

## **Intensive, home-based treatments for youth with serious emotional disturbances: A comprehensive review of experimental findings**

### **1.1 Introduction**

In 1982, Jane Knitzer famously reported that two-thirds of youth with serious mental health challenges were either underserved or unnecessarily institutionalized (Knitzer, 1982). In the decades since, home-based interventions for these youth and their families have emerged as viable treatment options (Stroul & Friedman, 1986; Love, Mueller, Tolman & Powell, 2014; DHHS 2005; ACA II, §2402 (2010)). These intensive programs occupy a critical point in the continuum of care: they represent the threshold between community retention and institutional placement. As of 1999, 35 states offered some form of intensive, home-based treatment (IHBT) for children and youth with psychiatric impairments, and research pursuant to this review found iterations in most states (Koyangi, 1999; Daleiden, Pang, Roberts, Slaven & Pestle 2010; Young, Plotner, Damon & Hight, 2008). In 2015 and 2016, IHBTs served hundreds to thousands of children per state, at costs ranging from \$17.9M annually in Mississippi, to \$80M annually in Tennessee, to \$108M in Virginia (Vicky Donaho, Public Records Officer for Medicaid; personal communication, January 7, 2016; Youth Villages, 2016; Brian Campbell, personal communication, January 4, 2016). Despite their crucial function and near ubiquity, IHBTs are not well described, and few systematic evaluations have been published (Barth et al., 2007; Williams, 2009). Furthermore, the published literature does not reveal whether most IHBTs have clearly stated treatment models, fidelity measures to ascertain model adherence, or monitored outcomes measures that are plausibly related to the goal(s) of the interventions (Hammond & Czyszczon, 2014). This is of particular interest in a scientific and political climate increasingly concerned with establishing an empirical evidence base (Littell, 2008). The present review will comprehensively present the extant empirical findings describing IHBTs, and discuss likely reasons for and consequences of the current state of knowledge about this field.

### **1.2 Differentiating Intensive Home-Based Services**

The *prima facie* logic favoring in-home services for psychiatrically impaired youth is compelling. Recognizing the importance of the proximal social ecology to a child's development, IHBT clinicians enter the child's predominant environment, where they can

observe, and then scaffold improvements in, the interactional patterns that are precipitating and perpetuating the child's problematic behavior or distress (Woolston et al., 1989).

Although frequently upheld as the relevant empirical grounding for IHBTs in child psychiatry, most empirical studies investigating the efficacy of IHBTs have been carried out in sectors only tangentially related to it. The **child welfare system** was the first to develop intensive home-based services. One of the earliest models, developed in 1974, was the four- to six-week “family preservation” program, Homebuilders® (Kinney, Madsen, Flemming, Haapala, 1977). This model was subsequently adapted for youth in **the juvenile justice system**, and primed the field for the emergence of other evidence-based interventions, designed to reduce antisocial behavior (i.e., substance use and criminal recidivism) among adolescents (Henggeler et al., 2009). Later interventions tended to be longer than the Homebuilders model, lasting 4-6 months rather than 4-6 weeks. Homebuilders and these later, manualized interventions—the most recognizable of which is Multisystemic Therapy (MST)—appear to have formed the conceptual basis for models of intensive home-based treatments for families struggling with a child's mental health challenges. However, any similarities between these interventions and their psychiatrically adapted cousins in duration, intensity, family inclusion, and multisystemic focus belie substantial differences in the populations served and the behaviors targeted. For instance, juvenile offender programs will not accept a child who is psychiatrically unstable (MST Services). Psychiatric home-based interventions bear even less resemblance to child welfare family preservation interventions, despite some evidence of overlap in the populations served (Burns et al., 2004). The involvement of family preservation interventions is typically triggered by reports of parental abuse or neglect, and they target parenting behavior and the physical home environment rather than child psychopathology (Fraser, Pecora, Haapala, 1991; Swenson, Schaeffer, Henggeler, Faldowski, Mayhew, 2010; Kirk & Griffith, 2004). Many such programs exclusively serve infants, toddlers and preschool-aged children, who are statistically at greatest risk for maltreatment (Howard & Brooks-Gunn, 2009). Thus, while the evidence base established by these other in-home programs in related fields is a promising sign for child psychiatry, target population and problem differences preclude meaningful comparisons between them.

Finally, there is a class of **home-based parent training interventions**, available to parents and, typically, youth under the age of five. These interventions (e.g., Parent-Child Interaction Therapy, the Incredible Years Parenting program, Parent Management Training) have

been proven to reduce challenging behaviors in young children by educating parents in consistent and appropriate practices, generally, as well as strategies for de-escalation (Eyberg, Boggs, & Algina, 1995; Webster-Stratton & Reid, 2010; Feldman & Kazdin, 1995). Like IHBTs, these early intervention programs target children who display signs of out-of-control externalizing behavior, and one critical aspect of these programs is providing training in more effective parenting techniques (Lee et al., 2014). However, these early interventions are not necessarily intensive or home-based, and their narrowly tailored behavioral approaches render them distinct from most IHBTs. IHBTs are interventions tailored to the needs of youth with complex, often comorbid, emotional and behavioral disorders and their families, whose condition places them at risk for out-of-home placement (e.g., a hospital or residential treatment center). Unlike interventions targeting parent-preschooler interactions, the juvenile justice population, and those initiated by child welfare services, there has not been a systematic review of empirical findings exclusively for IHBTs (Fraser, Pecora & Hapaala, 1989; Farmer, Dorsey & Mustillo, 2004).

