengthen the capacity of states and communities to produce and use return on investment data related to systems of care and to get existing information into the hands of policymakers. Recommendations for strengthening capacity include developing a guide for states and communities for analyzing return on investment; conducting pilots in selected states; and providing methods for states to estimate costs, expenditures, and financing opportunities. Widespread dissemination of available information on return on investment is recommended, with a particular emphasis on state Medicaid agencies and policymakers across the multiple child-serving agencies that share responsibility for financing and providing children's behavioral health services.

INTRODUCTION

DRAMATIC AND FAR-REACHING CHANGES ARE OCCURRING IN THE FINANCING OF health, mental health, and substance use services. Federal, state, and local governments all face fiscal challenges and pressure to do more with less. In this context, it is essential that policymakers have the information they need to invest public resources in service approaches that are cost effective. To do this well, they need data to assess budget and policy options that will lead to the best investments for recipients of services and taxpayers. Assessment of cost implications, particularly return on investment (ROI), is especially important when innovations in service delivery have been demonstrated and tested and when allocation of resources is being considered to take them to scale.

ROI is a key performance measure that, at its most basic level, can be derived from comparing the benefit of an investment (or return) with the cost of the investment. Typically described in economic terms in the business world, ROI calculations are a means to analyze profits relative to capital invested. When applied to public investments in health and human services, ROI analyses take into account cost savings relative to investments and what is referred to as "social return on investment" (SROI), that is, the social value of investments that can be "monetized" or translated into dollars, such as less involvement with juvenile justice or fewer school dropouts.

The system of care approach was first introduced in the mid-1980s as an innovative framework for improving mental health systems and services for children, youth, and young adults with mental health challenges and their families (Stroul & Friedman, 1996). With strong documentation of positive clinical and functional outcomes for children and families, as well as positive system-level outcomes, the federal Substance Abuse and Mental Health Services Administration (SAMHSA) is currently investing in the widespread expansion of this approach throughout states, tribes, and territories (Stroul et al., 2012). Despite the availability of data on positive outcomes, data on ROI in the system of care approach have been lacking in the literature, and the collection of cost-related information has presented many challenges. However, relevant information can be found in several multi-site studies and in a growing number of reports from states and communities that have implemented the system of care approach.

The purpose of this document is to highlight what is known to date on ROI in the system of care approach, which sheds light on the benefits that can be achieved by investing in the widespread expansion of systems of care. Drawing on multiple sources of policy-relevant data, the document provides information to guide decisions of policymakers and system leaders on how best to invest resources in mental health services for children and youth. Information is presented on how systems of care change service utilization patterns and expenditures to more cost-effective home- and community-based services, what cost savings are achieved in the near term, and what future costs are avoided. In short, the document discusses the benefits of investing in the system of care approach and makes the "business case" for such investments.

EXPLORING INVESTMENT IN SYSTEMS OF CARE

WHY SYSTEMS OF CARE?

Mental health conditions among children and youth are prevalent and are associated with poor outcomes.

An estimated 20% of children in the United States have a diagnosable mental health condition, and about 2% to 5% suffer from a serious mental health disorder that causes substantial impairment in functioning at home, at school, or in the community (U.S. Department of Health and Human Services [HHS], 1999; Friedman, Katz-Leavy, Manderscheid, & Sondheimer, 1998; Perou, 2013; U.S. Public Health Service, 2000). The seriousness of mental health problems for children and youth has been well documented, confirming significant prevalence rates, persistence of these problems over time, and difficulties experienced across many spheres of life (Huang et al., 2005; Institute of Medicine and National Research Council, 2009).

Most mental health disorders have their roots in childhood, with 50% of affected adults manifesting disorders by age 14 and 75% by age 24 (HHS, 1999; Kessler, Chiu, Demier, & Walters, 2005; Institute of Medicine and National Research Council, 2009). These disorders affect children of all ages, every socio-economic status, and every racial and ethnic background. Mental health conditions in children are typically complex, involving multiple problems, multiple diagnoses, and co-occurring disorders. They impact children in different ways throughout their development, from infancy through school years and the transition to adulthood, and affect their functioning at home, in school, and in their communities. Devastating consequences, including poor academic achievement, dropping out of school, substance abuse, involvement with the correctional system, lack of vocational success, inability to live independently, and suicide, often result from serious mental health conditions (Huang et al., 2005; Clark et al., 2008; Cocozza, Skowyra, Burrell, Dollard, & Scales, 2008; Epstein, Nelson, Trout, &

Why invest in systems of care?

- Mental health conditions among children are prevalent and have poor outcomes.
- Children with serious conditions are expensive to serve and incur costs in multiple systems.
- Out-of-home treatment is costly and has little evidence of success.
- Systems of care are designed to better invest resources in cost-effective, home- and community-based services.

Mooney, 2005; National Alliance on Mental Illness [NAMI], 2010; Pullmann et al., 2006; Wagner & Cameto, 2004). Although these problems have been characterized as a public health crisis, approximately 65% to 80% of children with behavioral health disorders do not receive the specialty services and supports they need (President's New Freedom Commission on Mental Health, 2003; U.S. Public Health Service, 2000).

Children and youth with serious mental health conditions are an expensive population to serve.

In addition to high prevalence rates, mental health conditions are the costliest conditions of childhood (Agency for Healthcare Research and Quality [AHRQ] Research Brief #242; Soni, 2009). It has been estimated that providing care to children with serious mental health conditions costs the public around $247 billion annually (Institute of Medicine and National Research Council, 2009). Although the population of children with the most serious and complex mental health conditions is relatively small, costs for these children are disproportionate to the costs of serving all children with mental health conditions. This finding has been attributed to their high utilization of expensive and restrictive treatment in psychiatric inpatient and residential treatment settings, costs that are borne largely by the public sector (Cooper et al., 2008).

A system of care is:

A spectrum of **effective, community-based services and supports** for children and youth with or at risk for mental health and related challenges and their families that is organized into a **coordinated network**, builds meaningful **partnerships with families and youth**, and addresses their **cultural and linguistic needs** in order to help them to **function** better at home, in school, in the community, and throughout life.

For example, an analysis of Medicaid expenditures for over 29 million children found that Medicaid costs for physical and behavioral health services were 5 times higher for children using behavioral health services than for Medicaid children in general. These costs were an average of $8,520 per child per year, compared with $1,729 per child per year. Medicaid costs also were estimated to be as much as 25 times higher for the most expensive 10% of children using behavioral health services whose per child cost to Medicaid averages $48,790 per year. These differences in cost are driven more by behavioral health services than physical health service use, and the largest percentage of expenditures is for residential treatment (Pires, Grimes, Allen, Gilmer, & Mahadevan, 2013).

Children with serious mental health conditions incur costs in multiple child-serving systems.

Estimates of serving children with mental health conditions most often reflect only the costs of mental health treatment in the health sector. However, children with serious and complex mental health conditions are often involved with multiple child-serving systems, including mental health and Medicaid, as well as child welfare, juvenile justice, special education, substance use, early childhood, systems for youth of transition age, and others. As a result,

costs are incurred in these systems as well. In fact, many of these systems expend substantial resources in high-cost services such as residential treatment centers, therapeutic group homes, juvenile correctional facilities, and inpatient psychiatric hospitals. Thus, it can be assumed that the costs of serving these children extend well beyond Medicaid and mental health system expenditures and include the costs of services from these other agencies as well.

Out-of-home placements for treatment of mental health conditions are costly and have little evidence of long-term effectiveness.
The costs for treatment in settings such as inpatient psychiatric hospitals or residential treatment centers are extremely high, while the evidence base for the efficacy of these services is relatively low (Burns, Hoagwood, & Maultsby, 1998; U.S. Public Health Service, 2000). Children with severe and complex mental health conditions experience multiple admissions to inpatient and residential treatment facilities and often have extended lengths of stay in those settings. Many states and communities have prioritized the development of more cost-effective alternatives to treatment in these types of out-of-home facilities.

The system of care approach is intended to achieve positive outcomes for children and families with home- and community-based services.
The system of care approach has been referred to as an "innovation in service delivery" that has focused on improving services and supports for children with serious mental health conditions by moving care to community-based alternatives (Foster, Kelsch, Kamradt, Sosna, & Yang, 2001). A central premise of systems of care is that safety and positive outcomes can be achieved through the increased use of more cost-effective home- and community-based services and supports.

To accomplish this shift toward a greater emphasis and utilization of home- and community-based services, the system of care approach incorporates care coordination models that offer effective ways for states to customize the planning and delivery of services for high-utilizing populations of children. Referred to as "wraparound," this approach has been the primary way that systems of care are operationalized at the child and family level, and there is a growing evidence base documenting its effectiveness in achieving positive outcomes along with cost savings (Bruns & Suter, 2010). Within health reform initiatives, states are testing ways to improve the quality and cost of care for various populations with chronic conditions, often by adopting similar care coordination approaches that are a hallmark of systems of care.

THE SYSTEM OF CARE APPROACH

The system of care concept was first introduced in the mid-1980s in response to the many documented deficiencies in care for children and youth with serious mental health conditions and their families, and the approach has gained broad acceptance in mental health and other child-serving systems (Stroul & Friedman, 1996; Stroul & Blau, 2008; Pires, 2010). Fundamentally, a system of care is a broad spectrum of effective, community-based services

and supports that are supported by an infrastructure and guided by a well-defined philosophy with core values and guiding principles (Stroul, Blau, & Friedman, 2010). The core system of care values of community-based, family-driven, youth-guided, and culturally and linguistically competent services are now widely embraced. The principles call for a broad array of home- and community-based services and supports, individualized care provided in the least restrictive setting, family and youth involvement, cross-system collaboration, care management, and accountability. The system of care concept has resulted in significant changes in service delivery across the country and has been the foundation for national policy as reflected in the recommendations of the Surgeon General's Conference on Children's Mental Health (U.S. Public Health Service, 2000) and the President's New Freedom Commission on Mental Health (2003). System of care principles also are aligned with national health reform efforts to improve the quality and cost of care for populations with significant health challenges (Wotring & Stroul, 2011).

Fundamental to the system of care approach are individualized services that address the unique strengths and needs of each child and family. This principle has been operationalized through the wraparound practice model that is used extensively by systems of care to plan, deliver, coordinate, and monitor services (Bruns, Sather, Pullmann, & Stambaugh, 2011). The wraparound approach entails creating a child and family team specific to each child that includes the child and family, involved providers, and natural supports identified by the family. The team creates a customized service plan that tailors services and supports for the child and family across all life domains. The team continues to meet regularly to monitor progress and make adjustments in services and supports as needed. A dedicated wraparound facilitator or care manager organizes and manages the process, working intensively with the child and family. "High-fidelity wraparound" is a term increasingly used to refer to a process that meets the definition and standards for wraparound developed by the National Wraparound Initiative (Walker, Bruns, & Penn, 2008; http://nwi.pdx.edu/).

Core System of Care Values

- Community Based
- Family Driven, Youth Guided
- Culturally and Linguistically Competent

System of Care Principles

- Broad Array of Effective Services and Supports
- Individualized, Wraparound Practice Approach
- Least Restrictive Setting
- Family and Youth Partnerships
- Service Coordination
- Cross-Agency Collaboration
- Services for Young Children and Their Families
- Services for Youth and Young Adults in Transition to Adulthood
- Linkage With Promotion, Prevention, and Early Identification
- Accountability

In 1993, the Child, Adolescent, and Family Branch of the Center for Mental Health Services in SAMHSA launched the Comprehensive Community Mental Health Services for Children and Their Families Program, commonly referred to as the "Children's Mental Health Initiative" (CMHI). As of Fiscal Year (FY) 2010, the CMHI had funded 173 communities in all 50 states, 21 tribes or

tribal organizations, and 2 territories that have served more than 113,000 children and youth with serious mental health conditions. Extensive evaluation of the CMHI has generated a strong evidence base on the effectiveness of the system of care approach.

SYSTEM OF CARE OUTCOMES

A summary of outcomes published in 2012 synthesized data from the national evaluation of the CMHI over 20 years with other evaluations and studies of system of care implementation in states and communities (Stroul et al., 2012). Outcomes associated with system of care implementation include:

- Improvements in the lives of children and youth, such as decreased behavioral and emotional problems, suicide rates, substance use, and juvenile justice involvement. Systems of care also increase strengths, school attendance and grades, and stability of living situation.
- Improvements in the lives of families, such as reduced caregiver strain and improved family functioning. Families also receive increased education, support services, and peer support.
- Improvements in service delivery systems, such as an expanded array of home- and community-based services and supports, individualization of services, increased family and youth involvement in services, and increased use of evidence-based practices.
- Improvements in the cost and quality of care, including decreased utilization of inpatient and residential services, increased cross-system collaboration, and improved use of Medicaid and other resources.

Systems of care result in:

- Improved lives of children, youth, and families
- Improved service delivery systems
- Improved quality and cost of care

Based on this strong history of demonstrating the effectiveness of this approach, SAMHSA's focus is shifting to expanding and sustaining systems of care throughout states, tribes, territories, and communities so that more children and families can benefit. To assist with this effort, in FY 2011, SAMHSA awarded funds to develop comprehensive strategic plans for widespread expansion of the system of care approach (System of Care Expansion Planning Grants). A year later, SAMHSA began to award 4-year grants to support implementation of these strategic plans to expand the system of care approach broadly (System of Care Expansion Implementation Grants).

COST IMPLICATIONS OF SYSTEMS OF CARE

Although there are substantial data reflecting that systems of care create positive outcomes for children, youth, and families, data on the cost implications of system of care implementation are lacking. Such data, however, would be useful to policymakers and system leaders as they strive to make resource allocation decisions in response to the pressing behavioral health needs among children and families. This guidance is particularly urgent in the context of the

rapid changes in the environmental landscape, such as the implementation of health reform and the redesign of state Medicaid programs. Policymakers are especially interested in cost data when determining how best to invest increasingly limited resources.

Cost information is vital when states and communities assess the benefits of systems of care and make decisions about taking systems of care to scale. In the context of SAMHSA's current focus on expanding systems of care, documenting and sharing information on ROI can have a powerful impact on "making the case" for expansion (Gruttadaro, Markey, & Duckworth, 2009).

Despite the complexity of data collection related to costs and benefits, there are available sources of information on resource investment in systems of care. Data are available through the CMHI national evaluation and other studies, such as the evaluation of the Medicaid Psychiatric Residential Treatment Facility (PRTF) Waiver Demonstration. Some information is also found in the published literature. There are also increasing data on ROI from the many states and communities that have implemented systems of care and have been conducting their own analyses. This information can be found in state and county evaluation reports, quality assurance reports, resource guides, websites, newsletters, presentations, book chapters, and other sources.

To date, information relevant to ROI in systems of care has not been synthesized in an accessible, summary format that is useful for policymakers and system leaders working to improve services and outcomes for children and youth with mental health conditions and their families. To accomplish this synthesis, information was gathered from multiple sources on the cost implications of system of care implementation. Cost savings associated with the implementation of the system of care approach are meaningful only if the outcomes achieved for children and families are positive. **Thus, information was included in this review *only if* the source included data demonstrating positive clinical and functional outcomes for children and families *and* data on cost savings or cost avoidance.** The child and family outcomes data are not detailed in this document. Rather, this document is intended to highlight available information on cost savings and ROI in systems of care. References cited throughout provide data on both clinical and functional outcomes and costs.

HIGHLIGHTS OF COST SAVINGS FROM STATE AND LOCAL SYSTEMS OF CARE

TO EXAMINE ROI IN SYSTEMS OF CARE, DATA WERE reviewed from multiple sources, ranging from published studies to information gathered directly from states and communities that have implemented the system of care approach. The findings on cost savings are summarized in this section and are described in greater detail in the appendix entitled "Full Descriptions of Analyses of Return on Investment in Systems of Care."

