

ABSTRACT

Objectives. This report describes a model for delivering developmental services to children of patients in treatment for substance abuse.

Methods. A multidisciplinary team provides developmental evaluations of children at a substance abuse treatment clinic.

Results. In 3 years of operation, 85% of 117 children completed individualized developmental evaluations. Cognitive limitations were diagnosed in 69%, speech and language impairments in 68%, emotional or behavioral problems in 16%, and medical problems in 83%. Follow-up information on children completing evaluation indicated that 72% of eligible children are receiving services as recommended.

Conclusions. This high-risk population of children of substance-abusing parents can be effectively served by providing developmental services at a substance abuse treatment program. (*Am J Public Health.* 2000;90:1930–1933)

Outreach Developmental Services to Children of Patients in Treatment for Substance Abuse

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Although children born to a substance-abusing parent(s) are at high risk for a wide range of developmental problems, they are often the least likely to receive developmental services. The reasons for this are multifactorial and include parents' remaining active substance abusers or being overwhelmed by their own recovery efforts, health issues, and psychosocial stressors.¹

Outreach services have been directed toward the population of substance abusers²; however, such efforts have been only minimally extended to their children.³ In the United States, more than 2.5 million children younger than 18 years are estimated to be living with a mother who has used illicit drugs in the past year.⁴ In a prior effort to provide developmental services to children of substance abusers, children were screened at their parent's treatment program and referred to a large multidisciplinary developmental center. Compliance rates were poor. Out of 50 children identified in a year, only 5 completed evaluation. This report describes a subsequent model for delivering developmental services on site at the substance abuse treatment program.

Methods

Children evaluated through this project are the offspring of patients (and their partners) receiving outpatient services at a methadone maintenance treatment program. The program offers an array of medical, psychological, and social services to more than 3500 inner-city patients at 9 outpatient clinics. Children are identified as a result of parental concerns or by substance abuse treatment staff, who receive formal training in child development.

A team was established consisting of a developmental pediatrician, a bilingual psychologist, a speech and language pathologist, a nutritionist, and an administrative assistant from the developmental center, along with a liaison from the substance abuse treatment program. The team visits the largest clinic 1 morning each week. Psychological and speech and language evaluations are administered via age-appropriate, normed tests in the child's dominant language. Frequently administered language tests include the Preschool Language Scale–3, Expressive One Word Picture Vocabulary Test–Revised, and the Test of Auditory Comprehension of Language–Revised. Psychological tests include the Bayley II, Stanford Binet IV, and Wechsler Intelligence Scale for Children III. Emotional/behavioral complaints are assessed by *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria. All children receive a hearing screening.

The initial appointment is scheduled on the basis of the parent's chief complaint. A written reminder is given to the parent a week be-

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fore the scheduled appointment, and a verbal reminder is given the day before the appointment. Transportation is available if the child is eligible for Medicaid and the family has a telephone. To increase compliance, on the day of the appointment, patients receive their methadone medication at the clinic where the developmental team provides services. The response toward missed appointments is non-punitive. There is no limit to the number of times an appointment may be rescheduled. If the evaluation must be postponed owing to parental treatment issues, it is continued when deemed appropriate. Medicaid is billed for all eligible children's evaluations and therapeutic services. The multidisciplinary nature and the flexibility of the team members allow for individualization of the evaluation process to meet the needs of the family. As the relation between the family and team members develops, psychosocial stressors related to the children and their implications are explored and addressed. Modeling and positive reinforcement of parenting skills are used as informal interventions throughout the evaluation.

A compliant family can complete their child's evaluation in 2 to 4 visits. A team conference follows each evaluation. A designated team member and the primary counselor meet with the family to share diagnostic impressions and recommendations regarding appropriate interventions. If the parent(s) agrees, referrals for educational and medical interventions are made. The team member and counselor continue working with the family to encourage compliance with referrals. Follow-up appointments are offered to the families at regular intervals.

