

## **FOR IMMEDIATE RELEASE**

### **PROMISING TREATMENT FOUND FOR CHILDREN WITH INAPPROPRIATE BEHAVIOR**

Researchers Dr. Natasha K. Bowen and Erica Richman of the University of North Carolina at Chapel Hill studied 301 treatment records of children age 3 to 17 between 2002 and 2007. They found that Behavioral Health Rehabilitation Services (BHRS) as implemented by the staff of the Institute for Behavior Change had a statistically significant association with reductions in physical aggression, noncompliance with adult prompts, socialization deficits and communication deficits. An association was also found with improvements in the environmental safety of the children. The results were presented at the prestigious bi-annual meeting of the Training Institutes sponsored by Georgetown University and the Substance Abuse and Mental Health Services Administration in Nashville, TN on July 16th. This is the first study to measure the relationship of BHRS to the outcomes of so many children; previous studies involved fewer than 30 subjects. Because there was no comparison group, no claims of causality can be made, but the consistent findings of association between the intervention and outcomes is promising. More research is planned to study the treatment effects in greater detail.

In the IBC model for BHRS delivery, Masters-level staff receive weekly supervision from licensed professional psychologists. The Masters-level staff then supervise Bachelors-level staff who go to the homes and schools of children to deliver behavioral support services directly to children for up to 7 hours per day, five to seven days per week. This extremely intensive intervention model unites parents, teachers and mental health professionals in a coordinated, concerted effort to help the child learn new ways of living and coping with stress and the demands of living socially. This study shows that the intensive involvement of Licensed Psychologists and Bachelors-level staff (called "Therapeutic Staff Support providers") is consistently associated with behavioral change that is substantial in the lives of children with Autism Spectrum disorders, ADHD and a variety of other behavioral conditions. The treatment is funded 100% by Medicaid. Throughout Pennsylvania, it is available *regardless* of family income.

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## Evaluating the Effectiveness of the IBC Model for Treating Mental Illnesses in Children Using Behavioral Health Rehabilitation Services (BHRS) via the Medicaid EPSDT mandate

- ✓ The Institute for Behavior Change staff have been helping children with diagnosed mental illnesses by providing in-home and in-classroom psychological evaluation, treatment planning and outcome monitoring, and behavioral support services since 1997. Of more than 500 children treated by IBC staff, 90% have completed treatment in 3 years or less; 75% in under 2 years.
- ✓ IBC provides staff to deliver Behavioral Health Rehabilitation Services (BHRS) under the supervision of Licensed Psychologists via the Medicaid statute. These services can be created in any state, according to the federal Medicaid statute, under mandated EPSDT regulations. As permitted by the federal Medicaid statute, any child in Pennsylvania with a disabling mental illness is eligible for these services, at no cost whatsoever, *regardless of family income*.
- ✓ Behavior is addressed in five basic domains: 1) physical aggression (2) lack of safety awareness, (3) socialization deficits, (4) communication deficits, and (5) noncompliance with adult prompts. Each child in treatment has three goals drawn from these domains in each 13-week treatment period. Treatment periods can be repeated as often as necessary (using the intentionally broad federal definition of "medical necessity") up to the child's 21<sup>st</sup> birthday.

### Methods

- ✓ For the current report, hierarchical linear modeling (HLM) was used on a subset (N=301) of all cases available (N=587) to control for the effect of repeated treatment periods on the same children. Only the first 13 week treatment period for any given child was analyzed using the HLM procedure.
- ✓ A child is prescribed necessary BHRS treatment by a licensed psychologist, following a thorough bio-psycho-social evaluation of the child's strengths, weaknesses and needs, summarized in a 12+ page evaluation report and a written treatment plan. The plan is implemented by a Treatment Team including Bachelor-level Therapeutic Staff Support (TSS) providers who function under the weekly supervision of Masters-level Behavior Specialists (who are themselves supervised weekly by the licensed psychologists). In the present study, TSS service varied from 10 to 35 hours per week. Behavior Specialists provided 2-3 hours of service per week.
- ✓ The child's parent provides direct feed-back to the Behavior Specialist as to the frequency and severity of target behavior. Data is collected weekly from the parent throughout the 13-week treatment period. Data for 587 treatment periods was available for study, but only the data from the *first* 13-week treatment period for any given child was analyzed in the present study, to control for the effect of time in treatment.



## Evaluating the Effectiveness of the IBC Model for Treating Mental Illnesses in Children

### Sample

HLM analyses excluded records in which any one outcome was targeted for more than the first time in the same child (n=301).

The subsample had the following demographic characteristics:

- ✓ 301 treatment periods (the first 13-week BHRS treatment experience for all subjects) were analyzed, children ranging in age from 3-17
  - 13.6% - Ages 3-4
  - 47.6% - Ages 5-8
  - 25.6% - Ages 9-12
  - 13.0% - Ages 13-17
- ✓ The sample included children of various backgrounds including Caucasian (79.2%), Asian (10%), and African American, Bi-racial, and Latino/a (10.8%). The latter group was formed due to the small sample size.
- ✓ The diagnoses of the children included Autistic Spectrum Disorders (47.3%), ADHD (26.8%), Mood Disorder, (11.4%), and Behavioral Disorders (14.4%)
- ✓ This was the first outpatient treatment experience for 72% of the children; 28% had received outpatient psychotherapy previously. 12% had received inpatient treatment for mental illness symptoms in the past.