## **2.1 Method**

This review will limit itself to behavioral health interventions. Also, because this review is specifically concerned with the establishment of IHBTs as evidence-based, only experimental studies met criteria for inclusion. Searches with relevant search terms (e.g., “home based,” “in-home,” “multisystemic,” “community-based,” “child,” “adolescent,” “psychiatric,” “emotional disturbance,” “behavioral”) were conducted through PsycINFO, MEDLINE, and Google Scholar to find related studies published between 1995 and 2016. Results relating to elderly populations, or to interventions exclusively dedicated to substance abuse, autism, or physical health concerns were immediately excluded. Of the 3,247 unduplicated potentially relevant studies that were reviewed, only three experimental studies and two quasi-experimental studies met our criteria, which also excluded interventions that were not intensive (i.e., more than 1 hour per week), or were not triggered by a youth’s psychiatric instability. Experimental studies of home-based interventions which were conducted outside of North America were also excluded, as, upon review, cultural and policy differences contrary to the impetus for this review rendered them irrelevant (see Table 1).

Table 1.

Results of evaluations of home-based treatments for youth with emotional and behavioral disturbance

Study	Experimental Design	N Criteria	Ages (M)	% male	Conditions	Follow-up Period	Measures	Primary Outcomes
<i>Henggeler et al., 1999</i> SC, USA	Randomized (yoked)	113 Approved for emergency psychiatric hospitalization	10-17 (13)	65%	1. Hospitalization followed by treatment as usual  2. Four months IHBT	MST-discharge <sup>1</sup>	CBCL, BSI, FACES-III, PEI, FFS, SUS, school placement, arrest records	Youth self-esteem <sup>^</sup> Days retained in the home* Days in regular school setting* Externalizing (per Parent, Teacher)* Satisfaction*
<i>Henggeler et al., 2003</i>		156						CBCL Total score below clinical <sup>†</sup> Global Severity Index <sup>†</sup>
<i>Huey et al., 2002</i>		Approved for emergency psychiatric hospitalization	10-17 (13)	65%		1-year post MST-discharge	CBCL anxiety/depression subscale, FFS, BSI, YRBS, self- and parent- reported suicide attempts	Parental Control Suicide attempts* Suicidal ideation <sup>†</sup> Depression <sup>†</sup> Hopelessness <sup>†</sup>
<i>Rowland et al., 2005</i> HI, USA	Randomized	31 At imminent risk of out-of- home placement	9-17 (14.5)	58%	1. Four-month IHBT  2. Treatment as usual	6-months post- intake	CBCL, FACES-III, PEI, SRD, SSQ, YRBS, SUS, school placement, arrest records	Days in home* Self-reported minor delinquency* CBCL improvement (Self)*

<i>Wilmshurst 2002</i> Canada	Randomized	65 Identified as High or Very High risk by agency	6-14 (11)	85%	1. Three months IHBT 2. Three months 5-day residential treatment	1-year post-discharge	SCIS, SSRS	Externalizing improvement† Number of youth with ADHD symptom improvement* Anxiety symptom improvement* Depression symptom improvement*
<i>Evans, Boothroyd, Armstrong, 1997</i> NY, USA	Randomized (subject to availability)	238 Presented at a hospital in psychiatric crisis	5-17 (12)	53%	1. 4-6 weeks home-based crisis treatment 2. 4-6 weeks enhanced home-based crisis treatment <sup>2,3</sup> 3. 4-6 week enhanced home-based crisis case management <sup>2</sup>	6-months post-discharge	CAFAS, CBCL, CDF, FACES-II, Piers-Harris Self-Concept Scale, SAF	Most youth maintained at home Self-concept improvements† Externalizing symptom reduction† Internalizing symptom reduction† Parent socially supportive behaviors†
<i>Crane, Hillin, Jabowski, 2005</i> KS, USA	Quasi	3,753 Medicaid-enrolled, treated for conduct disorder May – October 1999	5-18 (15)	81%	1. Home-based family therapy 2. Office-based family therapy 3. No family therapy	30-months (continuous follow-up)	Billing records	Medicaid costs*
<i>Barth et al., 2007</i> 7 states & DC, USA	Quasi	408 matched (of 1,369) youth who had received services through a certain provider	All ages	80%	1. Four months home-based treatment 2. Residential treatment	1-year post-discharge	Living with family, trouble with the law, progress in school, out-of-home placements	Composite outcome (desirable, undesirable, mixed)

Notes.

\* Statistically significantly supports in-home intervention ^ Statistically significantly supports comparison condition. † Statistically significant time effect: no treatment effect. <sup>1</sup> Self-esteem assessed at hospital discharge. <sup>2</sup> Enhanced by provision of flexible service funds and in-home or out-of-home respite care. <sup>3</sup> Enhanced by parent advocate and support services, as well as additional staff training not provided to the other home-based treatment condition. BSI, Brief Symptom Inventory; CAFAS, Child and Adolescent Functional Assessment Scales; CBCL, Child Behavioral Checklist; CDF, Client Description Form; SAF, Supplemental Assessment Form; FACES-II, III, Family Adaptability and Cohesion Evaluation Scales; FFS, Family, Friends, and Self Scale; PEI, Personal Experiences Inventory; SCIS, Standardized Client Information System; SRD, Self-Reported Delinquency scale; SSQ, Social Support Questionnaire; SSRS, Social Skills Rating System ; SUS, Service Utilization Scale; YRBS, Youth Risk Behavior Survey

