MHSPY: A Children's Health Initiative for Maintaining At-Risk Youth in the Community

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Abstract

The Massachusetts Mental Health Services Program for Youth (MHSPY) is a home-based clinical intervention that seeks to maintain youth with severe functional impairment in the community via delivery of integrated primary care, mental health, substance abuse, and social services. Using blended public agency funding, traditional and nontraditional services are provided within a private, not-for-profit, managed care organization. Individualized, comprehensive care plans are developed by an MHSPY Care Manager, who works intensively with the family and the Care Planning Team to identify needs and resources. Data on clinical functioning are collected at baseline and every six months during the program. Service utilization and cost are measured on a quarterly basis. Family, youth, and agency satisfaction ratings are collected at disenrollment. Aggregate analyses based on four years of data show that MHSPY participants have improved clinical functioning, including significant reduction in risk to self and others. They also experience reduced service utilization and cost and high rates of family satisfaction.

Background

The Massachusetts Mental Health Services Program for Youth (MHSPY) began in 1998 following several years of recognition that the nation's service system for children's mental health was in grave need of overhaul. As far back as 1982, many children's health policy experts were clamoring for change. *Unclaimed Children*[1] is widely credited as having made a profound impact on governmental awareness of the mental health needs of many of the country's children and adolescents. In 1989, in response to the estimation by Knitzer that approximately 5% of the nation's youth are considered to be burdened with *serious emotional disturbance*, the federal Child and Adolescent Service System Program (CASSP)[2] grants were created. These grants were aimed at infrastructure building to increase the capacity of local agencies to work together in intentional *systems of care*.[3] These systems of care were to be grounded in the CASSP principles

and were expected to be "child-centered, family-focused, need-driven, community-based, and culturally competent."

Overlapping in time with the CASSP initiatives and sharing an origin in the community psychiatry efforts of a decade earlier, the consumer movement within mental health gained momentum and forever changed how patients and families were viewed by mental health professionals. For children and youth, the emergence of "family-friendly" interventions contributed to the development of individualized services and supports known as the *wraparound* process.[4] This process, which emphasizes the identification of needs across a set of life domains and the use of child and family strengths in building interventions, became influential in the design of systems of care.

Following these movements, the Robert Wood Johnson (RWJ) Foundation and the Washington Business Group on Health (WBGH) privately funded the Mental Health Services Program for Youth initiative in an effort to take the CASSP pilot efforts a step further and to develop local systems of care that did not depend on infusions of federal grant dollars. As the CASSP principles and the wraparound process became better known, the idea that existing dollars could be redirected to create and sustain such systems of care was jointly promoted by RWJ Foundation and WBGH. The concept of blended funding across categorically distinct state agencies, which requires collaboration and shared commitment to achieve, launched a new series of state and local pilot programs and the beginning of a research base on cost effectiveness.[5]

Through the creation of a shared pool of dollars dedicated by interagency consensus to a target population based on specific eligibility requirements, pilot participants hoped to reduce barriers to care and to improve overall allocation of resources to children with mental health needs. Traditional "categorical funding," where dollars are allocated to distinct state agencies with mutually exclusive mandates, was seen as contributing to fragmented care delivery. Furthermore, savings initiatives based only within a single agency could result in "cost shifting" from that agency to other sources of service funding. For instance, if the Department of Mental Health reduced its burden by changing eligibility to exclude children involved with the Department of Social Services, the first state agency would see a cost decline, whereas the second would experience an increase. As a result, effective policies were sought, which could unify the spending goals of Medicaid and other child-serving agencies and eliminate cost-shifting incentives between them. The MHSPY model was also intended to address the disturbing maldistribution of resources. According to WBGH statistics from the time, 87% of public child mental health dollars were being spent on the 2% of the children with the most intensive mental health needs in any given population, leaving only 13% of the dollars to be spread among the other 98% of the children.[6]

In 1994, the WBGH spearheaded a "Project Design Workshop" at Harvard Community Health Plan (HCHP), a health maintenance organization in Boston, for a "special purpose system of care for children with serious emotional disturbances and their families."[7] In attendance at this meeting were the medical leadership of HCHP, the state Executive Office of Health and Human Services cabinet members, representatives from the departments of mental health (DMH), child welfare (DSS), juvenile justice (DYS), education (DOE), and public health (DPH), as well as key public and private purchasers including representatives from the Division of Medical Assistance (Medicaid) and Digital Equipment Corporation. Individual medical leaders at HCHP and within the state agencies had been working on this agenda for the previous year and a half, but the involvement and support of leading policy makers from WBGH and RWJ Foundation helped define the process into a specific proposal. Although there were many leadership changes in the state and the health maintenance organization between the years of 1994 and 1996, champions of children's system of care continued to meet and further refine this proposal. In 1997, at the end of the 10-year cycle of RWJ Foundation MHSPY grant allocations, 12 states including Massachusetts were awarded one-time-only MHSPY-Replication grants. The other 11 states

included California, Florida, Indiana, Illinois, Michigan, Minnesota, Mississippi, New York, South Carolina, Texas, and Washington. All 12 MHSPY-Replication grant sites shared the previous MHSPY site expectations that they be *family-focused*, *consumer-oriented*, and *community-based*. However, the new sites were additionally required to be *accountable for outcomes*, able to *maximize funding sources*, and designed to take place within a *managed care context*. It was these additional requirements that prompted the inclusion of HCHP as the MHSPY-managed care organization. With a quarter century of experience as a staff model health maintenance organization, HCHP (which later became Harvard Pilgrim Health Plan) helped to facilitate the achievement of the pilot's goal of delivering mental health and pediatric care that was not only coordinated but also *integrated* into one system. Furthermore, the fact that MHSPY was being led by a child psychiatrist already working within managed care meant clinical support for combining medical, mental health, and substance abuse services within a cost-effective delivery system.

