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ABSTRACT

This monograph explores the research findings and experiential knowledge base on toddlers and preschool-age children who were prenatally exposed to alcohol and other drugs. It is designed to influence public policy relating to the needs and early intervention plans for this population, from the medical, child welfare, psychosocial, developmental, legal, and political/advocacy disciplines. An introduction outlines the scope of the problem and examines potential solutions to the problem through education, intervention, and research. Ten papers are then presented, with the following titles and authors: "Perinatal Factors That Influence Neonatal Outcome" (Sonia Imaizumi); "Effects of Prenatal Exposure to Cocaine on Newborn Behavior and Development: A Critical Review" (Edward Z. Tronick and Marjorie Beeghly); "Prenatal Opiate Exposure: Developmental Effects in Infancy and Early Childhood" (Karol A. Kaltenbach); "Fetal Alcohol Effects in Preschool Children: Research, Prevention, and Intervention" (Claire D. Coles and Kathleen A. Platzman); "Spontaneous Play and the Development of Young Children" (Carol Rodning and others); "An Ecological Perspective: The Impact of Culture and Social Environment on Drug-Exposed Children" (Iris E. Smith); "The Child Welfare Challenge in Meeting Developmental Needs" (Richard L. Jones and others); "Educational Policy Issues in Serving Infants and Toddlers Born Toxic-Positive to Drugs" (Charlie Mae Knight); "Advocacy on Behalf of Drug-Exposed Children: Legal Perspectives" (Janet R. Fink); and "Three Years Later: The Young Mother's Legal Battles Continue" (Robert M. Horowitz). (JDD)

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OSAP Monograph

OSAP Prevention Monograph-11

Identifying the Needs of Drug-Affected Children: Public Policy Issues

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OSAP Prevention Monograph—11

IDENTIFYING THE NEEDS OF DRUG-AFFECTED CHILDREN: PUBLIC POLICY ISSUES

U.S. Department of Health and Human Services
Public Health Service
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Office for Substance Abuse Prevention
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OSAP Prevention Monographs are prepared by the divisions of the Office for Substance Abuse Prevention (OSAP) and published by its Division of Communication Programs. The primary objective of this series is to facilitate the transfer of prevention and intervention technology between and among researchers, administrators, policymakers, educators, and providers in the public and private sectors. The content of state-of-the-art conferences, reviews of innovative or exemplary programming models, and reviews of evaluative studies are important elements of OSAP's information dissemination mission.

This monograph is based on papers and discussions from OSAP's first Issue Forum, held in November 1990 in Washington, DC. The forum, Drug-Exposed Children Ages 2 to 5: Identifying Their Needs and Planning for Early Intervention, was cosponsored by OSAP's Office of Budget, Planning, and Evaluation and the Division of Demonstrations and Evaluation.

The presentations herein are those of the authors and may not necessarily reflect the opinions, official policy, or position of OSAP; the Alcohol, Drug Abuse, and Mental Health Administration; the Public Health Service; or the U.S. Department of Health and Human Services.

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Foreword

For a significant part of the late 1980s, the newspapers were flooded with heartbreaking stories about alcohol- and other drug-affected children. The plight of these children has left the headlines of our newspapers, but the children have not disappeared. Many are now entering school and having a very difficult time keeping up with their chronological peers.

We are learning from our grantees and others that there is a significant gap in services for infants and preschool children who were exposed in utero to a variety of drugs, including alcohol. Researchers are also reporting a serious gap in information about the various youth populations that are affected. We do not know how many alcohol- or other drug-affected children have been born in the United States. But we do know that of the approximately 60 million women in the childbearing age group (15–44 years), an estimated 4.8 million used illicit drugs in the past month. Particularly alarming is the fact that about 500,000 women in this age group appear to be current users of cocaine.

Some of the possible consequences of alcohol and other drug use during pregnancy include the increased incidence of sudden infant death syndrome, fetal alcohol syndrome and fetal alcohol effects, low birth weight infants, infants with small heads, neonatal seizures, cerebral infarctions, and rare urogenital birth defects. Cocaine-exposed babies are reported to be especially difficult to nurture. They are irritable and unresponsive, making the bonding between mother and child particularly difficult.

In an attempt to begin to address these issues, the Office for Substance Abuse Prevention convened an Issue Forum in November 1990, in Washington, DC, on Drug-Exposed Children Ages 2 to 5: Identifying Their Needs and Planning for Early Intervention. We brought together a select group of experts who explored the research findings and experiential knowledge base on these toddlers who are coming to the attention of teachers, healthcare workers, and other professionals. It is our hope that this monograph, based on the proceedings of the Issue Forum, will help define the needs of alcohol- and other drug-exposed children and will keep the issues in the forefront of our thoughts and high on the agenda for national policy, research, and remedial services.

Elaine M. Johnson, Ph.D., Director
Office for Substance Abuse Prevention

Prolog

The Issue Forum on Drug-Exposed Children Ages 2 to 5 proved to be a very educationally rich and thought-provoking 2 days. We learned a lot. Some excellent individuals provided us with basic information in this area and dramatically explained the dilemmas we face.

In preparing for this forum, we tried very hard to (1) select the appropriate experts as presenters, (2) have the best experts as discussants on the panels, and (3) invite individuals from the Federal Agencies that have an interest and an investment, both personal and agency related, in infants exposed to drugs and their drug-dependent mothers. Moreover, we wanted to ensure that we had enough time to impart our research data, clinical experiences, and opinions. I believe we accomplished our goals of presenting what we do know, what we do not know, and where we go from here. This monograph captures the essence of the forum. It describes the problems, our current solutions, and what more needs to be done about the growing problem of drug-exposed children.

Hopefully, what is discussed here will be utilized in the future activities of not only OSAP but other Federal Agencies as well, with the result that we will make a difference for drug-dependent women and their children. I want to thank all the participants for their input.

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Preface

The Office for Substance Abuse Prevention (OSAP) Issue Forums are a series of public policy forums designed to address cross-cutting issues or other general topics of interest to the alcohol and other drug (AOD) prevention field. Select groups of scholars, researchers, prevention practitioners, and policymakers are convened to review a particular issue. The aim is to share information and to debate and formulate policy that affects the national future of AOD prevention. The results of the forums are expected to influence local, State, and national policy.

The first OSAP Issue Forum was held in November 1990 in Washington, DC, to address the needs and early intervention plans for drug-exposed children ages 2 to 5. The Anti-Drug Abuse Act of 1988 expanded OSAP's mandate to include pregnant and postpartum women and their infants with alcohol and other drug problems within its target population. Now, early findings suggest that toddlers exposed to drugs in utero may need a significant degree of special care to help them physically and psychologically prepare to enter the public school system. This type of care for 2- to 5-year-olds appears to be lacking in grant programs and elsewhere.

The forum brought together expertise from the medical, child welfare, psychosocial, developmental, legal, and political/advocacy disciplines. This OSAP prevention monograph contains all the papers presented at the forum.

Contents

Foreword
Elaine M. Johnson iii

Prolog
Loretta P. Finnegan v

Preface vii

Introduction 1
The Scope of the Problem 1
Where Do We Go Next? 8

1. Perinatal Factors That Influence Neonatal Outcome
Sonia Imaizumi 11
References 21

2. Effects of Prenatal Exposure to Cocaine on Newborn Behavior and Development: A Critical Review
Edward Z. Tronick and Marjorie Beeghly 25
Mechanisms of Drug Action 26
Effects of Prenatal Exposure to Cocaine on Physical Growth and Development 27
Neurobehavioral Deficits and Prenatal Exposure to Cocaine . . 29
Methodological Issues 31
References 39

3. Prenatal Opiate Exposure: Developmental Effects in Infancy and Early Childhood
Karol A. Kaltenbach 49
Neonatal Abstinence 49
Perinatal and Developmental Outcome 51
References 56

4. Fetal Alcohol Effects in Preschool Children: Research, Prevention, and Intervention
Claire D. Coles and Kathleen A. Platzman 59
Developmental Effects of Prenatal Alcohol Exposure 60
Behavioral Effects of Prenatal Alcohol Exposure 62
Developmental Risk Associated With Alcohol Exposure: Prospective Studies 64

Maternal Alcohol and Other Drug Abuse and the Caregiving Environment . . . 69
More Research Is Necessary . . . 70
Needs of Alcohol-Exposed Children . . . 71
Barriers to Provision of Services . . . 73
Intervention for Alcohol-Affected Preschool Children . . . 75
References . . . 81
Notes . . . 86

5. Spontaneous Play and the Development of Young Children
Carol Rodning, Leila Beckwith, and Judy Howard . . . 87
Procedure . . . 88
Discussion . . . 89
References . . . 91

6. An Ecological Perspective: The Impact of Culture and Social Environment on Drug-Exposed Children
Iris E. Smith . . . 93
The Microsystem: Characteristics of the Child and the Caretaking Environment . . . 94
The Macrosystem: Social, Economic, and Cultural Factors . . . 97
Summary and Recommendations . . . 102
References . . . 105

7. The Child Welfare Challenge in Meeting Developmental Needs
Richard L. Jones, Charlotte McCullough, and Madelyn Dewoody . . . 109
The Scope of the Problem for Child Welfare . . . 109
The Multiple Roles of Child Welfare . . . 111
The Context of the Problem for Child Welfare . . . 113
The Current Out-of-Home Care Options . . . 120
Obstacles to Meeting the Child's Needs . . . 123
Promising Approaches . . . 126
Conclusion . . . 128
References . . . 129

8. Educational Policy Issues in Serving Infants and Toddlers Born Toxic-Positive to Drugs
Charlie Mae Knight . . . 133

9. Advocacy on Behalf of Drug-Exposed Children: Legal Perspectives
Janet R. Fink . . . 139
Needs of Cocaine-Exposed Children . . . 139

Role of Attorneys for Drug-Exposed Children 142
Legal System Responses: Criminal and Civil Intervention . . . 144
References 147
Notes 149

10. Three Years Later: The Young Mother's Legal Battles Continue
Robert M. Horowitz 151
Health Services 152
Public Housing 154
Vocational Services 154
Child Welfare System 155
Conclusion 158
References 159

Roster of Panelists 161

Agenda 165

Introduction

The first OSAP Issue Forum, held in November 1990 in Washington, DC, addressed the needs and early intervention plans for prenatally drug-exposed children aged 2 to 5. Panel members presented information from their respective fields. Then the participants discussed the issues raised about prevention efforts for these children. They found consensus on some issues and disagreement on others and raised many unanswered questions. They all agreed that, even though much more research is needed, we already know enough to intervene effectively to help these disabled children reach their maximum potential.

The Scope of the Problem

Alcohol and other drug abuse cuts across all races and socioeconomic strata. Nearly 20 percent of the infants born today are affected by prenatal exposure to drugs. A survey of White, middle-class suburban hospitals found cocaine use by 11 percent of postpartum patients. Fetal alcohol syndrome (FAS) occurs in 1–3 births per 1,000. The first wave of babies exposed in utero to crack cocaine (an estimated 300,000 such children) will enter the public school system in 1991, along with numerous children affected by other drugs. Without intensive, multifaceted intervention, many of these children will grow up to be disabled adults who will strain our already overcrowded psychiatric hospitals, outpatient services, and jails.

The problem already affects two generations: adult children of alcohol and other drug abusers are producing drug-exposed infants, and many of these disabled adults are unable to adequately care for their disabled children. The cost of helping these people overcome their alcohol abuse and other drug use and return to being productive members of society will be high, but far less than ignoring the problem.

Effects of Prenatal Drug Exposure

Except for alcohol, very little is known about the effects of single drugs on the fetus. Even less is known about the effects of combinations of drugs, and few users restrict themselves to one drug. Drug exposure also interacts with drug-related problems of the mother, which can include poor health, particularly sexually transmitted diseases and malnutrition, and refusal or inability to seek prenatal care. Drug abuse can lead to poverty, and vice versa, and virtually nothing is known about the effects of this interaction on the child.

The most severe effect of drug exposure is fetal death. The most common effects are premature birth, neurological impairment, delayed development, and low birth weight, which is a major cause of death in the neonatal period. However, many apparently normal, healthy babies are born to drug-using mothers.

A study of 18-month-old toddlers, with normal developmental quotients, no medical complications other than prenatal drug exposure, and no signs of needing special treatment, showed dramatic impairment. When allowed to play freely, these children engaged in significantly fewer activities than normal toddlers and played at a lower developmental level. They also appeared to be disorganized in their attachment to their caregiver. They seemed to have no basic strategy toward the relationship and tended to avoid their caregivers. The less secure their attachment, the more restricted their play.

While no typical profile of drug-exposed children exists, as they approach school age, characteristic behaviors include heightened response to internal and external stimuli, irritability, agitation, tremors, hyperactivity, speech and language delays, poor task organization and processing difficulties, problems related to attachment and separation, poor social and play skills, and motor development delays.

Alcohol. The most severe condition, except for fetal death, caused by maternal ingestion of alcohol is fetal alcohol syndrome. FAS comprises growth retardation, central nervous system damage, and congenital anomalies, the best known being distinctive facial deformities. It is one of the most frequent causes of mental retardation. Children with FAS display a number of problems including cognitive impairments and speech defects, hyperactivity, and behavioral and psychiatric disorders.

Less severe effects are classified as fetal alcohol effects (FAE) or alcohol-related birth defects (ARBD). Even children who show no outward effects may have behavioral, cognitive, and developmental problems. Unlike children with Down's Syndrome, who are complacent, happy, and compliant, children suffering mental retardation from alcohol use by their mothers display alarming amounts of physiopathology and maladaptive behavior.

Most studies of preschool and primary school-aged children suggest that alcohol effects may become more apparent over time or as different cognitive functions development.

Narcotics. Infants born to heroin or methadone dependent mothers have a high incidence of neonatal abstinence, a generalized disorder characterized by signs and symptoms of central nervous system hyperirritability, gastrointesti-

nal dysfunction, respiratory distress, and vague autonomic symptoms that include yawning, sneezing, mottling, and fever. Neonates often suck frantically on their fists or thumbs, yet they may have extreme difficulty feeding because they have an uncoordinated and ineffectual sucking reflex. With appropriate pharmacotherapy, neonatal abstinence can be satisfactorily treated without any untoward neonatal effects.

Other neonatal complications associated with narcotics include postnatal growth deficiency, microcephaly, neurobehavioral problems, and a 74-fold increase in sudden infant death syndrome. Congenital anomalies have not been associated with narcotics.

Methadone maintenance is recommended for narcotic dependence in pregnancy because it prevents erratic maternal drug levels, which subject the fetus to repeated episodes of withdrawal. An important component of methadone maintenance is required participation in a treatment program. This enhances the probability of receiving prenatal care, thereby reducing infant morbidity and mortality.

Data on the effects of prenatal narcotic exposure on development indicate that children through 2 years of age function well within the normal range, and children between 2 and 5 years of age show no degradation in overall cognitive function. However, these studies used instruments that could not detect subtle cognitive, behavioral, or process deficits.

Cocaine. The long-term effects of intrauterine exposure to cocaine have yet to be established. The most consistent findings show obstetrical complications, low birth weight, smaller head circumference, abnormal neonatal behavior, and cerebral infarction at birth. Children prenatally exposed to crack cocaine are known to be easily distracted, passive, and to face a variety of visual-perceptual problems and difficulties with fine motor skills. They often display problems with learning and concentration, hyperirritability, and developmental delays.

The Mother-Infant Dyad

Infants have a sequence of developmental tasks to accomplish, each one dependent on successful accomplishment of the earlier tasks. The mother or other caregiver has an indispensible role in this endeavor.

The first task for babies is to regulate their physiologic and behavioral states. To accomplish this, they must communicate their needs by organized behavioral displays. The mother must be able to read the infant's communications and respond appropriately, providing a suitable environment.

In the social sphere, the infant must coordinate expressive modalities (face, voice, gestures) into coherently organized communicative configurations; detect communication signals of the mother and modify behavior in response to those signals; and regulate arousal and negative and positive affective states. The mother must provide sensitive, contingent, and affectively positive responses to the infant's affective communication during social exchanges.

Drug abuse can interfere with the infant's development by affecting either side of the dyad. Drugs upset the normal regulation of the infant's physiology, and an infant in withdrawal is incapable of communicating through organized behavior. Drug use interferes with the mother's capability for, or interest in, responding to her infant's needs and building successful mother-infant communication.

Addicted mothers are often children of addicted mothers, so they lack appropriate role models for parenting. This, combined with psychological characteristics such as coexisting psychopathology and low self-esteem, often leaves them ill prepared to deal with a drug-affected child who may have behavioral problems, physical disabilities, and/or mental retardation. This situation frequently leads to child abuse or neglect.

The 25–30 percent of drug-exposed babies who must remain in the hospital for protracted periods are also deprived of the early maternal-infant bonding so crucial for the infant's development. Preschoolers who are shuttled from one foster home to another may be similarly deprived of important normal relationships.

Evaluating the infant and the mother's functioning with the infant can guide the choice of intervention at that stage. These can include parent/child group approaches, protective environments, and longer hospital stays because of the hypersensitivity of the infant, or sometimes, the hypersensitivity of the mother.

The Impact of Culture and Social Environment

Prenatally drug-exposed children who remain with their drug-using parents may endure environmental factors that accentuate the effects of in utero exposure. Alcohol and other drug abusers are often unable to maintain an intact family, so their children may grow up with only one parent and with limited economic resources. These children often reside in low-income communities that frequently are also high crime areas. Illicit drug use may lead to a deviant drug-seeking lifestyle that often involves criminal activities. Parent-child separations resulting from periods of incarceration may further contribute to family disruption.

Children from ethnic/racial populations are often exposed to environments that are characterized by violence, instability, racism, and poverty. The emotional impact of these problems on nondisabled children would be expected to be significant. For the vulnerable, drug-exposed child living with an alcoholic or drug-using parent, the impact is significantly multiplied.

Models of development that discount the impact of cultural beliefs and practices often fail to adequately account for observed outcomes. The influence of these beliefs and practices may be particularly evident in differences in childrearing attitudes and parenting behaviors, and cultural expectations may reinforce behaviors that the majority culture views as evidence of inferiority.

Child Welfare System

Drug-exposed infants, toddlers, and preschoolers endangered by alcohol- and other drug-using parents are the fastest growing foster care population, and children who enter such care are staying longer. They are difficult to plan for largely because of their parents' inability to actively participate in the planning process. They are difficult to place because they tend to be disorganized, hypersensitive, and hyperreactive to sensory and environmental situations, and they need a protective, secure environment in order to thrive.

The Adoption Assistance and Child Welfare Act of 1980, the current child welfare law, mandates agencies to make "reasonable efforts" to prevent a child's placement in foster care and to reunite the family during specified time periods if foster care is necessary. Critics argue that the system and its laws do not meet the needs of the new generation of alcohol- or other drug-exposed infants, toddlers, and young children at risk of abuse by drug-dependent parents.

Efforts to hold the family together are thwarted by the parents' need for treatment. Treatment is often unavailable, there is little information on what constitutes an effective treatment program, and treatment takes a long time, during which the child must be placed in substitute care. Heavily addicted parents often relapse. At what point should the child be reunited with the family? Meanwhile, the mother/child bond is almost impossible to maintain during these developmentally sensitive years.

On the other hand, terminating parental rights to any child is difficult, controversial, and time-consuming and consequently, fewer than 10 percent of foster children are adopted. Even fewer alcohol- or other drug-exposed children find adoptive homes. The lack of a stable, sensitive environment is particularly detrimental to these highly vulnerable children.

School Districts

The Education of the Handicapped Act Amendments of 1990 acknowledge, for the first time, three related issues affecting school districts: (1) African-American children comprise a disproportionate number of students who are classified as children with disabilities, (2) the proportion of African-American professionals working in special education has been declining over the past several years, and (3) school districts do experience and will experience growing numbers of children who were born toxic positive to drugs and who will need special education services.

If the Act is passed, training of African-American teachers will increase and the number of children who are misplaced in special education programs should decline. School districts will be able to draw on the expertise of trained African-American professionals in addressing the more complex needs of drug-exposed children.

Unfortunately, the Act addresses the drug exposure problem exclusively from the viewpoint of the child and appears to assume that the primary contributors to the problem are the changes brought about by their exposure. Yet experience shows that the nurturing (or lack thereof) provided by mothers contributes at least as much as the toxicity to the child's development.

Focusing an intervention program through the child to the parent, and particularly through an educational child care program, offers the best promise for the later success of drug-exposed children. This approach uses the resources of the school rather than a social service agency as the focal medium. The childcare site provides a safe haven for the young mothers to learn parenting skills, and schools are seen by the community as legitimate centers for educational interventions. Schools also have access to the resources to provide the mothers with job training or schooling.

Legal Advocacy for Children

The 1986 amendments to the Education for the Handicapped Act (EHA) mandate that States provide comprehensive services to children aged 3 to 5, either directly or by contract. Family involvement must be encouraged, and individualized education plans must encompass teaching parenting skills, if appropriate.

The acute medical, educational, and affective needs of drug-exposed children compel an especially rigorous role for legal counsel. Counsel is critical in order to secure children's entitlements proactively and to protect their rights and

interests in the many cases that reach the juvenile and family courts. However, many children have no access to effective advocates.

Representation of children's complex interests requires complex training and interdisciplinary expertise on the part of the advocate, as well as access to adequate social work and clinical assistance. Policies and modes of intervention that strengthen families and communities are likely to also meet the needs of children. Punitive responses, which exacerbate deterioration in the fabric of families and communities, are likely to produce the opposite effect. Calls for criminalization of prenatal transmission of drugs, criminal intervention against mothers of drug-exposed infants, civil commitment of drug-abusing pregnant women, and removal of drug-exposed infants to newly revived forms of orphanages appear to constitute an assault upon the already sensitive balance of children's, parental, and governmental rights and interests and are of dubious efficacy in serving the children such policies are ostensibly designed to protect.

Resort to the criminal justice system is not likely to deter drug use during pregnancy but is instead likely to deter women from seeking needed prenatal care, drug treatment even where available, and medical and other services for children once born. Moreover, few jails, prisons, or psychiatric hospitals have facilities for children or drug treatment programs, and many are woefully deficient in the quality of medical care afforded to inmates or patients. The conditions of confinement can also be injurious to fetal and children's health.

Legal Advocacy for the Mother

Low-income, alcohol- and other drug-abusing single mothers have a particularly difficult time negotiating the system set up to help them and their children. The lack of an advocate and their incompetency due to drug use undermine their ability to access publicly supported programs, which typically have complex eligibility requirements. Mothers may lose their eligibility for many programs, such as Medicaid, AFDC benefits, and JOBS programs, if they lose custody of their children. Some States require mothers to relinquish custody in order to obtain certain services.

Punitive measures can unfairly remove the child from the home. Public housing agencies can now evict anyone suspected of drug use, and lack of housing is frequently used as a reason to remove the child. In some jurisdictions, evidence of drugs in a newborn's urine is justification for immediately removing the child from the mother. Criminal prosecution and incarceration for drug abuse also separates the family.

Cases can remain unresolved in the child welfare system for long periods because the services needed to reunite the family are not available. Aggressive

advocacy on the mother's behalf could help assure that service and treatment systems, such as housing, would be accessed.

Particularly unfair to mothers is the lack of residential treatment programs that can accommodate their children. Without treatment, they may lose their children on the grounds of inability to care for them; with long-term residential treatment, they may lose their children on the grounds of abandonment.

Where Do We Go Next?

The forum participants agreed that replicable programs involving both family and child in ongoing intervention during the preschool years are needed. Enough is known about the type of interventions required to begin now. However, these children need help from many disciplines, and their families need help from many agencies. Coordination and funding are major obstacles.

Education

The first step in helping alcohol- and other drug-exposed toddlers and preschoolers is to generate public support, commitment, and funding. The media, the public, and policymakers need to be better informed about the nature of alcohol and other drug abuse as chronic, progressive, relapsing diseases with a long recovery period. They need to be told about the actual risks of prenatal drug exposure. The general view seems to be that alcohol and other drug problems exist exclusively among impoverished ethnic/racial populations who are responsible for their own abuse and probably should be punished. Consequently, drug exposure is not identified among mainstream infants, and inadequate funds are allocated for helping poor drug-exposed children; neither group receives adequate treatment.

The media should be made particularly aware of the impact of negative labels, such as "boarder baby" and "cocaine baby." On the other hand, it is difficult to generate support and sympathy for an unnamed condition. Medical diagnoses, such as fetal alcohol syndrome, would seem to provide a middle ground.

Professionals dealing regularly with young children and their mothers should be familiarized with the risk status in children as well as the identification of alcohol and other drug problems in parents. Agencies that provide alcohol and other drug treatment for mothers have been woefully ignorant of the needs of their clients' children and the impact of the child's status and behavior on the parents. The needs of children are often ignored as a result.

Without proper diagnosis by medical professionals, it is difficult to institute proper care for the infant. Many health care and education professionals are

not familiar with the range of effects associated with prenatal drug exposure and do not understand the implications for the child's development.

Similarly, lack of knowledge causes some infants to be summarily removed from the family solely on the grounds of drug use without first ascertaining the mother's ability to care for the child. Welfare agencies need to have realistic information about recovery from alcohol and other drug abuse and should incorporate this information into their planning structure when dealing with alcohol- and other drug-exposed children.

The schools are about to experience a significant increase in the number of drug-exposed children. Without sufficient information, teachers will not understand the problems they are facing and cannot be expected to respond appropriately.

Intervention

Since many drug-exposed infants do not have outward signs of their condition, and since many effects do not show up for several years, it is important that these children be identified at birth and followed through their preschool years. Programs need to be developed to prevent rather than remedy developmental delay.

Programs for prenatally alcohol- and other drug-exposed children require multilevel intervention strategies that acknowledge the influences of the larger social environment as well as of the family. Programs must be comprehensive and should involve the parents. This typically requires case management and ongoing communication among the various disciplines and agencies involved.

When primary prevention efforts fail, provision must be made for affected children. A great deal of neurological development occurs postnatally, and if child care, nutrition, and environment are adequate, alcohol- and other drug-exposed children can make substantial progress.

Programs also need to provide long-term followup and continuing support for children as they get older. The cumulative impact of poverty, inferior educational systems, and pervasive social problems seem to counteract many of the gains achieved by early interventions.

Unfortunately, the child welfare system today and the lack of effective advocacy for children and their drug-abusing parents cause many children to be placed in foster care for extended periods. These foster parents must be trained to understand and deal appropriately with these children. In other countries, abandoned babies and children of drug-abusing parents are often placed in modern-day orphanages with well-trained staffs. These facilities are

doing an excellent job with these children, and similar congregate care might be tried here.

Research

Research is needed to fully explicate the impact of alcohol and other drugs on the environment/ mother/infant system. More information is needed about the mechanisms and effects of specific drugs on the fetus and the interactions of multiple drugs; how long these effects persist and how they manifest later; resiliency factors in the fetus; and which interventions are most appropriate for which populations. Research findings should be disseminated quickly and should be couched in clinical and lay terms for rapid integration into the service delivery system.

One unanswered question is whether these 2- to 5-year-olds need programs specific to their drug exposure, or whether they can be helped by programs designed for other types of socially, environmentally, or biologically vulnerable children. Another question revolves around age groupings. Should there be unique interventions for 2- to 5-year-olds as opposed to 0- to 2-year-olds or 6- to 8-year-olds? Another issue needing further research is the extent to which programs for these youngsters and their parents need to be culturally specific.

Regional core research facilities are recommended that would provide caring environments for drug-abusing mothers and their children. These would ensure research populations and could carry out multidisciplinary, integrated studies. They could also develop instruments for measuring subtle developmental, cognitive, and neurological deficits.

CHAPTER 1

Perinatal Factors That Influence Neonatal Outcome

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Division of Neonatology

Perinatal period defines the span from the 24th week gestation through the first week after birth, while *neonatal period* defines the first 28 days of life. During these weeks, the highest mortality rate in childhood occurs, especially during the first 24 hours of life. The infant mortality rate (deaths in the first year of life) in the United States is higher than in other developed countries: 9.9 per 1000 live births in 1988, whereas it was 4.8 in Japan and 5.8 in Sweden in the same year (Weyman 1989).

Factors existent before conception, like socioeconomic and environmental factors and maternal health and nutritional status before and during pregnancy, as well as those occurring during pregnancy, labor, and delivery, influence the ultimate outcome and the health of the infant. The high death rate and the high incidence of complications during the perinatal period underscore the need for early identification of all those pregnancies, fetuses, and infants at risk.

The prevention of death is as important as the prevention of morbidity. The latter usually leaves its mark with permanent disabilities such as mental retardation, cerebral palsy, minimal brain dysfunction, and reading disabilities that last a lifetime. These disabilities represent a major burden to society, not only from their economic aspects but also in terms of human suffering.

Low birth weight infants are at highest risk to either die in the neonatal period or to survive with disabilities or major morbidity during childhood. Low birth weight infants are born weighing less than 2,500 grams, either at term (38–42 weeks) or premature (≤37 weeks). Low birth weight infants that are small for their gestational age are called intrauterine growth retarded. For infants who weigh less than 1,500 grams at birth, the probability of dying is 200 times greater than for babies born at term (Behrman 1987).

The infant mortality rate in the United States is due mainly to deaths of low birth weight infants (about 20 percent of all postneonatal deaths) (Behrman 1987). The recent dramatic decrease in neonatal mortality in this country is due

mainly to improvements in technology at a very high cost. However, the incidence of low birth weight infants has not decreased much: in 1988 it was 5.6 percent for White babies and 13.0 percent for African-American babies (National Center for Health Statistics (NCHS) 1990). Teenaged mothers, persons with less than 12 years of education, late registrants for prenatal care, and African Americans have an increased risk of delivering low birth weight infants.

Many infants are born either premature, intrauterine growth retarded, severely asphyxiated, or with life-threatening congenital anomalies without any previously identifiable risk factor. In all cases, good prenatal care is of utmost importance to prevent negative outcomes. Although the lowest risk of death occurs with infants between 38 and 42 weeks gestation, 40 percent of perinatal deaths occur in infants >37 weeks gestation. Those infants especially at risk are born weighing more than 4,000 grams after more than 42 weeks gestation (Behrman 1987).

Some maternal diseases that may directly affect the fetus and neonate are outlined in table 1. Alcohol and other drug abusers have a very high incidence

Table 1. Maternal diseases that may affect the fetus

Infections: TORCH, sexually transmitted diseases (syphilis, HIV, hepatitis, other viral infections, urinary tract infections)
Chronic hypertension
Cyanotic congenital heart disease
Diabetes mellitus
Graves disease
Hyperparathyroidism
Idiopathic thrombocytopenia
Lupus erythematous
Myasthenia gravis
Myotonic dystrophy
Neoplastic disease
Phenylketonuria and other metabolic diseases
Renal disease
Rhesus immunization
Sickle cell anemia
Thalassemia

of medical complications during pregnancy that may, per se, affect the infant's outcome. These complications are mentioned in table 2.

Table 2. Medical complications encountered in pregnant addicts

Anemia	Tetanus
Bacteremia	Tuberculosis
Bacterial endocarditis	Urinary tract infection
Cellulitis	Sexually transmitted diseases:
Diabetes mellitus	Chlamydia
Hepatitis (A, B, non-A, non-B)	Condyloma acuminatum
Hypertension	Gonorrhea
Malnutrition	Herpes
Phlebitis	Syphilis
Pneumonia	Human immunodeficiency virus

Source: Adapted from Finnegan 1978.

When congenital anomalies and infections are excluded, complications associated with intrauterine growth retardation include perinatal asphyxia, hypoglycemia, hypothermia, polycythemia, meconium aspiration, and necrotizing enterocolitis. The outcome of these infants depends on the etiology of the growth retardation. Infants of drug-abusing mothers usually fall into this category, whether born at term or preterm, especially those born to cocaine users, who have strikingly smaller head circumferences in addition to their lower birth weights (Zuckerman 1989).

Premature babies, in general, have a high incidence of problems like hyaline membrane disease, intracranial hemorrhage, necrotizing enterocolitis, and infections. The more premature, the higher the mortality and the higher the incidence of disabilities in the survivors. Recent data show a tremendous improvement in survival rates of very low birth weight infants (<1,500 g), up to approximately 76 percent (Grogaard et al. 1990) in some series.

Most studies, in recent years, report improved survival rates and a decreased disability rate. A Vanderbilt study of 632 infants reported a major disability rate of 18 percent, with 6.4 percent considered mentally retarded. In this study, as in many others, many infants were lost to followup (Grogaard et al. 1990).

Another recent followup study published by Papile et al. (Lowe and Papile 1990) revealed an increased incidence in disturbed visual-motor and visual-perceptual function as well as learning difficulties in children who were born prematurely and who had no overt neuromotor disabilities and were attending regular classes but needed remedial education.