Common characteristics of the systems of care:

- Service population of children and youth with serious and complex disorders with priority on those at high risk of out-of-home placement
- Array of home- and community-based treatment services and supports
- Individualized, wraparound approach to service planning and care coordination
- Intensive care management at low ratios
- Goal of diversion and/or return of children from inpatient and residential treatment settings

The systems of care examined share many common characteristics. They serve children and youth with serious and complex mental health conditions (serious emotional disturbances). In most cases, they prioritize children who are at high risk for out-of-home placement in restrictive and costly facilities such as inpatient psychiatric hospitals and residential treatment centers. The systems of care include a broad array of home- and community-based services that may include specific evidence-informed interventions. The wraparound practice approach to service planning and care coordination is a common feature among these systems of care and is typically supported by intensive care management with small ratios of care managers to families. All of the systems of care included in this analysis have a specific goal of diverting children from psychiatric inpatient and residential treatment facilities while, at the same time, achieving positive clinical and functional outcomes through the use of effective home- and community-based services. In some cases, the state or community does not use the term "system of care" to describe its intervention. Nevertheless, if the service delivery approach reflected the common characteristics associated with systems of care, they were included in this review.

States and communities that have implemented the system of care approach have reported changes in service utilization patterns. Such changes have resulted in cost savings for the public systems that serve children with serious mental health conditions and their families. Most frequently, these findings represent cost savings resulting from decreased utilization of

Cost savings result from:

- Decreased use of inpatient psychiatric and residential treatment
- Decreased use of juvenile correction and other out-of-home placements
- Decreased use of physical health services and emergency rooms

inpatient and residential treatment services, based on diversion from admission to these facilities, reduced readmissions, and decreased lengths of stay. Reduced rates of out-of-home events of other types were also found, particularly placements in juvenile justice facilities. Use of physical health services and visits to emergency rooms (ERs) were explored by some systems of care, and reductions in both also yielded cost savings. In several cases, states have projected cost savings based on the implementation of early intervention services or on future implementation of the system of care approach.

COST SAVINGS	REFERENCES
MULTI-SITE ANALYSES	
Children's Mental Health Initiative (CMHI) National Evaluation	
Improved outcomes for children served in CMHI-funded systems of care were translated to cost savings that are reflected in the mental health, child welfare, juvenile justice, and education systems, as well as cost benefits to productivity. • Children and youth were less likely to receive psychiatric inpatient services. From the 6 months prior to intake to the 12-month follow-up, the average cost per child served for inpatient services decreased by 42%. Savings were estimated at more than $37 million when applied to all children served in CMHI-funded systems of care between 2006 and 2013. • Children and youth were less likely to visit an ER for behavioral and/or emotional problems. From the 6 months prior to intake to the 12-month follow-up, the average cost per child for ER visits decreased by 57%. Savings were estimated at nearly $15 million when applied to all children served in CMHI-funded systems of care between 2008 and 2013. • Children and youth were less likely to be arrested. From the 6 months prior to intake to the 12-month follow-up, the average cost per child for juvenile arrests decreased by 38%. Savings were estimated at $10.6 million when applied to all children served in CMHI-funded systems of care between 2006 and 2013. • Children and youth were less likely to repeat a grade. Only 6.3% of children in systems of care for 12 months repeated a grade, compared with 9.6% of American students in the general public. This resulted in a 35% lower cost per child, a potential cost savings of $3.3 million when applied to the 9,244 children aged 14 to 18 enrolled in CMHI-funded systems of care between 2006 and 2013. • Children and youth were less likely to drop out of school. After 12 months of services, 8.6% of youth had dropped out of school, compared with an average of 20% of high school students with mental health challenges nationwide. This result translates into economic gains in average annual earnings and earnings over a lifetime, with an estimated cost savings of 57% per youth. This result also translates into a potential cost savings of over $380 million when extrapolated to all 9,244 youth aged 14 to 18 enrolled in CMHI-funded systems of care between 2006 and 2013. • Caregivers missed fewer days of work due to caring for their children's mental health conditions. A decline in missed days of work translates into an estimated 39% reduction in the average cost of lost productivity. Of caregivers who were unemployed at intake, 21% reported being employed at the 12-month interview.	ICF International, 2013

COST SAVINGS	REFERENCES
This result translates into an estimated 21% reduction in the average cost of unemployment due to a child's mental health condition (a reduction of $10,171 in average cost of unemployment per caregiver) for children served in CMHI-funded systems between 2006 and 2013.	
Psychiatric Residential Treatment Facility (PRTF) Demonstration Waiver Program Evaluation	
The Centers for Medicare and Medicaid Services (CMS) initiated a Medicaid demonstration waiver program in 2005 to provide and test home- and community-based services for children and youth with serious mental health conditions as an alternative to placement in PRTFs. Nine states participated, adopting the system of care approach with an array of services and supports and the wraparound process, and an evaluation assessed both outcomes and costs. • Waiver expenditures on services were found to be substantially less than expenditures on services in PRTFs across all grantees and through all waiver years. All states achieved significant savings in the costs of caring for youth with severe emotional disorders. • For all nine states over the first 3 demonstration years for which cost data were available, there was an average savings of 68%. Waiver services cost only 32% of services provided in PRTFs, with an average per child savings of between $35,500 and $40,000 across the states.	Urdapilleta et al., 2012; HHS, 2013
Wraparound Evaluations	
The wraparound process is the primary approach used in systems of care for service planning and care coordination at the child and family level. A meta-analysis of research and an update in 2010 found studies in multiple sites that document both improved outcomes and reduced costs when wraparound is implemented with fidelity. Examples include the following: • A study of youth in the juvenile justice system found that a group receiving wraparound had 58% fewer days of detention, 57% fewer days served, and lower recidivism rates than a comparison group receiving conventional mental health services. The result was immediate savings to the community. It was estimated that if the approach prevented a lifetime of criminal behavior for just one youth (with lifetime costs of a career criminal estimated at $1.3 to $1.5 million), the cost savings would pay for the program's expenses for all 164 youth served in 1 year (Clark County, WA) • A study found that youth in the wraparound group experienced fewer out-of-home placements and fewer mean days in out-of-home placements than a matched comparison group that had graduated from residential care. Post-graduation costs were also approximately 60% lower than costs for the matched comparison group—$10,737 for the wraparound group, compared with $27,383 for the comparison group (Los Angeles County, CA). • A study showed a net reduction in Medicaid spending of 29%, even though the use of home- and community-based services and targeted case management increased. Expenditures declined from an average annual expenditure of $58,404 before wraparound to $41,873 per youth per year. This decrease was due to a 43% decline in inpatient costs and a 29% decline in residential treatment expenses (Maine). • A study found that youth receiving wraparound had 74% lower inpatient expenses and 32% lower ER expenses than a comparison group. Overall expenditures for the wraparound group were about half of the expenditures for the comparison group, averaging $761 per youth per month for the wraparound group versus $1,573 per youth per month for the comparison group (Mental Health Services Program for Youth, MA).	Bruns & Suter, 2010; Suter & Bruns, 2009

COST SAVINGS	REFERENCES
STATE AND COMMUNITY EXAMPLES	
California: Los Angeles	
• During a follow-up period, youth graduating from a community-based system of care approach with wraparound had significantly fewer subsequent out-of-home placements than youth in a comparison group who graduated from services in a residential treatment setting. As a result, 56% had some type of placement versus 91% of the residential group. Community-based system graduates also experienced significantly fewer days in out-of-home placements. • Youth who were graduates of the community-based system were more likely to be placed in less restrictive settings, such as with foster parents or relatives (77%), whereas the majority of children in the comparison group (70%) were placed in more restrictive settings. • The average post-graduation costs for youth served in the community-based system were nearly 60% less than the costs for the comparison group ($10,737 versus $27,383). Placement costs for the residential treatment group were 2.5 times the cost for the group served with the community-based approach.	Rauso, Ly, Lee, & Jarosz, 2009
Choices (Indiana, Maryland, Washington, DC, Florida, and Louisiana)	
• Systems of care in five states resulted in high levels of diversion and return from residential treatment—a 99% diversion rate and a 70% return rate in 2013. • Savings were generated of nearly $36,000 per youth served in a Choices system of care versus residential settings per episode of care (2008 to 2010). • The child welfare agency spends 45% less when a youth at risk of entering residential treatment is referred to Choices rather than to residential placement.	Choices, 2011; Effland & Van Deman, 2013; Van Deman, Rotto, & Effland, 2006
Georgia	
• When a system of care approach with wraparound was used, there was an 86% decrease in inpatient hospital utilization for youth in the state's PRTF Waiver Demonstration. For non-waiver youth who also had serious and complex mental health conditions and received similar intensive services, inpatient utilization decreased by 89%. There was a 73% decrease in PRTF stays for waiver youth and a 62% decrease for non-waiver youth. • In FY 2011, the average cost to Medicaid for a youth in a PRTF was $78,406. During involvement in the demonstration, costs declined by 56% to $34,398, an estimated savings of $44,008 annually per youth. • In FY 2012, the average cost for a youth in a juvenile correction facility was $6,998. During involvement in the demonstration, costs declined by 45% to $3,817, yielding an estimated savings of $3,180 per youth. • The system of care approach has decreased the percentage of youth experiencing an out-of-home placement event by half—40% to 20%.	DiMeo-Ediger, Russ, & Rana, 2012
Maine: THRIVE System of Care	
• For children and youth served by the trauma-informed system of care, the use of inpatient mental health services decreased by half, from 18% to 9%. Medicaid inpatient hospital costs decreased by approximately $122,000, yielding a savings of 51%. • Medicaid cost savings of over $450,000 occurred between the period prior to enrolling in the system of care and the period after program involvement, an average savings of $4,436 per child.	Yoe, Goan, & Hornby, 2012

COST SAVINGS	REFERENCES
• The average cost per child per month was reduced by 30% (from $2,452 in the period prior to enrollment, compared with $1,665 in the period after enrollment, an average monthly savings of $787. • Costs associated with visits to the ER decreased by 40%.	
Maine: Wraparound Maine	
• After enrollment in a system of care approach using wraparound, overall mental health expenditures decreased by 28%, compared with the pre-enrollment period, and expenditures for out-of-home treatment declined by 44%. • Overall per child per year expenditures decreased by 28% from an average annual per youth expenditure of $58,404 to $41,873 per youth per year. Inpatient costs declined by 43%, and residential treatment costs declined by 29%. • Overall spending was decreased even though the use of home- and community-based services increased.	Yoe, Ryan, & Bruns, 2011; Maine Department of Health and Human Services, 2011
Maryland	
PRTF Demonstration Waiver • Under the state's PRTF Demonstration Waiver, Medicaid costs (including mental health services and supports, care coordination, physical health, dental, and pharmacy services) were only 35% of the costs of treatment in a residential facility. **Evidence-Based Practices** • Use of evidence-based practices consistent with the system of care approach found savings when youth were diverted from group home to community placements and received an evidence-based intervention. There were average savings of $10,000 per youth using Multisystemic Therapy (MST) and $19,000 per youth using Functional Family Therapy (FFT). These findings are considered an underestimate of savings because MST and FFT interventions were shorter than the length of placement in group homes. • More were projected based on additional savings for each youth who remained in the community after the evidence-based intervention. They were also projected based on the economic benefit from improved outcomes (e.g., decreased reoffending that decreased costs to the juvenile justice system and increased the likelihood of youth contributing to society through productivity and employment). **ER Diversion** • An ER diversion project was undertaken in Baltimore. Its purpose was to move psychiatric care from ERs and inpatient settings to community-based settings consistent with the system of care approach and to better allocate limited mental health resources. Median per child costs were almost $600 lower in the first 3 months after enrollment, compared with the 3 months prior to enrollment. There were also lower rates of psychiatric inpatient and ER use after discharge. Comparison with a matched sample suggested a savings of $4,190 per child from expected costs.	State of Maryland, 2011; University of Maryland School of Social Work, 2013a, 2103b
Massachusetts: Children's Behavioral Health Initiative (CBHI)	
• From 2009 to 2012, there was a steady downward trend in the percentage of youth hospitalized (a 32% reduction) and in the number of days spent in the hospital (a 30% reduction). This trend corresponds to the implementation of the system of care approach with new home- and community-based services and care coordination using a wraparound approach. Prior to the inception of the CBHI, the rate of hospitalization appeared to have been increasing.	Massachusetts Attorney General, 2013; Massachusetts Attorney General, 2012

COST SAVINGS	REFERENCES
Massachusetts: Children's Behavioral Health Initiative (CBHI) continued	
• From FYs 2009 to 2012, per member per month expenditures on inpatient services decreased by more than 40% (from 27% to 16%), and expenditures for intensive community-based services increased. By 2012, intensive community-based services constituted the largest portion of Medicaid spending. • There has been a decline in the use of ERs for youth with behavioral health conditions; 56% of encounters occurred in a community location rather than in an ER. This decline in ER use was attributed to the availability of mobile crisis intervention services.	
Massachusetts: Mental Health Services Program for Youth (MHSPY)	
• Data from 1998 to 2007 indicated that the vast majority of days for MHSPY enrollees were spent at home, with an increase over time and a corresponding reduction in hospitalization and residential treatment. • Additionally, enrollees' days spent in placements not covered by insurance and not included in the MHSPY benefit (foster care, long-term residential treatment, group home, detention, jail, secure treatment, and boot camp) were reduced by 50%. • A prospective analysis over 10 years found that intervention youth were consistently maintained in least restrictive settings, with over 88% of days spent at home. • The intervention group used lower intensity services and had substantially lower claims expense than matched counterparts in "usual care." The average total costs of MHSPY (including medical, mental health, and wraparound care coordination costs) were far below costs for the comparison group. The MHSPY costs were 50% to 60% less than the costs of serving youth in more restrictive settings (that did not include the costs of medical or wraparound services included in MHSPY's costs). • Total per member per month claims expense (including pediatric inpatient, ambulatory pediatric, ER, pharmacy, and inpatient and outpatient mental health) was less than half for the intervention group than claims for the matched group in usual care ($761 per youth per month versus $1,573 per youth per month). For example, claims were 32% lower for ER use and 73% lower for inpatient psychiatric services. • The intervention group was more psychiatrically impaired than the comparison group, suggesting that these findings may underestimate the actual cost savings from the system of care.	Grimes, Schulz, Cohen, Mullin, Lehar, & Tien, 2011; Grimes, Kapunan, & Mullin, 2006; Grimes & Mullin, 2006
Nebraska	
• In the Central Nebraska region, the percentage of youth served in group or residential care declined from 36% at enrollment in the system of care to 5% at disenrollment. The percentage in psychiatric hospitals declined from 2.3% to 0% and the percentage in juvenile justice facilities from 7% at enrollment to 0%. The percentage living in the community increased by 46% (41% to 87%). • From 2001 to 2009, the Central Nebraska region successfully returned youth to the community from high levels of care that were provided in restrictive settings outside of the community. These youth were then served with the system of care approach. Savings of $500,000 in 2001 later grew to $900,000. • The average cost per family served with the system of care approach using wraparound was 60% less than the cost of those served through the child welfare or juvenile justice system. • In 2012, 90% of youth at risk of entering child welfare or juvenile justice who were served with the system of care approach by six behavioral health authorities remained with their families. Cost savings for this group of youth who avoided state custody was estimated at nearly $7 million.	Baxter, 2013; Nebraska Behavioral Health Services, Region III, 2000; Stroul et al., 2009