Project Development

Shared governance

The RWJ Foundation MHSPY Replication award to Massachusetts named the state Medicaid authority, the Division of Medical Assistance (hereinafter Medicaid), as the lead agency. Medicaid hired a project manager who, together with the MHSPY medical director, convened the key state-level stakeholders into the *Massachusetts MHSPY Steering Committee*. This Steering Committee involved each of the payer agencies (DMH, DSS, DYS, DOE, and Medicaid), family and consumer representatives, and designees from nonpayer, but interested, state agencies such as Public Health and Mental Retardation. (See Fig 1 for a diagram of the Massachusetts MHSPY System of Care Infrastructure.)

Over the subsequent year and a half, the Steering Committee systematically identified the decisions necessary for implementation of the proposed system of care for children and families. The first item on the agenda, however, involved reaching consensus regarding the goals of the pilot project and developing a suitable mission statement. It was important that the mission be consistent with each agency's mandate, while encompassing the combined categorical responsibilities of the participating agencies. Most of all, it was important to make room for innovation. As a Medicaid leadership staff member said, "If we don't change anything, nothing will be different." Ultimately, the MHSPY mission was defined as "a demonstration project to redesign home- and community-based health care delivery for high risk children and families in the state of Massachusetts using a strengths-based, integrated system of care. MHSPY's goal is to use resulting improvements in outcomes, and any lowered costs, to increase overall access to care."

Enrollment eligibility

In order for the group to collectively define the target population, the complexities of legislative mandates for each agency, which were sometimes incongruent, needed to be addressed. From these discussions, the Steering Committee developed the *Massachusetts MHSPY Enrollment Eligibility Criteria*. These criteria state that children needed to be: between the ages of 3 and 18 years, a Medicaid recipient living in either Cambridge or Somerville, MA, and eligible for services from any of the state Departments of Mental Health, Youth Services (juvenile justice) or Social Services (child welfare) or receiving special education. Referred youth must also be at-risk of out of home placement, score greater than 40 on the Child and Adolescent Functional Assessment Scale (CAFAS),[8] and have a parent or guardian who would consent to treatment and

Figure 1

MHSPY model design and infrastructure. The figure illustrates the blended funding design and shared decision-making structure, which supports joint care planning and shared accountability for health outcomes. Rate includes any and all interventions for an unlimited time period (except Steering Committee determination that acute res. ≤30 days).

MHSPY SYSTEM OF CARE

Rate includes any and all interventions for unlimited time period (except Steering Committee determination that Acute Res. ≤ 30 days)
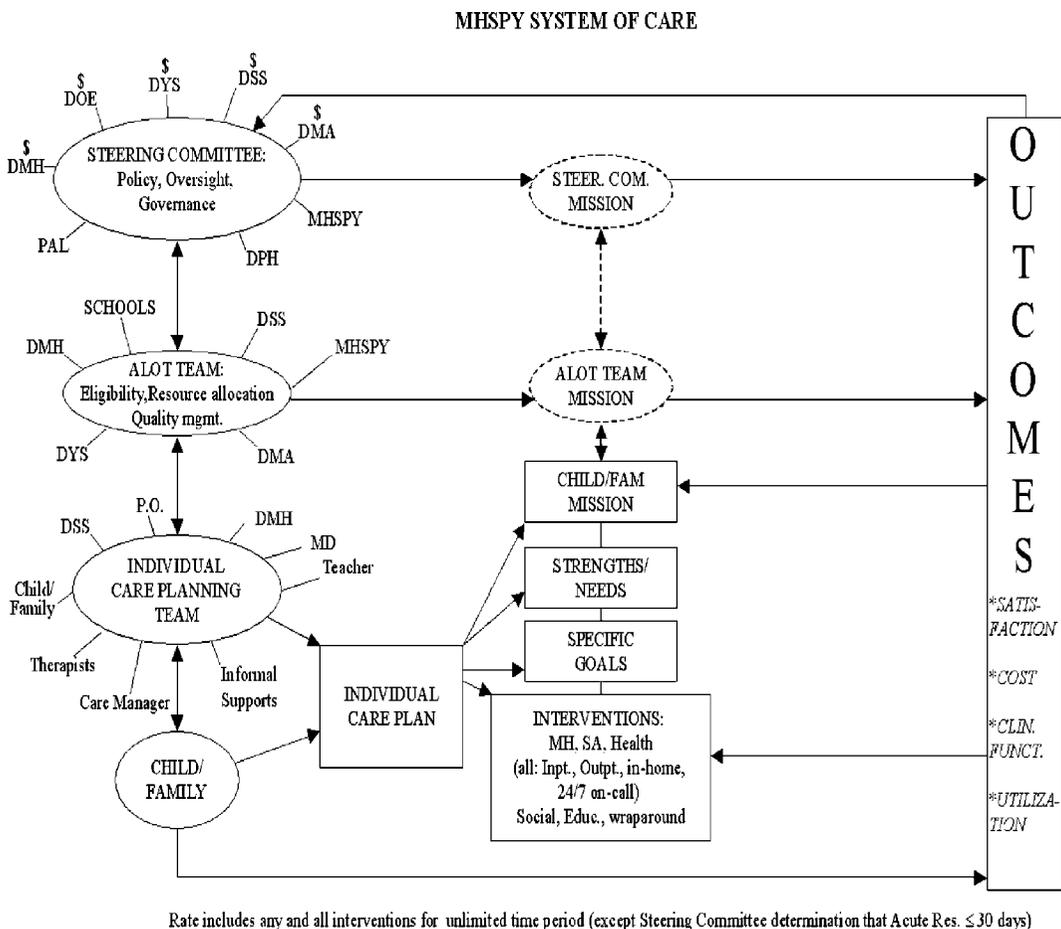
participation in the care planning process. It was contended that higher degrees of morbidity require greater attention to detail on the part of all providers, with specified processes to facilitate coordination and produce continuity of intent across interventions. This new view was later supported in studies of Multi-Systemic Therapy, where it was noted that while care recipients with low or moderate levels of severity may be able to advocate for themselves to obtain what they need, youth and families with high levels of severity and barriers to accessing care appear to benefit from highly specified, intensely supervised clinical interventions.[9] Thus, the MHSPY pilot was created to serve a vulnerable or "at-risk" population of youth for whom usual care had so far been unsuccessful.

