Chapter Nine

Residential Care and the Use of Medication

Medication Use for Children in Systems of Care

E. Wayne Holden
Robert L. Stephens
Tim Connor
Andrew Pope

Introduction

Over the course of the last several decades, medication has been used with increasing frequency in the treatment of children's mental health disorders (Hoagwood, Jensen, Feil, Vitiello, & Bhatara, 2000; Jensen, Hoagwood, & Petti, 1996). Most of these medications were developed initially for use with adults but with increasing clinical experience and accumulating research evidence, they have gained popularity as an important part of treatment plans for addressing the wide range of mental health problems presented by children and youth (Hoagwood et al., 2000). Current treatment guidelines suggest that medications are effective in reducing symptoms and stabilizing childhood mental health conditions, but that other therapeutic treatment components are necessary to promote the development of coping strategies and adaptive skills that predict long-term successful outcomes (Pumariega, DelMundo & Vance, 2002). Despite the increasing use of medications with children, limited attention has been paid to understanding the effectiveness of medications in community settings and the use of medications as one treatment component of a coordinated care plan within a larger, integrated system-of-care approach.

This study has two different components. First, it provides information on medication histories for children entering services within systems of care funded by the Comprehensive Community Mental Health Services for Children and Their Families Program. Second, it addresses the differential use and impact of medications on clinical symptoms and social functioning within communities with a federally funded system of care as compared to communities without a federally funded system of care.

Study One

Method

Data from Phase II of the national evaluation (the 23 grantee communities initially funded in the 1997–1998 funding cycle) were analyzed for the initial component of this presentation. At intake into the national evaluation, caregivers are asked whether or not their child had taken medications for his or her emotional and behavioral problems during the last six months. If they indicate that their child has been taking medication, they are asked for the names of all medications that were taken during this time period. These questions are also asked at follow-up, i.e., every six months after entering system-of-care services. Analyses at this point in time were limited to data obtained at entry into services.

Results

Based on responses received from 2,468 caregivers at intake into services, 1,166 (47.2%) reported that their child had taken medication for their emotional or behavioral symptoms in the six months prior to entering system-of-care services. Of the caregivers reporting medication use, 549 (47.1%) indicated that their child had taken more than one medication during the same time period. These data indicate that nearly half of children entering systems of care have taken medication as part of their treatment in the immediate time period before services are initiated and that approximately half of these children have been treated with multiple medications during this six-month interval.

Table 1 provides information on the specific types of medication that were reported by the caregivers at intake into services. As shown in the table, just over 45% of the caregivers indicated that their children had taken a stimulant medication (usually given to treat attention problems or disruptive behavior). The most frequently reported stimulants were Adderal and Ritalin, accounting for most of the reported medication use in this area. Just over 47% of the caregivers reported that their child had taken an antidepressant or mood stabilizing medication. The most frequently reported

medications in this category included Paxil, Depakote, Wellbutrin, Zoloft, and Prozac. Reports of the use of antidepressant/mood stabilizing medications were more evenly distributed across the specific medications currently available in this area.

A number of factors were related to whether or not a child had taken psychoactive medication prior to their entry into system-of-care services. More males (62%) than females (38%) had taken medication for their emotional or behavioral problems. Caregivers of children who had participated in outpatient services, school-based services, day treatment, and residential treatment reported significantly higher rates of medication use compared to children who had not participated in these treatment modalities. Interestingly, there was no difference in therapeutic medication use for children who had participated in alcohol/substance abuse treatment versus those who had not participated in such treatment. However, risk factors such as physical abuse, sexual abuse, running away, and attempting suicide in the past were all associated with higher reported rates of medication use. History of substance abuse was not significantly related to whether or not medication had been used in the six months prior to entering system-of-care services. The most likely diagnostic categories in which medication had been used in the six months prior to entering services included psychotic disorders (86%), autism and other pervasive developmental disorders (83%), and attention-deficit/hyperactivity disorder (78%). The least likely diagnostic categories included adjustment disorders (19%), substance abuse disorders (28%), and anxiety disorders (30%). Children and adolescents who had taken medication displayed significantly higher levels of emotional and behavioral symptoms on the Child Behavior Checklist (CBCL; Achenbach, 1991), and Youth Self-Report (YSR; Achenbach & Edelbrock, 1987); higher levels of functional impairment on the Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 1994), except in the area of substance abuse; and lower levels of behavioral and emotional strengths on the Behavioral and Emotional Rating Scale (BERS; Epstein & Sharma, 1998).

Table 1
Specific Medications Reported at Entry into Systems of Care

Medication	*Percentage of Sample*
All Stimulants	45.3%
Adderall	17.6%
Cylert	.9%
Dexedrine	5.6%
Ritalin	21.2%
All antidepressants/Mood Stabilizers	47.1%
Depakote	8.4%
Effexor	1.6%
Lithium	2.4%
Paxil	9.8%
Prozac	7.5%
Tegretol	1.3%
Wellbutrin	8.1%
Zoloft	8.0%

Study Two

Method

For the second component of this study, data were analyzed from the longitudinal comparison studies conducted as part of Phase I of the national evaluation. This special study involved six communities across the country, three communities with CMHS funded systems of care who were individually paired with three comparison communities who did not have a federally funded system of care. During this component of the evaluation, similar questions were asked of caregivers regarding medication use for emotional and behavioral problems as described previously although these data were only obtained at six month follow up intervals after entering services and not obtained at entry into services.

