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PERFORMANCE OF SCHOOL AGE CHILDREN OF
PRENATAL COCAINE EXPOSURE: FIVE CASE STUDIES

A Dissertation

Presented to

The Faculty of the School of Education
The College of William and Mary in Virginia

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

by

Susan Larson Wallace

July 1996

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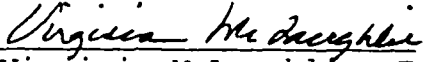
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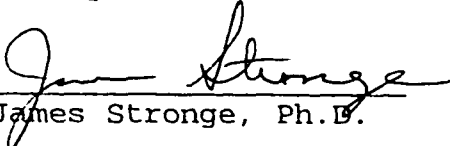
PERFORMANCE OF SCHOOL AGE CHILDREN OF
PRENATAL COCAINE EXPOSURE: FIVE CASE STUDIES


by

Susan Larson Wallace

Approved July 1996 by


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Dedication

I dedicate this dissertation to my Daddy and Elizabeth for helping me to keep my feet on the ground and my sights to the stars.

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PERFORMANCE OF SCHOOL AGE CHILDREN
OF PRENATAL COCAINE EXPOSURE: FIVE CASE STUDIES

Abstract

The purpose of this study was to examine the social and learning performance of school age children of prenatal cocaine exposure. The Behavioral Assessment System for Children (BASC) was used along with interviews, observations and document analysis for each individual case studied. The data collected through these methods was coded and examined for patterns and relationships in each case, and across cases.

Data analysis revealed that each case varied in the effects exhibited on a continuum from subtle to severe, as indicated in the literature. Social and behavioral patterns appeared to be most severely affected, while the language area was found to be within normal parameters for children their age. Additionally, all cases experienced tremendous environmental factors which may have impacted their performance such as trauma, abuse, and passive exposure to cocaine and other drugs.

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PERFORMANCE OF SCHOOL AGE CHILDREN
OF PRENATAL COCAINE EXPOSURE: FIVE CASE STUDIES

CHAPTER 1

THE PROBLEM

Statement of the Problem

Headlines and discussions concerning "crack babies" often instill concern and fear regarding the many needs of this group of children. Children prenatally exposed to cocaine are the brunt of many myths and much media hype. Television shows, newspapers, and magazines espouse stereotypical accounts suggesting that all children prenatally exposed to drugs are uneducable and irreparably damaged, that they require excessively controlled environments to function, that all of their problems are attributable only to cocaine exposure, that they come only from inner city environments, and that they are hopeless (Barone, 1994; Brady, Posner, Lang, & Rosati, 1994; Griffith, 1992; Sparks, 1993; Viadero, 1992; Wilkes, 1993). Barone stated "Teachers and principals often presume that all children who have been exposed to drugs will be doomed to failure" (1994, p. 67).

However, what is confirmed about children prenatally exposed to cocaine is that limited research exists on this population; there are extensive concerns with the adequacy of the existing research; and many of these children are at-risk for educational failure for a

variety of reasons, only one of which is prenatal exposure to drugs.

In 1970, the Joint Commission of Mental Health of Children specified that all infants have a right to the following: to be born healthy, to be wanted, to experience satisfaction of basic needs and continuous loving care, to live in a healthy environment, to receive adequate care, and to acquire the skills necessary to live successfully and contentedly in society (Morgan, 1994). Cocaine abuse creates a barrier between the infant and these rights. Cocaine use during pregnancy affects the baby's health, nurturing and development. This is compounded by contributing factors to the pregnancy (such as poverty) which may prevent the child from receiving adequate care and having his or her basic needs met. Environmental factors further jeopardize a child's access to a supportive home life. The combination of these concerns may hinder the child's education which impacts personal success in society.

There are several issues surrounding this topic that are of importance to the field of education and warrant exploration. First is the debate about which is more detrimental to the substance affected child - the biological effects of the exposure to cocaine in utero or the environmental influences and circumstances experienced thereafter (Chasnoff, 1993; Griffith, 1994;

Sparks, 1993). Both types of effects of intrauterine exposure, immediate and long term, need to be investigated. Also, the environmental concerns including substance using households, legal consequences, foster care, extended family care, violence and abuse, and secondary exposure warrant examination.

A second issue relates to concerns about the socioeconomic bias present in the current research. Much of the existing data came from hospital and clinical programs which are directed and funded for inner-city populations. It is frequently documented that cocaine users exist across the total socioeconomic continuum, but that mothers with financial security utilize private medical and clinical facilities (Chasnoff, 1988a, 1991, 1993; Fink, 1992; Gingras, Weese-Mayer, Hume, & O'Donnell, 1992; Poulsen, 1994; Sautter, 1992; Sparks, 1993). This bias and the ramifications to the children should be addressed as a limitation of the research.

This leads to an additional concern when studying children prenatally exposed to cocaine. Not only does the socioeconomic status (SES) factor limit the data, there is also the difficulty surrounding polydrug use, dosage of cocaine use, and timing of cocaine use (Chasnoff, Griffith, MacGregor, Dirkes, & Burns, 1989).

Further is the problem involving toxicology as the method for confirming cocaine exposure. The toxicology is not mandatory for newborns and when it is done it only identifies cocaine used within 72 hours.

Therefore, many children born exposed to cocaine in utero go initially undetected (Bays, 1992; Durfee & Tilton-Durfee, 1990; Gingras et. al, 1992; Poulsen, 1994; Schutter & Brinker, 1992; Sparks, 1993). All of these factors will be specifically discussed in the literature review.

A majority of the research on this topic focused on the outcomes of cocaine exposure on infants. Research on the toddler and preschool age group is just beginning to be published. Although the studies reveal a variety of outcomes in the children, indications of neurobehavioral and social patterns have been noted. Furthermore, the data is typically gathered on children who have been identified as having difficulties previous to the research. Therefore, research on school age children of this population from a different perspective (i.e., from a substance abuse program wherein the child may or may not be identified with problems) is warranted.

Final issues relative to this population include current educational programs and practices for substance affected children, as well as the need for interagency

intervention and long-term research (Carta et al., 1994; Cohen & Erwin, 1994; Chasnoff, 1993; Johns et. al, 1994; Senate Document #5, 1994; Schutter & Brinker, 1992; Brady et. al, 1994; Waller, 1992). Children prenatally exposed to cocaine exhibit deficits on a continuum of extremes. This continuum ranges from subtle problems to severe problems (Vincent, Poulsen, Cole, Woodruff, Griffith, 1991). In practice, not all children of intrauterine drug exposure qualify for specialized instruction (Griffith, 1993; Poulsen, 1994). The children may remain in general education classrooms and require unique interventions and attention (Gittler & McPherson, 1990). General and special educators alike are experiencing frustration and are overwhelmed by the neurologically based deficits of this population. Although it is important to attend to how the drug exposed children's needs are being addressed, it is not within the scope of this study to do more than highlight related concerns in the literature review and share information about this population's development for the benefit of educators.

Available literature has been reviewed and summarized in three areas: (a) factors surrounding the effects of cocaine use in pregnancy, (b) contributing factors confounding the effects of cocaine in utero, and (c) environmental factors influencing development after

birth.

Significance of the Study

This study will contribute to the existing knowledge base in several valuable ways. Providing a comprehensive review of the literature will clarify general information on cocaine and its effects on children exposed prenatally. By focusing on school age children, case studies will provide qualitative information to enrich the existing and growing knowledge base on long-term outcomes of intrauterine exposure. This information will help to enlighten educators currently working with this population in the schools. By selecting children through mothers who reported drug use during pregnancy, this study will generate a more realistic profile of relative strengths as well as weaknesses of these students. Additionally, by assessing both student performance relative to the profile in the literature and environmental conditions, case studies will provide a more complete and accurate description of the educational and social development of school age children prenatally exposed to cocaine. Furthermore, utilizing multiple methods (qualitative and quantitative) will not only contribute a quality study to the field, but will also furnish a rich and solid foundation for further research in this area.

Purpose of the Study

The purpose of this study was to investigate and describe the educational and social development of school age children exposed to cocaine in utero through a case study approach, and to delineate any existing patterns from gathered scores and descriptions.

Research Questions

The research questions guiding the study are clustered into three sets as follows:

1. What is the social and learning performance pattern of elementary school age children prenatally exposed to cocaine?
 - a. What is the achievement pattern for the substance affected child?
 - b. What is the pattern for behavioral and social adjustment of the substance affected child?
2. What additional factors may place the child further at-risk for failure?
 - a. What medical factors are present?
 - b. What environmental factors are present?
3. What has been the intervention history?
 - a. What agencies have been involved with the child or family throughout the child's history?
 - b. What services have been provided?
 - c. What child-centered educational and behavioral interventions have been implemented over the years?

Scope of the Study

It was necessary to review work from many discipline areas due to the complexity of the topic of study. Research from the medical field is used to describe the psychological and physical effects of cocaine to the user and the fetus. It also delineated the immediate neurodevelopmental outcomes on the neonate and infants. From the field of sociology, research surrounding the history of cocaine and drug abuse is reviewed along with environmental factors related to cocaine influence on children. It was vital to include some information from the legal field concerning consequences of illicit substance use. A search of general and special education research and literature was conducted for relevant information. Information on qualitative research was also reviewed. The overall search was completed through the use of computers, teleconference information, networking, and bibliographic reviews.

Limitations

Limitations of this study included the limits of access to the population and the sample chosen for study. For example, due to the sensitivity of the issue, voluntary participation was necessary and the sample number was small. This put constraints on the type of data collected and created a biased sample

including only people who wanted to participate, possibly excluding highly valuable data from others who did not choose to volunteer. Also, it was necessary to access subjects through an existing public substance abuse program. This eliminated data collected from the private sector, preventing the provision of a balanced picture of children prenatally exposed to cocaine. Much of the data that was collected was self-reported which may have presented biased views of the child and distorted true behavioral representations.

The study was further limited by its focus on a pattern of performance for school age children affected by intrauterine substance exposure. Because the existing literature centers on infants and toddlers, the performance counterparts for elementary age children could have been similar or entirely different. Also, the pattern was drawn from literature that represented a population of children already identified with problems, as well as a population from a lower socio-economic status (SES). This not only invited subjectivity, but also may have limited or exasperated the outcomes from the population of this study.

The data collected from records also presented threats to the study as records were maintained differently across school systems, leaving holes in some of the data. Lastly, this study was not longitudinal,

but retrospective in nature and therefore limited the scope and control of the data collection over time.

It was essential to acknowledge and combat as many limitations as possible throughout the study. The study addressed several of these concerns through triangulation of data collection, development of descriptive case reports and coding all data collected. More detailed information about overcoming threats to validity and reliability are discussed in Chapter 3. The patterns and descriptions from the data collected helped to shed light on ways to meet the educational needs of this growing population and for further research. The patterns and descriptions were not intended for generalization to all children prenatally exposed to cocaine.

Definition of Constructs

For purposes of clarity and consistency, operational definitions of key terms used throughout this study have been developed. Additional terms are delineated to specify the research questions.

1. Abruptio placentae: "Premature separation of the placenta from the uterine wall occurring prior to the delivery of the fetus" (Landau, 1986, p. 7).
2. Academic achievement: educational progress through the curriculum as measured by scores on standardized

academic tests and classroom grades.

3. At-risk: exposure to any biological or environmental factor which may jeopardize developmental processes and/or outcomes (Mertens & McLaughlin, 1995; Sparks, 1993).

4. Cocaine: a substance extracted from the leaves of the coca plant of South America which is processed into crystalline powder form for snorting or injection, or formed into crack; is in the class of drugs known as stimulants. Cocaine and crack are used interchangeably in the literature review as research indicates any intrauterine exposure to this substance in any form is potentially toxic to the fetus.

5. Cognitive ability: an individual's intellectual ability as measured with "IQ" tests which are assessments of academic aptitude.

6. Contributing factors: risk factors affecting the mother during pregnancy such as low socio-economic status, polydrug use, toxicology difficulties, and poor health care that confound the effects of cocaine in utero.

7. Crack: a concentrated form of cocaine which is smoked and takes the appearance of a rock; effects are felt sooner than powder forms of cocaine; is also known as freebase because of the way it is processed; makes a crackling sound when smoked, hence it's name.

8. Culturally relevant: information accessed or services provided by people of the same culture or by persons sensitive and respectful of the child's culture; also referred to as culturally sensitive (Burchard, Burchard, Sewell, & VanDenBerg, 1993).

9. Educational development: representations of learning as indicated through achievement, cognitive, language, and motor skill measures.

10. Encephalocele: "a herniation of the brain and meninges usually through a developmental defect in the skull and usually at one of the major sutures of the cranium. A covering of skin or mucous membrane is initially present but may be ruptured as the herniation enlarges." (Landau, 1986, pg. 934).

11. Environmental factors: risk factors influencing the child's development after birth such as violence and abuse, passive exposure to cocaine, and changes in the

family unit.

12. Family: an environmental factor to include biological and adoptive parents, grandparents, aunts, uncles, siblings, foster parents, and residential caregivers.

13. Hypertonic: "Muscle state increased; tighter and strained more than normal" (Landau, 1986, p. 1373).

14. Hypoxemia: "Reduced oxygen concentration in arterial blood" (Landau, 1986, p. 1390).

15. Infarction: a blockage area formed from dead cells due to lack of blood flow; also known to facilitate a stroke or a heart attack (Landau, 1986).

16. Interagency collaboration: "... organizational and interorganizational structures where resources, power, and authority are shared and where people are brought together to achieve common goals that could not be accomplished by a single individual or organization independently" (Kagan, 1991, pg. 3). This offers the opportunity for each agency to restructure their current expertise and resources to envelope that of the partner agencies.

17. Language: communicative intent, receptive and expressive sound/symbol association skills, articulation, and fluency.

18. Lipoma: a fatty tumor deposit found in the brain (Landau, 1986).

19. Medical factors: any indications of health problems such as respiratory illness, gastrointestinal tract illness, high blood pressure, HIV/AIDS, heart condition, stroke, or seizure disorder as provided in the records or by the caregiver. This also includes medications and medical diagnosis of ADHD or any other psychiatric diagnoses.

20. Motor skills: tremors, muscle tone (hyper- and hypotonicity), eye-hand coordination, gross motor coordination.

21. Neurodevelopmental injury: "the effects of in utero exposure on the developing fetal central nervous system as evident in subsequent behavior and development" (Gingras et al., 1992, p. 11); also referred to as neurobehavioral outcomes which are behaviors that are neurologically based and includes

irritability, attention, state organization, reactivity, reflexes, distractibility, impulsivity, hyperactivity, and aggression.

22. Neurotransmitters: the chemicals in the brain responsible for exciting nerve communication; the neurotransmitters specifically blocked from reuptake by cocaine are dopamine, epinephrine (also called adrenaline), serotonin, and norepinephrine which create excitability and stimulation, induce vasoconstriction, raise blood pressure and generate other natural "highs" (Gawin, 1991; Landau, 1986; Sparks, 1993).

23. Polydrug use: a term generated from medical literature describing the practice of the use/abuse of accompanying legal and illicit drugs to the user's predominant drug of choice.

24. Prenatal: the time period of fetus development occurring between conception and birth; as opposed to neonatal (first four weeks of life), postnatal (time period after childbirth) or perinatal (28th week of gestation to the 28th day after birth, Landau, 1986, p. 2138).

25. Prenatally exposed: describes exposure of the

fetus to cocaine in utero during any trimester of development; synonymous with drug exposed, intrauterine drug exposed, and substance affected.

26. School age: elementary school, specifically grades kindergarten through fifth, ages 5 - 11.

27. Social development: as indicated through neurodevelopmental/neurobehavioral and social skill measures.

28. Social Skills: play, interactions with others, interpersonal behaviors, emotional control.

29. Teratogen: "An agent of factor, such as radiation, viral infection, chemical, drug, etc., that is capable of causing the production of developmental abnormality in an embryo, fetus, or postnatal individual" (Landau, 1986, p. 2866).

30. Teratogenesis: "the origin or mechanism of production of a developmentally abnormal embryo, fetus, postnatal individual or part there of" (Landau, 1986, p. 2866).

31. Toxicology: "The study of adverse effects of

substances on biological systems, and of their detection and treatment" (Landau, 1986, p. 2963).

Overview of the Remaining Chapters

Chapter 2 provides a review of the literature outlining the history and background of the problem, and the rationale for the study. Chapter 3 describes the procedures and methods for data collection; Chapter 4 contains a composite of the patterns and characteristics found. Chapter 5 summarizes the findings of the study, states conclusions, discusses implications for the field of practice, and offers suggestions for further research.

CHAPTER 2

REVIEW OF THE LITERATURE

To establish a rationale for the study while providing significant background information, this chapter reviews the relevant literature in six major areas: cocaine usage, the at-risk population, difficulties with research in this area, effects of cocaine on the fetus, long-term effects of cocaine on children, and environmental factors. Each area contains several subsections pertinent to the study with a summary of findings as the concluding section.

Cocaine

History and Physical Effects

Crack, the popular derivative of cocaine, is viewed as the 1990s drug of choice and the root of a current social

epidemic (Gawin, 1991; Sautter, 1992; Schutter & Brinker, 1992). It has a history dating back several hundred years. Cocaine, which is extracted in different forms from the leaves of the cocoa plant, originated in South America. Natives there chewed coca leaves for social and religious reasons; later, chewing coca leaves caught on with other exploring countrymen for its use in increasing work productivity and suppressing appetite (Duncan, 1987).

Drug use in our country, overall, has gone hand in hand with American development (McWilliams, 1991). For example, tobacco and beer consumption date back to settlement in Jamestown in the 1600's, and the discovery of hemp dates back to Mount Vernon in the 1760's. The government has been battling to control drug problems for 80 years since the enactment of the Harrison Act in 1914. Drug production and sales are deeply entrenched in our culture and are now one of the United States' biggest industries (McWilliams, 1991; Pouslen, 1991). In the year 1989 alone, it was estimated that over 100 metric tons of cocaine were introduced to this country from abroad (Vincent et al., 1991).

The commercial form of cocaine, processed into white powder form and snorted intranasally, became available and popular around the time of Operation Intercept. Operation Intercept was the government's attempt in 1969 to control the incoming flow of marijuana to the United States

(Duncan, 1987). Thus, due to the shortage of marijuana, users began to experiment more widely with other illicit drugs. Although cocaine was not new, it was newly accessible and in new form.

In the 1970s, cocaine was further refined and heated into rock-like form known as "crack" or other various street names such as coke, snow, blow, nose candy, freebase, and bubble gum (Duncan, 1987; Office of Substance Abuse Prevention, 1991). When cocaine has been processed into crack, it is smoked. Smoking cocaine in crack form causes dramatic effects and reaches the brain much more rapidly than other administrations of cocaine. Crack usage increased in abusive practice rapidly in society due to this different route of administration of the drug (Duncan, 1987). Cocaine can also be processed into paste which can be injected into the body, or applied topically. Although crack causes more immediate highs and is easier to control by the user than other forms of cocaine, any usage can cause dependency (Duncan; Gawin, 1991; Office of Substance Abuse Prevention).

In the early 1980s, psychological and neurophysiological dependence of cocaine was considered obsolete. Because cocaine does not cause obvious physical withdrawal symptoms, as does heroin or alcohol, researchers and other clinical experts were pressed to understand the vast increase in the illicit use of the drug (Gawin, 1991).

An explanation of the effects of cocaine in the user provides insight to the devastating consequences of this drug use.

Physiologically, the results of cocaine usage are concretely established. When cocaine enters the body, it travels immediately to the central nervous system to enact changes neurochemically in the brain. Cocaine causes dopamine and the body's other natural chemicals that produce an exhilaration feeling or "high" to stay active longer than normal. Cocaine prevents the natural progression of these neurotransmitters and stimulates them in a unique fashion not evident by other drugs (Gawin, 1991; Office of Substance Abuse Prevention, 1991; Sparks, 1993). Cocaine also changes the normal neurochemical functioning of the brain in its absence (Gawin, 1991).

The immediate physical outcomes of this reaction include vasoconstriction of blood vessels, hypertension, increased heart rate, pupil dilation, and increased breathing rate and body temperature (Chasnoff, 1991; Gingras et al., 1992; Office of Substance Abuse Prevention, 1991). With increased frequency and amount of the drug, the consequences may also include seizure activity, strokes, heart arrhythmia, heart attacks, and respiratory failure. There is considerable variability in the physiological effects of cocaine administration for every individual; some have suffered a stroke or heart attack

upon first usage of cocaine (Chasnoff, 1991; Office of Substance Abuse Prevention).

Although these physical reactions to cocaine are great cause for concern, they are less dangerous than the psychological effects presented from use of the drug. Individual psychological tolerance will vary; however, clinical research confirms the following outcomes. With initial ingestion of cocaine, a heightened sense of pleasure and well being occur; normal events are intensified along with sexual feelings; self-esteem is greatly enhanced; and an euphoria is experienced not known from any other substance (Gawin, 1991; Office of Substance Abuse Prevention, 1991). As addiction to cocaine develops, the user transitions to higher doses, more frequent administration, or from the powder form to the more potent "crack" form of the drug. Addicted users will seek the drug until they have exhausted their supply at all costs including health, employment, material possessions, and loved ones (Gawin).

Three phases of symptoms occur in the absence of cocaine which are complex and quite different from typical withdrawal. The first phase is referred to as the "crash" phase. This period begins immediately after a single cocaine use or bingeing (excessive use), and involves the depletion of energy and downswing of mood. It is also characterized by increased craving for the drug, anxiety,

depression, paranoia, and agitation (Gawin, 1991; Office of Substance Abuse Prevention, 1991). This phase is reportedly when users will administer other drugs, such as alcohol or marijuana, to help them sleep.

Phase two is highly illustrative of the incredible pull cocaine has on the people who become addicted. It is during this phase, termed "withdrawal", in which neuroadaptation is noted. Neuroadaptation can best be described as normal pleasures no longer causing normal reactions chemically in the brain or psychologically (Gawin, 1991). This is accompanied by an increased anxiety level, boredom, and decreased motivation. All of these symptoms, accompanied by cues (classical and operant conditioning) reminding them of cocaine euphoria, exacerbate cravings in the individual. It is at this stage that the user generally returns to cocaine administration and other drugs to alleviate anxiety and depression (Wilkes, 1993; Gawin). As this cycle of abuse perpetuates, behavioral changes may occur, including periods of violence, suspicion, poor judgment, and bizarre behavioral responses (Besharov, 1990; Office of Substance Abuse Prevention, 1991).

Phase three, "extinction", may occur any time after 12 weeks of total abstinence from cocaine. Conditioned or cued cravings, which are found to be more intense than those of other drugs, will occur during this phase, and

could emerge for years after the last administration of the drug (Gawin, 1991).

Clinical research has thus established that cocaine is highly addictive, physically and psychologically, and that it is accompanied by high cost consequences for the user. Additionally, as cocaine has become more accessible and more potent in "crack" form, the link to this societal epidemic drug of choice is concretely understood.

Cocaine Use in Pregnancy

As the utilization of cocaine has increased across society, it has left no population untouched. Although other patterns of drug abuse have not changed in the last ten years, usage of cocaine by women of childbearing age is dramatically increasing (Chasnoff, 1988a; Cohen & Erwin, 1994; Gingras et al., 1992; Schutter & Brinker, 1992; Shriver & Piersel, 1994). Current estimates show approximately 17% to 24% of pregnant women have used an illicit substance sometime during their pregnancy (Bays, 1992; Gingras et al.), with projected numbers of substance exposed babies ranging from 500,000 (Office of Inspector General, 1990) to 4,250,000 (National Association for Perinatal Addiction Research and Education, 1989) total by the year 2000. Each year, somewhere between 40,000 and 180,000 cocaine exposed births occur (Brady et al., 1994). In New York City alone, between 1985 and 1989, estimates indicated that 22,000 babies prenatally exposed to crack

were born with an estimated 12,000 cases not reported (Cohen & Erwin, 1994).

The pattern of drug abuse by pregnant women follows no typical profile. Drug use cuts across all classes and races. Cocaine is documented as women's illicit drug of choice and is found to be increasing in the group of middle class women (Griffith, 1993; Sautter, 1992). There are less data on middle class women and children, however, due to the fact that they generally have better access to health care services and abuse is not as easily detected (Brady et al., 1994; Sautter; Wilkes, 1993). Therefore, the prevalence estimates are inaccurate with data bias towards poverty stricken and low-socioeconomic families (Gittler & McPherson, 1990; Vincent et al., 1991).

Population At-Risk Through Cocaine Exposure

Clinical, social, and educational researchers have devoted tremendous effort in the last several decades to studying the biological and environmental factors that cause children to be at-risk for failure in school. Due to the increase in the survival rate of severely ill and premature infants, many risk factors have now been connected to various developmental outcomes (Pearl, 1993). The biological risk factors include, but are not limited to, medical conditions such as seizures and respiratory distress; clinical conditions such as low birth weight and chromosomal abnormalities; and neurological conditions,

such as prenatal exposure to drugs and alcohol. There are also many environmental risk factors such as family functioning, homelessness, developmental opportunities, child abuse, and poverty (Bauwens & Hourcade, 1995; Morgan, 1994; Pearl, 1993; Vincent et al., 1991; Wilkes, 1993). In the 1980's, a significant increase in children impacted by risk factors was found (Brady et. al, 1994). The growth in the population of at-risk children is a challenge to medical professionals, clinicians and educators alike. Traditional services, procedures, and school structures are considered inadequate to respond to the needs of this growing population (Bauwens & Hourcade, 1995; Thomas, 1993; Vincent et al., 1991).

Specifically, children prenatally exposed to cocaine seem to contribute to the at-risk population in a multiple risk fashion. For example, the research on direct and indirect effects of cocaine on the infant and toddler highlights several biological risk factors: low birthweight, respiratory problems, tremors, seizures, infarctions, hypertension, intrauterine growth retardation, and prematurity (Chasnoff, 1988a; Gingras et al., 1992; Thomas, 1993; Schutter & Brinker, 1994; Shriver & Piersel, 1994), coupled with long term consequences manifested behaviorally (Bays, 1992; Chasnoff, 1991; Gingras et al., 1992; Shriver & Piersel, 1994; Sparks, 1993; Wilkes, 1993). The research further indicated a multitude of contributing

and environmental factors placing these children at-risk: polydrug use by the mother, lack of prenatal care, nontraditional families, frequent foster care placement, violence, passive exposure to drugs, poverty, homelessness, low socio-economic status, and high susceptibility to HIV/AIDS (Chasnoff, 1988a; 1988b; Gittler & McPherson, 1990; Griffith, 1994; Thomas, 1993; Vincent, et al., 1991; Wilkes, 1993).

The combination of these multiple risk factors frames a bleak outlook for substance exposed children in school (Brady et al. 1994). Meeting these children's needs in already overburdened school systems poses a challenge to educational leaders. The law, 101-476 (IDEA) requires special education to address and meet the needs of children prenatally exposed to drugs, and not focus on how the needs were created (Students with disabilities, 1993). However, the cumulative effects of the risk factors facing these children generate a variety of neurobehavioral and biological outcomes, not a classification on a set of specific characteristics (Schutter & Brinker, 1992; Thomas, 1993). Therefore, children prenatally exposed to cocaine cannot be generalized into a category, but must be considered on a case by case basis (Griffith, 1994). In practice, many of these children do not meet eligibility requirements for special education and are not being served (Poulsen, 1991). This information highlights the need to

examine the patterns of achievement and behavior these children have exhibited in school, and address the current educational system's response to this growing at-risk population.

Difficulties Identifying This Population

Researching the direct, indirect, and long-term effects of intrauterine exposure to cocaine on children is complicated by several contributing factors. These include factors surrounding the mother during pregnancy, polydrug use, toxicology difficulties, and the use of a biased population from which to collect data. These conditions impact the clarity of outcomes in the research of children prenatally exposed to cocaine.

There are several factors in addition to cocaine use which may negatively impact the fetus during pregnancy. The most significant of these is poverty. Poverty creates circumstances in which a pregnant woman may lack prenatal care and good nutrition during the pregnancy. Furthermore, the mother may be in poor health and have inadequate health care. Research has linked all of these factors to low birthweight, sudden infant death syndrome (SIDS), and learning problems in children (Chasnoff, 1991; Gingras et al., 1992; Schutter & Brinker, 1992; Vincent et al., 1991; Wilkes, 1993). There is also documentation of increased HIV and AIDS incidence among children of intravenous drug using women (Chasnoff, 1988a; 1991; Gittler & McPherson, 1990;

Vincent et al., 1991; Wilkes).

Polydrug use also contributes significantly to the difficulties researching this population. Although research indicates cocaine as the primary drug of choice for pregnant women who use drugs, indepth investigations reveal a multitude of other drugs, legal and illegal, being ingested simultaneously or periodically throughout the pregnancy. The nature of polydrug use patterns hampers defining the specific effects of independent cocaine use (Brady et al., 1994; Chasnoff, 1988a; 1991; Gingras et al., 1992; Pearl, 1993; Sparks, 1993).

Polydrug use exacerbates harmful effects to the fetus through the interaction of chemicals. For example, cocaine effects neurotransmitters in a particular way, as does alcohol. Ingested together, however, they create a new and different effect (Chasnoff, 1988a; Wilkes, 1993).

Self-reporting of cocaine use is unlikely (in isolation) to provide an accurate measure of incidence of usage as cocaine is an illicit drug. Mothers may also be hesitant to self report for fear of neglect and abuse charges (Brady et al., 1994; Schutter & Brinker, 1992). However, toxicologies are not mandated in most states and are not performed routinely. Therefore, many women and their infants exposed to cocaine go undetected, especially in the private sector. When substance abuse in the mother is not suspected, subtle signs of withdrawal and exposure

in the infant may go initially unnoticed (Bays, 1992; Pearl, 1993). A majority of research on prenatal exposure to cocaine in children is based on a biased population of substance using women. The studies are conducted in rehabilitation or hospital based programs referred through court systems and generally in low socio-economic areas-- leaving out the middle-class, private health care population of substance abusers (Chasnoff, 1991; Sparks, 1993; Vincent et al., 1991).

A urine toxicology can detect cocaine in the child at the time of birth. A positive screen (from the mother or child) indicates that the mother used cocaine somewhere within one to five days preceding delivery. The difficulties with this measure are many. First, the threshold of the test is set at 300 of benzoylecgonine per milliliter (ng/ml.). The metabolite of cocaine can be detected at a lower level, i.e. 100 ng/ml.; however, if the concentration is below 300 ng/ml., it will be determined as negative when in fact, it is not. Furthermore, the toxicology only detects use just prior to delivery; it does not provide the dosage of use or information on any other usage during the pregnancy (frequency of use). Finally, the toxicology is only requested when drug use is suspected; it is not routine procedure (Bays, 1992; Brady et al., 1994; Chasnoff, 1991; Sparks, 1993).