A major factor in the prevention of low birth weight infants is adequate prenatal care. In 1988 in the United States, only 76 percent of White mothers and 51 percent of African-American mothers received adequate prenatal care. Five percent of White mothers and 11 percent of African-American mothers received no prenatal care at all (NCHS 1990). The barriers to care cited by many surveys include finances, lack of transportation, long wait to be seen, availability of child care, attitudes and styles of the providers with consequent lack of communication and lack of cultural sensitivity, and finally, alcohol and other drug abuse (Brown 1988).

Alcohol and other drug abuse during pregnancy have been shown over the years to have deleterious effects on pregnancy outcomes and on the health of the fetus and newborn. The effects of smoking and alcohol have been known for many years. According to the National Institute on Drug Abuse, approximately 34 million women aged 15–44 are current drinkers, more than 18 million are current smokers, and more than 6 million are current marijuana users. Approximately 2 million women of childbearing age have a history of cocaine use (Adams et al. 1989).

Abusers, mostly of crack cocaine, constitute 95 percent of the unregistered women delivering at The Medical College of Pennsylvania (MCP) in Philadelphia. It is very difficult to link the use of one specific drug to an abnormal finding in the fetus. A very high percentage, as high as 76 percent of the women, are polydrug users. In addition, they have poor prenatal care, are malnourished, and have a high incidence of infections.

One important aspect to consider when discussing drug abuse during pregnancy is the physiologic change that occurs during pregnancy that affects the pharmacokinetics of these substances. Drugs of abuse are usually of low molecular weight and cross the placenta easily. In addition, there is a dramatic increase in blood volume during the last trimester, which decreases the concentration of drugs in the mother. Since the fetus is a part of this increased volume, that decrease actually represents an increase in the concentration on the fetal side. The elimination of drugs by the mother is thus reduced.

Other changes that affect the absorption of drugs include decreased gastrointestinal motility, changes in gastric pH, increase in gastric secretions, and an increase in venous pressure. The extent of these changes varies with each individual, making it difficult to predict the effects that these alterations will

have on the metabolism of a given drug. The fetal metabolic capabilities are quite immature, especially in the hepatic system, and this makes the concentration of certain drugs higher in the fetus. The fetal pH is lower than that of the mother, which, particularly in the case of cocaine, makes the transport toward the fetus even more efficient (Szeto 1989).

The exact teratogenic effects of illicit drugs on fetal development are not easy to assess. Most animal data available are species specific, making it difficult to correlate them with those in humans. Drugs in general account for about 4–5 percent of fetal malformations (Kurczynski 1987). Cocaine has been associated with an increased abortion rate, but heroin has not. Other effects may not occur during organogenesis (3–10 weeks gestation), but later in the newborn period, in the form of behavioral changes or neonatal abstinence syndrome. The long-term outcome studies of alcohol and opiate effects are described in other chapters.

In addition to the medical complications, another important factor associated with drug abuse in pregnancy is the high incidence of sexually transmitted diseases, of which syphilis seems to be the leading one. At MCP alone, approximately 42 cases of positive serology were found in a 10-month period during 1990. No neurosyphilis cases have been found to date. The human immunodeficiency virus (HIV) represents another dramatic change in the morbidity associated with drug abuse in pregnancy. An estimated 7 percent of patients with acquired immunodeficiency syndrome (AIDS) are women of childbearing age (Nanda and Minkoff 1989). This is reflected in the overall incidence of pediatric AIDS: 80 percent of these cases are perinatally acquired. It is still hard to predict which babies born to HIV-positive mothers (without AIDS) will become positive and which ones will get the disease. To date, it appears that approximately 30 percent of infants will become positive (Andiman et al. 1990). Available evidence suggests that positive HIV status, per se, does not affect pregnancy outcome.

The following paragraphs describe briefly the effects on fetal outcome of several commonly abused drugs.

Alcohol. Fetal alcohol syndrome (FAS) was first described by Jones et al. in 1973. To date, it is the most serious drug problem not only in the United States, but in other countries as well. The symptoms associated with FAS are listed in table 3. The exact mechanisms of these teratogenic effects are not yet clear. It appears that the breakdown products of ethanol are responsible for the fetal damage. The influence of genetic factors, malnutrition, and concomitant use of other drugs is also not very clear. Only 1 percent of women who drink 1–2 oz of absolute alcohol per day have babies with FAS. On the other hand, the exact

Table 3. Fetal Alcohol Syndrome

- Intrauterine growth retardation
- Microcephaly
- Short palpebral fissures
- Long philtrum
- Thin, smooth upper lip
- Cardiac defects (VSD, ASD)
- Mental retardation of varying degree

incidence of fetal alcohol effects alone is not known. A more detailed chapter on alcohol can be found elsewhere in this publication.

Nicotine. Tobacco has a nicotine content varying from .5 to .8 percent depending on the brand. Ninety percent of the inhaled nicotine is absorbed. Many compounds have been isolated from tobacco smoke that may contribute to the long-term effects of nicotine poisoning. Resnik et al. (1979) found a 44-percent decrease in uterine blood flow and a 203-percent increase in uterine vascular resistance in sheep following nicotine administration (Dattel 1990). The most striking effect of nicotine is on the reduction of birth weight by 150–250 grams (Davis et al. 1976).

Marijuana. Marijuana is the most frequently abused drug in the United States, after alcohol. It is generally used with other drugs. The Δ-^{9} tetrahydrocannabinol isomer is responsible for the psychological effects of marijuana. Cardiovascular effects may also be present. It crosses the placenta into the fetus. There are reports of shortened gestation and an increased incidence of obstetrical complications associated with the use of this drug during pregnancy. Babies born to marijuana smokers have been described as smaller, suffering from sleep disturbances, and having a diminished Mental Development Index on the Bayley evaluation at age 3 (Hingson et al. 1982; Rosen 1987).

Narcotics. The opium alkaloids have been a major and lasting social problem. They have been recorded in medical history since at least 300 B.C. The most common opioid in use is heroin. Methadone, a synthetic opioid, is a substitute used for treatment. Narcotics depress the central nervous system, decrease gastrointestinal motility, and depress respiration. The magnitude of these effects is dose dependent. Morphine, in addition, has some cardiovascular effect by lowering blood pressure. The most common obstetrical complications associated with the use of narcotics are outlined in table 4.

Table 4. Obstetrical complications associated with heroin addiction

Abortion	Intrauterine death
Abruptio placentae	Ihtrauterine growth retardation
Breech presentation	Placental insufficiency
Chorioamnionitis	Postpartum hemorrhage
Gestational diabetes	Pregnancy induced hypertension
Higher C-section rates	Premature labor
Premature rupture of membrane	

Source: Finnegan 1978.

In addition to the perinatal morbidity associated with narcotics, the neonatal complications include withdrawal, postnatal growth deficiency, microcephaly, and neurobehavioral problems. Congenital anomalies, as such, have not been associated with this type of drug.

Methadone is still the only legal alternative drug to be used in perinatal addiction. It is continued during pregnancy because, if stopped, fetal withdrawal and death may occur. About 10,000 babies a year are delivered to heroin-addicted mothers in this country. Most mothers in methadone programs still use narcotics or other drugs (Dattel 1990). The use of methadone programs during pregnancy has demonstrated that the women receive better prenatal care and are less anemic than injected drug abusers. However, it is not clear whether it really promotes fetal well-being and adequate growth (Dattel 1990; Rosen 1987).

The neonatal withdrawal syndrome associated with methadone is prolonged and very severe. The symptoms of neonatal abstinence include hyperactivity, irritability, sleep disturbances, and sucking/swallowing incoordination. The drugs used for treatment include paregoric, phenobarbital, and sometimes thorazine. In our institution, we use the Finnegan's score to guide us for treatment, weaning from the drug, and so forth. Other narcotics that are sometimes used that may cause severe neonatal withdrawal are propoxyphene and pentazocine.

Cocaine. The number of pregnant women using cocaine has increased dramatically in the last 5 years. Three recent studies estimated the incidence of cocaine use during pregnancy. Frank et al. (1988) noted a 17-percent incidence in Boston. Little et al. (1989) found a 9.8-percent incidence in Dallas. Hurt et al. (1990) in Philadelphia found an overall incidence for the city of 16 percent; 71

percent of the women had no prenatal care, 70 percent smoked, and 38 percent admitted using alcohol. Twenty-eight percent of the infants born to these mothers needed to be admitted to an intensive care unit (see table 5). Frank and associates (1988) also reported poor nutrition, increased incidence of sexually transmitted diseases, and concomitant use of alcohol, cigarettes, marijuana, and opiates. The multidrug use and other associated risk factors that may influence pregnancy outcome make it difficult to assess the role of cocaine alone in the outcome.

Table 5. Medical complications associated with the use of cocaine

Manifestations of intoxication
- Autonomic nervous system
- Central nervous system
- Cardiovascular
- Respiratory

Complications of intoxication
- Myocardial infarction, intestinal ischemia, pneumomediastinum,
- Intracranial hemorrhage

Chronic effects
- Irritability, suspicion, and finally paranoid psychosis
- Depression, insomnia, anorexia
- Perceptual changes, pseudohallucinations
- Chronic upper respiratory symptoms, necrosis of the nasal septum, hoarseness, pulmonary fibrosis

Comorbidity
- Affective disorders
- Attention-deficit disorders
- Cyclical mood disorders

Cocaine is derived from the leaves of *Erythroxylon Coca*, native to the South American Andes. The exact pharmacologic and toxicologic mechanisms of action of cocaine are not entirely clear, but it is postulated that cocaine interferes with presynaptic reuptake of released norepinephrine and dopamine, resulting in an excess of these neurotransmitters at the postsynaptic site, leading to activation of the central nervous system. There are also alterations of serotonin and acetylcholine metabolism, as well as an increase in intracellular calcium at those receptor sites (Ritchie and Greene 1985).

The adrenergic effects of these neurotransmitters include central nervous stimulation, tachycardia, peripheral and placental vasoconstriction, sudden and transient rise in blood pressure, and an increase in uterine contractility (Ritchie et al. 1972). Acute intoxication can result in myocardial infarction, cerebrovascular accidents, and seizures. Chronic use is associated with anorexia and weight loss (Gregler and Mark 1986).

Cocaine is primarily metabolized by plasma and hepatic cholinesterase. This enzyme is normally decreased in pregnant women, in the fetus, and in the newborn infant, so that cocaine metabolites can be found in their urine for long periods of time.

Table 6. Common complications of pregnancy associated with the use of cocaine

Miscarriage
Intrauterine growth retardation
Stillbirths
Abruptio placentae
Premature labor
Perinatal asphyxia

Table 7. Commonly described effects of cocaine in the newborn

Microcephaly
Small for gestational age
Cerebral infarcts
Abnormal neurological behavior
Vascular disruption
Genitourinary anomalies
Sudden infant death syndrome
Long-term effects (?)

There is, at present, a vast array of studies, case reports, and surveys on the effects of intrauterine cocaine exposure on pregnancy outcome or on the neonate. The most consistent findings are the ones regarding (1) obstetrical complications like abruptio placenta, premature labor, precipitous deliveries, meconium-stained amniotic fluid, fetal distress, and stillbirths, (2) low birth weight, (3) small head circumference, (4) abnormal neonatal behavior, and (5) cerebral infarction. These are consistent with our own findings at MCP, where in a group of 46 mother-infant pairs we found a 63-percent incidence of obstetrical complications (tables 6 and 7), a mean gestational age of 34.5 weeks, and a mean birth weight of 2,482 gm (15th percentile). These infants had a mean head circumference of 30.25 cm (20th percentile).

Large prospective studies on teratogenic effects of cocaine are not available. Most of the congenital malformations described do not have a consistent pattern that would define a syndrome associated with cocaine use during pregnancy. Rather, they point out that most findings are probably related to the potent vasoconstrictive effects of cocaine leading to either loss of tissue or malformations. Chasnoff et al. (1985) revealed a significant depression of interactive behavior and state organization based on the Brazelton Neonatal Behavioral

Assessment Scale. An increased incidence of sudden infant death syndrome related to cocaine use has been reported, but the literature has been inconsistent (Bauchner et al. 1988). The long-term effects of intrauterine exposure to cocaine have yet to be established. The current epidemic is still too recent for the appearance of subtle learning disabilities and personality disorders in the children to reach statistically significant numbers.

Diazepam. Diazepam is mostly abused by patients with psychiatric disorders and may potentiate depression. It decreases respiration, blood pressure, and cardiac output. It is rapidly absorbed, and its peak is reached in 1 hour, but it takes 2–8 days to be completely eliminated. After chronic use by the mother, the neonate may present with respiratory depression, withdrawal, and impaired thermoregulation (Dattel 1990).

Barbiturates. Barbiturates are usually used together with other drugs. They are not highly teratogenic; however, cases of cleft lip and palate have been associated with their use. The maternal effects include drowsiness, sleep abnormalities, respiratory depression, and decreased blood pressure. The latter may affect fetal oxygenation and uteroplacental blood flow. The incidence of phenobarbital withdrawal is not known; it may occur in two stages: an acute stage characterized by irritability, crying, and sleeplessness and a subacute stage that may last 2–4 months. The latter presents as increased appetite, frequent regurgitation, gagging, and disturbed sleep (Dattel 1990; Rosen 1987).

Amphetamines. Methamphetamines are metabolized to amphetamines, and their pharmacological effects are quite similar to those of cocaine, enhancing the presynaptic release of norepinephrine. They can be detected in urine up to 48 hours after ingestion. Amphetamines are usually used intravenously and together with other drugs of abuse like alcohol. Their effects are probably dose related. If taken during the entire pregnancy, they reduce maternal weight gain and cause intrauterine growth retardation and neurobehavioral changes in the fetus like drowsiness and jitteriness (Rosen 1987). There are also reports of premature labor, abruptio placenta, and vascular accidents following the use of amphetamines. The neurobehavioral changes in the newborn include reduced hyperalertness, poor feeding, and jitteriness (Dattel 1990). Under the name of "ice," a smokable form of methamphetamine has made its way into some communities. The extent of its use and its effects when used during pregnancy are not yet known.

Phencyclidine. PCP causes hallucinations, bizarre behavior, and increased blood pressure, cardiac output, and heart rate. It crosses the placenta and persists in the neonate for longer periods than in the mother, where it may reach concentrations tenfold higher. It may cause severe withdrawal symptoms and hyperactivity. The few reports available in the literature are quite inconclusive (Rosen 1987; Chasnoff et al. 1985).

The effects of maternal drug use are very difficult to establish since, in addition to the drugs, one has to consider all other high-risk factors mentioned in this chapter plus maternal psychopathology, poor environmental conditions, and other socioeconomic factors. One should also not forget that 25–30 percent of these children are admitted to neonatal intensive care units or are retained in the hospital for long periods of time, jeopardizing the appropriate maternal-infant bonding that is so crucial for the infant's development.

More research is needed to evaluate causal relationships and develop appropriate interventions. Those interventions already shown to be effective, like aggressive outreach, access to prenatal care, adequate nutrition, supportive environments, and all aspects of preventive pediatric care, should be pursued more aggressively.

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CHAPTER 2

Effects of Prenatal Exposure to Cocaine on Newborn Behavior and Development: A Critical Review

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In the past decade, the prevalence of infants exposed prenatally to cocaine has escalated dramatically, accompanied by an unprecedented level of medical, scientific, and popular awareness. Although rates vary substantially among different geographic locations (Neuspiel and Hamel 1991), a general estimate is that about 11 percent of infants born nationwide are now exposed to cocaine in utero. Rates of use during pregnancy may be even higher in some locations. At one inner-city hospital in Boston, for instance, it was reported that 18 percent of women obtaining prenatal care between 1984 and 1988 had positive urine assays for cocaine (Zuckerman et al. 1989*a*). Given the limitations in current methods of assessing exposure and the available evidence, these figures are likely to be overly conservative.

Reflecting an increase in medical, social, and political concern, a plethora of studies has been published in the past decade that report significant compromising effects of prenatal exposure to cocaine on infant behavior and development. Yet, despite this concern and interest, our current knowledge and understanding of cocaine's specific toxic effects on developing infants are still severely limited. As will be seen, sampling and methodological problems such as inadequate control groups, inadequate screening procedures, inconsistent or poorly quantifiable measurement techniques, and limited assessment of the social environment plague this literature and confound our ability to make simple or clear-cut conclusions about single or multiple drug effects (see reviews by Neuspiel and Hamel 1991; Zuckerman and Bresnahan 1991).

In this chapter, current studies of the effects of prenatal cocaine abuse on newborn behavior and development are critically reviewed. Confounding effects of other toxic substances commonly used by cocaine-using pregnant women such as alcohol, tobacco, marijuana, and opiates, as well as a combination of these and other drugs, are also examined. Possible reasons for the inconsistencies reported across studies are offered from the perspective of a transactional model

of development (Sameroff and Chandler 1975). A central focus of the discussion is the often neglected but crucial role of the social environment in determining developmental and behavioral outcomes for infants. As will be seen, this discussion leads to the conclusion that a reliable or generalizable set of facts about the specific effects of cocaine on infant behavior and development is still elusive.

Mechanisms of Drug Action

Cocaine is highly water and lipid soluble and readily crosses both placental and blood brain barriers. In a recent publication, Ferrar and Kearns (1989) reported brain concentrations of cocaine that were four times higher than peak blood plasma concentrations. Cocaine is thought to affect the developing fetus in both direct and indirect ways. Direct effects operate on the neurotransmitter system, whereas indirect effects operate via the maternal-fetal placental system. Both the direct and indirect routes may critically influence the developing brain.

Cocaine acts directly on the central nervous system by blocking the presynaptic reuptake of multiple neurotransmitters, including norepinephrine and dopamine, and producing an excess of transmitter at the postsynaptic receptor sites. This action affects the sympathetic nervous system, producing vasoconstriction, an acute rise in arterial blood pressure, tachycardia, and a predisposition to ventricular arrhythmias and seizures as well as mydriasis, hyperglycemia, and hyperthermia. Blocking the presynaptic reuptake of dopamine in the central nervous system is thought to result in increased sensations of euphoria, well-being, power, and excitement (the "pleasure response"—Spitz and Rosecran 1987). With chronic use, however, cocaine eventually depletes neurotransmitters in the central nervous system, which is thought to cause depressive and other withdrawal symptoms. Along with the pleasure response, depressive and withdrawal symptomatology are thought to contribute significantly to the development of addictive behavior (Spitz and Rosecran 1987).

Indirect effects of cocaine on the developing fetus are attributable to changes in the fetal environment due to the effects of the drug on the mother. During pregnancy, cocaine use leads to vasoconstriction, hypertension, and cardiac arrhythmia—all of which reduce/interrupt the blood supply to the placenta and reduce profusion to various fetal tissues in early gestation. These indirect effects may possibly cause deformation or disruption of morphogenesis in late gestation. Vasoconstriction, tachycardia, and increased blood pressure may increase the chance for intermittent intrauterine hypoxia, preterm labor, precipitous labor, and abruptio placentae. Vasoconstriction at the uteroplacental complex, coupled with maternal anorexic effects, may lead to a decrease in the availability of oxygen and nutrients, as well as an accumulation of metabolic byproducts that lead to growth retardation in the fetus.

Effects of Prenatal Exposure to Cocaine on Physical Growth and Development

Much suggestive evidence exists for a disruption of intrauterine growth in the cocaine-exposed infant. Reports of congenital abnormalities, hemorrhagic and cystic lesions in the central nervous system, abruptio placentae (Acker et al. 1989), preterm labor and delivery, poor fetal growth, and other perinatal complications suggest cocaine abuse during pregnancy may have consequences for the fetus. Higher rates of prematurity have been demonstrated in some studies (e.g., Chasnoff et al. 1987; Chasnoff et al. 1989*a*, 1989*b*; Cherukuri et al. 1988; Little et al. 1989; MacGregor et al. 1987), but not in others (e.g., Hadeed and Siegel 1989; Ryan et al. 1987).

One of the few consistent findings, perhaps due to cocaine's vasoactive effects and its consequent hypoxia and reduction of nutrient transfer (Woods et al. 1987), is that exposed infants show depressed weight, length, and head circumference (e.g., Chasnoff et al. 1985, 1986*a*, 1986*b*, 1989*a*, 1989*b*; Cherukuri et al. 1988; Frank et al. 1988; Fulroth et al. 1989; Livesay et al. 1987; Hadeed and Siegel 1989; MacGregor et al. 1987; Ryan et al. 1987; Zuckerman et al. 1989*b*). These effects remain even when use of other potentially growth-retarding substances are controlled for statistically (Zuckerman et al. 1989*b*; Ryan et al. 1987; Hadeed and Siegel 1989).

Similarly, Frank et al. (1990) demonstrated that cocaine-exposed neonates have both reduced lean body mass and depressed fat stores relative to non-exposed infants. This pattern was associated with maternal malnutrition even after maternal weight gain during pregnancy and maternal weight for height at conception were controlled analytically. Moreover, cocaine-exposed infants were more likely to be symmetrically growth retarded, reflecting early and/or chronic insult in gestation (Frank et al. 1990; Villar et al. 1984; Zuckerman and Bresnahan 1991). Notably, symmetrically growth-retarded infants have been found to have poorer neonatal growth and development than asymmetrically growth-retarded infants (i.e., those with low ponderal index) and infants with normal prenatal growth (Villar et al. 1984).

However, cocaine is only one of a variety of factors that may contribute to compromised intrauterine fetal growth. In addition to inadequate prenatal care and nutrition, the majority of cocaine-using pregnant women also use other substances that have been consistently associated with compromised somatic growth, such as opiates (e.g., Hans 1989; Wilson 1989), alcohol (e.g., Day et al. 1989; Nugent et al. 1990*a*; Tennes and Blackard 1980; Zuckerman and Hingson 1986), tobacco (e.g., Beeghly et al. 1989; Nugent et al. 1990*a*), and marijuana (e.g., Day and Richardson 1990; Frank et al. 1990; Zuckerman et al. 1989*b*). For

example, Zuckerman et al. (1989*b*) reported that infants of mothers who used cocaine prenatally were 400 grams smaller in birth weight than infants of women who did not use cocaine. However, when the effects of cigarettes, marijuana, other drugs, poor nutrition, and other confounders were controlled analytically, these variables were found to have significant independent effects on birth weight. Although cocaine continued to be a significant predictor of birth weight, its effects were greatly reduced. Thus, effects of cocaine on intrauterine growth are compounded by other factors associated with drug-using pregnant women.

Intrauterine Growth Retardation and Neurobehavior

It is well documented that intrauterine growth retardation (IUGR)—even without demonstrable prenatal drug exposure—is associated with compromised neuromotor and socioemotional sequelae. Therefore, reports of IUGR in cocaine-exposed infants raise problems for interpreting clear-cut single-drug effects from these studies. In multiple independent studies, children with IUGR have repeatedly shown compromised postnatal behavior and development relative to infants with normal fetal growth. For example, during the newborn period, researchers have documented that IUGR results in poor state organization, hypotonia, decreased motor maturity, and an increased number of abnormal reflexes (Als et al. 1976; Beeghly et al. 1988; Lester et al. 1986; Lester and Zeskind 1978). Moreover, IUGR has been associated with long-term sequelae, including neurobehavioral deficits (Beeghly et al. 1989, 1991*a*; Vohr et al. 1979), social dysfunction in infancy (Beeghly et al. 1989, 1990, 1991*b*), preschool cognitive deficits (Walther and Ramaekers 1982), language delays (Walthers and Ramaekers 1982), and poor academic performance (Henricksen et al. 1986). Because IUGR appears to have a robust impact on infant behavior and development, it is difficult to disentangle these influences from any direct or indirect effects of prenatal cocaine exposure.

Brain Damage

A number of preliminary findings are suggestive of residual brain damage to infants exposed to cocaine in utero. One study has reported an increased incidence of microcephaly (Hadeed and Siegel 1989). Other effects may include clinically obvious cerebral infarctions (Chasnoff et al. 1986*b*, 1986*c*) and clinically silent major ultrasound abnormalities in the deep brain (Dixon and Bejar 1988). Cases of perinatal cerebral infarction, seizures, intraventricular hemorrhage, and periventricular leukomalacia have also been reported (Oro and Dixon 1987; Cohen et al. 1989; Chasnoff et al. 1986*b*, 1986*c*). These effects are often ascribed to the vasoconstrictive and hypertensive effects of cocaine.

Neurobehavioral Deficits and Prenatal Exposure to Cocaine

Numerous studies have reported neurobehavioral functional deficits in infants exposed to cocaine in utero. It is critical to keep in mind, however, that these findings are largely inconsistent from study to study, and direct causal pathways are unclear. Moreover, no prospective studies of long-term unique effects of cocaine exposure have been published to date.

Neurobehavioral difficulties have been reported for a broad variety of systems among infants with cocaine metabolites in their urine at birth. Neurological findings include increased jitteriness, tremors, irritability, high-pitched and excessive crying, hypertonicity and hypotonia, vigorous sucking, hyperactivity, and coarse and choreiform movements (e.g., Bingol et al. 1987; Cherukuri et al. 1988; Chasnoff et al. 1989*a*; Chasnoff and Griffith 1989*a*, 1989*b*; Doberczak et al. 1988; Fulroth et al. 1989; Oro and Dixon 1987; Parker et al. 1989). Other investigators have reported abnormal electroencephalograph (EEG) findings, abnormal visual and auditory evoked responses (Oro and Dixon 1987; Doberczak et al. 1988; Scher et al. 1988), an increase in brainstem conduction time (Anday et al. 1989; Shih et al. 1989), and eye ground changes (Isenberg et al. 1987). Disruption of brainstem function is possible because of cardiorespiratory abnormalities that occur at a higher incidence in cocaine-exposed infants as compared to opiate-exposed controls (Chasnoff et al. 1989*a*).

In studies using the Brazelton Neonatal Behavioral Assessment Scale (NBAS—Brazelton 1984), an omnibus assessment of infant neurobehavioral organization, cocaine-exposed infants have been observed to have poorer state organization and impaired interactive abilities than control infants. In a series of important studies, Chasnoff and colleagues (Chasnoff et al. 1985, 1986*a*, 1989*a*, 1989*b*; Chasnoff and Griffith, 1989*b*, 1990) compared cocaine-exposed infants, opiate-exposed infants, and nonexposed infants on the NBAS. These investigators reported that both cocaine-exposed and opiate-exposed infants showed increased tremulousness, more startles, poor social interactive behavior, and poor regulation of behavioral states relative to non-drug-exposed infants. These findings suggest that drug-exposed infants may have impaired responsiveness to environmental stimuli, which may negatively affect their own development and make caregiving more difficult.

It is currently unknown whether these neurobehavioral alterations are due to direct effects of cocaine, changes in levels of neurotransmitters in the central nervous system, withdrawal, or stress from other indirect effects of cocaine or other toxic substances (e.g., vasoconstriction). In a recent pilot study, Mirochnick et al. (in press) found that blood levels of catecholamines were

elevated in cocaine-exposed infants. Moreover, higher levels of catecholamines were associated with poorer responsivity to visual and auditory stimuli (NBAS orientation). These findings may reflect either direct effects of cocaine in the central nervous system or chronic stress associated with cocaine-induced vasoconstriction and hypoxia in utero.

Notably, the alterations in neurobehavioral functioning reported above may not be specific to cocaine exposure. Similar deficits in NBAS scores and other indices of neurobehavior (e.g., abnormal EEG sleep cycling, cry acoustics) have been reported for other drugs such as opiates (e.g., Hans 1989; Kaltenbach and Finnegan 1984), alcohol (e.g., Landesman-Dwyer et al. 1978; Nugent et al. 1990*b*; Scher et al. 1988; Streissguth et al. 1980, 1983), and marijuana (e.g., Day and Richardson 1990). In most of these studies, mothers were polydrug users, compounding any simple conclusions about single-drug effects. Furthermore, similar neurobehavioral alterations have been reported for IUGR infants, premature infants, and other biologically vulnerable infants (Smeriglio 1989). Therefore, although the scientific and clinical evidence is intriguing, clear-cut main effects of cocaine on a variety of indices of newborn neurobehavior are inconclusive at the present time.

Neurobehavioral Syndromes, Prenatal Cocaine Exposure, and IUGR

In a study of acoustic cry characteristics, Lester et al. (in press) reported evidence for the existence of two neurobehavioral syndromes in newborns exposed to cocaine in utero that may be mediated by birth weight. The first syndrome involves an "excitable" pattern and is thought to result from direct effects of cocaine, whereas the second syndrome involves a "depressed" pattern, which is thought to be mediated by IUGR. If these two different patterns of neurobehavioral functioning are reliable and can be replicated in other studies, they may help explain some of the inconsistencies reported in the literature for neurobehavioral sequelae of prenatal cocaine exposure.

Specifically, in Lester et al.'s excitable syndrome, newborn cries are longer in duration, have a higher fundamental frequency, and show a higher and more variable first formant than cries of nonexposed newborns. Caregivers or clinicians would likely perceive these cries as high-pitched and excessive, as per the scoring criteria in the neonatal abstinence scale (Finnegan 1984). This type of cry pattern has also been associated with sudden infant death syndrome (Chasnoff et al. 1986*b*, 1989*b*).

The depressed neurobehavioral syndrome results in cries that are less frequent, have a longer latency, lower amplitude, and more dysphonation. According to Lester et al., these cry characteristics suggest a decrease in

functional activity or underaroused behavior, perhaps resulting from a hyporesponsive central nervous system due to the indirect effects of cocaine on brain and somatic growth. Newborn cry characteristics may be important predictors of later developmental outcome (e.g., Lester et al. 1989).

While intriguing and one of the more carefully carried-out studies (and probably the only hypothesis-driven study to date), Lester et al.'s research is limited by the fact that hospital records were used to determine alcohol or other drug abuse. Therefore, the frequency and timing of usage patterns could not be tested. Moreover, control subjects were not screened for drugs. Drug screening is critical because previous cry studies have shown that cry characteristics are affected by prenatal exposure to other drugs, including marijuana (Lester and Dreher 1989) and alcohol (Lester et al. 1989; Nugent et al. 1990*a*, 1990*b*).

Motor Deficits. The long-term compromise of motor function is unknown for infants prenatally exposed to cocaine. Schneider and Chasnoff (1988) have described deficits in muscle tone, reflexes, and volitional movements at 4 months of age in cocaine-exposed infants. In addition, clinicians often report persistent distal hypertonia in exposed infants.

Cognitive Deficits. One preliminary report has found no difference in Bayley Scales of Infant Development scores at 2 years between exposed and nonexposed infants, except among infants who were profoundly microcephalic at birth (Chasnoff and Griffith 1989*a*). However, in another sample of 19 infants exposed to *multiple* illicit drugs, including cocaine, a significant 14-point discrepancy in developmental quotients at 13 months was found when these infants were compared to nonexposed controls (Rodning et al. 1989). Furthermore, this same research group reported that polydrug-exposed infants showed an inability to regulate their affective behavior during an unstructured free-play session (Howard 1989*a*, 1989*b*). Possible problems in interpretation may exist with this sample, however. Drug-exposed infants were compared to preterm control infants who were not screened for drug exposure. Moreover, testers were not blind to the infants' experimental grouping.

Methodological Issues

These findings are strongly suggestive of neurobehavioral dysfunction and possible brain damage in infants with intrauterine cocaine exposure. Nonetheless, a host of serious methodological issues compromise our understanding of these phenomena (see, e.g., Bauchner et al. 1987). These issues range from inadequate screening techniques and biased sampling to the pervasive (yet often understudied) impact of the social environment in determining child outcome. Given these shortcomings, it is not surprising that inconsistencies

have plagued this literature. As will be seen, these problems are crucial to address, yet difficult and costly to remedy.

Biased Sampling

First, sampling techniques used in the majority of published studies are highly biased and selective. Mothers screened for possible drug use at the time of delivery are more likely to be non-White and from lower socioeconomic backgrounds (e.g., Amaro et al. 1989; Frank et al. 1990; Mayes et al. 1991). Yet, anonymous screenings of women at public health clinics and private obstetric practices in Pinellas County, Florida, revealed that prenatal illicit drug use is common in all social and ethnic groups (Chasnoff et al. 1990). In that study, positive toxicology results varied little between women from public clinics (16.3 percent) and women from private practices (13.1 percent). Thus, results from studies with biased sampling may not be generalizable to the larger population of cocaine-using mothers.

In addition, biased sampling results in study populations that are composed primarily of mothers from high-risk poverty backgrounds. This is problematic for research, because low socioeconomic status (SES), with all of its associated medical and social risks (see, e.g., Amaro et al. 1989), is one of the most powerful predictors of child outcome known. Because the specific risk variables that moderate child outcome are not fully understood, these risk variables are difficult to control analytically. Moreover, the small sample sizes of many current studies preclude evaluating the broad array of social risk variables known to affect child outcome, not to mention their interactions with drug exposure or other biologic risk variables. Theoretically, data from low-risk samples would portray more clear-cut effects of single-drug action. Yet, no prospective studies have been published documenting developmental outcome of exposed infants born to low-social-risk mothers.