Results

Table 2 provides information on caregiver reported use of medication for six month intervals of participation across the 24 month data collection period for the longitudinal comparison study. When all six sites were combined, caregiver report of medication use was remarkably consistent across time. Combined comparisons between the three funded systems of care and the three comparison communities revealed a significant difference during the first six months of services with significantly higher (χ^2 (1) = 4.7, p = .031) reported rates of medication use in the comparison communities (47.3%) versus federally funded systems of care (39.8%). An analysis of specific classes of medication use revealed that stimulant medication use was marginally significantly higher (χ^2 (1) = 3.5, p = .06) for the comparison (32%) versus the federally funded system of care sites (26%) during the first six months of services. Reports of medication use at 18 months also revealed a significantly higher (χ^2 (1) = 3.9, p = .05) use of stimulant medications for the comparison (30%) versus federally funded system of care sites (23.2%) during the 12 to 18 month services interval.

An exploratory analysis was conducted using hierarchical linear modeling to examine the effects of service delivery approach and stimulant medication on the total score from the CBCL, controlling for demographic differences at baseline. Use of stimulant medication predicted a higher intercept at study entry and was significantly related to change over time on the CBCL externalizing score. Children taking stimulant medication improved at a slower rate than all other children in the comparison study. Site did not display a significant relationship to intercept or slope.

Table 2
Parent Report of Medication Use for Behavioral/Emotional Problems in the Prior 6 Months in the Phase 1 Longitudinal Comparison Study (*N* = 1,028 at study entry)

	6 Months	*12 Months*	*18 Months*	*24 Months*
All communities	43.7%	38.8%	36.3%	36.4%
All 3 Systems of Care	39.8%[a]	38.0%	32.6%	34.8%
All 3 Comparison Sites	47.3%	39.5%	39.5%	38.1%

[a] $\chi^2(1) = 4.659$, p = .031, SOC < Comparison

Discussion

This analysis of medication use for children and adolescent entering services in CMHS-funded systems of care reveals a number of interesting issues. First, it appears that approximately one-half of children entering services have been treated with medication and that approximately one-half of those children have taken multiple medications in the six months prior to intake. The vast majority of medications that were reported fell within the stimulant or antidepressant/mood stabilizing classes. Males and children with psychotic disorders or Attention Deficit Hyperactivity Disorder (ADHD) are more likely to have taken medication, while children with adjustment disorders, substance abuse disorders, and anxiety disorders were less likely to have taken medication. It is interesting to note that history of, or treatment for, substance abuse was not related to whether or not children had taken medication.

Comparison study results indicated that medication use was more prevalent in comparison sites during the first six months of services, especially for stimulant medications. Preliminary growth curve analyses revealed a complex relationship between stimulant medication use and change over time. This information underscores the importance of evaluating medication use as children and adolescents participate in community based services, as it is an important factor to consider in developing and implementing treatment plans.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist and 1991 profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T. M., & Edelbrock, C. (1987). *Manual for the Youth Self-Report and profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Epstein, M. H., & Sharma, J. (1998). *Behavioral and Emotional Rating Scale: A strength-based approach to assessment*. Austin, TX: PRO-ED.

Hoagwood, K., Jensen, P. S., Feil, M., Vitiello, B., & Bhatara, V. S. (2000). Medication management of stimulants in pediatric practice settings: A national perspective. *Journal of Developmental & Behavioral Pediatrics, 21*(5), 322-331.

Hodges, K. (1994). *Child and Adolescent Functional Assessment Scale*. Ypsilanti, MI: Department of Psychology, Eastern Michigan University.

Jensen, P. S., Hoagwood, K., & Petti, T. (1996). Outcomes of mental health care for children and adolescents: II. Literature review and application of a comprehensive model. *Journal of the American Academy of Child & Adolescent Psychiatry, 35*(8), 1064-1077.

Pumariega, A. J., Del Mundo, A. S., & Vance, B. (2002). Psychopharmacology in the context of systems of care. In B. J. Burns, & K. Hoagwood (Eds.). *Community treatment for youth: Evidence-based interventions for severe emotional and behavioral disorders*. New York: Oxford.

CONTRIBUTING AUTHORS

E. Wayne Holden, Ph.D.
Vice President, e-mail: wholden@macroint.com

Robert L. Stephens, Ph.D., M.P.H.
Senior Scientist, e-mail: bstephens@macroint.com

Tim Connor, M.S., M.A.
Project Manager, e-mail: tconner@macroint.com

Andrew Pope, M.P.H.
Research Associate, e-mail: apope@macroint.com

All Authors: ORC Macro, 3 Corporate Square, Suite 370, Atlanta GA 30329; 404-321-3211, fax: 404-321-3688