The Steering Committee determined that only child-serving state agencies participating in the MHSPY-blended funding pool would be allowed to make referrals. Medicaid created the position of *Enrollment Coordinator* so that referrals could be reviewed prior to enrollment to determine

eligibility according to the previously discussed criteria. In keeping with the CASSP "no reject, no eject" principle, all children who met the agreed upon eligibility requirements would be enrolled in the program and receive coordinated services through MHSPY. Also in keeping with this principle, children would be disenrolled only for "graduation," when individualized goals were achieved, or if eligibility requirements were no longer being met. MHSPY would also not be allowed to recruit participants, but was to receive whomever the schools and the state Departments of Mental Health, Social Services and Youth Services collectively determined were priority referrals, via the community-based selection committee.

Covered services

The Steering Committee also needed to define the set of services that would be included in the new "expanded benefit" that would be made available to pilot enrollees. This question fueled a rich review process that required each participating agency to evaluate their existing set of services and compare it to the ideal set of services each agency wished were provided for the children and families in their care. This review involved disclosure and discovery of resources and specifications that were not previously shared across agencies. The resulting combination of existing and sought-after services chosen for inclusion in the pilot became the defined list of *MHSPY Covered Services*. These services include medical, pharmacy, mental health, substance abuse, social services, and wraparound resources via flexible funds. (Table 1 provides a complete list of MHSPY-covered services.)

Table 1
MHSPY-Covered Services

Medical
    Inpatient hospital
    Ambulatory surgery
    Observation
    Emergency room
    Specialty care visits
    Pediatric outpatient visits
    Laboratory, radiology, and durable medical equipment (DME)
Pharmacy
Mental health and substance abuse
    Inpatient hospital
    Acute residential
    Partial hospital/day treatment
    Outpatient individual, family, and group therapy
    Psychological and neurological testing
Nontraditional services
    Care coordination
    Tracker
    Mentor
    Case aide
    Therapeutic after-school
    Parent partner/family advocate
    Wraparound

Financing

Once the list of covered services was confirmed, negotiation was undertaken to establish an acceptable total price for the service package. In contrast to the eight original multiyear RWJ Foundation MHSPY grants, which provided ample dollars for service delivery, the MHSPY Replication grants were much smaller and for 1 year only; $75,000 was provided for planning and technical assistance. Medicaid, as the public "lead agency," used the planning grant dollars for analysis of existing spending patterns for children in Massachusetts and to hire a project manager. Because no new service dollars were available via the RWJ Foundation grant to Massachusetts, unlike with the large federal Center for Mental Health Services system-of-care grants, program developers had to look to existing, categorically assigned budgets to fund the initiative. Given that there was no experience base to refer to for either clinical or financial performance, the contribution of dollars from within existing resources was a critically important leap of faith on the part of the state agencies.

The next step involved determining a reasonable capitation or case rate, one that could pay for medical care, mental health, substance abuse, and social support service delivery. The social support resources were to be pulled from "flexible dollars" within the capitation. These flexible dollars were meant to be provided to the families on a case-by-case basis in a process consistent with the "wraparound" philosophy of care planning. The first step to creating an appropriate capitation involved benchmarking prices for similar programs across the country. The next step was to "build up" a rate using the aggregated cost of the proposed service types to be provided within the program, with a presumed utilization rate based on target population characteristics. When these two rates were compared, they helpfully yielded the same approximate figure. A final compromise involved "discounting" that carefully developed rate by about 25% in order to fast track negotiations and the program's start date, with the expectation that any subsequent shortfalls would be covered through a financial "reconciliation" process based on a 1% risk band. After the discount, the agreed-upon pilot capitation rate in 1998 became $3200 per member per month.

Following the attainment of consensus regarding an overall case rate, the Steering Committee's purchaser agencies sought to determine each agency's "fair share" of the cost. There was genuine interest in the concept as well as the reality of so-called "blended funding." The Steering Committee rejected the standard practice of separately purchased "slots" in the program and, instead, decided that the pilot's costs should be borne by all the purchasers regardless of how many enrollees were referred by one agency or another. Individualized agreements based on historical cost data were created between Medicaid and each of the other payer agencies, with designated annual contributions from all purchasers to be paid to Medicaid "up front" via interagency service agreements (ISAs). The combined Medicaid and ISA dollars were remitted in quarterly estimated capitation payments from Medicaid to Harvard Pilgrim Health Care, which were then reconciled on an annual basis against actual membership numbers and enrollee expenses. In 1999, MHSPY followed the transfer by Medicaid of its enrollee population from HPHC to Neighborhood Health Plan (NHP). NHP is a Massachusetts-based nonprofit managed care organization to whom Medicaid now pays the capitation.