### **3.1 Experimental Examinations of Home-Based Interventions with psychiatrically impaired populations**

Multisystemic Therapy® (MST) began testing its model designed for status and criminally offending youth in the late 1980s (Brunk, Henggeler & Whelan, 1987; Henggeler, Meton & Smith, 1992). After a decade of research suggesting that MST was generally applicable to children with problematic behaviors who were at risk for out-of-home placement (i.e., detention), the model developers hypothesized that it would be effective for children at risk for psychiatric hospitalization (Henggeler et al., 1999). In 1999, Henggeler and colleagues published results from a randomized trial that compared more intensive and psychiatrically-adapted MST to inpatient hospitalization (Henggeler et al., 1999). This MST adaptation (now known as MST-Psychiatric) represented a modification of MST insofar as the treatment team was expanded to include psychiatry residents for medication management, and crisis workers for 24/7 availability. Other changes to the model included an emphasis on safety planning and crisis management. Results from the initial study suggested that although a large number of children in the MST-Psychiatric condition were still hospitalized during the four-month study period (49%), they spent, on average, far fewer days out of the home, and, relative to the comparison arm, reported significantly more improved family functioning, school attendance, and levels of externalizing behaviors at MST-Psychiatric discharge than those in the hospitalization condition (Henggeler et al., 1999; Shoenwald et al., 2000). In the MST arm, the average improvement in externalizing CBCL scores was more than 9 points by caregiver report, and 6 points by teacher report; in the hospitalization arm, it was more than 6 points by caregiver report, but no improvement was reported by teachers. For all youth, average externalizing scores remained within the clinical range by all assessments, and the average severity did not differ significantly.

A follow-up study found that none of the reported gains was maintained at one year (Henggeler, 2003). In the year following treatment, roughly the same percentage of MST-Psychiatric and hospitalized children had experienced out-of-home placement (48% and 47%, respectively), with comparable lengths of stay: in both conditions, youth spent more than 50 days, on average, outplaced from their homes. A separate analysis of this population at one-year post-treatment examined indicators of suicidality (Huey et al., 2002). It found no significant improvement in suicidal ideation, parent-reported self-harm, hopelessness, or depression. It did,

however, find a significantly greater reduction in suicide attempts among youth who had received MST-Psychiatric (27% vs. 15% reduction). A drawback of the study was that, at baseline, the MST-Psychiatric condition contained a 63% larger population endorsing suicide attempts. There was a highly significant time effect, and at one year, the percentage reporting a suicide attempt in each condition was the same (4%). Therefore, as the authors noted, this finding may not have been a treatment effect, but rather an expected regression to the mean.

Highlighting the dissimilarities of IHBTs targeting different populations, previous authors have noted that MST-Psychiatric did not much resemble its forbearers in cost-effectiveness (Littell, 2005). While a traditional MST caseworker spent 33 hours with a delinquent youth and family (Henggeler, 1992), MST-Psychiatric therapists logged an average of 92 hours, with reduced caseloads of 3, rather than 5, clients (Henggeler, 2003). At this level of intensity, intervention expenditures were approximately equivalent to hospitalization (about \$6,000 per child (Burns et al., 2000)).

After the relatively strong short-term finding of the first RCT, developers undertook a second RCT in Hawaii (Rowland, 2005). After only 13 months, however, that subsequent study was terminated. Investigators cited challenges both to enrollment and treatment fidelity. Notably, the population served by MST-Psychiatric appears dissimilar to that of other interventions for youth acutely psychiatrically at-risk (compare Grimes, 2002; Wagner et al., 2005). Indeed, the MST-Psychiatric population averaged more than seven arrests, with a mean age over 14. This is an older and more delinquent population than is typical for cohorts of youth with serious emotional disturbance, indicating that the demographics of the recruited subjects may have been influenced by MST's reputation for success with delinquent populations. The early termination of this study resulted in a very small sample size, rendering it difficult to find meaningful or significant differences. Still, the authors found significantly greater improvement in self-reported symptomatology and minor delinquency among the MST youth (n=15), as well as a significantly greater number of days within the home, on average, per month enrolled. This study did not replicate any of the parent-reported symptom improvement or family adaptability/cohesion improvement from the first randomized controlled evaluation of MST-Psychiatric.

In Ontario's system of care, IHBTs are made available to all children referred for residential treatment. There have been evaluations of the outcomes of youth who receive each treatment, with findings showing that both lead to improvement (Preyde, Adams, Cameron,



French, 2009). However, it is difficult to extrapolate on the basis of such non-experimental comparisons, as lower-symptom youth with invested parents differentially self-select into IHBTs, leaving youth with greater conduct problems and without parental caregivers to be overrepresented in the residential population (Preyde et al., 2011). Using only youth with family involvement, Wilmshurst accomplished a randomized trial of these treatments. Youth identified as having “high” or “very high” mental health needs by a Canadian agency were randomly assigned (availability permitting) to an intensive home-based cognitive-behavioral treatment (CBT) (n=38) or a five-day per week residential program utilizing solution-focused brief therapy (SFBT) (n=27) (Wilmshurst, 2002). Both treatments lasted three months and included family-focused work. On average, youths improved considerably and comparably on internalizing, externalizing, and social competence measures, both at discharge and 1-year follow-up, according to parent report. However, a significantly greater percentage of youth receiving IHBT showed improved ADHD symptomatology (63% v. 22%). Youth in the home-based arm also showed significantly greater one-year reductions in anxiety (24% v. 3%) and depression (26% v. 11%). By contrast, participants in the residential treatment arm were more likely to report increases in internalizing symptoms (Wilmshurst, 2002). Internalizing and externalizing symptoms were assessed by a test derivative of the CBCL, the Standardized Client Information Systems (SCIS), whose clinical cutoff score is 70. Like the population studied by Henggeler and colleagues, parents rated 70% of youth as having externalizing and internalizing symptoms in the clinical range. Both treatment arms successfully lowered average externalizing scores closer to the clinical cutoff—an overall improvement of more than 8 points in the home-based arm, and 6 points in the residential arm. In the six months post-treatment, improvement tended to continue at a slower pace, on a trend towards the clinical cutoff, but with considerable variation (In-home:  $70.89 \pm 12.4$  v. Residential:  $73.22 \pm 12.2$ ). Methodologically, this study was limited by the covariance of treatment modality (CBT vs. SFBT) with service setting (home vs. residential treatment facility). Thus, its apparent support for IHBTs may, in whole or in part, reflect a treatment effect of CBT over SFBT.