Differences in Psychotropic Use in Residential Treatment Across Four States

Purva H. Rawal
John S. Lyons
Matthew F. Shaw

Introduction

Residential treatment centers serve youth from varying backgrounds and diverse needs. In the context of seemingly disparate clinical needs, pharmacological intervention is one of the most common services provided. Psychotropics are often used to treat youth whose behavioral and psychiatric disorders do not respond readily to other forms of treatment (Gracious & Findling, 2001). Reflecting these factors, psychotropic use in pediatric populations has tripled in the last decade (Pincus et al., 1998). In a statewide study, Lyons, MacIntyre, Lee, Carpinello, Zuber, & Fazio (2002) found that 87.6% of youth in residential treatment were prescribed psychotropic medications. This rate is comparable to the 86.8% of youth receiving psychotropics in state-operated inpatient hospitals (Lyons et al., 2002). Thus, pharmacological intervention is a common part of the overall treatment plan for youth in this setting (Lyons et al., 2002). The epidemiology of pediatric pharmacology is in its infancy, and data on which children are receiving psychotropics, and when and where they are receiving them, are largely unknown.

Even more troubling, increasing rates of use are outpacing research addressing the short and long-term safety and efficacy of pharmacological interventions for children (Jensen et al., 1999). The effects of these drugs on young minds and bodies are still unknown (Vitiello, 1998). Establishing rates and differential patterns of use is important in providing effective and safe mental health interventions to mentally ill children and adolescents. This study examines the rates of regional variation and varying clinical indicators of psychotropic use in residential treatment centers in four states.

Methods

A retrospective chart review methodology was used to collect demographic and clinical information from residential treatment centers. Data were collected from: one large Midwestern state, one smaller Midwestern state, one Eastern state and one Southwestern state. A total of 732 cases were examined. Ages in the sample ranged from 4 to 20 years with a mean age of 12.9 years (*SD* = 2.77). The sample was comprised of 252 females (34.4%) and 461 males (63.0%). The gender for 11 of the cases was not known. For the Eastern and larger Midwestern state, the sample almost entirely consisted of children receiving state or federal Medicaid funding for services. Data from the Southwestern and smaller Midwestern states came from private insurance carriers.

Charts were randomly sampled from a pool of records spanning the 12 months prior to the review. Both active and discharged cases were examined. Providers were sent letters from the research team requesting participation in the evaluations. They then provided a list of youth served within the prescribed time frame. Cases were randomly sampled from this list using a computer-generated program. Reviews were conducted on-site at each facility with a team of one to four trained reviewers.

The information was systematically collected using a standard protocol. Data collected included: demographic information; school enrollment status; special education history; physical disabilities; juvenile justice involvement; psychiatric diagnoses at admission; current treatment history, including psychotropic use during current residential admission; and discharge information, including placement, service disposition and psychiatric diagnoses (if applicable).

The Child and Adolescent Needs and Strengths Assessment for children with mental health challenges (CANS-MH; Lyons, Sokol, Lee, & Khalsa, 1998) was used to obtain clinical, risk behavior, functioning and treatment needs and overall strengths data on each child. The measure is based on a four-point anchor scale using the following criteria: 0 = *No history of or current problem*; 1 = *History of*

problem behavior or mild problem requiring monitoring; 2 = *Moderate problem requiring intervention*; and 3 = *Severe problem requiring immediate intervention*. The CANS-MH measure was developed to integrate child population needs across multiple state agencies. The measure is a structured clinical assessment tool used in several states. Interrater reliabilities across the states ranged from .67 to .87.

Statistical Program for the Social Sciences (SPSS) 10.1 was used to enter and analyze the data. Chi-square tests were conducted to determine differences in the rates of psychotropic use by medication class and clinical indication.

Clinical indication was determined by using diagnoses and CANS-MH data. Clinical indication for use of antipsychotics was determined by the presence of any DSM-IV psychotic diagnoses or a 2 or 3 on the Neuropsychiatric Disturbance dimension of CANS-MH. Clinical indication for stimulant use was determined by the presence of any DSM-IV Attention Deficit Hyperactivity Disorder (ADHD) diagnoses or a 2 or 3 on the Attention Deficit/Impulsivity dimension of CANS-MH. Clinical indication for the use of antidepressants was determined by the presence of any DSM-IV depression diagnoses or a 2 or 3 on the Depression/Anxiety dimension of CANS-MH.

Results & Discussion

Significant differences in the prescription rates for stimulants χ^2 (1, 732) = 64.14, p = .001, antidepressants χ^2 (1, 732) = 30.03, p = .001, and antipsychotics χ^2 (1, 732) = 58.14, p = .001 were observed. After overall differences in use were established, the percentage of use for each drug class by clinical indication based on diagnoses and the CANS-MH was calculated for each state (see Table1).

Classifying psychotropic drug classes by clinical indication yielded interesting data demonstrating differences in youth across states. The descriptive analyses demonstrated that antipsychotics are prescribed across all states for clinical symptoms other than psychosis, although the rates of prescription vary from one state to another. While the present analyses are unable to discern the reasons for using antipsychotic medications with youth who are nonpsychotic, there is evidence in the literature indicating that these neuroleptics may decrease aggressive behaviors (Buitelaar, 2000; Gracious & Findling, 2001; Kaplan, Simms, & Busner, 1994; Schur, et al., 2001). Thus, the use of antipsychotics in clinically non-indicated cases may be related to treating aggressive or externalizing behaviors.