Severity and Timing of Drug Use

A partial reason for the inconsistency of findings in the literature is that the severity and timing of prenatal drug exposure have not been adequately assessed. Drug-using women vary enormously in when, how frequently, and how much drug they use during pregnancy (e.g., first trimester only versus continual use; every day versus once a month; binging versus light or moderate use). Although very little human research has been carried out on this issue (see Chasnoff et al. 1989*b* for an exception), findings from the animal literature suggest that the timing and severity of exposure to cocaine prenatally have significant (and differential) effects on fetal development. While these variables deserve increased attention in prospective studies of prenatal cocaine exposure,

extant screening methods may not be adequate to provide investigators with this kind of detailed information.

Screening Problems

Current screening methods may be inadequate to accurately assess the frequency, duration, severity, and chronicity of maternal drug use. Reliance on maternal self-reports underidentifies users (Zuckerman et al. 1989*a*). In one study, for example, drug histories identified only 43 percent of those who had positive urine assays (Neerhof et al. 1989). Similarly, in a Boston hospital, 24 percent of women who had positive urine screens denied use when interviewed (Frank et al. 1988).

Yet, even maternal urine assays have limited power to identify users. Enzyme immunoassay for the cocaine metabolite benzolyocognine, for example, detects cocaine use only up to 96 hours postexposure. In addition, when administered to women at the time of delivery, only heavier users may be identified, and moderate or light users may go undetected (Zuckerman and Bresnahan 1991). Because many current studies rely primarily on maternal urine screens at delivery, a real danger exists of excluding moderate users from drug groups and admitting them instead to control groups. Moreover, findings from drug studies based solely on heavy users may not be generalizable to the population at large.

Part of the difficulty in screening is due to current limitations in technology and in prohibitive cost-effectiveness ratios. However, without adequate screening techniques, clear-cut interpretation of significant main effects for cocaine is impossible. A viable alternative that may improve the reliability of screening is the inclusion of a combination of techniques (e.g., multiple drug histories and urine assays of mother at both prepartum and postpartum assessment points, plus infant urine screens at delivery) in assessing prenatal drug exposure (see, e.g., Frank et al. 1990). Other screening technologies have recently been developed (e.g., meconium [Ostrea et al. 1989] and hair [Baumgartner and Berka 1989]) that may be useful to include in comprehensive drug-screening procedures. However, reliance on these latter methods alone is not recommended until their validity and reliability have been more fully established.

Forms of Cocaine and Ingestion Methods

A related problem concerns variations in forms of cocaine and in ingestion methods used among pregnant women, which have implications for interpreting study results. In general, cocaine is either snorted intranasally in its HCL salt form or injected. Alternatively, cocaine is smoked in an alkaloidal base form (e.g., freebase and crack cocaine). Both the form of cocaine and the method of

ingestion have a major impact on how much and how rapidly the drug enters the system, as well as the duration of drug action. For instance, freebase cocaine (including crack) is purer than other forms (about 70 percent cocaine) and, when smoked, has a significantly more rapid onset of action, a faster peak of intensity, and a much shorter duration of action. Compared to other forms of cocaine, smoked cocaine is thought to be the most rapidly addicting form. Despite the increased use of freebase and crack cocaine, the majority of drug studies have not differentiated among the various forms of cocaine and methods of use. Greater attention to these variables is essential.

The Problem of Multiple Drug Exposure

One of the more consistent reports from the cocaine literature—and the most troubling from the point of view of identifying single-drug effects—is that the majority of cocaine-using pregnant women in these studies also used other toxic substances, both illicit and licit (e.g., Amaro et al. 1989; Chasnoff 1987; Frank et al. 1990; Hume et al. 1989; MacGregor et al. 1987; Richardson and Day 1990; Zuckerman et al., 1989*a*, 1989*b*). For instance, Hume et al. (1989) reported that 95 percent of their sample of cocaine-using pregnant women also used alcohol, and 25 percent used narcotics. Similarly, in a recent study of the patterns of drug use and demographic-psychosocial profiles of 253 pregnant adolescents, Amaro et al. (1989) reported that polydrug use during pregnancy was very common. In that study, drug use was assessed both by interviews and by urine assays during pregnancy and after delivery. About 14 percent of the teenagers studied used cocaine during pregnancy, 32 percent used marijuana, 52 percent consumed alcohol, 33 percent smoked tobacco, and 2 percent took opiates and other drugs.

The toxic effects of these confounding substances on infant behavior and development have been implicated consistently in the literature (e.g., Barr et al. 1990; Finnegan 1988; Hans 1989; Lester and Dreher 1989; Lester et al. 1989; Nugent et al. 1990*a*, 1990*b*; Scher et al. 1988; Streissguth et al. 1980, 1983). For instance, in separate studies, opiates, marijuana, alcohol, and tobacco have all been associated with IUGR and with similar newborn neurobehavioral deficits (e.g., NBAS clusters) as have been implicated for cocaine. However, specific findings for specific drugs are inconsistent from study to study. Unfortunately, studies range widely in how adequately (or whether) these confounding substances were assessed and controlled statistically. Obviously, adequate screening is necessary before investigators can hope to control for the effects of these substances (see above discussion). Moreover, very few studies of cocaine in humans have controlled for *interactive* effects of these different substances in utero. Factors associated with alcohol, tobacco, and illicit drug use may contribute additively or synergistically to cocaine's effect on infant outcome (Zucker-

man and Bresnahan 1991; Mayes et al. 1991). In support of this, findings from a recent study (Fulroth et al. 1989) suggest that prenatal exposure to opiates and cocaine may act synergistically in predicting the severity of fetal alcohol syndrome.

Biologic and Genetic Factors

Individual differences among pregnant women in their ability to metabolize cocaine, as assessed by levels of cholinesterase in the blood, have been reported. Although cholinesterase activity is thought to be lower in pregnant women and the fetus than in other individuals, variations in cholinesterase activity among pregnant women have been reported that may result in differing abilities to metabolize cocaine (Evans et al. 1988). These variations could result in differing amounts of exposure to cocaine and its metabolites by the fetus. Ethnic or genetic factors have also been implicated in the ability to metabolize other drugs (e.g., Christoffel and Salabsky 1975; Zuckerman and Bresnahan 1991). These factors may affect the impact of polydrug exposure from person to person but have rarely been considered in prospective drug studies. More attention to this issue would be informative.

Social Factors

The identification of simple main effects of prenatal cocaine exposure is unlikely without a thorough consideration of the infant's postnatal social environment. From the perspective of the transactional model of development (Sameroff and Chandler 1975), the behavioral and developmental outcome of biologically vulnerable infants is determined by a complex and dynamic interplay between the aspects of social environment and biologic risk. Long-term or transitory aspects of the social or caregiving environment may act either to compensate for or to exacerbate biologic vulnerabilities caused by toxic drug effects or other risk factors (see Belsky 1984; Cicchetti and Rizley 1981; Cicchetti 1989).

In support of a transactional model of development, evidence from the animal literature indicates that the environment can have a critical impact on the "hard-wiring" of the brain. In separate studies, for example, environmental variables have been shown to modify the overall size of the cerebral cortex and the number of synaptic and dendritic connections, change the amounts and levels of neurotransmitters in the central nervous system, and modify the size and number of neurons and glial cells (e.g., Prechtl 1981).

Human research during the past two decades has also demonstrated repeatedly the crucial role of the social and caretaking environment in determining

the developmental and functional outcome of biologically at-risk infants (e.g., Bee et al. 1982; Beckwith 1990; Beckwith and Parmelee 1986; Hans 1989; Werner 1989, 1990). For example, in a study of at-risk children in Kauai, Werner (1989) reported that a combination of high perinatal risk and high family instability was a better predictor of long-term developmental functioning than either perinatal stress or family instability alone. Similarly, Hans (1989) reported that methadone-exposed infants, who had showed delayed motor development at 4 months relative to nonexposed infants, continued to show motor deficits by 12 months *only if* they were from families at high social risk (see also Lifschitz et al. 1985). Moreover, in a longitudinal study of premature infants, Beckwith and Parmelee (1986) reported that 7-year IQ scores were mediated significantly by the quality of caregiving received. Specifically, among those infants with an aberrant EEG pattern (trace alternans) at 1 month postbirth, IQs at 7 years were significantly higher *only if* infants had received responsive caregiving.

The impact of the social environment on the outcome of drug-exposed infants is not limited to postnatal experience. Patterns of drug-seeking behavior, euphoria, depression, and other addictive behaviors may result in a complex web of events that may have both direct and indirect consequences for the developing fetus. Drug-related activities may result not only in increased apathy about health-promoting behaviors including nutrition and prenatal care, but may also result in a variety of psychological and social consequences. For instance, feelings of inadequacy and guilt may lead to diminished self-esteem and effectance motivation, increased social isolation, and poor impulse control (Shea and Tronick 1988). In turn, all of these factors may work together to increase drug use as self-medication (Khantzian 1985; Mayes et al. 1991).

Developmental Tasks of Infancy. In terms of postnatal development, proximal social factors (e.g., quality of caregiving) rather than distal variables (e.g., SES) may be most critical in determining infant outcome (Brazelton et al. 1974; Tronick 1989). Development can be viewed as a series of successive tasks or challenges that infants must master if they are to develop optimally (Cicchetti 1989; Greenspan 1990; Sroufe 1979; Tronick et al. in press). A brief outline of these tasks during infancy is presented in table 1.

These developmental tasks form a rough, epigenetic sequence during the infancy period. Critically, the success with which later tasks are negotiated is directly related to how earlier tasks (e.g., state regulation, reciprocal interaction with caregiver) were resolved. For example, an ongoing inability to regulate state early in infancy preempts the ability to engage in any other social or cognitive task. Moreover, the chronic inability to regulate social exchanges precludes all later forms of social engagement (see Tronick 1989). Critically, the communication system that the caregiver develops with the infant plays a

Table 1. Tasks of development during infancy

0–3 months and beyond:	Physiologic and behavioral state regulation
2–6 months and beyond:	Reciprocal socioemotional exchanges
5–12 months and beyond:	Coordination of attention to objects and events during social exchanges
9–15 months and beyond:	Establishment of a clear-cut, effective attachment relationship
13–30 months and beyond:	Autonomy and the establishment of a sense of self

crucial role in facilitating or interfering with the immature infant's ability to negotiate these stage-salient tasks (Greenspan 1990). Consistent failure to achieve these early developmental goals reflects persistent breakdowns in the infant-caregiver communication system, leading to significant long-term compromises in infant development, growth, and health (see Cicchetti 1989; Sroufe 1979; Tronick 1989).

To date, scientific articles investigating the quality of social-affective exchange in the early infant-caregiver communicative system in cocaine-exposed infants have not been published. Yet, the literature suggests that cocaine-exposed infants are at risk for self-regulatory and interactive problems from the beginning, which may compromise their ability to negotiate the key developmental tasks of infancy. At the very least, these infants are at double jeopardy (Parker et al. 1988); that is, they are likely to grow up in families with multiple social hazards. For instance, alcohol and other drug abuse are consistently associated with dysfunctional caregiving patterns and child maltreatment (e.g., Bays 1990; Bauman and Dougherty 1983; Belsky and Vondra 1989; Black and Mayer 1980; Fiks et al. 1985; Kaufman and Zigler 1989; Rutter 1989). In addition, drug-using women frequently have other health or psychological comorbidities, such as depression (Zuckerman et al. 1987), that are likely to contribute to suboptimal caregiving environments and poor developmental outcomes (Breznitz and Friedman 1988; Zuckerman and Bresnahan 1991).

In a recent study of adolescent pregnant women (Amaro et al. 1989), for example, drug-using pregnant women were more likely to report more negative life events and were more likely to witness or experience violence than nonusers. In addition, drug users were three times more likely to have a male partner who used marijuana or cocaine and two times more likely to have a history of venereal disease. Because it is well established that the social environment moderates to a significant degree the long-term effects of biological vulnerability

(see above), proximal aspects of the early social environment such as quality of infant-caregiver communication must be assessed in longitudinal drug studies.

Implications for Assessment

Clearly, global outcome measures such as developmental quotients or IQ are insufficient to tap crucial proximal dimensions of the social environment. Thus, developmental outcome assessments must also include detailed assessments of the caregiving environment. By now, a number of elegant measurement and coding systems exist in the child development literature that could shed much light on the process of development for cocaine-exposed infants (e.g., Barnard and Kelly 1990; Cicchetti and Wagner 1990; McCune et al. 1990; Tronick et al. in press). In a recent monograph, for example, Tronick et al. (in press) described a number of assessment paradigms that were designed to tap infant and caregiver behavior surrounding the key developmental tasks of infancy (e.g., interactive play, attachment, and face-to-face paradigms). Critically, these assessments measure a variety of dimensions of infant and caregiver functioning (e.g., social-affective, communicative, motor, self-regulatory). Detailed quantitative assessments of infant neuromotor functioning (e.g., computerized kinematic analyses) are also described in Tronick et al. (in press).

In addition to measures of the infant-caregiver relationship, prospective studies of drug-exposed infants should include detailed assessments of the quality of the home environment (e.g., Caldwell and Bradley 1984) and qualitative aspects of caregiver adaptiveness. A host of valid and reliable tools now exists for measuring caregiver social and psychological functioning—social support, life events, quality of the marital relationship, psychiatric disorders, depressive symptomatology, and so forth (see Meisels and Shonkoff 1990). These variables have been shown to affect infant outcome and should therefore be assessed in developmental outcome studies as well.

However, the inclusion of these proximal moderating variables, along with covariates of polydrug use, standard demographic variables, and perinatal risk variables, necessitate large samples. While cost, personnel, and time commitments increase dramatically with sample size and expanded assessment agendas, these social variables must be examined if we are to understand more fully the complex interplay among social and biological variables.

Clearly, the "crack baby" of media fame (Blakeslee 1990; "Crack" 1990; Chira 1990; Wise 1990) is a misnomer, with potentially harmful consequences for these infants and their families (Mayes et al. 1991). However, both the literature and clinical reports suggest that drug-exposed infants are indeed at risk for compromised development and maladaptation, though the exact mechanisms are currently unknown. For this reason, drug-exposed children and their

families need not wait for clear-cut, scientific explanations of single-drug effects before intervention programs are initiated. Because development proceeds in dynamic interaction with the social environment (Sameroff and Chandler 1975), intervention programs should be instituted that are long-term and comprehensive in nature. To be maximally effective, these programs should address the complex, multidimensional needs of both vulnerable infants and their drug-using families (Greenspan 1990).

Although the methodological problems associated with drug research in human populations are myriad, complex, and seemingly overwhelming, new prospective studies are currently in place across the Nation. These longitudinal studies are making considerable progress in addressing many of the difficult methodological issues outlined in this chapter. Our understanding of the specific and unique effects of cocaine on infants, mothers, and families awaits such valuable and timely research.

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CHAPTER 3

Prenatal Opiate Exposure: Developmental Effects in Infancy and Early Childhood

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The purpose of this paper is to address the developmental effects of prenatal opiate exposure, specifically heroin and methadone exposure. This requires a historical review as most investigations of the effects of prenatal heroin and methadone exposure were done in the late 1970s and early 1980s.

Since the early 1970s, methadone maintenance has been recommended for narcotic dependence in pregnancy. The use of methadone as a maintenance therapy for the pregnant woman stabilizes her addictive behavior and prevents erratic maternal drug levels so that the fetus is not subjected to repeated episodes of withdrawal. As methadone maintenance requires participation in a treatment program, the probability of receiving prenatal care is also enhanced, thereby potentially reducing infant morbidity and mortality.

The majority of data on the effects of prenatal opiate exposure is based on methadone exposure since populations accessible for study were primarily women in treatment. It must be reiterated, however, that the use of the term methadone exposure does not exclude exposure to other opiates (specifically heroin) or amphetamines, barbiturates, benzodiazepines, cocaine, alcohol, nicotine, and propoxyphenes.

Neonatal Abstinence

Infants born to heroin- or methadone-dependent mothers have a high incidence of neonatal abstinence. Neonatal abstinence is a generalized disorder characterized by signs and symptoms of central nervous system hyperirritability, gastrointestinal dysfunction, respiratory distress, and vague autonomic symptoms, which include yawning, sneezing, mottling, and fever. Neonates often suck frantically on their fists or thumbs, yet they may have extreme

difficulty feeding because they have an uncoordinated and ineffectual sucking reflex. Infants who undergo abstinence generally develop tremors that are initially mild and occur only when the infant is disturbed, but later occur spontaneously without any stimulation. High-pitched crying, increased muscle tone, and irritability also develop.

Onset of withdrawal symptoms varies from minutes or hours after birth to 2 weeks of age, but the majority of symptoms appears within 72 hours. Many factors influence the onset of abstinence in individual infants, including the type of drugs used by the mother, both the timing and the dose before delivery, character of labor, type and amount of analgesia or anesthesia given during labor, maturity, nutrition, and the presence of intrinsic disease in the infant. The withdrawal syndrome may be mild and transient, delayed in onset, or increase stepwise in severity; it may be intermittently present or may have a biphasic course that includes acute neonatal withdrawal signs followed by improvement and then the onset of a subacute withdrawal reaction (Desmond and Wilson 1975).

However, with appropriate pharmacotherapy, neonatal abstinence can be satisfactorily treated without any untoward effects. It has been recommended that an abstinence scoring system be used to monitor the passively addicted neonate in a comprehensive and objective way in order to assess the onset, progression, and diminution of symptoms of abstinence (Finnegan 1990).

There has been some concern that neonatal abstinence may be more severe with methadone exposure than with heroin exposure. Wilson et al. (1981) reported that, although the incidence and severity of neonatal abstinence was similar for heroin- and methadone-exposed infants, neonatal abstinence was of longer duration for methadone-exposed infants. However, the relationship between maternal methadone dose and the presence of withdrawal symptoms has been difficult to establish.

Ostrea et al. (1976) and Madden et al. (1977) both reported a significant relationship between severity of withdrawal and methadone dose during pregnancy. However, other investigators (Blinick et al. 1973; Rosen and Pippenger 1976; Stimmel et al. 1982) found no relationship between severity of withdrawal and maternal methadone dose. Kaltenbach et al. (1990) examined maternal methadone dose during pregnancy and infant outcome for 147 women maintained on low (5–40 mg), moderate (41–60 mg), or high (>60 mg) doses during pregnancy. They found no differences between groups on number of days the infant required medication for abstinence, birth weight, or gestational age. Multiple regression was used to determine factors predicting gestational age, birth weight, or days on medication for abstinence. There was no significant association for polydrug abuse, opiate use, use of drugs other than opiates, average methadone dose, total months on methadone, or sex of the infant.

Perinatal and Developmental Outcome

Perinatal outcome in relation to intrauterine growth has also been an area of concern. A number of prospective studies have yielded somewhat inconsistent findings. Studies that compared infants born to heroin-dependent women not maintained on methadone to infants born to heroin-dependent mothers receiving methadone found differential effects, with greater birth weights for infants born to methadone-maintained women (Zelson 1973; Connaughton et al. 1975, 1977; Kandall et al. 1976, 1977).

Kandall et al. (1976) reported a significant relationship between the first trimester maternal methadone dose and birth weight. This study indicated that methadone may promote fetal growth in a dose-related fashion even after maternal heroin use, whereas heroin itself has been found to cause fetal growth retardation that may persist beyond the period of addiction.

Stimmel et al. (1982) analyzed the birth records of 239 infants born to narcotic-dependent women on supervised methadone maintenance, women on unsupervised methadone maintenance, women on street heroin, and women who were multiple drug users. They found that, although the presence of withdrawal symptoms did not differ with respect to type of drug abused, perinatal outcome was significantly improved in those infants born to women on supervised methadone maintenance, as compared to all other groups.

Some studies that compared methadone-exposed infants with non-drug-exposed infants found methadone-exposed infants to have lower birth weights than comparison infants (Chasnoff et al. 1982; Lifschitz et al. 1983), while others found no differences in birth weights (Rosen and Johnson 1982; Strauss et al. 1976). A more recent study by Kaltenbach and Finnegan (1987) of a large sample of infants found methadone-exposed infants to have smaller birth weights and head circumference than comparison infants. However, the methadone-exposed infants were not small for gestational age, and head circumference and birth weight were positively correlated for both the methadone-exposed and comparison infants ($r=0.72$ and $r=0.69$, respectively).

Developmental sequelae associated with prenatal opiate exposure has been investigated in several longitudinal studies. Longitudinal is not used here in the classic sense of developmental lifespan, but rather longitudinal throughout infancy and, in a few cases, throughout early childhood. The assessment procedures used in these followup studies were quite similar. Children were evaluated throughout infancy, typically at 3–6 month intervals, with the Bayley Scales of Infant Development. Children born to non-drug-dependent women from comparable socioeconomic and racial backgrounds were used as control groups. The infant data are presented in table 1.

Table 1. Results of longitudinal studies investigating developmental outcome of infants born to women maintained on methadone

Study	Age (in months)	Bayley Scales of Infant Development							
		MDI				*PDI*			
		Methadone		Comparison		Methadone		Comparison	
		M	SD	M	SD	M	SD	M	SD
Strauss et al. (1976)	3	112.5	11.5	115.3	13.5	119.4	9.1	117.1	14.5
	6	115.7	16.8	114.3	20.9	109.4	12.2	111.7	14.5
	12	113.4	10.2	114.8	11.31	102.8	11.0	110.4**	9.8*
Wilson, Desmond, and Wait (1981)	9	99.3	15.5	105.5	15.6	89.9	12.6	99.0**	14.5*
Rosen and Johnson (1982)	6	95.0	2.52	100.7	4.20	101.0	2.84	105.0	2.97
	12	98.4	2.68	107.0*	2.81	94.9	2.53	102.8*	2.30
	18	96.0	2.31	106.4*	3.56	92.6	2.38	105.3*	2.21
Hans and Marcus (1983)	4	110.0		115.0		117.0		117.0	
	12	108.0		108.0		107.0		107.0	
Chasnoff et al. (1984)	3	104.2	11.1	99.2	9.0	104.3	11.8	102.8	7.0
	6	103.6	13.5	111.0	12.3	102.2	11.9	107.6	15.1
	12	99.6	10.6	105.8	8.1	104.4	11.9	103.8	12.5
	24	98.7	16.0	96.2	15.9	100.3	14.2	98.2	8.9
Kaltenbach and Finnegan (1986)	6	104.7	13.2	106.9	8.2				
	12	103.5	12.9	109.3	7.7				
	24	98.7	16.7	103.9	14.5				

Source: Kaltenbach in press.

*p<.05 **pp<.01

A study by Strauss et al. (1976) found both methadone-exposed infants and comparison infants to score well within the normal range of development on the Bayley Mental Development Index (MDI) and the Motor Development Index (PDI) at 3, 6, and 12 months of age. However, PDI scores for the methadone-exposed infants declined with age and differed from comparison infants at 12 months of age. Wilson, Desmond, and Wait (1981) also found no difference in MDI scores among the infants they studied at 9 months of age, but found lower PDI scores for the methadone-exposed infants.

While Rosen and Johnson (1982) found no difference between groups on MDI and PDI scores at 6 months of age, they found methadone-exposed infants to have both lower MDI and PDI scores at 12 and 18 months of age. In comparison, Hans and Marcus (1983) reported no difference at 4 and 12 months of age; Chasnoff et al. (1984) reported no difference at 3, 6, 12, and 24 months; and Kaltenbach and Finnegan (1986) found no difference at 6, 12, and 24 months.

Unfortunately, few studies have been able to follow these children longitudinally past infancy. Wilson et al. (1979) reported differences between narcotic-exposed children and three different comparison groups composed of a Drug Environment Group, a High-Risk Group, and a Socioeconomic Comparison Group. Children is this study ranged from approximately 3 years to 6 1/2 years of age. Narcotic-exposed children performed poorer than comparison groups on the General Cognitive Index (GCI) of the McCarthy Scales of Children's Abilities and on the perceptual, quantitative, and memory subscales. In this study, heroin was the predominant drug used; only a few of the mothers were maintained on methadone, so there is some difficulty in comparing the data.

Strauss et al. (1979) evaluated children from the original Strauss et al. (1976) sample when the children were 5 years of age. They found no differences between groups on the McCarthy Scales of Children's Abilities or any of the McCarthy subscales. These data are presented in table 2. Lifschitz et al. (1985) evaluated 93 children between the ages of 3 and 6 from their original longitudinal sample. Performance on the McCarthy GCI was comparable for heroin-exposed, methadone-exposed, and comparison children. The data for this study are presented in table 3. Kaltenbach and Finnegan (1989) also found no differences between groups on the McCarthy or any of the subscales in their sample of children at 4 1/2 years of age, as shown in table 4.

Although all of these studies found no difference between groups, there are marked differences in the scores between Kaltenbach and Finnegan data and the other two studies. The McCarthy scores from the Kaltenbach and Finnegan study are higher than one would expect. It may well have been that this was a self-selected sample of mothers, especially interested in their children's development and thus more willing to participate in a 5-year longitudinal study.

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Table 2. Performance on McCarthy Scales of Children's Abilities

	Methadone exposed (n=31)		Comparison (n=27)	
McCarthy Scale	M	SD	M	SD
General Cognitive Index (GCI)	86.8	13.3	86.2	16.2
Verbal	44.3	8.0	44.1	13.2
Perceptual	40.7	4.4	40.7	8.7
Quantitative	42.4	9.7	40.2	9.0
Memory	43.6	8.2	44.0	8.8
Motor	44.5	9.3	46.0	10.7

Source: Reprinted with permission from *Pharmacology, Biochemistry, and Behavior* 11(Suppl), Strauss et al., Children of methadone treated women at five years of age. Copyright 1979, Pergamon Press.

Table 3. Results of McCarthy Scales of Children's Abilities

	Untreated heroin (n=26)		Methadone treated (n=26)		Comparison (n=41)	
McCarthy Scale	M	SD	M	SD	M	SD
GCI	85.3	15.7	90.4	13.0	89.4	10.8
Verbal	44.2	9.5	44.0	7.9	44.3	8.6
Perceptual	39.0	10.3	42.6	9.4	42.6	8.5
Quantitative	44.3	8.8	46.2	8.9	44.3	9.2
Memory	45.5	11.7	44.5	7.4	45.2	7.9
Motor	40.5	8.1	41.6	10.0	42.1	7.2

Source: Lifschitz et al. 1985.

Table 4. Results of McCarthy Scales of Children's Ability

McCarthy Scale	Methadone-exposed children (n=27) M	Methadone-exposed children (n=27) SD	Comparison children (n=17) M	Comparison children (n=17) SD	t
General Cognitive Index (GCI)	106.51	12.96	106.05	13.10	.11
Subscales:					
Verbal	53.44	9.13	54.33	7.86	.33
Perceptual	55.51	9.72	53.00	10.44	.80
Quantitative	51.33	9.32	53.38	9.98	.68
Memory	49.51	7.38	52.27	7.74	1.17
Motor	52.29	8.10	50.44	12.09	.60

Source: Kaltenbach and Finnegan 1989. Copyright 1989 *Annals of the New York Academy of Sciences.*

Diverse findings among studies reflect the myriad of confounding variables that are present within human populations. The women differ on amounts of daily methadone dose, length of methadone maintenance during pregnancy, and amount of prenatal care. A large percentage of pregnant women maintained on methadone continue to use a number of other drugs such as heroin, diazepam, cocaine, and barbiturates. Thus, the lack of consistency in the data may be related to the absence of uniformity in patient management and patient compliance. In addition, studies report a high incidence in both nicotine use and alcohol consumption (Rosen and Johnson 1982; Wilson et al. 1981).

As such, delineation of the effects of prenatal opiate exposure is a complex task. Perinatal and developmental outcomes associated with prenatal opiate exposure must be viewed within a multifactorial perspective, i.e., the primary pharmacological/toxicological effects produced by the drugs(s), postnatal environmental interactive effects, and possible genetic effects (Hutchings 1985).

The existing data for the effects of prenatal opiate exposure on development in infancy indicate that infants through 2 years of age function well within the normal range of development. Although quite limited, the data on these children between the ages of 2 and 5 years also suggest that they do not differ in overall cognitive function from a high-risk population. However, several caveats must be offered. Primarily, the data generated depend upon the measures used. These

studies are based on a linear model that focuses only on general developmental and cognitive function and as such cannot detect subtle cognitive, behavioral, or process deficits. Furthermore, the subtle protracted effects of opiate exposure may be either exacerbated or ameliorated by variables in the maternal drug population. It is important that future research identify not only the biological and socioenvironmental risk factors concomitant within this population, but the conjunct function of these factors, so that the risk of prenatal opiate exposure may be adequately determined.

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CHAPTER 4

Fetal Alcohol Effects in Preschool Children: Research, Prevention, And Intervention

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Alcohol is a potent teratogen that is associated with a wide range of negative effects in offspring of women who drink during pregnancy (Coles 1991; Streissguth 1986). Approximately two-thirds of American women of childbearing age drink alcohol (NIDA 1988), and Rosett and Weiner (1984) estimated that 5 to 10 percent of pregnant women drink at levels high enough to place their offspring at risk for the effects of fetal alcohol exposure. With the increased incidence of illegal drug use among certain high-risk populations (Chasnoff et al. 1990; Hollingshead et al. 1990), polydrug abuse, including alcohol abuse, may also be increasing.

The Centers for Disease Control estimate that fetal alcohol syndrome (FAS) occurs in 1 to 3 infants per 1000 births, making alcohol exposure one of the most frequent identifiable causes of mental retardation (Abel and Sokol 1987). In addition, another 3 to 5 individuals per 1,000 may show less severe effects of exposure, which have been termed alcohol-related birth defects (ARBD) or fetal alcohol effects (FAE). Finally, there appear to be more subtle effects on the central nervous system (CNS) and other organ systems whose consequences for behavior and development are still under investigation (Streissguth et al. 1989*a*; Coles et al. 1991).

These consequences of alcohol exposure in utero are of concern for many reasons. Costs include medical expenses for treatment of addicted women and impaired children; educational services for children suffering from mental retardation, learning problems, and physical defects; and costs related to social and emotional problems of affected individuals. These costs must be paid both by the affected offspring and by the rest of society.

At the present time, we have some understanding of the effects of this disorder for the child with a diagnosis of FAS. This is based on retrospective studies (Conry 1990; Gold and Sherry 1984; Nanson and Hiscock 1990;

Steinhausen et al. 1982) and case studies of severely affected individuals (Streissguth and Randels 1989). In addition, there are prospective data on exposed infants of women with a wide range of alcohol use and a few studies of school-aged children. However, information about outcomes specific to preschool children, as well as systematic strategies for prevention and treatment of secondary effects of fetal alcohol exposure in this age group, is quite limited. The first section of this chapter describes fetal alcohol syndrome and associated conditions and the data available on treatment needs for preschool children. This review is followed by a discussion of the needs for treatment and intervention in this group and some identified problems in providing such services.

Developmental Effects of Prenatal Alcohol Exposure

Fetal Alcohol Syndrome (FAS)

Except for pregnancy loss or fetal mortality (Anokute 1986; Harlap and Shiono 1980), the most serious consequence of prenatal alcohol exposure is the fetal alcohol syndrome, which is usually defined by the presence of three kinds of signs (Sokol and Clarren 1989).

1. *Congenital anomalies.* Congenital anomalies, or dysmorphic features, occur as a result of exposure to alcohol during the embryonic or early fetal period of development (Sulik et al. 1981). Although a number of physical deficits have been observed as a result of prenatal alcohol exposure, the most well known is facial dysmorphia (craniofacial anomalies) associated with FAS. These anomalies include an underdevelopment of the midline of the face (hypoplastic midface) that is often associated with an absence of the philtrum, a thinned upper vermillion, and a shortened palpebral fissure (Jones and Smith 1973). Ears may be low set and rotated, and this may be associated with abnormalities of the inner ear. In addition, children may have a number of physical problems that make medical followup important. These include cardiac problems, urogenital defects, skeletal abnormalities (Streissguth et al. 1985), vision (Stromland 1981) and hearing problems (Church and Gerkin 1988), and dental abnormalities (Barnett and Shusterman 1985). Immunological problems (Johnson et al. 1981) were reported in one study. Neurological damage may be manifested in abnormalities of gait, persistence of primitive reflexes, and other motor deficits (Kyllerman et al. 1985). Data from prospectively followed samples indicate that dysmorphia associated with alcohol exposure is persistent and predictable from the neonatal period (Graham et al. 1988; Smith et al. 1990).