Discussion of the above conditions are imperative when

examining the effects of prenatal cocaine exposure on children. In order to investigate outcomes of cocaine exposure, this constellation of contributing factors must be considered as they may enhance or potentiate the injury.

Direct and Indirect Effects of Cocaine On the Fetus

The increase in the population of children prenatally exposed to cocaine has focused attention on the immediate and long term effects of exposure. At this time, a limited amount of empirical data exists on the long term effects of intrauterine cocaine exposure (Bays, 1992; Gingras et al. 1982; Shriver & Piersel, 1994). However, much of the existing data is of paramount importance and will be presented. First, significant animal research is reviewed, followed by the immediate (indirect and direct) effects of cocaine use to the human fetus. Finally, the research on the long term outcomes from prenatal cocaine exposure on toddlers and preschoolers will be examined.

Animal Research

Due to the sensitivity and legal complications surrounding cocaine usage, animal research has been conducted to reveal important information. Researchers have utilized rats extensively to examine the teratogenic properties of cocaine. For example, Gingras et al. (1992) reported through research on rats that cocaine disrupted the DNA process and neurotransmitter functions in the brain, that cocaine withdrawal produced behavioral

disruptions, and that the mother and fetus suffered prolonged exposure to the toxicity of cocaine during pregnancy. Studies by Dow-Edwards, Freed and Milhorat (1988, 1989) compared the effects of cocaine in rats to the central nervous system (CNS) development of the third trimester in the human fetus finding that there were abnormal responses in the motor, limbic and sensory portions of the brain. These were long term outcomes as the prenatally exposed rats were examined in the adult stage. Other research on rats suggested long-term physiological effects of cocaine exposure throughout the animal's life span (Giordano, Moody, Zubrycki, Dreshfield, Norman, & Sanberg, 1990; Shriver & Piersel, 1994). Additionally, Gawin (1991) found that rats will kill themselves through repeated self-administration of cocaine when provided the opportunity, or press a lever one thousand times to receive one dose of the drug. The study by Giordano and colleagues (1990) also highlighted the significance of the variation between outcomes in rats locomotor and stereotypic behavior by dosage, time of exposure, and administration route of cocaine.

In a recent study of effects of intrauterine cocaine exposure in Sprague-Dawley rats (Johns et al., 1994), the pregnant rats were injected with cocaine (two groups--a cocaine daily group and a cocaine intermittent group) while a control group received saline injections throughout

gestation. Male offspring were then used for testing and observation when they reached 180 days old. Aggressive and social behaviors such as circling and threatening, rough grooming, aggressive posturing, fight attacking, chasing, piloerection (hair standing on end) and escaping were measured. The notable outcomes of this study revealed that the offspring with chronic intrauterine exposure to cocaine not only threatened other rats for significantly longer periods of time, but were aggressive (piloerection, posture, fight attack, rough grooming, and chase) longer and more often than the other groups in the experiment. Other relevant outcomes of the study included findings that the intermittently exposed group of offspring reacted inappropriately to normal instances of aggression and fear throughout different stages of their lifespan. Furthermore, the researchers found that although cocaine acted as a vasoconstrictor, behavioral changes were not attributed to poor prenatal nutrition as pup weights across all the groups were equal (Johns et al.).

Research on intrauterine exposure to cocaine in rats confirmed that cocaine is highly addictive. Further, the research suggested that there are long term behavioral effects to the offspring of mothers using cocaine, depending on the dose and time of exposure to cocaine. It also confirmed that the neurotransmitter system suffers a significant change in the user and offspring, and that

aggressive behaviors were noted to occur significantly more often in cocaine exposed pups throughout their adult stages. Animal research in this area is best summarized by the following:

The strength of the animal data is that it shows with certainty that the changes are the effects of cocaine exposure per se and are not merely the result of polydrug interactions, which are so difficult to control in clinical populations. The limitation of the animal studies rests on whether the rat is an appropriate model for the effects of cocaine on human development. If the rat is a suitable model to study the effects of cocaine on development of the human nervous system, our data would suggest that cocaine may place exposed children at-risk for neurochemical and neurobehavioral abnormalities which may last into adulthood. (Dow-Edwards, 1989, p. 280)

Indirect Effects

Much of the research on the effects of intrauterine exposure of cocaine on rats parallels research in the field on direct and indirect effects of intrauterine cocaine exposure to the fetus. Cocaine is a highly soluble and transilient substance that crosses the placenta and the fetal blood-brain barrier more easily than most elements (Chasnoff, 1987, 1991; Gingras et al.). This causes a substantial amount of the ingested cocaine to flow to the

fetus to be metabolized by its liver independently. However, the fetus is unable to metabolize the cocaine or excrete it as its organs are not fully developed; therefore, cocaine has been found to stay in the fetus up to four times longer than in the mother (Chasnoff, 1987, 1988b; Gingras et al., 1992).

This indirectly results in toxicity to the unborn baby, putting the fetus at-risk by altering the placentae. Vasoconstriction of the placentae reduces the blood flow to the fetus resulting in decreased oxygen and nutrition being delivered to the fetus. These conditions may cause intrauterine growth retardation. The fetus may also suffer from hypoxemia (lack of oxygen to the developing brain and central nervous system), tachycardia (increased fetal heart rate), low birthweight, and hypertension (increased blood pressure). These circumstances are the impetus for premature labor and abruptio placentae (Chasnoff, 1987; Gingras et al., 1992; Heier et al., 1991; Schutter & Brinker, 1992), and may also indirectly cause microcephaly and related mental retardation (Chasnoff, 1991; Gingras, et al., 1992). The long-term consequences of these indirect effects on children will be considered after the direct effects are reviewed.

Direct Effects

Research further indicated that cocaine is a teratogenic property and that it directly affects the

prenatal infant similarly to the way it affects the adult user. Cocaine causes a pattern reaction of the neurotransmitters in the brain and blocks the reuptake (or natural reabsorption) of the catecholamine set of chemicals (catecholamines are the natural brain chemicals responsible for pleasure feelings). This causes central nervous system (CNS) irritability and toxicity (Chasnoff, 1991; Heier et al., 1991). The radiological study by Heier et al. confirmed other research that this toxicity to the CNS may also cause neural tube defects (such as encephalocele, absence of the corpus callosum and lipoma) and infarctions (Gingras et al., 1992). Further injury results directly from the effects of cocaine and includes altered motor development and respiratory disorders. This damage also produces neurodevelopmental abnormalities (Chasnoff, 1987, 1991; Gingras, et al.).

Long-term Outcomes

Indirect Effects

The indirect effects of cocaine on the fetus may result, as mentioned above, in prematurity, intrauterine growth retardation, and microcephaly. One of the most common consequences of prematurity and intrauterine growth retardation for the infant is low birthweight. Low birthweight is defined as weighing less than 5.5 lbs. at birth (Thomas, 1993; Wilkes, 1993). The lack of nutrition and oxygen to the fetus due to indirect effects of cocaine

and other substances, may result in premature birth.

Newman and Buka (1990) highlight that infants prenatally exposed to cocaine are four times as likely to experience low birthweight than other infants. Chasnoff and his colleagues found similar findings in their study of 1989 (Chasnoff, Griffith, MacGregor, Dirkes, & Burns, 1989). They monitored three groups of pregnant women: a control group, a group of women who utilized cocaine only in the first trimester of pregnancy, and a group of women who used cocaine throughout their pregnancy. All of their infants had an exam from a physician blind to the experiment. The results indicated that infants born of the group using cocaine throughout the pregnancy were significantly premature, small for gestational age, and low birthweight.

There is extensive literature in the field on the implications of low birthweight on learning. Children born with low birthweight encounter many factors interfering with school performance. Cerebral palsy, seizure disorders, behavior problems, learning disabilities, attention deficit disorder (ADHD), delayed speech and language problems, and chronic respiratory problems are highly correlated with low birthweight (Thomas, 1993; Wilkes, 1993). According to the National Health Interview Survey of 1990, 11% of school age children with normal birthweight have been retained in school and 4% of school

age children with normal birthweight receive special education services. The survey results also provide that 40% of school age children with low birthweight (5.5 lbs- >3.3 lbs) have been retained while 20% of school age children with low birthweight receive special education services (McCormick, Gortmaker, & Sobol, 1990).

Another consequence of intrauterine growth retardation is that babies are small for their gestational age. Several recent studies highlighted that infants born to mothers using cocaine during pregnancy, as compared to mothers using other drugs or mothers taking no drugs, had a decreased mean for gestational age, a decreased mean for head circumference and a decreased mean for birth length. These circumstances place cocaine exposed infants at higher risk for death and inadequate weight gain early in life (Chasnoff, 1987; Kelley, Walsh, & Thompson, 1991; Schutter & Brinker, 1992).

Microcephaly, or small head circumference, is more likely to affect the neonate of indirect intrauterine exposure to cocaine than the drug free neonate (Wilkes, 1993). For the infant, microcephaly is noted to be an indicator of intrauterine cocaine exposure and has long term consequences (Chasnoff, 1988; Kelley et al., 1991; Schutter & Brinker, 1992). Research indicates that over time, the infant's head circumference remained smaller for children prenatally exposed to cocaine than other children

of the same age (Shriver & Piersel, 1994). Microcephaly is documented as one of the known possible causes of mental retardation (Liebman, 1991).

Direct Effects

Cocaine ingested by a mother during pregnancy directly affects her fetus as a teratogen. Direct effects to the infant may involve abnormal development such as neural tube defects, infarctions, motor dysfunction, respiratory illness, and neurobehavioral deficits as a result of CNS toxicity. However, it is imperative to note that teratogenesis may produce effects which are not present at birth, but may emerge over time (Wilkes, 1993). This makes diagnosis, identification of long term consequences, and interventions much more complicated (Weston, Ivins, Zuckerman, Jones, & Lopez, 1989).

The research indicated that neural tube defects, such as encephalocele and lipoma, infarctions or strokes, and other neurological malformations in infants may produce seizures (Chasnoff, Bussey, Renate, & Stack, 1986; Chasnoff 1988a; Chasnoff et al., 1989; Gingras et al., 1992; Schutter & Brinker, 1992). In a recent study, researchers postulated that cocaine could actually lower the seizure threshold in an at-risk infant or child (Mott, Packer & Soldin, 1994). These conditions can further result in lower psychomotor functioning in the infant (Chasnoff et al., 1986).

Other motor dysfunction is noted in the literature to be a long-term consequence of CNS toxicity. For example, more infants exposed to cocaine in utero retained primitive reflexes longer than non-exposed infants, displaying a lag in motor maturation (Chasnoff, 1988a; Schutter & Brinker, 1992). Hypertonia is noted consistently throughout the literature along with overall stiffness, difficulty counteracting gravity, and tremulousness (Bays, 1992; Chasnoff; Kelley et al., 1991; Schutter & Brinker). These deficits in motor ability limit further manual exploration which impacts sensorimotor development and may impact gross motor functioning and handwriting in school age children (Schutter & Brinker).

Further long-term consequences are characterized by repeated cases of genitourinary defects and respiratory illness in infants prenatally exposed to cocaine (Bays, 1992; Chasnoff, 1988b; Chasnoff et al., 1989; Gingras et al., 1992; Schutter & Brinker, 1992; Shriver & Piersel, 1994). Infants prenatally exposed to cocaine often experience variations in breathing patterns and periods of apnea which can lead to SIDS. Also, infants may suffer from pneumonia early in life. These conditions place the infants at high risk for experiencing chronic medical conditions, such as frequent genitourinary tract infections and asthma, later in life.

The long-term consequences of direct CNS toxicity and

teratogenesis which are of most concern are the neurobehavioral deficits exhibited by neonates, infants, and toddlers of prenatal substance exposure. Studies suggest that prenatal cocaine exposure may alter neurotransmitter activity in the developing fetus just as it does in the using adult. The outcome is an organically based deficit in the neonate and infant resulting in the following neurobehavioral abnormalities: agitated mood state, inconsistent state orientation, inattention, hyper-arousal or hypo-arousal (or excitability or stimulation), unusual interactive response, and reactivity (Bays, 1992; Chasnoff, 1991; Gingras et al., 1992; Kelley et al., 1991; Shriver & Piersel, 1994; Sumner, Mandoki, Matthews-Ferrari, 1993). Gingras and her colleagues (1992) studied developing behavioral states in fetuses of 36 weeks gestation of intrauterine cocaine exposure using ultrasonography (perturbing the baby with acoustic stimulus to observe attempts at behavioral regulation). Gingras noted that "Behaviorally disorganized fetuses were found among both acutely intoxicated fetuses and those exposed to cocaine earlier in pregnancy...when compared with controls" (p. 12). Chasnoff (1987) described the cocaine exposed infants as "irritable and tremulous...with formal evaluations at 3 days of age...revealed that such infants are largely unable to respond to the human voice and face, deficient in the ability to interact with others, and

highly labile emotionally, responding poorly to attempts at comforting" (p. 176).

Toddler Research

In early childhood, affected neurodevelopmental states are reflected by deficiencies in language, attention span, organizational strategies, emotional expression, quality of play, intellectual functioning, visual perceptual processing, and interpersonal relations (Knight & Waterman, 1992; Schutter & Brinker, 1992; Sumner et al., 1993). In recent psychiatric case studies of children prenatally exposed to cocaine, five out of five toddlers were reported to receive speech therapy, demonstrate hyperactivity and aggressiveness, and meet the diagnostic criteria of moderate to severe ADHD. Most of the toddlers were taking related medications (psychostimulants and psychotropics) and one child had just been diagnosed with learning disabilities. Eleven cases (73%), of an additional group studied required inpatient psychiatric treatment for conditions such as affective disorder, oppositional defiant disorder, and post traumatic stress disorder (Sumner et al., 1993).

Cohen and Erwin (1994) did a comprehensive study of 3-5 year olds in order to generate behavioral characteristics of children prenatally exposed to drugs. Their subjects consisted of 29 children of intrauterine drug exposure and 20 children with no reference to drug use in their history.

Both groups were identified as having disabilities and attended special education preschools. The following demographic data describes the children's living arrangements: 22 of the 29 children of the drug exposed group were not living with their birth mothers; 8 of the children were in kinship foster homes, usually with a grandmother; 10 of them were in nonkinship foster homes; and another 4 of the children had been adopted. The children in the drug exposed group had the following identified disabilities: 17 with speech/language impairments, 1 with serious emotional disturbance, 7 with mental retardation, and 4 with multiple disabilities.

Cohen and Erwin (1994) used three data collection strategies over a 10 month period--participant observation, time sampling, and interviews. The behavioral characteristics used by Cohen and Erwin came from the literature on children prenatally exposed to cocaine and consisted of: mood, attachment in relationships, attention, activity level, aggression, organization and level of play, and language usage. Transition was a characteristic which emerged over the time of the study as a difficult behavior for the children. A ninth characteristic was created separate from attachment in relationships referred to as "High interest in strangers" as the drug exposed children indicated intense interest in the observers.

Findings indicated that the children of the drug exposed group exhibited the stereotypic characteristics significantly more than the control group. Also, the drug exposed children varied greatly in their display of the characteristics. The data, after triangulation, showed that seven children in the drug-exposed group strongly resembled the pattern of children prenatally exposed to drugs presented in the literature. Cohen and Erwin's study did not support prior findings that toddlers of drug exposure had insecure attachments, nor did the study indicate whether the children were taking any related medication during the time of observation.

Another study of importance to this research area is a review and analysis of the experimental literature on behavioral and developmental outcomes of children prenatally exposed to illicit drugs by Carta et al. (1994). Their sources of data were selected according to the following criteria:

1. The study was published in a refereed journal between 1972 and 1992.
2. The study included children with prenatal exposure to at least one illegal substance (e.g., cocaine, heroin, marijuana, methadone, phencyclidine, methamphetamine) or polydrug exposure.
3. The report described an original study (i.e., it

was not a review article).

4. The study employed an experimental or quasi-experimental design.
5. The study included human children between birth and 60 months of age as subjects.
6. The study was written in English or Spanish.
7. The study included information about the methods for determining the drug exposure.
8. The study described a behavioral characteristic or developmental status as an outcome of drug exposure. (p. 188)

The researchers (Carta et al., 1994) found 46 of 1,200 articles surveyed fit the specified criteria. Quantitative analyses were performed across age, domain areas, and outcomes. The domain areas delineated were neurodevelopmental, cognitive, motor, social, and language. The majority of measures used in the articles indicating behavioral outcomes were the Neonatal Behavioral Assessment Scale, The Bayley Scales of Infant Development, the McCarthy Scales of Children's Abilities, and other investigator-developed measures.

A total of 460 outcomes (behavioral or developmental) of prenatal drug exposure were extracted from the reviewed studies. Out of the total, 49.8% of the outcomes were found to be adverse in nature. Nineteen of the 46 studies reviewed specified cocaine to be one of the illicit

substances of prenatal exposure. Only five of the 46 studies analyzed used subjects of four years of age or older.

Carta et al.'s (1994) findings, in general, indicated adverse outcomes in all domain areas across all ages, with the most significant findings in the neurobehavioral domain of children 0-7 days old. The adverse outcomes were the lowest in the 1-6 month age range and began to rise with age from there. The language domain reflected the lowest percentage, 25%, of adverse outcomes overall.

Summary of Long-Term Outcomes

The review of literature on the long term outcomes of prenatal cocaine exposure on infants and toddlers sheds light on several important issues. First, the research revealed that there has been a limited number of studies conducted on children of intrauterine cocaine exposure above the age of four. The majority of the research focuses on neonates and infants. Second, it appeared that such outcomes varied in the research from subtle (such as Cohen and Erwin's study showing several children exhibiting only three or less stereotypic characteristics) to severe (such as Sumner et al.'s study (1993) showing that all of the cases exhibited moderate ADHD, with 73% requiring inpatient psychiatric treatment). Finally, the standing literature projected a pattern of outcomes, to varying extent, to be typical of children prenatally exposed to

cocaine. The pattern reported in the literature is as follows:

The neurobehavioral pattern extracted from the literature includes aggression, ADHD symptoms (i.e., impulsivity, hyperactivity, inattention), inability to organize behavioral state, and unusual sensory responses. In school age children, these behaviors may manifest as hyperactivity, impulsivity, inattention, inability to follow class rules, verbal or physical aggression towards peers, poor organizational skills, inappropriate sensory reactions, self-stimulatory behaviors, intolerance to change in routine, and defiance to authority.

The social skills pattern extracted from the literature includes abnormal attachments to adults, mood swings, preference to play alone, and inappropriate play skills. In school age children, these behaviors may manifest as overreactions to situations, inappropriate responses to social cues, unhappiness, anxiety, preference of isolation, and a lack of cooperation with peers.

The motor pattern extracted from the literature includes uncoordination, hypo- and hypertonicity, cerebral palsy, and tremors. In school age children, these behaviors may manifest as tremors, poor handwriting, difficulty transferring written work from the chalkboard to paper, and poor gross motor coordination.

The language pattern extracted from the literature

includes delays in receptive and expressive skills, pragmatics, lack of communicative intent, and speech deficits. In school age children, these behaviors may manifest in a similar fashion.

The cognitive/achievement pattern extracted from the literature reveals generally lower cognitive functioning and some mental retardation. In school age children, this may manifest in poor achievement in any subject area, difficulties participating in oral discussions, and difficulties with problem solving or higher level thinking skills.

The medical factors extracted from the literature include seizure disorders, respiratory problems such as asthma, heart conditions, genitourinary tract conditions, stroke, high blood pressure, psychiatric diagnosis, or ADHD diagnosis. These factors would manifest in a similar fashion across ages.

Environmental Factors

Children prenatally exposed to cocaine may continue to experience serious risk factors throughout childhood. The injuries induced by cocaine in utero are magnified by environmental risk factors (Chasnoff, 1988a; Gingras et al., 1992). The importance of considering such factors was noted by Schutter and Brinker (1992): "Research on developmental outcomes must consider the impact of environmental factors as well as the biological impact of

the drug exposure" (p. 94).

There is a lack of rehabilitation programs for pregnant women who are substance abusers in our society (Besharov, 1990; Chasnoff, 1993; Chasnoff & Lewis, 1994; Gittler & McPherson, 1990; Horowitz, 1990; VanBremen & Chasnoff, 1994). Research in the field of substance abuse demonstrated that substance abuse will continue unless a continuum of treatment options are available to the patient on a long term basis (Chasnoff; Chasnoff & Lewis; VanBremen & Chasnoff). Therefore, it is highly likely that children of intrauterine cocaine exposure will continue to be surrounded by drug using lifestyles. This creates a chaotic homelife with abrupt changes, passive exposure to substances, unstable relationships, violence and abuse. These circumstances influence child development significantly (Brady et al., 1994; Chasnoff, 1991; Gingras et al., 1992; Poulsen, 1994).

Passive Exposure

Children who are products of a drug using environment often experience additional exposure to cocaine and other substances. This secondary or passive exposure may occur from breathing in the smoke from crack, ingesting cocaine left within the child's reach, deliberate poisoning, or ingesting cocaine through breast milk (Bays, 1992; Gingras et al., 1992). These types of passive exposure are easily overlooked due to the insufficient assessment of maternal

chemical dependence (Chasnoff, 1988b).

Although mothers are warned that their infants may be in great danger if further exposed to cocaine when breast feeding, toxicity cases continue to be brought to the attention of emergency room and other physicians. One child experienced seizures after the mother applied cocaine topically to her nipples for soreness. Another child experienced apnea when cocaine was ingested through breast milk (Bays, 1992). In hopes of further educating physicians to be aware of such situations, Chasnoff, Lewis, and Squires (1987) documented a case study of a two week old infant who experienced secondary exposure to cocaine via breast milk. The mother reported intranasal ingestion of cocaine while breast feeding the infant. Three hours later the infant presented with all the symptoms of cocaine intoxication, i.e., vomiting, diarrhea, dilated pupils, tremulousness, irritability, and increased heart rate and blood pressure. It took the infant 60 hours to metabolize the final amounts of cocaine through its urine.

Cocaine, again, is a highly addictive stimulant. Passive exposure for a child who already presents with ADHD, seizures, respiratory problems and mood swings as a result of the indirect effects of cocaine in utero will experience grim--if not deadly--consequences.

Chaotic Climate

In many instances, it is necessary to contact child

welfare agencies due to the illegal nature of cocaine (Gittler & McPherson, 1990). The substantial increase in incidence and prevalence of children prenatally exposed to cocaine has stimulated federal research in this area. The U.S. Department of Health and Human Services reported that cases of babies of prenatal cocaine exposure are time consuming and difficult (1990). Only two-thirds of the 12 cities investigated kept data and were able to provide the number of cocaine exposed infants reported to the child welfare system--8,974 at that time. Officials were reportedly concerned about related danger in these cases to the caseworker (i.e. violence and criminal activity). They were also concerned about the multifaceted problems facing the babies (i.e., learning problems, behavioral problems, ADHD, neurological problems) and the emotional problems which may stem from long foster care placements. In New York city alone, 60% of babies exposed to cocaine in utero were still in foster homes three years later according to data collected by Besharov on foster placement of cocaine exposed children in the late 1980's (1990). Of those children in foster care, more than half had been in two or more foster homes and one child had been in eight homes.

Although few statistics are kept, most officials estimate 50 to 75% of identified crack babies go home. About 30 to 50% go into foster care. Some officials felt that children are often left with their natural

parents because foster placements are unavailable.

(DHHS Report, 1990, p. 1)

Although foster care programs have expanded to meet this increasing demand, they have been unable to keep up with the rising population of drug exposed infants requiring foster care. Furthermore, many of these infants require specialized foster care which is in short supply (Brady et al., 1994; Gittler & McPherson, 1990; Wilkes, 1993).

Foster care placement may come about from abandonment by the parent in the hospital, as a result of abuse and neglect, or because legal sanctions have been imposed on women who use illegal drugs during pregnancy (Gittler & McPherson, 1990; Wilkes, 1993). Consequently, children may enter the social service system later in childhood and experience multiple foster care placements (Brady et al., 1994).

Many helping professionals have a difficult time balancing the child's rights with the parents' rights (Fink, 1992; Wilkes, 1993). The legal debate revolves around several concerns: whether or not the fetus is entitled to protection in utero; whether or not there should be a different response to illegal versus legal drug use during pregnancy; whether all cases of drug abuse during pregnancy should be reported as suspected cases of abuse or neglect; whether mandatory drug testing of all pregnant women should be issued; whether the quality of

care after birth should be a legal concern; whether drug exposure in utero should be sufficient grounds for removing the child from the home; and whether officials should criminally prosecute mothers who use illegal drugs during pregnancy (Durfee & Tilton-Durfee, 1990; Gittler & McPherson, 1990; Horowitz, 1990).

Many states have addressed these issues in a variety of ways through legislation. For example, Virginia state law mandates prenatal substance abuse screening, provides treatment programming or coordination of services, has established a perinatal substance abuse task force, and has criminal prosecutions of illegal drug use (not intended to govern prenatal conduct). While nine states mandate reporting prenatal drug use as child abuse or neglect, only one state mandates neonatal testing for drugs. One state has no related legislation on this topic at all (Marshall, 1995). Although many legal professionals feel that "the Courts have continued to take a dim view of attempts to criminally prosecute mothers who have used drugs during pregnancy" (Marshall, 1995, p. 1), child advocates are pursuing prevention rather than punishment for substance abusing families (Chasnoff, 1993). Criminal prosecution of the mother increases the likelihood of the child experiencing longer foster care placement. Foster care placements and frequent moves in and out of caregivers' homes produce a chaotic home life for children prenatally

exposed to cocaine (Hawley, 1993).

Caregivers

By the time children of intrauterine drug exposure reach school age, they have typically lived in three or more households, such as foster care, their mother's home, and their grandmothers home (Wilkes, 1993). Unfortunately, while living in their mother's household, the child may not receive the care and attention that is required or needed. Research indicates that substance abusing families are dysfunctional, have significantly higher levels of depression and stress, have weak social support systems, and spend less time with their children. Mothers in this situation often are not capable of participating in a nurturing parental relationship with the child or able to provide consistent care (Brady et al., 1994; Chasnoff, 1988a; Krutilla, 1993; Schutter & Brinker, 1992; Sparks, 1993; Wilkes, 1993).

It is difficult for a mother to support a drug seeking lifestyle and meet the demands of drug affected children. In the postnatal period, infants of intrauterine cocaine exposure may respond to their mothers with emotional distance and extreme irritability (Griffith, 1994; Wilkes, 1993). The infant, therefore, is also unable to meet the mother's emotional needs. Furthermore, drug use can trigger mood swings and alter the mother's response pattern to the child. These circumstances create significant

difficulties with bonding. Bonding is the process of emotional attachment and security formed early in life between the infant and the parent which is essential for healthy social and educational development (Krutilla; Sparks, 1993; Wilkes, 1993). Overall, this lack of nurturing is noted to be as much of a contributor to the delayed development of the child, as is the intrauterine exposure itself (Knight & Waterman, 1992; Krutilla, 1993).

Kinship care is a growing alternative to foster placement or to leaving the child in the mother's home. Kinship care involves placing the child with a relative, usually the grandparent (Besharov, 1990; Wilkes, 1993). Minkler, Roe, & Price (1992) noted that "Approximately 3.2 million U.S. children currently live with grandparents...up from just over 2 million in 1980" (p. 752). Grandparenting to children as a result of the crack involvement of the children's parents is quite different than traditional grandparenting according to Minkler and her colleagues. Due to this new role in caregiving, grandmothers are experiencing changes in social behaviors and deteriorating health. These grandmothers face not only the emotional stress of losing their own child to the drug culture, but also the stress of dealing with the behavioral and medical needs of their cocaine affected grandchild (Minkler et al.). These concerns may impact on the parenting of the family caregiver and thus, the development of the child.

Violence is an additional risk factor to be considered in the caregiving environment of the child prenatally exposed to cocaine. Research indicates that children raised in addicted households are 40-60% at-risk for neglect and abuse (Bays, 1992; Hawley, 1993). Crack use causes many psychological and physiological changes in the user as described in the early section of this chapter. Agitation, paranoia, poor judgment, lack of self-control and drug seeking behavior limit the parent's ability to respond to the infant's or child's needs (neglect) or to respond to those needs without aggression (abuse) (Bays, 1992; Morgan, 1994). Studies show that infants born different or with problems are especially vulnerable to abuse (Morgan). In 1992, Hawley studied 25 cocaine addicted mothers and 25 mothers of children with no addiction in Head Start programs. Her work revealed that addicted mothers perceived their children as being more difficult as infants, and 60% of addicted mothers admitted abusing their child.

Furthermore, violence existing between parents was found to be highly predictive of violence against infants and children (Bays, 1992). The pervasive cycle of drug use across generations of families also increases a child's possibility of living in a "crack den" which places the child at great risk for becoming a victim of criminal violence (Fink, 1992). For example, because cocaine is

both illegal and costly, violence is often seen among drug dealers and other dealers or users over price and turf (Brady et al., 1994). Bays reported that "A 1988 investigative panel in New York City found that in 25% of child fatalities, the child had been born with a positive toxicology and in over 25%, drug involvement by caretakers contributed directly to the cause of death" (p. 494).

Summary of Environmental Factors

Environmental factors such as passive exposure to cocaine, chaotic homes, caretaking concerns, and violence significantly impacts children's emotional and educational development. "To best evaluate (the long term outcomes on children of intrauterine drug exposure) these children at school age, environmental factors must be taken into account" (Chasnoff, 1988a, p. 1409). Passive exposure to drugs effects the child's CNS; children without nurturing caregivers experience social delays; children who witness violence exhibit attention deficits, anxiety, and depression; and those who live in fear of abuse and are abused are aggressive, impulsive and lack creativity (Brady et al., 1994).

These environmental factors must be considered in conjunction with the direct and indirect effects of prenatal exposure to cocaine to provide a clear picture of a school age child's social and learning pattern of development.

Summary of the Literature Review

The literature related to cocaine and its affects on children prenatally exposed describes how cocaine acts as a teratogen and how it impacts the childrens' lives. The literature further reveals an increase in the at-risk nature of this population while highlighting the concerns for research in this area. Finally, through the literature environmental factors are brought forward as important components to be investigated in studies of this population.

CHAPTER 3

METHODOLOGY

The literature has specified the need for further research on the population of school-aged children prenatally exposed to cocaine. Not only are data needed on long-term outcomes, but information is also needed from a richer perspective (Cohen & Erwin, 1994; Stainback & Stainback, 1988). As Griffith (1993) summarized it, current research is lacking true case scenarios of substance affected children.

This study involves the use of qualitative research methods, specifically the case study complimented by quantitative measures, i.e. a normed rating system. The case study approach has played a significant role in special education research and is the descriptive way to examine special groups or individuals to clarify

understanding and highlight patterns of relationship (Merriam, 1988; Mertens & McLaughlin, 1995). Yin stated that "case studies are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (1994, pg. 1).