Table 1
Stimulants, Antidepressants and Antipsychotics: Indications and Use

	Percent of use across all states	*Larger Midwest state*	*Smaller Midwest state*	*Eastern state*	*Southwest state*
Stimulant Indication					
Indicated & Used	18.3	16.1	22.2	16.0	30.4
Indicated & Not used	41.0	38.0	44.4	39.7	55.4
Not indicated & Used	2.6	2.3	5.2	0.5	5.4
Not indicated & Not Used	38.1	43.5	28.1	43.8	8.9
Antidepressant Indication					
Indicated & Used	24.3	18.2	33.3	22.7	46.4
Indicated & Not used	33.7	36.9	20.7	35.1	41.1
Not indicated & Used	9.4	8.1	18.5	6.2	7.1
Not indicated & Not Used	32.5	36.9	27.4	36.1	5.4
Antipsychotic Indication					
Indicated & Used	13.0	6.9	8.9	21.1	32.1
Indicated & Not used	7.0	7.5	4.4	9.3	1.8
Not indicated & Used	24.7	14.4	34.1	34.5	32.1
Not indicated & Not Used	55.3	71.2	52.6	35.1	33.9

Using diagnostic and CANS-MH indicators, it is evident that for the most part youth treated with stimulants and antidepressants are also clinically indicated to receive them. However, over 40% of youth for whom ADHD/Impulsivity symptoms were a moderate problem were not receiving stimulants, and over one-third of youth for whom depression was a moderate problem were not prescribed antidepressants. The analyses also demonstrate that there may be a substantial number of youth who could also be treated with stimulants or antidepressants, but are not receiving them. This finding is consistent with other evidence that suggests that antidepressants and stimulants may be underprescribed (Hoagwood, Jensen, Feil, Vitiello, Bhatara, 2000).

There is evidence in the existing literature for many of these findings (Connor, Ozbayrak, Harrison, & Melloni, 1998); however, the current study is one of the first to produce these results based on a large, multistate study of residential treatment. The study illustrates that psychotropic use in residential treatment across all four states is quite common. Prior work with this sample has established no significant clinical differences between the samples; thus, widely varying rates of prescription would not be expected (Shaw, Lyons, & Rawal, manuscript in preparation). There is also some preliminary indication that there may be regionally varying practice patterns; the hypotheses are tentative and should be further examined after accounting for differences between the samples. This study raises questions about the factors that predict antipsychotic prescription with non-psychotic youth in residential treatment. The next step would be to examine patterns of antipsychotic use in residential treatment. Specific conclusions regarding underprescription, overprescription, or neither, cannot be made without outcomes data. This study offers a comprehensive picture of psychotropic use in residential treatment centers and provides the next step toward further examining patterns of use and outcomes related to psychotropic prescription for children and adolescents.

References

Buitelaar, J. (2000). Open-label treatment with risperidone of 26 psychiatrically-hospitalized children and adolescents with mixed diagnoses and aggressive behavior. *Journal of Child & Adolescent Pharmacology, 10*, 19-26.

Connor, D., Ozbayrak, K., Harrison, R., & Melloni, R. (1998). Prevalence and patterns of psychotropic and anticonvulsant medication use in children and adolescents referred to residential treatment. *Journal of the American Academy of Child and Adolescent Psychopharmacology 8*(1), 27-38.

Gracious, B. & Findling, L. (2001). Antipsychotic medications for children and adolescents. *Pediatric Annals, 30*, 138-145.

Hoagwood, K., Jensen, P., Feil, M., Vitiello, B., & Bhatara, V. (2000) Medication management of stimulants in pediatric practice settings: A national perspective. *Journal of developmental & Behavioral Pediatrics, 21,* 322-331.

Jensen, P., Bhatara, V., Vitiello, B., Hoagwood, K., Feil, M., & Burke, L. (1999). Psychoactive medication prescribing practices for U.S. children: Gaps between research and practice. *Journal of the American Academy of Child and Adolescent Psychiatry 38*(5) 557-565.

Kaplan, S., Simms, R., & Busner, J. (1994). Prescribing patterns of outpatient child psychiatrists. *Journal of the American Academy of Child and Adolescent Psychiatry 33*(1) 35-44.

Lyons, J., Sokol, P., Lee, M., & Khalsa, A. (2001). *The Child and Adolescent Needs and Strengths for children and adolescents with mental health challenges (CANS-MH).* Winnetka, Illinois: Buddin Praed Foundation.

Lyons, J., MacIntyre, J., Lee, M., Carpinello, S., Zuber, M., & Fazio, M. (2002). *Psychotropic medications in the treatment of children: Comparison across public mental health program types and sites*. Manuscript submitted for publication.

Pincus, H., Tanielian, T., Marcus, S., Olfson, M., Zarin, D., Thompson, J., & Zito, J. (1998). Prescribing trends in psychotropic medications: Primary care, psychiatry and other medical specialties. *Journal of the American Medical Association 279*(7), 526-531.

Schur, S., Sikich, L., Findling, R, Malone, R., Crismon, M., Derivan, A., MacIntyre, II, J., Pappadopulos, E., Greenhill, L., Schooler, N., Van Orden, K., & Jensen, P., (2001). *Treatment recommendations for the use of antipsychotics for aggressive youth (TRAAY) Part one: Review of the relevant literature, 2001*. Manuscript submitted for publication.