2. *Growth retardation.* Although growth retardation is characteristic of exposure to many drugs, it is a defining characteristic of FAS and other ARBDs. Growth retardation occurs in utero and includes birth weight, length, and head circumference, so that full-term infants are small for gestational age with a symmetrical growth deficit. During infancy, failure to thrive is often observed. Among FAS children, a growth deficit of up to two standard deviations is noted, particularly in head circumference and height, and is persistent over childhood (Streissguth 1986; Kyllerman et al. 1985).

   In prospective studies of prenatally exposed children who did not necessarily have FAS or FAE, the effects on weight varied. In a sample of White middle-class infants, Barr et al. (1984) reported an association between heavy drinking and lower weight at 8 months of age. However, Fried and O'Connell (1987), in a similar sample, did not find these effects. Day et al. (1991) reported statistically significant effects on weight, head circumference, and height at 3 years in a low-income population. Coles et al. (in press) found persistent differences in height and head circumference, but not weight, among 6-year-olds from a low-income African-American population, while Greene et al. (1990*a*, 1990*b*), who reported on a low-income sample of 4-year-olds, and Streissguth et al. (1989*a*) in a sample of White, middle-class 7-year-olds, reported no effects on growth. The characteristics of these samples and the nature of the studies do not suggest an immediate explanation for these inconsistencies, although in some cases, differences in sample size or methods of analysis may be responsible.

3. *Central nervous system damage.* The third defining characteristic of FAS is evidence of damage to the CNS. This may be obvious when microcephaly is present or in autopsy studies that provide evidence of direct and extensive neurological damage in FAS children (Clarren 1986). In those less affected, neurological damage is inferred from the increased incidence of mental retardation (Streissguth 1986), motor problems (Kyllerman et al. 1985), neonatal behavioral alterations (Coles et al. 1985), and the outcomes of neuropsychological assessments (Conry 1990).

Fetal Alcohol Effects or Alcohol-Related Birth Defects

Alcohol effects that are less severe than FAS may be classified as FAE or ARBD. The affected individual might demonstrate signs in two of the three defining categories or have some other deficit that is probably the result of their prenatal exposure (Sokol and Clarren 1989). Although this distinction is arbitrary, due to its reliance on categorical classification of a continuous phenomenon, it is useful in describing the less seriously affected individual such as a

child who is not growth retarded but shows some dysmorphia, cardiac anomalies, and evidence of mild neurological problems. This class of individuals is probably larger, but less easy to identify, than those with FAS. The outcome for such children may be problematic. Although they are less frankly affected than those with FAS, such children were found by Streissguth and Randels (1989) to be experiencing equally poor academic outcomes as, and to show greater social problems than, children with the full syndrome.

Nondysmorphic Children and Offspring of Moderate Drinkers

The offspring of moderate drinkers or children with no evident effects of their prenatal exposure may exhibit behavioral effects even in the absence of other signs of prenatal exposure. Given the distribution of alcohol use among women of childbearing age (NIDA 1988), as well as the variable effects of exposure, this mildly affected group may be much larger than those with FAS or FAE. However, for many reasons, including nonoptimal caregiving, it is difficult to demonstrate that problems in such individuals are the result of their prenatal alcohol exposure, particularly if deficits are not identified until the preschool period and no accurate history is available.

Behavioral Effects of Prenatal Alcohol Exposure

Behavioral outcomes of alcohol exposure associated with neurological damage are of the greatest long-term significance for affected individuals and for society, which must provide educational and social services. However, these outcomes can be quite varied and are difficult to study. Because behavioral problems are not often identified until school age, preschool children rarely come to the attention of medical and social systems. Furthermore, both experimental studies and clinical intervention with this age group are rarely carried out, since children are not easily accessible to researchers.

At present, our understanding of the behavioral consequences of prenatal alcohol exposure in humans comes from two types of studies, which provide different kinds of data. Retrospective studies of children identified clinically as alcohol affected or as offspring of alcoholic mothers have described a number of behavioral features associated with FAS and FAE. Prospective studies, on the other hand, have followed infants born to mothers with various drinking behaviors and charted their development as a function of that exposure. The majority of the children in prospective studies do not have FAS, FAE, or alcoholic mothers. Therefore, these studies may allow examination of the more subtle effects of a wide range of prenatal alcohol exposure.

Behavioral Outcomes for Dysmorphic Children

Dysmorphic children are the most easily identified and probably have the highest incidence of behavioral and cognitive effects. As a result, these children can be identified and referred for treatment early in life. In retrospective studies, dysmorphic children have been found to show significant intellectual and behavioral problems. Mental retardation is common. Intelligence scores are usually in the mildly retarded (IQ=50–70) range. However, individuals severely and profoundly affected (IQ<50), higher functioning individuals (IQ=70 to 85), and children with low normal scores (IQ=86–100) are not uncommon. Intelligence appears to be correlated in a general way with degree of dysmorphia and growth retardation, but the relationship is far from linear (Streissguth 1986).

Iosub et al. (1981) reported on a sample of 63 patients aged newborn to 23 years with a diagnosis of FAS. Some individuals had been reared in foster homes and some with their biological mothers. Although abnormal facies, mental retardation, developmental delays, and growth retardation were often noted, the most common deficits cited for this group were hyperactivity and speech problems. School problems were common for the older children in this study. Speech problems and hyperactivity were found even in individuals who lacked dysmorphic features. Steinhausen et al. (1982) examined children with FAS in relation to nonaffected controls. Mental retardation was frequent in the alcohol affected group. Other deficits noted included speech and language problems, hyperactivity, sleep disturbances, stereotypic behavior, and an increased incidence of behavior problems.

Platzman et al. (1986) found that dysmorphic infants (FAS and FAE), aged 6 through 24 months (N=14), were smaller and had more problematic medical histories than matched groups of nondrinkers' children and drinkers' children who were not dysmorphic. In addition, dysmorphic children were consistently lowest on tests of mental and motor development at 6, 12, and 24 months. For the dysmorphic group, Bayley cognitive scores (MDI) at 6 months (x=90.5, sd=14.69) were within the normal range, although significantly lower than mean scores for the other two groups (nondysmorphic: x=112.13, sd=15.39; nondrinkers: x=114.31, sd=19.16). However, by 12 months, mean scores of dysmorphic infants on the MDI (x=75.80, sd=11.33) were in the borderline range, while those of the nondysmorphic offspring (x=101.78, sd=16.02) were at the average level. Nondrinkers' children's scores were significantly higher than both other groups (x=114.38, sd=15.61). At 24 months, the dysmorphic infants' scores were consistent with those seen at 12 months (x=76.44, sd=8.33), while the means of the other two groups had continued to decline (nondysmorphic: x=91.40, sd=7.96; nondrinkers: x=94.00, sd=15.28).[1]

In summary, when clinically referred dysmorphic children are examined, they have a number of problems including cognitive impairments and speech deficits, hyperactivity, and behavioral and psychiatric disorders. In older children, there is a reported increase in learning problems and school failure. However, since the childrearing environments experienced by these children are often negative or nonsupporting, it is difficult to attribute all these effects to their prenatal exposure.

Children of Alcoholic Mothers

A second (and probably overlapping) group of children who have been studied retrospectively are children of alcoholic mothers who were drinking during their pregnancies. In a study of such children, Aronsson et al. (1985) paired 21 preschool children born to alcoholic mothers with matched controls. Although all scored within the normal range, alcoholics' children had significantly lower cognitive scores as well as more perceptual problems. Scores did not appear to be affected by biological versus foster home placement. In a followup report (Aronsson and Olegard 1987), about 60 percent of the children of alcoholics were found to have significant intellectual deficits and to require[2] special educational services. Shaywitz et al. (1980) also reported behavior and learning problems and fine and gross motor difficulties among children of normal intelligence born to alcoholic mothers drinking during pregnancy. School failure and referral for special educational services were common, with hyperactivity noted in all but one child. Larsson and Bohlin (1987) reported that 80 percent of the children of alcohol-abusing mothers whom they studied had either behavioral or psychomotor problems.

In summary, among children who have alcoholic mothers, many of the same behavioral deficits were noted as were seen among dysmorphic children, although the effects were not as severe. While retrospective studies may overidentify problems and cannot discriminate postnatal environmental from prenatal influences, they do indicate the areas of concern for exposed children and suggest the kinds of problems that will require identification and intervention services. Unfortunately, problems appear to be widespread and include intellectual aptitude and academic performance, language development, motor performance, perceptual/motor development, emotional status and socialization, and attention and hyperactivity.

Developmental Risk Associated With Alcohol Exposure: Prospective Studies

Given the findings from the retrospective studies, prospective studies are important for two reasons. First, such studies allow examination of a wider

range of exposure and effects than do retrospective studies, which tend to overidentify pathological outcomes. Second, prospective studies allow the examination of the process of development, including many potential environmental confounds. If alcohol has particular behavioral effects, these should be evident in statistical differences between groups of children with different exposures even in the absence of extreme outcomes.

Several such studies have been conducted, each examining slightly different populations and using somewhat different methods. Studies vary in the social class and ethnic distribution of subject population, in methodology for describing maternal drinking (e.g., number of assessment points), in types of dependent measures, and in length of followup. To date, the following patterns have been found by prospective studies of alcohol-exposed children beyond the neonatal period. (For review of effects in neonatal period, see Tronick and Beeghly, this volume.)

Infants and Toddlers

Published data concerning this age period are quite limited; however, observed group differences suggest that those with the greatest exposure (either most heavily or for the longest period) show the poorest cognitive and motor development and the lowest growth attainments. In a middle-class Seattle sample, heavy drinking was related to lower mental and motor development scores on the Bayley Scale at 8 months (Streissguth et al. 1980).

In a middle-class Canadian sample, prenatal alcohol, marijuana, and cigarette use contributed to depressed mental development scores at 12 and 24 months, with the effect being greater at 2 years (Fried and Watkinson 1988). In a low socioeconomic status Atlanta sample, significant differences appeared at 6 and 12 months in Bayley cognitive and motor development scores of offspring of women who continued to drink versus those who stopped in the second trimester and those who never drank (Smith et al. 1987).

In Sweden, Larsson et al. (1985) also reported that drinking that persisted through the third trimester was associated with poorer outcome in offspring on physical, behavioral, and psychiatric measures in the second and third years of life. These outcomes did not appear to be associated with environment because they were also seen in children who were placed in nonalcoholic foster homes. Hyperactivity, language problems, and fine and gross motor deficits were most often observed in this group of infants exposed to alcohol throughout pregnancy.

Preschool Period: Behavior and Intellectual Development

Cognitive (intellectual) development is a focus of interest in followup studies. In the Seattle sample, intelligence was measured at 4 years among 421 children (Streissguth et al. 1989*b*). The size of the sample allowed statistical control of many confounding factors (e.g., sex, parental education, other drug use). In an otherwise normal sample, use during pregnancy of more than 1.5 ounces of alcohol daily (about three drinks) was associated with an IQ decrement of about 5 points on the Wechsler Preschool and Primary Scales of Intelligence (WIPPSI), a standardized measure.

However, in the Cleveland study that assessed 359 low-income children from birth to 4 years 10 months of age, no relationship with prenatal alcohol use could be demonstrated on measures of cognitive development (Bayley Scales, Stanford-Binet, WIPPSI) (Greene et al. 1991) or any of several measures of language (Greene et al. 1990). Only in children with alcohol-related craniofacial anomalies were alcohol effects on intelligence and language measures noted.

Behavioral Outcomes

During the preschool period, behavioral effects may be more apparent than cognitive deficits, since many skills important to the measurement of intelligence are not yet developed. Morrow-Tlucuk and Ernhart (1987) reported on evaluation of the Cleveland sample at 3 years. Mothers and children were rated on nine different behaviors and, as prenatal exposure increased, behavior patterns changed. Heavier alcohol use was associated with a reduction in the amount of activity, emotional reactivity, irritability, and dependence and an increase in rigidity and task absorption in children.

In contrast, at 4 years of age, 128 middle-class subjects from the Seattle sample were observed for behavioral effects (Landesman-Dwyer et al. 1981). None of the mothers of these children were alcoholics or alcohol abusers during pregnancy, although a group of moderate drinkers was included. Although no alcohol-related differences in home environments were observed, children's activity levels were found to be related to prenatal alcohol and nicotine use, suggesting that exposure to these substances might be associated with later hyperactivity and attention problems.

Cognition at School Age

When children reach school age, deficits in cognitive performance are found to be associated with greater exposure to alcohol prenatally. Russell et al. (1987) examined 6-year-olds whose mothers had been identified as heavy drinkers

during pregnancy. They found no significant differences related to drinking in intellectual development or in auditory processing in the children of social and moderate drinkers. However, in a subsample of problem drinkers (N=14), children were found to have lower Verbal IQ scores than the other children in the sample (x=99.1, sd=11.7, versus x=107.4, sd=14.2) as well as lower scores on the Token test, a measure of receptive language, and a higher error rate on a dichotic listening test.

Streissguth and her colleagues (1989*a*, 1989*c*, 1990) reported that heavier drinking, and particularly drinking more than five drinks per occasion during pregnancy, was associated with a variety of deficits in cognitive functioning at 7 years. Although exposed children were not clinically impaired, heavy drinkers' children had lower scores on standardized tests of intelligence, memory, problem-solving and flexibility, visual/motor performance, and academic skills, particularly arithmetic. However, despite the evidence from retrospective studies, verbal behavior and language skills were not as affected. The authors reported that higher language scores relative to perceptual/motor scores were consistently found. The authors also reported that effects of prenatal alcohol were more strongly evident under certain kinds of social conditions (e.g., when environmental stresses were present). This occurred in single-parent families, in large families, and in those with less educated fathers.

Similar effects were found in the low-income, predominantly African-American, Atlanta sample. In a followup study of 68 children with a mean age of 6 years 3 months (range 5 to 8 years), specific cognitive deficits were noted in alcohol-exposed children, with those having the greatest duration of exposure (e.g., throughout the third trimester) showing the most obvious effects (Coles et al. 1991). In addition to total cognitive score (equivalent to IQ) on the Kaufman Achievement Battery (Kaufman and Kaufman 1983), more heavily exposed children showed significant decrements in sequential processing of information and in academic achievement. Problems were noted in short-term memory, math skills, and decoding of letters and words. Language, as measured by verbal fluency, word finding, and vocabulary, was less affected.

In summary, most studies of preschool and primary school-aged children suggest that alcohol effects may become more apparent over time or as different cognitive functions develop. However, even these studies are not completely consistent, and other well-conducted research (e.g., Greene et al. 1990, 1991) has not always confirmed the presence of specific cognitive deficits.

Hyperactivity and Attention

In retrospective studies, hyperactivity and attention deficit disorder (ADHD) have been widely reported among dysmorphic children and children of alcoholic

mothers (Gold and Sherry 1984). As a result, this aspect of cognition and behavior has been a focus of interest in prospective studies. More recently, Conry (1990) and Nanson and Hiscock (1990) reported the ADHD syndrome in dysmorphic American-Indian children.

At 4 years of age, 452 children in the Seattle sample were tested using a vigilance task to examine reaction time and sustained attention (Streissguth et al. 1984). Both maternal alcohol use and cigarette smoking were found to be related to poorer attention. Streissguth et al. (1986) measured attention at 7 years using a computerized continuous performance test (CPT) within this same cohort. Greater alcohol exposure was associated with poorer test performance, distractibility, and impulsivity. Similarly, Streissguth et al. (1990) reported academic and behavioral deficits consistent with the ADHA syndrome and suggested that alcohol exposure may be one of several etiologies for this commonly diagnosed disorder.

In the Atlanta sample, a similar CPT procedure was used at 6 years to measure a variety of attention-related tasks including sustained attention and distractibility and impulsivity (Brown et al. 1991). When mothers continued to drink throughout pregnancy, children showed an inability to sustain attention but no difficulty with impulsivity. Hyperactivity and impulsivity also were assessed through standardized checklists and videotaped observations. Results suggested that these children could not be classified as ADHD, although they did have problems with attention on specific CPT tasks.

Boyd et al. (1991) used a CPT task and a vigilance procedure to assess 245 children in the Cleveland sample who were 4 years 10 month old. No relationship was found between any indices of alcohol exposure and children's performance, including birth weight and craniofacial abnormalities.

Some of these outcomes support the suggestion that alcohol exposure affects attentional processes, although some data suggest that outcomes seen in prospective studies are somewhat different from the condition usually referred to as ADHD. It may be that the effects seen are milder than those in children usually diagnosed with this disorder. However, environmental factors may also affect children's behavior in homes where alcohol abuse is a problem. This is an issue that requires further study.

Summary of Prospective Studies

When prospective studies examine the outcomes of a wide range of prenatal alcohol exposure, behavioral effects are noted. To some extent, these outcomes confirm, between groups in a statistical manner, the effects noted in the more obviously affected offspring of alcoholics. In the majority of studies, however,

most of the infants and children are only mildly affected behaviorally and do not have obviously dysmorphic features or significant growth retardation. Had these individuals not been participating in research studies, their behavioral differences would usually not have been noted or, if noted, would not have been associated with exposure to alcohol.

In addition, a number of areas that are important to the understanding of the long-term development of children with prenatal alcohol exposure have not been examined adequately. These areas include emotional and social development and attitudes about and response to alcohol and other drug abuse.

Maternal Alcohol and Other Drug Abuse and The Caregiving Environment

Having described FAS and its associated conditions, we turn now to issues that must be considered when designing treatment and intervention on behalf of the alcohol-exposed preschool child. Because young children require almost constant caregiving, the caregiving environment has particular importance for outcomes and planning interventions.

Alcohol abuse or addiction affect a woman's ability to function adequately in many areas. Although prenatal care and maternal health are vital to good reproductive outcomes, many alcohol-abusing women do not receive adequate prenatal care. They may be unaware of their pregnancy, may not have access to adequate care for social or financial reasons, or may ignore these needs due to their addiction process. In such women, pregnancy is often complicated by medical and obstetrical conditions that increase the risk for fetal mortality and morbidity. Female alcoholics and other substance abusers as a group are at increased risk for amenorrhea, infertility, premature deliveries, stillbirths, spontaneous abortions, and sexually transmitted diseases, including HIV infection and hepatitis (Coles and Finnegan in press; Kalant 1980; Mello et al. 1989). The presence of these multiple risk factors further complicates pregnancy outcomes, as well as efforts at prevention and intervention in this population.

The Caregiving Environment

The quality of the postnatal caregiving environment has an impact on developmental outcome for prenatally exposed children as well as other children reared in homes where alcoholism is a problem (Murray 1989). Alcohol-affected children who remain in the custody of biological mothers who are still actively abusing alcohol are at risk for failure to thrive and physical and/or emotional neglect and abuse (Streissguth et al. 1985). Even if the mother is attached to the child and is well motivated, she may have inadequate resources and social

supports to enable her to attend to the special needs of the alcohol-affected child. This problem occurs, at least in part, because many women who abuse alcohol and other drugs were themselves reared in dysfunctional families and have histories of abuse, neglect, and prenatal alcohol exposure (Briere and Zaidi 1989; Cohen and Densen-Gerber 1982). Often, they have little experience with appropriate parenting skills and attitudes and few internal resources or social supports for their roles as mothers (Bays 1990).

These may be the reasons that studies examining parenting behaviors in alcohol- or drug-abusing mothers have noted frequent use of guilt to influence children's behavior (Marcus and Tisne 1987). Such women also demonstrate a higher frequency of aversive behaviors and a greater tendency to use a more threatening disciplinary approach than non-drug-using mothers (Emmelkamp and Heerers 1988). In a study of a group of methadone-maintained mothers and their children, Bauman and Dougherty (1983) found that the mother's inadvertent reinforcement of disruptive behaviors led to more disruptive and hyperactive behavior in children. These authors speculated that some of the cognitive deficits and behavioral problems exhibited by the children of drug-using mothers may be attributed to emotional and environmental factors. Similar results were reported by Wilson et al. (1984). In a study of drinking women and their non-FAS, 6-month-old infants, Platzman et al. (1990) found a relationship between mother/child interactive behaviors and amount of alcohol dose consumed prenatally and postnatally. These data suggest that behavioral outcomes for some children may result as much from the postnatal environment as from neurological deficits due to prenatal exposure, or that observed outcomes may be the result of the interaction of these factors.

However, an argument can also be made for the negative effects of being reared in an alcoholic home even in the absence of evidence of prenatal exposure. The extensive literature on children of alcoholics suggests that nonexposed children who are reared in alcoholic homes often develop emotional, psychological, or behavioral problems as a result of unstructured, chaotic, and sometimes abusive family environments (Black et al. 1986; Cork 1969; Earls et al. 1988). Furthermore, research on non-FAS children of alcoholic parents has indicated that, as a group, they are at risk for psychological and emotional problems such as depression, low self-esteem, and learning difficulties (Woodside 1983), although it has been impossible to completely separate genetic, familial, and environmental factors.

More Research Is Necessary

While the needs of preschool children demand that programs and policies be initiated at this time, much remains unclear about the developmental problems

associated with prenatal alcohol exposure. FAS, the most extreme outcome, is probably best understood. However, many aspects of this disorder have not been fully explored (e.g., academic and behavioral problems, effective teaching strategies). Even less well understood are these factors in less affected children. As a result, it is vital that much more research be done in these areas.

Fortunately, programs for prevention and treatment of alcohol abuse during pregnancy are under way at this time, and the evaluation of these programs may provide us with valuable techniques for *prevention* of fetal alcohol effects. However, virtually nothing has been done to develop programs for *intervention* with affected children of any age in order to prevent the secondary effects of their disabilities. Therefore, it is of great importance that such programs be developed at this time and that programs be designed to meet the specific needs of affected and exposed children.

Needs of Alcohol-Exposed Children

As our brief review suggests, the problems for the alcohol-exposed child are extensive. Understanding the nature of these problems and designing solutions requires a multidimensional perspective. The following factors all contribute to the individual child's special needs:

1. The extent and nature of the effects of the prenatal exposure
2. The quality of the caregiving environment, including both the degree of impairment experienced by the alcoholic mother and the extent of her other resources (Bays 1990)
3. The nature of the intervention process available to the child and the caregiver—that is, the medical, social, educational, and legal system

All these factors should be kept in mind in defining the problems for alcohol-exposed preschoolers and in developing programs for prevention, intervention, and treatment.

Effects of Prenatal Exposure

Alcohol exposure leads to a continuum of nonoptimal outcomes of which FAS is only the most extreme. With so many outcomes, it is not possible to design a single effective response to children's special needs. For example, Streissguth and Giunta (1988) described the mental and physical health needs of the infant and toddler with FAS, noting that these include identification and screening, early diagnosis, and developmental and medical followup. They also discussed the difficulties in providing for their needs. However, FAS children may be more

easily identifiable and, as a result, the necessary services may be more available to them, and at an earlier age, than for those less obviously affected.

It is more difficult to provide services for secondary prevention of the effects of prenatal exposure when the children have FAE or suffer from less severe neurological damage, because they may not be classified as delayed or retarded during the preschool period. Such children are often not identified neonatally, and their slower development and medical complications may not be associated with their exposure when they do come to the attention of health care or educational providers.

For those children whose only effects are behavioral or academic in nature, such as those seen in the prospective studies, no appropriate services will be available during the preschool age. Children usually will not be identified until well into their school careers. In addition, it is unclear what would constitute appropriate interventions before that time or how such children would be identified, given the limited state of our current knowledge. It is possible that the stigma associated with the label "ARBD" might be more damaging than the effects themselves within this group of mildly affected children.

Effects of the Caregiving Environment

The extent to which intervention is necessary or even possible is related to the nature of the child's caregiving environment. When a mother is very impaired or a child is at risk for abuse or neglect (Bays 1990), intervention by child protective agencies is probably required in order to affect the child positively. When problems are somewhat less extreme, a vulnerable child may still be at substantial risk in a nonoptimal environment and would greatly benefit from identification and appropriate intervention with mother, child, or the social environment. Such a child might be at risk for poor health outcomes, as when untreated ear infections lead to otitis media and subsequent language problems, or for emotional or behavioral disorders, such as reactive attachment disorder or conduct disorder. Finally, a nonstimulating or disorganized environment may be associated with a child's failure to achieve full cognitive potential and succeed academically. Appropriate interventions might take the form of out-of-home placement, treatment of the mother for chemical dependency, parenting classes, case management by social work services, or interventions with the child. Interventions with the child could include therapeutic daycare, developmental stimulation, speech and language therapy, occupational therapy, or behavior modification programs.

Availability of Services

Availability of appropriate services will determine whether or not alcohol-exposed children are identified and treated. Early diagnosis and developmental screening may identify high-risk infants, but these children will not be treated unless they qualify for existing services and treatment slots are available. Because alcohol-exposed individuals are often in the mildly retarded or borderline range of intellectual functioning, they may not meet requirements for services until the preschool period, although they might have benefited substantially from developmental stimulation during infancy. However, in most cities, many more children are eligible for such programs than can be accommodated. In other cases, children do not receive necessary services due to costs associated with medical and therapeutic treatment or failure to qualify for Medicaid or Supplemental Security Income.

Barriers to Provision of Services

Infants and children who are affected by prenatal alcohol exposure may need special services in order to reach their developmental potential. However, circumstances associated with alcohol-abusing women and their children may interfere with identification and treatment of children. Some of these problems are discussed below.

Accurate Identification

Many health care and education professionals, particularly those who are working with children beyond early infancy and those in the private sector, are not familiar with the range of effects associated with FAS and ARBD and do not understand the implications of these diagnoses for the child's development. While the majority may know that FAS involves facial dysmorphia and the potential for mental retardation, the many other physical and behavioral problems associated with exposure may be overlooked. In addition, since FAS has only recently been described and the full extent of the problems associated with it has not been established, there is an understandable lack of experience in dealing with its consequences. For example, Little et al. (1990) reported a study involving review of the medical records of 40 infants born with ARBDs, none of whom were identified, despite documented maternal drinking. Evidently, as a result of the general lack of awareness of ARBDs, even when children are given developmental and medical screenings, they may not be identified correctly.

Another problem is that identification may not be early enough due to the characteristics of the disorder and to problems of measurement. Retardation is usually mild, even in FAS; motor deficits are relatively subtle; and dysmorphic features, although present, do not make the child offensively ugly. Behavior, for the most part, is compliant and socially acceptable, at least during early childhood (Streissguth and Guinta 1988). Therefore, only the most severe cases may be identified in infancy and referred for treatment.

Finally, when a child is known to have been alcohol or drug exposed, assumptions about outcome may be made that are unwarranted, resulting in labeling and "self-fulfillng prophecies" of negative outcome. Poorly informed helping professionals may overattribute outcomes to the effects of prenatal exposure rather than to environmental factors and fail to provide appropriate intervention as a result. Some of these problems can be ameliorated by continued education of professionals who deal with infants and children regarding both the characteristics of this disorder and the potential for educational interventions.

Inconsistency in Followup: Parental Impairment and Professional Ignorance

Many alcohol-affected children continue to live with alcohol-abusing parents, who are often inconsistent in providing well-baby checkups and immunizations. Unless severe abuse or neglect brings the child to the attention of authorities, children often will not be noticed until they begin to fail at school or suffer behavior problems. By this time, it may be difficult to overcome the combined effects of prenatal exposure and lack of educational and medical interventions.

Even when developmental delays are noted, health and educational professionals may not be experienced in dealing with alcohol-abusing families. As a result of their inability to interact effectively with the child's caregivers, treatment recommendations might not be followed. Wilson et al. (1984) identified a number of FAS children who needed medical and social services. Mothers were noted to have poor psychological adjustment, and half of them were still using alcohol. Because of their own difficulties, mothers were found to be ineffective in both parenting and the ability to make use of medical and other available services that were needed by their affected children.

Service Gaps and Legal Barriers

When affected children are identified, it is usually because intellectual and adaptive problems have become obvious and the children have become sufficiently impaired so that family and professional denial is no longer possible. At

this time, if the children qualify, they may be referred to appropriate therapeutic services.

However, there may be problems in finding or qualifying for these services. To begin with, intellectual deficits of alcohol-affected children may not be severe enough to qualify for existing programs which, in many States, require that scores on standardized tests of intelligence and adaptive behavior be at least two standard deviations below the mean. Thus, even if the child scores in the intellectually borderline range, indicating considerable intellectual deficit associated with alcohol exposure, appropriate educational programs may not be available. Children may suffer from identified problems in language, attention, motor skills, or behavior. All of these deficits are known to be associated with significant later problems and would benefit from educational or therapeutic interventions. However, because of the constraints discussed, children may be excluded from therapeutic services. In some cases, children who qualify as "mentally retarded" before beginning treatment may, as a result of the intervention, rise a few points in test scores and lose eligibility.

Measurement of Development in the Preschool Years

A related problem is the measurement of cognitive and emotional functioning in the preschool period. While this is a familiar problem for developmental psychology, the difficulties associated with it have a negative impact for the alcohol-affected child. Although we would like to be able to intervene at this age to prevent later intellectual and psychiatric disorders, the signs and symptoms of these problems may not be evident as yet. Many indications of adult cognitive and emotional functioning are, by definition, missing in the preschooler (e.g., language, ability to care for oneself). For example, current data indicate that the alcohol-affected child who will show mild retardation at school age may show low-normal scores at 12 months and scores in the borderline range at 24 months (Platzman et al. 1986). These patterns result not from deficits in testing, but from the process of development over this age range. This finding is troubling, first, because some children may not be identified early enough, and second, because existing Federal and State regulations regarding qualification for services prevent children scoring above a standard score of 70 from receiving intervention services early enough.

Intervention for Alcohol-Affected Preschool Children

Although the most desirable method for dealing with this problem is primary prevention, provisions must be made for affected children when such efforts fail.

Secondary prevention efforts will involve coordination of several levels of identification and intervention in order to maximize the child's postnatal development. This will also require changes in professional education as well as changes in some public policy agendas. In undertaking such efforts, it is important to recognize that, although the child has been affected by prenatal exposure, a great deal of neurological development occurs postnatally and, if child care, nutrition, and environment are adequate, alcohol-exposed children can make a great deal of progress. This is particularly true when the insult has not been severe. Adequate education and training, with protection from the negative effects of a poor environment, may make the difference between achieving a reasonable degree of independence and life satisfaction and negative outcomes.

Professional Training and Education of Policymakers

FAS, one of the most common causes of mild and moderate retardation (Abel and Sokol 1987), is often not diagnosed correctly (Little et al. 1990). It may be that the stigma associated with alcohol abuse by women has made such a diagnosis difficult, or it may be that the training provided to professionals in this area is not adequate. Research (Little et al. 1990; Good et al. 1990; Weiner et al. 1988) suggests that very few professionals who work with children have adequate training in the identification and treatment of alcohol effects in children or in the implications of alcohol abuse and addiction. There is evidence that those training programs for professionals that do exist make a tremendous impact on knowledge and attitudes, and that early and accurate identification and appropriate referral increase as a consequence (Weiner et al. 1988).

Professionals dealing regularly with young children and their mothers and those involved in alcohol abuse treatment should become familiar with the characteristics of risk status in children as well as the identification of alcohol problems in parents. They should also be trained to discuss drinking and drug use history with the mother, other caretaker, or caseworker. This process may require some sensitivity, because an alcoholic woman may deny her drinking or the extent of her drinking, particularly when faced with developmental delays in the child. When alcohol-related pathology is identified, mothers may react in a variety of ways. Therefore, the professional should be trained to deal with both denial and evidence of guilt in the mother or blame by other family members. Similarly, administrators and policymakers must be informed about the extent of this problem and the appropriate responses to it.

Developing Programs for Alcohol-Affected Children

Most alcohol-affected children whose needs are identified are served in existing programs with treatment plans based on their individual needs, as is appropriate. However, the majority of these agencies and institutions are not sensitive to the special problems that may exist in families of alcohol abusers. As a result, if the child has remained with the biological family, there may be difficulties in working out the interaction between the agency and the family.

In the treatment of developmental disabilities, a great emphasis is currently being placed on family involvement in the process of therapy and caregiving. This emphasis has developed for many reasons, including the much improved outcome for mentally retarded and disabled children who are raised at home rather than institutionalized (Farran 1989). However, as Seitz and Provence (1989) pointed out, often this family focus is not particularly sensitive to family needs or to cultural differences (Vincent et al. 1989). Instead, it may involve the agency's or providers' opinions of what the family should need or should be able to do. In addition, activities are often based on a middle-class model that assumes more resources, particularly in the child's mother, than may actually exist. In addition, certain assumptions are made about the efficacy of intervention in infancy (Farran 1989) and parents' ability to act as "therapist" (Seitz and Provence 1989), which may not be appropriate in families where alcohol abuse is a problem.

As is usually the case when a child is identified as having special needs and a referral is made, the family of the affected child will just be starting to cope with the reality of a developmentally disabled child. This process is difficult in any family, but the coping abilities of alcoholic families are limited. As a result, such families may need a higher level of services and support than those families without alcohol pathology. If the mother is recovering, the reality of the diagnosis may be extremely stressful and may interfere with her recovery process. The guilt involved over the child will have to be worked through and plans made for the future. In addition, the cost and problems involved in securing services needed for the affected child may be overwhelming to this family. It is during the preschool years when some of the harsh realities begin to sink in for families.