The following sections describe the design and procedures used for this study involving case study approaches.

Design

Research Questions

The research questions guiding the study are clustered into three sets as follows:

1. What is the social and learning performance pattern of elementary school age children prenatally exposed to cocaine?
 - a. What is the achievement pattern for the substance affected child?
 - b. What is the pattern for behavioral and social adjustment of the substance affected child?
2. What additional factors may place the child further at-risk for failure?
 - a. What medical factors are present?
 - b. What environmental factors are present?
3. What has been the intervention history?

- a. What agencies have been involved with the child or family throughout the child's history?
- b. What services have been provided?
- c. What child-centered educational and behavioral interventions have been implemented over the years?

Method

The need to use case studies in a qualitative research design involving a single researcher has developed from existing gaps in the research area surrounding the population of study. It has been established in the literature review that a clear description of the child prenatally exposed to cocaine would impact the future of educational programming for this population. One of the most noted benefits of qualitative research is better understanding through thick description of a new social phenomena (Borg & Gall, 1989; Lincoln & Guba, 1985; Merriam, 1988; Stainback & Stainback, 1988). It has also been established that children prenatally exposed to cocaine experience a combination of biological and multiple risk factors. Another benefit of qualitative research and the use of case studies is better understanding of complex social circumstances (Lincoln & Guba, 1985; Yin, 1994).

This study employs the multiple case study (sometimes referred to as comparative case study) design. This involves completing two or more case studies and then comparing and contrasting the data (Bogdan & Biklen, 1992).

The advantage of using multiple case studies is that they provide evidence which "is often considered more compelling, and the overall study is therefore regarded as being more robust" (Yin, 1994, pg. 45). After each case study has been completed in a similar fashion, pattern matching will be conducted between the social and learning pattern in the literature and the existing pattern within each case, and conclusions will be drawn (Bogdan & Biklen; Yin). Cross-case analysis will also be conducted in which the patterns are compared and conclusions drawn across individual case reports.

The case study approach in this research is clinical in nature as it is aimed at understanding and representing a particular type of individual, i.e., the prenatally exposed child (Borg & Gall, 1989). It is also descriptive in that the goal is to provide a detailed account of the child's educational and social history as well as his/her current status in relevant areas (Merriam, 1988; Yin, 1994). Furthermore, the case study is considered interpretive. It is seen as interpretive because the intent is to discover patterns that will provide a picture of the varying educational and social needs of the substance affected, school age child (Merriam, 1988; Yin, 1994).

Validity Concerns

Validity determines the extent to which results of a

study may be interpreted and limits or heightens the value of that interpretation. "Validity has long been a key issue in debates over the legitimacy of qualitative research; if qualitative studies cannot consistently produce results, then policies, programs, or predictions based on these studies cannot be relied on" (Maxwell, 1992, pg. 279). The validity of this study must be addressed in order to acknowledge the threats and limitations involved and to verify the quality of the findings.

The major components of validity from quantitative research most applicable to qualitative research are construct validity, internal validity, external validity, reliability and objectivity (Mertens & McLaughlin, 1995; Yin, 1994). The first concern, construct validity, may be satisfied in qualitative research by establishing correct operational methods through using multiple data sources, establishing an evidence chain, and having key informants review drafts of the reports (Yin, 1994).

Construct validity in this study was enhanced in several ways. First, triangulation involving data collection from several sources was attempted for all case studies. These sources included documents at the school and the agency, information from the parent and teacher, and observation data. Secondly, a chain of evidence was established by collecting the protocols and printouts of data systematically in every case. Then, the data were

coded by categories and put onto cards according to those categories for each case. The case report was then generated from these cards. A packet containing all of this evidence exists for each case. Finally, informal checks were done on drafts of the case reports by the agency coordinator and several parents.

An additional concern in qualitative research is credibility (corresponding to internal validity), which involves testing the concurrence of the respondents' perceptions of measured constructs with the researcher's portrayal of their perceptions by pattern matching, explanation building, peer debriefing, and triangulation. Credibility was enhanced in this study by matching agreement among components of the BASC, by providing plausible explanations whenever possible throughout the results section, and by triangulation of data collected. Additionally, a peer knowledgeable in the area of qualitative research reviewed the coding of the pilot study data. The input from this debriefing process was incorporated into the final report.

Transferability (related to external validity) in qualitative research facilitates for the reader the amount of similarity between the cases and the group or population studied by using careful, factual description of case setting events, and logical replication among multiple cases. Within this study, detailed description exists

concerning the procedures for sample selection, data collection, and analysis. This level of detail provides ample description for replication of the study. Further rich description is provided within each case report in order to provide the reader with a thorough picture of the population studied.

In qualitative research, dependability relates to reliability and demonstrates the degree to which the procedures of the study could be repeated with similar results over time within the parameters of expected change by thorough documentation of case study protocol. This study utilized both formal protocols and a data base in an effort to increase dependability. This coupled with the detailed description mentioned above establishes the foundation needed for stability of results of the cases studied.

And finally, confirmability in qualitative research reflects objectivity and attempts to minimize the influence of the researcher's perspective by delineating the logic of the data interpretation and peer review to show the data support the conclusions drawn (Mertens & McLaughlin, 1995; Maxwell, 1992; Yin, 1994). This study addressed confirmability by clear delineation of data interpretation (see Chapter 4). Furthermore, peer review was conducted on the pilot study, and again on the conclusions drawn from the cross case analysis to support objectivity. These

tactics will not eliminate the threats to validity, but are intended to authenticate the description, interpretation and explanation of the phenomena studied (Maxwell, 1992).

Procedures

Sample Selection

The subjects were selected through purposeful sampling. Purposeful sampling includes selecting subjects according to specific criteria (i.e. cocaine exposed, school-age children) with a specific purpose in mind (i.e. to discover and understand relationships of intrauterine cocaine exposure and educational performance) (Lincoln & Guba, 1985; Merriam, 1988; Stainback & Stainback, 1988).

The sample was also selected according to access and convenience, not through random sample (Yin, 1994). Current research in the field accesses cocaine exposed children through targeted programs, such as special schools. Samples selected in this way include children already identified with problems. The current clinical research accesses substance exposed children through social services programs, and is therefore limited to a population of inner city subjects of low socio-economic means.

The sample for this study was accessed through a substance abuse program for women, thus allowing for variation in the problems exhibited by the children. The substance abuse program is housed in a city with a majority Caucasian, middle class population (approximately 72%)

(State of the Division, 1994). Drawn in this way, the sample was expected to represent a greater cross section of middle income levels. The actual subjects, however, came from families of lower income levels as evident by their eligibility for the federally assisted lunch program ("free lunch" in Table 20). To qualify for this assistance, families must be considered as eligible according to the household size and monthly income (USDA Guidelines, 1946).

The substance abuse programs for women within the Commonwealth of Virginia were examined for convenience to the researcher regarding time, distance, costs, and openness to participate in a research study of this type.

Description of Subjects and Demographics

The criteria for subject selection were: (a) school age children between the ages of 6 and 12 and (b) confirmation of prenatal exposure to cocaine. Five cases were located. Two subjects were female, three were male. Four subjects were Caucasian, and one subject was African-American. One subject was in kindergarten, one in both first and second grade classes, two in second grade, and one in fifth grade at the time of the study. The age range of the subjects was 6-10. All subjects were living with their birth mother at the time of the study. Please see individual case reports in Chapter 4 for further case information.

Demographic information was gathered to provide as

detailed a description as possible for future research related to this topic area. Furthermore, it enhanced data collected by providing a clearer picture of the population studied.

Access to Subjects

Description of Program

The program providing access to subjects was a community-based interagency program for women and their infants whose lives have been affected by substance abuse. This program's mission is to reduce the existing barriers to accessing services needed by these women and their infants, thereby enhancing their lives. Criteria for program eligibility includes women who are pregnant and/or have infants up through age two, women who are willing to initiate and follow service plans, women who ask for help with drug/alcohol use, women whose family histories indicate a risk for substance abuse, women who have positive urine drug screens, and women whose caseworkers indicate that further assistance is warranted. Each woman (or client) in the program has a case manager. Each client may have access to coordination of services, transportation assistance, resource mothers, and ongoing consultation. There is also a readmission policy in place for returning clients.

A packet of information about this study, including an overview of the research and a permission slip, was

distributed by mail. The coordinator of the site had committed to making this packet available to the program's total applicable client caseload at the time of study. This information was made available to parents who may have been interested in allowing their child or children to participate in the study. The sensitivity of the issue and confidentiality measures were addressed with each parent in the initial contact.

The forms that made up the packet were developed to contain the information on ethical procedures required for protection of human subjects to include: (a) assurance of confidentiality and anonymity, (b) intent to code data in analysis, (c) statement of voluntary participation, and (d) a space for signature of consent and to acknowledge being informed of the research (Lincoln & Guba, 1985). Please see appendix A for a sample of the packet forms.

In adherence to the substance abuse program's current policies on confidentiality, the researcher went through the volunteer training in order to access records and clients in a professional and legitimate manner. Additionally, a presentation of the study's proposal was made to the agency's human subjects research committee.

Each case was assigned a number on a confidential, master list developed by the researcher. After data collection was complete, the master list was destroyed. For ease of discussion, each subject was given a pseudonym.

Data Collection

This study incorporated qualitative methods (the case study approach) which were enhanced and strengthened through a quantitative aspect to data collection (Creswell, 1994). Table 1 reflects the qualitative and quantitative data collection methods which specifically addressed the research questions.

The case study is a comprehensive research strategy utilizing triangulation of data (Yin, 1994). Triangulation, using multiple methods of data collection, helps to increase validity by measuring each piece of information against another source to ensure supportive evidence of findings (Lincoln & Guba, 1985; Merriam, 1988; Mertens & McLaughlin, 1995). A standardized behavior rating scale was utilized simultaneously with the case study approach. Specifically, this study employed the following methods: records review, interview, behavior rating scale, and direct observation.

Records review is also referred to as analysis of documents and archival records. This source of evidence lends strength to the study in that records are stable and available for repeated inspection; unobtrusive; exact and precise; and cover a long period of time, events and settings. The weaknesses that accompany using records may involve unknown reporting bias of the author, possible low retrievability, and deliberately blocked access (Yin,

Table 1

Triangulation of Pattern Outcome Measures

Outcomes	TRS	PRS	SOS	SDH	DA
1. Confirmation of drug use				X	X
2. Neurobehavioral					
a. aggression	X	X	X	X	X
b. inattention	X	X	X	X	X
c. hyperactivity	X	X	X	X	X
d. impulsivity	X	X	X	X	X
e. disorganization	X	X	X		X
f. unusual sensory behaviors	X	X	X	X	X
g. breaks rules	X	X	X	X	X
h. intolerance to change	X	X	X		X
i. defiance to authority	X	X	X		X
2. Social Skills					
a. overreaction	X	X		X	X
b. inappropriate social cues	X	X	X	X	X
c. unhappiness	X	X	X	X	X
d. withdrawn	X	X	X	X	X

Table 1 (continued)

Outcomes	TRS	PRS	SOS	SDH	DA
e. uncooperative	X	X	X	X	X
f. anxiety	X	X		X	X
3. Motor					
a. uncoordination			X	X	X
b. poor handwriting	X	X		X	X
c. difficulty with far point copy				X	X
d. tremors			X	X	X
4. Language					
a. receptive delays				X	X
b. expressive delays				X	X
c. communicative intent	X	X	X		X
d. speech deficits			X	X	X
5. Cognitive/Achievement					
a. poor achievement	X	X		X	X
b. Intelligence Quotient					X
c. problem solving difficulties	X	X		X	X
d. inappropriate oral discussion	X	X	X		X

Table 1 (Continued)

Outcomes	TRS	PRS	SOS	SDH	DA
6. Medical					
a. seizure			X	X	X
b. respiratory			X	X	X
c. heart problems				X	X
d. genitourinary illness				X	X
e. psychiatric diagnosis				X	X
f. medications				X	X
g. stroke				X	X

Note. SDH = Structured Developmental History. SOS = Student Observation System. TRS = Teacher Rating Scale. PRS = Parent Rating Scale. DA = Document analysis of agency records and school records. The BASC components are TRS, PRS, SOS and SDH.

1994).

The interview specifically chosen for this study was the focused and open-ended interview. Interviews supply essential sources of evidence in case study research with the primary strength being that interviews are targeted directly on the topic of study and provide insightful information. Weaknesses of the interview may come from bias and inaccuracy of the responder, reflexivity ("interviewee gives what interviewer wants to hear", Yin, 1994, pg. 80), and poorly asked questions.

Direct observation consisted of visiting the field site to collect pertinent information on current behaviors and environmental conditions. The strengths associated with using this source of evidence are that events are recorded in real time and provide contextual information. The weaknesses may come from the demands on time and cost by the observer, selectivity of events, and obtrusiveness of observation (Yin, 1994). To encourage objectivity, a standardized behavior rating scale was utilized.

The major topical areas of all sources of data collection were: (1) child development factors to include the neurobehavioral area, cognitive area, social area, language area, and motor area (adopted from the research review from Carta et al., 1994); (2) medical factors which have emerged from the literature review; and (3) environmental factors as deemed appropriate from the

overall review of literature, such as foster care placements, changing of home environments and caregivers, and passive exposure to substances.

Description of Records Review

Sources. Records review involved examination of school and agency records such as testing reports, discipline referrals, case histories, child study referrals, absence logs, intervention plans, and medical records to examine health histories, related illness, and medication therapies. Records were examined further for any confirmation of cocaine use during pregnancy, i.e., as reported by the caregiver, as documented in the medical toxicology reports, as indicated in records of the court, or for any indicators of environmental factors. Please see Appendix B for further clarification of outcomes reviewed during document analysis. All data was recorded on data sheets created through a database system on a computer.

Setting. Records review occurred in the office of the program site and in the school of the child's most recent attendance. The researcher completed the authorization forms to conduct research within the school district as required by the district's current policies. To ensure additional confidentiality, the school principal was asked to sign an acknowledgment of the intent to keep the child and his/her parent's relationship to the study confidential (please see Appendix C).

Description of Interviews

Instrument design. The Behavioral Assessment System for Children (BASC) incorporated a Structured Developmental History (SDH) to facilitate the interview with the parent or caregiver (Reynolds & Kamphaus, 1992). The BASC is relatively new to the field and is currently not reviewed in reference materials or journal articles. However, the BASC manual provides thorough information about the system's usefulness, norming information, and reliability/validity data.

The BASC contains a multimethod, multidimensional system for measuring adaptive and clinical aspects of child behavior and personality. It provides national norms for children age 4 to 18 years of age and clinical norms. It also provides a five component system which can be used individually or in any combination revealing a wealth of behavioral information on an individual child (Reynolds & Kamphaus, 1992).

The SDH is comprehensive and was developed from more than 20 different social history forms. It measures developmental events, medical factors, and related family problems. Information gathered through the SDH helps to identify and differentiate between ADHD, overanxious disorder, and post traumatic stress disorder. The interview protocol was designed to be easy to use, and it is permissible to ask for clarification or elaboration of

any topic on the SDH (Reynolds & Kamphaus, 1992).

The SDH was chosen for this study because of its specific and comprehensive nature. It covers many topics or categories pertinent to this study's investigations including low birthweight, breast feeding, confirmation of drug use during pregnancy, neurological development, social skills, and behavior/temperament (please refer to Table 1).

The following questions were added to the SDH protocol during the interview in the appropriate section in order to cover all necessary indicators of the pattern derived from the literature review:

- a) Has (the child) lived anywhere else? (Where/When/With whom)
- b) Does (the child) follow your directions or rules?
- c) Is his/her handwriting legible?
- d) Does (the child) display any odd or unusual behaviors? (Such as hand flapping, spinning objects or rocking)
- e) Did you have difficulty bonding with this child in infancy?

Setting. Each structured interview took place at the agency, in the home of the caregiver, or in a quiet place convenient to the caregiver.

Description of Observation

Instrument design. A standardized behavior rating scale given to the teacher (TRS--Teacher Rating Scale) and the caregiver (PRS--Parent Rating Scale) was used. The

behavior scales chosen for this study come from the BASC.

The TRS, which can be completed within 10 to 20 minutes, measures the following scale attributes for 4-5 years olds, 6-11 year olds, or 12-18 year olds: aggression, hyperactivity, conduct problems, anxiety, depression, somatization, attention problems, learning problems, atypicality, withdrawal, adaptability, leadership, social skills, and study skills. The information on the TRS can be obtained from teachers or others who fill a similar role. Multiple ratings may be obtained from teachers who have one month of daily contact or more with the child for a minimum of one hour a day.

Reliability is reported for the TRS as follows:

a) internal consistency reflects a coefficient alpha of above .80 for all levels of the scale, b) test-retest sample of n=90 children for the child level (age 6-11) was rated twice by the same teacher with an interval of two to eight weeks between ratings reflecting coefficients ranging from .81 to .96 across all age levels, c) interrater reliability was completed by four pairs of teachers rating eight to 20 children on each dimension of behavior reflection median scale values of .83; also, teachers were arbitrarily labeled Rater 1 or Rater 2 and then the ratings on one or two children were compared reflecting the degree to which ratings from different teachers were interchangeable--the agreement between the rank order of

the children and the level of scores assigned showing median scale values of .63 and .71, d) 55 children of the child level were rated 7 months later by the same teacher reflecting correlation of .69.

Validity for the TRS is reported as follows:

a) examination of scores for the eight clinical categories reflects expected elevations on corresponding scales, i.e. children diagnosed with Conduct Disorder according to the DSM-III-R score the highest on the Conduct Problems scale of the TRS, b) the constructs composing the scale composite dimensions went through two factor analysis methods--the covariance structure analyses and principal axis factoring linking the construct to the content of the scale, c) the TRS is correlated with other instruments such as the Achenbach Teacher's Report Form (.92), Revised Behavior Problem Checklist (.43 to .78 depending on scale), Conners' Teacher Rating Scale (.30 to .50), Burks' Behavior Rating Scales (.80 or higher) and Behavior Rating Profile (.25 to .40).

The PRS, which can also be completed within a 10 to 20 minute period, measures the same scale of adaptive and problem behaviors as the TRS only in the community and home settings.

The reliability for the PRS is reported as follows:

a) internal consistency reflects a coefficient alpha of mid .70 for all three levels, with the composites showing mid

.80 to low .90, b) test-retest on a sample of 30 children at the child level was completed by the same parent rating the child twice within a two to eight week period reflecting median scale values of .88 for the child level, c) interrater reliability was conducted by comparing the ratings of both parents at the same time reflecting median scale values of .57 for the child level and .61 for the Behavioral Symptoms index.

Validity of the PRS is reported as follows:

a) factor analysis was conducted including covariance structure analyses and principal axis factoring, b) examination of scores for the eight clinical categories reflects expected elevations on corresponding scales, i.e. children diagnosed with Conduct Disorder according to the DSM-III-R score the highest on the Conduct Problems scale of the PRS, c) the PRS is correlated with other instruments such as the Child Behavior Checklist (.81), Personality Inventory for Children-Revised (.50), Connors' Parent Rating Scales (.20 to .40), and Behavior Rating Profile (.30 to .50).

Correlations between the PRS and the TRS are low to moderate and increase with age reflecting .37 for the corresponding scales at the child level.

The protocol for the TRS and the PRS allow the respondent to indicate responses on the protocol as opposed to a separate answer sheet. The respondents can not see

the answer key, which is built into the protocol. Each protocol, when scored, reveals a summary table and a graphic profile for reporting the obtained information (Reynolds & Kamphaus, 1992).

The direct classroom observation was completed using the Student Observation System (SOS) of the BASC. The SOS involves time sampling and systematic coding of behavior during 3 second intervals which are spaced 30 seconds apart over a 15 minute period. The SOS was developed to measure several broad categories of adaptive and maladaptive classroom behavior including response to teacher/lesson, peer interaction, work on school subjects, transition movement, inappropriate movement, inattention, inappropriate vocalization, somatization, repetitive motor movements, aggression, self-injurious behavior, inappropriate sexual behavior, bowel/bladder problems, and any other behavior that does not fit these categories. Each behavior within the category area is well defined and allows for objectivity in data collection (Reynolds & Kamphaus, 1992).

Additional observations were completed using antecedent-behavior-consequence data collection to provide information about the child's behavior in an unstructured setting.

These components of the BASC were chosen for this study because of the potential increase in validity of

norm-referenced measures, and the comprehensive way in which the assessments examine the pattern of outcomes generated throughout the literature review (please see Table 1 reflecting the general outcome categories addressed by the BASC components). Also, the BASC components were developed so that the norms across the scales overlap providing a strong level of score comparability for drawing conclusions and making decisions about each profile.

An additional component of the BASC, the Self Report of Personality (SRP), could have been utilized in this study. This is a self-reporting scale for children 8 years and older and provides information on the inner feelings and thoughts of the child. It takes approximately 30 minutes to complete and was developed to measure objectively observable behaviors. The scale attributes include anxiety, atypicality, locus of control, social stress, somatization, attitude to school, attitude to teacher, sensation seeking, depression, sense of inadequacy, relations with parents, interpersonal relations, self esteem, and self reliance (Reynolds & Kamphaus, 1992). The protocol of the SRP also provides a summary table and graphic profile when scored. The SRP has norms which fit comparably with the other components of the BASC to provide an additional piece to the child's profile. The SRP was not used in this study, however, because the parents did not want the children knowledgeable of any

aspect of the study.

Setting. The behavior examined was exhibited by the child in the classroom, in the home, and in the community. The scales were completed by the caregiver at the same time as the interview. Teachers were given the scale at the time of introduction to the researcher with a week turnaround time. The scale was then picked up at the school by the researcher. The observations were scheduled during structured and unstructured instructional periods according to the convenience of the teacher.

Pilot Study

A pilot study was conducted using the procedures and instruments of data collection described above. The pilot study was conducted on one case representative of the final sample.

Conducting a pilot study helps to ensure the development of a solid research plan. It provides feedback to modify data collection tools and procedures and possibly identify emergent categories unseen in original design of the study (Borg & Gall, 1989; Yin, 1994). Completing the pilot study also assisted the researcher in addressing the sensitivity of issues and eliminating factors which may inhibit objectivity throughout the remainder of the study, such as developing a more participatory mode of consciousness. Participatory mode of consciousness, as described by Heshusius (1994), encourages the qualitative

researcher to nonevaluatively observe personal reactions and dissolve them, rather than learn to restrain them. Doing this, according to Yin, will help one to become a good case study investigator and foster the ability to be responsive and unbiased to contradictory data. As a result of the pilot study, the researcher was able to identify personal feelings of reaction to the project such as sympathy, and dissolve them accordingly. By being aware of such reactions, the researcher was able to eliminate collecting data from an emotional perspective and establish a professional rapport with the caregivers of the study.

Data Analysis

The goal of this study was to present sufficient evidence to address the primary and subsidiary research questions. The objectives of analysis were to identify patterns in each topical area for school age children prenatally exposed to cocaine and to highlight relationships between patterns in the literature and in the normal population both within and across cases. Success in pattern matching helped to strengthen the internal validity of each case in the study (Yin, 1994).

A description of the pattern in each topic area has been systematically generated from the review of literature. All of the data collected was given in a descriptive format for each case study (referred to as case reports) that established a case study database which

facilitated dependability. The descriptive data was then coded and reduced into categories or themes. The data, after being coded and separated into categories, was then examined for patterns and relationships (Stainback & Stainback, 1988). Additionally, each case report was completed using a chronological structure (to adequately present historical data collected) and a comparative structure (in which the facts from the case study are repeated in conjunction with different relevant concepts such as the pattern of categorical areas) (Creswell, 1994; Yin, 1994).

All items from all data collection protocols and data sheets were coded to prevent data being linked to subjects (Lincoln & Guba, 1985). The initial categories were predefined as neurobehavioral, social, language, motor, cognitive/achievement, medical, and environmental. No other categories emerged from analysis of cases. Information that is quantified (e.g., BASC results, test scores, attendance in school) was reported as standard scores, t-scores, percentiles, and frequencies. For further visual presentation of the data, charts and tables of categories were developed for each case in relation to the patterns discovered as well as across cases (please see chapter five).

The BASC provides general normative scores in t-scores and percentiles. Interpretation of the t-scores were

stated in terms of the corresponding percentiles provided in the tables of the BASC manual as opposed to t-scores of the normal distribution due to the skewed distribution of scores. Clinical norms are also provided for interpretation when a child's problems are extreme when compared to the general population. Furthermore, descriptive labels are given to facilitate professional communication of score classification which includes an at-risk range to indicate significant problems that may warrant intervention. Validity indexes are also built into the BASC components to counteract factors threatening the quality of respondents self reporting such as "failure to pay attention to item content, carelessness, an attempt to portray the child in a highly negative or positive light, lack of motivation to respond truthfully, or poor comprehension of the items" (Reynolds & Kamphaus, pg. 12). All of these factors were reported and interpreted accordingly.

Social and Learning Pattern

The following pattern is reported in the literature. "Social" in the research question refers to the neurobehavioral and social skills domain areas. "Learning" in the research question refers to the motor, language, and cognitive/achievement domain areas. The medical factors domain area is added from the indicators throughout research in the literature review.

Environmental concerns were considered as they may have influence on the outcomes in each categorical area.

The neurobehavioral pattern extracted from the literature included aggression, ADHD symptoms (i.e., impulsivity, hyperactivity, inattention), inability to organize behavioral state, and unusual sensory responses. In school age children, these behaviors may manifest as hyperactivity, impulsivity, inattention, inability to follow class rules, verbal or physical aggression towards peers, poor organizational skills, inappropriate sensory reactions, self-stimulatory behaviors, intolerance to change in routine, and defiance to authority.

The social skills pattern extracted from the literature included abnormal attachments to adults, mood swings, preference to play alone, and inappropriate play skills. In school age children, these behaviors may manifest as overreactions to situations, inappropriate responses to social cues, unhappiness, anxiety, preference for isolation, and cooperativeness with peers.

The motor pattern extracted from the literature included incoordination, hypo- and hypertonicity, cerebral palsy and tremors. In school age children, these behaviors may manifest as poor handwriting, tremors, difficulty transferring from the chalkboard to

paper, and poor gross motor coordination.

The language pattern extracted from the literature included delays in receptive and expressive skills, pragmatics, lack of communicative intent, and speech deficits. In school age children, these behaviors may manifest in a similar fashion.

The cognitive/achievement pattern extracted from the literature revealed generally lower cognitive functioning and some mental retardation. In school age children, this may manifest in poor achievement in any subject area, difficulties participating in oral discussions, and problems with problem solving or higher level thinking skills.

The medical factors extracted from the literature included seizure disorders, respiratory problems such as asthma, heart conditions, genitourinary tract conditions, stroke, high blood pressure, psychiatric diagnosis, or ADHD diagnosis. These factors would manifest in a similar fashion across ages.

Environmental factors impacting the child of prenatal exposure to cocaine indicated by the literature included passive exposure to drugs; multiple living arrangements, such as foster placements and caregiving relatives; existing parental relationships; and violence. These factors will manifest throughout the child's lifetime.

Data Collection Phase

The data collection phase, which lasted from February, 1996 through the middle of April, 1996, consisted of seven steps: 1) gaining access to the sites; 2) identifying candidates for subject participation; 3) inviting the subjects to participate, and securing permissions; 4) scheduling interview, records review, observation; and distributing rating scales for pilot study; 5) conducting analysis of pilot case and developing case report; 6) interviewing, reviewing records, obtaining rating scales, and observing other cases; and 7) developing respective case reports.

Gaining Access to the Sites

Access to the substance abuse agency for subject selection and records review was gained by the researcher's completion of the agency's volunteer training program, conferences with related administrators, and a presentation to the agency's research board. Access to the school sites was gained by completion of the school systems' required forms, approval from their school board to study within their district, and by the researcher speaking privately to each building principal while securing his/her signature on the Principal Acknowledgment form.

Identifying Candidates for Subject Participation

Out of the total active client population, 65 clients were generated by the agency's computer contact list to

have children over age 2. Visual inspection identified 34 of those clients as potential subjects by fitting the criteria for selection (i.e. school age child and cocaine usage during pregnancy). Of the total applicable client population, 4 of the 34 clients had children living out of state, while 21 clients had at least one child living with a relative or in foster care. The criteria for subject selection were identified by parents self-reporting on the agency's forms within the client files.

Inviting Subjects to Participate and Securing Permissions

Each eligible client was sent a packet which consisted of a letter describing the study, a permission form, and a self-addressed stamped envelope. The researcher obtained a post office box to utilize as the return address as recommended by the agency in order to maintain privacy and professionalism. The permission slips were returned to the researcher via the self-addressed stamped envelope to the post office box.

Scheduling Interview, Records Review, Observation, and Distributing Rating Scales for Pilot Study

After permission slips were secured, the researcher telephoned the parents/guardians to set up interviews. The parent rating scale was completed by each parent at the time of the interview. Records review at the agency commenced upon securing the permission forms. Records review at the school sites was initiated by telephone

contact with the principal. The researcher then set up a date and time to meet with the principal, explain the study, get the acknowledgment signed, and distribute the teacher rating scales. While meeting with the principal, the researcher set up a date to observe the student, collect the teacher rating scale, and commence record review.

Conduct Analysis of Pilot Case and Develop Case Report

Case 1 was chosen as the pilot case study because it was the first permission to be secured. The above procedures were conducted in the stated order for Case 1. Data was then coded for Case 1 and the case report was developed (see Chapter 4). The pilot study enabled the researcher to determine whether the procedures worked in that order and whether any procedures needed to be added or deleted.

The following question was added to the SDH as a result of the pilot study "Did you have difficulty bonding with him/her when he/she was an infant?". This issue came up during the first parent interview and corresponds to the literature review as being a significant outcome for infants exposed prenatally to cocaine.

Interviewing, Reviewing Records, Obtaining Rating Scales, and Observing Other Cases

Peer debriefing was completed following the pilot study. After the peer and the researcher reached agreement

about the procedures and outcomes of the pilot case study, the other cases were completed following the same procedures described above. No changes were necessary as a result of the debriefing.

Developing Respective Case Reports

A case report was developed after coding the data for each case. Parents were provided a copy of their children's case report for their own use. Several parents utilized the report to assist their child educationally in school.

Data Analysis Phase

The data collected from each case was coded by matching and distributing data facts with cards representing the categories delineated above (and in the research questions). The BASC protocols were scored and interpreted according to the procedures in the BASC manual. The case report was then developed describing this information. Next, the data was examined for patterns and/or emerging themes for each case individually. This information was then added to the case report. A final cross case analysis examined the patterns and themes across cases. Those results are presented in Chapter 4 through tables and graphs.