COST SAVINGS	REFERENCES
New Jersey	
• New Jersey reported a savings of $40 million from 2007 to 2010 by reducing the use of acute inpatient psychiatric services through the implementation of the system of care approach statewide. • The residential treatment budget was reduced by 15% during the same time period, and length of stay in residential treatment centers decreased by 25%.	Hancock, 2010; Guenzel, 2012
New York: Monroe County	
• In the first year of implementation of a system of care in Monroe County (Rochester), savings to the county averaged approximately $38,274 per youth, with overall savings estimated conservatively at over $500,000. • In year two, savings per enrollee averaged approximately $45,751, or a total of nearly $1 million.	Levison-Johnson, 2005
North Carolina: Durham	
• After implementation of the system of care approach in Durham County, out-of-home placements declined from 52% to 32% for youth with the most complex needs. • County expenditures decreased for institutional care. Over $3 million was budgeted in 2002, but only $700,000 was expended, and less than $100,000 was expended subsequently on residential treatment. • There was a significant drop in costs related to court-ordered placement from $700,000 to $0 by 2005.	State of North Carolina, 2012
Oklahoma	
A group served with the system of care approach (care management group) was compared with a control group to compare costs for physical health and behavioral health services combined and costs for behavioral health services alone. **Total Charges (Including Inpatient and Outpatient)** • For behavioral health services alone, there was a significantly greater reduction in average total behavioral health charges for the care management group. There was a 41% reduction for the care management group versus a 17% reduction for the control group. • For behavioral health and medical costs combined, there was a 35% reduction in average total charges for the care management group versus a 15% reduction for the control group. **Inpatient** • For behavioral health services alone, average inpatient charges for the care management group declined by 60% versus a 17% reduction for the control group. • For behavioral health and medical costs combined, care management also resulted in a 60% reduction in average inpatient charges, compared with a 17% reduction in average inpatient charges for the control group. **Outpatient** • Average outpatient behavioral health charges increased as desired by 19%, suggesting a substitution of community-based services for inpatient care, whereas outpatient days decreased for the control group by 17%. **Total Per Youth Per Month Charges** • For behavioral health alone, care management resulted in savings of $357 per youth per month during the 12-month intervention period, compared with the	Strech, Harris, & Vetter, 2011

COST SAVINGS	REFERENCES
Oklahoma continued	
control group, and $770 per youth per month for the entire 24-month period. These savings were used to project savings for the entire population of 1,943 moderate to high Medicaid utilization youth. It was estimated that the system of care approach as implemented through care management would have achieved a savings over a 1-year period of between $8,334,938 and $18,162,398 if all youth in the study population had received care management. • For medical and behavioral health services combined, care management resulted in savings of $458 per youth per month during the intervention and savings of $720 per youth per month for the entire 24-month time period, compared with the control group. These savings were used to project savings for the entire population of 1,943 moderate to high Medicaid utilization youth. It was estimated that a savings of between $9,112,402 and $16,777,805 would have been achieved if the entire study population had all received care management over a 1-year period.	
Pennsylvania	
• After implementation of a system of care approach using wraparound, Medicaid claims were decreased by 43% in the 12 months after enrollment, whereas the reduction in costs for the control group was only 20% for the same time period. (The net savings for the wraparound group were lower after adjusting for administrative costs for the wraparound group. However, administrative costs were not estimated for the control group, suggesting that the net savings for the control group would also be lower.) • Savings were greatest for children who had been in residential treatment facilities prior to the initiation of wraparound services—an overall 38% reduction in claims. This finding indicates that the approach is particularly effective for youth using high-cost services such as residential treatment.	Pennsylvania System of Care Partnership, 2012a; 2012b; 2013
Wraparound Milwaukee	
• From 1996 to 2012, Wraparound Milwaukee reduced the use of psychiatric hospitalization for Milwaukee County youth from an average of 5,000 days annually to less than 200 days per year (a 96% decline). Placements in residential treatment centers declined from 375 in 1996 to approximately 90 in 2012 (an 87% decline). • Since its inception, Wraparound Milwaukee has reduced costs by more than 50% (from over $8,000 per child per month to about $3,450 per child per month). Declines in costs are attributed to reduced utilization of inpatient and residential treatment. For example, the percentage of Wraparound Milwaukee enrollees using residential treatment declined between 2010 and 2012 from 25% to 17%. • Data from 2012 documented that Wraparound Milwaukee is less expensive than placement in residential and inpatient settings. Costs of residential treatment were estimated at $9,460 and inpatient services at $39,100 per child per month (or $8,400 for a 7-day stay), compared with the $3,200 per child per month cost of Wraparound Milwaukee. • Nearly every youth at risk of juvenile correctional placement is enrolled in Wraparound Milwaukee; 80% have a diagnosed mental health condition. The average number of youth in correctional facilities from Milwaukee County declined from 250 in 2007 to 142 in 2012; consequently, costs to the county for juvenile correctional placements declined by 37%, nearly $9 million in savings. • Estimates of costs avoided by Milwaukee County since the inception of Wraparound Milwaukee in 1996 were calculated. When Wraparound Milwaukee was	Kamradt, 2013; Kamradt, Gilbertson, & Jefferson, 2008

COST SAVINGS	REFERENCES
initiated, there was an average of 337 youth placed in residential treatment centers. Factoring in modest increases in the number of youth placed and cost increases resulted in a projection of potential expenditures by child welfare and juvenile justice agencies of $85 million from 1996 to 2012 without Wraparound Milwaukee. With Wraparound Milwaukee's system of care, placement costs were only $10 million in 2012, representing a cost avoidance of about $75 million.	
PROJECTED COST SAVINGS	
Colorado: Projected ROI From Investment in Early Intervention	
• An analysis projected potential cost savings and cost avoidance by implementing an early childhood system of care approach (Kid Connects). The analysis focused on four areas of potential future costs that could potentially be averted: (1) mental health care costs, (2) Temporary Assistance for Needy Families (TANF) and Food Stamp costs, (3) high school dropout cost, and (4) child welfare costs. Although this analysis focused on these four areas, it was noted that the future costs of special education, juvenile delinquency, substance use treatment, and adult crime are substantial, and estimates of their future costs were not included. Thus, the findings are an underestimate of the potential savings that can be achieved. • For the analysis, the cost of Kid Connects was "scaled up" as if the system of care served all low-income children ages 0 to 5.25 in Boulder County. A conservative estimate of a 40.6% reduction in the overall budgets for each of the four future expenditure areas specified above was used, based on a specified estimation methodology. • Using this method, it was estimated that the county could avert $4,327,443 in costs, yielding a net savings of $1,927, 443. The ROI would be that for each dollar spent, there would be a return of $1.80. • Although the percentage reduction in future costs was estimated at 40.6%, it was determined that the early childhood system of care would pay for itself if only 12.3% of the future costs in these areas were averted. Any additional savings would make the services yield a positive rate of return.	Gould, 2000; Heilbrunn, 2010
Texas: Projected ROI From Future System of Care Implementation	
• Based on an analysis of the potential cost benefits of systems of care, an estimated $4,142 per month could be saved and reinvested for each child deflected from incarceration. • For each child able to remain in a community foster care placement rather than a residential treatment facility, an estimated $1,790 per month in savings could be realized.	Texas Department of State Health Services, 2011

ASSESSING RETURN ON INVESTMENT

THE DATA SUMMARIZED ABOVE AND DETAILED FURTHER IN THE APPENDIX demonstrate that investing in the system of care approach has great potential to save resources and avoid future costs across child-serving systems. Despite the success of some systems of care in documenting cost savings resulting from improved outcomes, the collection and analysis of cost data have been challenging to the field in several respects. Some of these challenges are described below, followed by recommendations for future efforts to go one step further to systematically assess ROI in systems of care.

CHALLENGES

There are significant complexities to collecting and analyzing costs and ROI. One of the most important challenges for most states is the difficulty in obtaining the resources needed to conduct these analyses, including the time, money, and skilled staff. Lack of resources can limit the ability of states to conduct extensive analyses, particularly during difficult fiscal times (Pew-MacArthur Results First Initiative, 2013). Another common pitfall is the tendency to take a narrow approach by looking only at current spending. For example, current education costs will increase if a state implements interventions to reduce the number of school dropouts. If this were the only indicator used to analyze ROI, the intervention would not appear to be economically beneficial. However, a more complete perspective would identify other benefits: High school graduates are healthier, pay more taxes, and use fewer social services, all of which reduce the ultimate, overall costs to taxpayers. Interventions can also appear less worthwhile if all of the potential benefits to society are not analyzed, even those that cannot be easily "monetized" or translated into a dollar value (Pew-MacArthur Results First Initiative, 2013).

Additional challenges that apply specifically to exploring ROI in systems of care are summarized below:

- **Accounting for differences among systems of care**—By definition, systems of care differ from state to state and community to community based on the particular environment and needs. Although systems of care share a common framework and philosophy, they may serve different populations, offer a different array of services and supports, involve different child-serving agency partners, have different financing strategies, and be at different levels of system of care implementation. Because of these differences, it is challenging to group

them to compare costs or to compare them with communities that may not be defined as systems of care per se, but may have some elements of the system of care approach in place.

- **Determining the cost implications of changes in services**—Data on changes in service utilization patterns often are not translated into the impact on expenditures. For example, decreased utilization of inpatient and residential treatment is a common finding, often accompanied by increases in home- and community-based services. However, many states and communities do not comprehensively capture this shift in services and the resulting cost implications.
- **Obtaining data across child-serving systems**—Services provided within systems of care often avoid costs in other child-serving systems, such as in juvenile justice when recidivism or placements in correctional facilities are decreased. However, some states and communities have had difficulty gathering cross-system data on services and costs.
- **Collecting and analyzing data**—The capabilities of management information systems (MIS) in states and communities vary considerably in both the quality of data and the capacity to collect and analyze data on cost savings, cost avoidance, and other benefits accruing from the system of care approach. In addition, states and communities typically find it difficult to access data sources such as Medicaid for analysis of cost savings. Even where data are available, they often lack the methods and expertise needed for complex cost analyses.
- **Assessing fidelity to the system of care approach**—In order to draw conclusions about cost implications, it is important to ensure that the state or community has implemented the approach with some degree of fidelity. New instruments that operationalize and measure implementation of the system of care philosophy, service array, and infrastructure offer methods to assess the degree to which the system of care approach is in place (Boothroyd, Greenbaum, Wang, Kutash, & Friedman, 2011; Stroul, 2013).
- **Identifying and monetizing benefits from systems of care**—There are benefits to children and families and to society from systems of care that have not been systematically identified. Even when these positive outcomes have been identified, methods to attach costs have been lacking. Therefore, states and communities have been unable to take their analyses to the next level in determining ROI.
- **Calculating costs and cost savings**—There is considerable variation in how researchers, states, and communities calculate the costs associated with services provided within systems of care in terms of which services are included in calculations, how these services are defined, and how cost estimates are derived.
- **Conducting cost studies**—Randomized controlled trials may not be feasible or appropriate for systems of care based on their complexity and dynamic nature, the differences among them in states and communities, their multiple components, the individualized "package" of services received by each child and family, and the multiple levels of the intervention at the system and practice levels. Although some researchers call for this type of methodology for ROI assessments, alternative methods, such as pre-post

and retrospective analyses, modeling, or case studies, may be more consistent with the system of care approach and more appropriate for analyzing cost savings and ROI (Friedman & Israel, 2008).

Some of these challenges are evidenced in an analysis conducted by Foster et al. (2001) that examined service use and expenditures in three systems of care that had received federal funds through the CMHI. The analysis was complicated by substantial differences across sites in (1) the demographics of the populations served, (2) the severity of the mental health conditions and functioning of the children served, (3) the services provided by the systems of care, (4) the services that were included in the calculation of per child costs (e.g., whether residential treatment and inpatient services were paid by the system of care and/or included in the tabulations), and (5) the quality and comparability of MIS data. These challenges were also encountered in an attempt to compare these sites with costs from an evidence-based practice and two other sites, and the extent to which these other sites met the basic parameters of a system of care was not clear.

Another study highlights the importance of capturing service utilization and costs across multiple child-serving systems, particularly juvenile justice, child welfare, and special education. This study examined data from a federally funded system of care and from a comparison community that was described as not having "system integration"; the two communities were not compared on other essential elements of systems of care. Mental health services were found to be more expensive in the "core mental health system" in the system of care. However, the difference in expenditures was reduced substantially when reductions in expenditures in other child-serving systems were factored into the analysis. The system of care approach was also found to be less expensive for youth involved in the juvenile justice system, a finding consistent with other research documenting that improved mental health services within a system of care reduces the risk of juvenile justice involvement (Foster & Connor, 2005; Foster, Qaseem, & Connor, 2004). The authors noted that the next step in the economic analysis of systems of care is the incorporation of analyses of ROI across child-serving systems.

RELATED RESOURCES

Despite the many challenges, the importance of assessing ROI is critical for systems of care, as well as for other health and social service innovations, to ensure good decision-making about the use of limited resources. States and organizations are implementing cost-benefit analyses that expand how benefits are being monetized. In one approach, the analytic horizon of calculating benefits is lengthened to include the immediate cost savings that may result from the intervention and also long-term effects on cost savings. Furthermore, the perspectives from which benefits are calculated include both the benefits for recipients of services and the benefits that accrue to taxpayers. Another approach more heavily involves stakeholders in determining which outcomes to incorporate into the analysis and often how to value those outcomes.

Washington State Institute for Public Policy (WSIPP)

Similar to the approach taken in the national evaluation of the CMHI, WSIPP monetizes outcomes such as crime, high school graduation, special education, mental illness, substance use and abuse, and child abuse and neglect to determine the benefits that accrue from policy change or program implementation. WSIPP uses a life cycle approach of calculating the long-term benefits of policies or programs and captures both the primary and secondary effects of a program to participants, taxpayers, and others in society (e.g., crime victims). For instance, the economic benefits of programs or policies that impact mental health illness are measured not only by long-term health care costs and lifetime labor market earnings, but also by the value of lost household production due to illness. For the prevention of child abuse and neglect, monetary benefits are calculated from cost savings resulting from (1) decreased crime, resulting in lower costs to the criminal justice system and victimization costs; (2) increased high school graduation, resulting in higher earnings and more taxes paid; (3) decreased substance use, resulting in lower health care costs and higher earnings; and (4) decreased depression, resulting in lower health care costs and higher earnings (Washington State Institute for Public Policy, 2013). (See http://www.wsipp.wa.gov/ReportFile/1102/Wsipp_Return-on-Investment-Evidence-Based-Options-to-Improve-Statewide-Outcomes-April-2012-Update_Full-Report.)

WSIPP's method is being more widely disseminated outside of Washington State by Results First, an initiative that was launched in 2010 by The Pew Charitable Trusts and the MacArthur Foundation to help other states guide their investment decisions (Pew-MacArthur Results First Initiative, 2013). Results First offers an array of services to participating states to support their efforts to assess costs and benefits. These services include (1) a standardized approach for valuing benefits and costs based on the WSIPP model, (2) ongoing training and technical assistance to states as they adapt the model to meet their own information needs, (3) opportunities to share information and lessons learned, and (4) quality assurance through in-depth reviews of the approaches developed by the states to ensure the quality and utility of the information produced. As of 2013, 14 states were participating in the initiative to customize the model for analyses of their programs to inform policy and resource decisions.