As a result, although existing services are certainly better than none, it might be more appropriate to design programs, or supplements to programs, that can take into account the special needs of alcohol-affected children and their families. These might be modeled effectively on successful programs for adolescent mothers or mothers with other kinds of psychopathologies. All these groups require increased attention to the (re)habilitation of the child's mother if the family is to be preserved. Since alcohol- and other drug-abusing women often have histories of abuse and neglect, their own ability to parent is often impaired,

and they will require not only support for their parenting role but personal counseling and psychotherapy as well.

Parenting education can be an effective intervention strategy with such high-risk families. In women who are alcohol abusers, childhood problems can persist into adulthood, leading to difficulties with intimacy, interpersonal control, dependency, and the identification and expression of feelings (Black et al. 1986). Another consequence of being raised in an alcoholic home is that often such individuals lack appropriate role models for parenting their own children. In such cases, the dysfunctional rules learned in the family of origin may result in a transgenerational cycle of deficient parenting (O'Gorman and Oliver-Diaz 1987).

Evaluation studies of parenting education programs for drug-addicted mothers have demonstrated that both mother and child may derive considerable benefit from them (Lief 1981). Lief and Fahs (1979) recommend that such programs cover many different topics including normal child development and physical care, appropriate stimulation of healthy development and socialization, and the exploration of maternal attitudes toward parenting. In working with mothers from alcoholic or addicted families of origin, it is especially important to discuss how parenting is, in part, a learned behavior and to explore some of the ways childhood experiences may shape our own ideas of parenting.

Foster and Adoptive Family Support

Many alcohol-exposed and affected children are removed from their biological mothers and placed in foster homes or adopted. Foster families may be stressed by the special needs of the child, which may include the consequences of abuse and neglect as well as those of prenatal alcohol exposure. Adoptive families are as dismayed by identification of the child as delayed or retarded as are biological families. Since the reality of the child's disabilities often is not understood until the preschool years, families have grown attached to the child without understanding that impairments will not be outgrown or repaired by their loving care. These families may have to cope with the loss of their hopes for a healthy normal child or their feelings that they have to cure the child of this affliction.

Adoptive and foster families often express interest in participating in support groups or in talking with other parents of similarly impaired children. Since they often feel a great deal of anger toward the child's biological mother, it is important that separate support groups be established for foster/adoptive parents and biological parents.

Coordination of Existing Treatment

Like any other area of treatment, providing services to developmentally delayed and at-risk infants and preschool children has its own culture and beliefs. While this system has much to offer in terms of understanding the special needs of affected children, it is not the same as the system that provides services to alcohol abusers. Lack of communication between these disciplines and the professionals within them can interfere with adequate treatment for alcohol-affected children and their families.

However, this poor communication and coordination is simply a variation on what already exists in this area (Harbin and McNulty 1990). Multidisabled infants and preschool children require multidisciplinary assessment and treatment as well as the coordination of a number of supportive social services. For many reasons, this is a difficult goal, and it becomes more difficult when the parent is an alcohol abuser and requires services herself. Programs that do not acknowledge these special issues will not be effective.

It is equally important for agencies providing alcohol abuse treatment to acknowledge the effect of the child's needs on the woman and the family system. Most providers of services to adults are woefully ignorant of the needs of children and the impact of the child's status and behavior on the adult. Many providers have no understanding of the caregiving role, the nature of development, the purposes of assessment, or the usefulness of intervention with young children. The needs of children are often ignored as a result.

Developing Coordinated Services for Alcohol-Affected Children

Although alcohol-affected children share many developmental and behavioral problems with other high-risk populations, FAS/ARBD has several unique features. These special characteristics may require unique and innovative services for these children. Although many programs could be developed, some of the more obvious recommendations are described below.

1. *Prevention rather than remediation of developmental delay.* At the present time, because of measurement characteristics and legal constraints, high-risk children scoring in the normal/low-normal ranges cannot receive services from publicly funded programs (e.g., Public Law 99–457). However, research shows a predictable pattern of decline in level of functioning from infancy through the preschool period for alcohol-affected children. Acknowledging the developmental course for mildly retarded children and providing services for those scoring higher than two or more

standard deviations below the mean would allow early intervention efforts, which might prevent this decline. To do so will require changes in the application of current laws governing early screening and provision of intervention services.

Similarly, programs should be established that will allow remediation of children scoring in the borderline range both academically and intellectually. At the present time, services cannot be provided to improve learning outcomes in such children unless there is a discrepancy between academic performance and intellectual aptitude tests. As a result, many children who could become functioning members of society experience school failure and develop behavioral, emotional, and social problems.

2. *Special programs for alcohol-affected preschoolers.* Since the needs of alcohol-affected children and their families may be somewhat different from those typically dealt with by existing programs, programs will have to be designed with these special needs in mind. Despite the high incidence of alcohol-affected children, it will probably be more effective to provide services through existing programs than to establish separate developmental programs for such children. Such an approach would add specialized services to those already provided by existing programs for developmentally delayed preschoolers. The supplementary programs should provide aggressive and coordinated case management, information and professional training regarding alcohol abuse, group support for both recovering and foster parents, and access to funds that would be necessary to support therapy and intervention.

3. *Coordinated FAS/ARBD services.* The most efficient method to assure that services are provided to this unique population without overburdening the existing system might be to establish a program for FAS/ARBD services that would include both personnel to act as case managers and access to funds. A locally based FAS Coordinator could facilitate early identification, consistent followup, coordination of therapeutic services, and educational intervention and training on a local and statewide basis. Since most programs that serve children are inadequately funded and may not even exist in some areas, guaranteed access to treatment would require supplementary resources like those provided to disadvantaged children through the Title 20 Program. Identification of children as alcohol affected might qualify them to receive supplementary funds and specific therapeutic interventions.

In summary, although research is not complete concerning the developmental course of alcohol-affected children, it is evident that this group of children has many serious needs. Unfortunately, most of these are not being met by the system today due to lack of understanding, lack of services, and problems

related to mothers' alcohol abuse. To provide for the needs of these high-risk children and their families, a coordinated and informed effort must be made on their behalf.

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319-602 0 - 92 -- 4

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Notes

1. Also noted in the dysmorphic children were poor weight gain (sometimes to the extent that failure to thrive was a concern), distractibility, delayed language development, particularly expressive language development, and frequent illnesses. Also, differences in the medical and social histories of alcohol-abusing mothers who had dysmorphic children may have contributed to children's outcome.

2. This pattern of decline among the contrast groups is predictably seen between 12 and 24 months in low-income groups and is attributable to social factors.

CHAPTER 5

Spontaneous Play and the Development of Young Children

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The robust universal presence of play activity across time and cultures, even in the absence of toys and objects designed to elicit the play process, speaks to the significance of play in development. Children create play, play is what children do, and it is difficult to prevent children from playing. Even if adults try to prevent play, it seems that the moment adults are not paying attention, children begin to play again. Essentially, playing is doing. And yet not all activity is play. It often seems easier to recognize what play is not than to succinctly define what play is.

Many laudable attempts have been made at operationally defining play and distinguishing it from other activity. Leading researchers in the field have described play as an intrinsically motivated activity that does not depend upon extrinsic reinforcement. It differs from work in that it has no set goal, but even in the absence of a set goal has purpose and meaning that contributes to development overall (Bateson 1972; Bretherton 1984; Fein 1981; Garvey 1977). Even though it can be influenced by external, outside factors, play is an activity that is generated from within the child and is a process through which children contribute to their own development. Play is a spontaneous and self-initiated activity that provides a window into other central developmental issues (Motti et al. 1983). Furthermore, play activity is not the same at all ages and itself undergoes a developmental progression (Fenson 1976, 1984).

In reviewing the interdisciplinary writings about play, both past and present (Erikson 1972; Lorenz 1972; Murphy 1972; Piaget 1962; Spitz 1972; Wolff 1972; Winnicott 1971), the common thread among differing interpretations and perspectives is the assertion that play is foundational and important, if not essential, to the developmental process. If, then, the assumption can be made that what children do is play, then the absence, reduction, disruption, or distortion of play is noteworthy and raises several questions. What does it take to interfere with the propensity to play so that children do not, cannot, or will not play even when left to their own initiatives and resources? What are the long-term implications of poor play, are interferences transitory, and what do motivation and curiosity contribute to the play process?

97

In beginning our research on whether there are developmental sequelae past the infancy period associated with prenatal exposure to illicit drugs of abuse, we began from the perspective of normal developmental trajectories. Since normal development is characterized by integration within and between developmental domains, and atypical development is characterized by disorganization within and between domains (Cicchetti 1987, 1990), we reasoned that if foundational and important developmental processes were intact and functioning in ways that were indistinguishable from those of other, nondisabled children, then we would be reassured that the prenatal exposure was not associated with later developmental difficulties. As such, in the study reported here, we focused on two critical developmental tasks of the toddler period: exploration of the environment and forming secure relationships with others.

Procedure

Assuming a developmental progression in the predominant form of play at differing ages, we were interested in the types and frequencies of play that the toddlers demonstrated in their repertoire of activity. We also looked at the components of play activity including self-initiation (the structure and content of play determined by the child), theme (the subject, content, unifying idea of play), sequence (the elements or pieces of a single theme), complexity (the combination of objects and themes), intentionality (the action toward which effort is directed), and organization (the integration of the elements of play).

Since the children tested were 18 months of age, a developmental perspective suggested that the frequency of manipulation of single objects typical of the first year would be minimal and the representational combining of objects that begins between 9 and 12 months would be mastered. The symbolic imbuing of objects with conceptual meaning that goes beyond the concrete and defined form of the toy, and the adding from oneself to the properties of the toys that begins between 12 and 15 months, would be the most frequent type of play activity.

The spontaneous play of 18 toddlers prenatally exposed to a variety of illicit drugs was compared to the play of a biological risk sample of 41 low birth weight preterm toddlers from similar socioeconomic circumstances. Using the Ungerer and Sigman (1983) paradigm and coding system, frequency of basic exploration and manipulation, representational combining, and symbolic acts were recorded from live observation. The children and their caregivers were in a room with age-appropriate toys for 16 minutes. The caregiver was asked to let the child play spontaneously without adult instruction, but to respond as they normally would if the child initiated interaction. In addition to the unstructured assessment, standardized assessments of cognitive functioning using the

Bayley Scales of Infant Development and security in attachment using the Ainsworth Strange Situation were administered.

As reported previously (Rodning et al. 1989), the play of the toddlers prenatally exposed to a variety of illicit drugs was different in quantity and quality from the play of the comparison biological risk group of low birth weight preterm toddlers. While the cognitive functioning of the prenatally drug-exposed toddlers was in the average to above average range, their play was primarily characterized by single object manipulation, banging, scattering, throwing, few representational play events, and no evidence of symbolic play, even though these toddlers had been in intensive intervention with their caregivers for the first year of life, had toys in their homes, and had been permitted to play. The preterm comparison group, which was more biologically compromised at birth than the prenatally drug-exposed toddlers, had more representational play and more purposefulness and meaning in their play.

The play of the prenatally drug-exposed toddlers who also had insecure and disorganized attachments was the most compromised of all groups. Security in attachment did not interact with type, frequency, or quality of play in the preterm comparison group.

Discussion

See Rodning et al. (1989) for a thorough presentation and discussion of the findings from this study. Please note, however, that these findings are not new. Lodge (1976) reported that the object play in her sample of heroin- and methadone-exposed toddlers was characterized by mouthing and banging, appeared immature, and lacked goal directedness and persistence, and the children had increased activity levels and reactivity to sensory stimulation. Wilson (1976) reported that the children in her study, who were prenatally exposed to methadone and heroin, at preschool age had disorganized behavior and increased activity levels even when they had been raised in stable environments.

The Harlow laboratory of the University of Wisconsin studied 4-year-old primates with currently normal blood levels of lead but exposed to lead during the first year of life. The exposed primates in an open field assessment of environmental exploration had a higher activity level and a longer latency to entering the field than normal primates, did not habituate, and their exploration in a novel environment was characterized by repetitively stereotyped behaviors. The repetition of the same action over and over (microstereotypies) was distinguished from exploration per se and was characteristic of the exploration activity of the lead-exposed primates. In interpreting the meaning of the perpetual movement of the lead-exposed primates, it was noted that the

increased locomotion activity in the field "may function as an attempt to escape a novel situation, as well as to approach and explore novel stimuli" (Welker 1957).

Play in nondisabled developing children appears effortless, like a foundational presumption of the developmental process, something that just happens without having to learn how. It appears to flow with spontaneous ease and little strain to the mind or the will. Productive play, like healthy development, has its own form of aesthetically beautiful integration, harmony, and joy. Play is often a vehicle for giving expression to life events and experiences, a mechanism for resolving difficult issues and conflicts, and as such, all experiences—relational, emotional, and cognitive—are potential germinators of play activity. If, in the developmental scheme, "protest and working it out" precedes "giving it up" as a strategy for resolution of conflicting needs, then it would seem to follow that factors that abort the play propensity must be very powerfully negative.

Productive play is so prototypic for children that the deviations in play draw attention. The paucity of play and what appeared to be almost an absence of purposefulness and meaning in play for the prenatally drug-exposed toddlers was startling. The unexpected nature of the play activity of these children generated concern and many new questions. What does it mean developmentally if spontaneous play appears to be random and unconnected? Where is the disruption coming from? Is the paucity of play a reflection of motivational inhibitions that at the age of 18 months are already powerful enough to change the course of a natural propensity?

The potential contribution of physiological disorganization, cognitive disorganization, and affective disorganization must be entertained. If, as Motti et al. (1983) proposed, play reveals central developmental processes, and a child loses something important in the developmental process if play is absent or disrupted, then the play of these toddlers is reason for concern, followup at later ages, and caution in dismissing the detrimental impact of prenatal exposure to drugs of abuse. At the same time, these results are not determinative of later outcomes and do not represent a conclusion about developmental outcomes over time. We do not yet know how these findings will relate to behavior at later ages. The disorganization may be transitory, it may be a reflection of the transitions of toddlerhood that occur in several domains, or it may be an antecedent to later behavioral disorganization that is associated with prenatal exposure to drugs of abuse; these questions await further research. However, from a developmental perspective, dysfluencies and disruptions in foundational developmental tasks such as play are noteworthy in attempting to understand the course of development over time for any group of children.

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CHAPTER 6

An Ecological Perspective: The Impact of Culture and Social Environment on Drug-Exposed Children

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Children prenatally exposed to alcohol or other drugs constitute a vulnerable at-risk population. While the full biologic impact of such exposure remains equivocal, those who remain with such drug-using parents are likely to be exposed to a number of factors that may attentuate biologic deficits. Such factors may include parental psychopathology, family disruption, domestic violence, abuse/neglect, and exposure to crime and violence outside the home. Dysfunctional drug-using families from ethnic/racial populations may also fail to provide a protective buffer for their children, thereby compounding the stresses associated with acculturation and preventing the development of a healthy self-concept and racial identity.

Recent research on child development has focused on the identification of factors that appear to place children at risk for later developmental problems. Much of the early research in this area was based on the assumption that it is possible to identify specific characteristics of children or their families that can be used to predict long-term outcomes in the child (Sameroff and Chandler 1975). A second assumption of these early approaches was that characteristics that are manifested early in life are likely to have persistent effects throughout the lifespan. Research on children exposed to prenatal and perinatal anoxia, premature infants, and others considered to be at high risk for poor outcomes has indicated that such biological risks may be mediated by factors in the postnatal environment. For example, Werner (1968), in a study of 670 children from birth to age 10 who were born on the island of Kauai, Hawaii, in 1955 found that IQ differences between high-risk and low-risk children ranged between 5 and 7 points in children who were living in families of high socioeconomic status (SES), while for those children living in a low socioeconomic environment or with a mother of low intelligence, the difference in scores ranged from 19 to 37 points. At age 10, no correlation was found between perinatal risk and subse-

103

quent IQ scores. The results of this study and others illustrate the importance of the postnatal environment in mediating biologic risks.

It is now widely accepted that development is nonlinear and that individuals interact in complex ways with their environments, alternately changing and being changed by external realities. The transactional model of development views the process as a bidirectional dynamic interaction between the intrinsic characteristics of the child and the postnatal environment (Sameroff and Chandler 1975). Such a model is more descriptive of the multiple and complex relationships that may exist among competencies, observed behaviors, and environmental contingencies. Consideration of the transactional model has led to new paradigms for developmental research that incorporate information about the context in which a child develops. This chapter discusses parental, cultural, and social factors that may play a role in developmental outcomes of young children who have been exposed to drugs in utero. A review of the literature and recommendations for the development of intervention services are included.

The Microsystem: Characteristics of the Child and the Caretaking Environment

Studies that examined specific components in the postnatal environment have indicated that the quality of stimulation and support available to the child in the home is predictive of later cognitive development (Bradley 1989). The presence of maternal psychopathology, parenting style, and parental stress have all been related to developmental outcomes.

Studies of the children of depressive or psychiatrically disturbed mothers indicate that such children exhibit a higher frequency of behavioral problems, emotional instability, and academic difficulties. A 5-year study of 65 psychiatrically disturbed mothers matched with 36 "well" control mothers and their children conducted by Musick and associates (1984) found that the children of disturbed mothers were characterized by lower intellectual capacity, greater anxiety and emotional lability, and a higher frequency of attentional problems than the children in the comparison group.

Unfortunately, few studies have examined the father's contribution (both biologically and socially) to the cognitive functioning and mental health of the child. A study of psychosocial functioning in children of alcoholic, depressed, and control fathers found significant differences in the number and severity of behavior problems in children of the two experimental groups (Jacob and Leonard 1986). Studies of sons of alcoholic parents also suggest a significant paternal role in the psychosocial development of their children (Begleiter et al. 1984; Goodwin et al. 1974).

The risk of poor outcomes may be exacerbated for children of parents with coexisting alcohol or other drug abuse and mental illness. In a classic 20-year longitudinal study of 259 children from multiproblem families, Miller and Jang (1977) found that children of alcoholics had greater socialization difficulties than did children of nonalcoholic parents, even though all children came from poor, multiproblem families. Moreover, the greater the severity of parental alcoholism, the greater the impact on the children during their early developmental years and on their adult social and psychological adaptation. These findings are particularly important since the prevalence of other forms of parental psychopathology were reported to be equally distributed in both groups.

As a group, alcohol and other drug abusers tend to exhibit a wide range of psychopathology (Schuckit 1973; Khantzian and Treece 1985; Martin et al. 1985; Steer et al. 1983; Midanik 1983). It is unclear, however, whether observed psychiatric disturbances precede the addiction or develop as a consequence of it, and there is some evidence that psychiatric symptoms observed during periods of active drug use may dissipate after sobriety is achieved (Nathan 1988). However, persistent psychiatric problems have also been found to be independent of substance use in drug-using populations (McLellan et al. 1981).

Illicit drug use can lead to a deviant drug-seeking lifestyle often involving criminal activities. Sexual promiscuity and prostitution are frequently associated with drug use in women (Smithberg and Westermeyer 1985). Moreover, significant male others of female drug users are likely to be users or dealers themselves, thus increasing the likelihood of involvement with the criminal justice system (Silverman 1982). Parent-child separations resulting from periods of incarceration further contribute to family disruption.

Drug addiction, particularly alcoholism, tends to run in families. Thus, a high proportion of adult drug users are the offspring of alcoholics or other drug users. Research on children raised in alcoholic homes indicates that such children often develop emotional, psychological, or behavioral problems as a result of the unstructured, chaotic, and sometimes abusive family environment (Deren 1986; Jacob and Leonard 1986; Woodside 1983).

In addition to familial drug use, women abusers are more likely than nonabusers to have a history of childhood traumas, including physical and sexual abuse (Gomberg 1989; Ladwig and Anderson 1989). As a result, addicted mothers often lack appropriate role models for parenting, and dysfunctional roles learned in the family of origin can lead to a transgenerational cycle of deficient parenting. Studies of parenting behaviors in alcohol- or other drug-abusing mothers have noted that they exhibit excessive use of guilt to alter behavior, a higher frequency of aversive behaviors, and a greater tendency to use a threatening disciplinary approach than non-drug-using mothers (Marcus and Tisne 1987; Emmelkamp and Heerers 1988; Deren 1986).

Guilt and anxiety regarding the child's outcome combined with limited knowledge about normal child development and deficient parenting skills can also lead to unrealistic expectations about the child's development and/or projections of displaced guilt onto the child. This, in turn, may potentiate the risk for child abuse and neglect.

Studies on characteristics of abusers have found that such individuals are likely to be of lower intelligence, to be more impulsive, self-centered, emotionally immature, and to have low self-esteem (Sameroff and Chandler 1975). They are also more likely to be victims of childhood abuse themselves (Strauss et al. 1980; Oliver and Taylor 1971). Many of these characteristics have also been found to correlate with drug use. A study of 4,132 cases of child abuse reported to the Los Angeles County Sheriff's office from 1975 through 1982 suggests that abusers are most likely to be females in single-headed households, but males in stepparent families (U.S. Department of Health and Human Services (USDHHS) 1986).

Examinations of the characteristics of abused children have found that they were more likely to be low birth weight or premature infants, have evidence of hyperactivity or other behavior problems, and have a higher incidence of physical anomalies (Sameroff and Chandler 1975; Morse et al. 1970; Klein and Stern 1971). Other studies suggest that, as a group, abused children are at risk for emotional and developmental sequelae as a result of the abuse. In a 13-year followup study of children with a history of abuse (N=20), Elmer and Gregg (1967) found that 90 percent showed evidence of residual effects at followup, and only 2 out the original 20 were completely normal. Morse, Sahler, and Friedman (1970), in a study that followed 25 suspected cases of child abuse over 3 years, found that 70 percent of the sample were below average in intellectual functioning and emotional and/or motor development. However, they also found that 43 percent had shown evidence of mental retardation or motor hyperactivity prior to the abuse (cited in Sameroff and Chandler 1975).

Children prenatally exposed to drugs are at increased risk for many if not all of the characteristics associated with abused children (Coles and Finnegan in press; Finnegan et al. in press). Thus, the prenatally exposed child and the alcohol- or drug-abusing mother likely constitute a high-risk dyad for abuse and neglect.

A report on fatalities due to child abuse and neglect in New York found maternal drug addiction to be a factor in 25 percent of the deaths (Fontana 1983 as cited in Deren 1986). A 1979 Swedish study of mothers who had been addicted to amphetamines found that the infants of mothers who continued drug use throughout their pregnancy had the highest incidence of parental neglect compared to infants of mothers who discontinued drug use during pregnancy and infants who had been placed in foster care after birth (Billing et al. 1979).

The findings reported in this section seem to indicate that the combination of a prenatally exposed child and a drug-abusing mother can result in a nonoptimal childrearing environment that may potentiate the biological effects of prenatal exposure. Psychological characteristics of the drug-using mother such as coexisting psychopathology, low self-esteem, and limited knowledge of appropriate parenting behaviors leave her ill prepared to deal with a drug-affected child who may have behavioral problems, physical disabilities, and/or mental retardation.

The Macrosystem: Social, Economic, and Cultural Factors

Any examination of factors that are likely to affect the developmental course of prenatally drug-exposed children must consider the effects of the macrosocial environment. Children of alcohol or other drug abusers are more likely to experience family disruption than the children of non-drug users (Woodside 1983; Deren 1986). Many of these children will grow up in single-parent families with limited economic resources. The effects of poverty may create a double jeopardy for children with physical or mental deficits caused by prenatal exposure to drugs and further complicated by parental drug use (Parker et al. 1988).

Children who reside in low-income, high-crime communities are also exposed to considerable risks outside the home. The escalation of drug-related crime in many inner-city neighborhoods in the last 10 years has created an environment that resembles an active combat zone. A study released by the National Institute on Justice (1990) indicates that rates of drug use among arrestees in 22 cities ranged from 53 to 82 percent. Although most drug-using arrestees were charged with drug sale or possession, 38 percent were charged with homicide/manslaughter. An earlier study found that 45 percent of arrestees charged with violent or income-generating crimes tested positive for one or more drugs (US Department of Justice 1989).

The phenomenon of random drive-by shootings has become a regular occurrence in many inner-city neighborhoods. Homicide rates for African Americans are significantly higher than for all other ethnic groups, and it is now the leading cause of death for African-American males aged 15–44 (USDHHS 1986). Among Hispanic and American-Indian populations, rates of homicide are approximately 2½ times that of the White population.

The stresses associated with acculturation, poverty, and unemployment may account in part for the high rates of suicide and accidental injury among Americans Indians, who have the highest rate of death from unintentional injuries in all age groups (USDHHS 1986). Accidents are the second leading

cause of death for this population. Among the Hopi, the leading causes of injury were falls, motor vehicle crashes, self-inflicted injuries, and assaults. Burns and accidental poisonings were frequent among children less than 5 years old. At 26.6 per 100,000, the suicide rate among American Indians is 20 percent greater than the U.S. average. Suicide victims are usually younger than those in other ethnic groups, with a peak age of 20–24 as compared to the general population, where most suicides occur after age 40. Although patterns of suicide may differ among different tribes, most victims are young unmarried males, and alcohol is involved in 65–80 percent of the cases.

Thus, children from ethnic/racial populations are often exposed to environments characterized by violence, instability, racism, and poverty. The emotional impact of these circumstances on any child would be expected to be significant. For the vulnerable, drug-exposed child living with alcoholic or drug-using parents, the impact is significantly increased.

The relationships among economic resources, maternal competencies, and cultural factors are often quite complex. In an elegant collaborative study of 931 multiethnic children and their families selected from 6 sites, Bradley and associates (1989) examined the relationships among scores on the HOME Inventory, cognitive functioning, ethnicity, SES, and gender. The results of this study indicated that, in general, HOME scores and social status indices were significantly correlated, as were infant HOME scores and 2-year Bayley scores. The general pattern of relationships differed slightly for the three ethnic groups studied (Whites, African Americans, and Mexican Americans) through 2 years of age, but by age 3, these differences had disappeared.

For children in the lowest SES group, HOME scores were essentially unrelated to maternal education and family occupation and did not appear to be correlated with cognitive outcomes at age 3. The investigators concluded that although both SES and HOME scores were useful in predicting IQ, process variables or the quality of the child's home environment seemed to be a more powerful predictor, especially for African Americans and males.

The findings from this study also suggest an interactive effect between ethnicity, vulnerability, and environmental quality. Eighty-five percent of children with low HOME scores had IQ scores below 100 at age 3. However, more than 75 percent of children whose Bayley scores were 2 standard deviations below the mean at 12 months had IQ scores below 100, despite moderate scores on the HOME scale. Thus, the effects of a poor environment on a normal child appear to be greater than the effect of an adequate environment on a vulnerable child. Among Whites, those who received high scores on the HOME (1 or more standard deviations above the mean) showed an increasing profile; the medium and low scorers (1 or more standard deviations below the mean) showed decreasing profiles. Among African-American children, the high scorers showed

an increase from 12 to 36 months, while the medium and low scorers declined. By contrast, the Mexican-American children who received high scores on the HOME showed a very slight increase in test scores, while both the medium and low scorers declined with no difference in IQ scores among the three groups at 36 months. The results of this study raise questions about the use of instruments that have been developed on specific populations in studies of populations that are ethnically diverse.

Culture and ethnicity may influence developmental outcomes in a number of ways. Models of development that discount the impact of cultural beliefs and practices often fail to adequately account for observed outcomes (Ogbu 1981, 1987). The influence of culture may be particularly evident in differences in childrearing attitudes and parenting behaviors. Evidence from cross-cultural studies suggests that the emergence of specific skills may be mediated by contingencies in the childrearing environment. Kagan and Klein (1973), in a study of children in Guatemala and San Marcos, found that developmental lags observed in these children during infancy were not predictive of preadolescent functioning. Although these infants were retarded with respect to activation of hypotheses, alertness, and onset of stranger anxiety and object permanence, no deficits were evident on tests of memory, perceptual analysis, and inference in 11-year-olds. Behavioral anomalies observed in the infants were attributed to childrearing practices that precluded active manipulation, stimulation, or interactive play. As a result of the deprivations in their environment, Guatemalan infants were observed to be listless, silent, and apathetic. At age 3, they were quiet and timid, but by age 11 they were active and intellectually competent. The investigators argued that it is perhaps inappropriate to view development as continuous and solely the result of biological integrity.

Although the conclusions from this study have been subject to criticism, primarily because of the lack of a prospective design and the investigator's failure to consider cohort effects in the sample studied, the findings remain intriguing. The authors hypothesized that maternal behavior was based upon culturally transmitted knowledge that all children will walk by the age of 18 months, talk by age 3, and perform some adult chores by age 10, despite their nonreactive behavior during infancy, thus conforming to culture-bound expectations. Thus, the mothers perceived their children as developing normally, although they clearly exhibited symptoms and behaviors that would suggest high-risk status to an outsider. It is easy to see how efforts at early intervention would likely meet with some resistance.

Cultural differences among American subgroups are not likely to be as dramatic as those from preindustrial cultures. However, there are parallels among many American ethnic/racial populations. For example, cultural expectations may reinforce behaviors that may be viewed by the majority culture as

evidence of inferiority. American-Indian children, for example, are taught that it is intolerable to tell another person what to do, to value cooperation rather than competition, that it is impolite to shout, and that conflict should be avoided. As a result, American-Indian children are often viewed by teachers in the majority culture as passive and lacking in motivation and creativity (Middleton-Moz 1986). The greater reliance upon physical punishment among African-American parents is sometimes misinterpreted as abusive by majority providers. However, within the historical and cultural context of African-American life, unconditional obedience may ensure the survival of offspring in a hostile environment (Alvy 1987).

Cultural beliefs related to health may also affect help-seeking behaviors and service utilization. A recent study of the utilization of folk healers by Hispanic women (N=128) in two communities outside of Denver, Colorado, found that 23 percent reported that they came from a family where some member had been treated by a folk healer; 18 percent reported that their children had at some time been so treated. Respondents in this study reported that they were most likely to seek the assistance of a curandero (folk healer) for specific folk illnesses such as embrujamiento (an illness caused by witchcraft), mal ojo (evil eye), and caida de la mollera (an infant illness believed to be caused by a "fallen fontanelle") (Rivera 1988).

Culture-bound beliefs may influence not only one's choice of service providers but one's utilization of conventional health care services as well. A 1989 demand analysis of mental health service use found that, in general, African Americans and Hispanics have a lower probability of using outpatient mental health services compared to Whites. However, the probability of inpatient use is higher for both groups (Scheffler and Miller 1989). Differences in perceived efficacy of service delivery programs and utilization of alternative service systems by cultural subgroups should be taken into consideration when designing intervention programs for these populations. While higher rates of institutionalization may reflect cultural preferences, they may also represent differential treatment of those from ethnic/racial populations who enter the mental health system.

Many cultural groups in the United States have historically been excluded from many of the social and economic benefits accessible to members of the majority culture. Racism and educational and economic disadvantages have made it difficult for many of these groups to fully assimilate into American society. Hispanics, African Americans, and American Indians as a group have higher rates of unemployment, lower levels of educational and vocational achievement, and higher rates of poverty as compared to Whites (Edelman 1989; LeBrasseur and Freark 1982).

Ogbu (1987) refers to disadvantaged nonimmigrant groups as "caste-like minorities" who experience special problems as a result of their subordinate

status in society. Such individuals are largely excluded from the more desirable cultural tasks that demand and promote the cognitive and social competencies of middle-class members of the dominant group. Moreover, the exigencies of life within these cultural groups may lead to the development of other non-middle-class competencies as well as different perceptions of success. Such groups may eventually develop an oppositional social identity and frame of reference that make it even more difficult to assimilate values from the majority culture (Ogbu 1987). The rules governing behavior within a culture may be perceived as maladaptive outside of it.

Culture-bound behaviors and perceptions are likely to be adaptive within the cultural frame of reference, but may become maladaptive as the individual attempts to assimilate into the majority culture. The result is often feelings of inferiority, internalized racism, and decreased motivation to achieve. Middle-t- -Moz (1986) recounted the poignant story of an American-Indian woman, daughter of alcoholic parents, who had been raised by her aunts and grandmother. Her use of alcohol and other drugs began when she left the reservation to attend a White school and when, for the first time, she began to feel ashamed that she was American Indian. The traditional values and behaviors that she had been taught were considered evidence of her cultural inferiority, and she reported that for the first time in her life, she felt "stupid."

In a study of the relationship of identification of self and self-evaluation, Rosenthal (1974) found that Chippewa Indian children tended to evaluate themselves negatively as compared to White children. Although the children in this sample were able to discriminate racial identity by the age of 9, only 52 percent were willing to acknowledge that they were Indian.