CHAPTER 4

A COMPOSITE OF THE CASE STUDIES

Introduction

This study was designed to examine and describe the performance of school age children of prenatal exposure to cocaine. In this chapter, data are presented in narrative format for each case study. The format for reporting the findings within each case report was derived by addressing all data collected while reflecting upon the following research questions:

1. What is the social and learning performance pattern of elementary school age children prenatally exposed to cocaine?
 - a. What is the achievement pattern for the substance affected child?
 - b. What is the pattern for behavioral and social adjustment of the substance affected child?
2. What additional factors may place the child further at-risk for failure?
 - a. What medical factors are present?
 - b. What environmental factors are present?
3. What has been the intervention history?
 - a. What agencies have been involved with the child or family throughout the child's history?
 - b. What services have been provided?
 - c. What child-centered educational and behavioral

interventions have been implemented over the years?

The background of the child and contributing factors of the parent are reviewed first along with a summary on the direct and indirect effects of intrauterine cocaine exposure as provided through data collection. The section on long-term outcomes addresses research question one. The medical factors area addresses part of research question two; however, the data are also long-term outcomes and are reported as a component of that section. The environmental factors area addresses the second half of research question two, but was significant enough to warrant a separate heading. The section discussing the intervention history addresses research question three. All findings are presented chronologically to the extent possible as determined in the methodology chapter of this study. A cross case analysis with visuals is presented at the end of this chapter. This chapter was completed in this fashion to provide the reader a comprehensive description of each case.

Within each case report, the Behavioral Assessment System for Children (BASC) results are provided. The components of the BASC are referred to as follows: TRS is the Teacher Rating Scale; PRS is the Parent Rating Scale; SOS is the Student Observation System; and SDH is the Structured Developmental History. All protocols were hand scored. The raw data were then converted and interpreted

according to the guidelines within the BASC manual.

These components of the BASC were used for research purposes, not for purposes of making clinical diagnosis; therefore, general norms were selected for use. General norms answer the question "How commonly does this level of rated ... behavior occur in the general population at this age?" (Reynolds & Kamphaus, 1992, pg. 8).

The data are then summarized according to the categories generated from the literature review in the order of the research questions. Each section includes triangulated data collected through records review, observations and interviews. Each case report concludes with a summary of suggested patterns within that case.

Case Report Number 1

Background

Case 1, henceforth Jason, is a 7 year 10 month old white male who is currently living with his biological mother, younger step-brother, and his mother's significant other. They live in a townhouse in a middle income neighborhood not far from the school he is currently attending. Jason participates in the free lunch program at school. He was in the second grade at the time of study.

Jason had attended a preschool summer program and kindergarten in a city different than where he resided at the time of the study. He attended the same school in his current city of residence for first and second grade.

Document analysis at the agency consisted of the following records: intake forms, confidentiality exchange form, substance abuse history, case contact notes, toxicology reports, parental letters of concern, and medical letters and reports. During the document analysis at the school, the following records were reviewed: attendance records, report cards, school health forms, school health physical forms, immunization record, birth certificate, and child custody forms. The information gathered through document review is interwoven throughout the appropriate categorical section of the case report.

Contributing Factors

Mother had an ectopic pregnancy previous to her pregnancy with Jason. She had been using drugs and alcohol since she was age 13. She was 27 years old when she gave birth to Jason. She broke up with Jason's biological father before the child was born; however, the father was at the hospital for the delivery. Mother reported migraines, mental illness, substance abuse, breast cancer, and child molestation in her family health history.

Mother reported inconsistent prenatal care. Additionally, she made several trips to the emergency room throughout the pregnancy to have the baby checked after a using episode of crack cocaine. Mother reported using marijuana as a high frequency drug during the pregnancy; however, she reported cocaine as her most frequent drug of

choice. She also used alcohol and cigarettes during the pregnancy, but reduced the amount of use of these two drugs after confirmation of pregnancy at the end of the first trimester. Mother stated that she also used PCP, speed, and inhalants before and after the pregnancy but not during. Mother could not recall the exact amounts of drugs used during that time in her life.

Mother had pneumonia while she was pregnant with Jason and was anemic. She also stated she had severe emotional problems during the pregnancy as well as after Jason's birth. She also reported taking something for her chronic condition of hepatitis, but could not recall more specific details than this.

Mother stated she was worried that something terrible was going to be wrong with the baby at birth and that she intended to commit suicide if that was the situation.

Direct/Indirect Effects

Jason's mother experienced complications during his birth. During labor, the baby's heart rate began to drop and the doctors completed an emergency cesarean section. Jason was three weeks premature and weighed 6 lbs 4 oz at birth. Mother could not recall his Apgar score. The baby was jaundiced at birth. Mother got sick with an infection and a fever during delivery, so she and the baby remained in the hospital for seven days.

Mother had difficulty bonding with Jason as an infant.

She was still using cocaine during the first year of his life and could not recall if he cried a lot or if he experienced tremors at that time.

Long-term Outcomes

The BASC Results

The components of the BASC were completed in the following sequence: (a) At the interview with Jason's biological mother the SDH was used and his mother completed the PRS. (b) The TRS was dropped off at the school when the researcher met with the principal to schedule the observation date and time. (c) The TRS completed by Jason's second grade classroom teacher was collected on the day of observation when the SOS was used. Information from the SDH along with additional observations are integrated throughout the case report.

A structured observation using the SOS as well as an unstructured observation were conducted. Jason was observed during a language arts lesson in the morning and during transition to the restroom. He was observed for a total of 50 minutes.

During the SOS, Jason raised his hand and answered questions appropriately during a language arts lesson. He interacted with his peers 48% of the structured time observed; 21% of these interactions were disruptive and off task. When writing during independent seat work, he wrote for 7 minutes with 48% of that time writing and

approximately three and one-half minutes making erasures. He was noted to talk to himself, pull at his face, play with his mouth, or brush back his hair 77% of the structured time observed. These behaviors were not disruptive and went unnoticed by the teacher. During class time, it was noted that Jason was verbally inappropriate with his peers on three occasions. For example, he told another child to stop looking at him and to "knock it off" when another child was trying to get his attention by tapping his arm.

The fake bad (F) validity index on both the PRS and the TRS was a 0. This implies that the validity of the rating scales was in the acceptable range and not compromised by excessive negativism on behalf of the respondents. Also, no items were omitted on either rating scale. Excessive omissions of items threatens validity.

The scores on the PRS are presented as Table 2. A t-score of 59 or below indicates the average range with exception of the adaptive scales (adaptability, leadership, and social skills) which require a t-score of 41 or higher to be in the average range.

The externalizing and internalizing composite scores along with the behavioral symptom index were in the average classification range. This indicates that, according to his mother, Jason's behaviors are within normal ranges for children his age. The adaptive skills composite was in the

Table 2

T-Scores and Percentile Ranks for the BASC-PRSCase 1

<u>Composite/Index</u>	<u>T-Score</u>	<u>Percentile Rank</u>
Externalizing Problems	42	20
Internalizing Problems	42	22
Behavioral Symptoms	40	16
Adaptive Skills	39	14

<u>Scale</u>	<u>T-Score</u>	<u>Percentile Rank</u>
Hyperactivity	42	22
Aggression	46	37
Conduct Problems	41	15
Anxiety	38	11
Depression	46	39
Somatization	47	45
Atypicality	36	4
Withdrawal	50	58
Attention	51	58
Adaptability	35	9
Social Skills	48	43
Leadership	38	11

at-risk classification range. This signifies that his mother expresses some concern regarding Jason's ability to problem solve, work with others, and adjust to changes in routine; and, that these may be potential and developing problems that need to be carefully monitored.

All of the scale scores fell within the average to low range of classification with the exception of adaptability and leadership. Overall, this pattern of scale scores implies that Jason's mother views him as having difficulty demonstrating skills that correlate with successful school achievement, such as adjusting to changes in routine and sharing possessions with other children. Additionally, it reflects his lack of good community skills and problem solving abilities.

According to the BASC guidelines (Reynolds & Kamphaus, 1992), marked critical items require further attention or examination. No critical items were marked on the PRS for Jason.

The scores on the TRS are provided as Table 3. The externalizing, internalizing, school problems composites, and the behavioral symptoms index score were all in the low to average classification range on the PRS. This signifies that, according to his second grade teacher, Jason exhibits behaviors within the normal limits for children his age. The adaptive skills composite score was in the high range which implies that the teacher felt Jason has the skills

Table 3

T-Scores and Percentile Ranks for the BASC-TRSCase 1

<u>Composite/Index</u>	<u>T-Score</u>	<u>Percentile Rank</u>
Externalizing Problems	40	2
Internalizing Problems	52	66
Behavioral Symptoms	43	26
Adaptive Skills	69	98
School Problems	37	6

<u>Scale</u>	<u>T-Score</u>	<u>Percentile Rank</u>
Hyperactivity	37	3
Aggression	41	15
Conduct Problems	43	17
Anxiety	55	77
Depression	54	73
Somatization	45	36
Atypicality	42	11
Withdrawal	42	20
Attention	36	7
Learning Problems	39	12
Adaptability	68	97

Table 3 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	72	98
Leadership	62	85
Study Skills	65	91

needed to be successful academically and socially in school.

The scale scores fell within the low to average classification range with the adaptive scales in the high to very high classification range. Relative areas of weakness were indicated in the areas of anxiety and depression. Although these scores were in the normal range, the teacher expressed some minor concern by indicating the following items to "sometimes" occur: fearful and nervous in school, often sad, and stayed disappointed long when his favorite activity was canceled.

On the TRS, there were significant differences ($p < .01$) between the externalizing problems composite and the internalizing problems composite, and also between the internalizing problems composite and the school problems composite. This implies that Jason is reported to have more problems with regard to himself than problems that are disruptive in nature which occurs with a 10% frequency in the general population of children his age. No critical items were indicated as deserving special attention on the TRS.

When comparing the PRS to the TRS, several differences stand out. The first is that the teacher viewed Jason's internalizing behaviors to be more of a concern than his mother. Although in the SDH, mother reported that Jason is frequently sad at home and spends whole days just staring

at the television.

Another difference is noted between the adaptive skills scores. Mother saw Jason as not having many of the adaptive skills needed to be successful, while his teacher viewed him as demonstrating a high level of adaptive skills. However, the SOS indicated that Jason was off-task 33% of the time observed by staring off and not working. Since this did not seem to interfere with his work completion in relation to the other children, then perhaps the teacher has not noticed such behavior. Furthermore, in the SDH, the mother reported that the teacher was unaware of problems Jason was having with his peers when it was brought to her attention. It is also possible that Jason displayed more social skills, adaptability and problem solving problems at home than he did at school.

Achievement Pattern

Jason attended two schools in three years. He has not been retained and he has never received remedial or special education services.

In kindergarten, his conduct and work habits were rated as satisfactory. The Math Criterion Referenced Test administered that year revealed Jason performed in the 90-100 percentile on the state standards of learning.

In first grade, Jason averaged an A- in math, a B+ in language arts and satisfactory performance in all other areas. He also received a rating of outstanding in conduct

and work habits in this grade.

In second grade, his level at the time of this study, he earned satisfactory ratings in all areas. Jason's reading was at grade level and his math was an area of strength. His teacher reported over the first semester that he completed his work and homework on time, but that he needed to continue to read and practice facts each night at home.

Cognitive Pattern

There were no reports of intelligence or standardized testing within Jason's file. Mother reported that he had never had any testing of this type.

Comments from the teacher and the mother indicated that Jason is a thoughtful person and that he asks for help when he needs it. The observations revealed that he was able to answer questions appropriately and correctly.

Motor Pattern

Mother indicated that as far as she knew, Jason achieved all of the motor developmental milestones within normal time expectations. In kindergarten, he completed a general screening with the school nurse and passed all sections. However, a fine motor screening was not completed at that time.

On his progress reports in second grade, Jason had comments encouraging neat work. His mother also reported that his handwriting is sloppy. Jason reportedly cannot

catch balls, although he can throw them. He was described by his mother as clumsy and accident prone. She said Jason knocks over things frequently and described him as one who does not like to dress himself.

One of Jason's legs is slightly turned inward. This caused him to complain often of a sore knee. He prefers to participate in activities which are noncompetitive in nature such as bowling according to his mother.

In school, Jason was seated in the middle front of the classroom near the teacher and the chalkboard. He copied from the chalkboard independently and erased seven times within a 6 minute period. He completed written work after his peers around him were finished, but within the time limit provided by the teacher. When he walked down the hallway, he walked with his hands in his pockets at a slow pace compared to his peers. It was observed that he preferred the end of the line and his teacher confirmed this observation to be accurate.

Language Pattern

Jason passed the general speech and language screening administered by a therapist in first grade. Nonetheless, he reportedly has a hard time explaining things, especially when he is excited. He was observed to speak clearly and fluently in class and to his peers.

Social Pattern

At the time of the study, Jason was described by his

mother as moody, stubborn, hard-headed, and determined to get his way. She noted that he cried a lot when he was ages four and five, and has always gotten very angry when he does not get what he wants. Although he reportedly likes school and displays a positive attitude there, he sometimes will get very sad and just sit and stare off or stare at the television.

According to his mother, Jason tends to hide his feelings and overreact when faced with a problem. For example, he was recently playing a board game with his mother and when she won, he became very angry, cried, and stomped out of the room. He was further described as a sensitive child who sometimes complains of stomach aches that have no medical explanation when checked by the doctor. He also fears new situations and new things such as learning to ride a bike.

During the observations, Jason lacked affect. He did not laugh or smile when the other children did, nor was he observed making any change in facial expression in the classroom, hallway, or lunchroom setting. This lack of affect was confirmed by Jason's mother to be his usual temperament.

Jason's mother reported that he requires much parental attention. He was further described as cooperative and willing to share with his siblings and peers. Socially, Jason demonstrates poor table manners, has difficulty

making friends, and often gets picked on and bullied by other children. The other children push him down a lot. The teacher was unaware of these peer incidents according to mother. Mother is concerned by this as Jason has frequently come home from school bruised and upset. Bullying has been a problem throughout first and second grade. Parents have put restrictions on whom Jason may play with in the neighborhood due to these incidents.

Jason, as indicated by his mother, prefers to play with older children and does not instigate fights with peers. His teacher confirmed this to be accurate. He withholds affection when angry and clings to mother when meeting new people. He was observed making negative comments to his peers in class and complained to the teacher about another student who was verbally taunting him while in line to transition to the restroom.

Mother reported that Jason chooses to see the guidance counselor at school to talk about different problems. These problems centered around peer interactions according to mother.

Behavioral Pattern

Jason was described by his mother as noncompliant and manipulative at home. He does not follow directions and appears not to listen to his mother. She reported that she has to repeat instructions to him several times before she gets a response. This has been a problem for several

years. Jason does not accept "no" and is reportedly stubborn. When disciplining Jason, his mother is inconsistent and will give in after first saying "no" to her son. Furthermore, Jason reportedly grinds his teeth at night which is a behavior commonly associated with stress.

At school, Jason was compliant but inattentive 33% of the observed work period. He stared off blankly. However, this did not appear to interfere with his work completion. He disrupted class by talking with another student. The teacher managed these behaviors by calling on Jason by name and by frequently walking by or near his work area.

Self-stimulatory behaviors were also evident across the observations. For example, Jason made facial grimaces while working and in the hallway, along with pulling at his cheeks, lips and hair. He talked to himself often--23 times in a 15 minute period. This was not disruptive as he was speaking inaudibly. He also was observed talking to himself during transitions and grinding his teeth.

Jason is known to rush through his work and was observed doing so in class with excessive erasures compared to his peers. He erased more often when he was transferring from the chalkboard than he did with writing seat work.

There were no behavioral referrals in any school records nor did mother remember ever receiving one for him. Additionally, there were no counseling referrals in Jason's

records.

Medical Factors

Jason was noted to be smaller in stature than the other boys in his class. He was the same age or older than most of them.

Mother reports Jason is healthy. He passed a vision rescreening while in first grade. His kindergarten vision screening was noted to be 20/30 for acuity in both eyes.

School health records indicated that Jason has had all of his required immunizations and has passed all health exams with no restrictions. There is no confirmation of substance exposure in any of the school records.

Jason missed four days of school in kindergarten, 12 days of school in first grade, and five days of school during the first half of second grade. One of these absences was when his mother took Jason to the doctor to investigate his stomachache complaints. Mother could not remember much about other illnesses or childhood diseases as Jason was not living with her then (when Jason was a toddler). Jason was clean and did not cough or sneeze during the observations. However, he did rub his stomach and grimace once in line on the way to the restroom in the morning.

Environmental Factors

Mother cared for Jason for his first year of infancy. She was still using cocaine and other drugs and reported

not wanting, at that time, to attend to his needs. Jason was also passively exposed to marijuana, cigarette, and cocaine smoke at that time.

Mother left Jason with her mother (Jason's maternal grandmother) as guardian when he was approximately one year old. Jason's grandmother, who was his legal guardian, "left" Jason with the mother's sister (Jason's maternal aunt) and her three children. Jason was raised with them for approximately one and a half years. His mother did not give permission for this change in caregivers to occur. She was in jail and in and out of treatment during this time period and saw Jason intermittently. Mother was also hospitalized for psychiatric reasons during this period. She was diagnosed with bipolar disorder (manic-depression) for which she now takes medication.

Jason visits often with three sets of grandparents: the parents of his mother, the parents of his father, and the parents of his mother's boyfriend. He has several step-siblings, including a six month old step-brother from his mother and her boyfriend who lives in the home. They have lived as a family for 18 months. Jason additionally spends time with his mother's boyfriend's two children whom are regarded as siblings. He has a half-sister who lives with his biological father and he sees them occasionally. He also became close to his cousins when he lived with them.

For the past two years, Jason has lived with his mother and has had little child care experience as she now stays home. She will occasionally get a neighbor friend to baby-sit when needed.

Intervention History

Agencies

The following agencies have been or are currently involved with Jason and his mother at the time of the study: a pediatrician, Community Mental Health, the Department of Social Services, the Community Services Board, the Health Department, a dental clinic, the Department of Rehabilitative Services, the City Court Services, the United Way and the public school system.

Services and Interventions

Jason and his family received the following services: subsidized health care; case management from three agencies; child support; parenting and job information; family services; child custody service; Medicaid and food stamps; subsidized dental care; baby nursing care; unemployment, public assistance such as Aid to Dependent Children (ADC); support groups for recovery meetings; and support for referrals, baby supplies, transportation, resource mother program, and parenting courses.

Behavioral interventions for Jason were minimal. There was little provided in the schools except for counseling by the school guidance counselor. Also, his

current teacher frequently used differential reinforcement, prompts, proximity and verbal reinforcement to keep him on task. The parenting classes taken by the mother may be seen as an indirect intervention regarding discipline and assisting with homework.

Educational interventions for Jason included having a very structured teacher for both first and second grade. His second grade teacher was observed to use visual cues often, and she placed him in the front of the class near the chalkboard. One of the agencies supported him indirectly by helping financially for his mother to be home for him after school, by helping teach his mother how to assist him with homework and peer situations, and by helping to get him health care as needed.

Summary of Suggested Patterns for Case 1

A summary of performance patterns for Jason is provided in Table 4. The table denotes areas of concern as evidenced across each data source. Areas of concern on the BASC components were indicated only if the area classified at-risk or clinical according to the guidelines in the manual. For document analysis, areas of concern were indicated if noted in more than one document. From additional observations, areas of concern reflect the judgment that behaviors were exhibited more often than expected for children that age.

Several social and learning patterns emerge from

Table 4

Performance Patterns Case 1

Performance area	Source of evidence					
	PRS	TRS	SOS	SDH	DA	AO
Achievement		0	0	0	0	0
Cognitive	0	0	0	0	0	0
Motor	0	0	X	X	0	X
Language	0	0	0	0	0	0
Social	X	0	X	X	0	X
Behavioral	X	0	X	X	0	X
Medical	0	0	0	X	0	X

Note. X = Evident as an area of concern. 0 = Not evident as an area of concern. The BASC components are PRS, TRS, SOS, and SDH. PRS = Parent Rating Scale. TRS = Teacher Rating Scale. SOS = Student Observation System. SDH = Structured Developmental History. DA = Document Analysis of agency records and school records. AO = Additional Observations.

examination of the data. The patterns will be discussed in the order established by the research questions.

Academically, Jason has met with success in his three years of school. He is performing with average skills in all areas. He exhibits inattentive behaviors such as staring off and talking to himself which may later become a problem in school. The teacher currently uses structure and behavioral strategies which help to redirect Jason to task.

Behaviorally, Jason exhibited self-stimulatory and inattentive behavior while in school, and was described to be noncompliant in the home. It was difficult to determine if these behaviors have been a concern over Jason's lifespan due to his mother's recent consistent involvement in his life. His behaviors at school were found to be more internalizing in nature. According to Reynolds and Kamphaus (1992), often times depression and anxiety disorders are commonly confused with ADHD inattentive type. Jason may warrant further examination with regard to these behavioral concerns.

Socially, although subtle, Jason appears to exhibit mood changes with a tendency toward sadness. He occasionally lacks the skills necessary to solve problems without overreacting. He has difficulties with peer relationships and exhibits anxiety and fear in new situations with some new people. He frequently experiences

anger, disappointment, and cries easily.

Jason has no apparent speech or language problems. He does display difficulty with handwriting, transferring from the chalkboard, and with some gross motor activities. To date, these concerns are not significant enough to warrant intervention.

Environmentally, there have been many changes during Jason's life. He has had several primary caregivers and extended family living situations. Additionally, discipline in the home is inconsistent and his mother has recently entered recovery. All of these factors may be influencing Jason's performance socially and behaviorally.

Case Report Number 2

Background

Case 2, henceforth Barney, is a white male aged 10 years 11 months in the 5th grade. He has attended four schools over his six years in school. He has never been retained and was in general education at the time of the study. Through document analysis and parent recall, it appears he has moved seven times in the 10 years of his lifespan. He was living with his biological mother and his 6 year old step-brother in a low socio-economic housing area at the time of the study. Barney participates in the free lunch program at school.

During document analysis at the agency, the following records were reviewed: intake forms, confidentiality

exchange form, substance abuse history, case contact notes, toxicology reports, and medical letters and reports. During the document analysis at the school, the following records were reviewed: attendance records, report cards, discipline records, psychological reports, standardized test results and reports, school health forms, school health physical forms, medication logs, discipline referrals, screening forms, eligibility forms, 504 plans, immunization records, birth certificate, therapist's reports, and permission from physician forms. The information gathered through document review is interwoven throughout the appropriate categorical section of the case report.

Additionally, in Barney's case, a brief interview was conducted with his two teachers concurrently and with the school guidance counselor. This additional information was triangulated and is also integrated throughout the case report.

Contributing Factors

Barney's biological parents were both active drug users at the time of his unplanned conception. Mother had experienced two successful pregnancies ten years previous to Barney and both children were taken away due to the drug using environment by the Department of Social Services. Barney has never been informed of the existence of these step-siblings.

When Barney's mother was sixteen, she was given up by her birth mother and raised by her grandmother. Barney's maternal grandparents were also substance abusers and Barney's maternal grandmother was clinically depressed and reportedly killed herself. All of this history contributed to Barney's mother's unbalanced emotional state at the time of pregnancy.

Barney's mother received intermittent prenatal care during pregnancy. She took some prenatal vitamins and had several ultrasounds to check on the progress of the baby in utero. Also during pregnancy, his mother moved frequently and was in poor health.

Mother continued polydrug use throughout her pregnancy with Barney. During the first trimester, she used what she referred to as crystal-meth (methadone) intravenously. Additionally, she used cocaine in all forms, cigarettes, and alcohol. Throughout the pregnancy, she used cocaine and marijuana and took prescription sleeping pills.

Direct/Indirect Effects

Mother attempted some treatment for substance abuse after the first trimester of pregnancy. Barney was born full term with some complications. For example, labor had started and then stopped after several hours. This put stress on the baby, so labor was further induced. Barney weighed 8 lbs at birth. Mother and baby spent two days in the hospital and were discharged together.

Mother did not recall specifics related to Barney's achievement of developmental milestones. She was still using drugs when he was an infant. She felt she may have neglected his needs then due to her drug habits.

Long-term Outcomes

The BASC Results

The components of the BASC were completed in the following sequence: (a) At the interview with Barney's biological mother, the SDH was used and his mother completed the PRS. (b) The TRS was dropped off at the school when the researcher met with the principal to schedule the observation date and time. (c) Two TRS protocols, completed by Barney's morning and afternoon fifth grade, general education teachers, were collected on the day of observation when the SOS was used. Information from the SDH along with additional observations are integrated throughout the case report.

Barney was observed during a structured language arts classroom activity using the SOS and during a less structured art and transition period. The total observation period was 55 minutes. Although most findings from the observation were triangulated and integrated into the categorical areas below, there were some important additional findings. For example, Barney demonstrated excessive silly behaviors compared to that of his peers, including giggling and laughing inappropriately. He was

not prepared for lessons or transitions and required direct prompts and cues from the teacher to keep up with the group. He was observed spinning coins in class which went unnoticed by the teacher. He interacted with his peers frequently which was occasionally disruptive in nature. He attended most obviously when he was interested in the material presented, such as a report on whales and painting. He was inattentive and off-task (through inappropriate peer interactions) for 47% of the observed structured period, but did not interfere with the flow of the class enough to warrant intervention from the teacher.

The validity indicator on the PRS was a F index of 2. This falls in the acceptable range and implies that his mother was not extremely negative or extremely positive in her responses regarding her son's behavior. Furthermore, the parent's ratings were found to be consistent with her descriptions of his behavior during the SDH. Only one item was omitted. Therefore, validity did not seem to be compromised on the PRS.

The F index on both ratings of the TRS were in the acceptable range. Therefore, it is implied that the teachers were neither too severe nor too positive in their response sets regarding Barney's behavior. Also, there were no omissions to threaten validity of the scores. However, it was curious that the teachers rated Barney's behavior quite mildly while they concomitantly told the

researcher that if Barney "wasn't so smart, he would not be this successful in school." The parents and teachers reported he was kept off the honor roll due to his behavior. Also, the teachers reported that if he were not on medication, their ratings would have been very different. These indicators may compromise the validity of the TRS.

The PRS results are presented as Table 5. A t-score of 59 or below indicates the average range with exception of the adaptive scales (adaptability, leadership, and social skills) which requires a t-score of 41 or higher for the average range.

The externalizing problems composite, behavioral symptoms index, and adaptive skills composite were all in the clinically significant classification range. This denotes that, according to his mother, Barney exhibits a high level of maladaptive behavior and lacks skills necessary for social and school success. The internalizing problems composite fell in the at-risk classification range which signifies problems that may require treatment and careful monitoring.

The hyperactivity, aggression, conduct problems, depression, and attention problems scales were all found in the clinically significant classification range. These scores, as rated by his mother, reveal Barney's highly disruptive behavior directed against others and the self

Table 5

T-Scores and Percentile Ranks for the BASC-PRSCase 2

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	109	99
Internalizing Problems	65	92
Behavioral Symptoms	80	99
Adaptive Skills	25	1

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	71	97
Aggression	85	99
Conduct Problems	75	98
Anxiety	55	71
Depression	79	99
Somatization	50	58
Atypicality	63	90
Withdrawal	69	96
Attention Problems	73	98
Adaptability	22	1
Social Skills	32	4
Leadership	30	2

which is of great concern to parents and teachers. These scores are highly correlated to Oppositional Defiant Disorder (ODD) and Attention Deficit Hyperactivity Disorder (ADHD) diagnoses. Furthermore, these scores were indicative of deviant, rule-breaking forms of behavior and occur in a pattern similar to others with conduct problems.

Clinically significant patterns in the above mentioned scales often correlate with learning problems and indicate that low adaptive scores are expected. Barney's scores on the adaptability scale were in the clinically significant classification range with the social skills scale and leadership scale in the at-risk range. These results signify that Barney has difficulties problem solving, organizing, and note taking, and that he may require social skills training in order to be successful.

The externalizing composite was significantly different than the internalizing composite ($p < .01$). The difference was so extreme that it is found to occur in less than 5% of the general population for other children in the same age range. This discrepancy suggests that Barney's externalizing symptoms are much worse than his internalizing problems and should be the focus of further investigation and/or treatment.

Critical items marked on the PRS reveal that Barney uses medication and sometimes threatens to hurt others or says he wants to kill himself when he is at home. He was

also reported sometimes to say "I wish I were dead" around his family. Critical items such as the above deserve immediate further attention. In this case, mother was encouraged to share findings with her son's private therapist.

The results of the TRS from Barney's morning teacher (math and science) are reported in Table 6. On this TRS, the externalizing, internalizing, school problems, and adaptive skills composites fell within the average classification range. The behavioral symptoms index was also found in the average range. This indicates that according to this teacher, Barney exhibits behaviors within the normal limits of other children his age.

All of the scale scores were also found to be in the average classification range with the exception of social skills which was in the at-risk classification range. This signifies that, while in other areas he behaves in accordance with expectations of children his age, Barney may be lacking skills necessary for successful relationships and social adaptation.

Relative areas of concern on this TRS were the scales of aggression, depression and withdrawal. According to these responses, Barney is reported to argue with others, blame and bully others, change moods quickly, seem sad, play alone, and occasionally refuse to join activities. It is noted in the BASC manual that the scales of depression

Table 6

T-Scores and Percentile Ranks for the BASC-TRS (am)Case 2

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	53	72
Internalizing Problems	46	42
Behavioral Symptoms	49	58
Adaptive Skills	49	47
School Problems	41	19

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	51	60
Aggression	57	81
Conduct Problems	51	71
Anxiety	42	21
Depression	56	80
Somatization	42	18
Atypicality	50	67
Withdrawal	58	81
Attention Problems	41	20
Learning Problems	41	21
Adaptability	54	60

Table 6 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	40	16
Leadership	46	37
Study Skills	57	71

and withdrawal often go undetected by teachers.

The results of the second TRS rated by the afternoon teacher (language arts and social studies) are presented as Table 7. The externalizing, internalizing, and school problems composites were found in the average classification range. The behavioral symptom index was also in the average classification range. This denotes that according to this teacher, Barney exhibits behaviors within the normal limits of other children his age. The adaptive skills composite was in the at-risk classification range, indicating that Barney may lack the skills necessary to be successful in school and in social interactions.

The scale scores found to be within the average classification range were hyperactivity, conduct problems, anxiety, depression, somatization, attention problems, learning problems, atypicality, adaptability, and leadership. The scales of aggression and withdrawal were found to be in the at-risk classification range. This implies that Barney may have potential problems in these areas that merit treatment and close monitoring.

Additionally, social skills and study skills were noted to be in the at-risk classification range. These skill levels may suggest substantial behavior problems to come, deterioration of school performance, or the need for social skills training in the future in order for Barney to be successful.