Outcome domains

The question of how to evaluate the impact of the MHSPY program involved many layers of consensus building regarding the specific intermediate and long-term goals of interest to the Steering Committee. The intermediate goals involved the program's process: improved information and resource sharing between agencies, increased understanding of the barriers, including that high-risk families often had multiple entitlements but limited access and insufficient service coordination, and increased appreciation of the differences in mandate

between one child serving agency and another. The extended group process of creating the pilot had, in many ways, already begun to produce results in these outcome areas, and the creation of the Area Level Operations Team (ALOT; described in further detail in Infrastructure Evolution) provided a context for ongoing program process refinement. The longer-term outcomes were derived to see if an intentionally integrated, intensively coordinated, family-driven system of care would lead to improved clinical quality and cost effectiveness. To evaluate this, the Steering Committee identified four discrete outcome domains: (1) functional status, (2) utilization, (3) cost, and (4) satisfaction. Based on a combination of expert consultation and a review of the available literature, specific measures were identified for each of the defined domains, as well as processes for data collection. These measures and processes will be further elaborated upon in Evaluation Methodology.

Infrastructure evolution

During the active planning phase, the MHSPY Steering Committee met twice a month. After the pilot began, they chose to decrease the frequency of their meeting to monthly, with the focus on maintaining the program's fidelity to its mission and addressing the need for policy clarifications as they arose. Meanwhile, it was clear that an operations/implementation group closer to the care delivery was needed and the Area Level Operations Team (ALOT) was created. The ALOT is a community-based decision-making group consisting of representatives from each of the participating agencies as well as liaisons from each of the two participating school districts. The community-based team meets twice a month to prioritize referrals, discuss readiness for "graduation" from the program, and handle case-specific system problems. The local ALOT is extraordinarily effective partly due to the accumulated experience of the participants and partly because it is fully authorized by the Steering Committee to make creative decisions regarding the coordination of resources, congruent with the intent of the MHSPY program.

Implementation of the MHSPY Pilot

Enrollment process

Once a child is referred to MHSPY, the enrollment manager arranges one or more home visits to give the referred child's family more information about the program and assess the child's level of functioning via standard instruments. Consents are obtained to collect records regarding the child's previous care to determine his or her eligibility for MHSPY based on the Steering Committee criteria. If the child is found eligible, an additional home visit is conducted by the MHSPY *Family Coordinator*. The Family Coordinator is an individual employed by MHSPY who has personal experience caring for a child with mental health needs. The Family Coordinator position was created to guarantee access to the family voice in MHSPY structure and process. Family Coordinators help address any questions or concerns that parents or caregivers might prefer to discuss with a nonprofessional. This creates a greater sense of trust in the process and facilitates the caregiver connections to the program. If the family chooses to continue, the referral is brought to the ALOT. The ALOT prioritizes the child's needs in the context of other pending enrollees, and the most clinically urgent case is enrolled first.

Delivery of services

Once enrolled in MHSPY, the youth and family are assigned an MHSPY *Care Manager*, a master's level clinician, who carries no more than eight families at a time. Although the Care Manager is not the child or caregiver's therapist, a therapeutic relationship develops over the course of their work together, which greatly supports family engagement. In addition to the use of

the family support scale (FSS), a standardized family support measure, the Care Manager performs a full clinical assessment of the home and family, both in terms of the needs of the child and in terms of the needs of the caregivers themselves. It is also the ongoing responsibility of the Care Manager to monitor the appropriateness and safety of the child's setting. The Care Manager provides the following three distinct types of services to each family:

(1) *Direct clinical intervention*: Direct, home-based work to identify needs and strengths, facilitate deeper clinical understanding, and help support the mission for the child as defined within the Care Planning Team (CPT).
(2) *Care coordination*: Recruitment of informal and formal supports, as well as linkages to other needed services on behalf of the goals determined by the CPT. This category includes the assembling of the CPT itself, in partnership with the family.
(3) *Case administration*: Payment authorization and quality management of services, creation of new service types or vendor contracts, as needed, as well as documentation of the goals and interventions identified in the CPT to support the measurement of results.

When a new enrollee is assigned to a Care Manager, the Care Manager's first responsibility is to perform a strength-based assessment of the child, the family, and their existing services and supports. This results in the creation of both a written *Initial Assessment* and *Crisis/Safety Plan*. A subsequent *Comprehensive Assessment* document is developed after more information has been gathered. This is a summary of the patient's full clinical history and includes contact information for all key resource people, both professional and nonprofessional, that are involved in the child's life.

A modified "Life Domains Worksheet"[4] is used by the Care Manager to identify the child's and family's strengths and needs at the time of enrollment. This includes an evaluation of the child's immediate environment and the capacity of the adult caregivers to provide for their safety. Parent/caregiver strengths and needs (i.e., domestic violence) are noted and provide crucial context for any interventions subsequently selected for the child. The Care Manager completes the worksheet with the family and begins the process of setting priorities, developing goals, and discovering natural supports. These initial steps with the family help the Care Manager facilitate identification of the appropriate resource people (teachers, friends, relatives, state agency staff, pediatricians, and other clinicians) to invite to into the *care planning process* on behalf of the child. This family-driven group becomes the CPT. The CPT meets monthly to create, implement, and monitor a plan to achieve the family's mission for the child. The individualized care planning process allows all services and care delivery for medical, mental health, substance abuse, social, educational, or other needs to be integrated into one plan of care administered by a single team. Members of the CPT must include the *family* (broadly defined to include biological, adoptive or foster parents, or other caregivers in the position of guardian for the child) and a representative of the *referring agency*. Additional members may include any *informal supports* (neighbors, coaches, friends, etc.) or *professionals* (teachers, pediatricians, therapists, etc.) the family selects. The CPT creates an *Individual Care Plan* with specific goals and strength-based interventions. All CPT members, both professionals and informal supports, are invited and expected to attend the monthly meetings. Accommodation to time and location to enhance various members' participation is standard procedure, with meetings alternating between settings, such as school and home. Each member is encouraged to use this opportunity, together with any additional contacts needed between CPT meetings, to articulate their experience of what the needs and strengths of the family and child are and report what progress they feel is being made toward the goals. The Care Manager "tends" this process, facilitating the development of a shared language among the team members and monitoring adherence to the care plan, including the completion of tasks by the designated team members.