Shaw, M. F., Lyons, J. S,. & Rawal, P. H. *Clinical characteristics of children in residential treatment across 5 states*. (Manuscript in preparation).

Vitiello, B. (1998). Pediatric psychopharmacology and the interaction between drugs and the developing brain. *Canadian Journal of Psychiatry 43*, 582-584.

CONTRIBUTING AUTHORS

Purva H. Rawal[1], B.A.
National Research Service Award (NRSA) Predoctoral Fellow, Northwestern University Feinberg School of Medicine, Institute for Health Services Research & Policy Studies/ Division of Clinical Psychology; 339 E. Chicago Ave Suite 717, Chicago, IL 60611; 312-503-0471, fax: 312-503-2936; e-mail: p-rawal@northwestern.edu

John S. Lyons, Ph.D.
Northwestern University Feinberg School of Medicine, Director of the Mental Health Services and Policy Program, Abbott Hall Rm 1206, 710 N. Lake Shore Dr., Chicago, IL 60611; 312-908-8972, fax: 312-503-2936; e-mail: jsl329@northwestern.edu

Matthew F. Shaw, M.Div.
Northwestern University Feinberg School of Medicine, Abbott Hall Rm 1208, 710 N. Lake Shore Dr., Chicago, IL 60611; fax: 312-503-2936; e-mail: m-shaw1@northwestern.edu

[1]Author note: Send all correspondence to Purva H. Rawal.

Perceptions of PRN Psychotropic Medications by Hospitalized Child and Adolescent Recipients

Theodore A. Petti
Kimberly Stigler
Sabrina Dumlao
Jamie Gardner-Haycox

Introduction

Medications are commonly utilized in psychiatric settings to decrease a youngster's risk of dangerous behavior. The administration of psychotropic PRNs (*pro re nata*, i.e., medication as needed) has generated concern about chemical restraints. Health Care Financing Administration guidelines consider chemical restraint to be "the involuntary use of psychotropic medication in a crisis situation to help a patient contain out-of-control aggressive behavior," but exclude "the pharmacological management of a patient's underlying illness" (American Academy of Child and Adolescent Psychiatry, 2002, p. 6S). Acute agitated, aggressive or destructive behavior in psychiatric patients is arguably part of their underlying illness. With restrictions on locked seclusion and physical restraint (Petti, Mohr, Somers, & Sims, 2001), medication is being turned to with increasing frequency to manage the associated danger posed by assaultive, aggressive or agitated behavior.

Medications prescribed on a regular schedule can decrease the frequency and severity of aggressive outbursts. PRN medication can supplement scheduled medications in inpatient, day, and residential treatment programs and at home. Many patients referred to hospitals for uncontrolled aggression and violent outbursts have had little success with scheduled medications generally recommended for that purpose. To decrease the use of seclusion and restraint in severely disruptive, disturbed youth, we encourage the administration of PRN medications in situations where agitation is likely to escalate to the point of dangerous behavior.

Studies regarding PRN use of psychotropic medications are limited. Vitiello, Ricciutu, & Behar (1987) found that the bulk of PRN medications in a child state hospital were for disruptive behavior. Garrison and associates (1990) report PRN medication use in conjunction with other staff responses in about 30% of systematically recorded episodes of aggressive behavior, with 40% of self-injury episodes receiving PRN medication. Vitiello et al. (1991) prospectively found no significant differences between medication and placebo in reducing aggression.

Our study intends to improve institutional care by increasing the knowledge base regarding the perceptions of patients in response to receiving medication for agitated or out-of-control behavior, and in developing a reliable tool to measure acceptability, efficacy and satisfaction in medication trials for agitated behavior in institutionalized youngsters.

Methods

A convenience sample was studied of hospitalized youngsters from intermediate-term psychiatric units for whom PRN psychotropic medication was prescribed for control of agitated, aggressive behavior or feelings. This approved study required informed consent by a parent and child informed assent. Child exclusion criteria included: an estimated IQ below 65, the inability to understand the questionnaire's language, or psychosis of sufficient severity to indicate impaired judgment. A total of 42 youth participated in the study. There were 38 males and 4 females, whose ages ranged from 7 to 17 years. The mean age was 12.19, and the median age was 12.

The study occurred between July, 2001 and February, 2002. Subjects who had been administered a PRN were identified. A research rater administered an eight-item questionnaire within 12 hours after the patient received PRN medication (Petti, Stigler, Gardner-Haycox, & Dumlao, in press). The questionnaire was readministered four hours later for the re-test. Immediately following both administrations, the rater completed a form based on observation during the patient interview

regarding the patient's comprehension and behavior and then completed an additional question (see Table 3) about effectiveness in the "Other Comments" section by investigating other sources of information (e.g., interviewing the staff member who administered the PRN.)

Entries for multi-answer questions were coded into an average of four categories as responses were compared and collapsed. The codes were then entered into the SPSS 11.0 program so that statistical analysis could be completed. Because the data are nominal, statistical analysis was nonparametric. Frequencies were calculated. A Kappa was obtained to determine test-retest reliability. While frequency of response was based on a sample size of 42, test-retest Kappa was generally based on 41 subjects, because one youth refused to take the retest four hours later.