Table 7

T-Scores and Percentile Ranks for the BASC-TRS (pm)Case 2

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	58	83
Internalizing Problems	43	25
Behavioral Symptoms	54	72
Adaptive Skills	37	11
School Problems	49	53

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	59	81
Aggression	63	89
Conduct Problems	51	71
Anxiety	42	21
Depression	48	55
Somatization	42	18
Atypicality	53	77
Withdrawal	67	93
Attention Problems	53	66
Learning Problems	45	38
Adaptability	41	20

Table 7 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	31	3
Leadership	44	30
Study Skills	38	15

Both ratings of the TRS revealed the externalizing problems composite score to be significantly more problematic than the school problems composite score. This denotes that Barney was reported to have more externalizing problems than was affecting his school achievement at the time of the study.

The only critical item marked by the teachers was that Barney always uses medication. The parent and teachers indicated this medication was Ritalin.

The teachers were in agreement in rating Barney in the areas of conduct problems, anxiety, and somatization. These were not areas of relative concern. Further analysis revealed that the teachers both found the areas of aggression, withdrawal, and social skills to be areas of concern for Barney in school. These results coupled with the clinical indicators from the PRS highlight the following areas to be important for Barney: hyperactivity, aggression, depression, withdrawal, and social skills.

Barney's behavior may have been reportedly more severe at home and in the community due to lack of structure in those environments when compared to school. Furthermore, mother's ratings were based on interactions with Barney when medication had worn off. Additionally, his teachers may have been less compelled to notice atypical behaviors if they were not disruptive and have more opportunity to see Barney show attention and flexibility while in school.

Or, it is possible that the lack of adaptable behaviors and increased conduct problems are more evident with mother for emotional and environmental reasons.

Achievement Pattern

Barney attended a private preschool five days a week when he was four years old. His paternal grandmother paid for this and thought preschool would help him behaviorally. Although Barney attended kindergarten in a school in the same city he resided at the time of the study, no records were located for this school year.

In first grade, Barney averaged a B in math and a C+ in language arts. He earned ratings of satisfactory in science, social studies, and physical education (PE). He also took a standardized aptitude test with his first grade class (the COGAT-Cognitive Abilities Test). His scores were: Verbal 42nd percentile, Quantitative 64th percentile and Nonverbal 95th percentile.

In second grade, Barney averaged an A in math and a B+ in language arts. He again received satisfactory ratings in science, social studies and PE. He attended the same school for first and second grade.

Barney went to a different school in the same city in the third grade. His grades dropped to an average of C- in math and B- in language arts. He earned satisfactory ratings in science and social studies and a rating of needs improvement in PE. He was in Chapter 1 reading that year

due to failing marks.

It was at this time that Barney was referred to a psychiatrist for an assessment for ADHD. On the Wide Range Achievement Test (WRAT), Barney performed at the mid-first grade level on the reading subtest, end of second grade on the spelling subtest, and end of second grade on the arithmetic subtest. It was concluded from the WRAT results that Barney had a reading problem. This was also the same year that he began therapy and taking medication for ADHD.

Additionally in third grade, Barney took the Iowa Test of Basic Skills (ITBS). He took only 2 of the 17 subtests scoring above his grade placement at the 4-8 grade equivalent in vocabulary and at the 5-0 grade equivalent in reading comprehension.

In fourth grade, Barney attended another school within the same city. He remained at this school for fifth grade as well. He averaged a B- in math, an A in language arts, an A- in science, a B- in social studies, and a satisfactory rating in PE. He took only eight of the 17 subtests of the ITBS that year due to his disruptive behavior. His scores (in grade equivalencies) were: vocabulary 6.0, reading comprehension 7.6, spelling 3.3, total language 5.9, total work study 7.3, total mathematics 6.3, science 5.2 and social studies 6.6. He performed at or above the average level of his peers in all of the subtests except spelling.

Barney was attending the fifth grade at the time of this study. He was averaging an A in math and Bs in science, social studies, and language arts. On the writing predictor of the state Literacy Passport Test, he received 2.9 points out of 4.0, which was passing with some weaknesses noted.

Cognitive Pattern

In the fall of third grade, Barney was administered an individual intelligence test as a result of a referral for ADHD. He was administered the Wechsler Intelligence Scales for Children-Revised (WISC-R). He obtained a verbal IQ of 106, a performance IQ of 102, and a full scale IQ of 104. These scores all fall in the average range for children his age. His weaknesses were found in the arithmetic and visual memory/coding subtest areas. Additionally, his teachers reported that he is "very bright" and his mother indicated he is "real smart".

Motor Pattern

Barney was described as uncoordinated. He had difficulties learning to skip, ride a bike, and to throw or catch a ball. He has more difficulty with sports activities than other kids his age and prefers to spend his time in sedentary activities.

His handwriting was described as illegible, but said to be "excellent for an ADHD kid" by his mother and teachers. Cursive writing was stated to be easier for him;

however, it appears rough compared to the handwriting of his peers. He sits in the front of the classroom close to the chalkboard to ease his difficulties transferring from the overhead projector.

Language Pattern

Barney passed the speech and language screenings in first grade. There were no reports of spoken language problems. He spoke clearly with long, suitable responses in class and appeared to use his language skills age appropriately when compared to his peers.

Social Pattern

Near the end of second grade, Barney began individual therapy. He was in therapy for two and a half years. In third grade, projective assessment showed themes of escaping conflict by taking flight and hiding. Much of this assessment report was blacked out in his records due to sensitive and private material related to parental substance using lifestyle.

The school guidance counselor had worked with Barney for all of fourth grade and currently had him in a group with other children of ADHD. She reported difficulty initially establishing rapport with him and stated that Barney "knows too much" for a child his age. He has told her many stories related to police raids, hiding drugs and drug paraphernalia, and drug administration. Additionally, he has shared stories illustrating how unsupervised he and

his brother had been and how much "fun" they had when his parents were using. For example, he told the guidance counselor about one Thanksgiving dinner at which his mother passed out, so he and his brother had a food fight. More recently, he was described to be focused and obsessed on Mother's slips and recovery achievements.

Barney was described by his mother and guidance counselor as a very angry and fearful child who hides his feelings. He seems unhappy most of the time and uncomfortable meeting new people. He spends an inordinate amount of time drawing pictures and posters about not using drugs (e.g., "just say no to drugs" and "no drug using here") which he has posted in his room, on his door, and in his mother's kitchen.

Barney has had difficulty with his peers throughout his life. He is known to fight with the neighborhood children and is the aggressor in his peer group. Over the years he has hit, choked, and pushed kids while playing. Recently, he hit a girl in the neighborhood and has been preferring to play alone. He is described as a child who never really had much interest in making friends and is immature in comparison to his peers. It is further reported that there is intense sibling rivalry between Barney and his step-brother. Barney is mean to his little brother and his mother has had to physically restrain Barney to keep him from hurting his sibling. Although he

was observed to make several negative comments to his peers in class, his peer interactions were not always disruptive or inappropriate.

Barney does not show much responsibility around the house according to his mother. She stated he has poor table manners and does not do assigned chores.

Behavioral Pattern

Throughout school records, Barney was documented to have difficulties behaviorally in school. Reportedly, he displayed temper tantrums as a toddler and he exhibited behavior problems in preschool and kindergarten. In first grade, his reports indicated that his work habits and conduct needed improvement. In second grade, reports noted that Barney's behavior and attitude needed improvement. In third and fourth grades, although he had several behavior referrals, his work habits were rated satisfactory.

In third grade, his teachers rated him on the Owen's ADHD scale to be at high risk in anger control, aggression, resistance to authority, and social skills. In fourth grade, he had four discipline referrals. One was for stealing from the school store. The others were for being rude and disrespectful; pushing, hitting, and choking a peer; and disturbing class, fighting with other students, and being rude.

In fifth grade, Barney had received two discipline referrals by the time of the study. The referrals were for

aggression towards peers and inappropriate behavior and disrespect towards his teachers. He has been physically and verbally aggressive in school and is known to disturb class by talking out loudly at inappropriate times.

Barney rarely follows rules at home according to his mother. He also breaks rules at school by writing in textbooks, being noncompliant, and through mockery and display of a negative attitude.

Barney was described as an impulsive, over reactive child who lacks attention span and self control. He requires a lot of parental attention and presents the most challenge to his mother with "his smart mouth attitude." She has had to physically restrain him on several occasions over the years, even after he started medication treatment.

Barney is further portrayed as immature. His teachers indicated that he displays periods of perseveration on one topic and silliness. They report "he has some concerns, but nothing we can't manage." Additionally, they stated that "without Ritalin, we'd be in trouble."

Barney appeared unorganized. He was described by his teachers as never having his materials ready when needed for class, and often forgetting to bring papers back and forth from home to school. During the observations, he spent time looking for materials and could not find them; and, he had the incorrect materials out for the subject being presented.

Barney continuously participates in self-stimulatory behavior. He was observed to make facial grimaces and pick at his nails during class. He also spun coins during instructional time. His mother reported that he also spins objects at home, that he is constantly fidgeting with paper clips while at home, and that he bangs his head when angry. She further stated that he hums to himself, but does not know he is doing it. Barney's mother, grandmother, and teachers are constantly reminding him to be quiet.

Medical Factors

Barney suffered many ear infections when he was younger. He missed 7 days of school in kindergarten, 14 days of school in first grade and 22 days of school in second grade due to illness. He was absent 4 days in third grade and 4 days in fourth grade. Some of these absences were due to suspensions.

At the end of second grade, a psychiatrist diagnosed Barney as having ADHD, Dysthymia, and ODD. At the end of third grade he began taking Ritalin for his inattentive, hyperactive, and impulsive behavior. In the middle of fifth grade, he had an additional diagnosis of ADHD from a physician for purposes of obtaining social security income (SSI). In fifth grade, he was still taking Ritalin 10 mg three times daily.

Barney was described as a picky eater and was underweight at the time of the study. He has an extreme

overbite and suffers frequently from sinus infections. He reportedly will only have a bowel movement at home, and experiences painful bouts of constipation from holding it.

In ADHD group at school with the school guidance counselor, Barney described his ADHD as a feeling like a buzzing sensation. He also is aware of times when he is unable to filter out distractions.

Environmental Factors

Barney has lived at various times with his mother, paternal grandmother, and biological father. When he was young, he lived with his mother, father, and father's two sons (his step-brothers). He often remarks to his mother that he misses those siblings. During that period of time, he experienced his parents' drug using lifestyle which included drug seeking behaviors, drug using behaviors, and police raids. He was passively exposed to marijuana and cocaine smoke, and to cocaine through breast feeding. He also experienced family violence as his biological father was accused of physical abuse to one of his other sons when Barney was a toddler.

Barney then lived with grandmother when mother was going through periods of using drugs and residential and day treatment. He was toilet trained by a baby-sitter and grew very close to his grandmother. He was 5 years old when his mother came home from a "one night fling" pregnant with his step-brother.

Additionally, he, his mother, and step-brother were homeless during his fourth grade year for 6 weeks. Mother reports they lived in shelters and with friends during that time. Barney rarely sees his father now and this is a significant emotional issue with him according to his mother, teachers and guidance counselor.

Mother stated that she officially began recovery in December of 1992 when Barney was in second grade, although she has had several slips since then. Barney is informed of Mother's recovery progress, and is aware of the history of abuse and death in her family.

In the year previous to the time of study, Mother joined a support network and has been working as a dump truck driver. Barney and his step-brother go to daycare after school on days when mother is working. She also frequently works weekends. Mother also reportedly has Hepatitis C.

Barney gets to see his grandmother twice a month. He and his family have recently reunited with his maternal aunt after many years of separation.

Intervention History

Agencies

According to document analysis and mother's recall, the following agencies have been involved with Barney and his family: private testing agency, private therapy services, department of social services, community services

board, comprehensive substance abuse services, public city school system, public assistance, health department, and city police.

Services and Interventions

The following services have been provided to Barney and his family over the years: intelligence testing, private individual and family therapy, food stamps and ADC, subsidized daycare, recovery support groups, peer prevention group through the community services board, case management, toxicologies, job leads, shots/immunizations, and ongoing referrals to other agencies as needed.

Educationally, interventions for Barney began in the middle of fourth grade when a referral to the child study team at school was made by his mother and therapist. It was decided that Barney was eligible under Section 504 of the Rehabilitation Act of 1973 for an accommodations plan. This plan included a set of textbooks for home, assignments written in a daily planner, missing assignments noted by teacher in the planner, parent-teacher communication through the planner as needed, and daily checks of the planner by the parent. At the beginning of his fifth grade year, the 504 plan was reviewed and redrafted. The accommodations listed were the same as mentioned above. Mother reported that these accommodations were not sufficient. The teachers reported that they were following the plan and that they also used preferential seating with

him (near the front of the classroom close to the chalkboard and the teacher).

Behavioral interventions that have occurred over the years included counseling individually and in groups with the school guidance counselor, parent-teacher conferences, and direct cues and requests from the teachers. Additionally, a variety of punishments have been utilized to control Barney's behavior, such as loss of privileges at school and at home, verbal warnings, suspensions out of school, referrals to the office, separation from peers, and keeping him off of the honor roll due to his inappropriate behavior.

Summary of Suggested Patterns for Case 2

A summary of performance patterns for Barney is provided in Table 8. The table denotes areas of concern as evidenced across each data source. Areas of concern on the BASC components were indicated only if the area classified at-risk or clinical according to the guidelines in the manual. For document analysis, areas of concern were indicated if noted in more than one document. From additional observations, areas of concern reflect the judgment that behaviors were exhibited more often than expected for children that age.

Barney has struggled with grades over the years; however, he apparently has the cognitive abilities to achieve at an average, satisfactory level in school.

Table 8

Performance Patterns Case 2

Performance area	Source of evidence					
	PRS	TRS	SOS	SDH	DA	AO
Achievement		O	O	O	X	X
Cognitive	O	O	O	O	O	O
Motor	X	X	X	X	X	O
Language	O	O	O	O	O	O
Social	X	X	O	X	X	X
Behavioral	X	X	X	X	X	X
Medical	O	O	O	X	X	X

Note. X = Evident as an area of concern. O = Not evident as an area of concern. The BASC components are PRS, TRS, SOS, and SDH. PRS = Parent Rating Scale. TRS = Teacher Rating Scale. SOS = Student Observation System. SDH = Structured Developmental History. DA = Document Analysis of agency records and school records. AO = Additional Observations.

Throughout his academic history, he demonstrated inconsistencies across subject areas with poor grades and achievement sometimes in math, sometimes in spelling and reading. His noted weaknesses in visual memory and coding may explain these inconsistencies. Furthermore, it appears that his behavior has significantly interfered with consistent achievement and learning over the years. Barney has also had to change schools several times. Changes in school climate and curricula may have impacted critical learning years.

The family history of depression, mother's active drug use during and after pregnancy, and Barney's exposure for several years to a drug seeking environment may have influenced the at-risk indicators of depression in Barney. These factors may also connect to his fears and obsessions related to drug use in general.

Barney has no speech and language problems, but appears to have some motor coordination problems. Although this effects his participation in activities, it does not seem to significantly hamper his school work.

Barney has a history of ear infections and sinus conditions. He used to miss a great deal of school due to illness, but more recently has missed school due to behavior concerns.

Barney has had ongoing emotional, behavioral and social problems. Although they range in severity across

settings and over the years, it appears that he has exhibited significant aggressive, hyperactive and defiant behaviors while demonstrating increasingly more withdrawal and depressive tendencies. Furthermore, Barney lacks social skills and participates in self-stimulatory behavior. These behaviors are not surprising in light of the information regarding the neurobehavioral effects of prenatal exposure to cocaine and other substances, and the variety of environmental stressors the child has endured and continues to endure. For example, Barney has had at least two primary caregivers with intermittent parenting from his father. He has lived with several step-siblings periodically and has become attached and denied access to relationships with some of them. He has witnessed detrimental family trauma related to drug use and has called at least seven residences "home." Plus, his mother is highly preoccupied with her recovery, her work, and her current health condition.

Barney has not been without substantial intervention assistance. He has received therapy, medication, group counseling and educational accommodations over the years which may have helped him to learn coping skills and maintain his relatively successful performance in school.

Case Report Number 3

Background

Case 3, henceforth Steven, is a 6 year 3 month old,

white male who was in kindergarten at the time of the study. He lives with his biological mother and 10 year old step-brother in a recently condemned apartment. Steven participates in the free lunch program at school.

In document analysis at the agency, the following records were reviewed: intake forms, confidentiality exchange form, substance abuse history, case contact notes, and medical letters and reports. In document analysis at the school, the following records were reviewed: kindergarten screening form, kindergarten skills checklist, immunization record, birth certificate, school health history form, school health registration form, attendance record, discipline record, progress reports, medication chart, physician's permission form, school physical form, and work samples. The information gathered through document review is interwoven throughout the appropriate categorical section of the case report. Additionally, in Steven's case, a brief interview was conducted with the teacher and the school guidance counselor at the teacher's request.

Contributing Factors

Mother moved often and accidentally became pregnant with Steven by a man she only dated once. Mother reported that he had no interest in the baby during the pregnancy or since then. She was out of work, had another child to raise, and was actively using drugs.

Mother reported that Steven was considered a high risk pregnancy. She was 34 years of age at the time and considered abortion throughout the pregnancy. She was unhealthy, highly stressed during the pregnancy, and denied being pregnant until well into the second trimester. She then began to receive intermittent prenatal care and take prenatal vitamins.

Mother reported that she participated in polydrug use. She used an excessive amount of cocaine in all three forms of administration during the first trimester. She also smoked cigarettes and drank alcohol during the pregnancy. She reportedly drank when she was unable to locate cocaine. She also wanted to stop using substances after confirmation of pregnancy in the fourth month, but had difficulty doing so. Polydrug use was also confirmed through document analysis.

Direct/Indirect Effects

Steven was delivered in a hospital near the end of the full term of pregnancy. Mother's water broke, but labor needed to be induced as it would not start and was causing stress to the baby. Mother had to be catheterized in order for Steven to be delivered. Mother reported that Steven's head was severely misshapen when he was born. There were no other complications reported during delivery and the baby was 8 lbs 6 oz.

Mother had extreme difficulty bonding with Steven when

he was a baby due to his excessive crying and difficulty calming. She reported that he would not sleep more than 30 minutes at a time and would not breast feed. He would stiffen and not respond to any attempts at swaddling, pacifying, or rocking. Mother was very frustrated by this behavior which perpetuated for the first seven weeks of his life. She began to give him cereal at seven weeks which helped increase his sleeping time to 4 hour periods. Additionally, mother was still using substances during this time and reported emotional difficulty attending to the baby's needs.

Mother recalled that Steven's developmental milestones were achieved quite early. For example, he was verbalizing his brother's name at seven months of age. He was reported to walk alone between 8 and 9 months of age. She further indicated that as an infant, he was very "busy" and easily overstimulated.

Long-term Outcomes

The BASC Results

The components of the BASC were gathered in the following order: (a) At the interview with Steven's biological mother, the SDH was used, and his mother completed the PRS. (b) The TRS was dropped off at the school when the researcher met with the principal to schedule the observation date and time. (c) The TRS was completed by Steven's kindergarten teacher and collected on

the day of observation when the SOS was used. Information from the SDH, along with additional observations, are integrated throughout the case report.

Steven was observed during storytime in the library using the SOS, and also during transition and snack time. Altogether, the observation lasted 60 minutes. Although the information gathered during observations is integrated throughout the case report, important findings should also be mentioned. During the SOS, Steven attended to the librarian's story 90% of the observed, structured 15 minute interval. He was then observed to hit another student, make faces, pretend punch in the air, participate in excessive repetitive motor movements, and make inappropriate noises and comments all within a relatively short period of time (8 minutes). His behavior during snack time was noted to be extremely different than his peers as evidenced by acting out characters, talking about unrelated ideas, and being harsh with other children.

The validity on the PRS was reflected through an F index of 3. This result was in the caution range and "either indicates the presence of extraordinary maladaptive behavior or suggests that the ...parent rated the child's performance more severely than is warranted" (Reynolds & Kamphaus, 1992, pg. 47). Upon closer analysis, the ratings of the parent corresponded to the description provided through the SDH and by the observations and document

analysis. The items rated severely by the parent were related to the child's adjustment to changes in routine and new people. Through triangulation of data, it was apparent that Steven was unable to successfully make these adjustments, which in turn interfered with his learning and social interactions. The additional item rated severely by the parent was that Steven always hits other children. Again, through more indepth analysis, it was apparent that the incidents of hitting other children occurred substantially more often than with other children his age.

The F index on the TRS was in the acceptable range; however, the teacher's comments to the researcher portrayed more severe behavioral concerns than were indicated by her ratings on the TRS. She stated that she completed the rating scale keeping in mind the progress Steven has made in the past few months, not by comparing him to other children in his class. This perspective may compromise validity by the nature of the inconsistency. For example, the teacher rated Steven as "always creative." When the researcher asked her about this, she said he often exaggerates and tells stories which he uses to manipulate others and to get attention. She also reported there are times when she is unsure that Steven can discriminate between those stories and the truth; however, she rated the item "seems out of touch with reality" with the response "never." She also responded on the TRS that he has never

been suspended from school, but then described a recent incident where she and the school administrator had to send Steven home for throwing a chair. The teacher and administrators at the school had been suspending him informally; however, it was discovered that going home with mother was very rewarding for Steven, so this was used only when safety issues arose.

There were no items omitted on the PRS and two items omitted on the TRS. Upon clarification with the teacher, she indicated the omitted items were inappropriate to his age. For example, she omitted the item "skips classes at school" which is not applicable to kindergarten.

The PRS results are presented as Table 9. A t-score of 59 or below indicates the average range with exception of the adaptive scales (adaptability, leadership, and social skills) which requires a t-score of 41 or higher to be in the average range.

The externalizing problems composite and the behavioral symptoms index were found to be in the clinically significant classification range. These scores suggest that, according to his mother, Steven exhibits a high level of maladaptive behavior. The internalizing composite and the adaptive skills composite were found to be in the at-risk classification range. These scores suggest that there may be potential problems developing that may require treatment and close monitoring.

Table 9

T-Scores and Percentile Ranks for the BASC-PRSCase 3

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	97	99
Internalizing Problems	65	92
Behavioral Symptoms	81	99
Adaptive Skills	40	16

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	94	99
Aggression	89	99
Conduct Problems	87	99
Anxiety	65	92
Depression	72	97
Somatization	47	45
Atypicality	49	52
Withdrawal	41	18
Attention Problems	61	86
Adaptability	25	1
Social Skills	45	29
Leadership	53	62

The hyperactivity, aggression, conduct problems, depression, and adaptability scales fell into the clinically significant classification range. This result implies that Steven reportedly demonstrates behavior consistent with the heightened activity and impulsivity level of children with ADHD. These scores further suggest that he has a tendency to harm others, use excessive types of verbal aggression, and participate in socially deviant and disruptive behaviors similar to children with ODD diagnoses. It is important here to note that conduct disorders worsen with age and are highly correlated with depressed mood (Reynolds & Kamphaus, 1992). Steven scored clinically significant in depression due to his reported frequent mood changes, verbalizations of not having friends, and by his low frustration tolerance. He also was lacking in temperament variables needed for successful school achievement such as flexibility and concentration.

The anxiety, attention, and social skills scales were found to be in the at-risk classification range. This result signifies that Steven may be developing excessive fear and worrying behaviors, serious lack of attention, and problems with skills necessary for successful interaction in a variety of settings.

On the PRS, the externalizing problems composite was significantly more problematic than the internalizing

problems composite ($p < .01$). This difference occurs with the frequency of less than 1% of the general population, which is highly unusual for a child his age. This further implies that Steven's externalizing problems warrant serious consideration for treatment. Interestingly enough, Steven was receiving medication treatment at the time of the ratings. The parent reported that Steven was taking Ritalin and Clonidine at the time of the study which should have impacted his externalizing behaviors.

The critical items warranting attention on the PRS were that Steven often threatens to hurt others, he always uses medication, and sometimes sleeps with his parent. Upon follow-up investigation of these items, mother informed the researcher that she and Steven have an unusually close relationship. She allows him to sleep with her occasionally and has let him stay home from school on several days when she was not working so they could spend time together.

The results of the TRS are presented as Table 10. The internalizing problems composite, school problems composite and adaptive skills composite fell in the average classification range. This implies that, according to his teacher, Steven is seen as exhibiting behaviors within normal limits for children his age. Again, this interpretation is suspect due to the compromised validity of the rating scale as described above.

Table 10

T-Scores and Percentile Ranks for BASC-TRSCase 3

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	69	94
Internalizing Problems	57	80
Behavioral Symptoms	65	91
Adaptive Skills	41	22
School Problems	50	54

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	65	90
Aggression	79	98
Conduct Problems	59	87
Anxiety	69	94
Depression	56	80
Somatization	42	18
Atypicality	47	54
Withdrawal	58	81
Attention Problems	56	73
Learning Problems	43	29
Adaptability	38	13

Table 10 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	38	12
Leadership	53	65
Study Skills	40	20

The externalizing problems composite and the behavioral symptoms index fell in the at-risk classification range. This signifies that Steven may be developing significant problems which may require treatment and ongoing, careful monitoring.

The aggression scale was found to fall in the clinically significant classification range. This indicates that Steven exhibits serious verbal and physical aggression with intent to harm others. Additionally, he ranks in the 98th percentile on this scale. This implies that only 2% of the general population of children his age exhibit such severe aggression.

Steven's hyperactivity, anxiety, adaptability, social skills, and study skills scales all fell into the at-risk classification range. This suggests that according to his teacher, Steven displays significant problems in rushing through activities, acting without thinking, over activity, nervousness and fearfulness. He also lacks the ability to adapt to changes in the environment, to have successful interactions with others, and to exhibit organizational skills conducive to strong academic performance. The scale scores that fell in the average classification range were conduct problems, depression, somatization, attention problems, learning problems, atypicality, withdrawal, and leadership.

The externalizing problems composite was significantly

more problematic than the internalizing problems composite and the school problems composite ($p < .01$). This denotes that Steven's externalizing problems were more severe than his internalizing problems, and that he was reported to have more externalizing problems than were affecting his school achievement at the time of the study.

The critical items marked on the TRS revealed that Steven often threatens to hurt others, tries to hurt himself, uses medication, throws tantrums, and says "I wish I were dead." These critical items have special individual significance and warrant attention for treatment and/or intervention. This information was shared with Steven's mother, and she was encouraged to discuss this with his therapist.

The PRS and TRS showed agreement on several scales reflecting that together, Steven's teacher and parent felt that he has severe problems with aggression, and significant problems with hyperactivity, anxiety, and adaptability. Both raters further agreed that somatization was not an area of concern and that leadership was an adaptive area of strength for Steven.

Achievement Pattern

Parent and teacher reports, observations and document analysis revealed that Steven has acquired basic readiness skills and on "good days" can do more advanced tasks than his peers. He spends an inappropriately large amount of

time writing words that are at the second and third grade level. Steven has not participated in any achievement testing other than his kindergarten skill checks.

Cognitive Pattern

Although Steven has not undergone intelligence testing, his teacher and parent report that he is extremely smart and bright. He has always been very creative and learns new things rapidly and easily. He was described as a child who loves to read books when he can sit still long enough to do so.

Steven also spends an extraordinary amount of time at home writing in what he refers to as his journal. In this journal, he writes second and third grade words over and over and writes telephone numbers that he has memorized.

Motor Pattern

Steven has always been physically gifted according to his mother. He reportedly can do anything athletic but can not play organized sports due to his unpredictable and explosive behavior.

He loves to play outside and reportedly expends a lot of energy doing so. Mother indicated that he had no difficulties learning to skip, play catch, or ride a bike.

Steven lacks motor control when writing. He prefers to write very small characters (within college lined rule); and when he does, his handwriting is sketchy, with frequent eraser marks and scribbles. He also occasionally reverses

his numbers.

Language Pattern

Steven spoke early according to his mother. He passed the speech and language screening prior to entrance in kindergarten. There were no reports or indications of any language concerns, except that he uses adult language (cursing) often.

Social Pattern

Mother described Steven as a very sweet and loving child who is highly focused on her. The teacher verified this as she mentioned that Steven is very moody, and that his moods seemed somewhat dependent on whether he was able to spend time with his mother that afternoon or had to go to day care instead.

Steven has always been moody, and his moods determine his day. The teacher indicated that whole days are lost at school due to his moods. Generally, this happened two out of five days a week. The mood swings have been a concern of his mother, baby-sitter, and day care provider since he was a toddler. Also, he reportedly no longer cries which is unusual for a child his age.

Steven's guidance counselor described him as being more worldly and mature than other children his age. His mother indicated that he spends an extended amount of time at home in his closet by himself. She referred to this as his quiet time. He will spend hours in the closet with his

toys or talking to himself and participating in imaginary play. He also likes to spend hours writing words and telephone numbers in his journal at home.

Steven was observed acting out scenarios of violent scenes from a movie or cartoon while he was in the cafeteria, hallway, and classroom. He was kicking and punching in the air, imitating different voices, pretending to yell, and appeared very angry. All of this behavior was ignored by the teacher. When the researcher prompted the teacher about this, she indicated that she has learned to ignore as much as possible and to redirect him back into structure. The other children did not get involved with him either. The teacher explained that they were used to him acting that way.

Steven also draws pictures of crosses, skulls and sharp pointed objects. This is another unusual activity for someone his age and has been noted across all of his ecologies (at home, school and day care).

Peer interactions have been an ongoing problem for Steven over his childhood. He has been aggressive, bossy, manipulative, mocking, and mean to other children. He was described by parent, counselor and teacher as being impatient, instigating fights, and blaming others for his anger states. He prefers to play with older children in the neighborhood and is constantly "getting into trouble." Steven also has problems separating from his mother and

getting along with his brother. In class, he was disruptive and negative to his peers.

Steven reportedly does not like to be reprimanded. Criticism will trigger a temper tantrum which includes yelling, swearing, and throwing objects. Mother has physically restrained Steven to help him regain self-control.

Steven has also been known to tell stories and exaggerate things. This causes problems at home, at day care, and at school. Steven was observed saying "There goes the little twerp who is scared of us" to another child in the hallway; the other child was obviously unaware of what Steven was talking about. This comment appeared to have no observable setting event or antecedent. This was what was reportedly "scary" to the teacher--triggers were often unidentifiable.

Behavioral Patterns

In addition to the social behavior concerns mentioned above, Steven demonstrates severe maladaptive behavior. He does not follow Mother's rules and only follows the teacher's rules an average of 3 out of 5 days per week. He requires constant supervision and is very demanding of teacher and parental attention. He has been known to sneak out of the house, have serious tantrums and become furious and uncontrollable. He was described as becoming overstimulated in play, having a short attention span,

lacking self-control, being impulsive and overly energetic, and being highly over reactive to problem situations. In school, he has been rude, disrespectful, disruptive, noncompliant, and aggressive. He cannot sit still. When Steven becomes uncontrollable at day care, they send him home to his mother. Again, this time with his mother has been discovered to be rewarding to him.

