ISSUE BRIEF

Return on Investment in Systems of Care
for Children With Behavioral Health Challenges

Beth A. Stroul, M.Ed.
Sheila A. Pires, M.P.A.
Simone Boyce, Ph.D.
Anya Krivelyova, M.A.
Christine Walrath, Ph.D.

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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

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" (ROI) from particular approaches is critical for informing policy and resource decisions. This issue brief highlights ROI information on the system of care approach for children, youth, and young adults with mental health challenges and their families.

Systems of Care

Since the mid-1980s, the Substance Abuse and Mental Health Services Administration (SAMHSA) has invested resources in the development of systems of care for children, youth, and young adults with mental health challenges and their families. Such resources are intended to improve the quality and outcomes of services and control costs. This approach provides an organizational framework for service systems and a well-defined philosophy to guide service delivery. 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, 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 provided substantial evidence that systems of care work (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. In addition, there is also a growing body of evidence indicating that the system of care approach is cost effective and provides an excellent ROI. Data obtained from analyses conducted by states and counties, along with several multi-site studies, demonstrate cost savings both currently and in the future. Cost savings are derived from reduced use of inpatient psychiatric hospitalization, emergency rooms (ERs), 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 with the juvenile justice system, fewer school failures, and improved family stability, among other positive outcomes. Given these 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.

Return on Investment Analysis

ROI compares the cost of an investment with its benefits, measured in monetary terms. This metric can be easily communicated to different stakeholders—policymakers, funders, administrators, providers, service recipients, and the general public—to explain the value of an investment. In the context of SAMHSA's current focus on expanding systems of care, a project was undertaken to document what is known to date about ROI, specifically cost savings, from systems of care (Stroul, Pires, Boyce, Krivelyova, & Walrath, 2014). Data on resource investment in systems of care was found in the CMHI national evaluation, the evaluation of the Medicaid Psychiatric Residential Treatment Facility (PRTF) Waiver Demonstration, the published literature, and from states and communities that have implemented systems of care and conducted their own analyses. The report provides policy-relevant information to guide decisions of policymakers and system leaders on how best to invest resources in mental health services for children and youth.

The systems of care examined share many common characteristics. They serve children and youth with serious and complex mental health conditions. 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 the 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, but shares the common characteristics of the approach.

Multi-site studies have documented cost savings related to systems of care. For example, the national evaluation of the CMHI found that children and youth served with the 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 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.

The evaluation of the PRFT Waiver Demonstration tested the system of care approach, with an array of home- and community-based services and the wraparound process, as an alternative to residential treatment. Across nine states, waiver services cost only 32% of services provided in PRTFs, and there was an annual savings of between $35,000 and $40,000 per child.

States and communities that have implemented the system of care approach have reported changes in service utilization patterns with associated cost savings. Most frequently, these findings represent cost savings resulting from decreased utilization of 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 correction facilities. Reductions in the use of physical health services and visits to ERs 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.

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

Highlights of Cost Savings from Systems of Care

Highlights of ROI information are summarized below from two multi-site analyses, three states, and three communities.

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 ERs

MULTI-SITE ANALYSES

Children's Mental Health Initiative (CMHI) National Evaluation

ICF International, 2013

- 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 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. 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

Urdapilleta et al., 2012; HHS, 2013

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.

STATE EXAMPLES

Georgia

DiMeo-Ediger, Russ, & Rana, 2012

- 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%.

Maine: THRIVE System of Care

Yoe, Goan, & Hornby, 2012

- 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.
- 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%.

Oklahoma

Strech, Harris, & Vetter, 2011

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 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.

COMMUNITY EXAMPLES

California: Los Angeles

Rauso, Ly, Lee, & Jarosz, 2009

- 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.

Massachusetts: Mental Health Services Program for Youth (MHSPY)

Grimes et al., 2011; Grimes & Mullin, 2006

- Data from 1998 to 2002 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 out-of-home placements.
- From 1998 to 2002, enrollees' days spent in placements not included in the MHSPY benefit (foster care, residential, group home, detention, jail, secure treatment, and boot camp) were reduced by 50%.
- A study 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.

Wraparound Milwaukee

Kamradt, 2013; Kamradt, Gilbertson, & Jefferson, 2008

- 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 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.

Conclusion

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. However, calculating return on investment is not without challenges. These include:

- *Obtaining the resources and expertise needed for ROI analyses*—Allocating the needed time, money, and skilled staff to conduct ROI analyses, particularly with more complex methods
- *Obtaining data from multiple sources*—Gathering data to capture cost savings across systems (e.g., costs saved by juvenile justice when placements in correctional facilities are decreased due to increased use of community-based treatment), Medicaid claims data, internal MIS system data, etc.
- *Determining the cost implications of changes in service utilization*—Translating changes in service utilization patterns into the impact on expenditures (e.g., decreased utilization of inpatient and residential treatment)
- *Monetizing benefits from systems of care*—Quantifying specific, important outcomes in systems of care that typically are not assigned monetary values
- *Assessing short-term and long-term costs*—Exploring both immediate and longer term cost implications associated with the system of care approach

To address these challenges and produce needed cost information, it is recommended that materials and technical assistance be provided to strengthen the capacity of states and communities to produce and use return on investment data related to systems of care. 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.

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