Results

This paper focuses upon frequencies of responses for the youth interviewed (N = 42) and the test-retest reliability of each question based upon a sample size of one less (n = 41). Results from the child interview are found in the Tables 1 through 3. A summary of responses is reported for each question with its accompanying Kappa score for the reliability estimate.

Table 1 indicates the response to Question 1, "Who decided on getting the PRN?" Staff generally made the decision for the PRN at that time, but the patients requested it over 30% of the time and assisted in the decision over 10% of the time. Question 2 asked about the reason for the PRN. Self-perceived losing or having lost control by the patients was reported in over 50% of the cases; being worried or anxious was reported in 25% (n = 10) of the cases, and 10 youth reported being angry or sad.

Table 2 provides results of questions 4-7. About 50% of youth felt the PRN was best for them, while 38% were unsure ("Not Sure" or "Maybe"). Almost one-third (29%) of the youth felt that something could have been done to avoid needing the PRN, and 48% felt nothing else could have been done. About 65% of youth felt that something good happened with the PRN. Of those, 25 respondents, 19 (75%) said that the PRN helped them calm down (the Kappa value for those 19 was 0.475, $p < .001$ on this retest). Only one child said that something bad happened, two were unsure, and 39 said nothing happened. "Helpful" was the response given by 27 youth (64%), versus "Harmful" by no youth; and "Didn't make a difference" for 15 youth (36%).

Table 3 indicates that 55% of the youth felt that the PRN helped "much" or "very much," while 38% felt it helped "some." Seven percent reported that it helped "not at all." Likewise, the raters, based on their overall impression gained from the interview with the staff, indicated that "some" was their impression in 52% of the cases, with combined "much" and "very much" in 36%, and "not at all" in 12% of the cases.

The Rater Survey results indicate that almost all of the children were read the questions (n = 39, 93%), while three (7%) youth read and completed the questions on their own. Most of the children (n =30, 71%) were rated as having given each question reasonable thought, while 12 (29%) youth were perceived to have rushed through them (Kappa, 0.629). Youth were perceived, especially, to rush through the re-test, given four hours later.

All or most of the questions were perceived to be understood by the patients in 93% of the cases, while in 7% of the cases only "some" questions were understood. When asked about questions that were difficult to understand following the first administration 18 staff (43%) reported "none." The most difficult to understand questions were considered: "Do you believe that this is the best PRN for you?" was considered poorly understood by 17 (41%) of the youngsters. The next highest poorly understood item with 12 (29%; Kappa 0.689) was "Is there something that you could have done to avoid needing the PRN medication?"

Table 1
Patient Response to Items 1 & 2

Question	*Response*	*N*	*%*
Patient Question 1: Who decided that you needed a PRN medication? (Kappa, 0.956, $p<0.001$)	I decided	14	33%
	Staff Decided	23	55%
	I/Staff Decided	5	12%
Patient Question 2: What was the reason for the PRN? (Kappa, 0.764, $p<0.001$)	Losing Control	22	52%
	I looked or felt anxious	10	25%
	I was angry/I was sad	10	23%

Table 2
Patient Response to Questions of PRN

Question	*Response*	*Yes*	*No*	*Not sure*	*Maybe*
Patient Question 4: Do you believe that this the best PRN for you? (Kappa, 0.815, $p < 0.000$)	*N*	20	6	14	2
	%	48%	14%	38% (combined %)	
Patient Question 5: Is there something that you or the staff could do that would help you avoid needing the PRN medication? (Kappa, 0.882, $p < 0.000$)	*N*	12	30	10	0
	%	29%	48%	23%	
Patient Question 6: Did anything good happen from receiving the PRN medicine? (Kappa, 0.708, $p < 0.000$)	*N*	27	8	6	1
	%	64%	19%	17% (combined %)	
Patient Question 7: Did anything bad happen from receiving the PRN medicine? (Kappa, $N = 39$, 1.000)	*N*	1	39	2	0
	%	2%	93%	5%	

Table 3
Patient & Staff Response to Questions on Appropriateness

Question	*Response*	*Much*	*Very Much*	*Some*	*Not at all*
Patient Question 3: Did the PRN work? (Kappa 0.928, $p<0.001$)	*N*	11	12	16	3
	%	55% (combined %)		38%	7%
Staff Question 5: In your opinion, how well did the PRN medication help? (Kappa, N=39, 0.784, $p<0.001$)	*N*	9	6	22	5
	%	36% (combined %)		52%	12%

After reviewing the charts and speaking with the person who administered the PRN when available, in responding to the query, "other comments," staff rated the PRN "effective/helpful" in 24 cases (92%), "somewhat effective" in one and "not effective" in another.

Discussion

This study adds to our understanding of the perceptions that child and adolescent psychiatry patients have about PRN medications for agitated or out of control behavior. Concern in the literature and in policy statements generated about the use and abuse of medications, especially PRNs, thought to be chemical restraint by staff seems to be contradicted by the results. The perceived need for the PRN related to loss of control fits in with the ordered reason for most PRNs. The finding that losing control, negative affect or worried/anxious constituted the remaining 50% is of interest and warrants further scrutiny. Also of great interest and import are the findings that most of the patients felt the PRN worked at least some of the time, and very few felt the PRN had not worked or was harmful.