The Finance Project: Social Return on Investment

Of particular relevance to assessing ROI for systems of care is a method developed by The Finance Project (2013) to measure the value of interventions that provide social, health, and education services to children, youth, and families and to communicate this value to stakeholders and public and private "investors." This methodology is based on the concept of "social return on investment" (SROI). SROI is defined as a principles-based method for measuring value relative to resources invested. The approach includes assessments of social and environmental benefits that typically are not reflected in economic cost-benefit analyses. Financial "proxies" are calculated on these outcomes to determine their value. This information can then be incorporated into determinations of ROI and used to better inform decision-making on resource allocation.

Whereas WSIPP uses meta-analysis of the literature to identify and quantify outcomes impacted by policy or program change, SROI relies more heavily on stakeholders to fill this role. Stakeholders (i.e., beneficiaries) in the system of care realm could include children, families, multiple child-serving agencies, taxpayers, states, and communities. Stakeholders are instrumental in informing which outcomes are essential to the analysis, assessing how much the policy or program has impacted these outcomes. Stakeholders also help contribute to the monetizing of outcomes, particularly for events or conditions that typically are not conceptualized in terms of money.

The Finance Project (2013) adapted the method for community schools and produced a guide that outlines a step-by-step approach to measuring SROI in those schools. Although the guide focuses on community schools, there is substantial relevance to systems of care and other complex system reforms. The guide provides a practical approach to SROI analysis, recognizing the need for a balance between methodological rigor and the realities of available data and resources. The process includes three steps:

- **Step 1: Understand What to Measure**—Includes engaging stakeholders, reviewing and refining a theory of change, and defining the analysis parameters
- **Step 2: Prepare for the SROI Analysis**—Includes determining a sample, identifying outcomes and indicators to be measured, establishing a data collection process (existing and/or new data), collecting outcome and cost data, and developing an impact map
- **Step 3: Model and Calculate the SROI**—Includes determining financial values and proxies, calculating impact, and calculating the SROI

The guide also describes how SROI results can be used to confirm the value of investment in an intervention, to make the case for new investors, and to generate support and buy-in from key stakeholders (http://www.financeproject.org/publications/SROI-Guide.pdf). Another guide to conducting SROI analyses produced by the SROI Network can be found at http://www.thesroinetwork.org/sroi-analysis/the-sroi-guide.

CONCLUSION AND RECOMMENDATIONS TO SUPPORT ANALYSES OF ROI IN SYSTEMS OF CARE

SAMHSA has invested in the development and implementation of the system of care approach in communities across the nation. SAMHSA has also invested in an extensive national evaluation, which has documented the effectiveness of the approach in improving services and outcomes for children, youth, and young adults with mental health challenges and their families. In addition to outcome data, there is a growing evidence base to substantiate that systems of care are cost effective and provide an excellent ROI. The emerging data are mostly derived from analyses conducted by states and communities, along with several multi-site studies, that demonstrate cost savings associated with implementation of the system of care approach.

This document summarizes what is known to date about ROI based on two approaches: calculations of direct cost savings in service delivery for children and youth and monetizing of specific outcomes to derive a financial value. Both approaches yield compelling evidence for the business case for the system of care approach. In most cases, savings are derived from reduced use of inpatient psychiatric hospitalization, emergency rooms, residential treatment, and other group care, even when expenditures increase for home- and community-based care and care coordination. Cost savings are also derived from decreased involvement in the juvenile justice system, fewer school failures, and improved family stability, among other positive outcomes. In short, the evidence indicates that systems of care change service utilization patterns and expenditures to more cost-effective home- and community-based services, yielding cost savings in the near term, as well as avoiding future costs. On the basis of these positive results, SAMHSA is now focusing on strategies to expand systems of care and is supporting states and other jurisdictions to embrace the widespread adoption of the systems of care approach for children and youth with serious mental health disorders and their families.

Given the importance of understanding the business case for investing in the system of care approach, it is important to build capacity in states and other jurisdictions to collect and analyze ROI information. This ROI information should be timely, policy relevant, and easy to interpret and apply to immediate decisions about resource allocation.

The following are recommended activities at the national level to support these efforts:

- **Develop a guide for states and communities for analyzing ROI**—A guide should be developed for states and communities that details, step by step, methods for formulating ROI scenarios from system of care approaches. The guide should incorporate analytic methods that are realistic and feasible for states and communities and should take into account resource constraints (e.g., time, money, and expertise). The pressures facing policymakers to make timely decisions about investments in services should also be recognized in proposed approaches; policymakers need ROI information quickly and without having to expend considerable time or resources. The methods in this guide should build on (1) the work that some states and communities have already done to conceptualize and measure ROI as outlined in this document, (2) the developmental work conducted through the national evaluation of the CMHI, and (3) resources on ROI and SROI developed for similar, complex health and human service interventions.
- **Conduct pilots of ROI analysis in selected states**—The methods included in the ROI guide should be pilot tested in selected states to help them analyze ROI from investing in system of care implementation and expansion. Technical assistance can be provided to participating states through individualized consultation throughout the process. Resource materials, webinars, and opportunities for peer-to-peer exchange and other technical assistance strategies could support their collective work and help system of care stakeholders strategize on the best uses of ROI data within their respective states and localities.

- **Disseminate information on ROI in systems of care**—Widespread dissemination of ROI data is needed across many health and service delivery sectors, including Medicaid managed care organizations, Accountable Care Organization entities emerging in states, and all of the children's systems, such as child welfare, juvenile justice, and education. Given that many of the beneficiaries of systems of care are Medicaid eligible, existing and emerging ROI data from systems of care should be brought to the attention of the CMS. This information could be disseminated by CMS as a follow-up to its May 7, 2013, Informational Bulletin on "Coverage of Behavioral Health Services for Children, Youth, and Young Adults with Significant Mental Health Conditions" (http://medicaid.gov/Federal-Policy-Guidance/Downloads/CIB-05-07-2013.pdf).
- **Reach out to state Medicaid agencies to provide ROI data on systems of care**—Focused outreach to state Medicaid agencies is needed to ensure that leaders and policymakers are aware of ROI data supporting system of care approaches. This outreach is particularly important and timely as state Medicaid agencies are considering approaches to care for children with behavioral health challenges within broader Medicaid redesign initiatives and within implementation of Affordable Care Act options. Affordable Care Act provisions include health homes, 1915(i) State Plan Amendments, and Money Follows the Person. Strategies should be developed and implemented to bring these data to the attention of Medicaid officials through presentations at meetings of state Medicaid directors, through targeted electronic dissemination channels, and the like. ROI data will help state Medicaid agencies to assess the impact of the home- and community-based services that were identified in the 2013 Informational Bulletin.
- **Provide information on the roles of the multiple funders of child and adolescent mental health care**—In most states, the amount of behavioral health dollars controlled by state mental health authorities for child and adolescent behavioral health care is relatively small, unless the mental health authority manages Medicaid match for behavioral health care. In states where the mental health authority does not manage behavioral health Medicaid match, the largest funders of child behavioral health care are the state Medicaid and child welfare agencies. Juvenile justice systems in states and counties can also play a key role in financing behavioral health care. A technical assistance brief illustrating the role played by each of the child-serving systems in financing child and adolescent behavioral health care should be developed for states. The brief should use actual examples from states that have different mental health authority responsibilities for Medicaid. Schools also play an important role in the development and implementation of services, and although their expenditures are difficult to capture, the inclusion of this information is recommended to create a more comprehensive picture of utilization, outcomes, and ROI.
- **Provide methods to analyze Medicaid claims data on child and adolescent behavioral health utilization and expenditures**—Understanding Medicaid utilization and expense is critical to ROI analyses, and a method is needed that is specific to child and adolescent behavioral health. The Center for Health Care Strategies (CHCS) has developed a method

to determine child and adolescent behavioral health patterns of utilization and expense, including use of services and of psychotropic medications. The method incorporates algorithms for both the psychotropic medications and behavioral health services to include in such an analysis, as well as an exhaustive list of Medicaid billing codes (CPT, HCPC, ICD-10, and state-specific codes) to be used for the analysis (Pires, Grimes, Allen, Gilmer, & Mahadevan, 2013). This method could be detailed in a technical assistance brief and an on-line tutorial developed to assist states in conducting their own analyses and interpreting the results.

- **Provide methods to assist states and communities in estimating the costs, current expenditures, and financing opportunities**—Methods for cost and expenditure analyses are needed by states as they continue to expand the system of care approach, as well as a method to identify future financing opportunities. First, reliable methods are needed to help states and communities estimate the costs of the services and supports that are provided within a system of care framework. Although there are challenges in costing these services (described above), there are reliable approaches to address these issues. Guidance and technical assistance to provide a practical approach to this task are essential for analyzing ROI. Second, guidance is needed to assist states in analyzing or mapping current expenditures and in identifying opportunities for redirecting resources or new funding sources to support expansion of the system of care approach. User-friendly guides should be created to assist states in accomplishing these tasks.

APPENDIX
FULL DESCRIPTIONS OF ANALYSES OF RETURN ON INVESTMENT IN SYSTEMS OF CARE

MULTI-SITE ANALYSES

Children's Mental Health Initiative (CMHI) National Evaluation

Since the inception of the CMHI, a national evaluation has been conducted that has included both system-level assessments to track and describe the implementation of the system of care approach and assessments of outcomes at the child and family level. A longitudinal analysis of a sample of children served in CMHI-funded systems of care has provided a method for determining changes in a set of outcome indicators from a period of time prior to their involvement in systems of care with a period of time following the initiation of services. For some of these indicators, it has been possible to identify cost implications. Among other dissemination vehicles, evaluation results are reported in annual reports to Congress. For example, the cost-related findings presented in the 2011 congressional report indicated a 21% reduction in psychiatric inpatient costs and a 32% reduction in per child arrest costs. Similarly, the 2010 congressional report cited a 47% decline in inpatient costs and a 42% decline in per child arrest cost (HHS, 2010).

To expand on these findings, a special analysis of CMHI evaluation data over multiple years and larger populations was conducted in 2013. This 2013 special analysis explored cost savings, if any, resulting from specific outcomes for children enrolled in systems of care and their caregivers (ICF International, 2013). The analysis focused on 76 system of care communities initially funded in 2005 to 2006 (referred to as "Phase V") and 2008 to 2010 (referred to as "Phases VI and VII") and included those children and caregivers who provided data at interviews at two points in time: intake and 12 months after system of care enrollment. The outcome measures examined included (1) inpatient psychiatric hospitalization, (2) emergency room (ER) visits due to behavioral and/or emotional problems, (3) juvenile arrest, (4) grade repetition, (5) school dropout, and (6) caregivers' inability to work due to their child's mental health issues.

The analysis found that children enrolled in systems of care showed improved outcomes between the intake and 12-month interviews. These improved outcomes translate to cost savings to taxpayers that are reflected in the mental health, health, juvenile justice, and

education systems, as well as cost benefits related to productivity. Specifically, after enrollment in a system of care, children were:

- Less likely to receive psychiatric inpatient services
- Less likely to visit an ER for behavioral and/or emotional problems
- Less likely to be arrested
- Less likely to repeat a grade or drop out of school

In addition, their caregivers missed fewer days of work due to caring for their children's behavioral and/or emotional problems and had a lower likelihood of being unemployed due to their children's behavioral and/or emotional problems.

For most outcomes, data were compared for the period of 6 months prior to intake in a system of care with the 6-month period prior to the 12-month interview to determine the change in each specific indicator. The change in outcome was then monetized with a unit cost estimate derived either from the literature or from data provided by caregivers. The unit cost estimate allowed calculation of the change in average cost per child served in a CMHI-funded

Outcomes and Cost Savings of Children/Youth Enrolled in CMHI-Funded Systems of Care

Outcome	Unit of Analysis	Population	Sample Size	6-Month Period Prior to Interview		Difference	Unit Cost* 2013 $s	Change in Average Cost per Child Served	% Change in Average Cost per Child Served	Estimated Total Decrease for All Children Served
				Intake	12 months					
Inpatient Hospitalizations	# of days	All children	3,752	1.26	0.73	-0.53	$2,708	-$1,433	-42%	-$37,144,831
ER Visits Due to Behavioral and/or Emotional Issues	# of times	All children**	1,098	0.33	0.14	**-0.19**	$878	-$165	-57%	$14,847,156
Juvenile Arrest	# of times	Ages 11-21	1,850	0.32	0.20	**-0.13**	$5,656	-$718	-39%	$10,567,711

Sources: Agency for Healthcare Research and Quality (AHRQ; 2011, 2013) and National Center on Addiction and Substance Abuse (CASA at Columbia University, 2004)

Notes: **Bolded numbers indicate significance at the 5% level.** Numbers may not add up, due to rounding.

*: All costs inflated to 2013 dollars using the September 2013 Bureau of Labor Statistics Consumer Price Index Inflation Calculator (retrieved September 25, 2013, from http://www.bls.gov/data/inflation_calculator.htm). Inpatient hospitalizations: average charge per day for inpatient hospital care for children and youth between 1 and 18 years old with a primary diagnosis of a mental health disorder; ER visit: average cost of an ER visit per person for children between the ages of 5 and 17; and juvenile arrest: average cost of processing a juvenile arrest.

**: Includes only children from Phase VI and VII sites where the question was asked.

system of care and the percent change in cost. The total estimated decrease was then calculated by applying the decline in cost to all children served in a CMHI-funded system of care at the time, a methodology similar to that used in annual reports to Congress.

Inpatient Psychiatric Hospitalizations

As shown below, for 3,752 children and youth with data reported at both intake and 12 months, the average number of days spent in inpatient psychiatric hospital care decreased from 1.26 days in the 6 months prior to intake to 0.73 days in the 6 months prior to the 12-month interview (p=0.934). The average charge per day for inpatient hospital care for children and youth between 1 and 18 years old with a primary diagnosis of a mental health disorder was estimated to be $2,708 (AHRQ, 2011). When this daily rate was multiplied by the decline in the average number of inpatient days, the average inpatient hospitalization costs per child declined by $1,433—a 42% reduction. Thus, an estimated $37 million was saved resulting from a decline in hospital costs, if the savings is applied to all 25,927 children served in CMHI-funded systems of care between 2006 and 2013.

ER Visits Due to Behavioral and/or Emotional Problems

Caretakers from communities funded in 2008 through 2010 reported the number of times their child had visited an ER because of their behavioral and/or emotional issues during the 6 months prior to intake and the 6 months prior to the 12-month interview. These children visited the ER an average of 0.33 times during the initial period, and the frequency of ER visits declined by 0.19 to an average of 0.14 times in the 6 months prior to the 12-month interview (p=0.003), a 58% decline. The average cost of an ER visit per child for children between the ages of 5 and 17 was assessed at $878 (AHRQ, 2013). Multiplying the decline in the average number of times children visit the ER for behavioral and/or emotional problems resulted in a decline of $165 in the average cost of ER visits per child, a 57% reduction in the average cost. This reduction translates into a total estimated savings of nearly $15 million, if the reduction is applied to all 13,522 children served in CMHI-funded systems of care between 2008 and 2013.

Juvenile Arrests

Juvenile arrests were analyzed for 1,850 youth ages 11 to 21 who indicated the number of times they were arrested in both the 6-month period prior to intake and at the 12-month interviews, including those who reported 0 arrests. The average number of arrests for these children declined by 38% from 0.32 at intake to 0.20 at 12 months (p<0.001), shown below. The estimated average cost per juvenile arrest is $5,656 (CASA at Columbia University, 2004). This cost includes only the cost of processing an arrest, not the costs of detention, probation, or other proceedings or services that often result from arrests. When this cost per juvenile arrest is multiplied by the decline in the average number of arrests, the average estimated cost declines by $718 between intake and 12 months, a 39% reduction. This reduction translates into a total estimated savings of $10.6 million, if the reduction is applied to all 14,709 children served in CMHI-funded systems of care between 2006 and 2013.