In New York City, Home-Based Crisis Intervention (HBCI) is considered a standard treatment for children at imminent risk for psychiatric placement (Evans, Boothroyd, & Armstrong, 1997). HBCI is a 4- to 6-week intensive intervention adapted from the Homebuilders® design, in which registered nurse counselors carry only two cases concurrently.

They offer parental psychoeducation, medication management, and case management, and attempt to improve family communication and problem-solving skills. The only experimental evaluation of this service compared it (n=90) to enhanced home-based care coordination (n=63) and an enhanced HBCI condition (n=85). The two latter conditions were enhanced by the availability of service dollars (\$150 and \$100 per case, respectively), and in- or out-of-home respite. Regarding the anticipated effect of the funds, authors noted that this was a highly socioeconomically disadvantaged population in the Bronx; more than half of all parents did not have a high school diploma, and most family incomes were less than \$20,000 per year. However, there emerged no child or family functioning differences between conditions at 6-month follow-up. The vast majority of children in all conditions were maintained in their communities (82.4%), and there were no significant treatment differences on this measure. Notably, despite efforts to randomize, researchers were constrained by the ability only to assign youth to conditions with current openings. Perhaps as a result of this limitation, the case management condition participants presented with significantly higher symptomatology, and were significantly more likely to represent dangers to themselves at baseline ( $p < .001$ ) (Evans et al., 2003). Over the 6-week intervention period, both HBCI conditions showed slightly *increased* parent-reported internalizing and externalizing scores, while the home-based case management condition scores decreased slightly. However, because the latter children were significantly more severe at intake, this finding is difficult to interpret. At 6-months post-discharge, youth in all treatment conditions had improved. These improvements were smaller than those observed, on average, in the previously described studies, and youth remained, on average, well in the clinical range on both internalizing and externalizing CBCL subscales. No further analyses of HBCI have been published.

Researchers in Kansas examined the impact of in-home family therapy on service utilization by analyzing Medicaid claims data for youth treated for conduct disorder between May and October of 1999 (Crane, Hillin, Jakubowski, 2005). Using a retrospective longitudinal design, they divided identified youth into three groups: those who did not receive family therapy (n=3,086), those who received in-home family therapy (n=503), and youth who received in-office family therapy (n=164). Identified youth were followed for 30 months to track the cost of their subsequent medical care. Youth who received in-home family therapy cost Medicaid 85% less over that 30-month period than youth who received in-office family therapy, and 90% less

than those who received no family therapy. Because of its methodology, this study may have included youth receiving in-home services for delinquent behavior, as well as home-based family therapy that was not intensive. However, this nevertheless suggests that in-home, family-centered interventions may be cost-effective for emotionally disturbed, externalizing youth.

Finally, a more recent quasi-experimental study drew from 1,369 children who had received exclusively intensive in-home or residential treatment through a single non-profit provider, Youth Villages Incorporated (Barth et al., 2007). Its intensive in-home program (Intercept), loosely adapted from MST, operates in ten states, though it is most widespread in Tennessee (Youth Villages, 2016). Using propensity score matching, 786 treatment receivers were paired for comparison at one-year post-treatment. Living with family, no out-of-home placements during the year, consistent school attendance or graduation, and no adverse legal involvement were all assessed, and collapsed as “desirable,” “undesirable,” or “mixed” outcomes. A non-significant trend supported the in-home intervention arm, rendering a conclusion that in-home interventions are at least as effective as residential treatment, in addition to being less expensive and restrictive (Barth et al., 2007).

#### **4.1 Discussion**

More than a decade after empirical studies first demonstrated the capacity of home-based interventions to reduce hospitalization rates in adult populations, and twenty years after the first calls to deinstitutionalize minors with psychiatric disabilities, the first experimental studies of home-based, family-focused interventions for child and adolescent populations were performed (Kiesler, 1982; Bond, Miller, Krumwied, Ward, 1988). To date, compared to the more than dozen experimental studies of home-based interventions for the juvenile justice population, only five experimental or quasi-experimental studies have been performed on the efficacy of IHBTs for children’s emotional and behavioral disturbances (Henggeler et al., 2003; Rowland et al., 2005; Wilsmhurst, 2002; Crane, Hillin, Jakubowski, 2005; Evans et al., 2003; Barth et al., 2007). All five studies demonstrated long-term improvements in clinical severity, but most failed to document differences between treatment conditions with regard to clinical severity or out-of-home-placements. They all described populations of comparable disadvantage, characterized by predominantly single-parent, low-income or impoverished households, and youth with clinically significant internalizing and externalizing symptomatology. However, three of the five studies

compared in-home programs to more restrictive and intensive treatments (hospitalization, residential treatment, and weekday residential treatment), while two compared it to less intensive treatments (enhanced case management and office-based therapy) (Henggeler et al., 2003; Evans et al., 2003; Wilmshurst, 2002; Crane, Hillin, Jakubowski, 2005; Barth et al., 2007).

Additionally, the interventions differed substantially in their durations, intensity, team sizes, staff training, and theories of change (or lack thereof). It emerges that IHBTs are not uniform—they represent a mode of service delivery, rather than a treatment model unto itself. These difficult-to-categorize intervention models present a challenge to researchers looking to aggregate findings regarding IHBTs. MST-Psychiatric has the most established evidence base, having published on two RCTs with favorable findings at MST-discharge. This achievement exceeds other experimentally tested in-home interventions, despite the previously noted limiting impact of sample size in the second study, and failure to maintain gains at follow-up. Based upon these accomplishments, MST-Psychiatric has been recognized by two registries as an evidence-based practice (SAMHSA’s National Registry of Evidence-based Programs and Practices and the National Institute of Justice). Nonetheless, all interventions described herein are in relatively early stages of establishing their efficacy.