The uncertainty that the PRN may not be the best for them expressed by over half of the patients is surprising given their other responses. But this was the question interviewers frequently felt the patients might not understand. A similar problem was noted for the question about possible alternatives to PRN medication. Both questions were identified by the interviewers as questionably understood.

The low but certainly acceptable Kappa for the retest-correlation between interviews I and II for the index episode concerning the patient's behavior in completing the survey is important in that the retest interview may have been done in more haste as compared to the index interview. This may be expected in a group of youngsters characterized by impulsiveness when asked a series of questions they had answered four hours before. The low refusal rate is of interest.

The degree of effectiveness indicated by both patients and staff is in contrast to less hopeful data in the literature and is concordant with an earlier related study (Kazdin, 1984). Understanding the issues surrounding the use of psychotropic medications on an as-needed basis is critical in efforts to reduce and eliminate such restrictive interventions as seclusion and restraint in psychiatric hospitals, day treatment programs and residential treatment centers for children and adolescents.

References

American Academy of Child and Adolescent Psychiatry. (2002). Practice parameter for the prevention and management of aggressive behavior in child and adolescent psychiatric Institutions, with special reference to seclusion and restraint. *Journal of the American Academy of Child and Adolescent Psychiatry [Special supplement], 41*(2S), 4S-25S.

Garrison, W. T., Ecker, B., Friedman, M., Davidoff, M. D., Haeberle, K., & Wagner, M. (1990). Aggression and counteraggression during child psychiatric hospitalization. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 242-250.

Kazdin, A. (1984). Acceptability of aversive procedures and medication as treatment alternatives for deviant child behavior. *Journal of Abnormal Child Psychology, 12*, 289-302.

Petti, T. A., Mohr, W. K., Somers, J., & Sims, L. (2001). Perceptions of seclusion and restraint by patients and staff in an intermediate-term care facility. *Journal of Child and Adolescent Psychiatry Nursing, 14*, 115-117.

Petti, T. A., Stigler, K., Gardner-Haycox, J., Dumlao, S. (in press). Perceptions of PRN psychotropic medications by hospitalized child and adolescent recipients. *Journal of the American Academy of Child and Adolescent Psychiatry*.

Vitiello, B., Hill, J. L., Elia, J., Cunningham, E., McLeer, S. V. & Behar, D. (1991). PRN medications in child psychiatric inpatients: A placebo-controlled study. *Journal of Clinical Psychiatry, 52*, 499-501.

Vitiello, B., Ricciutu, A. J., Behar, D. (1987). PRN medications in child state hospital inpatients. *Journal of Clinical Psychiatry, 48*, 351-354.

CONTRIBUTING AUTHORS

Theodore A. Petti, M.D., M.P.H.
Medical Director, Youth Services, Larue Carter Hospital, Arthur B. Richter Professor of Child Psychiatry, Indiana University School of Medicine, 2601 Cold Spring Rd., Indianapolis, IN 46222; 317-941-4160, fax: 317-278-0906; e-mail: tpetti@iupui.edu

Kimberly Stigler, M.D.
Resident in Child and Adolescent Psychiatry, Indiana University School of Medicine, 702 Barnhill Dr, #3701, Indianapolis, IN 46202; 317-274-8162, fax: 317-278-0906; e-mail: kstigler@iupui.edu

Sabrina Dumlao, B.S., R.N.
Research Nurse, Indiana University School of Medicine, 1120 South Drive, Fesler Hall, 302, Indianapolis, IN 46202; e-mail: sabncat@msn.com

Jamie Gardner-Haycox, B.A.
Research Technician, Indiana University School of Medicine, 2601 Cold Spring Rd., Indianapolis, IN 46222; 317-941-4277, fax: 317-941-4041; e-mail: jamgardn@iupui.edu

Assessing Quality Assurance of Residential Treatment Centers for Foster Care Children

Tom W. Pavkov
Ira S. Lourie
Richard W. Hug

Introduction

The Lake County Residential Treatment Facility Evaluation Project is focused on the monitoring and evaluation of services provided to foster care wards from Lake County, Indiana, and is funded by the Lake County Office of Family and Children. Currently, the Office of Family and Children (OFC) purchases services for approximately 550 children at a cost of over $42,000,000 per year. The evaluation project emanates from a performance-based contracting mechanism implemented in the county during the fiscal year 2001. The contract imposes performance-based outcome measures upon residential treatment providers and is designed to reduce rates of recidivism.

Methods

Treatment Facilities and Youth Demographics

The project completed visits for 12 residential treatment facilities: six facilities are located in Lake County, four facilities are located in the State of Indiana, and two facilities are out-of-state. Of those 12 facilities, six are accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and two are accredited by the Council on Accreditation (COA). The evaluation team also reviewed 54 OFC clients served by these facilities and their case records. Of those clients, 60% were male, 51% were Caucasian, 40% were African American and 5.5% were Hispanic. In terms of age, the majority of clients were between 13-16 years of age (60%), 18.2% were between 8-12 years of age, and 21.8% were between 17-19 years of age. Fifty-one percent of these cases were served in Lake County, 23.6% were in other facilities within the state, and 21.8 % were placed out-of-state. Of the 54 youth reviewed, 46.3% had medical conditions and 30.9% possessed learning disabilities or otherwise specified developmental delays.