Results

During the first 3 years of operation, the team had contact with a total of 117 children, of whom 100 (85%) completed the evaluations as recommended. These included 59 comprehensive multidisciplinary evaluations performed in English, 9 evaluations of Spanish-language-dominant children, and 32 limited evaluations. The evaluations of 17 children were not completed for various reasons, including parental illness, incarceration, or loss of contact due to discharge of the parent(s) from treatment. Compared with the initial effort in which only 10% completed their evaluation, the present model with on-site services resulted in families' being significantly more likely to complete evaluation ($\chi^2=0.000$).

Preschool-aged children are the project's target group. Children ranged in age from 8 months to 12.10 years. Median age at the time of referral was 3.8 years. The ethnic breakdown of the children was 61% Latino, 23% African

TABLE 1—Language, Cognitive, and Emotional/Behavioral Diagnoses of Children of Patients in Treatment for Substance Abuse

Diagnosis	No. of Children
Language impairment (n=68)	
Mild impairment	22
Moderate impairment	27
Severe impairment	11
Language impairment (provisional) ^a	8
Articulation disorder	36
Dysfluency disorder	2
Learning disability (n=28) ^b	
Mixed learning disability	3
Perceptual learning disability	1
Learning disability (provisional)	3
Cognitive limitation (n=72)	
Low average/average intelligence	22
Borderline intelligence	36
Mild mental retardation	9
Moderate mental retardation	1
Severe mental retardation	1
Unspecified mental retardation	3
Emotional/behavioral disorder (n=100)	
Attention-deficit/hyperactivity disorder	8
Oppositional defiant disorder	5
Autism	2
Reactive attachment disorder	2
Pervasive developmental disorder NOS	1
Psychosis NOS	1
Obsessive-compulsive disorder	1
Chronic adjustment disorder with mixed disturbance	1

Note. n = number of children evaluated; NOS = not otherwise specified. The subcategories sum to greater than n owing to the co-occurrence of language and articulation disorders.

^aSpanish-language-dominant children for whom the diagnosis would need to be confirmed by a full speech and language evaluation.

^bSchool-aged children.

American, 12% White, and 4% multiethnic/other, reflective of the treatment program's ethnic distribution. Fifty percent of the children were from families where at least 1 parent was known to be HIV seropositive. Two of the 117 children were known to be HIV seropositive. As reported by the mothers, 20 children (17%) were born prematurely, 17 at 32 to 36 weeks' gestation and 3 at less than 32 weeks' gestation.

The results of the evaluations are detailed in Tables 1 and 2. Of those children undergoing psychological testing, 50% scored in the borderline range of intellectual functioning and 19% scored in the range of mental retardation. Approximately 68% of the children demonstrated a variety of speech and/or language impairments. Emotional or behavioral disorders were diagnosed in 16% of the children. Eighty-three percent of the children had medical or nutritional disorders or both. Common physical examination findings included microcephaly, hypertonia, dysmorphism, and obesity.

Follow-up information indicates that of the 100 children whose evaluations were completed, 59 are receiving a variety of intervention services as recommended, 18 were not eligible for intervention services, and 6 are not

receiving the recommended services; services provided to 17 children are not known. The developmental evaluations performed by the team were used by educational systems as the basis for the children's placement and services.

Following the evaluation, 27 children were referred for additional medical consultation, including ophthalmology, otorhinolaryngology, audiology, genetics, orthopedics, psychiatry, and psychiatry. Only 48% of consultations were completed.