School-Related Outcomes

For school-related outcomes (grade repetition and school dropout), data on outcomes for children in systems of care were compared with data for the national population of students. The differences in the prevalence of grade repetition and school dropout were monetized with unit cost estimates derived from the literature. The table below depicts the prevalence and costs of grade repetition and school dropout of 1,084 children aged 14 to 18 years who provided data on school outcomes at intake and 12 months into system of care services. For students who entered systems of care during the summer, only children who also provided data at 18 months after intake are included to verify the current grade level of students to determine grade repetition.

School-Related Outcomes and Cost Savings of Children/Youth and Their Caregivers Enrolled in CMHI-Funded Systems of Care

Outcome	Population	Number of Individuals	Probability of Event		Difference	Cost** (2013 $)	Change in Cost per Child	% Change in Cost per Child	Estimated Total Decrease for All Children Served
			SOC	National*					
Grade Repetition	Ages 14-18	1,084	6.3%	9.6%	3.3%	$10,736	$358	35%	$3,304,907
Grade Repetition	Ages 14-18	1,084	6.3%	9.6%	3.3%	$10,736	$358	35%	$3,304,907

Sources: Carnevale, Rose, & Cheah (2011); Cornman (2013); National Association of School Psychologists (2011); Snyder & Dillow (2010, 2012)

Notes:

SOC: Systems of Care

*: Grade repetition: Percentage of students nationwide who repeated a grade in 2004; school dropout: percentage of students aged 14 to 18 years with emotional disturbance served under the Individual with Disabilities Education Act (IDEA), Part B, who dropped out of school in 2005 to 2006, 2006 to 2007, and 2007 to 2008.

**: All costs inflated to 2013 dollars using the September 2013 Bureau of Labor Statistics Consumer Price Index Calculator (retrieved September 25, 2013, from http://www.bls.gov/data/inflation_calculator.htm). Grade repetition: expenditure per pupil; school dropout: difference in median lifetime earnings between a high school dropout and a graduate.

Only 6.3% of children in systems of care for 12 months had repeated a grade, compared with 9.6% of American students in the general public (National Association of School Psychologists, 2011). The estimated average annual cost of a student repeating a grade in public education, based on the average per student yearly expenditure, is $10,736 (Cornman, 2013). When this annual cost is multiplied by the difference in the prevalence of grade repetition between children in systems of care and the general public, the difference translates into a cost savings of $358 per child for those youth in systems of care while enrolled in school. These costs are 35% lower for youth in systems of care, a potential cost savings of $3.3 million when extrapolated to the 9,244 children aged 14 to 18 years enrolled in systems of care between 2006 and 2013.

On average, 20% of high school students with emotional challenges nationwide drop out per year before finishing high school. This group is defined as students between the ages of 14 and 18 years with emotional disturbance who are served under IDEA, Part B, and dropped out of school within the academic years 2005 to 2006, 2006 to 2007, or 2007 to 2008 (Snyder & Dillow, 2010; 2012). In contrast, only 8.6% of youth in systems of care had dropped out of school after 12 months of services.

Economic gains are linked to reductions in dropout rates. Of 16- to 24-year-olds who were out of school, 45.7% of high school dropouts were employed in 2008, compared with 68.1% of high school graduates (Sum, Khatiwada, & McLaughlin, 2009). High school dropouts also make average annual earnings of $9,428, approximately $7,000 less per year than a high school graduate (Sum et al., 2009). This indicates that a student who drops out of high school earns about $360,839 less than a high school graduate over a lifetime (Carnevale et al., 2011). Hence, the decline in the dropout rate among students enrolled in systems of care results in an average cost savings of $41,369 per youth. This represents a savings of 57% or potential cost savings of $382 million when extrapolated to all 9,244 children served by systems of care between ages 14 and 18 years between 2006 and 2013.

Caregivers' Inability to Work Due to Child's Behavioral and/or Emotional Issues

Caregivers' inability to work was examined from two perspectives: (1) employed caregivers who miss days of work due to their child's behavioral and/or emotional issues, and (2) unemployed caregivers who are unable to work due to their child's behavioral and/or emotional issues. The table below shows that employed caregivers reported missing an average of 4.46 days of work due to their child's behavioral and/or emotional issues in the 6 months prior to intake. At the 12-month interview, the average number of work days missed decreased to 2.74 days, or by 1.72 days ($p<0.05$). Multiplying this average decline in missed work days by the imputed average daily wage of caregivers ($102.83) resulted in an average estimated cost reduction of $177, or a 39% reduction in the average cost of lost productivity [$177/($102.83*4.46)]. (The average daily wage is imputed from the weighted average wage by education level across employed caregivers and equals $102.83 per day.)

The table also shows that among the caregivers who reported being unemployed at intake specifically due to their child's behavioral and/or emotional issues, 21% reported that they were employed at the 12-month interview ($p<0.001$). When the average daily wage calculated above is used, this result translates into a 21% reduction in the average cost of unemployment due to a child's behavioral and/or emotional issues, or a reduction of $10,171 in the average cost of unemployment per caregiver for children served in CMHI-funded systems of care between 2006 and 2013.

Ability to Work of Caregivers for Children Enrolled in CMHI-Funded Systems of Care									
Outcome	Unit of Analysis	Population	Sample Size	6-Month Period Prior to Interview		Difference	Unit Cost* 2013 $	Change in Cost	% Change in Cost
				Intake	12 months				
Caregivers' Inability to Work									
Missed days of work due to child's behavioral/ emotional issues	Number of days	Employed caregivers	1,451	4.46	2.74	**-1.72**	$102.83	$177	-39%
Inability to work due to child's behavioral/ emotional issues	Probability of unemployment	Caregivers unemployed	471	100.0%	79.0%	**-21%**	$102.83	$10,171	-21%

Notes: **Bolded numbers indicate significance at the 5% level.** Numbers may not add up, due to rounding.

*: All costs inflated to 2013 dollars using the September 2013 Bureau of Labor Statistics Consumer Price Index Inflation Calculator (retrieved September 25, 2013, from http://www.bls.gov/data/inflation_calculator.htm). Caregivers' inability to work: weighted average of the daily wage by education level imputed from SOC-employed caregivers.

References: HHS, 2011; ICF International, 2013

Psychiatric Residential Treatment Facility (PRTF) Medicaid Demonstration Waiver Evaluation

In 2005, the Centers for Medicare and Medicaid Services (CMS) initiated a Medicaid demonstration waiver program to provide and test home- and community-based services for children and youth with serious mental health conditions in lieu of placement in PRTFs. Nine states participated in the demonstration—Alaska, Georgia, Indiana, Kansas, Maryland, Missouri, Montana, South Carolina, and Virginia. An evaluation was conducted to assess both the effectiveness of services and the costs of providing care for children. The evaluation used a pre-post methodology, comparing outcomes prior to and subsequent to program involvement for the same sample of more than 3,000 youth. The primary evaluation question was whether the home- and community-based services provided through the demonstration program cost no more than the anticipated aggregate PRTF expenditures in its absence.

States participating in the demonstration adopted the system of care approach and provided a broad array of services and supports, including the wraparound process for planning and providing services, intensive in-home services, respite, peer-to-peer support, family training and support, case management, mentoring, supported employment, and others. Evaluation results included positive findings in functional status for children across a number of domains, including domains of mental health, juvenile justice, school functioning, substance use, and social support. The evaluation also analyzed costs by comparing each state's aggregate annual expenditures on home- and community-based services provided under the demonstration with typical PRTF expenditures to derive average per capita costs for both.

Cost Savings

- Waiver expenditures on services were found to be substantially less than expenditures on services in PRTFs. Rather than just meeting the cost neutral standard, the home- and community-based services provided through the system of care approach generated substantial savings, compared with institutional costs across all grantees and through all waiver years. All states achieved significant savings in the costs of caring for youth with severe emotional disorders.
- For all nine states over the first 3 demonstration years for which cost data were available, there was an average savings of 68%. Waiver services cost only 32% of services provided in PRTFs, with an average per capita savings of between $35,500 and $40,000 across the states.

The table below displays data for Waiver Years (WYs) 1, 2, and 3 and for all years combined. The second column shows the average per capita waiver cost *plus* the average per capita cost of all other Medicaid services to demonstration waiver enrollees. The third column shows the average per capita cost for comparable services in PRTF institutions based on PRTF claims and provides a point of comparison for the demonstration expenditures. The last column shows the difference in waiver and institutional costs and waiver costs as a percentage of institutional costs.

Medicaid PRTF Demonstration Waiver: Per Person Cost for Children Served

Waiver Year	Average per Person 1915(c) Waiver Cost	Average per Person PRTF Cost	1915(c) Cost as a Percentage of PRTF Cost
WY 1	$9,792	$42,343	22%
WY 2	$12,244	$55,783	28%
WY 3	$23,122	$79,452	32%
Average Years 1-3*	$15,869	$51,107	32%

*Excludes waiver and Medicaid costs for grantees with less than five children per waiver year. Thus, data are based on 2,808 children rather than expenditures for all 2,820 children reported for waiver years 1 to 3.

The evaluation found that youth consistently maintained or improved their functional status with home- and community-based services at less than one-third of the cost of serving them in an institutional setting. Average per capita savings across all waiver years was more than $35,000. Combining the functional and cost-related outcomes, the evaluation concluded that this approach is cost effective for providing services to children and youth with serious mental health conditions.

References: Urdapilleta et al., 2012; HHS, 2013

Wraparound Evaluations

Wraparound is a process using team-based service planning and care coordination designed to provide individualized, coordinated, family-driven care. The approach is used to meet the complex needs of youth who are involved with multiple child-serving systems, typically those with serious behavioral health conditions and who may be at risk of placement in residential and inpatient treatment settings.

Wraparound is one of the primary approaches for operationalizing a system of care practice approach at the child and family level. This is accomplished by creating a child and family team that includes the youth and family, all involved providers, and natural supports identified by the family. The team creates an individualized service plan that customizes services and supports based on the strengths and needs of the child and family in multiple life domains. Both traditional and nontraditional services are included in the plans. Inherent in the approach is that families and youth drive the service planning and delivery processes, that services are culturally and linguistically competent, and that services are coordinated across agencies and providers.

In high-fidelity wraparound approaches that serve children with serious behavioral health challenges, care coordination is provided through a dedicated care coordinator working with small numbers of children/families (1:8 to 10). The care coordinator has the responsibility to coordinate care across systems and among providers, including between behavioral health and physical health care providers. A principal objective of the wraparound approach is to plan and coordinate home- and community-based services and access community and natural supports to minimize the use of out-of-home placements. Thus, although wraparound does not constitute a system of care in and of itself, the approach is an essential element of practice at the child and family level that embodies the system of care philosophy. The wraparound approach to service planning and care coordination is now widely used across states and communities based on a 2008 survey indicating that 88% of states reported having some type of wraparound practice (Bruns et al., 2011).

An increasingly strong evidence base supports the use of wraparound. A meta-analysis of research on wraparound was followed by an update published in 2010 which reported that nine controlled studies had been published, with newer studies including both fidelity and cost information (Bruns & Suter, 2010; Suter & Bruns, 2009). The studies found that when wraparound is implemented with fidelity, outcomes suggest improved quality of services, positive child and family outcomes, and reduced costs. Benefits have been documented in domains including living situation, youth behavior, youth functioning, and youth community adjustment. The evidence indicates superior outcomes for youth who receive wraparound in comparison with similar youth who receive other types of services. The largest effect size has been found for living situations, with data indicating that children and youth served with the wraparound approach have fewer out-of-home placements, reside in less restrictive settings, and/or experience greater stability of placement, all of which have cost implications.

Selected findings are summarized below; most are described in greater detail in the following section that details state and community examples of cost savings in the system of care approach.

Service Utilization Changes and Cost

- A matched comparison study of youth in child welfare custody compared youth receiving wraparound with a group that received mental health services as usual. The study found that after 18 months, 82% of youth who received wraparound moved to less restrictive, less costly environments, compared with about 38% of the comparison group (Bruns, Rast, Walker, Peterson, & Bosworth, 2006; Rast, Bruns, Brown, Peterson, & Mears, 2007).
- A matched comparison study in Los Angeles County found that youth in the wraparound group experienced significantly fewer out-of-home placements (mean = 0.91, compared with 2.15 for the comparison group) and fewer total mean days in out-of-home placements (193 days, compared with 290). During a 12-month follow-up period, 77% of the wraparound graduates were placed in less restrictive settings, while 70% of comparison group children were placed in more restrictive environments. Mean post-graduation costs for the wraparound group were found to be about 60% lower than costs for the comparison group (Rauso et al., 2009).
- A study compared youth in juvenile justice receiving wraparound in a Clark County, Washington, system of care (Connections) with a group that received conventional mental health services. Youth in the wraparound group had fewer episodes and days in detention—58% fewer episodes (4.4 versus 7.5) and 57% fewer days served (59 versus 102 days). The study also found reduced recidivism among youth in the system of care; youth in the comparison group were 2.8 times more likely to commit an offense and were 3 times more likely to commit a felony offense. There were immediate savings to the community resulting from fewer days in detention and less crime and related costs (Pullmann et al., 2006). The authors noted that chronic offending is an enormous expense to society. An estimate of the lifetime costs of a career criminal was between $1.3 and $1.5 million. They concluded that the long-term benefits of the wraparound approach outweigh the costs. Further, they noted that, hypothetically, if the Connections program prevented a lifetime of criminal behavior for just one youth, the cost savings would pay for the program's expenses for all 164 youth who were served during the program's first year.
- Wraparound Milwaukee data document that from 1996 to 2012, the use of psychiatric hospitalization was dramatically reduced for Milwaukee County youth, from an average of 5,000 days annually to less than 200 (a 96% decline) days per year. Similarly, placements in residential treatment centers declined from 375 in 1996 to approximately 90 in 2012 (an 87% decline). The average total all-inclusive cost per child per month for 2012 was approximately $3,200 for the 1,536 children and adolescents served. Unlike costs from many other systems of care, this *includes* the cost of residential and inpatient treatment because Wraparound Milwaukee is at risk for and pays for those services. Since its inception, Wraparound Milwaukee has reduced costs by more than 50% (from over $8,000 per child per month to about $3,450 per child per month on average), primarily by reducing the use of residential treatment and psychiatric hospitalization (Kamradt, 2013).

- New Jersey estimated that it saved over $40 million in inpatient psychiatric expenditures over a 3-year period from 2007 to 2010 by implementing the system of care approach statewide with a wraparound process for service planning and care coordination (Hancock, 2010).
- A study of Wraparound Maine showed a reduction in net Medicaid spending of 28%, even as use of home- and community-based services increased, due to a 43% reduction in inpatient and a 29% reduction in residential treatment expenses. Overall annual expenditures declined from an average of $58,404 per youth to $41,873 per youth per year (Yoe et al., 2011).
- A study in Pennsylvania showed a 25% reduction in behavioral health costs in the first 6 months of services with the system of care approach (Pennsylvania System of Care Partnership 2012a, 2012b).
- A study of youth served through the Mental Health Services Program for Youth in Massachusetts found that youth receiving wraparound used lower intensity services and had substantially lower claims expense, particularly for inpatient hospitalization and ER use—74% lower inpatient expenses and 32% lower ER expenses (Grimes et al., 2011).