Of a more serious nature, Steven was described as having no fear and feeling no pain. This combined with his other behavioral characteristics has gotten him into life threatening situations in the past. For example, mother described a scenario from a year ago when he was playing and jumped off of the top bunk-bed. He fell and hit his head. Even though he was bleeding, Steven continued to play. Upon discovering what had occurred several hours later, his mother had to take him to the emergency room for stitches.

Mother attempts to punish Steven by restricting his activities. She felt it was not an effective technique because he is a child who "enjoys things in his own little world so much." Therefore, isolating him becomes rewarding.

Additionally, Steven was reported to be a strange child who participated in a lot of "weird things". He hits himself, makes faces at others who are not even paying attention to him, and rocks back and forth in the car, at

school, and when watching television.

During the observation, he was noted to participate in several of these self-stimulatory behaviors including rocking; talking to himself; making faces to oblivious others; and picking at his nose, nails, and fingers.

Medical Factors

When Steven was 1 year old, he had hernia repair surgery. When he was 2 years old, he contracted whooping cough. He was toilet trained at 2 years old, but continued to wet the bed at night until he was age 5.

He has suffered frequent ear infections and "sky rocketing" fevers since he was a baby. Mother and records further indicated that he catches strep throat often and gets frequent colds.

When Steven was five years of age, he passed the vision and hearing screening and had all of his immunizations up to date for kindergarten registration. He was also diagnosed with ADHD and ODD. He began medication treatment of Ritalin 10 mg. three times a day, and Clonidine 5 mg. twice daily. Reportedly, there is a significant difference in the amount of self-control displayed by Steven when he is on medication. This was confirmed by the teacher to be accurate.

Mother stated that Steven was very rough in play, took frequent risks, and bruised easily and often. She said that he sleeps very little and has an unusual appetite.

The Ritalin helps to suppress this some. He has never been overweight.

One final medical factor was that Steven picked up ringworm on his face when he was a toddler. This reoccurred as a rash quite often.

Environmental Factors

Document analysis and interviews indicate that Steven's mother continued to use drugs and was in and out of treatment throughout his life. He was passively exposed to cocaine and marijuana smoke. He has witnessed his mother using drugs, passing out from drugs, seeking drugs, and hiding drugs from the police. He was described as being very concerned and focused on his mother's recovery slips and accomplishments.

He has never had a relationship with his father and has no grandparents. This reportedly intensifies the difficulty in the relationship with his older brother because Steven is jealous of his brother having a father.

Steven was raised by his mother's friends when she was in treatment or out on a "partying binge". They have moved five times in his six years of life.

Mother has reportedly been in recovery seriously since Steven turned age five. Mother is not in great health and works a job demanding much of her time. Therefore, Steven spends five to seven hours in day care daily. When mother works weekends, she has a friend or neighbor watch him.

Intervention History

Agencies

The following agencies have been involved with Steven and his family: private therapy services, department of social services, health department, community services board, comprehensive substance abuse services, public city school system, public assistance, and the city police department.

Services and Interventions

The following services have been provided to Steven and his family over the years: individual and family therapy, food stamps and ADC, subsidized daycare, recovery support groups, case management, toxicologies, job leads, shots/immunizations, parenting courses, transportation, and ongoing referrals to other agencies as needed.

Steven had not required any educational interventions or accommodations at the time of the study. He did, however, require additional structure and extensive behavioral interventions.

When he was around 4 years of age, he began to see a private therapist for individual and family counseling. This therapy continued for 2 years. He also began medication treatment during that time period.

Mother described techniques such as physical restraint, Premack principle, and loss of privileges as some of the strategies used to maintain control of her

son's behavior. She also reported that he does not go anywhere without his medication.

The teacher indicated that she had worked very hard to find techniques that worked with Steven and has spent an extensive amount of time meeting with his mother and in managing his behavior. She described using or was observed to use ignoring, direct prompting, giving him guided choices, redirection, cues to stop and think, time out to cool off, referral to office, and positive reinforcement systems. She also provided extra amounts of structure; for example, his areas were well marked and he sat in a chair at circle when everyone else sat on the rug. She reported that she can sometimes identify his triggers and can use them as signs in order to prevent anger episodes. At other times, she cannot identify his behavioral triggers.

Summary of Suggested Patterns for Case 3

A summary of performance patterns for Steven is provided in Table 11. The table denotes areas of concern as evidenced across each data source. Areas of concern on the BASC components were indicated only if the area classified at-risk or clinical according to the guidelines in the manual. For document analysis, areas of concern were indicated if noted in more than one document. From additional observations, areas of concern reflect the judgment that behaviors were exhibited more often than expected for children that age.

Table 11

Performance Patterns Case 3

Performance area	Source of evidence					
	PRS	TRS	SOS	SDH	DA	AO
Achievement		0	0	0	0	0
Cognitive	0	0		0	0	0
Motor	X	X	0	0	X	X
Language	0	0	0	0	0	0
Social	X	X	X	X	X	X
Behavioral	X	X	X	X	X	X
Medical	X	0	0	X	X	0

Note. X = Evident as an area of concern. 0 = Not evident as an area of concern. The BASC components are PRS, TRS, SOS, and SDH. PRS = Parent Rating Scale. TRS = Teacher Rating Scale. SOS = Student Observation System. SDH = Structured Developmental History. DA = Document Analysis of agency records and school records. AO = Additional Observations.

Steven, while in utero, experienced the interaction of chemicals, his mother's emotional stress, and a lack of nutrition. He exhibited signs of distress during birth and as a neonate. Additionally, as a toddler, he displayed many hyperactive, impulsive, aggressive, and dangerous behaviors.

Since he has been in school, Steven has presented as a bright and creative child who learns easily. Through this ability, he has been able to keep up with his peers academically. Although gross motor skills are a strength for Steven, he has experienced some difficulty with writing and reversing numbers.

Steven also presented with age appropriate language skills. However, he was noted to use inappropriate language in school, at daycare and at home.

Socially and behaviorally, Steven has had significant difficulties throughout his childhood. He has been described as very different from his peers; he has participated in self-stimulatory and other odd behaviors, and has been verbally and physically aggressive in most relationships. He has been depicted as a child who required multifaceted interventions to display behavioral self-control, such as medication treatment, therapy, behavior management techniques, and additional structure.

Steven also displayed a pattern of illness across his childhood. He suffered from frequent ear, nose and

throat infections, and from injuries often related to risk taking behavior.

Environmentally, Steven has been passively exposed to drugs. He has experienced drug using environments, has moved often, and has had several different primary caregivers. He was most recently living with his mother's ongoing recovery stress and spending a significant amount of time in daycare.

Case Report Number 4

Background

Case 4, henceforth Ann, is an African-American female aged 8 years 1 month at the time of the study. Ann is living with her biological mother in an apartment subsidized by the community services board. She participates in the free lunch program at school. At the time of study, Ann was attending the first grade for language arts and the second grade for the rest of the school day.

During document analysis at the agency, the following records were reviewed: intake forms, confidentiality exchange form, substance abuse history, case contact notes, treatment center records, toxicology reports, child care reimbursement forms, and medical letters and reports. During the document analysis at the school, the following records were reviewed: attendance records, report cards, standardized test results and reports, progress reports,

school health forms, school health physical forms, medication logs, pre-referral screening form, immunization record, birth certificate, dental screening, pre-referral intervention checklist/plan, and child study team referral.

The information gathered through document review is interwoven throughout the appropriate categorical section of the case report. Additionally, in Ann's case, a brief interview was conducted with her second grade teacher and with the assistant principal who chairs the pre-referral intervention team. This additional information was triangulated and is also integrated throughout the case report.

Contributing Factors

Ann's mother has several significant factors in her history. Mother was in a "slow" class in school; she had difficulties with her reading and speaking abilities. She was also a victim of physical and sexual abuse as a child. She reported that she also had emotional and behavioral problems as a child.

Additionally, Ann's mother started using alcohol when she was 5 years old. Documents attested that she had several blackouts from drug use over the years. She confirmed this and added that she was fifteen when she began to smoke cigarettes.

During pregnancy with Ann, Mother participated in polydrug use. Cocaine and crack were her frequent drugs of

choice. She used cocaine in all forms frequently throughout the pregnancy. She was able, reportedly, to cut back on alcohol and marijuana use during pregnancy, but not cigarettes or cocaine. She stated she did not have much control over her use of cocaine. Ann's mother was unable to recall her specific amount of drug use per day or per week.

While pregnant, Ann's mother would go to the emergency room frequently. She did this to check on the baby's progress from drug use episodes, or because she experienced black outs and ill health. She suffered from anemia, bladder infections, poor weight gain, and excessive swelling during pregnancy. She took prescription medications for the bladder infections during pregnancy. Ann's mother also had migraine headaches as well as high blood pressure, which runs in her family.

Throughout the pregnancy with Ann, Mother wanted to have an abortion. This was stated by Ann's mother in the interview and was confirmed in the agency's records.

Direct/Indirect Effects

Ann's mother experienced excessive bleeding at the beginning of her eighth month of pregnancy. She reportedly went to the hospital emergency room and was in labor for 26 hours. Ann was born 6 weeks premature and weighed 5 lbs 2 oz. Mother was unclear about any further complications during delivery. She recalled that she and the baby

remained in the hospital for several additional days to be monitored. They were discharged together.

Ann's mother had difficulty recalling Ann's achievement of developmental milestones. Mother reportedly attributes this to the fact that she was still using drugs.

Her mother indicated that Ann was a very difficult infant and that she felt she was unable to bond with her then. Ann apparently cried excessively and her mother experienced extreme frustration when she tried to calm her. Mother reported that Ann would not take to breast feeding, would not take a pacifier, would not calm to rocking or swaddling, and would not respond to her attempts to quiet her. Reportedly, this went on for most of Ann's first year.

Long-term Outcomes

The BASC Results

The information from the BASC was gathered in the following sequence: (a) At the interview with Ann's biological mother, the SDH was used and her mother completed the PRS. The PRS was completed by her mother with the reading assistance of the researcher at Mother's request. (b) The TRS was dropped off at the school when the researcher met with the principal to schedule the observation date and time. (c) The TRS components were completed by Ann's first and second grade general education teachers and were collected on the day of observation when

the SOS was used. Information from the SDH and additional observations are integrated throughout the case report.

Ann was observed in her second grade general education math class. It was during this time that the SOS was used. Additionally, Ann was observed during unstructured periods, including the end of her lunchtime and transitioning to the restroom and back to the classroom. Total time of observation was 60 minutes. Although information from the observations were triangulated and integrated in the appropriate sections throughout the case report, several important findings need to be highlighted.

Ann was inattentive 84% of the structured 15 minute interval observed. Inattention was noted as staring off without focus; looking at others in the classroom or hallway; and fidgeting with her ruler, pencil or Chapstick. She required extra prompts from the teacher 17 times during that interval for any productive activity to occur. Ann demonstrated inappropriate and repetitive movements such as talking to her self, jiggling her legs and feet, and getting in and out of her seat. Additionally, it was quite evident that she did not have any idea how to do the activity that the teacher was directing (adding two digit numbers with regrouping) as evidenced by her incorrect verbal answers to questions, her inability to complete any problem independently, and her incomplete assignment at the end of the class. It was further noted that, when compared

to her peers in the class, she was extremely less attentive despite the fact that she sat beside the teacher in the front of the classroom and was receiving one-on-one direction from the teacher.

The F index of the PRS was a 5 which fell in the extreme caution range. High scores on this index indicate that the parent rated the child's behavior too severely, skewing the results, or that the child exhibits severe maladaptive behavior. After further analysis, it was determined that Ann's behavior as rated in the PRS was consistent with the parent's perceptions of the child in the interview. Furthermore, it was noted that document review and the TRS results further support extreme maladaptive behaviors in several areas.

The F index on both protocols of the TRS fell in the acceptable range. This implies that the teachers did not respond too positively or too negatively concerning Ann's behavior and that the validity of these measures was not compromised. However, it should be noted that Ann's teachers have only known her for 4 months.

Only one item was omitted on one TRS; no items were omitted on the other TRS or on the PRS. Therefore, there were no flags indicating further exploration of the validity of the scales.

The results of the PRS are provided as Table 12. A t-score of 59 or below indicates the average range with the

Table 12

T-Scores and Percentile Ranks for the BASC-PRSCase 4

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	80	99
Internalizing Problems	69	96
Behavioral Symptoms	84	99
Adaptive Skills	39	15

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	73	98
Aggression	80	99
Conduct Problems	75	98
Anxiety	65	92
Depression	74	98
Somatization	56	77
Atypicality	88	99
Withdrawal	50	58
Attention Problems	63	89
Adaptability	33	5
Social Skills	52	59
Leadership	37	11

exception of the adaptive scales (adaptability, leadership, and social skills) which require a t-score of 41 or higher to be in the average range.

The externalizing problems composite and the behavioral symptoms index were found to be in the clinically significant classification range. This denotes that, according to her mother, Ann exhibits a high level of maladaptive behavior. The internalizing problems composite and the adaptive skills composite were found to be in the at-risk classification range. This signifies that Ann may have significant developing problems in these areas that may warrant treatment or careful monitoring.

Three scales fell into the average classification range. They are the somatization, withdrawal, and social skills area scales. These scales indicate that, according to Ann's mother, Ann exhibits behaviors within the normal limits for children her age.

The anxiety, attention problems, adaptability, and leadership scales fell into the at-risk classification range. This implies that Ann has potential problems with her tendencies to be nervous and worried, and with her level of distractibility. Furthermore, these scores convey that Ann's mother believes that Ann may not have many of the skills necessary to be successful in school achievement or in social situations.

The following scales were found to be in the

clinically significant range: hyperactivity, aggression, conduct problems, depression, and atypicality. These scores indicate that Ann has extreme difficulty controlling impulsive behaviors and overactivity, similar to children with the diagnosis of ADHD. Additionally, these scores signify that Ann exhibits behavior that is hostile to others with the intent to harm, and antisocial behaviors which get perpetually worse with age such as lying and cheating. Aggressive and conduct problems are also noted to commonly occur with children of the diagnosis of ODD. These scores further indicate that Ann displays significant levels of immature behavior along with dysphoric mood and self-reproach.

On the PRS, the externalizing problems composite was significantly different than the internalizing composite ($p < .05$), which indicates that Ann is reported to have more externalizing problems than internalizing problems. The behavioral areas of hyperactivity, aggression and conduct disorder require further investigation.

Several critical items were marked on the PRS. Ann was noted sometimes to try to hurt herself, say she wants to kill herself, or say she wishes she were dead. Additionally, her mother stated that Ann occasionally stutters when she expresses something she is excited and/or upset about. Ann also sleeps with her mother because she is reportedly afraid to be in a room by herself. According

to the BASC manual, marked critical items deserve further attention. Therefore, these items coupled with the clinically significant area of depression were presented to Ann's mother with encouragement to seek counseling for her daughter.

The TRS results completed by Ann's first grade teacher (morning language arts) are provided as Table 13. The externalizing problems composite, internalizing problems composite, and behavioral symptoms index were found in the average classification range. These composites indicate that according to Ann's first grade teacher, Ann exhibits behaviors in these areas commensurate with about 2/3 of the general population of children her age.

The adaptive skills composite fell into the at-risk classification range. This score implies that Ann may have potential problems developing in this area that may require treatment and merit close monitoring.

The school problems composite fell into the clinically significant classification range. This score signifies that Ann demonstrates behaviors when with her first grade teacher that are very likely to interfere with successful school achievement.

The scales that fell in the clinically significant classification range were attention problems, learning problems, leadership, and study skills. This indicates

Table 13

T-Scores and Percentile Ranks for the BASC-TRS (am)Case 4

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	54	75
Internalizing Problems	48	54
Behavioral Symptoms	56	78
Adaptive Skills	34	6
School Problems	79	99
<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	56	75
Aggression	50	64
Conduct Problems	55	81
Anxiety	49	53
Depression	51	66
Somatization	46	48
Atypicality	47	52
Withdrawal	51	65
Attention Problems	78	99
Learning Problems	78	99
Adaptability	49	42

Table 13 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	34	6
Leadership	30	1
Study Skills	31	3

that Ann's teacher believes Ann has severe difficulties attending to tasks, concentrating, and completing schoolwork. High scores in these scales are associated with children diagnosed with ADHD and learning disabilities.

The social skills scale fell into the at-risk classification range. This signifies that Ann may lack the skills necessary for successful interactions and may require social skills training.

The hyperactivity, aggression, conduct problems, anxiety, depression, somatization, atypicality, withdrawal, and adaptability scales were found to be in the average classification range. These results indicate that Ann's first grade teacher sees these behaviors as relative areas of strength for Ann when compared to her first grade peers. The hyperactivity and conduct problems scales were in the average range with t-scores 4 to 5 points from the at-risk range, which may indicate an area of future concern for Ann according to this teacher. On this TRS, no critical items were marked deserving further attention.

The TRS results as completed by Ann's second grade teacher are reported as Table 14. The externalizing problems composite and the internalizing problems composite fell within the average classification range. These composites indicate that according to Ann's second grade teacher, her behavior in these areas is within normal

Table 14

T-Scores and Percentile Ranks for the BASC-TRSCase 4

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	59	84
Internalizing Problems	53	70
Behavioral Symptoms	61	86
Adaptive Skills	30	1
School Problems	78	99
<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	67	92
Aggression	56	79
Conduct Problems	51	71
Anxiety	52	66
Depression	54	73
Somatization	51	66
Atypicality	53	77
Withdrawal	51	65
Attention Problems	71	97
Learning Problems	82	99
Adaptability	30	3

Table 14 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	33	4
Leadership	31	2
Study Skills	35	8

limits for children her age.

The behavioral symptoms index fell within the at-risk classification range. This signifies that there are concerns developing in the overall area of problem behavior that may require treatment and close monitoring.

The school problems composite and the adaptive skills composite were found to be in the clinically significant classification range. These composites imply that Ann exhibits behaviors that the teacher perceives as very likely to interfere with achievement, and that Ann lacks the desirable characteristics necessary to be successful in school, at home and in the community.

The aggression, conduct problems, anxiety, depression, somatization, atypicality, and withdrawal scales all fell into the average classification range. This indicates Ann's behavior is a relative strength in these areas when compared to her second grade peers.

The hyperactivity, social skills, and study skills scales were located in the at-risk classification range. These scores signify that Ann has difficulties rushing through work, is overly active, and fails to interact successfully with peers and teachers. She also has difficulty demonstrating good study habits and organizational skills.

The following scales fell in the clinically significant classification range: attention problems,

learning problems, adaptability, and leadership. This implies that Ann has highly maladaptive behaviors related to concentration to task, distractibility levels, understanding and completion of schoolwork, readily adapting to changes in the environment, problem solving, and working well with others. High scores on these behaviors are highly associated with diagnoses of ADHD and learning disabilities. No critical items were marked warranting further attention on this TRS.

On both ratings of the TRS, the external problems composite was significantly different than the school problems composite ($p < .01$); and the internal problems composite was significantly different than the school problems composite ($p < .01$). These differences indicate that both of Ann's teachers felt that Ann's school maladjustment was a greater problem than her clinical maladjustment.

There was further agreement by Ann's teachers on the TRS. For example, the attention problems scale and learning problems scale were rated to be in the clinically significant range by both teachers. Furthermore, they both agreed that Ann's adaptive skills were in the at-risk classification range while the internalizing problems (such as anxiety, withdrawal, and depression) were noted by both teachers to be in the average classification range.

These concurrent findings support two conclusions.

First, although the teachers saw Ann in different age settings, they agreed on their impressions of her behavior. Second, the agreement across scales by both teachers increased the strength of interpretation. Therefore, one can state with confidence that Ann has significant problems with attention, learning, and adaptive skills in school that interfere with her success.

When comparing the PRS and TRS findings, several similarities were noted. First, both teachers and the parent agreed that Ann has extreme difficulty with attention and adaptive skills. Second, although the parent's ratings were more severe, both teachers and parent agreed that Ann has some concerns in the areas of hyperactivity and conduct problems. Finally, they concurred that she does not have problems with somatization or withdrawing types of behavior.

The most obvious differences between the PRS and the TRS were found in the parent's severe ratings of aggression, atypicality, and depression while both teachers gave Ann average ratings in those scale areas. These discrepancies could reflect that these behaviors are witnessed more often by the parent due to the circumstances of their relationship over time, or it is possible that the parent sees more of these behaviors due to the lack of structure in the home. Furthermore, Reynolds and Kamphaus (1992) noted that depression, anxiety, and atypicality

types of behaviors commonly go unnoticed by teachers as they are not disruptive by nature.

Achievement Pattern

Ann did not go to preschool or kindergarten. It was reported by her mother that Ann did not go to school due circumstances at home during that time period.

Ann started first grade one month after the school year began which fell shortly after her sixth birthday. Through document analysis and parent questioning, it appears that Ann attended two schools for first grade and was held back for part of first grade. After moving to a different state, she attended two schools for second grade and was nearing the end of second grade at the time of the study. Her chronological age then was 8 years 1 month.

Academically, Ann has struggled in all areas since she has enrolled in school. In first grade, records revealed that her math, science, social studies and PE skills were improving. However, her reading and writing skills needed improvement and her overall rate of progress was deemed slow for her age. No grades were given.

In second grade, records revealed that Ann's math and language arts skills were not meeting grade expectations and that she was failing in those areas. In science and social studies, she was also showing difficulty with skills at that grade level. She was showing satisfactory progress in PE. Music was the only area in which she was making

progress at grade level. In first and second grade, her work habits received a rating of satisfactory minus.

In the middle of Ann's second grade school year, her second grade teacher referred her to the pre-referral intervention team. Ann had been getting poor grades and has had difficulties with reading, writing, and math according to her mother, teachers, and the assistant principal in charge of the pre-referral intervention team. One of the initial strategies used to assist Ann was to send her to first grade for language arts. The intervention team also asked the reading teacher to give Ann the Woodcock Reading Mastery test. In this test, she scored 1 to 2 years below her grade level on all subtests, with her lowest area in word attack skills and her strongest area in letter identification. No other standardized testing was found in Ann's records.

After several months of monitoring Ann's progress with the accommodations to be described below (see Interventions), the teachers and the pre-referral team noted that Ann was still having severe difficulties in school. At the time of the study, Ann's mother was being contacted to schedule a child study team meeting to consider a multidisciplinary evaluation.

Cognitive Pattern

Ann had not taken any psychological, neurological, or psychiatric examinations at the time of the study. It was

reported by her teachers and parent that she had difficulties problem solving. Additionally, Ann was observed not to understand concepts presented in class. The work samples examined clearly indicated that she could not perform the academic tasks assigned.

Motor Pattern

In the first grade document from the first school Ann attended, it was noted that her handwriting was legible. However, "sloppy work" was one of the indicators checked on the referral form to the pre-referral team in second grade. Additionally, her mother stated that Ann's handwriting was "terrible" and analysis of work samples revealed illegible printing, excessive erasures, inability to line up numbers in math problems, and difficulties staying within line limits.

Ann also reportedly has difficulties skipping, throwing, and catching. She was described as clumsy, and she complained often of her knees hurting. Although records do not indicate that gross motor skills were delayed, they do indicate that this was not an area of strength for Ann. It is a relative strength, however, when compared to her academic performance.

Language Pattern

There was no language screening or testing information in Ann's file; however, all four of her teachers over the years indicated that she had spoken language difficulties.

Additionally, Ann's mother reported that Ann sometimes says phrases that do not make sense, and she occasionally stutters when expressing something she is excited or upset about.

Social Pattern

Ann was described as a child who becomes extremely angry and who is afraid to be in rooms of the apartment by herself. She gets very angry when she does not get her way and is verbally disrespectful to her mother and teachers. Ann's strength in this area was noted by her daycare provider who, according to her mother, stated that Ann can be very helpful with the little children at the center.

Ann apparently has little difficulty with social interactions in her neighborhood or at school. She was portrayed as a bossy child with her peers and as someone who prefers social activities to individual activities. She was reported to lack concern for other people's feelings.

Ann was observed to be socially immature when compared to her class peers. The researcher observed her making inappropriate choices (such as squirting an excessive amount of hand soap on her hands in the restroom), tattling, laughing inappropriately, and making dramatic responses out loud in class (such as "Oh, that is so easy!"). The immature behavior was confirmed by Ann's teachers. Additionally, Ann was quite negative with other

students in the cafeteria, in line, in the restroom, and in the classroom. She was observed to make faces at other children, tell them to "stop" and "shut up", and turn her head up and walk away from others. These interactions went unnoticed by the teacher and did not appear to warrant intervention. She also demonstrated many positive interactions with several girls in her class during lunch. These included talking and laughing appropriately with the others, waiting her turn to speak, and helping another to clean up the table.

One final concern was remarked concerning Ann's attitude. She reportedly does not like to go to school and expresses this often at home. Mother stated it was a daily battle to get Ann ready for school. Teachers confirmed her lack of interest in school and school-related activities.

Behavioral Pattern

Ann has had behavioral difficulties in her home environment since she was a toddler. Her mother reported that Ann has had temper tantrums for years in which she yells, stomps her feet, and screams. She used to cry with these tantrums but no longer does so. Furthermore, Ann was described as having been overly active and unable to follow directions for years. Reportedly, this is one of the reasons she and her mother have had difficulty living in one place for a long period of time.

In her two years of school, Ann has earned such

remarks as "inappropriate talking", "not following directions", and "chooses inappropriate behaviors" on her progress reports and report cards. She reportedly does not work carefully, shows inconsistent effort, needs improvement in listening skills, and lacks respect for others.

Ann was described recently as a child who talks back, is easily overstimulated, is impulsive, requires a lot of parental attention, and has a short attention span. In class, she was observed to be inattentive, immature, and participated in self-stimulatory, repetitive behaviors such as rubbing her lips, chewing on her pencil and erasers, and putting Chapstick on 12 times in a 4 minute interval. Additionally, it was noted that she always had something in her hand throughout the total observation period. In line, in the restroom, and in the cafeteria when the other children were holding nothing, she was fidgeting with a card, an eraser, a coin, lip balm, or some other small object.

Medical Factors

Ann has suffered from frequent colds since she was a baby. She also has had the chicken pox and one urinary tract infection that her mother could recall.

Ann was reportedly potty trained at age 2, but experienced nocturnal enuresis until age five. The only medications she has taken over the years have been liquid

iron supplements for anemia and antibiotics for bronchial and urinary tract infections.

School health records from the school entrance physical when Ann was 6 years old revealed that she passed a hearing screening and earned 20/25 visual acuity in both eyes on the vision screening. Her blood pressure was 100/40 and she was in the 85 percentile for weight. She also had a dental screening at that time that reported no cavities, but highlighted neglect in practices of dental hygiene. Her immunizations were up to date by her sixth birthday.

There were no attendance records from the first school Ann attended. In the second school that she attended for 8 months, she was absent for 20 days. In the third school, which she attended for 3 months, she was absent only one day. According to her present school records and her mother, she had missed no days of school the year of the study. There were no explanation of absences in the records; however, Ann's mother reported the absences were due to illness related to anemia and upper respiratory infections.

Ann did not cough, sneeze, wipe her nose in class or demonstrate any other indicators of illness during the observation period. At the time of the study, mother and child were being tested for sickle cell disease, hepatitis, and HIV.

Environmental Factors

From analysis of all sources, it was determined that Ann had moved a minimum of seven times during her lifespan. She has lived 6 1/2 of her 8 years in a drug using environment.

Ann's mother was 18 when she unexpectedly became pregnant with Ann and reported through documents and questioning that she had a very serious substance abuse problem over the years. She stated that she physically abused her daughter at times and worked as a prostitute to get money to support her drug habits. Also, she would stay out all night, have blackouts, and sometimes be gone for days at a time. She stole money and sold food stamps for drugs. She reported that she feels very guilty about exposing her daughter to that lifestyle, for using drugs in utero, and for "all the things I did to her" when she was using.

Ann and her mother lived for 4 years with Ann's biological father. He too was a substance abuser. He did not work during those years and has paid no child support since that time. Ann was exposed passively to smoke of crack, cigarettes, and marijuana. Mother could not recall if Ann had also ingested any substances found around the house at that time. Ann reportedly never sees her biological father and has no ongoing communication with him.

Ann's mother had been in inpatient and outpatient treatment programs for substance abusers. Ann and her mother lived with her grandmother for several years before she "threw them out." Additionally, they lived with Ann's maternal aunt who also threw them out after several months. Ann stayed with another maternal aunt while her mother was in an inpatient treatment program for 7 months.

Ann had three step-siblings through her father's relationships. Ann was 7 years old when her 15 year old step-sister died from asthma. Ann reportedly had known her step-siblings well and had lived with them upon occasion but did not see them or communicate with them at the time of the study. Neither Ann nor her mother communicates with any extended family members. According to Ann's mother, this was due to the hard feelings between the family members. She further stated that her recovery friends were now their family.

At the time of the study, Ann's mother had been "clean" for 17 months and she had a boyfriend whom she dated often. She was working part-time in a fast food restaurant and was taking courses to complete her General Education Diploma (GED). An analysis of the mother's writing sample revealed functioning at the fifth to sixth grade level as indicated by her vocabulary selection, grammatical errors, and punctuation usage.

Ann went to daycare several times a week and stayed

with a neighbor on the weekends when her mother was working or attending recovery meetings. The main activities they reportedly shared together were reading, homework, and watching television.

Intervention History

Agencies

The following agencies were involved with Ann and her mother according to records review and interview: public schools, department of social services, community services board, community substance abuse prevention, health department, and a state residential treatment facility.

Services and Interventions

The agencies specified above provided the following services to Ann and her mother: educational intervention and tutoring, subsidized child care, food stamps, Aid to Dependent Children, Medicaid, case management, individual counseling for mother, support groups for recovery, toxicologies, transportation, referrals to other agencies, job leads, subsidized living quarters, emotional support, money to take courses for the GED, and intensive physical and psychological substance abuse treatment.

Educationally, Ann received several interventions in second grade. For example, she required a referral to the pre-referral team for intervention assistance for difficulties in all academic areas, inability to work independently, inability to organize and complete tasks,

and sloppy work. Also, after implementation of the pre-referral intervention plan, a referral was made to the child study team for individualized assessment. In the intervention plan, the team placed Ann in first grade for language arts to help her to become more successful in that area. They tested her with a standardized reading assessment and had her spend time each week with the reading resource teacher. Additionally, they modified length of instruction for her, gave her preferential seating in the classroom, and provided her with an assignment log. The teachers were observed to give Ann one-on-one instruction with several verbal explanations and direct requests.