African-American children, by contrast, are able to discriminate between racial groups at about age 5 (Alejandro-Wright 1985). There is also evidence that African-American children are less likely to internalize negative messages about racial identity and that the family and community can act as a buffer to racism experienced in the larger society. In a study of cognition and self-identity in African-American children, Semaj (1985) found significant interactions between age and attitudes toward racial identity. Pro-African-American attitudes were more frequent in 4- to 7-year-olds, but remained constant or declined in 8- to 11-year-olds. The author hypothesized that the older children had begun to recognize that being "White" carries a connotation of power, and the anti-African-American messages received from the dominant culture had begun to diffuse racial identity. It is therefore not surprising that African-American parents view the task of educating and preparing children to deal with racism as of primary importance (Peters 1985; Franklin and Boyd-Franklin 1985).

Many children from ethnic/racial populations receive important affirmation from family and community. Children who live with dysfunctional, alcoholic, or

other drug-using parents may not be able to benefit from these important sources of support and validation. Research has indicated that many children of alcoholics feel isolated within their communities and experience feelings of guilt and shame as a result of their parents' drug use. For some, there are cultural sanctions against sharing family pain outside the family. This is true of African Americans and many Hispanic and Asian cultures. Such children may find it difficult to participate in groups and other therapeutic activities that require disclosure about family events. Often, service providers attribute this reluctance to resistance or lack of motivation. Intervention programs that target young children of substance abusers (COSAs) from such cultural groups must be prepared to deal with the issues related to ethnic identity and acculturation that these children may face and should be sensitive to the cultural values and belief systems that govern their behaviors.

Summary and Recommendations

Children drug exposed in utero constitute a high-risk group. In addition to the cognitive, behavioral, and/or physical disabilities that may result from maternal substance abuse, these children may also be exposed to factors in the micro and macro environment that significantly influence developmental outcomes. Microsystem risk factors include parental psychopathology (concurrent with drug use), neglect/abuse, family disruption, and exposure to domestic violence. Many such children will grow up in communities that are characterized by poverty, high rates of alcohol and other drug use, and violent crime. The selective developmental impact of these multilevel assaults will be difficult to sort out.

Dysfunctional drug-using families may also fail to provide a protective buffer for children from ethnic/racial populations and thus fail to counteract the negative, racist messages from the dominant culture, thereby compounding stresses associated with acculturation and preventing the development of a healthy self-concept and racial identity.

Based on the results of this review, the author would like to make the following recommendations:

1. The multilevel risks faced by children who have been exposed prenatally to alcohol or other drugs require multilevel intervention strategies. Programs that discount the influences of the larger social environment and focus solely on microscopic behaviors in either mother or child will be of limited effectiveness. Programs must be comprehensive in scope and encourage parental involvement. Interventions with parents should include competency training, parenting education, and psychosocial support. The effects of poverty tend to be intergenerational—the parents in

treatment today were yesterday's high-risk children. Early enrichment programs that include parental involvement appear to have the greatest success in promoting lasting gains in disadvantaged children (Ramey and Campbell 1987; Lucas et al. 1984; Andrews et al. 1982*a*).

2. Programs need to include provisions for long-term followup and continuing support for children as they get older. Evaluation studies of preschool and infant programs have demonstrated a number of positive effects on cognitive functioning and academic achievement among at-risk families that persisted into early childhood (Andrews et al. 1982*b*; Palfrey et al. 1987; Burchinal et al. 1989). However, many of these early effects do not persist through later childhood and adolescence. A 20-year followup study of young African-American adults who participated in the Institute for Developmental Studies early enrichment programs, conducted by Jordan and colleagues (1985), found that although males demonstrated higher academic and vocational achievement, persistent effects were less evident in females.

   The results of the Parent Child Development Center experiment, which was begun in 1970 by the U.S. Office of Economic Opportunity to promote the development of children from low-income families, were even more disheartening. The initial evaluation demonstrated significant positive effects on several measures of parental behavior, cognitive functioning, and other developmental indices after 24 months of participation in the program that persisted 3 years postgraduation. However, a followup study conducted when the children were between 10 and 17 years of age found that initial differences between program and control children had disappeared. Regardless of whether the children attended the program, 40 percent had been held back a grade at least once. The same was true of their older and younger siblings. As the children got older, achievement scores dropped from the 40th percentile in elementary school to the 20th in high school. Fifty percent failed the State basic skills test, and 33 percent had substantial behavior problems (J.P. Blumenthal, personal communication). The results of this study suggest that early intervention programs may have a time-limited impact on children in high-risk environments. Without continued intervention, the cumulative impact of poverty, inferior educational systems, and pervasive social problems may counteract many of the early gains achieved in these programs.

3. Programs targeting children from ethnic/racial populations must be sensitive to culture-bound beliefs, values, and behaviors. The stresses associated with acculturation create an additional developmental risk for these children. A culturally sensitive program may contain one or more of the following components: (1) it may increase accessibility of conventional

services by removing barriers that may be related to specific characteristics of the cultural group; (2) it may incorporate therapeutic modalities that are congruent with features of the cultural group being targeted; and (3) it may extract elements from the target culture and use them to modify conventional intervention strategies (Rogler et al. 1987). At a minimum, culturally sensitive programs should include the following:

a. Positive cultural images should be evident throughout the program and incorporated into printed materials and program activities including, when appropriate, the program name.

b. The physical environment should reflect the cultural heritage of the target group. Posters, decorations, and so forth should communicate messages of cultural pride and awareness.

c. When appropriate, staff should be bilingual, although bilingual does not always mean bicultural. A concerted effort should be made to locate staff who are also familiar with the particular subcultures served by the program.

d. Information on cultural history, traditions, and beliefs should be integrated throughout the program. Programs that include parental involvement should incorporate strategies to strengthen positive ethnic identity. For example, discussions about traditional parenting practices and the historical reasons for these might be incorporated into parenting education classes. Corrective intervention should focus on reframing parenting behaviors rather than devaluing cultural beliefs and practices.

e. The importance of extended family should not be discounted. For example, within the African-American and Hispanic cultures, the notion of family may include extended kinship networks of aunts, uncles, grandparents, neighbors, and friends. Family member participation should be encouraged. The increasing prevalence of young mothers incapacitated by drug addiction has forced many young grandmothers to assume an active role in the raising of the children. In many cases, they must assume this role before they have completed raising their own children. The burden of caring for additional children as well as concern for a drug-addicted daughter can create considerable stress for these young grandmothers. However, the overburdened social system has forced the evolution of this cultural adaptation. The development of parenting (or grandparenting) education, drug awareness, and support programs for these women would enable them to better cope with both drug-exposed children and their drug-addicted parents.

f. The impact and significance of racism and discrimination should be addressed in all programs. There has often been a tendency to develop programs for children of alcohol and other drug abusers as if these children were a homogeneous group with identical needs and experiences.

g. It is important that the programs begin to focus on resiliencies rather than deficits and to design interventions that build upon sociocultural and environmental factors that are protective.

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CHAPTER 7

The Child Welfare Challenge in Meeting Developmental Needs

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While exact numbers are elusive, child welfare providers have no doubt that they are now confronting increasing numbers of toddlers and preschoolers affected by prenatal alcohol or other drug exposure and/or by devastating postnatal environmental factors related to parental chemical involvement. Many of these children have lived in homes and communities permeated by drugs, been subjected to varying degrees of parental abuse or neglect, and suffered unintentional trauma at the hands of the system designated to protect them.

If the worst case scenario holds true, by the year 2000, there may be as many as 4 million cocaine-exposed children in the United States (Dodd 1990). And, of course, cocaine is not the only drug to which toddlers and preschoolers are exposed. Alcohol, a licit drug, continues to pose a substantial developmental threat to prenatally exposed children and brings chaos and disruption into the families of alcohol-dependent adults (Streissguth 1989). The 4 million estimate also fails to address the reality of multidrug availability and parental polysubstance abuse, which significantly increases the likelihood that ever-increasing numbers of dysfunctional families and children will come to the attention of the child welfare system.

The Scope of the Problem for Child Welfare

While drug abuse cuts across all socioeconomic, racial, and cultural lines, children and families hardest hit by the drug epidemic are disproportionately found in impoverished, ethnic/racial communities. The child welfare system is increasingly called upon to address their complex, interwoven, multiple needs (U.S. Advisory Board 1990).

The recent increase in child maltreatment demonstrates that children are too often innocent victims of society's drug problem. In 1989, there were 2.4

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million referrals for suspected abuse or neglect, a 10-percent increase in 1 year. More than 900,000 of these referrals were substantiated, with 675,000 cases involving a chemically dependent caretaker (Daro and Mitchell 1990). In a recently released report, the United States Advisory Board on Child Abuse and Neglect noted that alcohol and other drug abuse are among the most frequently cited primary factors contributing to the increase in child maltreatment (U.S. Advisory Board 1990). This is confirmed by expert testimony offered in dozens of Congressional hearings related to child welfare issues during the past year.

While it is difficult to establish a causal relationship, alcohol and other drug use has become the dominant characteristic in child protective services (CPS) caseloads in 22 States and the District of Columbia (Gall 1990). Overall, it is estimated that between 50 and 80 percent of all confirmed child abuse cases and three-quarters of the child fatalities at the hands of parents known to the child welfare system involve some degree of alcohol or other drug use (Ways and Means 1990). The younger the child, the higher the risk. A study examining case records in Boston found that 64 percent of substantiated child abuse and neglect involved parental alcohol and/or other drug abuse; but when the child was less than a year old, substance abuse was involved in 89 percent of the cases (Herskowitz 1989).

The increase in CPS referrals, the complexity of CPS cases, and the lack of community alcohol and other drug treatment and aftercare resources and family support services have resulted in more children needing out-of-home care. A recently released survey by the American Public Welfare Association and the American Enterprise Institute reveals an overall 29-percent increase in foster care placements over the past 24 months. The authors note that most of the increase has been experienced in communities hardest hit by crack cocaine (Besharov 1990). In 1989, 360,000 children were estimated to be in foster care in the United States (Government Accounting Office (GAO) 1990*a*). By the end of 1990, there were 407,000 children in foster care (*Child Protection Report* 1991). The increase is greatest in urban centers and is largely attributable to substance abuse (*Child Protection Report* 1991). Drug-exposed infants, toddlers, and preschoolers endangered by chemically involved parents are the fastest growing foster care population (Feig 1990; Weston et al. 1989).

In 1980, for example, only 19 percent of all foster children were under the age of 5 years (Mangano 1990). Today, approximately 50 percent of children in care are under 5. It is not known how many of these children have been prenatally exposed to alcohol and other drugs, but we do know that parental drug involvement is a primary reason that these children are entering the child welfare system (Mangano 1990; Feig 1990). For infants known to be prenatally drug exposed, contact with the child welfare system is even more likely. It has been estimated that as many as 80 percent of all identified drug-exposed infants

of untreated chemically dependent mothers will be placed in foster care during their first year of life. In some communities, referrals for this population have contributed to a 3,000-percent increase in the number of drug dependency petitions filed in the past 5 years (National CASA Association 1989).

In addition to the surge in the numbers of drug-exposed children entering foster care, the children who enter care are staying longer. In 1985, the national median stay for children leaving foster care was 9 months and for children remaining in foster care, 1.5 years. Now, children leaving foster care average a stay of 3 years, while children who are now in foster care have been there an average of 4.8 years (Office of the Inspector General 1990). Hard data are lacking to definitively establish the reason for the trend toward substantially longer stays in care. Anecdotal evidence strongly indicates that chemical dependency plays a significant role in debilitating families and making reunification efforts far more difficult. In fact, crack cocaine has merely exacerbated the longstanding problem of meeting the needs of the children of substance abusers. In the 1970s, research studies found that children of alcohol- or other drug-involved parents were in foster care longer than any population, were moved from one placement to another more frequently, and were less likely to return home to parents. They were more difficult to plan for, in large part because of their parents' inability to become an active participant in the planning process (Fanshell 1975).

The Multiple Roles of Child Welfare

The child welfare system, of which child protective services is one part, has broad responsibilities. In addition to investigating abuse and neglect reports and making initial custody recommendations, child welfare agencies and CPS workers are charged with providing support and crisis services to families at risk of maltreatment or disruption, providing a range of substitute care options for children who cannot be protected in their own homes, finding or providing case management services for children in foster care, attempting to reunite children with families, and establishing a permanent plan for a child when reunification is not possible or advisable.

In many States, the multiple, noninvestigative services have been jeopardized by the demands being placed on child protective services. In spite of inadequate resources, the legal and ethical mandate to respond appropriately to all CPS referrals remains. Resources for prevention, early intervention, treatment, and family support services, which were in short supply before the escalation of the drug problem, are rarely available today. Still, child welfare must attempt to stretch limited resources to address the needs of chemically dependent parents, assess the threat chemical dependency poses to the safety

and welfare of the young child, and intervene to protect the child when chemical dependency or other dysfunctional parental behavior places the child in jeopardy.

After intervening to ensure the safety of the child, child welfare must attempt to "undo" the physical, mental, and developmental problems that affect toddlers and preschoolers who have been prenatally or environmentally exposed to alcohol and other drugs. They frequently require a wide range of long-term specialized services to foster improved mental health and physical development. Unfortunately, these services require coordinated multidisciplinary efforts that are often unavailable or inaccessible.

Child welfare must also intervene on behalf of the family and attempt to repair the dysfunctional patterns that contributed to child maltreatment, including chemical dependency. Many of the families coming to the attention of child welfare are headed by single females, who are marginally coping, frequently living in poverty, and often unable to offer consistent care for and supervision of their children. In the initial stages of chemical dependency, their children may be neglected in pursuit of drug-related activities, but not at imminent risk of harm. Unfortunately, at this early stage, when an intervention has the greatest potential of success, the child welfare system has few resources available to strengthen or support the family. These "neglect" cases are often neglected until parental drug involvement escalates, pushing these fragile families over the edge and creating the potential for serious child endangerment.

Following a drug-related negligent death of an infant living with a crack cocaine-dependent mother in Cook County, the Illinois Department of Children and Family Services appointed a committee from the field to talk to the field about parents who were heavily involved with cocaine. The report came back that little works. In-home services, community referrals, judicial orders, counseling, intensive support, and surveillance simply had little impact. These efforts to intervene within the family, given the larger social and economic problems they faced and the progressive nature of untreated addiction, proved to be too little too late. The staff overwhelmingly recommended residential drug treatment for chronic cocaine addicts and child care outside the family during the course of treatment (personal communication with Ina Denton, Deputy Director, September 1989). While this may be the prudent path for protecting the child from physical harm, child welfare and the courts must also determine if, given the unavailability of treatment services, removal of the child serves the long-term needs of the child and the family.

The Context of the Problem for Child Welfare

The child welfare system confronts children of all ages from a diversity of racial, ethnic, and cultural backgrounds, with multiple physical, emotional, social, medical, and developmental difficulties and parents who engage in different patterns of substance use, for varying periods of time, with different consequences for their lives and the lives of their children. In the face of this incredible diversity, range of presenting problems, family composition, strengths, and racial and cultural experiences, child welfare must draw on the limited research available and clinical judgment to develop strategies that will effectively protect and meet the needs of all children referred to the system. And the decisions made must take place within the parameters of a legal mandate.

Reexamining the Legal Mandate

The current child welfare law, P.L. 96–272, The Adoption Assistance Act of 1980, governs child welfare practice and presents particular challenges when a drug-involved child or family enters the system. The passage of P.L. 96–272 dramatically altered the child welfare system. For the first time, agencies were mandated to focus on the broader needs of the child within the family rather than more narrowly on the safety of the child. Underlying the law were assumptions that children grow best in their own families and that most families, given enough support, can be preserved. State child welfare agencies are mandated to make "reasonable efforts" to prevent a child's placement in foster care as well as "reasonable efforts" to reunite the family during specified time periods if foster care is necessary. The juvenile courts are required to determine whether the agency has made such efforts. In addition to this Federal law, many States have passed their own legislation defining "reasonable efforts." There is wide variability among States in the language used, and wide variation among agencies in the interpretation of the requirements. The only consistency among the States is the uniform failure to allocate sufficient resources to meet the requirements of the law.

Despite this inadequate funding, however, agency policies and practices have advanced during the past decade to benefit many children and families. Workers have acquired new skills and learned to make more accurate assessments. Families previously thought to be hopeless responded to a host of new family support services. Through intensive efforts and an attitude of empowerment, workers succeeded in maintaining at-risk children in their own homes. Courts and judges, for the most part, embraced the family focus, and policymakers applauded the results and the potential for containing costs as a result of family

preservation techniques. Most importantly, fewer children were referred unnecessarily to foster care or allowed to drift aimlessly from one placement to another without any efforts to find a permanent home. The numbers of children in foster care were gradually but steadily decreasing.

With crack cocaine, however, the situation has radically changed. Critics now argue that the system no longer meets the needs of the new generation of chemically exposed infants, or toddlers and young children at risk of abuse by chemically dependent parents (Wald 1988; Besharov 1989). Traditional assessment and intervention strategies have proven to be inadequate. Nonexistent or inaccessible resources have often turned reasonable-efforts requirements into a travesty. The child welfare system and the courts, nevertheless, continue to struggle to keep these highly dysfunctional families intact while attempting to minimize the risk of harm to the child.

An assessment of the fit between the requirements of P.L. 96–272 and the needs of drug-exposed toddlers and preschoolers requires a focus on what will maximize the child's physical, emotional, cognitive, and social development. Such an effort inevitably raises tensions between those who advocate family preservation, the primary thrust of P.L. 96–272, and those who advocate reduced barriers to foster care and adoption to facilitate permanent homes and stable environments for children (Wheaton 1990; Mangano 1990). The overriding determinant must be the child's best interest, and the challenge with drug-exposed toddlers and preschoolers is to determine what that means. How can child welfare best promote these children's overriding developmental needs?

Child welfare is being called upon to develop guidelines to clearly outline the specific efforts that should be undertaken to reunite families and the point at which children are entitled to a permanent home apart from their birth family (Mangano 1990; Kroll 1990; Feig 1990; Besharov 1990). Such an effort requires clarification of the legal meanings of "abandonment," "reunification," and "reasonable efforts" to prevent placement and to reunite families, and mandates the establishment of rational, enforceable legal decision points at which a permanent plan will be made (Kroll 1990). Child welfare cannot do this alone. The legal, political, alcohol and other drug, and social service delivery systems must also respond to the problems of chemically dependent families. Decisions must balance the potential serious risks posed by parental chemical dependency, the potential benefit or anticipated outcome of drug treatment, the developmental needs of toddlers and preschoolers, and the long-term consequences of the various child welfare options for the child.

Termination of parental rights, in particular, poses difficult questions. Under P.L. 96–272, State law, and agency policy, it is hard and time-consuming to terminate parental rights, and consequently, less than 10 percent of foster children are actually placed with adoptive parents. A smaller percentage of

alcohol- or other drug-exposed children find permanency through adoption (Besharov 1990). Immediate resort to termination of parental rights, however, is neither legally acceptable nor consistent with the principles that form the basis of child welfare. In addition, the child welfare system has not successfully developed or implemented adoption strategies for special needs children. In the absence of suitable prospective adoptive parents, or policies and practices to support them, questions arise about the validity of "too easy" termination of parental rights. The result may be that the child is left in foster care permanently (Besharov 1990).

The reality of unavailability or ineffectiveness of drug treatment, combined with the uneven path of recovery from addiction, raises additional questions for child welfare. Parents are often mandated to receive alcohol or other drug treatment in order to retain or regain custody of their children. This court-imposed requirement is often made in the absence of available, suitable treatment services. While the parent is waiting for an opening, the child is often in the foster care system, and the developmental clock is ticking. Even if the parent is able to overcome the access barriers, long-term residential treatment is often required, which may mean an extended stay for the child in substitute care. During this time, inadequate attention is given to maintaining or fostering the tenuous mother/child bond, and for the toddler or preschooler, these are developmentally sensitive years (Wheaton 1990).

In other instances, however, parents are not in treatment. Some are simply not motivated to become involved, and for many others, there are no available treatment programs. A 1989 study determined that in 44 States and the District of Columbia, at least 66,766 persons were on waiting lists for drug treatment programs, and half of those persons had been waiting at least 30 days (National Association of State Alcohol and Drug Abuse Directors 1990). For pregnant and parenting women, the resources are particularly scarce. Less than 1 percent of funds under the Federal antidrug strategy are targeted to treatment for women, and for pregnant women, the percentage is even less (Bowsher 1990). In such cases, parents who need and want drug treatment simply cannot get it.

Even when treatment is available, there clearly are no guarantees that a chemically dependent parent will successfully become and remain free of alcohol or other drug use. As an initial matter, there is little information as to what constitutes an effective drug treatment program (GAO 1990*c*). For the heavily addicted or chronic crack cocaine user, traditional treatment models have met with limited success (Besharov 1990). Studies have shown that even after completing treatment, only about 25 percent of crack cocaine addicts are able to remain drug free 6 months after discharge (Koppelman and Jones 1989).

What are the implications of these realties for a system charged with developing a permanent plan for a child within specified timeframes? How long

and how hard should child welfare agencies work to reunite chemically dependent families? How long should the toddler be required to wait for the parent to become capable of parenting? What are the circumstances that indicate that family preservation or reunification should be pursued or should not be? Again, the child welfare system asks, what are the developmental needs of the child, and how can they best be met?

Understanding and Responding to the Child's Needs

When a known alcohol- or other drug-exposed toddler comes to the attention of child welfare, existing research cannot establish with any certainty the long-term impact of prenatal drug exposure, its effect on a child's development, or the extent of a drug-exposed child's developmental potential (Family Impact Seminars 1990). This means that the child welfare system and the courts, who are charged with protecting and providing for these children, have limited solid information on which to base their decisions. No one seems prepared to address the difficult questions of determining what is in the best interest of these children. No one can guide the system in assuring that the child has the best opportunity for overcoming the damage of prenatal exposure. The diagnostic tools that are presently available cannot even detect many of the deficits that drug-exposed toddlers and preschoolers will experience at various developmental stages of their lives (Feig 1990).

Because there is no absolute profile of developmental outcome, there can be no absolute "right" intervention by child welfare. What the body of research seems to indicate is that a small percentage of children prenatally exposed to drugs will be significantly developmentally impaired, a few children will suffer no problems requiring special services, and the majority will fall somewhere in the middle with varying degrees of developmental delays and impairments and variable needs. Since the children of abusers present a continuum of developmental outcomes, it is imperative for the system to avoid labeling or stereotyping. If we know nothing else, we are aware that one child developmental tenet holds true: "Children grow up to be what we expect them to be" (Poulson 1990). Labels tend to ignore the great diversity in the children, their inherent strength, and the power of the environment to affect developmental outcome (Poulson 1990).

It is possible, without labeling, to describe children at risk because of alcohol or other drug abuse as being "low threshold." These children tend to be disorganized, hypersensitive, and hyperreactive to sensory and environmental situations, and to need a protective, secure environment in order to thrive. Small changes in the routine may precipitate a violent reaction. It is believed that the early disorganization has a detrimental effect on the development of attach-

ment, which in turn negatively affects the development of a sense of self and self-esteem. And, it is true that these behaviors may challenge any caretaker (Poulson 1990).

All researchers agree that adverse postnatal environments may exacerbate the original perinatal insult to place the child at increased risk of developmental impairment (Poulson 1990). The interplay between the prenatal and postnatal environment creates "significant potential for biological and experiential barriers or incentives for normal development" (Daumas 1990).

It is well recognized that the general quality of experience afforded young children directly affects their developmental progress, and that relationships with family members are extremely influential in a child's development. Early childhood is a period when parental influence dominates (Oyemade 1990). Children need their parents for nurturance, guidance, and stability. When parental dysfunction, such as chemical dependency, demands that children meet their own needs, or when the demand exists for children to deny their own needs in order to meet those of the parent, thwarted emotional development is likely. Social development and language skills are also linked to parent-child interaction. The child's skills in learning to control aggression and other behavior are also highly dependent on the parent's involvement with the child (Oyemade 1990).

In fact, children who have been prenatally exposed to drugs may be at greater developmental risk from their postnatal environment than from their prenatal drug exposure (Poulson 1990). They may also be at greater risk of abuse and neglect (Richardson 1989). Drug-exposed toddlers and preschoolers frequently engage in behavior patterns that began in infancy, such as irritability, motor immaturity, and resistance to cuddling (Osofsky 1987). Researchers, using the Brazelton Neonatal Behavioral Assessment Scale in assessing drug-exposed infants, have found that "the behavior patterns of addicted neonates are likely to tax the ability of the caregiver to adapt to the infant" (Osofsky 1987). These children, especially, need a safe, secure, predictable environment, where medical needs are met and opportunities are provided to compensate for neurodevelopmental immaturities. To maximize the potential for an appropriate attachment, they require a single, loving, consistent, interactive caregiver (Poulson 1990).

Addressing the Reality of Parental Addiction

A chemically dependent parent may behave in ways that are in contrast with what we know is good for a child's healthy development. When parents are heavily drug involved, their money, time, and emotional investment are often diverted from the needs of the child to the demands of their addiction. No guidance or discipline is provided; daily activities are changeable, dependent on

drug-related pursuits. Even the child's basic need for safety may be compromised (Howard 1989). As one researcher has noted, drugs may essentially "destroy the parent's ability to be a parent" (Feig 1990).

Children entering the child welfare system come from "high need, low resource" families (Anderson 1989). High need refers not only to the family's need for services but also to the impairments from which the parents often suffer, including psychological difficulties, personality disorders, affective instability, behavior dysfunction, and limited capacity to attach to other people (Anderson 1989; Feig 1990). Studies show that a significant percentage of drug-addicted mothers were physically or sexually abused as children and are caught up in intergenerational alcohol or other drug abuse (Feig 1990). Low self-esteem, poor communication, and inadequate parenting skills characterize these chemically dependent parents (Oyemade 1990).

Chemically dependent families also tend to be "low resource." They often lack interpersonal support systems that could help in their parenting roles. They are frequently overwhelmed by their responsibility to provide their child with safe and appropriate physical care, a consistent supportive affectionate relationship, and opportunities for cognitive, social, and emotional development (Anderson 1989). When an addicted high-risk mother is faced with an irritable, unreachable child, "the forces for failure in the parent-infant interaction are predictable at birth" (Anderson 1989). These forces continue to operate as the infant matures into a toddler, then a preschooler.

Children in high need, low resource families may develop a range of coping mechanisms in order to survive in their chaotic environments. However, many of them will have impaired social and psychological functioning as a result of their early experiences. While the coping mechanisms are endless, behaviors frequently found in children of chemically involved parents coming to the attention of child welfare include emotional depression, manifested by a noncaring, defeated attitude; victim behavior, characterized by a desperate need for approval; or antisocial, aggressive behavior, masking underlying depression.

Finding a Balance Between Conflicting Needs

The child welfare system is acutely aware that the developmental problems seen among toddlers and preschoolers may be in part a result of the disruptive and chaotic environments that characterize the child's life with a chemically dependent parent. The child's well-being is compromised on a daily basis by the negative effect of alcohol and other drug use on the mother's caretaking and parenting abilities (Howard 1989; Family Impact Seminars 1990). In working with chemically dependent parents, it is the responsibility and duty of the child welfare professional to assess the extent to which parental chemical dependency

poses an imminent danger to the child and to determine whether the home situation is such that the child must be removed. But the body of evidence that points to the consequences of disrupting an attachment, no matter how tenuous, are also compelling reasons for attempting to maintain and strengthen the parent/child bond.

In deciding whether to remove a child from a chemically dependent parent, the child welfare professional must attempt to balance these conflicting factors and choose the least damaging alternative. At one end of the spectrum are families who are motivated to remain together, are willing and able to access the services needed to gain sobriety, and who have other caretakers willing to assume primary parenting and protection responsibilities until the chemical dependency is addressed. In these "ideal" cases, child welfare must assure that the bond between mother and child is fostered and the family structure preserved. At the other end of the spectrum are families for whom the devastating effects of chemical dependency have eroded both the desire and the ability to parent. When a chaotic, chemically dependent family environment seriously threatens the child's health and well-being, child welfare must act to protect the child's safety even if this requires removal of the child from the home. In this context, child welfare's challenge is to minimize disruptions while the child is in care so that the child's need for continuity in a nurturing environment can be met.

In the majority of cases, however, workers and the courts must make decisions about families whose functioning falls between these two extremes. These are families who are seriously at risk, in terms of both chemical dependency and child maltreatment, but who also have existing and potential strengths. In these cases, individual decisions will have to be made on the basis of agency perceptions about the danger that the chemically dependent parent poses to the child and the system's ability to protect the child in the home. Those perceptions must take into account racial and cultural differences and use cultural nondeficit models in assessing family strengths, including the extended kin environment.

Since the current out-of-home placement alternatives may not function in such a way as to meet the child's developmental needs, efforts to maintain children with chemically dependent families continue to be explored. When provided with intensive services and support, some programs have successfully used the intervention to motivate the mother to become drug free and to foster parent/child attachment (Halfon 1989). According to family preservation experts, successful programs, which offer multidisciplinary in-home services, are appropriate for about 70 percent of the chemically dependent families under certain conditions: (1) the program must first correctly identify workable families, (2) the program must be realistic about the level of maternal functioning,

(3) there must be a long-term commitment to and from the families of at least 18 months, (4) the program must work with all family members, and (5) consistent funding streams must be available (West 1990). In some preservation programs, family maintenance is achieved by relocating families out of drug-infested communities and by accessing funds for needs beyond basic services. Home visiting, as an early intervention strategy, has been shown to be effective in preventing out-of-home placement, while protecting the child from serious harm. Programs have been most effective when there is an appropriate program design and the goals are narrowly defined (GAO 1990*b*). Little objective outcome data exist that attempt to measure the program's ability to promote improved developmental status for the child as a result of the intervention. Moreover, these programs do not work with all chemically dependent parents. Most experts agree that chronic or daily users of alcohol or other drugs that seriously impair functioning are not likely to benefit from such services (West 1990).

The Current Out-of-Home Care Options

Removing children from their parents is never a decision that is taken lightly. Separating a toddler or young child at risk of developmental impairment is even more difficult. However, in some cases, no amount of support can assure the safety of the children within their own home. The following out-of-home placement alternatives illustrate the options available to child welfare when placement of the drug-exposed toddler or preschooler is necessary. There is often no ideal placement alternative. Each option carries with it concerns about the effects of placement on the child. Moreover, placement triggers additional responsibilities and demands on the child welfare system, some of which raise very thorny issues.

Family Foster Care

Child welfare has traditionally relied on family foster care as the out-of-home placement of choice, especially for young children. Foster families, however, are in increasingly short supply. The shortage of foster parents is particularly acute for special needs children such as drug-exposed toddlers and preschoolers. As a result of this shortage, more children are placed in each of the available foster family homes, and children sometimes must be shifted from one home to another. In addition, many heavily drug-involved women are engaging in unprotected sex and are having closely spaced babies who suffer the effects of prenatal drug exposure. Few foster families are able or willing to assume responsibility for several drug-exposed youngsters in order to keep siblings together. And few chemically involved parents can be supported enough to enable them to care for multiple drug-exposed children.

There are several reasons for a shortage of foster family homes. Low reimbursement rates are the most commonly cited explanation. Although the needs and expense of caring for chemically exposed infants are well documented, adequate reimbursement for care has not been forthcoming. Many foster parents have not qualified for higher rates because at the time of placement, the child showed no evidence of requiring specialized care. As many as 70 percent of the drug-exposed newborns appear healthy at birth, and many toddlers and preschoolers may not exhibit the full extent of their developmental deficits until they are older (Halfon 1989). In addition to the financial drain, foster parents also cite lack of training and support services, such as day care, respite care, transportation, and access to health and mental health services, as reasons for not accepting or keeping these toddlers and preschoolers.

Some communities have acknowledged the difficulties in caring for these difficult to manage children in traditional foster homes and have developed specialized homes with highly trained parents who work in partnership with multidisciplinary professional staff. These specialized foster families receive higher reimbursement rates, respite care, and extensive training in the special care of their children. The San Francisco "Baby Moms" program has had success in achieving placement stability. The program has succeeded in providing medical, emotional, and supportive care to infants and, where appropriate, to birth parents. "Baby Moms" has worked to reunite families where feasible and has provided stable, long-term care when reunification has not been possible (Johnson 1990). Programs like "Baby Moms" are not widespread, but this model provides an example of the type of program that can be developed to effectively meet the needs of drug-exposed children.

Kinship Care

The placement of chemically involved infants and other children with a relative is an option that is receiving increasing attention. In some jurisdictions, it is mandated as the placement option of choice. In theory, relative placement has a psychological advantage for the child in terms of maintaining the connection to biological roots, and it may offer more placement stability than is currently found with nonkin foster families. However, in planning for the long-term needs of the child, decisionmakers must assume a wait and see attitude, since developmental outcome data are currently lacking.