STATE AND COMMUNITY EXAMPLES

California: Los Angeles

Los Angeles County recognized that children in foster care have exceptionally high rates of mental health challenges. More than one-half of foster care expenditures were for residential treatment placements. In response, the county developed a community-based system of care using the wraparound practice approach. An exploratory study was undertaken in 2004 to compare outcomes and costs of children who graduated from the community-based system with youth who graduated from residential treatment placements. The study suggested that the wraparound group had substantially better outcomes in key areas and that these children were considerably less costly to the county because they had fewer out-of-home placements. A second study was conducted to examine an expanded cohort using a matched comparison design to compare outcomes and costs for youth graduating from the system of care (102 children) with a matched sample of children (210 children) who were discharged from residential settings.

Service Utilization Changes

- Youth in the wraparound group had significantly fewer subsequent out-of-home placements than youth in the residential group; 91% of the residential group had at least one subsequent placement, compared with 56% of the wraparound group.
- When placements did occur during the 12-month follow-up period, youth in the wraparound group spent significantly fewer days in placements. In addition, graduates from the community-based wraparound group were more likely to be placed in less restrictive settings, such as those with foster parents or relatives (77%). The majority of children in the comparison group (70%) were placed in more restrictive settings.

- Children in the wraparound group experienced fewer total days in out-of-home placements, an average of 193 days, compared with 290 days in the comparison group (17% fewer days).
- The analysis found that children receiving home- and community-based care were 3.5 times more likely to have their child welfare cases closed within a year of discharge. Of youth discharged from the wraparound group, 58% had their case closed within 12 months, compared with only 16% of youth discharged from group care.

Cost Savings

- Youth who graduated from wraparound cost substantially less based on having fewer out-of-home placements and placement in less restrictive settings when they were placed out of home. Placement costs for the residential treatment group were 2.5 times the cost for the group served with the system of care approach.
- The mean post-graduation cost for the community-based system group was nearly 60% less than the cost for the comparison group that was discharged from residential settings—$10,737 as compared with $27,383.

The results had immediate policy implications because the county endorsed the community-based system of care approach with wraparound as a high-priority strategy and expanded its implementation.

Reference: Rauso et al., 2009

Choices (Indiana, Maryland, Washington, DC, Florida, and Louisiana)

Choices is a nonprofit care management organization created in 1997 to serve the most challenging, high-cost youth. Choices has blended the system of care approach with the wraparound process and managed care technologies. First serving youth in Indianapolis, Choices now provides services in Indiana, Maryland, Washington, DC, Florida, and Louisiana. Choices specializes in serving youth who are involved in multiple systems and are currently in or at risk of out-of-home placements, such as institutional care and foster care; more than 1,000 youth are served daily. Youth referred to Choices have similar needs and clinical and functional profiles as youth served in residential treatment settings. Youth enrolling in a Choices system of care typically have spent an average of 270 days in residential treatment and have lived in multiple foster homes. Referring agencies pay case rates per child per month that cover all services, *including* residential services. Choices manages these case rate dollars and subcontracts with hundreds of community providers.

Service Utilization Changes

- Data from 2011 to 2013 documented that services in a Choices system of care resulted in high levels of diversion of children and youth from higher levels of care. In 2013, nearly 98% of youth were diverted or returned from residential treatment facilities, a diversion rate of 99% and a return rate of 70%.

- For youth enrolled in Choices across all the states served, the majority either moved to or were maintained in less restrictive settings (78% at 6 months, 81% at 9 months, and 89% at 12 months).

Choices: Out-of-Home Placement and Cost Comparison		
2008-2010	**Choices**	**Child Welfare**
Average # of Out-of-Home Placements	1.77	2.64
Average Days in Out-of-Home Placements	222	585
	Choices	**Residential**
Cost per Day	$126.94	$293.24
Length of Stay	341 Days	270 Days
Total Cost per Episode	$43,286.54	$79,174.80
Savings	$35,888.26	

Cost Savings

- Despite serving youth with more intensive needs, Choices youth had a lower average number of youth in out-of-home placements from 2008 through 2010 (including residential treatment centers, foster homes, and group homes) and a lower number of days spent in out-of-home placements.
- Substantial savings of nearly $36,000 per youth served in Choices versus residential settings per episode of care were generated.
- The child welfare agency spends 45% less when a youth at risk of entering residential treatment is referred to Choices rather than residential placement.
- A study compared four groups of youth served by Choices based on residential placement status (no residential, placed after enrollment, in placement at enrollment and transitioned out within 90 days, and in placement at enrollment). The study found that functioning level was not the determining factor for residential placement. The implications for system-level decision-makers are that there is a high success rate and the lowest cost ($1,930 per child per month) for youth who do not receive residential services. These findings suggest that Choices systems of care give youth a high probability of success and reduce costs for child-serving agencies.

It was concluded that community-based care is a viable option for youth with intensive needs and that keeping youth at home and in school is not only best for families, but best for taxpayers as well. The system of care approach is allowing Choices to reduce admissions and length of stay in institutions such as residential treatment centers, substantially reducing expenditures and making it possible to shift resources to serve more youth in the community.

References: Choices, 2011, 2012; Effland & Van Deman, 2013; Van Deman, Rotto, & Effland, 2006

Georgia

Georgia implemented Community-Based Alternatives for Youth (CBAY) under a PRTF waiver to bring high-fidelity wraparound to youth with serious mental health conditions who meet the criteria for residential treatment and, therefore, are at the highest risk for out-of-home placement. The goal of CBAY is to improve the well-being of this population and to maintain these youth in their homes and communities using the system of care approach. Georgia also serves youth with serious mental health conditions who do not meet the eligibility criteria for CBAY, but who need intensive services. They receive the same home- and community-based services with the high-fidelity wraparound approach provided by five Care Management Entities (CMEs) in the state.

Service Utilization Changes

- During the course of enrollment in wraparound, the percentage of youth experiencing an out-of-home event declined by half, from nearly 40% to approximately 20%.
- Comparing out-of-home placements in the 6 months prior to enrollment with the first 9 months of wraparound enrollment, there were substantial declines in both PRTF and inpatient hospitalization utilization, including (1) decreased inpatient utilization for Medicaid PRTF waiver youth by 86% and (2) decreased PRTF stays for waiver youth by 73%. For non-waiver youth, inpatient utilization declined by 89%, and PRTF stays decreased by 62%.

Cost Savings

- In Fiscal Year (FY) 2011, the average Medicaid cost for a youth in a PRTF was $78,406 (at an average daily rate of $325). During involvement in wraparound, service costs were reduced to $34,398 per youth, a 56% decline and an estimated savings of $44,008 annually per youth.
- In FY 2012, the average cost for a youth in a juvenile correction facility was $6,998 (at an average daily rate of $255). Costs during wraparound involvement were reduced to $3,817 per youth, a 45% decline and an estimated savings of $3,180 per youth. In addition, recidivism for youth in the juvenile justice system was 23% lower than the 1-year recidivism rate for juvenile justice youth in the entire state.

Reference: DiMeo-Ediger et al., 2012

Maine: THRIVE System of Care

Maine's system of care initiative (THRIVE) began in three counties in 2005 and has a specific focus on trauma-informed practices. An evaluation included an analysis of service utilization and cost outcomes. Medicaid claims data were analyzed for physical health services unrelated to a mental health diagnosis. Mental health claims data associated with at least one associated diagnosis related to mental health were also analyzed. Costs were compared over three time intervals: 6 months before enrollment in the system of care (prior), 6 months immediately following enrollment (immediate), and 6 months after the immediate period of enrollment (post).

Service Utilization Changes

- Use of targeted case management increased by 14% after enrollment in the system of care. Decreases were found in ER services, crisis support, outpatient hospital services, and home-based services. All changes were reported to be in the desired direction and were attributed to meeting the needs of children and families with other services.
- Children and youth who received inpatient mental health services at a psychiatric or medical hospital decreased from 18% to 9%. This trend was sustained in the post period 1 year after enrollment.
- The percentage of children and youth who received more than five different types of services decreased from 26% to 17%, a pattern that was sustained 1 year after enrollment.

Cost Savings

- There was an overall Medicaid cost savings of over $450,000 between the period prior to enrolling in THRIVE's system of care and the period after program involvement, an average savings of $4,436 per child.
- The average cost per child per month was reduced by 30%, from $2,452 in the period prior to enrollment, compared with $1,665 in the post period (an average monthly savings of $787). Most of the cost savings were related to the shift from high-cost services such as inpatient and residential services to home- and community-based services.
- Inpatient hospital costs decreased by approximately $122,000, yielding a savings of 51%.
- Costs associated with visits to the ER decreased by 40%.

The evaluation suggested that better outcomes and reduced costs can be achieved by providing trauma-informed services within a system of care, and state leaders are applying these learnings from THRIVE to expand the approach statewide.

Reference: Yoe et al., 2012

Maine: Wraparound Maine

Maine also implemented a system of care approach in 2007, Wraparound Maine, which began in six counties and expanded statewide in 2011. The approach is delivered through mental health agencies under contract with the state and focuses on youth with serious mental health challenges who are in or at risk for placement in a residential treatment or a juvenile corrections facility. High-fidelity wraparound was initiated to shift service utilization away from these restrictive settings to home- and community-based treatment approaches. A study was conducted to assess changes in service use and in expenditure patterns based on an analysis of mental health service claims paid by Medicaid. The 12 months preceding the initiation of wraparound was compared with the 12 months following enrollment in the system of care.

Service Utilization Changes

- After initiation of services, youth were less likely to be hospitalized or to have an ER visit for psychiatric reasons.
- The number of days spent in residential care decreased significantly from pre-enrollment to post-enrollment.
- The use of community-based services increased, including outpatient clinical services and targeted case management.

Cost Savings

- Overall mental health expenditures decreased by 28% from the pre-enrollment period to the post-enrollment period, and expenditures for out-of-home treatment options declined by 44%.
- The percentage of expenditures for residential and inpatient treatment declined from 80% of total expenditures to 61% of total expenditures.
- Per child per year expenditures decreased by 28% overall, by 42% for inpatient services, and by 29% for residential treatment (based on shorter lengths of stay). Overall average expenditures declined from an average annual expenditure of $58,404 before wraparound to $41,873 per youth per year.
- Overall spending was decreased even though the use of home- and community-based services increased.

References: Yoe et al., 2011; Maine Department of Health and Human Services, 2011

Maryland

Maryland has implemented the system of care approach to serve youth with mental health conditions using multiple funding streams, including a PRTF demonstration waiver. The approach involves serving youth through Care Management Entities (CMEs) that use a wraparound practice model to provide coordinated care and to either divert or transition youth out of expensive out-of-home care. In 2009, the regional CMEs assumed full responsibility under contract with the Governor's Office for Children (GOC) on behalf of the Maryland Children's Cabinet, enabling youth with intensive service needs and their families statewide to have access to the CME model. The Cabinet budgets more than $7.3 million for the CMEs. As a result, services in the state are aligned with the system of care approach, and legislation passed in 2011 codified this shift and removed barriers to implementation. In 2012, GOC transitioned to a single statewide CME contract, which continues to serve children with serious needs and provide intensive care coordination. Most recently, in response to the Affordable Care Act, Maryland is submitting a 1915(i) State Plan Amendment (SPA) application to serve youth in their homes and communities through new locally based CMEs, referred to as "Care Coordinating Organizations" (CCOs).

Service Utilization Changes

- Implementation of the CME approach has resulted in a redeployment of resources in the state to support home- and community-based services. For example, resources are now being invested in services such as mobile crisis response and care coordination.
- Language in the state's budget for FY 2012 restricts $3 million that would have gone to fund residential treatment center placements for diversion to community-based services. These services included a pilot for expedited residential treatment discharge, enhanced case review for discharge from residential treatment, an ER diversion project, statewide consultation by child psychiatrists to pediatricians, and peer support services.

Cost Savings

PRTF Demonstration Waiver

- The PRTF Demonstration Waiver in Maryland allowed the state to provide services and supports that are integral to the system of care approach with Medicaid financing, such as caregiver peer-to-peer support, respite, crisis response and stabilization services, and expressive and experiential behavioral services.
- Claims for waiver participants show Medicaid costs (including mental health services and supports, and costs for physical health, dental, and pharmacy services) at $34,420 per year. This cost is increased to $52,520 per year when the costs of care coordination provided by the CME and discretionary fund costs are added. Overall, this cost is significantly less than the cost of serving a youth in a residential treatment center, which was $148,561 during the same time period. The cost for serving a youth with home- and community-based services was only 35% of the cost of residential treatment facility care.
- The services are now included in Medicaid coverage with specific definitions, and the provider network has grown to provide the services and supports needed to better serve children in their homes and communities.
- Because youth served through the CME have shown positive outcomes and reduced costs, the approach is the premise for the state's 1915(i) SPA that will allow the approach to be extended to include additional youth.

Evidence-Based Practices

- In an effort to improve outcomes and reduce costs, the state has implemented evidence-based practices to address mental health challenges of juvenile offenders in the community instead of out-of-home placements. Multisystemic Therapy (MST) and Functional Family Therapy (FFT) were provided to youth based on research documenting their effectiveness in reducing the likelihood of reoffending and their potential for significant cost savings by diverting youth from costlier out-of-home placements. Although these interventions are not comprehensive systems of care, they are closely aligned with the system of care approach and are among the interventions provided within many systems of care.

- An analysis conducted in the first quarter of FY 2014 compared the cost per youth for MST and FFT with the cost of a group home placement where youth were typically placed. The analysis showed that the state saved an average of $10,000 per youth using MST and $19,000 using FFT by diverting youth from group homes to community placements with these interventions.
- For MST and FFT, the cost estimates included the costs of services (contracts to providers) plus the costs of ongoing provider training and fidelity monitoring.
- Since MST and FFT interventions were shorter than the length of placement in group homes, these findings are considered an underestimate of savings and represent a minimum amount of taxpayer savings. Additional savings were projected based on (1) additional savings for each youth who remains in the community after the evidence-based intervention and (2) the economic benefit from improved outcomes—decreased reoffending that decreases costs to the juvenile justice system and increased likelihood of youth contributing to society through productivity and employment.

ER Diversion

- An ER diversion project was undertaken in Baltimore (Child and Adolescent Response System Emergency Department Diversion Project) to move psychiatric care from ERs and inpatient settings to less restrictive, community-based settings consistent with the system of care approach and to better allocate limited mental health resources.
- A pre-post evaluation found that median per child costs to the system were almost $600 lower in the first 3 months after enrollment, compared with their service use 3 months before enrollment. There were also lower rates of psychiatric inpatient use and ER use in the 3 months after discharge from the diversion program, compared with the 3 months before enrollment.
- A matched sample allowed an assessment of what service use trajectories and costs could be expected without the diversion program. The matched control group had higher costs for hospital-based services. Preliminary results suggest that ER diversion saves $4,190 over expected costs.

References: State of Maryland, 2011; University of Maryland School of Social Work, 2013a, 2013b

Massachusetts: Children's Behavioral Health Initiative

A class action lawsuit filed in federal court against the state's Medicaid program (referred to as "Rosie D." after the lead plaintiff) alleged that the state had failed to provide appropriate services under Medicaid's Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) mandate. The lawsuit also alleged that as a result, Medicaid-eligible children with behavioral health problems were placed in hospitals and residential treatment centers unnecessarily. In 2007, the court required that the Medicaid program be restructured to provide an array of community-based services and supports. To implement the court order, Medicaid, behavioral health, child welfare, juvenile justice, and other agencies worked collaboratively to design and

implement a new system of care. The effort was named the "Children's Behavioral Health Initiative" (CBHI), and its design and implementation were based on the system of care concept and philosophy. The services provided include intensive care coordination utilizing a high-quality wraparound approach, family peer support and training, in-home therapy, therapeutic mentoring, in-home behavioral services, and mobile crisis intervention. The implementation of these services has shifted utilization away from inpatient services to home- and community-based services, a change that has affected costs. A 2013 analysis examined utilization and cost changes.