Evaluation Protocol

The evaluation team worked with OFC managers and supervisors to develop a set of protocols to assess the quality of treatment provided to individual clients as well as the overall quality of the program. Specific procedures utilized in conducting the site visits included an introductory conference between residential treatment facility administrative staff and the evaluation team. In this meeting the evaluation team gathered general and background information related to the treatment program and specific information related to the children. Following the meeting with the administrative team, the evaluation team leader selected cases to be reviewed by the evaluation team and arranged visit logistics. OFC ward case selection was done on a randomized based across residential treatment facilities. For this project, the evaluation team attempted to achieve a 20% sample selection rate within each of the treatment facilities.

The next step included a meeting with the residential treatment clinical staff working most closely with selected children and youth. During this meeting, evaluation team members asked specific questions related to: (a) the overall program, (b) specific issues related to policies/procedures, and (c) treatment-specific information related to selected children. Special attention was focussed on treatment planning, service delivery, and medication management. Following interviews of clinical staff, evaluation team members completed a series of interviews with the direct care staff, education staff and recreation staff working most closely with selected children. Upon the completion of staff interviews, a brief interview was completed with the children selected for review. OFC ward were questioned about the general nature of their treatment and care.

Following the interview phase of the review, evaluation team staff completed a review of all medical and service related charts documenting service by the treatment facility. The chart review was intended to verify: (a) the services being provided to selected children, (b) medication management of psychotropic medications, (c) documentation related to the use of restraints and isolation, and (d) the monitoring of progress by

residential treatment staff. Specific emphasis was placed upon the verification of information gathered during the interview phase of the visit and the experiences of children as documented in the charts. Upon completion of the chart review, the Lake County Quality Assurance Review Form (LCQARF) was completed for each of the selected children. Completion of the form was facilitated by both the interviews and the chart reviews.

Following the interviewing and chart reviewing tasks, the evaluation team met to discuss information collected through the process. The team then completed the Lake County Program Review Form (LCPRF), using information from the LCQARF. Following the completion of the form by the evaluation team through a consensus building process, the evaluation team supplied a brief review of preliminary findings to the administrative staff. Within 72 hours the evaluation team provide OFC staff a final copy of the site visit report based on the LCPRF.

Analysis

Evaluation staff entered all quality assurance and program review data into research databases compiled for subsequent analysis. Evaluation team consultants provide technical assistance, analysis, reporting, and interpretation of analysis of compiled data as requested by OFC administrative staff. Additionally, evaluation staff consultants work with OFC staff to integrate data from existing OFC data systems into the ongoing analysis of evaluation data. These data include key demographic characteristics of the OFC residential treatment population, duration of treatment, treatment events, and cost-of-services related to residential treatment. The databases compiled serve purposes related to utilization review of residential placements.

Results & Discussion

As of this writing, the review teams have evaluated 12 residential treatment facilities. Generally, the evaluation has revealed that children served in residential facilities are being well-treated and that the staff in those facilities are committed to the success of the children served. The results of the evaluation also indicated that children served in the facilities improve as a result of treatment. However, a number of complex challenges face residential treatment providers. A primary challenge for treatment facilities is medication management and the integration of psychiatric services into the residential treatment program. Issues have emerged related to the disposition of medication by untrained staff, lack of medication management documentation, the interaction of treatment staff with psychiatrists, and the presence of systematic diagnostic assessments required to maintain effective treatment over the course of residency. The coordination of treatment planning with the stated OFC case plan was identified as a challenge for many providers. In many instances, the coordination between OFC case managers and residential treatment staff was problematic. Treatment staff in many facilities did not develop well-specified treatment plans that included both short and long-term treatment goals that are individualized and measurable. Finally, prolonged length of stay was a frequent and costly issue for the OFC. In many cases, the duration of treatment was a function of the lack of appropriate placements, unresolved family issues, and lack of coordination between OFC staff and residential treatment staff. Length of stay was also prolonged by the lack of aftercare planning over the course of treatment and the lack of utilization review procedures to determine the appropriateness of discharge and step-downs in treatment.

CONTRIBUTING AUTHORS

Tom W. Pavkov, Ph.D.
Professor, Behavior Sciences, Purdue University Calumet, 2200 169th Street, Hammond, IN 46323; 219-989-2029, fax: 219-989-3235; e-mail: Thomas.Pavkov@calumet.purdue.edu

Ira S. Lourie, M.D.
11160 Viers Mill Rd. #500, Wheaton Plaza South Bldg., Wheaton, MD. 20902; 301-984-3243, fax: 301-984-4050; e-mail: lourie@erols.com

Richard W. Hug Ph.D.
Professor, Public & Environmental Affairs, Indiana University Northwest, 3400 Broadway, Sycamore 102, Gary, IN 46408; 219-980-6838, fax: 219-980-6737; e-mail: hugr@iun.edu