In spite of the lack of objective research to support this practice, approximately half of the cocaine-exposed newborns, for example, are discharged from hospitals directly into the care of relatives, usually the maternal grandmother (Office of Inspector General 1990). Reimbursement for relative care is variable from one jurisdiction to another. Some cities provide full foster care reimburse-

ment for State-approved relative homes; in other cities, relatives are only eligible for the lower AFDC reimbursement. The financial toll combined with the special care needed by these infants often puts an insurmountable burden on relatives. The system has been slow to respond to the needs of these caregivers.

Kinship care is also not without controversy, and the criticisms come from different camps. On the one hand, some critics assert that a payment/monitoring system delays reunification with the mother, causes family conflict, unduly intrudes on a family's privacy, and fails to assure the safety of the child. On the other hand, alcohol and other drug specialists point to the intergenerational nature of chemical dependency as a source of concern and as the justification for investigation prior to placement and ongoing monitoring to assure that the child is not subjected to the same environmental factors that contributed to the parent's chemical dependency.

Residential Care

In 1962, Sally Provence and Rose Lipton published Infants in Institutions. In the introduction, they stated, "The family . . . is the setting in which babies can best be provided with the care and influences that support and foster good development. It becomes increasingly hard to provide such care as we get farther away from this model" (Provence 1989, p. 1). In a recent article, Ms. Provence revisited the concept of residential care for children and infants. While still acknowledging the difficulty in providing individualized care in a group setting, she stated, "Given the current state of knowledge about infant development and our appreciation of the many and complex experiences that constitute good caregiving, we may find that residential care may be a placement of choice for infants in some circumstances" (Provence 1989, p. 3). She included drug-exposed infants who cannot be kept at home in that category. She concluded that good residential care is preferable to a series of short-term foster home placements with the inevitable disruption that occurs with each separation (Provence 1989, p. 4).

To relieve the alarming overcrowding in family foster care homes and overstays in hospitals, temporary therapeutic infant and toddler shelter care programs have been developed as a part of a comprehensive continuum of care. These programs have demonstrated that a congregate care environment can be structured to meet the unique and individual needs of the children it serves, while attempting to strengthen or maintain the family bond. One advantage that quality congregate care facilities have is the capacity to engage a chemically involved parent in the planning for and care of the child to the extent that the parent is willing and able. For many families, the congregate care center can offer family support, often beyond the time the child is in care.

Placement in congregate care is designed to enable the child to remain in one place with a consistent, limited number of caretakers until a permanent plan is made. In these programs, it is anticipated that the infant will be discharged to the parents, adoptive parents, relatives, or permanent foster parents within 6 to 12 months. When this does not occur, alternative plans must be made for the child. This may mean that the child must be moved to another placement.

Adoption

Up to now, adoption has rarely been an option chosen for the drug-exposed children of chemically dependent parents (Office of Inspector General 1990). Termination of parental rights is frequently contested and usually takes at least 3 years after the initial removal from a parent's custody. This legal limbo often exists even in cases where parents are clearly incapable or unwilling to parent. Another obstacle is the fear of prospective parents about the long-term effects of drug exposure and the possible need for expensive medical, educational, and psychological care. In addition, most child welfare policies now support the placement of children with same race, same culture parents. If adoption is to become a viable option for large numbers of alcohol- or drug-exposed children, predominantly from racial/ethnic populations, massive recruitment efforts will be required to attract sufficient parents from these groups.

Despite the obstacles, Joe Kroll, Executive Director of the North American Council on Adoptable Children, argues that "permanent, caring, adoptive families are out there. We simply need to identify them, support them, and promote public policies that facilitate these placements" (Kroll 1990). Many agree that adoption should be an option for more of these children.

Obstacles to Meeting the Child's Needs

Given the realities of the circumstances that now threaten the health and welfare of children and the absence of an existing ecological approach to assist families, the child welfare system is being asked to intervene and, in effect, "fix" family problems on multiple fronts. This expectation is occurring at a time when Federal and State policies have resulted in budget limitations. Programs and staffs have been caught between fiscally driven cutbacks and need-based demands for services (Weston 1989). In spite of the constraints, the urgency of the cases demands that workers be supported to fulfill their responsibilities. The recent problems with crack cocaine have merely exacerbated a longstanding problem within the system. Child welfare workers simply do not have the specialized knowledge, skills, training, supervision, or support to effectively intervene with today's multiproblem, chemically involved children and families.

A series of obstacles, when combined, are jeopardizing the system's ability to protect and serve these at-risk infants and families. Many of the obstacles are due to a "lack of"—a lack of workers to handle the referrals; a lack of training and knowledge of alcohol and other drugs and addictions; a lack of courts and judges equipped to make sound decisions regarding chemically involved families; a lack of adequate resources, including available, accessible drug treatment for uninsured or indigent people, to meet the requirements of the laws; a lack of coordination of existing services; and a lack of available options when the decision to remove the child is made. And finally, a lack of knowledge and consensus on what is in the best interests of the child.

Absent an early intervention and prevention strategy that eliminates chemical dependency and the host of problems it engenders for children, child welfare must be prepared to address the long-term needs of drug-exposed children through its various interventions. In spite of the best intentions, certain aspects of the system negatively affect a drug-exposed child's ability to form a significant attachment or maximize developmental potential.

Overwhelmed foster parents, overcrowded/understaffed congregate homes, multiple placements, and the separation of siblings can only compound the risks to the child. While the system strives to place infants and young children temporarily with consistent, responsive, loving caretakers, regardless of the setting, until reunification or relinquishment takes place, this is often far from reality.

First, it is well recognized that once in foster care, drug-exposed children tend to remain there. One New York City study found that 60 percent of the babies discharged from a hospital to foster care were still in care 3 years later (Besharov 1990). In fact, if drug-exposed children return to their parents, the return home will usually occur within 6 months to 1 year of placement. After that, reunification is not likely.

Many children in foster care will have multiple placements, a factor that can have a profound impact on drug-exposed toddlers and preschoolers. A summary of data from 23 States for fiscal year 1985 revealed that for the 166,222 children in foster care in those States, 22.2 percent were in their second foster care placement, 20.3 percent had experienced two to four placements before their current placement, and 5.8 percent had had five or more previous placements during the preceding 3 years (Jataro 1990). In some areas, the average number of placements is even higher. In the New York City study, for example, 56 percent of the children in foster care had been in at least two placements, 20 percent had been in at least three placements, and one child had been in eight foster homes (Besharov 1990).

If the child is a crack cocaine-exposed baby left in the hospital for an extended time, it is almost inevitable that the child will have at least two placements. Because of the limited number of foster family homes available, particularly in large urban areas, many of these infants are placed in temporary congregate care homes where children generally remain only until a family foster home can be found. Given the lack of homes, many infants remain for months, often developing an attachment to their caretakers only to be removed with little or no transition. There is, as a result, an inevitable disruption in the child's life.

Moreover, continuity is still not guaranteed at that point. There are many reasons for disrupting placements, but with fragile drug-exposed infants or difficult toddlers, administrative policies may contribute to negative results. For example, a foster parent who cares for a drug-exposed child with needs for special services may qualify for higher reimbursement rates. With excellent care and followup, the child may improve and no longer require or qualify for special services. Administratively, this improvement may mean that the foster parents lose eligibility for higher reimbursement and, with a marked reduction in compensation, the foster parents may find that they can no longer care for the child. The result is another disruption in the child's life.

Even without negative policies, disruptions for this population are likely. When a caregiver is "turned off" by a demanding, nonresponsive child and is unfamiliar with practical methods of caring for such a child, the infant may be neglected or returned to the system as a "failed" placement (Edelstein et al. 1990).

When children are in substitute care, insufficient effort is made to foster their attachment to their parent. While regular, often weekly, visitation is offered, it is not aggressively pursued by the system or the caregivers. When visits do occur, parents may feel more connected to their children, and agencies may also benefit from the opportunity to observe the parent/child interaction. It is less clear that the visit serves as a meaningful experience for the child. As attachment theory seems to indicate, the child's trust, love, and identification are based on consistent, day to day relationships, and not on isolated, inconsistent contact. If reunification is the goal, the system must find more meaningful ways to support the relationship during the period of separation.

In summary, the area of permanency planning with drug-exposed children is fraught with difficult issues in light of the mandates of P.L. 96-272, the overarching principles that have traditionally guided child welfare practice, the unique needs of the children and families devastated by drugs, and the limited range of options available to the child welfare system.

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Promising Approaches

Leveloping an Ecological Approach

Alcohol or other drug dependency is only one of many serious and longstanding problems confronting families who come to the attention of the child welfare system. For many, chemical dependency arises in a context of poverty, substandard housing and homelessness, the absence of community and family support services, and pervasive feelings of alienation and hopelessness. Chemical dependency often occurs in communities that have little to offer and that tend to be rundown and dangerous. These communities are rejected by the larger society, and the families who live within them experience the same sense of rejection. Chemical dependency adds to the sense of powerlessness and social isolation that these families experience. Rehabilitation of the families with whom child welfare works often must encompass efforts to address these broader issues. To be effective, child welfare efforts to address family chemical dependency and its effects on children must include access to a wide range of preventive and supportive services including drug education; prenatal, perinatal, and pediatric care programs; parental support centers; parent education; employment and educational counseling; assistance in locating adequate housing and transportation; and access to income resources (Wheaton 1991; Feig 1990).

The challenge to child welfare is to begin to develop an ecological approach to working with families within communities that addresses the underlying problems that give rise to dysfunctional patterns that threaten the well-being of families and children and place them at increased risk of chemical dependency. Such an approach would entail a broad-scale reexamination and restructuring of family service delivery systems as a whole. Child welfare, as is the case with any other service delivery system, cannot alone develop, implement, and fund an ecological approach to the problems that intensify the problem of chemical dependency in families. This effort requires legislative and policy commitment, the development of comprehensive and multidisciplinary service delivery systems, and interagency coordination.

Promoting Cultural Competency

In deciding what is in the best interest of children in the child welfare system, policy decisionmakers must bear in mind that families from ethnic/racial populations are disproportionately affected by chemical dependency and these children are disproportionately involved with the child welfare system. Because of these factors, the child welfare system and other service delivery systems

must be sensitive to the ethnic and cultural diversity of drug-exposed children and be aware of the history, beliefs, values, communication, and behavior patterns that characterize the racial and cultural groups from which these children come.

These factors must enter into the decisions that the child welfare and other systems make regarding the nature of the intervention into the family. Determinations must be based on an understanding of not only the differential effects of alcohol and other drugs but also on an understanding of the racial and cultural background of the family.

When working with African-American families, for example, child welfare has realized greatest success when the service takes place in a cultural context and adopts a culturally relevant or nondeficit perspective on African-American culture (Gray and Nybell 1990). Workers have been able to enhance family functioning and assist in preserving families when they understand the structure and function of the families, including the extended kinship network of blood-related and non-blood kin and the extent to which African-American community resources, including the church, media, and expressive arts, can be mobilized to assist African-American families (Gray and Nybell 1990).

Cultural sensitivity is particularly important in decisions relating to out-of-home care. It is not a matter of debate that children of ethnic/racial populations are more likely to be removed from their homes and kept in care longer than White children. The system must begin to respond to the bias inherent in reporting, investigating, and intervening with families of color.

Creating a Nondeficit Conceptual Framework

Deficit models are as dangerous in addressing the needs of at-risk alcohol- or other drug-exposed toddlers and their families as they are in thinking about any group of children (Weston 1989). Too often deficits are used as an excuse for inaction or inappropriate action. Instead, child welfare must use a risk model, which recognizes that the fetal exposure or postnatal environment may compromise or place the child's developmental process in jeopardy, but that appropriate interventions can significantly improve the child's and the family's potential. "Risk" must not blind the system or the decisionmakers to the strengths inherent in the children and their families.

Regardless of the intervention chosen, child welfare should encourage and support all caregivers in providing opportunities that can maximize the child's development. Training should empower and encourage caregivers to foster healthy attachments and feelings of self-worth.

Building on Prevention Efforts

Preventive services are critical to the health and well-being of children. Although some drug-exposed children may be able to reverse some or all of the drug-related impairments with early intervention and special services, many physiologically and psychologically impaired children will not improve, irrespective of how much intervention they receive (Hamilton 1990). Therefore, prevention services aimed at prenatal drug abuse must be available in order to make a difference.

Because child welfare is mandated to fulfill other functions, it has had few, if any, available resources to draw upon to deliver the primary prevention services necessary to effectively prevent parental chemical dependency. The challenge is to determine how the resources within the child welfare system can be allocated so that meaningful primary prevention services can be rendered and, assuming that the additional resources become available, to define the role of child welfare in preventing not only chemical dependency but other conditions that place children at risk, such as homelessness and poverty. Child welfare must explore opportunities for coordinated prevention strategies that include the public health, housing, income assistance, vocational rehabilitation, mental health, alcohol and other drug abuse treatment, and education systems.

Conclusion

The dramatic increase in the number of drug-exposed or at-risk infants, toddlers, and young children endangered by parental chemical dependency has stressed an already overwhelmed child welfare system. The impact is being felt across service lines and geographic locations. Rising demands combined with inadequate human and fiscal resources have created a system under siege. Further complicating the situation is the fact that within the community of caregivers, there are legitimate areas of disagreement, unresolved questions, ethical and legal dilemmas, and a lack of clear direction regarding effective prevention and intervention strategies or policies for best meeting the needs of this population.

In summary, to meet the multiple challenges, the following are needed:

1. *Increased knowledge.* The lack of information on the extent and nature of the effects of alcohol and other drugs on toddlers and preschoolers has hampered child welfare in developing and implementing effective programs to address the needs of chemically dependent parents and their children. More information is needed to make sound policy and practice

decisions for this group of young children who are developmentally vulnerable.

2. *Placing the drug epidemic in context.* The problems caused by alcohol and other drugs are interrelated with other longstanding societal problems. Child maltreatment and family dysfunction are associated with poverty, family and community dysfunction, homelessness, and a host of other factors in addition to chemical dependency. These families and communities, disproportionately from ethnic/racial populations, are the least likely to be able to access the drug treatment, mental health, and family support services they need. Society's piecemeal response to chemical dependency illustrates the lack of commitment to providing basic supports and access to needed services to strengthen *all* families.

3. *Shifting of priorities.* The medical, legal, social, educational, and economic costs associated with chemical dependency suggest that increased allocation of resources and services is needed early in the lives of children and their families. Preventive services and early intervention provided on a multidisciplinary basis are essential to truly effective intervention into the range of problems that chemical dependency creates for children.

4. *Unified efforts.* Finally, in light of the current lack of human and financial resources and the gaps in knowledge, policymakers and providers must avoid the temptation of pitting one service area or population against another. What is urgently needed is adequate funding for the whole array of services, objective outcome data to determine which intervention is most appropriate for which population, and continued discussion and debate among all disciplines to reach consensus on unresolved issues.

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CHAPTER 8

Educational Policy Issues in Serving Infants and Toddlers Born Toxic-Positive to Drugs

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On October 1, 1990, the House-Senate Conference Committee recommended passage of H.R. 1013 (S. 1824), to be known as the "Education of the Handicapped Act Amendments of 1990." This bill generally reauthorizes activities and regulations included in the landmark Special Education Legislation, known as P.L. 94–142.

Overall, H.R. 1013 represents an acknowledgment that the problems of children with disabilities are less tractable and more complex than envisioned when 94–142 was written. This is evidenced by significant additions in the areas of teacher training, evaluation and research, and technical assistance centers. Most significantly, for the first time, it acknowledges three related issues affecting school districts that serve large numbers of ethnic/racial, especially African-American, children:

1. African-American children comprise a disproportionate number of students who are classified as "children with disabilities."

2. The proportion of African-American professionals working in special education has been declining over the past several years.

3. School districts now experience and will continue to experience growing numbers of children who were born toxic-positive to drugs and who need special education services.

The interrelationship of these three issues has been clear to practitioners for the past several years. If one were to view public school education under an input-output perspective, schools are expected to fashion the raw materials of youngsters into productive citizens. For much of the population, this model of the role of public education appears to be supportable. However, in recent years, we have become increasingly aware that for some segments of the population,

public education has either not worked or has actually contributed to children growing into dysfunctional adults.

On Friday, November 2, 1990, the Oakland Tribune reported that "One in three young black men in California is either in jail, on probation or on parole." In contrast, the figure for "Anglos is 5.4 percent and for Latinos, 9.4 percent." The study on which the report was based found that the numbers had more than tripled in the past 10 years. Today's 18-year-old African-American man was in second or third grade in 1980. He was more likely to have been identified as "educationally handicapped" than his Anglo or Hispanic peers. He was more likely to have been retained in a grade than other students. He was, in fact, more likely to have found his public school days to be an experience which alienated him from the mainstream culture. This young man represents some of the "output" of public education.

It should not have been surprising that in the mid-1980s, when crack cocaine became easily available, it met a large group of 13-year-old African-American boys whose teenage rebellion was intensified by the low self-image they had gained from failing in the public schools and who had quite reasonably given up on the system for more immediate and tangible rewards. It is not surprising they looked to drugs either for escape or for a way to attain the trappings of financial success.

While the tragedy of this lost generation of young men should, in itself, have been sufficient to prompt Congress to reexamine the Special Education Programs and their effects, the tragedy is not contained within this one generation. The dysfunctional effects of the use of drugs and low self-esteem have spilled over to young African-American women and to a new generation of children. African-American girls have traditionally had better luck with the educational system than their male counterparts. However, they are disproportionately affected by dysfunctional families. As teenagers, these girls face the same pressures toward sex and drugs and away from school that are faced by all girls. However, the boys they date have often found education to be futile, and the goals of steady job and nice house seem vaporous at best when compared to the instant pleasures of sex and drugs, especially crack cocaine.

This group of teenage girls—mothers—of the mid and late 1980s has begun the cycle of creating a new generation of tragedy. The difference is that this generation has entered the world with disabilities. Thus, unlike the present fathers, who were alienated from the system by their educational and social experiences, the new generation enters with a double or triple deficit to overcome: they have unknown neurologic effects from the drugs they received in utero which may affect their learning; they are being raised by young mothers who, because of their drug use and inexperience, are least able to care for the children; and the drug effects often make these children difficult to nurture. The

consequence is that those least able to raise infants find themselves with the most difficult infants to raise.

As this new generation of 2- to 5-year-olds enters the system through daycare and school, they face a most formidable task. Not only do they need to work through the same system that ground down their fathers, they are approaching the task with unknown and unpredictable neurologic deficits and with teenaged mothers who are unprepared to care for them and no longer willing to try.

The House Report speaks of the "alarming increase in the number of women who use drugs during pregnancy" since crack cocaine became a drug of choice. A nationwide survey conducted in 1988 found that 11 percent of the deliveries in hospitals (375,000) were affected by alcohol or other drug abuse. The House recognized some of the problems both the children and their schools face when these children enter the educational system. Clearly, however, the House is addressing the problem exclusively from the viewpoint of the child.

> Complications from [in utero drug] exposure have included premature birth, low birth weight, neurological impairment, and delayed development. . . . At the age they begin preschool, these children face a wide array of emotional and physical problems, most of which are only now beginning to be understood. Children exposed to crack cocaine *in utero* are known to be easily distracted, passive, and face a variety of visual-perceptual problems and difficulties with fine motor skills. They often display problems with learning, concentration, hyper-irritability, and development delays. (House Committee Report, H.R. 1013, page 34)

The Committee Report only begins to scratch the surface of the problems these children and the institutions charged with serving them will face. A study conducted by the Los Angeles Unified School District's Division of Special Education found that while there was no typical profile of a drug-exposed child, characteristic behaviors included heightened response to internal and external stimuli, irritability, agitation, tremors, hyperactivity, speech and language delays, poor task organization and processing difficulties, problems related to attachment and separation, poor social and play skills, and motor development delays. Obviously, much intensive intervention will be necessary.

The Committee relied on its findings to encourage the funding of "early intervention school-based and other model demonstration programs that address the unique needs of these children" and encouraged the Secretary of Education to develop strategies "which facilitate the transition of these students to a regular education setting." One of these strategies will be related to the roles played by medical personnel specializing in infants (Section 623(b)).

In addition to the technical assistance grants and contracts to be funded in section 623(b), the House Committee encouraged the States to fund demonstra-

tion grants and model intervention programs for infants and toddlers under Part H, sections 671 and 672. However, grants funded under Part H will be at the discretion of States and will be taken from the basic grants to the States.

While the new legislation has finally recognized the serious problems faced by both children and schools in meeting the needs of drug-exposed students, it seeks to address these needs with few new dollars. Such money as will be made available for direct-service grants will come at the expense of other funding to districts for special education. As the current costs for running a Special Education Program in a district far exceed the resources provided through P.L. 94–142 funds (for example, Ravenswood, a School District of only 4,000 students, expended some $350,000 in general fund money to supplement that provided by the Federal Government in 1989–90, an experience mirrored across the United States), we can expect that the States will provide few grants under the new legislation.

Further, the new Act still addresses the needs of these children in isolation from their families. The new legislation appears to assume that the primary contributors to the problems the children will face are the changes brought about by the children's exposure to drugs.

From the little that we have learned both through direct experience with our school-based Parent-Child Intervention Center and from other programs in California, it appears that the nurturing (or lack thereof) provided by mothers to their drug-exposed infants may be at least as much of a contributor to the child's later developmental delays as the toxicity of the child at birth. This finding is consistent with the current disagreement in research findings. Thus, programs that focus on interventions only for the infants may be as ineffective as some of the educational interventions these children's parents suffered through some years ago.

We have found that the young mothers are sometimes more worried about their next high than they are about feeding and caring for their difficult infants. The mothers often lack basic knowledge about proper hygiene for infants, have been seen attempting to feed hamburgers and salad to 4-month-old infants when they run out of formula, and fail to understand the need for stable sleep routines for their children. Routines established during the 5 or 6 hours infants are in the care of the school district are ineffective when not continued after the infants leave the center.

We agree with the House Education Committee's concerns about the caregivers of special education children generally and about drug-exposed children in particular. H.R. 1013 notes that while African-American children comprise an increasing and disproportionate segment of the special education student population, the number and proportion of African-American teachers for these

children has been decreasing precipitously. Many of the current teachers, educated in the 1970s and 1980s, lack even basic information about African-American and Hispanic cultures within the United States. The result is that cultural miscues abound, and the children historically most alienated by the culture of schools lack even token numbers of adult role models among their caregivers. H.R. 1013, in recognizing this problem and providing funding priorities for Historically Black Colleges and Universities that train teachers, has taken the first step in reducing the number of children who are misplaced in special education programs. If the initiative is successful, school districts will be able to draw on the expertise of trained African-American professionals in addressing the more complex needs of this new generation of drug-exposed youth.

In the near term, even within the confines of its traditional modes of intervention, it appears that school districts will be ill prepared to address the needs of the first waves of drug-exposed infants. If the figures cited in the House report typify the annual numbers since the crack cocaine epidemic began in 1986, school systems will be receiving 300,000 students who were born drug exposed as early as 1991. If our experience in Ravenswood is similar to that in other OSAP programs, it appears that crack cocaine toxicity is disproportionately a problem among African Americans.

In contrast to the traditional intervention approach focusing on direct service to children, the mother is now seen as the linchpin in this new twist to the "nature-nurture" controversy of the late 1960s, and particularly the mother as caregiver to her infant. Focusing an intervention program through the child, and particularly through an educational childcare program, offers the best promise for the later success of children born toxic-positive. This approach uses the emotional resource of a community institution—the public school—rather than a social service agency as the focal medium. The childcare site performs the function of providing a safe haven for the young mothers to learn the parenting skills they so sorely need to successfully raise their toxic-positive infants and toddlers.

Because schools are viewed by the community as legitimate centers for educational interventions, the mothers can feel comfortable about being seen entering them for various types of counseling and to participate in the health exams of their children. The schools also have access to the resources needed to provide the mothers with job training or schooling. This component has been proving itself essential both because of the future prospects, and because mothers left to their own resources most of the day often turn to drugs out of boredom. Obviously, schools alone cannot provide the entire family counseling/parent training/vocational program that the mothers need to more effectively raise their infants. For this reason, Ravenswood reached out to the county

319-602 0 - 92 -- 7

agencies that already serve this population—Child Protective Service and the Public Health Department. This model of a cooperative venture may be the only way we can afford to provide the level of service these children and their parents need.

As the mothers who have been giving birth to toxic-positive children often have more than one child, it is critical that intervention programs extend for several years and that they provide the mothers with the skills and mothering tools they need to not only raise the child we now serve but, more importantly, to move out of the drug culture entirely. The Education of the Handicapped Amendments of 1990 go a long way in recognizing and legitimizing the problem. The approach described here offers a better prospect of successfully addressing the problem.

CHAPTER 9

Advocacy on Behalf of Drug-Exposed Children: Legal Perspectives

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The epidemic of drug abuse that has swept across the United States beginning in the mid-1980s has had its most devastating effects upon the young. Far more than opiates or other substances, usage of "crack," a smokable derivative of cocaine that has been called the "junk-food of the drug business,"[1] has become especially pervasive among young people, particularly women of prime childbearing age, that is, 16 to 25 (Plaut and Kelley 1989). A new generation of cocaine-exposed children, now approaching school age, is growing up with a myriad of special needs. As a wealth of medical evidence demonstrates, these children have a disproportionate share of physical and developmental disabilities and present special challenges to the legal system.

The intense debate over appropriate legal responses—for example, civil child abuse and neglect actions, criminal prosecutions of mothers for prenatal transmission of drugs to infants—have strained the already delicate balance existing between the rights and interests of children, their parents, and the State and have all too often left unanswered questions of how to secure vital treatment and other services to meet the critical needs of these children. This chapter addresses this dilemma from the standpoint of the children's legal advocates, delineates the role of attorneys for children in drug-exposure cases, and articulates an appropriate role for the legal system in meeting the needs of these innocent victims of the scourge of drugs.

Needs of Cocaine-Exposed Children

Children who reach the age range of focus of this conference, that is, 2 to 5 years old, have already overcome significant odds. The risk of infant mortality, exacerbated by the prematurity and low birth weight endemic to this population, is considerable. Sudden infant death syndrome may be 5 to 10 times more likely to occur among cocaine-exposed than drug-free infants and is considerably more prevalent than among infants exposed to heroine or methadone (Chasnoff 1988; Howard 1989; Chasnoff et al. 1987, 1989*a*).

Hepatitis, syphilis, and HIV, transmitted in utero, correlate highly with, although they are not directly caused by, cocaine exposure due to the frequent polysubstance abuse and sexual activity of crack cocaine users. Indeed, AIDS is the ninth leading cause of death among children aged 1 to 4 and, within 3 to 4 years, is expected to be the fifth leading cause of death among Americans up to the age of 24 (Plaut and Kelley 1989; Chasnoff 1988; Revkin 1989).

Congenital deformities, such as the absence of middle fingers and malformed kidneys and genitals, as well as serious motor difficulties, have been observed in disproportionate numbers among cocaine-exposed infants (Howard 1989; Chasnoff et al. 1989*b*; Bingol et al. 1987; Brody 1988). However, the greatest challenges to policymakers and to the legal system may stem not so much from the serious medical difficulties encountered by drug-exposed children as from the severe neurobehavioral deficits they experience. While displaying normal although low-range intelligence, many cocaine-exposed children display such severe deficits in relating and reacting to adults and their environments, as well as in organizing creative play, that they resemble mildly autistic or personality-disordered children (Howard 1989; Howard et al. 1989; Chasnoff 1987; Blakeslee 1989).

Although it is premature to assess whether the emotional and organizational deficits manifested in cocaine-exposed children are entirely reversible, it is clear that early intervention, both in preschool and medical milieus, has proven promising. The Perinatal Center for Chemical Dependence in Chicago, for example, has developed specialized protocols for caring for, and training parents or other caregivers in caring for, cocaine-exposed infants—methods that have shown progress in addressing the infants' agitation and rapid mood swings and facilitating bonding, stimulation, and capacity for engaging in play (Schneider and Chasnoff 1987).

The Northside Early Childhood Center in Harlem, a preschool program for children with learning disabilities, many of whom were exposed to crack cocaine before birth, has had demonstrable success; half of its graduating 5-year-olds have been able to enter regular, rather than special education, kindergarten classes after 1 year of intensive one-on-one intervention (Hemphill 1990).

Although preliminary indications from research at Brookwood Child Care, a Brooklyn foster care agency, imply that perhaps half of the drug-exposed children develop *without* drug-induced developmental delays (Hemphill 1990), it is clear that a large number of the children will require special education, as well as other medical and therapeutic assistance, during their critical preschool years. While a few model programs exist or are in development nationally, waiting lists abound, and many children remain unserved.

Special education services are not yet in place to handle the influx of drug-exposed children now entering their preschool and school years. Public Law 99–457, the 1986 amendments to the Education for the Handicapped Act (EHA), mandate, under Section 619, that States provide comprehensive services to children aged 3 to 5, either directly or by contract, or face a loss of their entire EHA allocation. Family involvement must be encouraged and individualized education plans must encompass teaching parenting skills, if appropriate.

Part H of the Act requires that, during a 5-year phase-in period, States must provide a comprehensive range of child and parenting services to children from infancy through age 2 exhibiting developmental delays in one or more areas and may provide services to children at risk of such delays. Individualized family service plans utilizing a "least restrictive alternative" standard must be developed within 45 days, with a multidisciplinary assessment and significant parental involvement. New York, California, Florida, New Hampshire, New Jersey, Oregon, and Utah are in their third year of planning. All other States are in their fourth year, during which programs must be put into place in readiness for the fifth year, when such programs must be available to all who are eligible. However, as the Mental Health Law Project has documented, compliance with the planning provisions and timetables of Public Law 99–457 has been erratic nationally (see, generally, reports of the Early Intervention Advocacy Network of the Mental Health Law Project, Washington, DC; Morrow 1990).

Likewise, many of these children require child welfare services, which are all too often not available in their communities. Preventive programs geared to avert the need for placement by providing intensive assistance to parents and children together are insufficient to meet the ever-growing need. "Home-builders" and other community-based models exist, but on a small scale. Comprehensive programs providing a multiplicity of needed services, including drug treatment, both for pregnant women and women with small children, are scarce.[2]

While empowering more families to care for children at home is critically important, appropriate foster care options need to be enhanced for those children who require it. Child abuse and neglect tripled nationally between 1986 and 1988; in New York City, the child abuse and neglect caseload of the Legal Aid Society's Juvenile Rights Division jumped more than 600 percent between 1983 and 1989. These increases were largely traceable to the crack cocaine epidemic, as two-thirds of the Juvenile Rights Division's child protective cases included allegations of parental substance abuse.

A similar percentage of cases resulted in placement of children out of their homes, putting incalculable strains on an already-overburdened foster care system (Kerr 1988; Fink 1989). New York City, Los Angeles, and Washington,

DC, were not alone among metropolitan areas caught with insufficient foster homes when the crack cocaine epidemic hit; unfortunately, "boarder baby" became a nationally recognized term. Enhanced foster home recruitment efforts, prompted at least in New York City by class action litigation, have eased the shortage of foster homes for these babies and young children bounced from one overnight placement to another. However, continued vigor must be accorded this effort if the supply of homes is to keep pace with the ever-increasing demand so that children are not relegated inappropriately to congregate-care settings.

While drug exposure per se does not dictate the need for foster care, many cocaine-exposed infants are abandoned at birth and appear to face no alternative. The pervasive pattern of multigenerational drug use,[3] effectively converting some homes to "crack dens," places an additional segment of this population in imminent risk if they remain at home.

Optimally, foster care for drug-exposed children should be therapeutic and geared to meeting their special needs, but therapeutic foster home programs, such as the cluster or satellite model of community-based homes sharing clinical and preventive services utilized by the Center for Family Life in New York City, are in their infancy. Kinship foster homes represent an untapped resource for many children who otherwise might require placement with strangers, but these homes, too, must be carefuliy screened, supervised, and therapeutically supported. As a result of a lawsuit, as well as legislative and regulatory reforms, New York City currently places approximately half (more than 20,000 children) of its vast foster care population in kinship foster homes, but problems remain in securing prompt evaluations, adequate supervision, and clinical and financial resources for these homes.

Role of Attorneys for Drug-Exposed Children

The acute medical, educational, and affective needs of drug-exposed children compel an especially rigorous role for counsel, even for children in a preverbal stage of development. Counsel is critical in order to secure children's entitlements proactively and to protect their rights and interests in the many cases that reach the juvenile and family courts. However, assurance of adequate counsel for children in child protective proceedings nationally and, in particular, for children with special needs, including many of the drug-exposed population, remains an elusive goal. Many of these children have no access to effective advocates.