Service Utilization Changes

- The CBHI has resulted in changes in service utilization involving increased use of home- and community-based services, accompanied by declining hospital rates and length of stay. The shifts away from deep-end services are attributed to the development of the new community-based services.
- Before the inception of these services, the rate of psychiatric hospitalization among young members was increasing in terms of the percentage of members hospitalized in a quarter and "bed days" per 1,000 members. Since the new services were implemented, there has been a steady downward trend in young people hospitalized for behavioral health conditions (nearly a 32% reduction) and a downward trend in the number of days spent in the hospital (a 30% reduction).
- There was a documented decline in the use of ERs for youth with behavioral health conditions that was attributed to the provision of mobile crisis intervention—56% of encounters occurred in a community location rather than in an ER.
- Findings have shown declines in juvenile justice court cases and the number of youth committed to the juvenile justice system, as well as declines in child welfare residential placements.

Cost Savings

- From FYs 2009 to 2012, there was a decrease in spending on inpatient services (an 11% decline from 27% to 16%) and an increase in spending on home- and community-based services (0 to 42%). These results represent a shift in how Medicaid resources are spent for behavioral health services for youth younger than age 20.
- By FYs 2011 and 2012, intensive community-based services constituted the largest portion of Medicaid spending, 38% and 42% respectively, and expenditures for inpatient services decreased by 40%.

Massachusetts: Percentage of Expenditures for Inpatient and Intensive Community-Based Services for Massachusetts Behavioral Health Partnership Members, 0 Through 20 Years of Age

Category of Care	FY 2009	FY 2010	FY 2011	FY 2012
Inpatient Services	27.3%	21.8%	18.2%	16.3%
Intensive Community-Based Outpatient Services for Youth	0.0%	24.3%	38.4%	42.0%

References: Massachusetts Attorney General, 2012; Massachusetts Attorney General, 2013

Massachusetts: Mental Health Services Program for Youth (MHSPY)

MHSPY began in 1998 to provide integrated services to youth with mental health conditions who had significant functional impairment and who had expectations of either frequent psychiatric hospitalizations or long-term out-of-home placements. Based on the system of care approach, MHSPY was known for its delivery of integrated mental health, physical health, substance use, and social services. MHSPY was financed through blended funding across public child-serving agencies and operated within a nonprofit managed care organization. The MHSPY system of care provided an array of home- and community-based interventions, including both traditional and nontraditional clinical services and supports. Services were guided by an individualized, comprehensive care plan developed by a care manager who worked intensively with the family and a care planning team to identify needs, provide services, and coordinate care—essentially the wraparound approach. The goal was to maintain youth in the home and community, improve clinical functioning, and reduce cost. MHSPY was unique because covered services included medical and pharmacy services in addition to mental health and substance use services. Throughout its implementation, outcomes were measured in domains including functional status, service utilization, satisfaction, and cost. A study was conducted to examine the cost-effectiveness of this integrated, family- and community-based intervention in comparison with "usual care" based on Medicaid claims data.

Service Utilization Changes

- Data from 1998 to 2007 indicated that the vast majority of days for MHSPY enrollees were spent at home, with an increase over time and a corresponding reduction in hospitalization and residential treatment. At disenrollment, about 81% of graduating youth remained in their homes.
- Additionally, enrollees' days spent in placements not covered by Medicaid and not included in the MHSPY benefit (foster care, long-term residential treatment, group home, detention, jail, secure treatment, and boot camp) were reduced by 50%.
- A 10-year prospective study found that intervention youth were consistently maintained in the least restrictive settings, with over 88% of days spent at home.

Cost Savings

- The study found that the intervention group used lower intensity services and had substantially lower claims expense than matched counterparts in usual care. The average total costs of MHSPY (including medical, mental health, and wraparound costs) were far below costs for the comparison group. MHSPY's average total costs were also 50% to 60% less than the costs of serving youth in more restrictive settings (which did not include the costs of medical or wraparound services that were included in MHSPY's costs).
- The study found that total per member per month claims expense (including pediatric inpatient, ambulatory pediatric, ER, pharmacy, and inpatient and outpatient mental health) was less than half for the intervention group than claims for the matched group in usual

care ($761 per youth per month versus $1,573 per youth per month). For example, claims were 31% lower for ER use and 73% lower for inpatient psychiatric services.

- The intervention group was more psychiatrically impaired than the comparison group, suggesting that these findings may underestimate the cost implications of the system of care.

On the basis of these data, it was concluded that MHSPY confirmed the potential power of intentionally organized systems of care to offer a cost-effective approach for serving youth with serious and complex conditions. It was noted that blending state agency resources and insurance funds creates the flexibility needed to provide community-based care with expenditures that are less than usual care. Given the integration of mental health and physical health services under MHSPY, the ROI findings have important implications for delivery of services under the Affordable Care Act.

References: Grimes, Schulz, Cohen, Mullin, Lehar, & Tien, 2011; Grimes, Kapunan, & Mullin, 2006; Grimes & Mullin, 2006

Nebraska

Central Nebraska (Region III) implemented a system of care approach in 22 counties using a wraparound approach and family-centered services. The components of the system of care included:

- **Professional Partner Program (PPP)**—Wraparound process that is now implemented statewide
- **Integrated Care Coordination Unit (ICCU)**—Intensive care management based on wraparound principles
- **Early Intensive Care Coordination (EICC)**—To prevent children in child welfare from entering custody
- **Family Advocacy/Support/Education and Youth Encouraging Support**—Provided by a family organization
- **Multisystemic Therapy (MST)**—An intensive family- and community-based treatment program
- **School Wraparound**—To maintain children with mental health challenges in the most normalized environment

In 2005, approximately 1,000 children and their families were served. Case rates based on blending funding sources served as the primary funding strategy, providing the flexibility to both individualize care and develop new services. This case rate methodology was adopted by five of the six regional behavioral health authorities in the state.

Service Utilization Changes

- Use of the system of care approach reduced out-of-home placements and increased the percentage of children who lived in the community. For example, the 2005 annual report for the ICCU demonstrates the substantial decreases in care provided in group or residential

treatment, psychiatric, and juvenile justice facilities and the corresponding increases in care provided in the community.

Nebraska: Placements (2005 Region III Annual Report)		
N = 341	**At Enrollment**	**At Disenrollment**
% in group or residential care	35.8%	5.4%
Living in psychiatric hospitals	2.3%	0
Living in juvenile detention or correctional facilities	7%	0
Living in the community	41.4%	87.1%
At home	*4.4%*	*53.5%*
With a relative	*1.5%*	*7.6%*
Foster care	*35.5%*	*14.5%*
Independent living	*0*	*11.5%*

Cost Savings

- Youth are eligible for the PPP with the wraparound approach if they are (1) being placed out of home as a result of their behavioral health disorders, (2) becoming a state ward specifically to access services, (3) becoming involved in the juvenile justice system because of law violations, and (4) dropping out of school. The average cost per family served in the PPP with the wraparound approach was 60% less than the cost for those served through the child welfare and juvenile justice system—$12,715 versus $32,082. (Costs for both groups do not include Medicaid or the costs associated with courts and legal representation pursuant to child welfare or juvenile justice involvement.)
- In FY 2012, the six behavioral health authorities in the region served a total of 236 youth who were at risk of entering the child welfare and juvenile justice systems. Only about 10% became state wards; 90% remained with their families. Cost savings for the group of youth who avoided state custody were estimated to be nearly $7 million.
- From 2001 to 2009, the region served 1,179 youth and their families in the ICCU who were identified because of high service costs, being in out-of-home care, and mental health needs. From the outset, the state experienced savings resulting from bringing youth home from high levels of care outside of the community. In 2001, the ICCU produced cost savings of $500,000 that later grew to $900,000.

Based on these positive outcomes, the state developed the ICCU program to apply the intervention approach to high-need youth who were in state custody in child welfare and juvenile justice to improve outcomes and reduce cost. Savings derived from the system of care approach were reinvested to expand services for youth at risk of becoming part of the target

population through the EICC, which prevented placement in state custody for 88% of the youth served. Investments were also made in school-based interventions and family advocacy and support services. Cost savings were also reinvested to finance technical assistance to other regions of the state to replicate the approach.

References: Baxter, 2013; Nebraska Behavioral Health Services, Region III, 2000; Stroul et al., 2009

New Jersey

In 2000, New Jersey developed a plan to implement systems of care statewide. The plan involved a sequential rollout in each county or in groups of smaller counties that compose a service area. Implementation was a 5- to 6-year process, with the first three counties rolled out in 2001 and the last three counties in 2006. The goals of the New Jersey System of Care are to reduce institutional care, increase system coordination, provide care management services, increase the use of evidence-based practices, and reduce costs. The system includes (1) a Contracted Systems Administrator who provides a single portal for access to care, (2) a Care Management Organization (CMO) in each county that provides intensive care management with a wraparound model to serve youth with complex needs and their families, (3) mobile crisis response and stabilization services, (4) Family Support Organizations that provide family-led support for CMO-involved families, and (5) Youth Partnerships that offer peer support and leadership. Services are flexible and are delivered in homes and other community sites; the service array also includes evidence-based practices.

Cost Savings

- New Jersey reported savings of $40 million from 2007 to 2010 by reducing the use of acute inpatient services alone.
- The residential treatment budget was reduced by 15% during the same time period. Length of stay in residential treatment centers decreased by 25%.

References: Hancock, 2010; Guenzel, 2012

New York: Monroe County

In Monroe County (Rochester), New York, a system of care was implemented that demonstrated positive clinical outcomes and sizable cost savings. The system of care, Monroe County Youth and Family Partnership (YFP), was initiated in 2002 without federal grant funding as an integrated cross-system approach to meet the needs of youth and families. The system of care began as a pilot effort serving 25 youth and was doubled to serve 50 youth in 2004 based on demonstrated cost savings and improvements in functioning for youth and families. In 2005, the system of care was expanded to serve 100 families despite budget cuts and service reductions in the county. This expansion was attributed to the comprehensive evaluation of the system of care and the compelling cost savings that were demonstrated.

Monroe County, New York: Reduction in Costs per Person Served				
	Year One		Year Two	
	Annual	Per Month	Annual	Per Month
Residential	$81,396	$6,783	$81,396	$6,783
YFP	$43,122	$3,594	$35,645	$2,970
Savings	$38,274	$3,189	$45,751	$3,813

Cost Savings

- In the first year, savings to Monroe County averaged approximately $38,274 per youth, with overall savings across the population of youth served estimated conservatively at over $500,000.
- In year two, savings per enrollee averaged approximately $45,751, or a total of nearly $1 million.

Reference: Levison-Johnson, 2005

North Carolina: Durham County

North Carolina has a long history of implementing the system of care approach broadly throughout the state. The approach includes several key elements: (1) child and family teams that operationalize the approach at the child and family level (the wraparound process), (2) care review teams who assist with service planning and delivery for high-risk youth, (3) community collaboratives that provide policy direction for the system of care, and (4) guidance, training, and oversight provided by the state mental health department. North Carolina has received eight system of care grants through the CMHI.

Cost Savings

Durham County implemented a system of care before receiving a CMHI grant in 2010 and has achieved cost savings with this approach.

- Out-of-home placements declined from 52% to 32% for youth with the most complex needs.
- County expenditures decreased dramatically for institutional care. Over $3 million was budgeted for institutional care in 2002, but only $700,000 was expended in 2002. Less than $100,000 was expended in subsequent years.
- There was a significant drop in costs related to court-ordered placement from $700,000 to $0 by 2005.
- Accrued savings were reinvested by county commissioners in system of care infrastructure and services, including creating new system of care liaison positions in key agencies (schools, juvenile justice, child welfare, and public health) and filling service gaps with evidence-based practices.

The North Carolina Association of County Commissioners awarded the 2004 Ketner Award to Durham County for its accomplishments in reducing the costs of court-ordered treatment.

Reference: State of North Carolina, 2012

Oklahoma

Oklahoma implemented a "care management oversight project" as a cross-agency partnership among the mental health and substance abuse agency; health care authority; child welfare, juvenile justice, and rehabilitation agencies; the Oklahoma Federation of Families; and others. The goal was to establish and test a cross-agency model for managing care for children with the most intensive service needs and their families. The development of this system of care was designed to create an integrated, seamless system of mental health and substance use services. This system would increase the use of community-based services, use the wraparound approach to plan and deliver services and supports, and decrease the use of inpatient and residential treatment services. Ensuring continuity of care and increasing the capacity to respond to crises were additional goals. A study was undertaken to compare outcomes for youth receiving care management services with youth receiving standard behavioral health services using a randomized control trial method. Using predictive modeling, all youth in the study were predicted to have a moderate to high risk of future hospitalizations. The study included over 1,000 "high-resource utilization" youth who were eligible for Medicaid.

Cost Savings

Ratio of Inpatient and Outpatient Expenditures

- Findings documented that, based on an analysis of expenditures, service utilization shifted from reliance on inpatient care to an increased use of community-based care. The ratio of inpatient and outpatient expenditures shifted such that in the prior 12 months, inpatient expenditures were higher than outpatient, and in the 12 months during care management, outpatient costs were higher.

Total Charges

- For behavioral health and medical costs combined, there was a trend toward greater reduction in average total charges for the care management group over time for both inpatient and outpatient services combined. There was a 35% reduction for the care management group versus a 15% reduction in the control group.
- For behavioral health services alone, there was a significantly greater reduction in average total inpatient and outpatient behavioral health charges for the care management group over time. There was a 41% reduction for the care management group versus a 17% reduction in the control group. This result was attributed primarily to a 42% decrease in inpatient charges.

Inpatient

- For behavioral health and medical costs combined, care management resulted in a significant cost savings for inpatient hospitalizations. There was a 60% reduction in average inpatient charges for the care management group ($27,177 for the year prior and $10,986 for the year during services) versus a 17% reduction in average inpatient charges for the control group. This finding held regardless of whether or not youth were in state custody.
- For behavioral health services alone, care management resulted in significant cost savings—a 60% reduction in average inpatient charges for the care management group, compared with a 17% reduction for the control group. Again, this finding held regardless of whether or not youth were in state custody.
- There was a significantly greater reduction in behavioral health inpatient days for the care management group over time. Inpatient days declined by 58%, and the proportion of care management youth who were *not* hospitalized increased from 39% in the 12 months prior to enrollment to 64% during the year of care management.

Outpatient

- Because the goal of the system of care was to reduce inpatient utilization and increase outpatient, community-based care, findings showing increased outpatient charges were considered to be desirable. These findings suggested that outpatient services were being substituted for inpatient care, and that net expenditures were reduced even with increased outpatient costs.
- For behavioral health and medical services combined, there was a 16% increase in average outpatient charges for the care management group, compared with a 12% decrease in outpatient charges for the control group.
- For behavioral health services alone, there was a 19% increase in average outpatient behavioral health charges for the care management group, while total behavioral health outpatient charges decreased for the control group by 17%.

Total per Youth per Month Charges

- For medical and behavioral health services combined, total per youth per month charges averaged $3,368 in the year prior to care management and $2,190 in the year during care management, a 35% decline. The control group experienced a 15% decrease in per youth per month charges over the same time period. Thus, care management resulted in savings of $458 per youth per month during the intervention and savings of $720 per youth per month for the entire 24-month time period, compared with the control group.
- These per youth per month savings were used to project savings for the entire population of 1,943 moderate to high Medicaid utilization youth. It was estimated that the system of care approach as implemented through care management would have achieved a savings of between $9,112,402 and $16,777,805 if the entire study population had all received care management over a 1-year period.