Responsible parties are assigned for each intervention, and outcomes are measured using clinical instruments to track progress toward goals. Once goals are completed, and the family and

CPT's mission for the child has been met, the child graduates from MHSPY. At this time, the Care Manager completes a *Termination Summary* that includes a record of the care that has been delivered, as well as of any recommendations for ongoing services and treatment.

The Care Manager role is a unique one with many challenges. One of the greatest challenges is to support the voice of the family in the system while working collaboratively with each of the other system components toward a shared purpose, with "continuity of intent." Continuity of intent is possible via alignment of goals and actions taken by CPT members regarding the child. A consistent mission is determined by the family, and all interventions are reviewed in the context of the mission, using consensus methods among the members of the child's CPT. Each Care Manager receives multiple layers of support, which allows for a continuous check on model fidelity. Supervision is provided weekly on an individual, group, and peer basis facilitated by the MHSPY Clinical Associate Director and Medical Director, as well as through 24-hour supervisory backup. The consistent reinforcement of care needing to be delivered in the context of the mission, with continuity of intent among all providers, is a hallmark of the MHSPY program.

Evaluation methodology

The process for measuring outcomes in the four chosen domains involves the following:

1. *Functional status*: To assess results in *functional status*, information is collected from multiple sources, including parent and teacher reports, youth self-report, clinical assessment, and administrative data. Formal measurement, such as for level of functioning, is collected at baseline, every 6 months, and at discharge using the following standardized instruments: the *Child and Adolescent Functional Assessment Scale (CAFAS)*,[8] *Child Behavior Checklist* (CBCL),[10] *Youth Self-Report* (YSR),[10] *Teacher Report Form*,[10] and *Family Support Scale(FSS)*.[11] These measures are administered by the MHSPY Enrollment Manager at baseline and by the Clinical Outcomes Coordinator at subsequent intervals. Additionally, two instruments are administered by MHSPY clinicians: the *Child Global Assessment Scale* (CGAS)[12] and the child *Patient Assessment Tool* (PAT).[13] Administrative data include a weekly placement report, which monitors the child's living circumstances, such as foster care, and reports on level of restrictiveness.
2. *Service utilization*: Reporting of *service utilization* is captured on an ongoing basis for each MHSPY member and the group as a whole by Neighborhood Health Plan (NHP), which provides health insurance for each enrollee. All clinical services, including primary and specialty medical care, pharmacy, mental health and substance abuse treatment, laboratory work, and X-rays, are identified using standard claims processing categories and location of service (i.e., hospital) noted for reporting on level of care.
3. *Cost*: Reporting of *cost* is also captured in aggregate and per child. Financial data, including total salary and program operations expense, as well as all individual service delivery costs, are continuously maintained and reported on a quarterly basis in accordance with general accounting principles.
4. *Satisfaction*: Child, parent, and referring agency program *satisfaction* surveys are captured via self-report and collected by the Clinical Outcomes Coordinator at the time of discharge. Additionally, an evaluation of the care planning process is obtained at the end of each CPT meeting from each meeting participant.

Additional administrative information is collected regarding MHSPY member demographics, sources of referral, public agency involvement, diagnosis, length of enrollment, and completion of the child's mission, or "graduation."

Results

Demographics of MHSPY enrollees

From the beginning of the MHSPY pilot in 1998–2002, 83 children were enrolled. Enrolled youth were between 4 and 18 years old; children between the ages of 6 and 10 years comprised 36% of the members, 11- to 14-year-olds comprised 31%, 15- to 18-year-olds comprised 28%, and 4- to 5-year-olds comprised 5% of the total MHSPY enrollees. Males greatly outnumber females (72% vs. 28%). Various races, languages and cultural ethnicities are represented in the MHSPY population: 36% of the youth are non-Hispanic Caucasian/white, 31% are African-American, 28% are Latino, and the remaining 5% are distributed among Nigerian, Cambodian, Indian, and Chinese ethnicities (see Table 2).

The Department of Social Services, the child protective service agency for Massachusetts, referred the majority of enrolled children (53%), whereas 21% were referred by Special Education departments within the two local school systems, 17% were referred by the Department of Mental Health, and 10% were referred by Department of Youth Services, the juvenile justice authority in Massachusetts. Over three quarters (79%) of all the children enrolled have received special education services and been involved with at least one other state agency, in addition to Medicaid.

The most prevalent primary mental health diagnosis reported for MHSPY enrollees is Post-Traumatic Stress Disorder (PTSD), present in over a third (35%) of the study population. The next most frequent diagnostic categories, in descending order, are: mood disorders (22%), conduct disorder (13%), attention deficit/hyperactivity disorder (12%), developmental disorders (7%), oppositional defiant disorder (5%), psychosis (5%), panic disorder (1%), and selective mutism (1%) (see Table 3 for diagnostic information).