Despite the impetus of the children's advocacy mandate of the Child Abuse Prevention and Treatment Act of 1974 [42 U.S.C. 5101–5115], while 41 States have enacted mandates for representation of children in child protective proceedings, only 25 of these require the advocates to be trained attorneys, and

only 2 of these States (New York and New Jersey) specifically include articulation of the children's wishes as part of the attorney's function (Fink 1989; Butz 1982). While lay advocates, such as Court Appointed Special Advocates, can be helpful in performing certain functions, including monitoring compliance with court orders, children require attorneys to assure that their rights and interests are protected on a par with those of other parties.

Children stand at the center of such proceedings as subject and object and have enormous stakes in the outcome. Facing possible removal from their homes and severance or suspension of ties with siblings and other family members, they may have the most to lose by the courts' decisions, even if the proceeding is geared toward meeting their special treatment needs. Representation of children in child protective proceedings includes conveying their wishes and preferences, if these are discernible, but extends way beyond this advocacy function, particularly for younger children.

Children who are the subjects of such proceedings have rights and interests in remaining alive, in having their special needs fulfilled so that they can develop adequately, in being protected from physical injury and psychological damage, and in being fed, clothed, and educated. They have an interest in remaining in their own homes and in maintaining parental, sibling, and extended family ties; they thus have a right to have every effort made to maintain them at home or, at minimum, with family members, unless this would subject them to imminent risk of maltreatment or neglect. If such efforts fail and they cannot be maintained or returned home, they have a right to permanence and stability within a caring, nurturing family, rather than to be wards in institutions or bounced through a succession of temporary shelters or homes (Fink 1987).

The attorney's zealous role is dictated, not only by the statutory and constitutional obligation to ensure protection of children's rights, but also by compelling ethical concerns. Canon 7 of the Lawyer's Code of Professional Responsibility states that "[a] lawyer should represent a client zealously and within the bounds of the law," educating the client as to the options pursuant to the attorney's "counselor-at-law" function, but ultimately deferring to the client for decisions on the case and resolving doubts as to the bounds of the law in the client's favor (pp. 7–3, 7–7). Significantly, although authorizing attorneys to make legal arguments, the Code specifically prohibits attorneys from expressing personal opinions about the merits of a case (pp. 7–24).

For a client with verbal skills and judgmental capacity, the attorney's role as described above may be straightforward, but in the case of infants and young children, it is far more complex. The Lawyer's Code recognizes that the attorney's responsibilities necessarily vary according to the age or other disabilities of the client, with the magnitude of these responsibilities increasing for

young children. However, regardless of disability, "if the client is capable of understanding . . . or contributing to the advancement of his interests, . . . the lawyer should obtain from him all possible aid." Even when the child is too young to make judgments binding upon the lawyer, the lawyer must look to the child for whatever degree of assistance the child can provide. Where a guardian *ad litem* has been appointed, the attorney can look to the guardian for decisions otherwise made by clients. However, the Code provides that

> if the disability of a client and lack of legal representative compel the lawyer to make decisions for his client, the lawyer should consider all circumstances then prevailing and act with care to safeguard and advance the interests of his client. (pp. 7–11, 7–12)

These dictates are mirrored as well in the American Bar Association's (ABA) various standards applicable to lawyers. The Model Rules of Professional Conduct, applicable in some States, provide that, notwithstanding a client's disabilities, including age, "the lawyer shall, as far as reasonably possible, maintain a normal client-lawyer relationship with the client." Under the Rules, the lawyer may seek appointment of a guardian *ad litem* or take other protective action "only when the lawyer reasonably believes the client cannot adequately act in the client's own interest" (ABA 1983).

Similarly, the Institute for Judicial Administration/ABA Juvenile Justice Standards (1979) emphasize advocacy of client's wishes where they can be determined and appointment of a guardian *ad litem* if substituted judgment is necessary. In the absence of a separate guardian, the Standards authorize attorneys either to remain neutral and simply test the evidence adduced or to "adopt the position requiring the least intrusive intervention justified by the juvenile's circumstances."

Representation of the child's complex interests compel complex training and interdisciplinary expertise on the part of the advocate, as well as access to adequate social work and clinical assistance.[4] Because the juvenile and family courts are "socio-legal" in nature (Schinitsky 1962)—courts whose decisions must be grounded in social services and clinical disciplines—the tasks of the child's lawyer must be performed with an extra measure of sensitivity and competence. In short, the child's lawyer must be a "lawyer-plus" (Silberman 1978).

Legal System Responses: Criminal and Civil Intervention

The sad plight of children of drug abusers has spawned a variety of responses from policymakers and participants in the court system, but all too often, these

are of marginal utility in meeting the desperate needs of these children. From the standpoint of children's advocates, developing an appropriate and constructive response is a delicate task that can be likened to treading rocky shoals in dangerous waters. What is most clear, however, is that policies and modes of intervention that strengthen families and communities are also likely to meet the needs of children; punitive responses, which exacerbate deterioration in the fabric of families and communities, are likely to produce the opposite effect.

Calls for criminalization of prenatal transmission of drugs, criminal intervention against mothers of drug-exposed infants, civil commitment of drug-abusing pregnant women, and removal of drug-exposed infants to newly revived forms of orphanages constitute assaults upon the already sensitive balance of children's, parental, and governmental rights and interests and are of dubious efficacy in serving the children such policies are ostensibly designed to protect. Even apart from the complex constitutional questions raised by such initiatives, practical considerations from the children's standpoint cast serious doubt as to the appropriateness of these initiatives.

Resort to the criminal justice system is not likely to deter drug use during pregnancy but is instead likely to deter women from seeking needed prenatal care, drug treatment even where available, and medical and other services for children once born. Moreover, few jails, prisons, or psychiatric hospitals have facilities for children or drug treatment programs, and many are woefully deficient in the quality of medical care afforded to inmates or patients. The conditions of confinement can be injurious to fetal and children's health; overcrowding, unsanitary conditions, shackling, and exposure to infectious diseases may exacerbate the risks to children.

The far more prevalent trend toward civil child abuse and neglect prosecutions presents a more difficult dilemma for children's advocates, as civil intervention may well be necessary to ensure protection of children's medical, psychological, and educational needs. However, viewed against the backdrop of a dearth of voluntary, community-based treatment opportunities and a tendency toward discriminatory intervention against poor families from racial/ethnic populations, application of child protective statutes may not be an appropriate systemic response. While removal from home may not necessarily be warranted in all drug-exposure cases, all too frequently it has been the reflex reaction of child protective agencies and courts in the absence of sufficient alternatives to guarantee children's safety.

Moreover, although drug abuse cuts across racial and class lines, alcohol- or other drug-abusing, African-American women have been shown to be 10 times more likely than their White counterparts to be reported to authorities, thus casting a cloud over the fairness of proceeding against them (Sherman 1989). Additionally, as noted, drug treatment programs are notorious in their discrim-

ination against pregnant women, which thus raises the question of whether it is fair to proceed against women for prenatal damage to their children.

Yet child protective proceedings are ostensibly designed not to be punitive, but to serve the interests of children and are often a child's only recourse for protection. Care must be taken, therefore, to assure that utilization of coercive civil court intervention is a last resort—that is, one prong of a multitrack strategy that includes major emphases upon widespread drug education and treatment, elimination of treatment obstacles for pregnant women and mothers of young children, enhancement of WIC and other child and maternal health and nutrition programs, and replication of successful community-based models for comprehensive day and residential programs to meet the needs of children and families.

To the extent that child protective proceedings are utilized, each critical decision point from child neglect/abuse reporting at the outset through postdispositional monitoring must serve, rather than impede, the interests of children. Reporting laws must, therefore, be specific both as to who must report and what constitutes a sufficient threshold level of risk to warrant a report. Testing protocols, whether by statute, administrative regulation, or hospital procedure, must not discriminate on ethnic or class grounds and must ensure accuracy and thoroughness. Medical indicators warranting testing, confirmatory and other testing procedures, and chain of custody and documentation requirements should be specified.

Once a child abuse or neglect report is made, whether based upon medical testing or other indicators, a thorough investigation must be performed to assess whether preventive services or other alternatives to court action would be efficacious and to marshall the evidence required should court action be deemed necessary. Although some court cases nationally have sustained child protective proceedings initiated solely or predominantly on the basis of positive toxicological results (see, e.g., *Matter of Stefanel Tyesha C.*; *In re Troy D.*; *In re Baby X.*), protocols instituted in New York City and urged by practitioners elsewhere include sound requirements for more evidence to be gathered to support petitions (see, e.g., English 1990).

Equally critical, imminent risk must be strictly applied as the criterion for removal of children from their homes, as it cannot be assumed that all children exposed to drugs must be put into foster care. Significantly, the mandates of the Adoption Assistance and Child Welfare Act of 1980 (Public Law 96–272) must be applied in conjunction with this standard—that is, to the extent that reasonable efforts, if appropriate in light of an assessment of potential risks, can avert the need for foster care placement or shorten its duration, such efforts should be extended. Courts making foster care placements must render the required reasonable efforts findings.

Finally, options both for pretrial diversion and disposition upon fact-finding must be enhanced so that children's interests can be furthered. Resource constraints cannot be allowed to impede provision of comprehensive services so that the continuum of services available to drug-exposed children is truly a continuum. As noted above, community-based treatment centers should be available to facilitate retention of children in their homes or, if inappropriate, in therapeutically supported kinship and other foster homes. For those children for whom return home is clearly unlikely, especially those abandoned at birth, efforts toward permanency must proceed apace. Where grounds to terminate parental rights exist, statutory timetables should be followed so that children do not spend prolonged periods in limbo.[5]

As one journalist noted, "if cocaine use during pregnancy were a disease, its impact on children would be considered a national health care crisis" (Revkin 1989, pp. 63–9). The need to marshall the resources to meet that crisis, particularly as the child victims of parental cocaine abuse enter the school system, stands as one of the most important challenges facing this country. An unprecedented level of collaboration among health, child welfare, educational, and legal professionals is critically needed, as this country can ill afford to sacrifice a generation to the ravages of drug abuse and its attendant effects.

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Notes

1. Crack cocaine is widely available and low in cost; while $40 per vial in 1985, by 1988 the price had dropped to $5 to $10 per vial.

2. New York City, for example, currently has only one residential mother-child drug treatment program (Odyssey House), which has a substantial waiting list, and only a modest number of community-based treatment slots. The dearth of drug treatment for pregnant women is even more severe; discrimination by drug treatment programs against pregnant women is the subject of a pending lawsuit by the American Civil Liberties Union and has been well documented in surveys by Dr. Wendy Chavkin and the House Select Committee on Children, Youth and Families (1989).

3. Surveys have shown that up to 70 percent of individuals referred for drug treatment report that they represent the second or third generation of drug abusers in their homes (Plaut and Kelley 1989).

4. The Juvenile Rights Division of The Legal Aid Society in New York City pioneered multidisciplinary team representation of children, a concept that has been replicated in several jurisdictions nationally. Since the early 1970s, a professional staff of social workers, with access to independent clinical experts, work in teams with the attorneys—assisting in a variety of tasks, including assessment, exploration of community and family resources, referral to and procurement of needed services or placement resources, presentation of expert testimony, proffering of dispositional plans to the court, and postdispositional monitoring of cases (see generally, Fink 1987. pp. 289–90; Clout and Credibility 1984).

5. New York State, for example, recently enacted an amendment to its child protective disposition statute authorizing an order for diligent efforts to

locate the parent(s) in abandonment cases and for timely filing of a parental rights termination petition on abandonment grounds in 6 months if such efforts are unsuccessful.

CHAPTER 10

Three Years Later: The Young Mother's Legal Battles Continue

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The legal problems a mother faces several years after the birth of her drug-exposed child are largely the same as those she faced at birth. Some legal issues may have already been settled, such as whether to conduct a nonconsensual urine test, report to child protective services, or remove the infant from the mother's care. The tough legal challenges of preserving the family and accessing services, however, often persist.

Elsewhere, the legal rights and concerns of the child are addressed. This chapter looks at legal issues and challenges from the mother's perspective and needs by examining her entitlement to services and how child welfare intervention affects these rights.

While alcohol and other drug abuse cuts across all races and socioeconomic strata, the legal challenges are hardest felt by low-income, single-parent mothers. These mothers are reported to child protection at rates disproportionate to the overall drug-abusing population (Chasnoff 1990). They are also more dependent on publicly supported programs, such as housing assistance, Medicaid, childcare, food stamps and supplements (e.g., WIC), energy assistance, Aid to Families With Dependent Children (AFDC) benefits, transportation, and services for children with disabilities. (It should be noted that even working and middle-class women with private health insurance may have trouble obtaining treatment for themselves unless they live in a State that mandates coverage of either alcohol or other drug treatment.) Unfortunately, the young mother's lack of an advocate and potentially her own incompetency due to alcohol or other drug use undermines her ability to gain access to these programs.

Most entitlement programs have elaborate eligibility requirements. Assistance in identifying potential applicants and aiding them through the application process is "particularly important for substance abusers because of their high rates of general noncompliance" (Gates and Beck 1990). As a basic proposition, poor mothers who have drug and other social problems are not entitled to an attorney at State expense, nor are there enough legal service attorneys to fill this need. Ironically, an attorney is most often provided only after the State

coercively intervenes in the family, although earlier advocacy may have mitigated the need for such intervention.

To add insult to injury, even if the alcohol- or other drug-abusing mother has advocates, Congress has denied them one of the most effective grounds upon which to mount challenges for services: discrimination complaints. The much touted Americans With Disabilities Act of 1990 (P.L. No. 101–336) was designed to protect the rights of persons with physical and mental disabilities in a host of situations, including access to public services. However, the act expressly excludes from its protection current users of illicit drugs (although it does protect those who have successfully completed a treatment program or are currently in a program and are drug free). At the same time, Congress amended sec. 504 of the Rehabilitation Act, also excluding current drug users from its protection.

Health Services

Medicaid is the main insurer of health care for the poor. Young women are not entitled to this aid solely because they meet income guidelines. Rather, they must also meet one of two "categorically needy" requirements: participation in the AFDC program or eligible through disability for Supplemental Security Income (SSI) under the Social Security Act.

AFDC entitlement may depend upon the father's whereabouts. According to some State laws, his presence in the household may disqualify the family for AFDC, unless he is an incapacitated parent (AFDC–IP). For AFDC purposes, incapacity is defined as a medically determinable illness, condition, or disease that substantially reduces or eliminates a parent's ability to provide support for a child. What if the father is addicted to alcohol or other drugs? At least one court has ruled that such addiction would not fall under the AFDC–IP exception, lest he divert AFDC benefits to alcohol and other drug abuse. (*Jeffords* v. *Dept. of Human Servs.*)

A young mother may also be categorically needy for Medicaid purposes if she qualifies for SSI disability. If she is still drug dependent, this may form the basis for this determination. A person who, due to chronic alcoholism or other drug dependency, is unable to work may seek SSI. An administrative determination of eligibility must be made, using the Social Security Administration definition of disability. Some courts have determined that chronic alcoholism or drug addiction alone could establish eligibility for SSI payments, and that the relevant inquiry was whether claimant, due to an alcohol addiction, had lost the ability to control its use. (*Purter* v. *Heckler*) Unfortunately, these mothers, due to their drug activity, are also at higher risk of being HIV infected. There is today a presumptive SSI eligibility for persons with AIDS. Additionally, the mother

may be eligible if the dependent child qualifies for SSI. Following a 1990 Supreme Court decision, more children will be qualifying for this disability income. (*Zebley* v. *Sullivan*)

Assuming a young mother is eligible, services she receives under the Medicaid program vary by State and may not adequately cover her chemical dependency problem. As two authors noted:

> Coverage of substance abuse treatment services under Medicaid is problematic, because Medicaid was primarily designed to cover medical model health care. Other than detoxification and methadone maintenance, most substance abuse treatment modalities are not based on a medical model. (Gates and Beck 1990, p. 478)

Outpatient treatment may be funded under Medicaid, but this is least likely when programs rely primarily upon peer and group counseling, especially when conducted by lay persons. Programs that use the psychiatric model or licensed substance-abuse counselors are more likely to qualify. Inpatient, hospital-based treatment, by and large, qualifies for Medicaid. Residential treatment is the least likely to qualify when programs do not meet Medicaid requirements for hospitals or psychiatric hospitals. This contradicts current expert opinion favoring residential over outpatient programs for hard-core abusers.

Residential programs that accommodate mothers with their children, though few in number, are critical to this population lest the family be needlessly torn apart. Even if a service is covered, the States are given broad discretion to determine the amount, scope, and duration of treatment. For example, few States would cover long-term residential care for the mother and child. Other services essential to this population may not be covered, such as respite care and transportation.

AFDC benefits are only provided to eligible families who have a dependent child. Thus, if the child welfare agency removes the child, Medicaid benefits are lost unless other AFDC children are still in the household. Consequently, the mother of a preschooler who is in foster care may have a medical need, but few health care options. She may have available to her services provided through existing alcohol or other drug abuse programs, but these are unlikely to be appropriate for women or suitable for women with young children.

Treatment may be sought through community and mental health centers. It may also be provided through programs funded by various Federal grant opportunities, the most important being the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) block grants. These programs, however, are underfunded, are subject to yearly appropriations vagaries, have waiting lists (notwithstanding special grant programs designed to reduce these lists), and have no entitlement. Furthermore, the mother of a 3-year-old may have to

compete for slots with pregnant and postpartum women. In this competition, the latter will likely prevail; Medicaid and set-aside funding favor this population. For the young mother, therefore, little may be available, and legal advocacy is less likely to be on her specific behalf than it is for her class (e.g., advocacy to ensure that set-aside requirements are followed).

Public Housing

Families with children are the fastest growing segment of the homeless population today. Accordingly, public housing priorities are extended to these families. Even so, neither AFDC grants nor housing subsidies have kept pace with rents, putting more and more families at risk of homelessness (Children's Defense Fund 1990). When a child is removed from the home, the mother's ability to get public housing assistance decreases. Combined with losing AFDC and Medicaid, her financial security is seriously undermined.

The mother's possible drug use, or even suspicion of drug use, can also jeopardize her public housing entitlement. Drug use in public housing units is a major problem. To combat it, Housing and Urban Development (HUD) promoted a highly controversial Public Housing Assets Forfeiture Demonstration Project in 1990 whereby public housing residents can be summarily and forcefully evicted if they, other residents in the unit, or even guests are suspected of illegal drug activity. This has resulted in many women and children being evicted, even when they had no personal drug involvement. This is an area where the woman needs a strong advocate to challenge these actions. Advocacy is also needed to make the public housing authority (PHA) more receptive to providing drug-related services to its tenants. For example, in Seattle the PHA operates an outreach program of drug counseling and referrals; the San Francisco Housing Authority offers drug and employment counseling, well-baby clinics, and other services (Bryson and Youmans 1990).

Vocational Services

Under the Family Support Act of 1988, States must implement a JOBS program for AFDC recipients. These programs must have educational, training, and work-related components. As a starting point, young mothers are only eligible for these services if they have a dependent child in their care. Thus, as in Medicaid, if the State removes the child, the mother will not be eligible.

Alcohol- or other drug-abusing mothers face two, diametrically opposite, possibilities under the JOBS program (Greenberg 1990). First, the State could, through exclusions written in the law, deny mothers participation in the program. For example, a person could be exempted from the program due to

illness or incapacity, or alternatively, the State could defer her participation. Even if allowed to participate, the mother could be terminated if her abuse problem interfered with her participation.

A second, less likely alternative is that the State will view the JOBS program as an opportunity to provide not only vocational services, but also drug rehabilitation. The U.S. Department of Health and Human Services has stated that alcohol and other drug rehabilitation may be considered supportive services, making them federally matchable at a 50-percent rate. (See 54 F.R. 42197 (Oct. 13, 1990).) However, since the total amount that a State may draw down as match is limited, and abuse treatment is expensive, it is unlikely that States will aggressively pursue this option other than by offering referral services.

Child Welfare System

The child welfare system consists of child protection, foster care, and adoption programs. These programs are engaged when a parent voluntarily submits to them, or more often when the State involuntarily intervenes due to some perceived parental unfitness that places the child at risk of harm. The issue of prenatal drug use as a grounds for involuntary State intervention has been controversial. Infants born to mothers who abused drugs while pregnant are often medically or developmentally impaired. Yet it is not necessarily certain that these children are at further risk of harm due to continuing parental drug abuse. Though undoubtedly many are, many are not.

Alcohol and other drug abuse is clearly contributing to the recent surge in the foster care population (GAO 1990). Even so, despite popular perceptions, most drug-exposed infants are not placed in foster care. Informal surveys report that 50 to 75 percent of these infants live with the mother or a relative (Office of Inspector General 1990). Many of these families will receive in-home services from the child welfare system. These services are meant to be short term. If the services have not "corrected" parental/familial problems and the child remains at risk of harm, foster care looms. At that time, the mother's prenatal drug history is moot.

Once the child has been removed from the mother's care, the child and mother have certain basic child welfare entitlements. (Adoption Assistance and Child Welfare Act of 1980, P.L. 96–272) These entitlements, in part, make up for what the mother has lost (e.g., Medicaid, housing assistance, vocational training) by the fact that she no longer has a dependent child in her care.

Perhaps the most important entitlement is that reasonable efforts will be made by the child welfare agency to provide services that will enable the family to be reunited. These services are identified in a case plan, binding the agency

and parent to a curative course of action. These plans are periodically reviewed by administrative bodies and courts for progress and problems. Only then, after reasonable efforts to reunite families have failed, may other permanent plans for the child, such as adoption, be pursued.

In determining service needs for this family, several important questions must be addressed. First, is the mother still using drugs? If yes, then the plan should include a meaningful drug treatment component. Second, does the child have developmental/medical problems that demand extraordinary care? If yes, then the mother's current drug status becomes all the more important as it may affect her parenting abilities. Third, how can the child welfare agency access the array of services the family may need?

This last question undercuts most child welfare cases today. Lack of coordination of services is a chronic problem for all systems addressing children and family matters (Soler and Shauffer 1990). Effective treatment demands an array of supportive social services. Thus, when found in the child welfare system, alcohol or other drug abuse presents particularly tough coordination problems. This has led Federal and State policymakers, in recent child welfare reform proposals, to specifically include special provisions for both the scope and coordination of services when attending to such problems in the child welfare system. (See, e.g., H.R. 5020, 101st Cong., 2d Sess., "Family Preservation Act of 1990"; S.4, 102d Cong., 1st Sess., "Child Welfare and Preventive Services Act.")

A legitimate final question is why, 2 to 5 years after the birth of a drug-exposed infant, is the case still in the child welfare system? Why has the family not been reunited, or failing this, the parental rights terminated and the child placed for adoption? This question, unfortunately, may reflect both a sluggish, underfunded child welfare system and the mother's relative helplessness or even diminished competency (perhaps due to alcohol or other drug use). While the family unit is entitled to services, the service needs of drug-involved families often exceed the capacities of the child welfare system. Without aggressive advocacy on the mother's behalf, other service and treatment systems may not be accessed. Of course, should the parent's rights be terminated, then all entitlement ceases; the mother has few independent rights, and any vicarious rights she obtains by being a parent are no longer in effect.

In a catch-22 situation, the mother's best chance to obtain an advocate to argue for appropriate and needed services is by first having child welfare intervention. In most States, by statute, a parent is entitled to representation when involved in child abuse and neglect and related proceedings. Advocates, in turn, may address the housing, vocational, health, and other service needs of their clients. These needs should be addressed in the case plan. That the service is one traditionally offered by another agency, such as housing or public health,

should not matter. The mother's entitlement arises not from the housing and public health laws, but from the legal child welfare prerequisites.

Courts have held that the child welfare agency must provide for an array of extra-agency services as part of its reasonable-efforts requirement. For example, a Federal District Court in Illinois has found that the agency owed a duty to parents, before removing children due to homelessness, to help the family secure housing. (*Norman* v. *Johnson*) In a well-reasoned Rhode Island Supreme Court opinion, the court likewise found that the child welfare agency must provide housing assistance as part of its reasonable efforts to reunite families when the court finds that family reunification cannot be achieved because of a family's homelessness, notwithstanding the fact that another governmental agency is primarily responsible for housing assistance. (*In re Nicole G.*) It is reasonable to assume that the court would have reached a similar conclusion if drug treatment was the essential family need.

There is, of course, a distinction between losing one's children due to lack of a home and due to alcohol or other drug abuse problems. Resources permitting, a home may be quickly *obtained.* Resources permitting, drug treatment may be quickly *initiated.* Its success, however, is uncertain, and the safety of the child during treatment is less clear. At some point, child welfare intervention must cease; either the family is reunited, or it is permanently and legally severed.

By the time a child is 2 or 3, there are increasing pressures on the child welfare system to fish or cut bait. At this time, the most likely ground to terminate parental rights is that the mother failed to rehabilitate herself (i.e., correct the conditions that led to the child's being removed from her care) in accord with the case plan. Minnesota has gone so far as to enact legislation in 1990 allowing a termination where, following the agency's reasonable efforts, the parent has failed two or more times to complete or participate in offered drug treatment programs. Some States, by statute, single out drug dependency as a ground for termination of parental rights. This ground requires evidence that the mother is unfit to be a parent due to her drug problem, which is unlikely to improve in the foreseeable future. (*In re M.*)

At the time of a termination action, the mother will likely have an attorney, but the time period during which her conduct will be examined may predate this advocate. At the termination hearing, the mother will have essentially three defenses: first, that she has rehabilitated herself; second, that she has not, but the fault is due to the child welfare agency's lack of effort or the inadequacy of the case plan to begin with; and third, that she has not, but will likely rehabilitate herself in the foreseeable future (in cases involving parental capacity, be it due to alcohol or other drug abuse or mental/physical conditions, the State is likely to introduce evidence that the mother's prognosis for improvement is dim).

A second potential ground for termination is that the mother abandoned the child. This ground may be more relevant for newborns left in hospitals, but even in the 3- to 5-year-old population it may arise. Abandonment does not require proof of total lack of contact with the child, but may be based on intermittent or infrequent contact. A key consideration is whether the mother intended to abandon the child, and efforts by the agency to encourage and promote visitation and contact will be considered by the courts.

In the controversial scenario of a mother being convicted of a drug-related offense at the child's birth, and the unlikely event of her being incarcerated, abandonment grounds become very real. Another worrisome situation is when the mother resides in a long-term drug treatment facility that does not allow children. Incarcerated or otherwise confined parents are clearly at risk of abandonment charges. The considerable case law on incarcerated parents indicates that, while they are not presumed to have abandoned their child, forced separation is not a defense. (Matter of I.R.) Even in prison, a parent must evince an interest in the children, for example, by being involved in their life through telephone and letter communication and by helping with major life decisions.

There is one last scenario of possible child welfare intervention: the family that becomes dysfunctional several years after the birth of a drug-exposed child. This dysfunction may arise from developmental and medical complications associated with fetal drug exposure that do not become apparent, or difficult for the parent to manage, for several years.

Alternatively, the problems may have persisted since birth but were never reported until the child stepped out into the world. Only when children are seen in the community, as when they first go to preschool, are problems identified. The child abuse literature is replete with opinion that preschool-aged children with medical or behavioral problems are at risk of child abuse or neglect. The explanations often given are that these children frustrate parents into acts of violence, or that their special needs are beyond the competence of the parents. If the mother also has a drug problem, her ability to care for a child with special needs are, or are perceived to be, undermined. Even if the parent is capable of caring for such a child, some States require the parent to relinquish custody in order to obtain certain services.

Conclusion

An alcohol- or other drug-abusing mother of a 3- to 5-year-old is in a bind. To obtain services, she faces a Hobson's choice: keep the child but fend on her own for hard to obtain services, or acquiesce to child welfare intervention and pray that it works and that she does not lose her child. Either way, her choices are

few and her independent entitlement scant. As policy unfolds in this area, therefore, decisionmakers need to address two critical issues: who advocates for these mothers, and what services she is entitled to, regardless of her parental status.

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AGENDA

Office for Substance Abuse Prevention
1990 Issue Forum
November 13–14, 1990
National 4–H Center
Chevy Chase, Maryland

Topic: **Drug-Exposed Children Ages 2 to 5: Identifying Their Needs and Planning for Early Intervention**

Co-Moderators: **Myron L. Belfer, M.D.**
Office for Substance Abuse Prevention, Consultant
Harvard Medical School

Loretta P. Finnegan, M.D.
Associate Director for Medical and Clinical Affairs
Office for Substance Abuse Prevention
Senior Advisor on Women's Issues
National Institute on Drug Abuse

Tuesday, November 13, 1990

7:30 a.m. – 8:15 a.m.	**REGISTRATION/CONTINENTAL BREAKFAST**
8:15 a.m. – 8:30 a.m.	**Welcome/Purpose of Issue Forum** Elaine M. Johnson, Ph.D. Director Office for Substance Abuse Prevention
8:30 a.m. – 8:45 a.m.	**Scope of Day One** Loretta P. Finnegan, M.D. Office for Substance Abuse Prevention National Institute on Drug Abuse

Tuesday, November 13, 1990 (continued)

8:45 a.m. – 9:15 a.m.	**Historical Perspective** T. Berry Brazelton, M.D., F.A.A.P. Clinical Professor of Pediatrics Emeritus Harvard Medical School
9:15 a.m. – 10:00 a.m.	**"Perinatal Factors and Their Influences on Neonatal Outcome"** Sonia Imaizumi, M.D. The Medical College of Pennsylvania
10:00 a.m. – 10:30 a.m.	**Discussion of Presentation**
10:30 a.m. – 10:45 a.m.	**BREAK**
10:45 a.m. – 11:30 a.m.	**"Substance Abuse and Newborn Behavior"** Edward Tronick, Ph.D. Children's Hospital/Harvard Medical School
11:30 a.m. – 12:00 p.m.	**Discussion of Presentation**
12:00 p.m. – 1:00 p.m.	**LUNCH**
1:00 p.m. – 1:45 p.m.	**"Prenatal Opiate Exposure: Developmental Effects in Infancy and Early Childhood"** Karol Kaltenbach, Ph.D. Jefferson Medical College Thomas Jefferson University
1:45 p.m. – 2:15 p.m.	**Discussion of Presentation**
2:15 p.m. – 3:00 p.m.	**"Fetal Alcohol Effects in Preschool Children: Questions About Research, Presentation, and Intervention"** Claire Coles, Ph.D. Clinical and Developmental Research Emory University
3:00 p.m. – 3:30 p.m.	**Discussion of Presentation**
3:30 p.m. – 3:45 p.m.	**BREAK**

Tuesday, November 13, 1990 (continued)

3:45 p.m. – 4:30 p.m.	**"Play and Attachment Organization in Children Prenatally Exposed to Drugs"** Carol Rodning, Ph.D. Department of Pediatrics University of California, Los Angeles
4:30 p.m. – 5:00 p.m.	**Discussion of Presentation**
5:00 p.m. – 6:00 p.m.	**Discussant of Day One** Ann Streissguth, Ph.D. Department of Psychiatry and Behavioral Sciences University of Washington

Wednesday, November 14, 1990

8:00 a.m. – 9:00 a.m.	**CONTINENTAL BREAKFAST**
9:00 a.m. – 9:15 a.m.	**Scope of Day Two** Myron L. Belfer, M.D. Office for Substance Abuse Prevention
9:15 a.m. – 10:00 a.m.	**"An Ecological Perspective: The Impact of Culture and Social Environment on Drug Exposed Children"** Iris Smith, M.P.H. Prevention and Applied Research Emory University
10:00 a.m. – 10:30 a.m.	**Discussion of Presentation**
10:30 a.m. – 10:45 a.m.	**BREAK**
10:45 a.m. – 11:30 a.m.	**"Drug Exposed Children Ages 2–5: Child Welfare Challenge"** Richard L. Jones, Ph.D. Boston Children's Services
11:30 a.m. – 12:00 p.m.	**Discussion of Presentation**
12:00 p.m. – 1:00 p.m.	**LUNCH**

Wednesday, November 14, 1990 (continued)

1:00 p.m. – 1:45 p.m.	**"Policy Implications for School Districts of Children Born Toxic Positive"** Charlie Knight, Ph.D. Ravenswood City School District
1:45 p.m. – 2:15 p.m.	**Discussion of Presentation**
2:15 p.m. – 3:15 p.m.	**Legal Perspectives** "Advocacy on Behalf of Drug Exposed Children" Janet Fink, J.D. Legal Aid Society (1974–90)
	"Three Years Later and Still on Drugs: The Young Mother's Legal Battle" Bob Horowitz, J.D. American Bar Association
3:15 p.m. – 3:45 p.m.	**Discussion of Presentations**
3:45 p.m. – 4:45 p.m.	**Discussant of Day Two** Myron L. Belfer, M.D. OSAP Consultant Harvard Medical School

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