As a result of Ann's problems with attention to task, inability to ignore distractions, and bothering others, the pre-referral intervention plan also provided some behavioral interventions. They used praise and positive reinforcement, separated her seat from any groups, and used proximity to assist her in class. Additionally, it was observed that the teacher utilized extra individualized teacher attention frequently to encourage Ann's participation in class (17 times in a 15 minute structured observation time period). Furthermore, the teacher ignored several minor distracting behaviors such as talking out, making faces at peers, or getting up out of her seat to pick up materials or move her desk.

Ann's mother had been receiving individual therapy for 5 months. This indirectly affects Ann as her mother is learning more effective ways to communicate with and discipline her daughter.

Summary of Suggested Patterns for Case 4

A summary of performance patterns is provided for Ann in Table 15. The table denotes areas of concern as evidenced across each data source. Areas of concern on the BASC components were indicated only if the area classified at-risk or clinical according to the guidelines in the manual. For document analysis, areas of concern were indicated if noted in more than one document. From additional observations, areas of concern reflect the judgment that behaviors were exhibited more often than expected for children that age.

Ann began her life at a disadvantage due to the factors surrounding her mother at the time of conception. Additionally, she was affected by toxicity from cocaine, the interaction of other chemicals, and mother's poor health and nutrition while in utero.

Ann survived complications at her birth, but was born premature and was low birthweight. She was an irritable infant who cried excessively and was uneasy to quiet.

She also got off to a difficult start in school. She did not have the pre-school experience that most children have prior to first grade, and she attended four different

Table 15

Performance Patterns Case 4

Performance area	Source of evidence					
	PRS	TRS	SOS	SDH	DA	AO
Achievement		X	X	X	X	X
Cognitive	X	X	X	X	X	X
Motor	X	X	X	X	X	X
Language	O	X	O	X	X	O
Social	X	X	O	X	O	X
Behavioral	X	X	X	X	X	X
Medical	X	O		X	X	O

Note. X = Evident as an area of concern. O = Not evident as an area of concern. The BASC components are PRS, TRS, SOS, and SDH. PRS = Parent Rating Scale. TRS = Teacher Rating Scale. SOS = Student Observation System. SDH = Structured Developmental History. DA = Document Analysis of agency records and school records. AO = Additional Observations.

schools in a short period of time. This suggests that Ann was exposed to many different teaching styles and curricula which could have affected her school adjustment.

Ann's school achievement patterns were representative of a child with serious learning problems. Her skills lagged 1 to 2 years behind her those of her peers. She had difficulties with problem solving skills, spoken and written language skills; and, she demonstrated deficits in math and the other content areas.

Furthermore, her ratings on the BASC indicated that Ann lacked many of the skills needed to be successful in school achievement and social interactions. Although motor skills were an area of relative strength, she demonstrated problems with handwriting and coordination which further impacted her success in school.

Behaviorally, Ann presented as a child with the symptoms of ADHD and learning disabilities. She was also showing signs of developing problems with externalizing types of behaviors, which is not uncommon for children experiencing as much difficulty in school as Ann.

Ann also presented with social-emotional concerns. She exhibited fears, anxieties, and signs of depression which contributed to her individual health and poor success. Socially, she was immature and lacked concern for others. Although she had friends, she was bossy and frequently negative with them. She has not had any friends

for longer than 6 to 8 months as she has not had the opportunity to maintain relationships for any length of time. It was not unusual to find that Ann disliked going to school. This attitude is common among children experiencing school frustration and failure.

Ann has had a pattern of chronic health problems throughout her childhood. She has suffered anemia, urinary tract infections, chicken pox, and upper respiratory infections. Furthermore, she was enuretic for several years after being potty trained. This may have been due to urinary tract illnesses or may have been an indicator of emotional concerns.

Environmentally, Ann has been passively exposed to substances and subjected to a violent and chaotic home life. Not only did she witness drug seeking behaviors, she was without a consistent primary caregiver until she was about 6 1/2 years old. She has moved a minimum of seven different times and has been "kicked out" by two family members. She had recently lost someone close to her and experienced the trauma of physical abuse. This young child's chaotic environment coupled with the lack of nurturing and structure barely provided her with the psychological capabilities needed to handle the current pressures of living with a single, working, recovering parent. These factors surely intensified Ann's school failure.

Case Report Number 5

Background

Case 5, henceforth Stacy, is a white female aged 7 years 8 months at the time of the study. She is living with her biological mother and other renters in a house on the water. She attends second grade and has just experienced the second move in her lifespan. Stacy participates in the free lunch program at school.

During document analysis at the agency, the following records were reviewed: intake forms, confidentiality exchange form, substance abuse history, case contact notes, toxicology report, child care reimbursement forms, treatment plan, and medical letters and reports. During the document analysis at the school, the following records were reviewed: attendance records, report cards, progress reports, school health forms, school health physical forms, medication logs, immunization record, birth certificate, and kindergarten schools checklist. Stacy had no discipline record. The information gathered through document review is interwoven throughout the appropriate categorical section of the case report.

Additionally, in Stacy's case, an interview was conducted with the special education teacher who co-teaches in her second grade classroom. This additional information was triangulated and is also integrated throughout the case report. The special education co-teacher works with Stacy;

however, Stacy was not currently receiving special education services through an Individualized Educational Program (IEP).

Contributing Factors

Stacy's mother was raising two teenage boys and a teenage daughter with Stacy's biological father at the time Stacy was conceived. They were not married. Mother was 35 years old when she was pregnant with Stacy and had been actively using drugs for 18 years.

In Mother's family history, several important factors were indicated. For example, both of her parents were substance users and she began using drugs herself at age 17. She had two forms of hepatitis (although she did not find this out until after Stacy was born) and Irritable Bowel Syndrome before conceiving. Furthermore, she was bulimic on and off over her lifespan. There were other reported family health concerns such as asthma and mental illness.

Mother reported beginning prenatal care during her fifth month of pregnancy with Stacy. She stated she was using drugs then and did not want to keep the baby. She was in poor health, had an enlarged kidney, and was anemic. She had lost several jobs due to her addiction. Also, Stacy's father went to prison during that same month of pregnancy. Stacy's mother felt that at that time she was "not in a good place to have another kid."

Mother was placed on prenatal vitamins and iron which she said she did not take. However, when she went to the hospital to have the doctors check on the baby, she told them she was taking the vitamins and iron. The doctors, reportedly, knew mother was a substance user and performed several ultrasounds during the pregnancy. They also provided her with genetic counseling. Mother reported that the genetic counselor then told her "pot was O.K. to use during pregnancy; that there was no evidence it would hurt the baby."

Stacy's mother proceeded to smoke pot (marijuana) throughout the pregnancy. Additional polydrug use consisted of intravenous cocaine use, speed (methadone), and cigarettes. Mother stated she stopped drinking alcohol during the first trimester of pregnancy because she had heard about Fetal Alcohol Syndrome. Additionally, she reported that cocaine was her most frequent drug of choice.

Direct/Indirect Effects

At 6 1/2 months of pregnancy, Stacy's mother began premature labor. An ambulance took her to the hospital where doctors proceeded to stop the labor. She was kept in the hospital for 2 days; the doctors wanted to keep her longer so that they could monitor the baby. Mother, however, reportedly had no interest in staying longer in the hospital and went home. She was told to stay out of the heat, drink plenty of fluids, stay in bed, and keep her

feet up. She stated that she did this and was thus able to carry Stacy almost full term.

Stacy was born through natural childbirth and weighed 7 lbs 2 oz. The baby was "shriveled up" and her skin was unusual looking according to her mother. Furthermore, Stacy was low in body temperature. Mother had several episodes of hyperventilation during the birth process, but no other complications were reported. Mother and child remained in the hospital for two or three days.

Mother stated that she used cocaine again immediately after giving birth. Stacy was described as a finicky baby who would only take breast milk. She cried excessively and was difficult to calm. She was an extremely colicky baby "for a long time"; however, mother reported that Stacy responded well to intense cuddling.

Mother also stated that Stacy achieved her developmental milestones within the normal limits. She stated she could not recall much due to her drug using lifestyle during that time period.

Long-term Outcomes

The BASC Results

The information from the BASC was gathered in the following sequence: (a) At the interview with Stacy's mother, the SDH was used, and her mother completed the PRS. (b) The TRS was dropped off at the school when the researcher met with the principal to schedule the

observation date and time. (c) Two TRS protocols, completed by Stacy's second grade teacher and co-teacher, were collected on the day of scheduled observation when the SOS was used. However, Stacy was sick on that day and the observation was rescheduled. Information from the SDH along with additional observations are integrated throughout the case report.

Stacy was observed in her second grade general education language arts class. It was during this observation that the structured observation was conducted using the SOS. Additionally, Stacy was observed transitioning to the restroom and to the library. She was also observed for a portion of her library time. The total observation lasted for 75 minutes.

Although the observation information was triangulated and integrated throughout the appropriate sections of the case report, a few findings need to be highlighted. The structured observation occurred during language arts in which the students participated in hands-on, cooperative learning group activities. The co-teacher came in several times, prompting and praising children, including Stacy. It was during this activity period that Stacy was unable to remain still. As the interval proceeded, she became more and more overstimulated. She talked out during every interval of the SOS (100%), was unable to remain in her area, and touched other people or their materials 63% of

the time. She required direct requests to organize her working materials, and to stay on task (87% of the structured observation interval). Additionally, it was noted that Stacy dropped items on the floor 16 times in 12 minutes; this appeared to be accidental. She proceeded to get her peers off task which eventually escalated into a verbal peer confrontation. Ultimately, she was the only student in the class who did not finish the task. Stacy had taken her Ritalin for ADHD on the day of observation. The co-teacher, in the interview, verified this behavior to be typical of Stacy.

The F index on the PRS was a 5, which was found to be in the extreme caution range. An F score in this range may suggest that the parent's response set was extremely negative, therefore skewing the results, or it may indicate that the child exhibits extremely maladaptive behavior. Closer examination of the severely rated responses included items stating that Stacy "always argues with parent," "always complains of pain," and "always forgets things." Further analysis of information from the parent interview revealed consistent perceptions of her daughter's behavior. Furthermore, these behaviors are often apparent in extremes in children with severe ADHD. Therefore, the validity of the PRS, although interpreted with caution, does not appear to be severely threatened.

The F indexes on both protocols of the TRS were found

to be in the acceptable range. Therefore, the teachers were neither too positive nor too negative in their responses concerning Stacy's behavior.

There were no items omitted on the PRS or on either protocols of the TRS. The validity of the ratings did not require further investigation and was not compromised.

The results of the PRS are provided as Table 16. A t-score of 59 or below indicates the average range with exception of the adaptive scales (adaptability, leadership, and social skills) which requires a t-score of 41 or higher for the average range.

The externalizing problems composite, the internalizing problems composite, and the behavioral symptoms index fell in the clinically significant classification range. These composites signify that, according to her mother, Stacy exhibits extremely high levels of maladaptive behavior in these areas.

The adaptive skills composite was found to be in the average classification range. This indicates that Stacy exhibits social skills within the normal limits for children her age.

The hyperactivity, aggression, conduct problems, anxiety, depression, somatization, atypicality, withdrawal, and attention problems scales were all found to be in the clinically significant classification range. This conveys that Stacy demonstrates behavior of children with such

Table 16

T-Scores and Percentile Ranks for the BASC-PRSCase 5

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	88	99
Internalizing Problems	100	99
Behavioral Symptoms	98	99
Adaptive Skills	53	59

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	82	99
Aggression	80	99
Conduct Problems	87	99
Anxiety	73	98
Depression	84	99
Somatization	108	99
Atypicality	105	99
Withdrawal	76	98
Attention Problems	76	99
Adaptability	41	21
Social Skills	56	71
Leadership	60	85

diagnoses as ADHD, ODD and depression. According to her mother, Stacy is overactive, nervous, fearful, hostile, easily distracted, immature, unusual, unhappy, overly sensitive, and avoids social contact at home and in the community. The adaptability scale was in the at-risk classification range which suggests that Stacy may be developing problems in the area of adapting to changes in the environment that may require treatment and close monitoring.

The social skills scale and the leadership scale were found to be in the average classification range. This implies Stacy has the ability to get along well with others and have successful interactions. These were noted to be areas of strength for Stacy.

The internalizing problems composite was significantly different than the externalizing problems composite ($p < .05$). This difference indicates that Stacy's internalizing problems were reportedly worse than her externalizing problems.

The following critical items were marked on the PRS: threatens to hurt others, plays with fire, says "I want to kill myself," says "I'm afraid I'll hurt someone," uses medication, says "I wish I were dead," and sleeps with parent. Reynolds and Kamphaus (1992) indicated that these items deserve further attention. When analyzed more closely, it was revealed through document analysis that

Stacy takes medication for ADHD. Furthermore, the SDH revealed that she currently sleeps with her mother due to the space in their new living arrangement. The other items coupled with the high scores on the anxiety and depression scale could imply serious emotional concerns. This information was shared with the parent along with encouragement to seek counseling on behalf of Stacy.

The TRS results from Stacy's second grade teacher are provided as Table 17. All of the composite scores were found to be in the average classification range with the exception of the school problems composite. These scores imply that according to Stacy's teacher, she exhibits behavior within the normal limits for children her age. However, the school problems composite was found to be in the at-risk classification range signifying that, according to her teacher, Stacy may be developing some academic difficulties and attention concerns which may require treatment and should be closely monitored.

The aggression, conduct problems, anxiety, depression, somatization, atypicality, withdrawal, adaptability, social skills, leadership, and study skills scales all fell within the average classification range. This suggests that Stacy's behavior is not unlike that of her peers in these areas. The hyperactivity, attention problems, and learning problems scales were found in the at-risk classification range. This signifies that Stacy is having difficulty with

Table 17

T-Scores and Percentile Ranks for the BASC-TRSCase 5

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	59	84
Internalizing Problems	52	69
Behavioral Symptoms	58	81
Adaptive Skills	50	51
School Problems	65	91

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	67	93
Aggression	56	79
Conduct Problems	51	71
Anxiety	55	77
Depression	46	42
Somatization	55	77
Atypicality	52	73
Withdrawal	42	20
Attention Problems	62	86
Learning Problems	67	93
Adaptability	49	44

Table 17 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	65	92
Leadership	42	24
Study Skills	45	36

overactive behavior, distractibility, concentration, and has trouble understanding or completing schoolwork. The aggression, anxiety, somatization, and leadership scales were areas of relative weakness with t-scores within 4 points of the at-risk classification range.

The only critical item marked by Stacy's second grade teacher was that she uses medication. When further explored, the teacher indicated that she completed the scale according to Stacy's behavior since she started the Ritalin for ADHD. Stacy began taking medication less than a month prior to the time of study.

The results from the TRS rated by Stacy's special education co-teacher are provided as Table 18. The internalizing problems composite and the adaptive skills composite were found to be within the average classification range. The externalizing problems composite and the behavioral symptoms index fell into the at-risk classification range. According to Stacy's special education co-teacher, she exhibits adaptive behavior and internalized behavior commensurate to that of her peers; however, she has developing problem behavior in the areas of aggression, conduct problems, and overactivity which must be closely monitored. The school problems composite was one point from the at-risk classification range and may also need to be monitored.

The conduct problems, anxiety, depression,

Table 18

T-Scores and Percentile Ranks for the BASC-TRS (special)Case 5

<u>Composite/Index</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Externalizing Problems	65	91
Internalizing Problems	53	70
Behavioral Symptoms	59	80
Adaptive Skills	43	27
School Problems	59	80

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Hyperactivity	74	97
Aggression	62	87
Conduct Problems	55	81
Anxiety	48	56
Depression	54	73
Somatization	55	77
Atypicality	47	54
Withdrawal	42	20
Attention Problems	64	89
Learning Problems	53	67
Adaptability	41	19

Table 18 (Continued)

<u>Scale</u>	<u>T-Scores</u>	<u>Percentile Rank</u>
Social Skills	49	47
Leadership	45	36
Study Skills	40	20

somatization, learning problems, atypicality, withdrawal, adaptability, social skills, and leadership scales all fell within the average range. The aggression scale, attention problems scale, and study skills scale fell into the at-risk classification range, indicating that Stacy demonstrates behavior that is threatening to others. She is also easily distracted and lacks skills conducive to strong academic performance.

The hyperactivity scale was in the clinically significant classification range. This implies that Stacy has high levels of impulsive and overactive behavior often seen in children with ADHD. The only critical item marked by Stacy's special education co-teacher was that she used medication.

On the TRSs, one teacher rated externalizing problems as being significantly worse than internalizing problems ($p < .01$), while the other teacher rated school problems significantly worse than internalizing problems ($p < .01$). This suggests that both teachers agree that internalizing problems are not as much of a concern for Stacy as other types of behaviors.

When comparing the TRS profiles from both of Stacy's teachers, it was interesting to note how similar the ratings were by direction. For example, both teachers found hyperactivity and attention problems to be areas of concern with low rates of withdrawal and conduct type

behaviors. Both teachers rated the adaptive skills (adaptability, leadership, social skills and study skills) as areas of relative strength for Stacy.

There appears to be extreme differences in the ratings when comparing the PRS results to the TRS results. Almost every scale on the PRS indicated severe problem behavior. However, if the relative strengths and weaknesses across the PRS and TRS' are compared, there is agreement that hyperactivity and attention problems are areas of concern and adaptive skills is an area of strength for Stacy.

There are several possible reasons for the differences between the PRS and the TRSs. For instance, Reynolds and Kamphaus (1992) mentioned in the BASC manual that internalizing problems are often underrated and go unnoticed by teachers because they are not disruptive in nature. A second possibility is that the parent sees more extremes of behavior because of their relationship circumstances or due to the lack of structure in the home. For example, in the SDH, Stacy's mother commented that Stacy seemed to exhibit the worst behaviors at home with mother rather than with her friends or other caretakers. One further explanation may be that Stacy's behavior is not perceived as extreme when compared to several of her peers in class. As she was in a co-teaching situation, more than one-third of the students had learning and behavioral disabilities.

Achievement Pattern

Stacy attended preschool through her daycare program which was paid for by the Department of Social Services. Mother reported that the preschool teacher thought Stacy was smart, was a "motor mouth" and lacked attention skills. Also, she had difficulty learning to recite the alphabet.

Stacy attended the same school for kindergarten, first and second grade. According to records, Stacy made expected progress in all areas in kindergarten with the exception of writing. When writing, she needed additional time and assistance to achieve objectives. Also, her mother indicated in kindergarten records that Stacy made unrecognizable drawings and liked books, running, swimming, and music.

In first grade, Stacy achieved ratings of satisfactory in health, science, and social studies. She earned a B in math and a C in language arts.

Stacy had not been earning good grades in second grade according to her mother and teachers. It was noted that she needed improvement in reading, writing and science, but she earned a rating of satisfactory in math, social studies, art, music and PE during the first semester. The most recent progress report at the time of study indicated Stacy needed improvement in the areas of reading and writing, and that she had earned ratings of satisfactory in math, science, art, music, and PE. Comments from the

teacher included "provide additional practice at home," and "complete homework on time." The second grade teacher had reported that she did not receive homework from Stacy very often, but that this was getting better since she started taking the Ritalin.

There were no standardized test results in Stacy's file. Her special education co-teacher reported that Stacy was now a good reader and really worked hard at tasks; however, she was unable to finish them due to lack of organization, rushing through tasks, and making silly mistakes. He stated "she's too busy to get work completed" and further reported that she compensates with her smart capabilities.

Cognitive Pattern

There was no indication of any intelligence testing in Stacy's records. Her teachers and mother reported that she was a bright child who uses her skills to compensate for problem areas. The teachers further indicated that Stacy may have more difficulty in upper grades with higher level thinking skills because "she is currently missing out on a lot of content."

Motor Pattern

Gross motor skills appeared to be an area of strength for Stacy. She passed the general motor screening in kindergarten and the majority of her ratings in PE over the years were satisfactory. Her mother reported Stacy had no

difficulties learning to ride a bike or throw and catch balls. Also, mother stated that Stacy likes to do any physical activity outdoors.

Mother did report that Stacy was often clumsy. In addition, she indicated that Stacy rushes through her work, creating sloppy handwriting. This was confirmed by the teachers' comments and the comment "work neatly and carefully" on her progress reports. Furthermore, comments in her records indicated she needed additional time to write.

Language Pattern

Stacy passed the kindergarten speech and language screening, with no indications of language problems. However, she was reported to talk excessively and frequently interrupt others. Stacy was observed to speak clearly using complete phrases in class.

Social Pattern

Stacy reportedly was sexually abused as a child and was once pushed down the stairs with her mother by her biological father. She often exhibits excessive fear behaviors, and her mother stated that Stacy was afraid of abandonment. Stacy also lost a man she referred to as her father to death by shooting. She reportedly was uncomfortable when meeting new people and did not trust many people. She has had nightmares throughout her lifespan and cries easily and more often than other

children her age. Her teachers reported that she cried a lot at the beginning of her second grade school year. Her mother was also concerned that Stacy was promiscuous and demonstrated inappropriate sexual behaviors.

Stacy was described by her parent and teachers as an affectionate, well-meaning child. She has always demonstrated a good attitude at school and participated in activities. She reportedly likes to play with other children, but is bossy to them, fights with them often, and is verbally controlling. Her second grade teacher stated "she's always in their business" when relating to her peers. Her mother stated that when it comes to playing with others, "it's her way or the highway."

Stacy was also reported to be easily persuaded by her peers. She was known to be very tactile with them and use name calling when angry. She was also described to "crave hugs" and to push others as a way to handle problems. Stacy would manipulate others and get them off-task during work periods. Touching others, name calling and getting other students off task was also evident during the observation. Overall, her teachers reported that she was not good with her peers, and that her peers did not tolerate her well. In the neighborhood, Stacy has been known to hit other children when angry.

During the observation, Stacy was noted to approach and hug five adults, including the researcher whom she did

not know.

Behavioral Pattern

Stacy has exhibited impulsive and hyperactive behavioral characteristics since she was a toddler. According to records and her mother, she has been physically overactive, inattentive, and hurries to get things done. In kindergarten, she was noted to talk at inappropriate times and had difficulty observing school rules. In first grade, she needed to improve conduct and work habits. In second grade, she worked on talking at the appropriate time, keeping her hands to herself, and working slowly and neatly.

Although she was compliant to teacher requests, Stacy required frequent direct requests and very structured parameters. When not engaged, she played and fidgeted with items or drew. She has been reported by her teachers to draw when she becomes overstimulated.

Stacy was described as noncompliant by her mother. She was known to lie to get out of trouble, and reportedly, to see things "that aren't there." For example, when watching television with her mother one night, Stacy jumped up and screamed "Did you see that cat?" but nothing was there. Mother said this happened often and she wondered if Stacy was "hallucinating."

Stacy was further described by her teachers as compulsive and distractible. She tends to ask questions

somewhat related to the topic but not exactly relevant, and she would ask the same questions repeatedly. These behaviors were also noted during the observation.

Furthermore, it was noted during the observation that her work area was unorganized and disheveled. When she worked with manipulatives, they were scattered about, not in groups or rows. Her peers organized the manipulatives in rows and groups according to their similar characteristics.

Stacy was diagnosed with ADHD 3 weeks prior to the study. She was taking Ritalin during the observation, but still demonstrated severe behavioral symptoms. Her teachers reported that she was still very busy since she has started the Ritalin. Her mother noted, however, that she was able to watch a whole video for the first time since starting the medication.

Medical Factors

According to documents and interviews, Stacy has been in poor health since she was an infant. She has suffered chronic ear infections and bronchitis, sustained high fevers, and contracted pneumonia every year of her childhood. Her mother further reported that Stacy experienced reoccurring chicken pox on five separate occasions.

When Stacy was 4 years old, she had a physical for preschool. She passed this exam within normal limits;

however, she was taking medication for a bronchial infection at that time. At this time, it was noted that she was allergic to the antibiotics Ampicillan and Amoxicillan. It was also around this age that she reportedly had her tonsils and adenoids surgically removed. Her immunization record was up to date.

In the fall of her kindergarten year, Stacy had an additional school physical. She passed the motor screening and the hearing and language screening. She scored 20/40 acuity level in both eyes on the vision screening.

Additionally, Stacy was reported to frequently sustain urinary tract infections (UTI), develop skin rashes, and experience gastrointestinal (GI) problems such as constipation, excessive vomiting, diarrhea, and stomach cramps. Her mother, who was diagnosed with Irritable Bowel Syndrome, felt that Stacy inherited the GI condition from her. She further stated that Stacy has a birthmark on her chest that resembles a chemical burn, and that this birthmark was caused from the cocaine exposure in utero.

Stacy's school attendance record reflected her illness through excessive absences from school. In kindergarten, she was absent for 28 days. In first grade, she was absent for 34 days. In the 3rd quarter of second grade, at the time of the study, Stacy had already been absent for 24 days. Her teachers reported that she had been sick continuously for 5 months. She was observed to cough in

class, sniffle, speak with a raspy tone, and appeared pale in color.

Stacy had been recently diagnosed with ADHD and was taking Ritalin 20 mg time release in the mornings, and 5 mg at noon. She had also been recently diagnosed with asthma. At the time of the study, she was ill with a bronchial infection and was taking the following medications: C-flex, Albuterol, Ventolin (inhaler), and Ritalin.

Environmental Factors

Stacy has lived with her mother her entire life. They have moved twice since Stacy was born and at the time of the study were living in a house with a friend that Mother met at recovery meetings. Throughout the years, however, several male figures and children have come and gone. Also, her mother had never been in residential treatment or day treatment for substance abuse.

Stacy had two step-brothers from her mother's previous relationship, both of whom were ten or more years older than she. They lived with Stacy and her mother until Stacy was six. They still maintained frequent contact with Stacy at the time of the study.

Stacy's biological father lived with Stacy and her mother for almost a year when Stacy was an infant. He was in prison before she was born for charges related to drugs. Both parents were active drug users at the time. Her father, reportedly, was a violent man and physically abused

Stacy's mother. Additionally, both Stacy and her mother were pushed down the stairs by the father when Stacy was a year old. Shortly there after, Stacy and her mother moved out. Stacy never saw her biological father again.

When Stacy was around two years of age, her mother married another man. This man was referred to by Stacy as "Daddy" although he did not legally adopt her or have her last name changed. This man, too, was an active substance user. He had a 10 year old daughter of his own who came to live with Stacy, her mother, and her step-brothers. Reportedly, Stacy had a strong relationship with this man and was distraught when he was killed in a drug related shooting. Stacy was 5 years old at that time. The step-sister, who was reportedly "wild" and promiscuous, moved out when Stacy was 6 years of age.

Over the years, mother indicated that several other children came to live with them for short periods of time and that Stacy formed "sibling-like relationships" with all of them. Also, during the age range of three to five, Stacy was sexually abused. Mother was uncomfortable sharing any further information about that incident. She only added that Stacy was now very promiscuous because of that abuse.

At the time of the study, Stacy's mother had a boyfriend. He was not living with them, but Stacy reportedly was fond of this man.

Stacy was passively exposed to cocaine and other substances through breast feeding and through passive inhalation of marijuana and crack smoke. Mother stated that she breast fed Stacy until she was five years of age. She described that she would breast feed Stacy and inject cocaine into her own arm at the same time. She further stated that although Stacy would react by becoming very hyperactive and irritated or sick, she never made the connection between the cocaine and the behavior.

Stacy's mother had been in recovery for 20 months at the time of the study and had a full-time job working in shipping and receiving at a vehicle distribution center. She was recovering from gallbladder surgery, was being treated for a kidney infection, and had been diagnosed with Hepatitis C. She was attending weekly support group meetings and occasional workshops for substance abuse treatment. At the time of the study, she was seeking counseling for herself and for Stacy.

Intervention History

Agencies

The following agencies were involved with Stacy and her mother according to records review and interview: public schools, department of social services, community services board, community substance abuse prevention, and private physician. Stacy's mother had only been involved in the substance abuse agency for a month at the time of

the study.

Services and Interventions

The agencies specified above provided the following services to Stacy and her mother: educational and behavioral intervention, subsidized child care, food stamps, Aid to Dependent Children, Medicaid, case management, support groups for recovery, toxicologies, free HIV testing, transportation, referrals to other agencies, parenting information, emotional support, subsidized preschool educational program, and a substance abuse treatment plan. Additional services in counseling and health had been requested.

Although Stacy was not officially receiving special education services, she was benefiting from the co-teaching situation within her classroom. Her teachers were observed to make or reported making the following educational and behavioral interventions for her: direct requests, additional structure, preferential seating, cues, additional time to complete work, positive reinforcement systems, hands on learning activities, social skill development, guided problem solving, and ignoring minor misbehavior.

Summary of Suggested Patterns for Case 5

A summary of performance patterns for Stacy is provided in Table 19. The table denotes areas of concern as evidenced across each data source. Areas of concern on

Table 19

Performance Patterns Case 5

Performance area	Source of evidence					
	PRS	TRS	SOS	SDH	DA	AO
Achievement		X	X	X	X	O
Cognitive	X	X	O	O	O	X
Motor	X	X	X	X	X	X
Language	O	O	O	O	O	O
Social	X	X	X	X	X	X
Behavioral	X	X	X	X	X	X
Medical	X	O	X	X	X	X

Note. X = Evident as an area of concern. O = Not evident as an area of concern. The BASC components are PRS, TRS, SOS, and SDH. PRS = Parent Rating Scale. TRS = Teacher Rating Scale. SOS = Student Observation System. SDH = Structured Developmental History. DA = Document Analysis of agency records and school records. AO = Additional Observations.

the BASC components were indicated only if the area classified at-risk or clinical according to the guidelines in the manual. For document analysis, areas of concern were indicated if noted in more than one document. From additional observations, areas of concern reflect the judgment that behaviors were exhibited more often than expected for children that age.

Stacy was a 7 year old girl who demonstrated severe hyperactive, impulsive, and distractible behavior common among children with ADHD. She had been exhibiting such behaviors across her lifespan. These behaviors interfere with her school work and her relationships, and they place her at-risk for failure in school as she gets older.

She also presented as a child with serious illness throughout her life. She had many chronic ear and respiratory infections along with frequent GI problems and UTI. Although she was excessively absent from school, she had not fallen too far behind her peers. Her sickly condition coupled with ADHD cause her to learn coping skills. Stacy's ability to learn these is seen as a relative area of strength.

Stacy reportedly exhibits some unusual behaviors and strong fears. She has experienced a lot of trauma in her life including the loss of a loved one, sexual abuse and violence. She has some adaptive interpersonal skills but

also demonstrates maladaptive behaviors that interfere with her peer relationships.