Table 2
Demographics of Enrollees: 1998–2002

	N	Percentage
Age		
Under 6 years	4	5%
6–10 years	30	36%
11–14 years	26	31%
15–18 years	23	28%
Total	83	100%
Gender		
Female	23	28%
Male	60	72%
Total	83	100%
Race/ethnicity		
White	30	36%
Black/African-American	26	31%
Latino	23	28%
Other	4	5%
Total	83	100%

"Other" includes Nigerian, Chinese, Cambodian, and Southeast Asian Indian.

Table 3
Primary Psychiatric Diagnoses of Enrollees: 1998–2002

Diagnosis	N	Percentage
Post-traumatic stress disorder	29	35%
Mood disorders	18	22%
Conduct disorder	11	13%
Attention-deficit hyperactivity disorder	10	12%
Developmental disorders	5	6%
Oppositional defiant disorder	4	5%
Psychosis	4	5%
Panic disorder	1	1%
Selective mutism	1	1%
Total	83	100%

Mood Disorders include Bipolar Disorder, Major Depressive Disorder recurrent, with psychotic features, Major Depressive Disorder, Depressive Disorder, and Mood Disorder NOS. *Conduct Disorder* combines Conduct Disorder and Intermittent Explosive Disorder. *Developmental Disorders* include Pervasive Developmental Disorder and Asperger's Syndrome.

Level of functioning

Longitudinal measurement of functioning shows improvement at repeated intervals across almost all items. Upon entry to the program, the mean total eight subscale baseline CAFAS score for program enrollees was 91.4, indicating MHSPY youth are in need of intensive services. MHSPY youth with 12 months participation in the program as of 2002 display improvement from baseline to 12 months on every subscale of the CAFAS (see Table 4). Greatest percent improvements were seen in home (42%), self-harm (41%), substance abuse (40%), and school/work (36%). After involvement in MHSPY, total eight CAFAS scores obtained at 6, 12, and 18 months were consistently improved over baseline by more than 30% (see Fig 2).

Improvement over baseline is also seen on the CBCL, YSR, and CGAS, consistent with the CAFAS findings (see Table 5 for a summary of outcome results). On the Patient Assesment Tool (PAT), a functional measure developed by Grimes[13] with support from HCHP, scores for children in the

Table 4
CAFAS subscales for MHSPY enrollees: 1998–2002

CAFAS subscales	Baseline scores	12-month scores	Percent improvement
Work/school	18.9	12.2	36%
Home	18.1	10.5	42%
Community	7.3	6.2	15%
Behavior to others	17.3	11.9	31%
Moods/emotions	15.9	12.2	24%
Self-harm	5.9	3.5	41%
Substance abuse	4.1	2.4	40%
Thinking	3.8	3.5	7%
Total	91.4	62.4	32%
N = 37			

Results are displayed for MHSPY enrollees with both a baseline and 12-month follow-up score. Lower scores on the CAFAS subscales indicate higher functioning.

Figure 2

MHSPY enrollee CAFAS scores: percent improvement from baseline to 18 months. Improvement in functional status was sustained throughout participation in MHSPY. CAFAS scores represent the total for eight subscales. Enrollee data for 1998–2002.

MHSPY Enrollee CAFAS Scores: Percent Improvement from Baseline
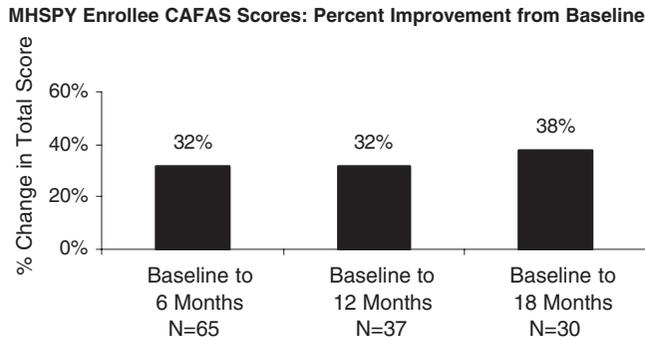
Note:
a. CAFAS scores represent the total for eight subscales.
b. Enrollee data for 1998 – 2002.

MHSPY pilot at 6, 12, and 18 months after enrollment in the program also show improvement compared to baseline. Substance Abuse (SA), Lethality (LTH), and Scaled Limitation of Functioning (SLF) show the greatest change (see Fig 3). For the FSS, although *N* is only 25, caregiver self-report scores show improvements in both the *helpfulness of professionals* from 66% at

Table 5
Trends in functional measures for MHSPY enrollees: 1998–2002

Measure	Baseline	6 months	12 months	18 months
Child Behavior Check List				
Mean score	67.6	63.1	62.8	65.0
Percent improvement from baseline	–	7%	6%	4%
N	77	57	35	21
Youth Self-Report				
Mean score	54.7	55.6	49.8	49.6
Percent improvement from baseline	–	2%	5%	14%
N	39	28	15	13
Teacher Report Form				
Mean score	64.8	64.1	68.8	74.0
Percent improvement from baseline	–	2.5%	−3.6	−4.2
N	28	11	8	4
Child Global Assessment Scale				
Mean score	57.8	61.0	68.5	71.7
Percent improvement from baseline	–	5%	18%	23%
N	80	63	49	33

Lower scores on the Child Behavior Check List and the Youth Self-Report indicate improved functioning, whereas higher scores on the CGAS indicate improved functioning.