In regard to specific outcome measures, most of the studies examined change on some index of child severity, most frequently CBCL scores. From such few findings, it is difficult to establish reliable benchmarks. It is possible to conclude that the populations served by these interventions are highly clinically impaired, particularly with regard to externalizing behaviors. However, there is substantial comorbidity with internalizing symptomology, with most of the studies serving youth who scored in the clinical range on both internalizing and externalizing scales. This finding highlights the clinical complexity of the population served. In terms of change over time, intensive in-home and comparison treatments were able to bring youth closer to the clinical cutoff, but on average, children were not brought below it. A caveat to these generalizations is that all measures of severity were by parent-report, and only one study included a second observer’s assessment (Henggeler et al., 1999). This is notable as empirical findings consistently suggest that parental psychiatric issues, which are prevalent in the multiproblem families typically served by IHBTs, are associated with even lower correlations with clinician assessments than in typical populations (Des Los Reyes & Kazdin, 2005; Garber, Van Slyke, Walker, 1998). The absence of data from non-parent sources is particularly striking

in light of the explicit recognition of such family vulnerabilities, including frequent distortions or inflexibility in parental perception, cited by IHBT designers (Woolston, Adnopoz, Berkowitz, 2007). The potential for parental perception to contribute to a child's psychiatric instability in the home suggests that parental report, though informative, is ill-suited to fully capture their child's degree of functional impairment, and may inaccurately or inadequately convey treatment effects. This challenge suggests the need to consider utilizing measures of parental functioning and perception to better understand their effect on child functioning (Woolston, 1989). Likewise, controlling for broader family factors that may be contributing to or exacerbating the child's symptoms (e.g., domestic violence, poverty, housing instability, parental unemployment, or food insecurity) may further disambiguate child psychopathological functioning from family and broader environmental elements, and expand the array of indicators likely to measure the changes that may result from these interventions.

In addition to detecting changes in child psychopathology, the efficacy of IHBTs has been measured by out-of-home placement. This was a primary finding in the randomized trials of MST-Psychiatric, HBCI, and Intercept. Costly service use—which offers a proxy for out-of-home placement—was the only measured outcome in the quasi-experimental design in Kansas. Unlike in earlier adult trials, these more recent evaluations of IHBTs for child and adolescent populations have failed to show long-term, statistically significant differences between treatment arms. It is possible that such change may have become more difficult to detect, as the threshold severity for hospitalization has increased and hospital stays have grown shorter, particularly for young people (Pottick, McAlpine & Andelman 2000; Watanabe-Galloway & Zhang 2007). Many of the initial validation studies with adult populations were conducted before this shift occurred, providing crucial, although imprecise context for any comparison (Hoult et al., 1983; Muijen, Marks, Connelly & Audini 1992; Burns, Beadsmoore, Bhat, Oliver & Mathers, 1993, Figueroa, Harman & Engberg, 2004). The development of a continuum of care, which has included IHBTs, the most intensive community-based option, occurred, by design, contemporaneously with deinstitutionalization. This trade-off represented a policy shift, whose successful accomplishment is arguably a testament, in and of itself, to the effectiveness of the interventions to reduce hospitalization. Simultaneously, political and managed care policy have increasingly disfavored hospitalization and hospital stays have become progressively shorter, even as rates of hospitalization have, correspondingly, increased (Blader, 2004). In this climate,

in which hospitalization is actively avoided or curtailed by admitting health institutions, professionals, and funders, it may be impractical to consider days in the hospital to be a primary outcome in future randomized trials. Moreover, out-of-home days is not an unambiguous clinical outcome, as children may be removed from the home for a variety of reasons besides individual severity, such as family and school factors, which are presently mostly unmeasured (Fontanella, 2008). Including measures of family and parent functioning may allow for the disambiguation of such factors in predicting child hospitalization rates.

In sum, it seems intuitive, given that IHBTs are characterized by individualized treatment plans targeting multi-systemic treatment goals, that these treatments ought to have multiply determined outcomes (Hoagwood, Jensen, Petti & Burns, 1996). These might consist not only of reductions in child symptomatology and maintenance within the home, but also such measures as family and clinician reports of progress towards goals, reductions in parent stress, changes in parental perceptions, peer relationship, academic functioning, school attendance, and family satisfaction with treatment. Two of the analyses presented here used such multidimensional outcomes (Barth et al., 2007; Henggeler et al., 2003).

#### **4.2 Building an evidence base: recommendations for future research and practice**

Intensive in-home interventions are unique and complex interventions, currently performed in most states, but seldom described in the literature of developmental psychopathology or community-based treatment. As the demand for evidenced-based treatments swells, it is incumbent upon these interventions to enter the sphere of scientific inquiry and demonstrate their efficacy and effectiveness in the various domains in which they operate. This should be done both by rigorous experimental and quasi-experimental designed evaluations, as well as by ongoing quality assurance and improvement evaluations of treatment programs outside the laboratory. However, the majority of these “real world” interventions currently appear to lack the data generation, data collection, data analysis and data feedback capability that would allow for basic quality assurance and improvement. For these programs, the first steps need to include standardization of the service model to include accepted comparative components; the selection of reliable, inexpensive and salient process (fidelity) and outcomes measures; and the implementation of a data collection, analytic and feedback system that is supported by payors.