Discussion

All the children evaluated through this project were found to have special needs. The majority (75%) were diagnosed with mild cognitive and/or speech and language impairments. The chief complaint presented by the parents was typically behavior problems, but only 16% of the children evaluated were diagnosed with emotional/behavioral disorders. This discrepancy may be attributed to the young age of the children at the time of referral or to lack of parenting skills, including unrealistic developmental expectations and inconsistency and difficulty in set-

TABLE 2—Medical Diagnoses (n=99) and Nutritional Diagnoses (n=58) of Children of Patients in Treatment for Substance Abuse

Diagnosis	No. of Children
General pediatric	
Asthma	19
Recurrent otitis media	13
Heart murmur	5
Dental issues	3
Anemia	3
Adenoidal hypertrophy	1
Tinea corporis	1
Inguinal hernia	1
Genetic	
Multiple dysmorphic features without diagnosis	7
Fetal alcohol syndrome	2
Neurocutaneous syndrome	1
Fragile X syndrome ^a	1
Genital/urinary anomaly	1
Skeletal dysplasia	1
Neuromuscular/orthopedic	
Hypertonia	6
Idiopathic toe walking	7
Orthopedic anomalies	3
Febrile convulsions	2
Cerebral palsy	2
Hydrocephalus/ventriculoperitoneal shunt	1
Sensory	
Strabismus	6
Hearing impairment (conductive)	4
Ptosis	1
History of retinoblastoma with enucleation	1
Growth	
Obesity	21
Microcephaly	11
Morbid obesity	6
Failure to thrive	6
Macrocephaly	4
Short stature	3
Large for age	2
Premature puberty	1
Short gut syndrome (following necrotizing enterocolitis)	1
Feeding/elimination	
Immature feeding behavior	35
Encopresis/chronic constipation	8
Nocturnal enuresis	4
Daytime enuresis	2
Risk of significant dietary imbalance	1

^aDiagnosis unconfirmed due to noncompliance with genetic testing.

ting limits. In addition, children presenting to the substance abuse treatment program with acute emotional or behavioral disorders (e.g., suicidal ideation, fire setting) were referred to appropriate mental health centers for evaluation.

The high prevalence of prematurity, microcephaly, and hypertonia reported here has been previously described for children exposed in utero to heroin or cocaine or both.⁵⁻⁸ Of the 93 women who volunteered birth histories, 40 self-reported illicit drug use during pregnancy. Dysmorphic features of a diverse nature were seen in 10% of the children evaluated, although only 4% followed a pattern associated with a described syndrome. Additional research is needed to clarify this finding.

Overall, our data are most likely an underestimate of the actual prevalence of pathol-

ogy, due to a lack of compliance with a full evaluation in multiple cases. Furthermore, since services are recommended but not required, this is a self-selected group. A cause-and-effect relationship between the substance abuse history of the parents and the developmental issues of their children cannot be established in the absence of a matched control group.

The family of the substance-abusing patient can be effectively served by providing outreach developmental services on site at the substance abuse treatment program. With this model, this high-risk population was able to complete evaluations at a rate of 85%. The true measure of success is the ability of this team to engage the families in the service plans for their children so that the necessary interventions can be implemented. Of the children completing evaluation, at least 72% of those eligi-

ble for services were receiving appropriate developmental interventions at follow-up.

Although the system offers an effective approach for dealing with these families, it presents some limitations as well. This program is costly. Current New York State Medicaid reimbursement policy allows for only 1 billed evaluation per child per day, making multiple evaluations per day economically unappealing. Owing to the concurrent evaluations by multiple professionals, the program has a large space requirement. In addition, the success of the model is dependent on the collaborative efforts of participating agencies.

Conclusion

This innovative project provides developmental services to children of patients at a substance abuse treatment facility. Since outreach services were implemented, a significant increase in compliance with the evaluation process and follow-up services has been observed. Compliance was achieved with the establishment of a model of linkage and collaboration between 2 programs and a system that is highly flexible and tailored to the individual needs of a given family. □

Contributors

L. H. Shulman and S. R. Shapira developed the outreach model described in this report. L. H. Shulman served as the clinical director, S. R. Shapira served as the chief administrator, and S. Hirshfield was the administrative assistant of the clinical program. L. H. Shulman oversaw the data collection; S. R. Shapira developed and organized the database. L. H. Shulman and S. R. Shapira analyzed the data and wrote the paper. S. Hirshfield carried out periodic literature searches and maintained the database.

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