Figure 3

Patient Assessment Tool (PAT) percent improvement from baseline. The child Patient Assessment Tool is designed to capture data across the following eight subscales, each of which ranges from best (0) to worst score (9)—SA: substance abuse; DA: duration of abstinence; SD: severity of diagnosis; LTH: lethality; SLF: scaled limitation of functioning; STR: severity of psychosocial stressors; ISS: impairment of social support. Copyright 1990, Harvard Community Health Plan. Enrollee data are for 1998–2002. *N*'s for SA and DA scores represent a subset of *N* for the other five PAT subscales because SA and DA are collected for adolescents only (age 13–18 years).

Patient Assessment Tool (PAT) Percent Improvement From Baseline
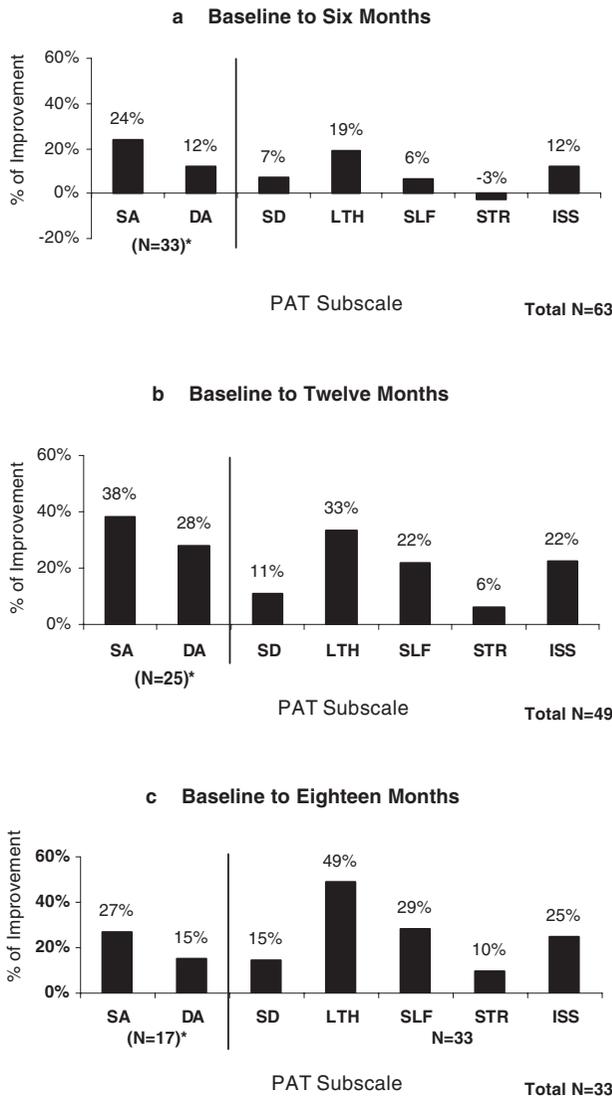
Note:
Enrollee data is for 1998 – 2002. N's for Substance Abuse (SA) and Duration of Abstinence (DA) scores in Figure 3 (a-c) represent a subset of the N for the ther five PAT subscales, since SA and DA data are collected for adolescents only (age 13-18).

Table 6
Rates of hospitalization and/or out-of-home placement

Setting	Year				
	1998	1999	2000	2001	2002
Number of days at home	4511	8373	8136	8821	4993
Percent of total days	(86.2%)	(87.0%)	(84.6%)	(84.6%)	(93.4%)
Number of hospital days	22	56	72	151	94
Number of days in other 24-hr settings					
MHSPY benefit	259	115	75	87	21
Non-MHSPY benefit	442	1076	1337	1373	240
Number of enrollees	35	39	39	40	46

Enrollee data are for the period of service from March 1998 to June 2002. MHSPY benefit: Days spent in the hospital; acute residential and respite care are covered within the MHSPY benefit. Non-MHSPY benefit: 24-hr settings not covered within the MHSPY benefit include foster care, group home, prison, preindependent living, long-term residential, assessment, boot camp, crisis stabilization, detention/DYS facility, and secure treatment. Total $N = 83$. N's for each year include youth who are enrolled for a period of more than 1 year; therefore, they do not sum.

baseline to 85% at disenrollment and the *helpfulness of extended family* from 16% at baseline to 30% at disenrollment.

Service utilization

Annual utilization reports from 1998 to 2002 indicate that the vast majority of days for MHSPY enrollees are spent at home, with an increase over time. There is a corresponding reduction in use of out-of-home placements and hospitalization (see Table 6). In addition, there is a decreasing trend within hospital and out-of-home settings for overall agency expenses not included in the capitation. From 1998 to 2002, MHSPY enrollee days spent in placements not included in the MHSPY benefit (including foster care, residential, group home, detention, jail, preindependent living, assessment, secure treatment, or boot camp) were reduced by 50%. Upon disenrollment from the MHSPY program, approximately 81% of the graduating youth and 68% of other disenrollees remain in their homes (see Table 7).

Table 7
Location of children after graduation or other disenrollment between 1998 and 2002

Location	Graduated		Other disenrollment	
	N	Percentage	N	Percentage
Home	21	81%	13	68%
Foster care	4	15%	–	0%
Incarcerated	–	–	1	5%
Long-term residential	1	4%	5	26%
Total	26	100%	19	100%
$N = 45$				

Youth "graduate" from MHSPY when the care planning team agrees that the mission for the child has been accomplished. "Other disenrollment" indicates that the youth disenrolled for a reason other than graduation (i.e., the family moved, youth entered a residential program, youth lost Medicaid eligibility). Percentages may not sum to 100% due to rounding.