Even for well-funded, rigorous experimental and quasi-experimental studies, the task of evaluating IHBTs will not be easy, because the very nature of the work targets moving parts (family systems, child development, ecological spheres of influence), which are resistant to static, unidimensional measures from any single perspective. These interventions take the position that the child is a context-dependent individual, and so should their published evaluations. Looking merely at days out of the home, or parent-perceived child improvement, likely does not fully capture the change being attempted by these interventions. Rather, to truly assess efficacy, it may be important to collect family members' reciprocal and self-assessments, in addition to assessments from teachers, measures of school attendance, school functioning, family communication, family material and relational stability, and parent stress. Current research and practice is challenged by the inability to fully understand and measure the interaction between the child's psychiatric instability and the caregiver's capacity to function competently as a reflective parent.

In-home behavioral health interventions for children with severe emotional and behavioral disturbances and their families have been developed based on models operating in other sectors, for other populations, and have been adapted with theory or clinically-based assumptions about their needs. However, these assumptions require evaluation over and above efficacy. Going forward, it will be important to compare different models of intensive in-home services to one another to establish what elements are most effective, and for which populations. It may also be useful to compare these interventions to themselves at different "dosages," to establish what duration and intensity is most effective. Among the few interventions experimentally tested, the 4- to 6-month interventions reported consistently greater improvement than the 4- to 6-week interventions. These early studies suggest that gains can be made over the course of treatment, but no study has yet found long-term, longitudinal clinical effects.

These new evaluation approaches represent promising new directions for a field in which, at present, the practice far exceeds the proof. However, such development will require the active involvement in research of the parties primarily responsible for the funding and organizing of IHBTs, namely state-level health and mental health agencies. The reason for an emphasis on out-of-home days rather than global family improvement, which might seem a more intuitive focus for mental health interventions, may be the same reason that IHBTs are lightly represented in the scientific literature. It is a reason tied to their genesis from CASSP grants, and their current

funding by Medicaid dollars: specifically, intensive in-home interventions are political, as well as medical entities. Guidelines for their form, licensure, and reimbursement have been written by legislators and government agencies in many states (N.C. Gen. Stat §2012-171-525 (2011); Va. Admin Code Ch. 12 §30-50-130; Ohio R.C. §5122.29.28 (2013); Michigan DHHS (2017)). Because of this, the target audiences for many interventions are their legislators and policy makers, rather than the scientific community at large (e.g. University of Southern Mississippi's School of Social Work, 2010; Plant, Balestracci & Value Options CT 2014; Daleiden, 2003). This fact is epitomized by the quasi-experimental study in Kansas, whose only outcome is cost. To address the dearth of scientific studies, states should join with investigators to request and fund randomized trials of the interventions already in existence and in which they have invested. The scale of intensive in-home programs targeting children and adolescents with psychiatric impairments and the continued dearth of experimental findings in support of their efficacy after decades of operation strongly suggest the need for systematic research efforts and a new approach to measuring change in complex populations.



## References

- Amount, Duration, and Scope of Medical and Remedial Care and Services, Virg. Admin. Code Ch. 12 § 30-50-130, 5B (2015).
- An Act Relating to Critical Access Behavioral Health Agencies, N.C. Gen. Stat. §2012-171 (2011).
- Blader, J.C. (2004). Symptom, family, and service predictors of children's psychiatric rehospitalization within one year of discharge. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(4), 440-451.
- Barth, R.P., Greeson J.K.P., Guo S., Green S.L., Hurley S., Sisson J. (2007). Changes in family functioning and child behavior following intensive in-home therapy. *Children and Youth Services Review*, 29(8), 988-1009.
- Bond, G.R., Miller, L.D., Krumwied, R.D., Ward, R.S. (1988). Assertive case management in three CMHCs: A controlled study. *Psychiatric Services*, 39(4), 411-418.
- Brunk, M., Henggeler, S.W., Whelan, J.P. (1987). Comparison of multisystemic therapy and parent training in the brief treatment of child abuse and neglect. *Journal of Consulting and Clinical Psychology*, 55 171–178.
- Burns, T., Beadsmoore, A., Bhat, A.V., Oliver, A., Mathers, C. (1993). A controlled trial of home-based acute psychiatric services. I: Clinical and social outcome. *The British Journal of Psychiatry*, 163(1), 49-54.
- Burns, B.J., Schoenwald, S.K., Burchard, J.D., Faw, L., Santos, A.B. (2000). Comprehensive community-based interventions for youth with severe emotional disorders: Multisystemic therapy and the wraparound process. *Journal of Child and Family Studies*, 9(3), 283-314.
- Burns, B.J., Phillips, S.D., Wagner, R., Barth, R.P., Kolko, D.J., Campbell, Y., Landsverk, J. (2004). Mental health need and access to mental health services by youths involved with child

welfare: A national survey. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43(8), 960–970.

Crane, D.R., Hillin, H.H., Jakubowski, S.F. (2005). Costs of treating conduct disordered Medicaid youth with and without family therapy. *American Journal Family Therapy*, 33(5), 403–413.

Daleiden, E.L. (2003). Annual evaluation report fiscal year 2003. State of Hawaii Department of Health, Child and Adolescent Mental Health Division.

Daleiden, E.L, Pang, D., Roberts, D., Slavin, L.A., Pestle, S.L. (2010). Intensive Home Based Services within a comprehensive system of care for youth. *Journal of Child and Family Studies*, 19(3), 318-325.

Department of Health and Human Services: Report to the President and Congress. *Medicaid Home and Community-Based Alternatives to Psychiatric Residential Treatment Facilities Demonstration*. Washington, DC, 2013.

De Los Reyes, A., & Kazdin, A. E. (2005). Informant discrepancies in the assessment of childhood psychopathology: a critical review, theoretical framework, and recommendations for further study. *Psychological bulletin*, 131(4), 483.

Evans, M.E., Boothroyd, R.A., & Armstrong, M.I. (1997). Development and implementation of an experimental study of the effectiveness of intensive in-home crisis services for children and their families. *Journal of Emotional and Behavioral Disorders*, 5(2), 93-105.