### Results

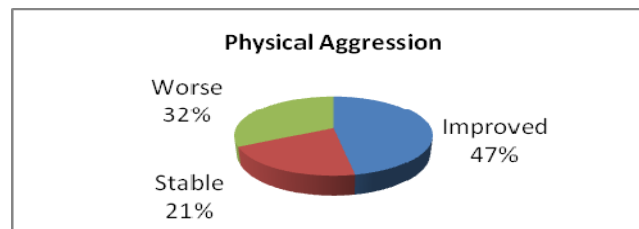
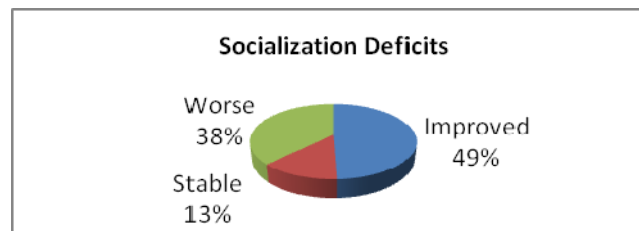
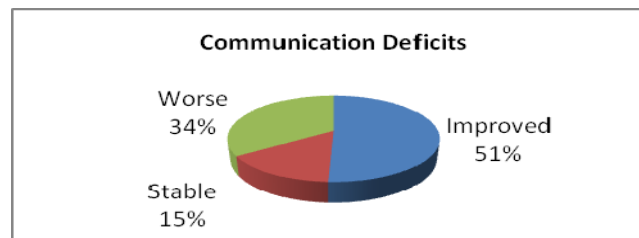
- ✓ At least 15% net change in target behavior was shown by the following percentages of children, after just 13 weeks of treatment.

Target Behavior Domain	Improved	Improved or Stabilized
Communication deficits	51%	66%
Socialization deficits	49%	62%
Physical Aggression	47%	68%
Non-compliance	36%	57%
Safety Awareness	27%	58%

Of the 587 treatment records that were made available, about half included multiple treatment periods for the same child.. To control for the variable of time in treatment, a subsample of 301 records was selected for analysis by the University of North Carolina researchers because each represented a child's initial treatment period of 13 weeks.

- ✓ Behavior improved or stabilized in between 58% and 68% of the cases receiving BHRS treatment implemented by the staff of the Institute for Behavior Change in just 13 weeks.

Charts for the top 3 improvement areas in the first 13 weeks of treatment:



## HLM Analyses of the subsample (N=301)

- ✓ Hierarchical linear modeling (HLM) was used to determine if the IBC treatments were related to improvements in client behavior.
  - Although a control group is necessary in order to claim that treatment caused behavior change in the children, HLM establishes that decreases in target behaviors occurred during the IBC treatment period.
  - HLM was chosen for the analysis because the data have a nested, multilevel structure, with time points nested within individual children. This process ensures that the violation of the assumption that observations are independent of each other is accounted for (Guo, 2005).
- ✓ Analyses confirmed the hypothesis that increased time in treatment was significantly related ( $p < .05$ ) to better outcomes in four of the five behavior domains for all children (with the fifth domain, *Safety Awareness*, achieving a significance level of  $p = .051$ ).
  - Age and gender were both shown to be significant predictors for change in physical aggression. Males improved more than females ( $p = .017$ ), and younger children improved more than older children ( $p = .03$ ).
  - A cross level interaction was found, indicating that children who spent longer times in treatment generally showed less noncompliance with adult prompts over the course of treatment.
  - Younger children were more likely to show improvement in safety awareness than older children.



### Discussion

- ✓ Treatment provided by IBC staff is positively related to a decrease in identified target behaviors (level one predictors).
- ✓ Improvements occurred in all five domains over the 13 week period. Considering that the first 13 weeks of treatment often show the *slowest* rate of improvement (as the child adjusts to changes imposed by the treatment plan, while rapport with the treatment team is being established, and the common “extinction burst” phenomena occurs), the rates of improvement shown are remarkable.
- ✓ Regarding physical aggression, age and gender influenced outcomes with boys and younger children more likely to show improvement within the first 13 weeks of treatment.
- ✓ Regarding safety awareness, younger children are more likely to improve in the first 13 weeks of treatment than older children.
- ✓ Among Medicaid recipients, BHRS is received disproportionately by Caucasian children, suggesting inadequate dissemination of information about the availability of BHRS to families of children eligible for Medicaid.
- ✓ More research is planned to investigate the effects of BHRS on children, including analyses of successive treatment programs for the same child over periods of 1 to 2 years.

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The research cited in this monograph was conducted by Dr. Natasha K. Bowen and Erica L. Richman at the University of North Carolina at Chapel Hill. Assistance with graphics and presentation of research findings was provided by William LaValle and Matthew Mauriello of the Institute for Behavior Change. Further research is underway. Visit [www.treatmentplansthatworked.com](http://www.treatmentplansthatworked.com) to obtain more than 150 of the actual Treatment Plans used by IBC staff to produce the data for this study.

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**Suggested Readings** (a comprehensive literature review identified just two articles addressing BHRS explicitly)

**Toffalo, D.A.D. (2000). An investigation of treatment integrity and outcomes in wraparound services. *Journal of Child and Family Studies, 9, 351-361.***

This article describes a study of 28 children receiving BHRS (misabeled “wraparound”) in rural Pennsylvania. It aimed to find a relationship between adherence to prescribed levels of service hours and improvement in client functioning. Significant improvement in client functioning was evidenced after six months of BHRS delivery, whether or not the client received all of the “prescribed” hours of service.

**Bugaj, S.J., & Manning, R.L. (2002). Suggestions for improving the delivery of Therapeutic Staff Support in the public schools. *Journal of Mental Health Counseling, 24, 88-93.***

This article outlines procedures for facilitating collaboration between BHRS agencies employing TSS providers in the school setting. Procedures, school organization, and role of professionals in the school setting are summarized. No evaluation of BHRS efficacy or efficiency was reported.

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