Cost

Consistent with the improvements in functional measures and the ability to use less restrictive levels of care, the average total cost of MHSPY per year, including medical, mental health, and wraparound dollars, was far below that of "usual care." Comparative costs based on available community data indicate that MHSPY enrollee expenses average 50–60% less than similar youth in more restrictive settings, which do not include medical, mental health, or wraparound services.

Satisfaction

MHSPY is a voluntary program. Despite the multiple barriers to engagement faced by the families referred to MHSPY, program retention is remarkably high. The average length of enrollment between 1998 and 2002 was 17 months. In contrast to previous histories of noncompliance, MHSPY families have a dramatically low dropout rate: only 2 out of 83 families or 2.4%. Questionnaires administered at disenrollment showed 33 out of 37, or 89% of parents, reported feeling satisfied or very satisfied with the degree to which their Care Managers listen to them. Overall, 32 out of 37, or 86% of parents, reported feeling satisfied or very satisfied with the help they receive in the MHSPY program. MHSPY youth also reported high levels of satisfaction with the program upon disenrollment. When asked "how much do you think things are better for your family now?," approximately 17 out of 25, or 68% of the youth, reported feeling that their home situation was improved or very much improved since becoming involved in MHSPY. Overall, 16 out of 25, or 64% of youth, reported feeling satisfied or very satisfied with the help they received in the program. Twenty-two out of 29, or approximately 76%, of referring agency representatives reported needing to spend "much less" time coordinating services for MHSPY cases as compared to their cases receiving usual care. Overall, 21 out of 27, or 78%, of referring agency representatives reported feeling satisfied or very satisfied with their experience with the program. Additionally, as the program has become known, families are now referring their friends and relatives, another indication of satisfaction.

Discussion

The experience of the MHSPY pilot confirms the potential power of intentionally organized systems of care. The active participation of both public and private leaders from health care and the Massachusetts state agencies was of crucial importance in creating a sustainable, consensus-driven new model of care. Also invaluable was the delegation of authority to midlevel staff to take necessary risks in the process of implementing the new system of care. By aligning the distinct state agency mandates and removing barriers to flexibility, MHSPY has had maximal capacity to respond to each child's needs. Added to this was the focus and intensity gained from using an individualized, strengths-based approach, which, in turn, stimulated maximal child and family momentum for change. Having both capacity and momentum, the newly gathered energy needed direction. This was provided by the creation of the MHSPY CPT's "mission" for the child. Building each individual plan of care around the centrality of the child's mission, against which any and all interventions for the child must be measured for "goodness of fit," and then providing authority for the child's Care Manager to access the appropriate resources, allowed for the congruence of forces, which might otherwise have been at cross-purposes.

The resulting *continuity of intent* of effort spent toward improving care for children, first at the level of the child and family team, then at the level of community partners, and finally at the level of state policy decision making, has created an infusion of experience, case by case, that has influenced the delivery of child mental health care across Massachusetts. Stakeholders

at both state and local levels have reported that MHSPY helped them recognize that more collaborative and family-friendly interventions help children better. There have also been gains in understanding the added value of measurement within standard practice as a basis for evaluation, which includes appreciation for the fact that children's mental health status can be measured.

Preliminary findings of the MHSPY pilot stand in contrast to widely disseminated prior research on the effectiveness of the CASSP-inspired, federally funded "system-of-care" approach to behavioral health service delivery, which found little or no change in clinical functioning for the youth involved.[14,15] There have been many arguments advanced to explain the results of this research; one possibility may be that the clinical processes were unchanged *within* the system of care. It is hoped that these outcome differences may be explored further with continued expansion of the MHSPY pilot.

Limitations

The data collected by the program have some limitations. The external limit on membership imposed by Medicaid has been one of the greatest barriers to secondary analysis. Although there is virtually no member attrition, the overall total number of study subjects is still relatively small. As a result, data, which include a range of ages and other study subject variables, must be examined together. It is hoped that with further expansion of the program, the effect modification of these distinct variables can be further explored. Second, the vendor relationship Massachusetts Medicaid maintains with an external entity for data management has led to a long physical path of the data, creating delays and gaps related to entry, compilation, and analysis, which have further reduced the size of the data set. A final limitation has to do with the study subject selection process. Overall, pilot eligibility criteria represent "adverse selection" because of required severity and duration of symptoms as well as prior treatment failure; thus, results would be predicted to be poor. However, a possible limitation, which may influence the superior outcomes noted to date, is the fact that the program is built upon voluntary family participation.

The current challenge is the degree to which this successful pilot can be transported to other sites when the scope is larger and the processes, out of necessity, are less personalized. This challenge is worth the effort. Until integrated and clinically coordinated care innovations become "mainstreamed," the financial and clinical benefits for the overall population cannot be fully realized.

Implications for Behavioral Health

Comparisons of baseline to outcome data indicate that children enrolled in the Massachusetts MHSPY pilot overall have: (1) an increased chance of being maintained in their home or community; (2) an expanded array of services being delivered in less restrictive settings; (3) functional measures that demonstrate consistent improvement over baseline regardless of referral source or custodial agency; and (4) overall costs that are significantly reduced in comparison to estimates based on historical data.

Further study is needed to explore the degree to which enrollee demographics, program components, or other variables amplify or limit the above outcomes. Replication of the pilot is desirable to confirm the current findings. It would also be useful to consider the MHSPY findings in the context of results from "usual care." These further investigations would yield important information about for whom the MHSPY model would offer the most benefit, as well as which program elements contribute the greatest effect. Other areas worthy of exploration include the sustainability of outcomes after disenrollment, the impact of this model of care on medical outcomes, and finally, the degree to which real system change has occurred.

Acknowledgments

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