Stacy has had some stability in her life with her mother as her primary caregiver; however, she experienced several caregivers in the male role. Furthermore, she was unable to delineate who her true siblings were. She was continually exposed to secondary cocaine ingestion and lived in a substance using and seeking environment for most of her young life.

Cross Case Analysis

The characteristics of the five cases studied can be reviewed through Table 20. The subjects consisted of three males and two females. The age span ranged from 6 years of age to almost 11 years of age. The grade span ranged from kindergarten to fifth grade. All of the children qualified for free lunch and four of the five cases were of white (Caucasian) ethnic background.

Several patterns emerged across the five cases studied. These patterns will be reviewed first through examination of the BASC results (Table 21). Secondly, the performance levels in the areas of achievement, cognitive development, motor skills, language skills, social skills, neurobehavioral skills, and medical concerns across cases will be discussed (Table 22). This section will then provide an analysis of patterns that emerged as contributing factors, indirect/direct

Table 20

Demographics

<u>Name</u>	<u>Age</u>	<u>Race</u>	<u>SES</u>	<u>Gender</u>	<u>Grade</u>
Jason	7-10	White	Free lunch	Male	2
Barney	10-11	White	Free lunch	Male	5
Steven	6-3	White	Free lunch	Male	KG
Ann	8-1	African- American	Free lunch	Female	1 and 2
Stacy	7-8	White	Free lunch	Female	2

effects of prenatal cocaine exposure, and environmental factors (Table 23). Finally, this section will conclude with a summary of the analysis of agencies and services involved across cases.

Table 21 was created to demonstrate patterns of agreement/disagreement on each BASC scale completed by the parent and the teacher. Examining the agreement between scales of the BASC provides for a more compelling argument about the at-risk or clinical findings in each case. If more than one teacher completed a rating scale, then agreement was indicated if present between the parent and at least one teacher. The learning problems scale and the study skills scales were not on the parent rating scale; therefore, the level of agreement presented for these scales was based solely on the teachers. If only one teacher rating was complete, that teacher's rating is presented.

Upon initial examination, it was apparent that the levels of agreement varied across scales and cases. The most agreement (80%) across cases occurred on the following scales: hyperactivity, aggression, somatization, learning problems, withdrawal, and social skills. This pattern may signify that overt behaviors of children are easier to observe, or that these scales were easier to rate on the children than such scales as depression (20% agreement) or atypicality (40% agreement).

Table 21

Cross Case Analysis of BASC PRS & TRS Agreement Results

Scale	Case 1	Case 2	Case 3	Case 4	Case 5
Hyperactivity	AVE	NA	ABN	ABN	ABN
Aggression	AVE	ABN	ABN	NA	ABN
Conduct					
problems	AVE	NA	NA	NA	NA
Anxiety	AVE	AVE	ABN	NA	NA
Depression	AVE	NA	NA	NA	NA
Somatization	AVE	AVE	AVE	AVE	NA
Attention					
problems	AVE	NA	NA	ABN	ABN
*Learning					
problems	AVE	AVE	AVE	ABN	NA
Atypicality	AVE	NA	AVE	NA	NA
Withdrawal	AVE	ABN	AVE	AVE	NA
Adaptability	NA	NA	ABN	ABN	NA
Social skills	AVE	ABN	NA	ABN	AVE
Leadership	NA	NA	AVE	ABN	AVE
*Study skills	AVE	NA	ABN	ABN	NA

Note. NA = No agreement. AVE = Average range. ABN = At-risk or clinical. *Scales not on PRS; reflect TRS or agreement of TRS if more than one was completed per case.

The somatization scale was the only scale to reflect the average range of functioning across most cases (80%). This result may indicate that school age children prenatally exposed to cocaine do not exhibit somatic complaints; or that parents and teachers are unfamiliar with or unaware of such behaviors.

The conduct problems scale, depression scale, and the atypicality scale reflected no at-risk or clinical agreement across cases. This lack of agreement may suggest that teachers and parents cannot agree on such severe symptoms or on internalizing symptoms, or it may be that these behaviors occurred in discrete settings and were therefore not indicated by both raters.

The hyperactivity and aggression scales received the most agreement of the at-risk or clinical range across cases (60%). This level of agreement may signify that children prenatally exposed to cocaine exhibit severe maladaptive behaviors in these areas, that the parent and teachers were more familiar with these types of behavior, or that these externalizing behaviors are seen more consistently in school, home, and community settings.

In summarizing the results of the BASC across cases, it was noted that there was agreement that most cases were within the average range on the somatization scale. Additionally, there was agreement that most

cases were in the at-risk or clinical range on the hyperactivity and aggression scales. For the remaining scales, there was less consistency in the ratings by teachers and parents.

Table 22 presents a qualitative interpretation of the performance patterns exhibited in the past and present for each case studied. These ratings of judgment were derived from the triangulated data collected on each case. A performance area was rated as an area of concern if three or four sources of evidence existed from triangulation of the data. A performance area was rated as an area of severe concern if five or six sources of evidence existed from triangulation of the data. This table, in part, integrates the summary performance pattern tables from each case report.

When examining these results across the five cases, the first pattern to emerge was that all of the areas of concern were evident in all cases. This pattern confirms the categories of outcome areas from the literature review on the risks of prenatal exposure to cocaine.

The next pattern to emerge from analyzing Table 22 consists of the areas of average or above average performance across cases. In the achievement pattern area, 60% of the cases were achieving in the average or above average range. This indicates that, in the parameters of

Table 22

Cross Case Analysis-Performance Patterns

	Past Level					Present Level				
	Case Number:					Case Number:				
Performance area	1	2	3	4	5	1	2	3	4	5
Achievement	2	3	2	3	2	2	2	2	4	3
Cognitive	2	2	1	3	2	2	1	1	4	3
Motor	3	3	2	3	3	3	3	3	4	4
Language	2	2	2	3	2	2	2	2	3	2
Social	3	4	4	2	3	3	3	4	3	4
Behavioral	3	4	4	4	4	3	4	4	4	4
Medical	2	3	3	3	4	2	3	3	3	4

Note. 1 = Area of strength. 2 = Average area. 3 = Area of concern. 4 = Area of severe concern.

this study, more than half of elementary school age children of prenatal cocaine exposure can achieve to satisfactory levels in school.

In the cognitive pattern area, 80% of the cases were found to function in the average or above average range. Furthermore, it appears that the early childhood years are more reflective of cognitive success, and that critical thinking skills and problem solving became more of a concern later on in school. This finding was indicated by the increased number of sources supporting these skills as area of concern as the children progressed through school.

The language pattern area also indicated average functioning across 80% of the cases. This results suggests that the elementary school age children in this study did not experience difficulties in this area as suggested in the literature review.

As noted in Table 22, the motor and social areas represent areas of concern to severe concern across cases. Further examination reveals that, for three of the five cases, these patterns intensified with age with additional data sources supporting these skills as areas of concern over time. These patterns are not surprising, as expectations for motor skills and social skills increase as children enter and progress through school. These areas may require monitoring or special

attention for children in this study and others prenatally exposed to cocaine.

The medical area was a pattern of concern to severe concern for most of the cases, and the behavioral area was found to be an area of severe concern across cases. This suggests that for these children, and for other children of prenatal cocaine exposure, the behavioral and medical concerns require treatment or intervention and may interfere with school and future success.

In summarizing performance patterns across cases, it generally appears that achievement, cognitive, and language skills were in the average or above average range. Motor skills, medical concerns, and social skills were found to be areas of concern that sometimes worsen with age, while the behavioral area was found to be of severe concern for these children.

Table 23 highlights factors investigated in the study as contributing factors prior to or at time of conception, indirect and direct effects of cocaine, and environmental factors present since birth. This table indicates whether these factors or conditions were evident through data collected.

When examining Table 23, the first pattern to be noted is the absence of low birthweight. Four of the five children were not low birthweight. Normal birthweight was linked to average cognitive functioning

Table 23

Contributing Factors, Indirect/Direct Effects &
Environmental Factors

Factors	Case 1	Case 2	Case 3	Case 4	Case 5
Inconsistent					
prenatal care	X	X	X	X	X
Emotional stress	X	X	X	X	X
Significant					
family history	X	X	X	X	X
Polydrug use	X	X	X	X	X
Birth					
complications	X	X	X	X	X
Prematurity	X	O	X	X	O
Low birthweight	O	O	O	X	O
Difficulty					
bonding	X	O	X	X	X
Several					
caregivers	X	X	X	X	O
Passive exposure	X	X	X	X	X
Violence or					
trauma	O	X	X	X	X
Extended family					
siblings	X	X	X	X	X
Recovering parent	X	X	X	X	X

Table 23 (Continued)

Factors	Case 1	Case 2	Case 3	Case 4	Case 5
Homelessness	O	X	X	X	O
Frequent moves	X	X	X	X	O

Note. O = Not evident. X = Evident.

in the literature review; average cognitive functioning was evident in the same four of five cases studied.

Additionally, a pattern is evident in the fact that three of the five children were premature and that three of the five children were homeless at least one time in their lives. This may indicate that, although prematurity and homelessness were evident in more than half of the children of prenatal cocaine exposure, they were not as prominent as several of the other contributing or environmental factors.

Difficulty bonding, multiple caregivers, episodes of violence or trauma, and frequent moves were factors evident in four of the five cases. This may suggest that more often than not, these environmental factors are evident in children of prenatal cocaine exposure and confirms this indication from the literature review.

The most pronounced patterns from analyzing Table 23 are that 100% of the cases evidenced inconsistent prenatal care; maternal emotional stress at the time of pregnancy; significant family histories of drug use, illness, abuse and/or disabilities; polydrug use in addition to the cocaine; birth complications such as bleeding, premature labor, or induced labor; passive exposure to substances through inhalation of smoke or breast feeding; extended family sibling relationships; and a parent in recovery at the time of the study.

This result suggests that school age children of prenatal cocaine exposure experience many adverse conditions beyond the intrauterine exposure.

Further examination of the cases reveals that four of the five children lived in drug using environments for approximately 75% of their lives. Jason (Case 1), lived in a drug using environment for only the first year of his life. It should be noted that the impact on Jason's performance patterns appeared to be less severe. The ramifications of years of living in such chaotic environments must be considered when interpreting effects of cocaine on school performance of children of prenatal exposure.

The major findings from Table 23 are summarized as follows: (a) 100% of the cases experienced contributing factors in addition to prenatal exposure including inconsistent prenatal care, emotional stress of the mother, significant family history for illness and substance abuse, and polydrug use. (b) Related to the indirect and direct exposure to cocaine in utero, 20% of the cases were low birthweight, 60% of the cases were premature, 80% exhibited unorganized behavioral states as evidenced through difficulty bonding with their mothers, and 100% suffered complications at birth. (c) Common environmental factors were noted as 60% of the cases were homeless at least once in their lifetime;

80% experienced multiple caregivers, frequent moves, and violence or trauma; and 100% of the cases were passively exposed to drugs, had extended family sibling relationships, and had a parent in recovery. The cumulative and interactive effects of these environmental factors may seriously impact the educational performance and success of these children.

A cross case examination of the intervention history indicates that several agencies were involved with these children and their parents. The agencies ranged in number from five to nine, with an average of approximately seven agencies involved per case. This confirms findings from the literature review concerning the complicated needs of this population and the importance of an interagency approach.

The services provided to the children and their parents included supports in the areas of finances, mental health, vocation or education, and parenting. No particular pattern seemed to emerge except that each array of services appeared tailored to the individual needs of each parent, with less emphasis on the needs of the child.

Child-centered behavioral and educational interventions varied greatly. The interventions ranged from instructional accommodations to behavior management techniques. One common intervention was increased amounts

of structure. Only one child had a Section 504 accommodations plan and only one other child was being considered for special education at the time of the study. This supports the assumption that children of prenatal cocaine exposure are currently being educated within the general education setting. The extent to which these children are functioning successfully in that setting depended upon each situation.

CHAPTER 5

FINDINGS AND RECOMMENDATIONS

Introduction

This study was designed to address the lack of research surrounding school age children of prenatal cocaine exposure, and the combination of factors placing them at-risk for educational failure which may hinder their personal success in society. The research questions guided the investigation of the educational and social development of this population through a case study approach complemented by quantitative measures. The analysis of the data provided rich information about each case and revealed several patterns across the cases. This chapter includes a summary of those findings, a discussion of limitations to the study, and recommendations for practice and further research in this area.

Summary of Findings

As reported in the existing literature, infants and

toddlers of intrauterine cocaine exposure exhibited a variety of outcomes on a continuum of subtle to severe effects; and they did not, in general, qualify for special education services (Griffith, 1993; Poulsen, 1994). Furthermore, the children studied required unique types of intervention and attention (Gittler & McPherson, 1992). The present study focused on an older sample of children of prenatal cocaine exposure. This study of school age children not only concurred with earlier findings but clearly indicated that the children did require specialized attention and exhibited long-term outcomes ranging from subtle to severe. In fact, it was clarified through this study that the children did not qualify for special education, as evidenced by their high levels of cognitive functioning and the nature of the long-term effects. For example, four of the five cases studied exhibited average achievement or above. Often times, the children's achievement patterns over time were affected by their neurobehavioral deficits, such as their attention deficits, rather than their cognitive ability.

Furthermore, the interventions that were provided to the children in this study were unique in their approach or were from less traditional sources, such as general education teachers, psychologists, psychiatrists, and therapists. For example, in most cases a multi-faceted approach was taken to include educational accommodations

(such as preferential seating) and behavioral strategies from the general education teacher (as opposed to a specialist). Also, several children were taking medication and were in or were seeking therapy. The multiple approach is similar to an ecological approach often used with children with emotional and behavioral disabilities (Kauffman, 1995).

Another issue evident in the existing research on children prenatally exposed to cocaine was that samples had been chosen from clinical or low socioeconomic settings or from special education populations; therefore, the infants and toddlers studied had predetermined problems. The current study, however, selected the school age children of prenatal cocaine exposure from a substance abuse agency designed to assist mothers and their families in recovery. These children were not chosen because they already exhibited problems but were volunteered through their parent in recovery, conveying a broader perspective of this population from a less biased viewpoint. Although the study was intended to include families from a cross-section of socioeconomic levels, the actual subjects were from families with low incomes. The low SES level of the sample in this study confirmed what previous researchers have noted concerning the difficulties accessing the true population of cocaine affected children. Further research must continue to take this factor into account.

Contributing Factors

There were several factors mentioned in the literature that may contribute to a complicated pregnancy and predispose children to problems. It was interesting that the current study found inconsistent prenatal care, high levels of maternal emotional stress, significant family histories, and polydrug use evident in all five cases. This finding not only confirms the importance of this area for researching this population, but also underscores the need for concerted prevention efforts in the area of substance abuse with pregnant women.

Direct/Indirect Effects

Prematurity, low birthweight, small head circumference, encephalocele, lipoma, failure to thrive, strokes, and small size for gestational age were several of the effects of prenatal cocaine exposure on infants documented in the literature. It was difficult to ascertain some of these effects in the present study as there was limited access to medical records. None of the cases studied had a neurological examination at the time of birth which eliminated knowledge of head circumference, lipoma, encephalocele, stroke at birth, or size at gestational age. Parents were unaware of most of these indicators except for prematurity and low birthweight. All of the cases experienced some form of complications at birth, however, and three of the children were premature.

In this study, only one case was low birthweight which contradicts this indicator in the literature.

The research on effects of intrauterine cocaine exposure to the infant further highlighted several neurobehavioral indicators such as tremors, hyper- and hypotonicity, and difficulty organizing behavioral state. The findings in the present study confirmed this pattern. This information could be useful to infant intervention programs and confirms the parent's need for assistance with bonding at this stage of the child's development.

This study found an additional concern not directly mentioned in the literature review that builds on the evidence of neurobehavioral deficits in infants mentioned by Griffith (1993, 1994). All of the children in this study exhibited some level of self-stimulatory or calming behavior often seen with children with autistic-like tendencies. This behavior may be linked to the teratogenic effects of cocaine on the developing nervous system of the fetus and was evident in a recent study by Davis (1993). Parents and teachers alike would benefit from understanding the connection between prenatal exposure to cocaine and these types of behaviors.

Environmental Factors

Environmental factors were generally noted in the concluding sections of existing studies as important components to include in future research with children of

prenatal cocaine exposure. The present study did examine the environmental factors reported in the literature and found them to further magnify the at-risk potential of the children. This study also revealed environmental factors to be significant to the children's educational performance. For example, most or all of the cases in this study: (a) had several primary caregivers, (b) experienced passive exposure to drugs, (c) had extended family relationships, (d) were homeless at some point in their lives, (e) had a parent within two years of starting recovery, and (f) had moved several times. Additionally, 80% of the cases studied experienced violent acts against themselves or others. This confirms the estimates in recent research of exposure to violence for this population (40 to 60%, Bays, 1992; Hawley, 1993). Any one of the above factors is considered to be stress inducing; the combination of these factors appears overwhelming. The children's behavioral and social difficulties may result from the interactive and cumulative effects of these adverse environmental conditions.

Additionally, this study found that four of the five mothers of these children thought or knew that they had Hepatitis C. This is a serious, chronic illness with a dim prognosis which only adds to the stress in the family. This is not a factor which has yet been addressed in other research in this area.

These findings not only confirm the necessity of the consideration of environmental influence on the performance of these children, but they also point to an area of need that must be addressed for these children to be successful in their future.

Social and Learning Performance Pattern

The cognitive and achievement patterns provided in the existing literature indicate lower cognitive abilities and mental retardation in children of prenatal cocaine exposure. This study did not find this to be true in the five cases examined. Some of the children did demonstrate difficulties with higher level thinking skills as indicated by their teachers' and parents' concerns with their problem solving difficulties, but their achievement problems were more likely attributed to their behavioral concerns. Only one child presented with characteristics of learning disabilities. This implies that the expectations for these children to achieve poorly in elementary school may be unwarranted and should be considered carefully in future research.

The motor pattern of the children studied in the existing research suggested that children of intrauterine drug exposure may exhibit coordination problems, or more severe problems such as tremors and cerebral palsy. The present study found the motor area to be of concern for the children and all of them were affected in the area of

handwriting to some degree. Although these findings do not reflect the severity indicated in the literature, they are important to the educational success of the children. Accommodations and access to computers would benefit these children in school.

The language pattern of the children studied in the existing research reflected that infants and toddlers of prenatal cocaine exposure had speech and language deficits. This pattern is the greatest area of discrepancy between the existing research and the current study. None of the subjects were receiving any speech or language services, nor did they have any indicators of speech deficits. For only one case was language an area of concern. This signifies that language of school age children of prenatal cocaine exposure is an area that needs further research.

Throughout the research literature, the social skills of children of intrauterine cocaine exposure are described to include mood swings, inappropriate play skills and preferences to play alone. This study's findings indicated that the children did manifest mood swings and great difficulties with peer interactions. Although this study did not confirm that children of this population prefer to play alone, it did indicate that they lacked the skills necessary to be successful with others. Furthermore, many cases indicated internalizing types of behaviors that warrant intervention such as withdrawal, sadness, and

excessive anxiety which were not indicated in the existing literature. This carries implications for practice as suggested below.

As predicted in the literature, the school age children of prenatal cocaine exposure had the most severe problems in their behavioral patterns. Consistent with the research on the effects of cocaine to the central nervous system, all of the cases in the present study indicated symptoms of ADHD to some extent. Additional concerns were that the medication did not help sufficiently with the ADHD behaviors and adults reported difficulties identifying the triggers to the behaviors. The children were also found to be inflexible and unorganized and to engage in some unusual sensory responses as suggested in the previous research. The present study's findings in this area confirm what many educators around the nation are voicing--these children need behavioral assistance and often times, do not get it (Griffith, 1993; Poulsen, 1994).

Further in child development literature, the children's neurodevelopmental states were characterized by deficiencies in attention span, organizational strategies, emotional expression, quality of play, visual perceptual processing, and interpersonal relations (Knight & Waterman, 1992; Schutter & Brinker, 1992; Sumner et al., 1993). Again, the present study confirmed these deficiencies and found that they are influencing the children's educational

performance at different levels as evidenced throughout the data collected.

Findings of the present study compare favorably to the findings of Sumner and his colleagues (1993). Seventy-three percent of the group of young children of prenatal cocaine exposure in Sumner's psychiatric study were treated for Oppositional Defiant Disorder, affective disorders, and post traumatic stress disorder. The findings from the BASC and records review in the present study clearly signify similar conditions in several cases. This finding warrants future attention for this population.

Additional concerns were noted in the medical area for children of prenatal cocaine exposure reported in the existing literature that included seizure disorders, respiratory problems, heart conditions and genitourinary tract conditions. In this study, medical factors were significant for these children and, in some cases, were interfering with their school success by hampering their attendance, attention, and stamina. This implies another domain of need that is not typically addressed in school. If these medical factors persist, these children are likely to qualify for special educational services under the Other Health Impaired criteria.

Although not all of the children in the present study were failing academically in school, all of them were experiencing failure in some aspect of their lives. To

some degree, they were all at-risk for more serious problems in the future.

Intervention History

The present study examined the number of agencies, services and intervention strategies provided to each case. It is interesting to note that the child who appeared most subtly affected in this study was the one receiving services from the most agencies. Jason (Case 1) and his mother had also been with the agency the longest. This may be a positive indicator of the potential success of early intervention and interagency coordination.

All of the students were receiving interventions to some degree. At a minimum, they required behavior management and additional structure to function in school. It was noted through respondents and records review that none of the children were achieving up to potential due to lack of intervention in one of the following areas: therapy, medication intervention, family counseling, parental training and education, social skills, behavior management, or educational accommodations. This deficiency too has implications for practice. Only one child was receiving intervention through a Section 504 plan. This is a reasonable alternative for children of prenatal cocaine exposure and could be obtained through the ADHD diagnosis.

Limitations

Before discussing the implications of the findings for

practice or future research, it is essential to note the limitations of the study so as to interpret these results with the appropriate amount of caution.

This study involved a highly interpretive process. At every step, the researcher was questioning her own perspective. It would have been beneficial to have had another researcher to shadow the cases and validate or provide further insight into the data collected. Peer debriefing helped clarify the process of the study but not the content. Therefore, the results have a very contextual basis and are not without subjectivity.

Additionally, each case could have been studied in greater depth. A follow-up interview with the parent to probe further indicators from records or observations would have helped clarify and validate the information gathered. Also, opportunities to interview several more people involved in the child's life (such as day care providers, past teachers, siblings, therapists, other caregivers) and to observe each child in several more settings would have greatly enriched the study. Ultimately, the final interview in this type of study should be with the children to gain their perspective of their own social and learning performance.

Another limitation of this study was that the researcher did not have access to complete medical records from hospitals or from current pediatricians. This access

would have been difficult to achieve; however, it would have provided additional pieces to each child's complicated puzzle.

Recommendations For Practice

This study offers several implications for the fields of general and special education. The most prominent implication for the field of education is the urgent need to increase awareness of the effects of cocaine on the school performance of children prenatally exposed. An understanding of the characteristics and needs of this population is a prerequisite for administrators and teachers to address the needs adequately.

The second implication for the field of education is the need for collaboration to meet the unique needs of school age children of prenatal cocaine exposure. These children are coming to school and may or may not be identified as children of prenatal drug exposure or as children with neurodevelopmental and social deficits. Educators and other caregivers would benefit from learning to recognize signs and symptoms related to neurodevelopmental deficits. These children respond atypically to traditional interventions which can cause frustration for professionals and parents alike. For example, these children often respond positively to a reduction of stimulation. Most children with developmental delays respond positively to an increase in stimulation.

General education teachers would benefit in this case from consultation with special education teachers and other related service specialists. Opportunities for classroom teachers to co-teach with a specialist may be ideal. New avenues need to be developed in order for this to occur, since most of the children cannot access these services directly through special education. Perhaps a building level consultant to work with all children at-risk would be an alternative approach to meeting the needs of the drug exposed population.

Additionally, there are further implications for interagency collaboration, with the school as a lead agency, in serving the vast array of needs presented by this population. The parents require assistance in behavior management, homework and study strategies, and communication skills. The families need emotional support and counseling. The children need medical support and mental health support in order to be receptive to their educational and behavioral programs. For these different services to have the most positive impact, they must be integrated into a cohesive intervention system.

Recommendations For Future Research

Implications for further research are most evident in the need for more studies on school age children of prenatal cocaine exposure. This study was one of the first examinations of this population's performance in school.

Additional case study approaches would help validate the patterns of performance found in the present study. It would also be beneficial to conduct longitudinal research with children of prenatal cocaine exposure and examine specific interventions and outcomes. Valuable information could be ascertained for parents, educators, and agencies involved in supporting these children.

Furthermore, research with the toddler-aged children of prenatal cocaine exposure should continue to be emphasized. This research should be connected to implementation plans for entering school and maintaining success for this population.

Another focus for further research that stems from the findings of this study is the concept of violence. Previous research indicated that children of prenatal cocaine exposure may experience more violence due to the effects of cocaine on the behavior of the substance abuser (Besharov, 1989; Fink, 1992; Krutilla, 1993). This study found that four of the five children either experienced or witnessed episodes of violence at some point in their lives. The confounding factor of violence makes it difficult to distinguish its effects from the effects of prenatal exposure to cocaine, particularly when performance concerns center on social and behavioral areas. An examination focusing on violence, low SES, and school performance may shed light on specific areas of emotional

need and intervention for substance affected and other at-risk children.

Additional research that could provide rich information about this population for the field of education could be done by examining the following: the performance of siblings of prenatal cocaine exposure; the outcomes of children exposed to cocaine compared to their nonexposed, school age counterparts within the same SES; and the performance of children of intrauterine cocaine exposure whose parent is not in recovery compared to the children in this study. Also, a research question focusing on the correlation between the difficulty children of intrauterine exposure have with bonding as infants to the deficits in social skills later in life would be informative.

Finally, research is needed within schools to identify intervention strategies most effective with this population of children. How effective is general education in handling the behavioral and social/emotional concerns of this population? Do teachers require more training in these areas? Do the children of this population eventually qualify for special education? If so, under what handicapping conditions? How many 504 plans are implemented for the children of this population? Do the children grow up to become substance abusers themselves? What are the perspectives of systems change that will

directly impact this population of students and other students at-risk for failure? How will the progress of interagency collaboration affect the educational and social success of this population? How will the service needs of these children change over time?

Summary

This study examined the social and learning performance patterns of school age children of prenatal cocaine exposure. A case study approach complimented by a quantitative measure, the BASC, was used. Individual descriptive case reports were provided along with a cross case analysis of the patterns that emerged in relationship to the areas of concern identified through the literature review.

Findings indicated that the children of this study displayed variable outcomes on a continuum from subtle to severe. All of the children studied displayed serious difficulties within the behavioral and social areas. Additionally, significant environmental factors were evident for all of the cases studied.

Implications for practice included the provision of training and support for educators, collaboration between general and special education, and intervention for the children through accommodations and behavior management. Interagency collaboration was further suggested. Additional research is needed to confirm the findings of

this study, provide for additional descriptive information regarding this population, and validate educational practices to help school age children of prenatal cocaine exposure be successful in school and in society.

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Appendix A

(Letter to parent for participation/permission)

Dear Parent or Guardian,

This is an invitation for you to participate in a study that will help us to develop better programs for children. With your permission, you and your child will be able to provide a valuable contribution to understanding the many different educational and social needs children may exhibit. This information, which will be collected by reviewing your child's records, observing your child in school, getting feedback from your child's teacher(s), and speaking with you will help us to learn how to be more responsive to those needs. You will also be asked to complete a 10-20 minute checklist.

There is no pressure to participate. Everything will be kept strictly confidential. Although there are no risks to you or the child, you may experience some discomfort when sharing topics related to substance abuse. You may stop participation or terminate your involvement in this project at any time without penalty.

If you are interested in participating, please complete the attached form and return it to me in the envelope provided. If you would like additional information, please feel free to call me at 548-1633.

Thank you for your time.

Sincerely,

Susan Larson Wallace, Doctoral Candidate
 The College of William and Mary

By signing this form, my child, _____, and I agree to participate in the study described above; and I acknowledge that I have been informed of the procedures as indicated above.

 Signature of Parent/Guardian

Date

Please print.

Your name: _____

Child's full name: _____

Date of Birth: _____

Address: _____

Telephone number: _____

Name of school the child is currently attending: _____

Convenient times for you to be contacted by me:

____ Monday through Friday

____ On the weekend

____ Mornings

____ Evenings

____ Anytime or specifically only _____

*A copy of this form will be provided for your records. Thank you for your participation!

Appendix B

Data Collection in Record Review

<u>Outcome</u>	<u>Type of Data</u>
1. Standardized test results to include group measures, IQ tests, achievement tests, language tests, and dates of the testing.	standard scores, ranges, percentiles, age or grade equivalents
2. Behavioral incidents to include anecdotal information, or intervention resulting from incident; may include discipline referrals and conduct notices.	frequency, content analysis, setting, behavior, dates, consequence, persons involved
3. Other referrals for behavior, social/emotional incidents or requests for assistance, screening, counseling and testing to include child study team referrals and minutes and teacher assistance team records;	frequency, content analysis, person and/or agencies, dates
4. Indicators of school history such as attendance records, schools attended and grades in each content area over the years.	frequency, dates, letter grades, number of schools, nominal data

Data Collection in Record Review Continued

<u>Outcome</u>	<u>Type of Data</u>
5. Medical factors including drug exposure confirmation, chronic illnesses, medical crisis, diagnoses, medications, and prenatal care history.	content analysis, nominal information, dates
6. Other agency involvement to include name of agency, purpose, duration of involvement.	content analysis, duration recording dates
7. Special education if applicable to include review of IEP's, eligibility minutes and summaries, and any other data related to a disability and its affects educationally.	content analysis, amount of service, placement, dates, categorical information, anecdotal information
8. General information about each case such as date of birth, place of birth, current guardian, addresses throughout child's history, other guardians if applicable, sex of student, living arrangements, number and age of siblings.	Demographic information, content analysis, nominal data

Appendix C
Building Principal Acknowledgment

Dear Principal,

In completing my study, it is necessary to do the following within your building:

- a. Request a teacher rating scale on the subject (two teachers if applicable)
- b. Observe the subject in class at least once
- c. Review the records on the subject

Please sign below in acknowledgment of the parent's written permission to do the above, the school system's permission to conduct research, and the confidential nature of the study.

Principal's Signature

Date

Thank you!

Susan Larson Wallace, Doctoral Candidate

The College of William and Mary

Vita

Susan Larson Wallace

Birthdate: May 10, 1964

Birthplace: San Jose, California

Education:

1992-1996 The College of William and Mary
Williamsburg, Virginia
Doctor of Education

1989-1992 The College of William and Mary
Williamsburg, Virginia
Education Specialist

1987-1988 Hampton University
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1982-1987 St. Leo College
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