- For behavioral health alone, care management resulted in savings of $357 per youth per month during the 12-month intervention period, compared with the control group, and $770 per youth per month for the entire 24-month period. These savings were used to project savings for the 1,943 moderate to high Medicaid utilization youth in the population resulting in total estimate behavioral health savings over a 1-year period between $8,334,938 and $18,162,398 if all youth in the study population had received care management.

Reference: Strech et al., 2011

Pennsylvania

Pennsylvania has adopted the system of care approach statewide and is operationalizing the approach at the child and family level using the high-fidelity wraparound process. Beginning in eight pilot counties, the state is systematically expanding systems of care to additional counties over time. In addition to assessing child and family outcomes, analyses have been undertaken to assess the implications for Medicaid costs. Behavioral health claims were studied in the eight pilot areas retrospectively for the 6 months prior to wraparound service initiation through the first 12 months following involvement. Medicaid costs were compared for the wraparound group and for a matched control group.

Cost Savings

- Medicaid claims were decreased by 43% in the 12 months following enrollment, whereas the reduction in costs for the control group was only 20% for the same time period. (The net savings for the wraparound group were lower after adjusting for administrative costs, but administrative costs were not estimated for the control group, suggesting that the net savings for the control group would also be lower.)
- Savings were greatest for children who had been in residential treatment facilities before the initiation of wraparound services, an overall 38% reduction in claims. This finding indicates that the approach is particularly effective for youth using high-cost services such as residential treatment.

References: Pennsylvania System of Care Partnership, 2012a, 2012b, 2013

Wraparound Milwaukee

Wraparound Milwaukee was initiated in 1996 and is a county-operated CME using the system of care approach. It was developed to serve high-cost youth, and all youth entering Wraparound Milwaukee are at imminent risk for residential treatment, psychiatric hospitalization, or juvenile correction placement. Wraparound Milwaukee is financed with a pooled funding approach from participating agencies and is at risk and responsible for all the costs associated with serving youth in care, including inpatient and residential treatment services. Dollars not spent on institutional costs remain in the funding pool and are available to fund additional community-based services. This approach allows funds to be redirected from deep-end, high-cost, out-of-home treatment settings to home- and community-based services and supports. Data are

regularly collected on service utilization, outcomes, and costs. Wraparound Milwaukee contends that it is easier to redirect funds with the flexible, decategorized funds in the funding pool.

Service Utilization Changes

- Data from 2012 showed that despite the fact that all children entering Wraparound Milwaukee services are at imminent risk for residential, inpatient, or juvenile correction placements, only 21% utilized residential treatment and 10% inpatient psychiatric care.
- All youth received care coordination, 77% utilized crisis mentoring and stabilization to prevent or ameliorate a crisis, and 52% received intensive in-home therapy.

Cost Savings

- Often quoted data document that from 1996 to 2012, Wraparound Milwaukee reduced the use of psychiatric hospitalization dramatically for Milwaukee County youth, from an average of 5,000 days annually to less than 200 (a 96% decline) days per year. Similarly, placements in residential treatment centers declined from 375 in 1996 to approximately 90 in 2012 (an 87% decline).
- The average total all-inclusive cost per child per month for 2012 was approximately $3,200 for the 1,536 children and adolescents served. Unlike costs from many other systems of care, this *includes* the total cost of care (i.e., all services and supports, placements, care coordination, and administrative costs) because Wraparound Milwaukee is fully at risk. Since its inception, Wraparound Milwaukee has reduced costs by over 50% (from over $8,000 per child per month to about $3,450 per child per month), primarily by reducing the use of residential treatment and psychiatric hospitalization.
- Data from 2012 documented that Wraparound Milwaukee is substantially less expensive than placement in residential and inpatient settings. For example, costs of residential treatment are estimated at $9,460 and inpatient services at $39,100 per child per month (or $8,400 for a 7-day stay), compared with the $3,200 per child per month cost of Wraparound Milwaukee.

Wraparound Milwaukee: Comparative Costs

• Wraparound Milwaukee	$3,200 PCPM
• Group Home	$6,083 PCPM
• Correctional Facility	$8,821 PCPM
• Residential Treatment	$9,460 PCPM
• Inpatient Hospitalization ($8,400 for a 7-day stay)	$39,100 PCPM

PCPM: Per Child per Month

- The per child per month cost for Wraparound Milwaukee continues to decline, with a decrease of 17% from 2008 to 2012, while the cost of all institutional placements increased by 16% over the same period of time.
- Declines in costs are attributed to reduced utilization of inpatient and residential treatment. For example, the percentage of Wraparound Milwaukee enrollees using residential treatment declined from 25% in 2010 to 17% in 2012. This decline in enrollees resulted in a decreased percentage of total Wraparound Milwaukee payments per month on residential treatment from 32% in 2010 to 29% in 2012.

- Nearly every youth at risk of juvenile correctional placement is enrolled in Wraparound Milwaukee; 80% have a diagnosed mental health condition. The average number of youth in correctional facilities from Milwaukee County declined from 250 in 2007 to 142 in 2012; consequently, costs to the county for juvenile correctional placements declined by 37%, nearly $9 million in savings. The reduction in placements and cost is attributed to Wraparound Milwaukee. The county was able to close two of its three juvenile correctional facilities, and savings have been reinvested to fund juvenile probation and related services.
- Estimations of costs avoided by Milwaukee County since the inception of Wraparound Milwaukee in 1996 were calculated. When Wraparound Milwaukee was initiated, there was an average of 337 youth placed in residential treatment centers. Factoring in modest increases in the number of youth placed and modest cost increases resulted in a projection of potential expenditures by child welfare and juvenile justice agencies of $85 million without Wraparound Milwaukee. With Wraparound Milwaukee's system of care, placement costs were only $10 million in 2012, representing a savings of about $75 million.

References: Kamradt, 2013; Kamradt et al., 2008

PROJECTED COST SAVINGS

Colorado: Projected Cost Avoidance Through Early Intervention

Colorado has implemented a system of care approach (Kid Connects) for serving young children with mental health concerns and their families. The early childhood system of care approach is designed to enhance the capacity of parents and child care providers to address the social, emotional, and overall developmental needs of young children, to identify problems early, and to provide interventions that support children's optimal development. Through a mental health consultation model to child care settings and family care homes, services are provided to promote the healthy development of all children in the setting. More intensive, child-specific services are provided to children whose behavior or affect demonstrates the need for attention and support. Staff works with the family to understand their child's behavior, teach strategies to address behavior, enhance parenting skills, improve adult-child relationships, and address adult mental health issues when necessary.

The state noted the ample evidence that prevention and early intervention can potentially save money by averting costly social and health problems in the future in domains including health and behavioral health, educational attainment, use of welfare, and criminal justice, among others. If projected use of services in these domains could be estimated and "monetized," then an estimate of the value of the investment in early intervention could be derived.

Recognizing that emotional and behavioral problems in early childhood are associated with later childhood, adolescent, and adult problems, the state undertook two studies to identify

the "cost of failure" to provide early childhood mental health services. These studies were essentially an exploration of the ROI for implementing the system of care approach for early intervention, specifically for young children and their families.

The first analysis conducted in 2000 compared the per child cost of Kid Connects with the per child costs of five other services that youth might experience—child welfare, juvenile justice, special education, and later mental health service costs. The cost of 1 year of early intervention services was compared with the costs of episodes of various potential problems that can result from early mental health problems.

Colorado: Costs of Episodes of Various Types of Services	
One year of early intervention services with early childhood system of care approach	**$987**
Two months of public assistance resulting from parental work disruption	$1,012
One month of foster care based on increased risk of child abuse and out-of-home placement	$1,200
Special education based on increased risk of school failure and special education	$5,693
Two days of psychiatric hospitalization based on increased risk of mental illness and psychiatric hospitalization	$1,020
Fourteen days in detention based on increased risk of delinquency and youth correction services	$1,820

A case for expansion of early intervention services was presented by illustrating that significant savings could be achieved in the future by averting some costs for small numbers of children. Specifically, $390,212 in savings could be achieved if the following costs were avoided for only 28 children:

- 11 children avoided 1 year in special education
- 10 children avoided the average 6-month stay in foster care
- 4 children avoided the average 63-day stay in a psychiatric hospital
- 2 children avoided the average 15.3-month commitment for delinquency
- 1 family avoided Temporary Assistance for Needy Families (TANF) for 20 months

The second analysis went further by addressing the actual likelihood of future service use and the proportion of future service use that could be averted by providing early childhood mental health services. This analysis derived an estimate of costs that can be avoided in the long run. It also created a context for analyzing cost implications by examining how effective Kid Connects has to be to earn back the cost of service delivery and to "pay off" financially. An assumption in this analysis was that future costs include not only those related to direct mental health treatment at older ages, but costs incurred by involvement in other service systems, as well as costs to individuals and families.

Costs in Juvenile Years:

- Costs if parents of minors must leave jobs to care for children with mental health challenges
- Costs to public school systems based on special education, disciplinary actions, etc., related to mental health conditions
- Health care costs associated with untreated mental health disorders (e.g., related to self-medication and substance use)
- Hospitalization costs related to severe mental illness
- Juvenile justice costs related to delinquency related to mental health conditions

Costs Later in Adult Years:

- Interruption of employment later in adulthood due to mental health episodes
- Health care costs associated with untreated mental health disorders (e.g., related to self-medication and substance use)
- Hospitalization costs for severe mental illness
- Criminal justice associated with mental health problems
- Costs associated with school failure and dropping out of school due to mental health challenges (e.g., decreased tax payments and increased social service payments)

Cost Savings

- The analysis focused on four areas of potential future cost that could potentially be averted: (1) mental health care costs, (2) TANF and Food Stamp costs, (3) high school dropout costs, and (4) child welfare costs. It was emphasized that although this analysis focused on these four areas, the future costs of special education, juvenile delinquency, substance use treatment, and adult crime are substantial, and estimates of their future costs were not included. Thus, the findings are an underestimate of the potential savings that can be achieved.
- For purposes of the analysis, the cost of Kid Connects was "scaled up" as if the system of care served all low-income children ages 0 to 5.25 in Boulder County. A conservative estimate of a 40.6% reduction in the overall budgets for each of the four future expenditure areas noted above was used, based on a specified estimation methodology.
- Using this analytic method, it was estimated that the county could avert $4,327,443 in costs, yielding a net savings of $1,927, 443. The ROI would be that for each dollar spent, there would be a return of $1.80.
- Although the percentage of reduction in future costs was estimated at 40.6%, it was determined that the early childhood system of care would pay for itself if only 12.3% of the future costs in these areas were averted. Any additional savings would make the services yield a positive rate of return.

Colorado: Net Savings Expected From a Scale-Up of Kid Connects to All Low-Income Children 0-5.25 Years			
Cost of Kid Connects	Scaled up for all low-income Boulder County children aged 0-5.25		$2,400,000
Mental Health Care Costs for Older Juveniles Averted	Assuming a 40.6% reduction from $6.2 million total	$2,500,000	
TANF and Food Stamp Costs Averted	Assuming a 47% reduction in pre-K expulsions	$44,000	
High School Dropout Costs Averted	Assuming a 40.6% reduction from the $3,135,000 cost if the 15 students with all four school problems drop out	$1,272,810	
Child Welfare Costs Averted	Assuming a 40.6% reduction from the total $9,987,134 program services cost	$510,633	
Total Costs Averted			$4,327,443
Net Savings			**$1,927,443**
Ratio of Savings to Investment	For each dollar spent on Kid Connects, we could expect a return of $1.80.		**$1.80**

It was concluded that the potential for savings was sufficiently significant to warrant further investment in expanding Kid Connects.

References: Gould, 2000; Heilbrunn, 2010

Texas: Projected Cost Savings From System of Care Implementation

Texas provides an example of a state that has estimated potential cost savings that could be achieved if it implements a system of care approach with existing agency resources if these funds were coordinated and spent on community-based services. Examination of the system found that a significant number of youth receive services from multiple agencies with high costs but no clear improvement in outcomes. The system gaps leave families and communities with no alternative but expensive, restrictive services or custody relinquishment to juvenile justice or child welfare to receive services. The majority of funds spent on children with behavioral health conditions in Medicaid are spent on medication, inpatient, and residential treatment (67% for all combined), whereas only about 14% of the funds are spent on home- and community-based services. Monthly costs for placements in juvenile justice placements post-adjudication range from $3,000 to $8,142 per individual per month, placement in residential treatment facilities ranges from $4,147 to $7,285 per month, and psychiatric hospitalization has the highest costs, ranging from $11,348 to $13,522 per individual per month. In contrast, the state examined the costs of community-based services in systems of care in other states and estimated that case rates are significantly lower and range from $2,000 to $4,300 per child per month.

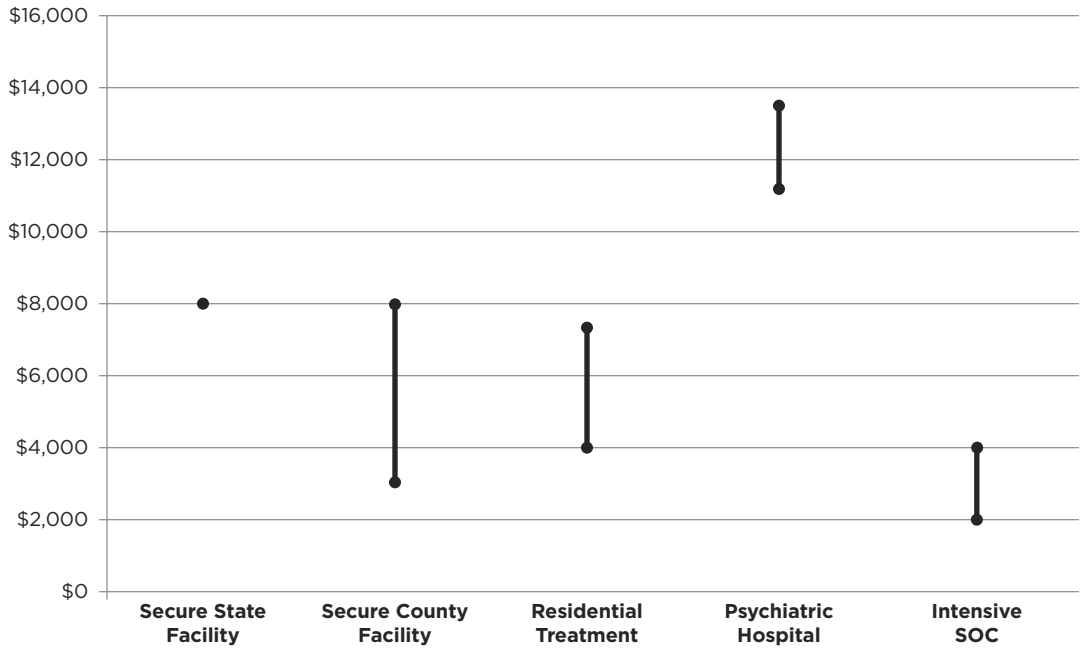
Cost Savings

Texas analyzed the potential cost benefits of systems of care as follows:

- For each child deflected from incarceration, an estimated $4,142 per month could be saved and reinvested.
- For each child able to remain in a community foster care placement rather than a residential treatment facility, an estimated $1,790 per month in savings could be realized.

The conclusion was that there are opportunities to redirect funds away from restrictive placements and into community-based settings that would likely lead to reduced costs for the state and better outcomes for children with serious behavioral health conditions. It was recommended that the system of care approach be implemented statewide, informed by the demonstrations in Texas communities that have received federal CMHI grants.

Texas: Estimated Costs per Child per Month by Placement



Reference: Texas Department of State Health Services, 2011

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