Evans, M.E., Boothroyd, R.A, Armstrong, M.I., Greenbaum, P.E., Brown, E.C., & Kuppinger, A.D. (2003). Effectiveness of in-home crisis services for children and their families: program outcomes. *Journal of Emotional and Behavioral Disorders*, 11(2), 92–102.

- Eyberg, S.M., Boggs, S.R., & Algina, J. (1995). Parent-child interaction therapy: A psychosocial model for the treatment of young children with conduct problem behavior and their families. *Psychopharmacology Bulletin*, 31(1), 83-91.
- Farmer, E.M.Z., Dorsey, S., & Mustillo, S.A. (2004). Intensive home and community interventions. *Child and Adolescent Psychiatric Clinics of North America* 13, 857-884.
- Feldman, J., & Kazdin, A.E. (1995). Parent management training for oppositional and conduct problem children. *Clinical Psychologist*, 48(4), 3-5.
- Figuroa, R., Harman, J., & Engberg, J. (2004). Use of claims data to examine the impact of length of inpatient psychiatric stay on readmission rate. *Psychiatric Services*, 55(5), 560-565.
- Fontanella, C.A. (2008). The influence of clinical, treatment, and healthcare system characteristics on psychiatric readmission of adolescents. *American Journal of Orthopsychiatry*, 78(2), 187-198.
- Fraser, M.W., Pecora, P.J., Haapala, D. (1989). *Families in crisis: findings from the family-based intensive treatment project*. Salt Lake City, UT: Social Research Institute, Graduate School of Social Work, University of Utah.
- Fraser, M.W., Pecora, P.J. (1991). *Families in crisis: The impact of intensive family preservation services*. D. A. Haapala (Ed.). Transaction Publishers.
- Garber, J., Van Slyke, D.A., & Walker, L.S. (1998). Concordance between mothers' and children's reports of somatic and emotional symptoms in patients with recurrent abdominal pain or emotional disorders. *Journal of abnormal child psychology*, 26(5), 381-391.
- Grimes, K.E., Kapunan, P.E., & Mullin, B. (2006). Children's health services in a "system of care": Patterns of primary and specialty use. *Public Health Reports*, 121(3), 311-323.

- Hammond, C., Czyszczon, G. (2014). Home-based family counseling: An emerging field in need of professionalization. *Family Journal; Alexandria*, 22, 56-61.
- Henggeler, S.W., Melton, G.B., & Smith, L.A. (1992). Family preservation using multisystemic therapy: An effective alternative to incarcerating serious juvenile offenders. *Journal of Consulting and Clinical Psychology*, 60, 953–961.
- Henggeler, S.W., Rowland, M.D., Randall, J., War, D.M., Pickrel, S.G., Cunningham...& Santos, A.B. (1999). Home-based multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis: clinical outcomes. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38(11), 1331–1339.
- Henggeler, S.W., Schoenwald, S.K., Rowland, M.D., Cunningham, P.B. (2002). *Serious Emotional Disturbance in Children and Adolescents: Multisystemic Therapy*. New York, Guilford Press.
- Henggeler, S.W., Rowland, M.D., Halliday-Boykins, C., Sheidow, A.J., Ward, D.M., Randall, J.,...& Edwards, J. (2003). One-year follow-up of multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 42(5), 543-551.
- Henggeler, S.W., Schoenwald, S.K., Borduin, C.M., Rowland, M.D. & Cunningham, P.B. (2009). *Multisystemic Treatment for Antisocial Behavior in Children and Adolescents, Second Edition*. Guilford: New York.
- Henggeler, S.W., Schoenwald, S.K. (2011). Evidence-based interventions for juvenile offenders and juvenile justice policies that support them. Social Policy Report. *Society for Research in Child Development*, 25(1), 3-25.

- Hoagwood, K., Jensen, P.S., Petti, T., & Burns, B.J. (1996). Outcomes of mental health care for children and adolescents: a comprehensive conceptual model. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35(8), 1055-1063.
- Hoult, J., Reynolds, I., Charbonneau-Powis, M., Weekes, P., & Briggs, J. (1983). Psychiatric hospital versus community treatment: the results of a randomised trial. *Australian and New Zealand Journal of Psychiatry*, 17(2), 160-167.
- Howard, K., & Brooks-Gunn, J. (2009). The role of home visiting programs in preventing child abuse and neglect. *The Future of Children*, 19(2), 119-146.
- Huey, S.J., Henggeler, S.W., Rowland, M.D., Halliday-Boykins, C.A., Cunningham, P.B., Pickrel, S.G., & Edwards, J. (2004). Multisystemic therapy effects on attempted suicide by youths presenting psychiatric emergencies. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(2), 183-190.
- Kiesler, C.A. (1982). Mental hospitals and alternative care: Noninstitutionalization as potential public policy for mental patients. *American Psychologist*, 37(4), 349-360.
- Kinney, J.M, Madsen, B., Flemming, T., Hapaala, D. (1977). Homebuilders: Keeping families together. *Journal of Consulting and Clinical Psychology*, 45(4), 667-673.
- Kirk, R.S., & Griffith, D.P. (2004). Intensive family preservation services: Demonstration placement prevention using event history analysis. *Social Work Research*, 28(1): 5-16.
- Knitzer, J. (1982). Unclaimed children. *Washington, DC: Children's Defense Fund*, 4.
- Koyanagi C: *Making Sense of Medicaid for Children with Serious Emotional Disturbance*. Washington, DC, Bazelon Center for Mental Health Law, 1999.
- Lee, B.R., Ebesutani, C., Kolivoski, K.M., Becker, K.D., Lindsey, M.A., Brandt, N.E....Barth, R. (2014). Program and practice elements for placement prevention: A review of interventions

and their effectiveness in promoting home-based care. *American Journal of Orthopsychiatry*, 84:244-256.

Littell, J.H., Campbell, M., Green, S., & Toews, B. (2005). Multisystemic Therapy for social, emotional, and behavioral problems in youth aged 10-17. *The Cochrane Library*.

Littell, J. (2008). Evidence-Based or Biased? The quality of published reviews of evidence-based practice. *Children and Youth Services Review*, 30(11), 1299-1317.

Love, A.R., Mueller, C.W., Tolman, R.T., Powell, A.K. (2014). Frequency, level, and rate of improvement for treatment targets in a children's mental health community-based intensive in-home therapeutic setting. *Administration and Policy in Mental Health and Mental Health Services Research*, 41(4), 421-433.

Michigan Health and Human Services. (2017). Medicaid Provider Manual (MPM), Behavioral Health and Intellectual and Developmental Disability Supports and Services. 48-54.

MST Services. (2009, April 9). MST Preferred Service Description / Medicaid / Funding Standard. Retrieved from [mstservices.com/files/mst\\_preferred\\_service\\_description.doc](http://mstservices.com/files/mst_preferred_service_description.doc)

Muijen, M., Marks, I.M., Connolly, J., & Audini, B. (1992). Home based care and standard hospital care for patients with severe mental illness: a randomised controlled trial. *BMJ*, 304(6829), 749-754.

Ohio Revised Code §5122.29.28. Intensive home based treatment (IHBT) service. (2013)

Plant, R.W., & Balestracci, K.M.B., ValueOptions CT. Intensive In-home Child and Adolescent Psychiatric Services: Evaluating Treatment Completion and Enhancing Quality Management. A report produced by ValueOptions CT for the Connecticut Behavioral Health Partnership, December 2014.

- Pottick, K.J., McAlpine, D.D., & Andelman, R.B. (2000). Changing patterns of psychiatric inpatient care for children and adolescents in general hospitals, 1988-1995. *American Journal of Psychiatry*, 157(8), 1267-1273.
- Preyde, M., Adams, G., Cameron, G., & Frensch, K. (2009). Outcomes of children participating in mental health residential and intensive family services: Preliminary findings. *Residential Treatment for Children & Youth*, 26(1), 1-20.
- Preyde, M., Frensch, K., Cameron, G., White, S., Penny, R., & Lazure, K. (2011). Long-term outcomes of children and youth accessing residential or intensive home-based treatment: Three year follow up. *Journal of Child and Family Studies*, 20(5), 660-668.
- Rowland, M.D., Halliday-Boykins C.A., Henggeler, S.W., Cunningham, P.B., Lee, T.G., Kruesi, M.J., & Shapiro, S.B. (2005). A randomized trial of multisystemic therapy with Hawaii's Felix Class youths. *Journal of Emotional and Behavioral Disorders*, 13(1), 13–23.
- Stroul, B.A., & Friedman, R.M. (1986). *A System of Care for Severely Emotionally Disturbed Children and Youth*. Washington, DC: Georgetown University Child Development Center.
- Swenson, C.C., Schaeffer, C.M., Henggeler, S.W., Faldowski, R., & Mayhew, A.M. (2010). Multisystemic therapy for child abuse and neglect: A randomized effectiveness trial. *Journal of Family Psychology*, 24, 497–507.
- University of Southern Mississippi's School of Social Work (2010). *Mississippi Youth Programs Around the Clock (MYPAC), Local Evaluation Report #1: Community-based alternatives to residential treatment for youth with severe emotional disturbances and their families*. A report produced by University Southern Mississippi's School of Social Work for Mississippi Division of Medicaid, Office of the Governor.

- Wagner, M., Kutash, K., Duchnowski, A.J., Epstein, M.H., & Sumi, W.C. (2005). The children and youth we serve: A national picture of the characteristics of students with emotional disturbance receiving special education. *Journal of Emotional and Behavioral Disorders*, 13:79-96.
- Watanabe-Galloway, S., & Zhang, W. (2007). Analysis of US trends in discharges from general hospitals for episodes of serious mental illness, 1995–2002. *Psychiatric Services*, 58(4), 496-502.
- Webster-Stratton, C., & Reid, M.J. (2010). *The Incredible Years parents, teachers, and children training series: A multifaceted treatment approach for young children with conduct disorders*. Guilford Press.
- Williams, N. (2009). Dose-effect of children's psychosocial rehabilitation on the daily functioning of youth with serious emotional disturbance. *Child Youth Care Forum*, 38(6), 273-286.
- Woolston, J.L., Adnopoz, J.A., & Berkowitz, S.J. (2007). *IICAPS: A Home-based Psychiatric Treatment for Children and Adolescents*, New Haven, CT, Yale University Press.
- Woolston, J.L., Rosenthal, S.L., Riddle, M.A., Sparrow, S.S., Cicchetti, D., & Zimmerman L.D. (1989). Childhood comorbidity of anxiety and behavior disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 28(5), 707-713.
- Wilmshurst, L. (2002). Treatment programs for youth with emotional and behavioral disorders: An outcome study of two alternate approaches. *Mental Health Services Research*, 4(2), 82–96.
- Young, J., Plotner, K., Damon, J., & Hight, T. (2008). Overview and goals of the Mississippi Youth Programs Around the Clock (MYPAC). *Psychiatric Services*, 59(8), 836-838.
- Youth Villages. (2016). *2016 annual report of Youth Villages*. Retrieved from [http://www.youthvillages.org/Portals/0/PDFs/Program\\_Reports/2016AnnualReport.pdf](http://www.youthvillages.org/Portals/0/PDFs/Program_Reports/2016AnnualReport.pdf)